



Alarm Requirements for Existing Apartments and Condominiums

Ken Carlson, Fire Marshal

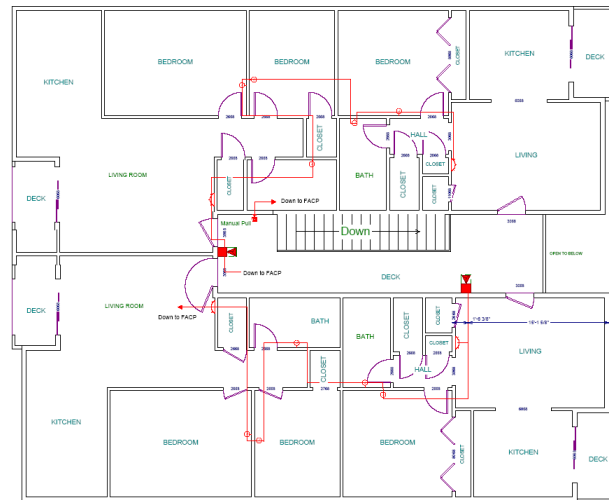
Travis Ripley, Assistant Fire Marshal – Plan Review

Doug Fox, Building Inspection Services Manager

Bob Lloyd, Electrical Inspection Supervisor

Agenda

- Single Station Smoke Detectors
- Carbon Monoxide Detectors
- Fire Alarm System



2ND FLOOR PLAN
2024.01.01



Symbol Legend

- Control Panel/Smoke Detector
- Pull Station
- Smoke Detector
- Smoke Detector (WIRELESS)



Single Station Smoke Detectors

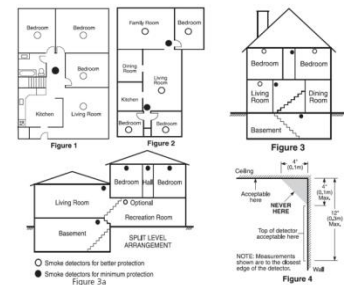
Already required:

- Each bedroom/sleeping room
- Areas providing access to bedrooms/sleeping rooms
- All levels of the unit



Note: There are areas where detectors should not be installed....check installation instructions.

- Battery power ok if no construction involved
- No permit is required to install battery operated detectors
- Tenant is required to maintain detectors



Example
only, check
your
installation
instructions

LOCATIONS TO AVOID FOR SMOKE ALARMS

For best performance, **AVOID** installing Smoke Alarms in these areas:

- Where combustion particles are produced. Combustion particles form when something burns. Areas to avoid include poorly ventilated kitchens, garages, and furnace rooms. Keep units at least 20 feet (6 meters) from the sources of combustion particles (stove, furnace, water heater, space heater) if possible. In areas where a 20-foot (6 meter) distance is not possible – in modular, mobile, or smaller homes, for example – it is recommended the Smoke Alarm be placed as far from these fuel-burning sources as possible. The placement recommendations are intended to keep these Alarms at a reasonable distance from a fuel-burning source, and thus reduce “unwanted” alarms. Unwanted alarms can occur if a Smoke Alarm is placed directly next to a fuel-burning source. Ventilate these areas as much as possible.
- In air streams near kitchens. Air currents can draw cooking smoke into the sensing chamber of a Smoke Alarm near the kitchen.
- In very damp, humid or steamy areas, or directly near bathrooms with showers. Keep units at least 10 feet (3 meters) away from showers, saunas, dishwashers, etc.
- Where the temperatures are regularly below 40°F (4° C) or above 100° F (38° C) including unheated buildings, outdoor rooms, porches, or unfinished attics or basements.
- In very dusty, dirty, or greasy areas. Do not install a Smoke Alarm directly over the stove or range. Clean a laundry room unit frequently to keep it free of dust or lint.
- Near fresh air vents, ceiling fans, or in very drafty areas. Drafts can blow smoke away from the unit, preventing it from reaching sensing chamber.
- In insect infested areas. Insects can clog openings to the sensing chamber and cause unwanted alarms.
- Less than 12 inches (305 mm) away from fluorescent lights. Electrical “noise” can interfere with the sensor.
- In “dead air” spaces. “Dead air” spaces may prevent smoke from reaching the Smoke Alarm.



AVOIDING DEAD AIR SPACES

“Dead air” spaces may prevent smoke from reaching the Smoke Alarm. To avoid dead air spaces, follow the installation recommendations below.

On ceilings, install Smoke Alarms as close to the center of the ceiling as possible. If this is not possible, install the Smoke Alarm at least 4 inches (102 mm) from the wall or corner.

For wall mounting (if allowed by building codes), the top edge of Smoke Alarms should be placed between 4 inches (102 mm) and 12 inches (305 mm) from the wall/ceiling line, below typical “dead air” spaces.

On a peaked, gabled, or cathedral ceiling, install the first Smoke Alarm within 3 feet (0.9 meters) of the peak of the ceiling, measured horizontally. Additional Smoke Alarms may be required depending on the length, angle, etc. of the ceiling’s slope. Refer to NFPA 72 for details on requirements for sloped or peaked ceilings.

Carbon Monoxide Detectors

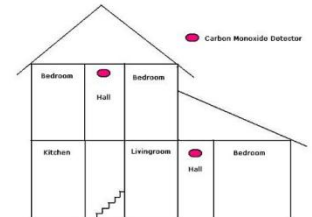


Required 1/1/2013:

- Areas providing access to bedrooms/sleeping rooms
- All levels of the unit

Note: There are areas where detectors should not be installed....check installation instructions.

- Combination smoke/CO detectors are acceptable
- Battery power or plug in ok if no construction involved
- No permit needed to install battery or plug in detectors
- Tenant is required to maintain detectors



Example
only, check
your
installation
instructions

Where NOT To Install Your Kidde CO Alarm

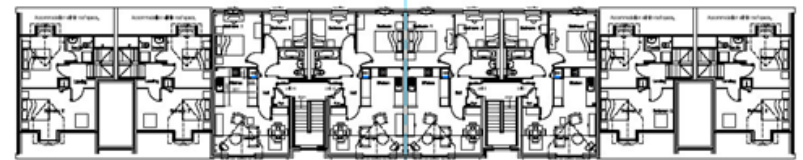
- Do not install in dead air spaces such as peaks of vaulted ceilings, or gabled roofs.
- Do not install in turbulent air from ceiling fans. Do not place near fresh air vents or close to doors and windows that open to the outside.
- Keep the CO alarm away from excessively dusty, dirty, or greasy areas such as kitchens, garages and furnace rooms. Dust, grease and household chemicals can affect the sensor.
- Keep out of damp and humid areas such as the bathroom. Avoid spraying aerosols near the CO alarm.
- Do not install in areas where the temperature is below 40 degrees Fahrenheit (4.4° Celsius) or hotter than 100 degrees Fahrenheit (37.8° Celsius) during use. This unit can be stored to -10 degrees Fahrenheit without harm to the alarm but it must be above 40 degrees Fahrenheit for use.
- Do not place behind curtains or furniture. CO must be able to reach the sensor for the unit to accurately detect CO.
- DO NOT locate Alarm within 5 feet (1.5 meters) of any cooking appliance.
- Be aware that certain conditions can result in transient CO situations, such as: i) Excessive spillage or reverse venting of fuel-burning appliances caused by: 1) outdoor ambient conditions, such as wind direction and/or velocity, including high gusts or wind and insufficient draft in vent pipes; 2) negative pressure differential resulting from the use of exhaust fans; 3) simultaneous operation of several fuel-burning appliances competing for limited internal air; 4) loose vent pipe connections from fuel-fired appliances; 5) obstructions, or unconventional vent pipe designs which can amplify the above situations; 6) poorly designed and maintained chimneys and/or vents; ii) extended operation of unvented fuel-burning devices (range, oven, fireplace, etc.); iii) temperature inversions which can trap exhaust near the ground; and iv) car idling in an open or closed attached garage, or near a home.



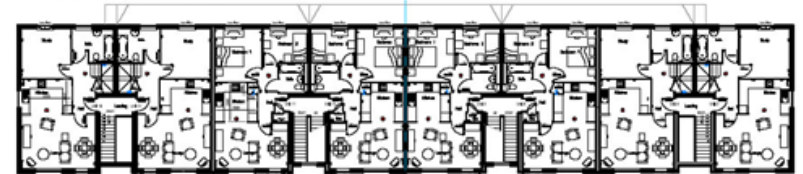
Fire Alarm Systems

Required since 7/1/2004 for certain buildings:

- More than 3 stories in height or
- More than 16 units



SECOND FLOOR PLANS

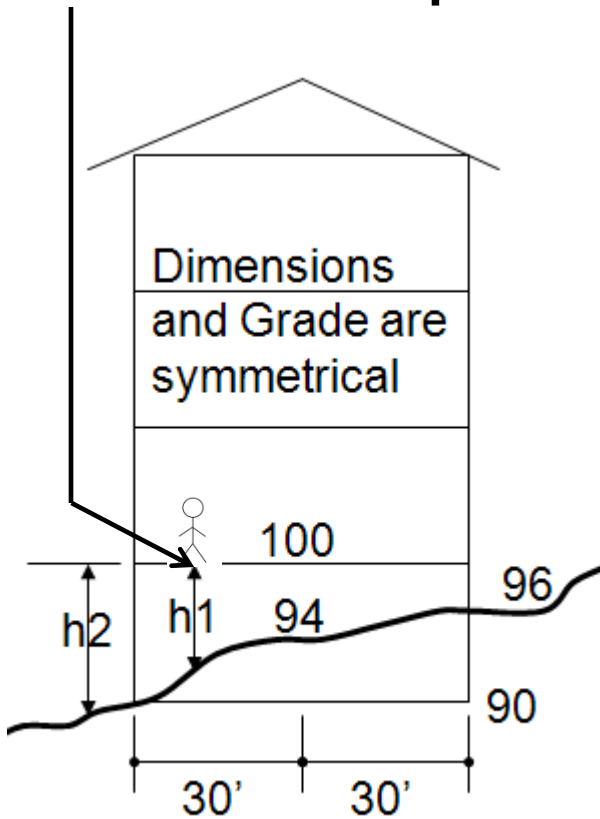


FIRST FLOOR PLANS



Determining the # of Stories

Reference point



$h_1 \leq 6$ ft for 50% \rightarrow Basement

$h_2 < 12$ ft \rightarrow Basement

$h_3 = 100 - \text{Average Grade Plane}$

$$(30)(92)(2) + (30)(95)(2) + (60)(96) + (60)(90) = 22380$$

Average Grade Plane = $22380/240 = 93.3$

$h_3 = 100 - 93.3 = 6.7' > 6' \rightarrow$ Story

There are some exceptions:

The building already has an existing, previously approved fire alarm system.

Permit Details MyBuildingPermit.com
a service of eCityGov.net

[Close](#)

Activities | **Inspections** | **Fees**

A Free TIFF viewer can be downloaded at [AlternaTIFF](#) to view Inspections.

INFORMATION ON PERMIT 10-129039 FA

Permit Status: Closed (status def...)

People Data: (click for...)

Site Address: 422... apartments

Application Date: Nov... w/ 178 devices.

Parcel Number: 02278...

Activities

First Review-Fire		
City Staff: Travis Ripley-(425) 452-6042	Status: Rev Requested	Date: Dec 20, 2010
Notes: Spoke with contractor about design changes consistent with R-2 occupancy.		
Rev. 1 Review-Fire		
City Staff: Travis Ripley-(425) 452-6042	Status: Approved	Date: Jan 21, 2011
Notes: We have examined the fire alarm drawings for Andrews Glen Apartments. The submitted drawings are approved as noted.		

- Please see attached formal interpretation on the pull station that is required.
- The minimum sound pressure levels shall be: 75 dBA in occupancies in Groups R and I-1; 90 dBA in mechanical equipment rooms; and 60 dBA in other occupancies.(IFC 907.6.2.1.1)
- The maximum sound pressure level for audible alarm notification appliances shall be 110 dBA at the minimum hearing distance from the audible appliance.(IFC 907.6.2.1.2)
- A set of reproducible as-built installation drawings, operation and maintenance manuals, and a written sequence of operation shall be provided to the building owner or the owner's designated representative. (NFPA 72 -10.6.1.1)
- All wiring and testing shall conform to the requirements of NFPA 72.
- Fire Alarm Signage shall be in accordance with BFDDS section 8.09

Using any equipment without approval is at the contractor's risk. Should you have any questions please call me at 425-452-6042 (email: triplej@Bellevuewa.gov).

Exception #1

Each unit has its own independent exit and is separated from other units by fire barriers



Exception #2

- Building is equipped throughout with fire sprinkler system and is equipped with a local alarm to notify all occupants



Exception #3

- Building is equipped throughout with a fire sprinkler system and has no interior corridors



CONSTRUCTION REQUIREMENTS FOR EXISTING BUILDINGS

GENERAL



4601.1 Scope. The provisions of this chapter shall apply to existing buildings constructed prior to the adoption of this code.

4601.2 Intent. The intent of this chapter is to provide a minimum degree of fire and life safety to *persons* occupying existing buildings by providing for *alterations* to such buildings that do not comply with the minimum requirements of the *International Building Code*.

Why?

- This retroactive requirement is one of many in the fire code for existing buildings intended to provide a minimum degree of fire and life safety to persons occupying them
- Buildings targeted by this requirement comprise the oldest housing stock in Bellevue affording the residents with the least level of fire safety
- If there is a fire in these buildings, there is no timely way to notify all of the occupants putting everyone in the building at substantial risk

U.S. Apartment Fires: 1980 - 2009



Table 1B.
Reported Apartment Structure Fires
by Year: 1980-2009

Year	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Millions)	
				As Reported	In 2009 Dollars
1980	143,500	1,025	3,600	\$401	\$1,046
1981	137,000	970	4,250	\$415	\$978
1982	116,500	860	4,700	\$353	\$784
1983	102,000	845	4,300	\$413	\$889
1984	99,500	785	3,650	\$417	\$860
1985	104,500	865	3,925	\$476	\$948
1986	97,500	650	3,925	\$472	\$925
1987	103,500	790	4,765	\$521	\$984
1988	106,000	830	4,950	\$548	\$995
1989	96,000	790	5,050	\$541	\$937
1990	95,500	680	4,975	\$623	\$1,024
1991	101,500	595	5,675	\$609	\$959
1992	101,000	545	5,825	\$597	\$913
1993	100,000	685	6,300	\$653	\$970
1994	97,000	640	5,475	\$678	\$982
1995	94,000	605	5,200	\$649	\$914
1996	93,000	565	5,175	\$748	\$1,024
1997	93,000	660	5,000	\$718	\$960
1998	86,500	445	5,000	\$631	\$831
1999	88,500	520	4,500	\$842	\$1,084
2000	84,500	500	4,400	\$886	\$1,105
2001	88,000	460	3,800	\$864	\$1,048
2002	88,500	390	3,700	\$926	\$1,105
2003	91,500	410	3,650	\$897	\$1,047
2004	94,000	510	3,200	\$885	\$1,007
2005	94,000	460	3,000	\$948	\$1,042
2006	91,500	425	3,700	\$896	\$954
2007	98,500	515	3,950	\$1,164	\$1,204
2008	95,500	390	3,975	\$1,351	\$1,348
2009	90,000	465	3,350	\$1,225	\$1,225

Source: *Fire Loss in the United States* series of NFPA annual reports by Michael J. Karter, Jr. Inflation adjustments were based on the Consumer Price Index Purchasing Power of the Dollar.

Notable Multi-Family Fires in Bellevue

March 1, 2008 – 157 Unit apartment building constructed in 1969. Discarded smoking materials were most probable cause. Damage was estimated at \$400,000



April 25, 2012 – 20 unit apartment building constructed in 1968. Unattended cooking was the cause of the fire. Damage was estimated at \$200,000





January 26, 2009 12 unit condominium constructed in 1981. Combustible materials too close to a heat source in the attic area, converted to storage space without permits. Damage was estimated to be \$160,000



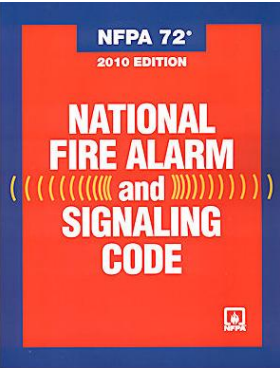
February 20, 2009 36 unit condominium constructed in 1969. Heating pad failure extended to the chair and resulted in a fatality. Damage was estimated to be \$20,000.



October 4, 2012. 6 unit condominium building constructed in 1967. Occupant forgot to turn off the burner after deep frying meat on the stovetop. Damage was estimated to be \$175,000



February 23, 2009. Apartment building constructed in 1984. A candle left unattended on a desktop ignited combustible materials nearby. Damage was estimated to be \$200,000.



Fire Alarm Systems (manual or automatic) – General Requirements

- Design and installation requirements in accordance with NFPA 72 (2010 edition)
- Audible throughout:
 - 15 decibels (dBA) above the average ambient sound level
 - Minimum 70 dBA (75 dBA in sleeping areas).
 - Maximum of 120 dBA at any “hearing distance”
- Visual notification in all public and common areas (exit balconies, hallways, meeting rooms, etc.)
 - Note: dwelling and sleeping units shall have the capability of supporting strobes.**
- Panel must be located in a accessible/heated location with room clearly marked
- Annual maintenance and inspection is required



Selecting a Contractor

Washington State Department of Labor & Industries

Home | en Español | Contact

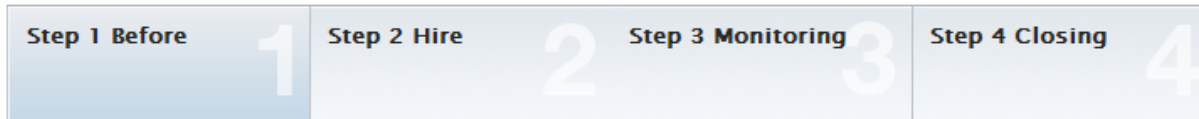
Search L&I

[A-Z Index](#) | [Help](#) | [My Secure L&I](#)

[Safety](#) | [Claims & Insurance](#) | [Workplace Rights](#) | [Trades & Licensing](#)

Basics for Homeowners: Guide to Hiring a Contractor

 [Contact Us](#)



Before Hiring a Contractor

Make sure you:

[Plan your project.](#)

[Interview contractors.](#)

[Check that contractor is registered.](#)

[Verify workers' comp coverage.](#)

[Check contractor using other resources.](#)

[Ask for references and check them.](#)

[Get a disclosure statement.](#)

[Learn about permits.](#)

[Check for warning signs of a scam.](#)



Contractors

Hiring a Contractor

- [Basics for Homeowners](#)
- [Look Up: Contractors or Tradespeople](#)
- [Lookup Violators](#)
- [About Verifying Workers' Comp Coverage](#)
- [Is Your Subcontractor Really an Employee?](#)

[Report Unregistered Contractors](#)

[Registering as a Contractor](#)


[Submit Insurance Online](#)

[Training & Workshops](#)

[Contractor Forms & Publications](#)

Look Up Contractors or Tradespeople

Use this form to look up a business or individual to be sure they've met all legal requirements for operating in Washington before hiring them.

This site uses "hover over" functionality. Placing your mouse over an info button  will result in further information being displayed relative to the item selected.

Search for a Contractor

Please choose **one** item below to begin your search:

Name (enter the first characters of the name)

City and/or County

License (number or type) 

UBI Number 

[SEARCH](#)

[Get more search options >](#) [Lookup Violators >](#)

Contractors obtaining fire alarm permits in Bellevue - 2011

ABSCO ALARMS INC	19023 36TH AVE W #E	LYNNWOOD, WA	98036	(425) 771-1166
ADT SECURITY SERVICES INC	11824 NORTH CREEK CREEK PKWY N #105	BOTHELL, WA	98011	(206) 719-0347
ALARM CENTER INC	PO BOX 3407	LACEY, WA	98509	(360) 491-6320
ALARMTECH INC	PO BOX 186	MOUNTLAKE TERRACE, WA	98043	(425) 775-4208
ALEXANDER GOW FIRE EQUIP CO	1436 NW 53rd Street	SEATTLE, WA	98107	(206) 632-2810
ALL WIRE ELECTRIC INC	3034 SW CHARLESTOWN ST	SEATTLE, WA	98126	(206) 935-6100
BARRIER FIRE & SECURITY LLC	17607 84TH AVE NE	ARLINGTON, WA	98223	(425) 244-1445
BEAVER FIRE AND SECURITY	621 SR 9 NE PMB- B18	LAKE STEVENS, WA	98258	(206) 963-1162
C & R ELECTRIC INC	919 SW 150TH ST #A	BURIEN, WA	98166	(206) 937-3654
CASCADE ALARM LLC	PO BOX 7459	KENT, WA	98042	(206) 767-5800
CHUBB FIRE & SECURITY (CA) INC AKA Red hawk	21312 30TH DR SE STE 103	BOTHELL, WA	98021	(425) 486-2600
COCHRAN INC	PO BOX 33524	SEATTLE, WA	98133	(206) 367-1900
CONVERGINT TECHNOLOGIES LLC	450 SHATTUCK AVE S STE 100	RENTON, WA	98057	(425) 272-2250
COSCO FIRE PROTECTION INC	15000 Woodinville-Redmond Rd N	Suite B800	98072	(425) 686-6300
ELECTRICAL TECHNOLOGY LLC	PO BOX 13889	MILL CREEK, WA	98082	(206) 931-3128
EVERGREEN POWER SYSTEMS INC	3623 E MARGINAL WAY S	SEATTLE	98134	(206) 774-1400
EVERGREEN SECURITY INC	8115 BROADWAY STE 101	EVERETT	98203	(425) 348-3850
FIRE CHIEF EQUIPMENT CO INC	PO BOX 659	REDMOND	98073	(425) 641-2127
Fire Com NW Inc	7815 East Side Drive NE	TACOMA	98422	(206) 234-5700
FIRE ONE INC	107 WASHINGTON BLVD	ALGONA	98001	(206) 575-0311
FIRE PROTECTION INC	PO BOX 12642	MILL CREEK	98082	(425) 290-9600
FIRE SYSTEMS WEST INC	206 FRONTAGE RD N Suite C	PACIFIC	98047	(253) 833-1248
GUARDIAN SECURITY SYSTEMS INC	1743 1ST AVE S	SEATTLE	98134	(206) 622-6545
H & M ELECTRIC INC	PO BOX 799	MARYSVILLE	98270	(360) 658-0501
JOHNSON ELECTRIC INC	11816 NE 116TH ST	KIRKLAND	98034	(425) 821-8226
KIRBY ELECTRIC INC	4826 B ST NW STE 101	AUBURN	98001	(253) 859-2000
LOW VOLTAGE SECURITIES INC	21805 116TH ST CT E	BONNEY LAKE	98391	(253) 315-1439
LYNSEN ELECTRONICS CORP	P. O. Box 9537	SEATTLE	98109	(206) 364-1998
MERIDIAN SECURITY & ELECTRIC	PO BOX 8772	KENT	98042	(253) 638-1792
MERRITT ELECTRIC CORP	526 2ND AVE S	KENT	98032	(253) 850-2436
NELSON ELECTRIC INC	9620 STONE AVE N STE 201	SEATTLE	98103	(206) 523-4525
NORTH STAR ELECTRIC INC	1905 S JACKSON ST	SEATTLE	98144	(206) 329-1596
NW ELECTRIC SERVICES INC	32419 3RD AVE SW	FEDERAL WAY	98023	(253) 561-5861
OLSEN ELECTRIC INC	718 GRIFFIN AVE #215	ENUMCLAW, WA	98022	(253) 561-9146
PRAIRIE ELECTRIC INC	6000 NE 88TH ST	VANCOUVER	98665	(360) 573-2750
PRECISION ELECTRIC GROUP INC	15323 NE 90th St	REDMOND	98052	(425) 823-8600
PRIDE ELECTRIC INC	18133 NE 68TH ST D120	REDMOND	98052	(425) 454-3665
PRIME ELECTRIC INC	13301 SE 26TH ST	BELLEVUE	98005	(425) 747-5200
PRO TECH ELECTRIC INC	PO BOX 12755	EVERETT	98206	(206) 931-4173
PROTECTION & COMMUNICATNS INC	19630 40TH AVE W	LYNNWOOD	98036	(425) 774-9099
S M P ELECTRICAL SERVICES LLC	16915 SE 272ND STREET, Suite 100 Bldg 180	KENT	98042	(253) 656-5065
SAFETY TEAM INC, THE	670 S LUCILE ST	SEATTLE	98108	(206) 762-1450
SCOTT'S ELECTRIC SERVICE, LLC	23811 SR 2	MONROE	98272	(206) 898-6308
SEAHURST ELECTRIC INC	2915 CHESTNUT ST	EVERETT	98201	(425) 258-1882
SEATRONICS INC	PO BOX 1138	AUBURN	98071	(253) 939-6060
SIMPLEXGRINNELL LP	9520 10TH AVE S #100	SEATTLE	98108	(206) 291-1400
SMITH FIRE SYSTEMS MGMT LLC	1106 54TH AVE E	TACOMA	98424	(253) 926-1880
STATESIDE POWER INC	10636 NE 123RD ST	KIRKLAND	98034	(604) 526-5688
TITAN ELECTRIC INC	900 N 34TH STE 108	SEATTLE	98103	(206) 633-2811
TYCO INTEGRATED SECURITY LLC	11824 N CREEK PKWY, STE 105	BOTHELL	98011	(561) 988-3646
ULTIMATE SECURITY & SOUND INC	7710 53RD ST CT W	UNIVERSITY PLACE	98467	(253) 564-3333
WASHINGTON ALARM INC	1253 S JACKSON ST	SEATTLE	98144	(206) 328-1800
WELL GROUNDED ELECTRIC LLC	15026 Old Manor Way	LYNNWOOD	98087	(206) 512-8001
WESTERN STATES FIRE PRTCTN CO	14690 NE 95TH ST STE 101	REDMOND	98052	(425) 881-0100
WESTFIRE COASTAL INC	22651 83RD AVE S	KENT	98032	(206) 381-3090



Welcome to MyBuildingPermit.com



MyBuildingPermit.com is an easy-to-use permitting portal that makes it possible to apply for, pay for, and receive electrical, low voltage, mechanical, plumbing, and re-roof permits from each of the participating jurisdictions. This is one-stop government service at its best.

Plan Review Permits

For information on the plan review process and functionality specific to plan review applications, please visit our [Help Page](#).

For More Information Select a Permit Packet

Permit packets provide you essential information about how to apply online, cancel a permit, request a refund, and research permit requirements.

- [Electrical Permit Packet](#)
- [Mechanical Permit Packet](#)
- [Plumbing Permit Packet](#)
- [Low Voltage Electrical Permit Packet](#)
- [Building Re-Roof Packet](#)

Permit Fast Facts

- [Participating Jurisdictions](#)
- [What permits can be applied for online](#)
- [Why permits are important](#)
- [Construction Tip Sheets](#)
- [Inspection Checklists](#)
- [Interpretations and guidelines](#)

News

[Washington Cities Electrical Code has been adopted by 11 Cities.](#)

[2009 Special Inspections Manual](#)

Training & Seminars

[2011 National Electric Code \(NEC\) Update](#)

[Commercial Kitchens Seminar](#)

Events

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

Click on the calendar to view events.

Important Service Message

Routine maintenance is performed on Wednesdays between 7PM and 9PM. You may experience interruptions of service during this time.

Quick Links

- [Apply for Permit >](#)
- [Check Permit Status >](#)
- [Request an Inspection >](#)
- [Research Permits >](#)
- [Customer Login >](#)
- [Government Login >](#)
- [Help >](#)



Sign Up For Our Newsletter

email address

SUBMIT





What you need to do:



- Install single station smoke detectors and carbon monoxide detectors
- If you disagree that your building(s) meet the criteria for a fire alarm system, let us know
- If there is no disagreement, then get bids from licensed fire alarm contractors – we recommend you get 3 bids
- File permit application to do the work
- Complete the work
- Obtain all required inspections





What you can expect from us

- Answer any questions you have and offer assistance where we can, some examples:
 - Evacuation drills, safety surveys or fire extinguisher training
 - Smoke detectors for the deaf and hard of hearing
- In 2013 we will issue a “notice of violation” for buildings meeting the criteria that do not have smoke detectors, carbon monoxide detectors and fire alarm systems
- In 2014 we will verify that progress has been made (e.g. permits filed, work progressing, inspections completed) – if not we will move to code enforcement
- In 2015 we will verify the work has been completed and final inspections performed – if not we will move to code enforcement



Contact Information



Ken Carlson, Fire Marshal

425.452.6874

kcarlson@bellevuewa.gov

Travis Ripley, Assistant Fire Marshal – Plan Review

425.452.6042

tripleyp@bellevuewa.gov

Kathy Barker, Public Education Coordinator

425.452.7881

kbarker@bellevuewa.gov

Doug Fox, Building Inspection Services Manager

425.452.4447

dfox@bellevuewa.gov

Bob Lloyd, Electrical Inspection Supervisor

425.452.7911

blloyd@bellevuewa.gov

Questions?

