

**VILLAGE OF PEMBERTON
-COMMITTEE OF THE WHOLE MEETING AGENDA-**

Agenda for the **Committee of the Whole** of Council of the Village of Pemberton to be held Tuesday, August 14, 2007 at 10:00 a.m. in Council Office, 7400 Prospect Street.

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THAT pursuant to Section 90(1) () of the Community Charter, the Council of the Village of Pemberton serves notice to hold an In-Camera Meeting on today’s date for the purpose of dealing with matters of which the public shall be excluded from attending.

11.TERMINATION



REPORT TO COUNCIL

Date: August 14, 2007
From: Ben Hansler, Fire Prevention Officer
Subject: Fire Sprinkler Systems

Received by Council _____
Meeting No. _____
Date _____

BACKGROUND AND COMMENTS

The Village of Pemberton has had a Fire Sprinkler Bylaw since 1997. The purpose of this bylaw is to improve life safety in multi use properties. There is some discussion about changing and/or providing certain exemptions to this bylaw.

DISCUSSION

The National Fire Protection Association is the leading authority on fire safety in the world. Here are a few statistics regarding sprinkler use from the NFPA:

- 1) When Sprinklers are present, the chance of dying in a fire are reduced by 50 to 75 percent and the average property loss per fire is cut by 33 to 66 percent, compared to fires where sprinklers are not present.
- 2) Sprinklers typically reduce the chances of dying in a home fire by 50 to a75 percent in any kind of property where they are used. Together with smoke alarms, sprinklers cut the risk of dying in a home fire 82 percent, relative to having neither. 80 percent of all fire deaths occur in homes.
- 3) NFPA has no record of a fire killing more than two people in a completely sprinklered public assembly, educational, institutional or residential building where the system was working properly.

The Office of the Fire Commissioner of BC states that on average, 35 people in BC die every year by fire or fire related injuries. In all the fires, less than 1 percent have sprinkler protection. There is no record of anyone dying in BC when the building is sprinklered.

There are more communities in BC and around the country enacting fire sprinkler bylaws every year. The majority of these are for all buildings other than single-family homes. While some communities are choosing to require sprinklers in all buildings. This provides better protection to the citizens of these communities by reducing the risk of death and lowering the chances of fires spreading from building to building.

There have been two major fires in BC recently where the fires have engulfed and destroyed areas of whole city blocks. These fires occurred in commercial areas of Fort

St. John and Penticton. By having sprinklers installed in all commercial buildings, the risk of this type of damage is reduced by up to 66 percent.

As the Village of Pemberton grows in size, sprinkler systems will become even more valuable. With response times increasing when traveling to properties on the outer edge of the fire district, the sprinkler systems extinguish and/or control the fires, thereby reducing the risk of catastrophic losses.

Attached are several fire sprinkler bylaws from other communities in BC as well as some statistics of sprinklered fires in different occupancies from the National Fire Protection Association. I have also provided a list of projects from around BC that have had sprinklers installed and the cost of these installations.

RECOMMENDATIONS

That the fire sprinkler bylaw be left as is for the time being and that all buildings that are currently asking to be exempted be required to have sprinklers installed immediately.

That council considers making sprinkler systems mandatory in all buildings, including single-family homes, in the near future.

Ben Hansler
Fire Prevention Officer

Approved for Council Agenda

Lori Pilon
Administrator

CORPORATION OF THE DISTRICT OF MAPLE RIDGE

BY-LAW NO. 6184 - 2003

A Bylaw to provide for the installation of Fire Sprinkler Systems in buildings within the municipality.

WHEREAS the Council of the Corporation of the District of Maple Ridge desires to make the District as safe as possible for all residents;

AND WHEREAS the District of Maple Ridge is a large geographical area with unique demography and topography and fire suppression capabilities;

AND WHEREAS the installation of Approved Fire Sprinkler Systems have over time shown to be effective in protecting life and property in residential, commercial, industrial, and institutional occupancies;

AND WHEREAS the Local Government Act allows for the regulation of the construction, alteration, repair, and demolition of buildings and structures

AND WHEREAS the Council of the Corporation of the District of Maple Ridge wishes to provide certain exemptions from the requirements of this bylaw, including for persons who have completed, or who are in the process of completing, single family residential subdivisions.

NOW THEREFORE, the Municipal Council of the Corporation of the District of Maple Ridge, in open meeting assembled, **ENACTS AS FOLLOWS**:

1. This By-law may be cited as "Maple Ridge Sprinkler By-law No. 6184-2003".
2. In this Bylaw,
 - a) Accessory Use, One Family Residential Use, Two Family Residential Use, and Building have the same meaning as in Maple Ridge Zoning Bylaw No. 3510-1985 as amended;
 - b) Approved Fire Sprinkler System means a fire sprinkler system that meets the applicable National Fire Protection Association (NFPA) standard 13, 13R or 13D for each specific occupancy.
 - c) Temporary Building has the same meaning as in Maple Ridge Building Bylaw No. 5452 - 1996.
3. Subject to Section 2, words in this Bylaw that are defined in the British Columbia Building Code have the same meaning as in the British Columbia Building Code.

BY-LAW NO. 6184-2003
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4. The installation of an Approved Fire Sprinkler System is required as a part of the construction of all new buildings within the municipality.
5. The installation of an Approved Fire Sprinkler System, to service the entire building, is required as a part of the construction of an addition or renovation to any building in the municipality where the value of the work indicated on the building permit application exceeds 50% of the market value which the building has on the date of the building permit application. For the purposes of this section the value of the building on the date of the building permit application is deemed to be the value as shown on the most recent assessment, by the British Columbia Assessment Authority, where such an assessment is available. This section does not apply to seismic upgrading of school buildings by School District 42.
6. Section 4 of this Bylaw does not apply to any building in respect of which a complete application for a building permit is submitted to the District of Maple Ridge before December 31, 2003.
7. Section 4 of this Bylaw does not apply to a building used or intended to be used for one family residential use or two family residential use if both of the following apply:
 - (a) the building is to be constructed on a parcel that was created by subdivision before December 31, 2003 or in respect of which a complete application for subdivision to create that parcel is submitted to the District of Maple Ridge before December 31, 2003, and
 - (b) the building is one in respect of which a complete application for a building permit is submitted to the District of Maple Ridge on or before December 31, 2004.
8. If section 6 or 7, or both, of this Bylaw are invalid, they are severable from this Bylaw. For greater certainty, if section 6 or 7, or both, of this Bylaw are invalid and the Council had known of that invalidity at the time this Bylaw was enacted, it would have enacted this Bylaw without the section or sections that are invalid.
9. The following buildings shall be exempt from the requirements of this Bylaw unless they contain a dwelling unit:
 - a) Accessory Buildings in all residential zones
 - b) In all other zones, Accessory Buildings that do not exceed 400 m² in building area or do not exceed 50% of the building area of the principal building, which ever is less.

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- c) Temporary Buildings
- d) Farm Buildings located in an agricultural zone which conform to and are maintained in accordance with the National Farm Building Code, the British Columbia Building Code and that are classified as having low human occupancy loads.

10. This Bylaw comes into force on the 31st day of December 2003.

READ a first time the _____ day of _____, 2003

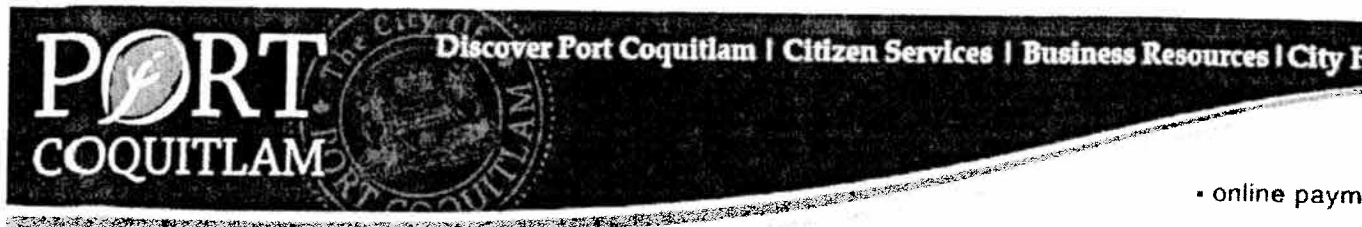
READ a second time the _____ day of _____, 2003

READ a third time the _____ day of _____, 2003

ADOPTED the _____ day of _____, 2003

MAYOR

CLERK



> Home Page > City Hall > City Departments > Fire / Rescue > Bylaws, Permits and Regulations > Automatic Sprinkler Systems

Automatic Sprinkler Systems

In accordance with City Bylaw No. 3425 - Building and Plumbing, all new residential building upgrades are required to install an automatic sprinkler system.

Automatic sprinkler systems supply water to a network of individual sprinklers, each protect below them. These sprinklers open automatically in response to heat, and spray water on a or keep it from spreading. Contrary to popular belief, only those sprinklers near the fire oper water.

Sprinklers Save Lives

The National Fire Protection Association (NFPA) estimates that the risk of surviving a fire in to two thirds in public buildings and private homes equipped with sprinkler systems. Because systems act so early in the course of a fire, they reduce both the heat and flames and the ar produced in a fire.

Dispelling Myths About Automatic Sprinklers

Despite the proven effectiveness of automatic sprinkler systems in slowing the spread of fire, loss of life and property damage, many people resist the idea of home sprinkler systems because of widespread misconceptions about their operation:

Myth #1: The water damage from sprinklers is worse than a fire.

A sprinkler will control a fire with a tiny fraction of the water used by fire department hoses, and it acts so much earlier. Automatic systems spray water only in the immediate area of the fire, preventing the fire from spreading, thus avoiding widespread water damage.

Myth #2: Sprinklers go off accidentally, causing unnecessary water damage.

Accidental water damage caused by automatic sprinkler systems is relatively rare. One stuck sprinkler accidents are generally less likely and less severe than mishaps involving standard fire alarm systems.

Myth #3: Sprinklers are unattractive.

Sprinklers don't have to be unattractive. Pipes can be hidden behind ceilings or walls, and heads can be inconspicuously-mounted almost flush with walls or ceilings. Some sprinklers can even be painted to match the wall.

Sprinkler Installation

Commercial or residential automatic sprinkler systems should be installed by a qualified contractor who adheres to NFPA codes and standards and/or with local fire safety regulations.

For more information on City requirements for automatic sprinkler systems, please contact:

Building Division, Development Services Department

Tel 604.927.5444

Fax 604.927.5404

Email building@portcoquitlam.ca

Location and Mailing Address

2nd Floor, City Hall, 2580 Shaughnessy Street
Port Coquitlam BC V3C 2A8

Business Hours

8:30 am to 4:30 pm, Monday to Friday (excluding statutory holidays)

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2580 Shaughnessy St. Port Coquitlam, BC V3C 2A8 Tel: 604.927.54

SPRINKLER SUCCESSES

**One-Stop Data Shop
Fire Analysis and Research Division
National Fire Protection Association**



**National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471
www.nfpa.org**

APARTMENTS

Sprinkler extinguishes apartment building fire – New Jersey

A heat detector activated a single sprinkler and alerted the fire department and the occupants of a six-story apartment building to a fire in the structure's boiler and trash compactor room.

The apartment building, which was 116 feet (35 meters) long and 65 feet (19 meters) wide, was of fire-resistive construction. It contained 35 units and was occupied at the time of the fire. There were smoke and heat detectors in the common area, hallways, laundry rooms, recycling rooms, and boiler room. A wet-pipe sprinkler system provided limited coverage to the trash chute.

Before the fire began, several dumpsters had been removed from the compactor room, and trash apparently fell out during the transfer, coming to rest near the two boilers. Radiant heat from the boilers ignited the trash, which burned until the sprinkler extinguished the fire.

Firefighters who responded to the 10:43 a.m. call opened the doors, which was sufficient to ventilate the room, and shut the sprinkler off once they confirmed the fire was out. The building, valued at \$1.5 million, sustained a \$2,000 loss; the contents, valued at an estimated \$500,000, were not damaged. There were no injuries.

Kenneth J. Tremblay. 2005. Firewatch. *NFPA Journal*, March/April, 22, 24.

Sprinkler extinguishes apartment fire - New Hampshire

A residential sprinkler system extinguished an early-morning fire in an apartment building, allowing occupants, who had been awakened by the building's fire detection system, to escape uninjured as smoke filled their first-floor apartment. A fire department officer later noted "at least one occupant had to pass the fire in order to egress from the apartment and was only able to do so because of the sprinkler activation."

The four-story building had brick exterior walls and a wooden roof with an asphalt covering. It covered approximately 11,000 square feet (1,022 square meters) and had a monitored sprinkler system.

Firefighters responding to the 6:05 a.m. alarm found heavy smoke in the first-floor unit when they arrived, but the sprinkler, which was still operating, confined the fire to the kitchen. The smoke detection system alerted residents before the sprinkler operated.

Investigators determined that the fire started when a stuffed animal in a wicker-shelving unit in the kitchen ignited. The toy was lying on top of a cell phone that had been plugged into an electric charging unit for 4 or 5 days. The equipment, overheated and ignited the toy. The fire spread up the wicker shelving to other items before the sprinkler activated. Value of the building and its contents wasn't reported, but losses were estimated at less than \$1,000.

Kenneth J. Tremblay. 2004. Firewatch. *NFPA Journal*, July August, 17.

Sprinkler extinguishes unattended cooking fire – Washington

Cooking oil left heating unattended in a pan overheated, starting a fire that spread to cabinets above the stovetop. A sprinkler in the kitchen and another in an adjacent hallway operated and extinguished it, limiting fire damage to the area of origin.

The fire occurred in a third-floor apartment in a three-story, wood-framed apartment building protected by a wet-pipe automatic residential sprinkler system. The building also had single-station smoke detectors, but their location and coverage weren't reported.

One of the apartment's occupants had put a pan of cooking oil on the stove while making dinner and left the kitchen. When the oil ignited, the fire alarm activated, alerting the apartment complex's caretaker, who investigated and saw smoke around the apartment's balcony. The caretaker reported that the fire, which filled the apartment with smoke, had been extinguished, but that the stove was still on. He shut off the burner and evacuated the building's occupants. By the time firefighters responded to the 7:53 p.m. call, the fire had been extinguished and the occupants had been safely evacuated.

Investigators determined that the heat from the burning oil damaged an overhead ventilation hood and the ceiling panels, causing the panels to drop to the floor.

Damage to the structure was estimated at \$10,000 and to the building's contents at \$500. No one was injured.

Kenneth J. Tremblay. 2004. Firewatch. *NFPA Journal*, May/June, 18.

Fire sprinkler extinguishes cooking fire - Washington

A single fire sprinkler limited fire losses when an occupant of an apartment in a three-story building inadvertently turned the burner on under a pot of cooking oil and left the apartment. The building's monitored water-flow detector system activated the building's fire alarm and notified the fire department.

The wood-frame building, which measured 130 feet (40 meters) by 50 feet (15 meters), contained 12 two- and three-bedroom units. Manual pull stations and smoke alarms had been installed in compliance with a local ordinance, and emergency plans had been distributed to residents. Although he wasn't required to, the building's owner had also installed a residential wet-pipe fire-sprinkler system that provided full coverage. A central station alarm company monitored the alarms and fire sprinklers.

The fire started when the unattended oil heated to its ignition temperature and ignited, and spread from the stove to the area immediately above it.

The central station alarm company notified the fire department at 2:03 p.m., but by the time firefighters arrived, the apartment's fire sprinkler had extinguished the blaze.

Damage to the building, valued at \$1.25 million, and its contents, valued at \$50,000, were approximately \$15,000 and \$2,000, respectively. Much of the damage was attributed to water damage.

Kenneth J. Tremblay. 2004. Firewatch. *NFPA Journal*, January-February, 15.

Fire sprinkler controls apartment building fire - New Jersey

A single fire sprinkler controlled an incendiary fire in a trash room on the third floor of a six-story apartment building, alerting the fire department, which responded within a minute of the alarm.

The steel-framed apartment building had concrete block walls and a brick façade. Hardwired and interconnected heat and smoke alarms were monitored by a central station, and an automatic wet-pipe fire sprinkler system provided complete coverage.

The fire began when someone intentionally ignited seasonal decorations in the trash room using an undetermined heat source. As police and firefighters evacuated the residents, firefighters found that a single fire sprinkler had confined the fire to the trash room and extinguished it. No one was injured, and damage to the building's contents was limited to \$500.

Kenneth J. Tremblay. 2003. Firewatch. *NFPA Journal*, September/October, 16.

Unattended candle fire damages apartment - Massachusetts

An unattended candle left in an entertainment center in the living room of a fourth-floor apartment ignited the room's furniture. Fortunately, a sprinkler extinguished the fire as it began to spread up the wall.

The five-story building, originally a mill, had a hard-wired fire detection system and wet-pipe sprinkler system, both connected to the municipal fire alarm system.

Firefighters received the alarm at 3:50 p.m. and arrived three minutes later to find that the sprinkler system had activated. Fire companies responding to the fourth floor reported smoke in the hallway and the sound of water running in the locked apartment. By the time they entered the unit, the sprinkler had extinguished the blaze.

The apartment's resident told investigators that she'd come home from work during a break to do some cooking and lit the candle to mask the odor. When she left to go back to work, she forgot to extinguish the candle, the heat from which eventually broke the glass candleholder. Molten wax dripping down the front and back of the entertainment center ignited the cardboard covering its back, and the fire spread up the wall until the sprinkler extinguished it.

Smoke damage in the unit of origin and common areas of the fourth floor, and fire damage to the entertainment center, its contents, and the wall behind it were estimated at \$10,000. There were no injuries.

Kenneth J. Tremblay. 2003. Firewatch. *NFPA Journal*, May/June, 16.

Sprinklers control fire - Washington

After seeing smoke coming from a second-floor dryer vent of a three-story apartment building, a police patrolman alerted the building's occupants and notified the fire department at 10:38 p.m. He then retrieved the portable fire extinguisher from his cruiser and was using it on the flames coming from the dryer's open door when a sprinkler activated. By the time firefighters arrived, the patrolman and the sprinkler system had extinguished the fire.

The 12-unit, wood-frame apartment building, one of 13 in the complex, was 135 feet (41 meters) long and 35 feet (10.6 meters) wide. Each apartment had a local smoke alarm, and there were smoke detectors and manual pull stations in the common areas. The building was also protected by a residential, wet-pipe sprinkler system, and fire extinguishers were located throughout. The detection and suppression systems were monitored by a central station alarm company, which called the fire department when the water flow alarm activated in the unit of origin.

The fire began when clothes, towels, and other items the apartment's occupant was drying ignited after the occupant went to bed. It was the fourth fire in the apartment complex the sprinkler system controlled or extinguished, and a fire department spokesman noted that, without the sprinklers, the blaze could have been serious. As it was, damage to the \$450,000 structure was estimated at just \$5,000, and damage to the apartment's contents, valued at \$20,000, came to \$2,000.

Kenneth J. Tremblay. 2003. Firewatch. *NFPA Journal*, March/April, 22-23.

Sprinkler extinguishes fire – Washington

A sprinkler extinguished an apartment fire, even though the efforts of the unit's occupant to put out the blaze had caused the flames to spread further.

The wood-frame, three-story, 12-unit apartment building was 130 feet (40 meters) long and 50 feet (5 meters) wide and had an asphalt shingle roof. Single-station smoke alarms had been installed in the bedrooms, hallway, and living room of each apartment, and the building had a sprinkler system that complied with NFPA 13R, *Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height*. The system was connected to a central station alarm company.

A third-floor resident melting paraffin wax in a small saucepan on an electric range in the kitchen left the stove unattended, and when he returned, he found the wax had ignited. He threw a glass of water at the saucepan, spreading the flames from the pan onto the stove and counter. A sprinkler 8 feet (2 meters) from the stove activated and extinguished the flames.

Firefighters responding to the 11:13 a.m. water-flow alarm found that the fire had been extinguished. Damage to the building, valued at \$1.2 million, was estimated at \$30,000. Its contents, valued at \$50,000, sustained losses of \$2,750. Water damage to units below the unit of origin accounted for a huge share of the loss, although fire and water damage would probably have been much greater if the sprinkler hadn't activated. There were no injuries.

Kenneth J. Tremblay. 2001. Firewatch. *NFPA Journal*, July/August, 23.

Sprinklers douse fourth cooking fire in two years – Washington

For the fourth time in two years, residents of a 13-building apartment complex learned the benefit of residential sprinklers. In each case, sprinklers put out fires started by careless cooking.

The two-story, six-unit apartment building was 75 feet (23 meters) long and 37 feet (11 meters) wide, covering approximately 5,781 square feet (537square meters). Built of wood framing over a concrete slab, it had an asphalt shingle roof. Single-station smoke alarms were in the bedrooms, hallways, and living areas of each unit, and a wet-pipe residential sprinkler system provided full coverage in the living areas. Portable fire extinguishers were available in the common areas, and a central station monitored all systems.

At 6:28 a.m., firefighters responded to a water flow alarm, which was followed shortly by a smoke alarm activation. Apparently, a first-floor resident had been heating oil in a frying pan on an electric stove, when the oil overheated and ignited. The man moved the pan to the sink, trying unsuccessfully to put the fire out with water from the faucet. Heat from the fire fused the overhead sprinkler, which alerted the central station and the fire department. When firefighters arrived, the sprinkler had extinguished the fire.

The building, valued at \$450,000, suffered estimated losses of \$2,000. The contents of the unit, valued at \$20,000, suffered a loss of \$200. There were no injuries. The sprinkler was credited with preventing further damage to the unit and building.

Kenneth J. Tremblay. 2000. Firewatch. *NFPA Journal*, November/December, 17.

DWELLINGS

Sprinkler protects homeless shelter - New Hampshire

A pan of oil left cooking unattended in the kitchen of a homeless shelter ignited, and the ensuing fire spread to kitchen cabinets and curtains when an occupant tried to douse the flaming pan in the sink. Fortunately, a sprinkler activated and extinguished the flames.

The shelter was located in a two-story, wood-framed building 40 feet (12 meters) long and 24 feet (7 meters) wide. The structure, which had an asphalt-shingled roof, was equipped with an automatic fire detection system and a wet-pipe automatic sprinkler system.

A shelter resident, heating the cooking oil to deep-fry some chicken, left the pan unattended, and the hot oil ignited, tripping the fire detection system. This alerted the resident, who returned to the kitchen and tried to extinguish the fire with water in the kitchen sink. A violent reaction occurred, igniting nearby curtains and an upper cabinet.

Firefighters responding to the alarm at 4:08 p.m. arrived four minutes later to discover that a sprinkler had activated and already extinguished the fire. According to the fire department report, the "sprinkler system safely extinguished this particular fire using approximately 300 gallons (1,136 liters) of water over an 8-minute period, compared to the 1,600 gallons (6,066 liters) of water the fire department would have used in the same time frame from a single hose."

Damage to the building, valued at \$12,000, was estimated at \$3,000, while damage to its contents, valued at \$20,000, was estimated at \$500. There were no injuries.

Kenneth J. Tremblay. 2004. Firewatch. *NFPA Journal*, May/June, 20, 22.

Fire sprinkler extinguishes frat house fire – Maine

A shirt carelessly thrown over a reading lamp in a college fraternity house study room ignited, and the resulting fire spread to other combustibles in the room until the heat activated a fire sprinkler, which extinguished the blaze. The room's occupants and most other students evacuated the fraternity house when the fire alarm went off.

The three-story, wood-framed fraternity house, which was 52 feet (16 meters) long and 59 feet (18 meters) wide, had an asphalt roof. Over the years, it had been renovated, and a complete-coverage smoke and fire detection system had been installed, along with a complete-coverage automatic dry-pipe sprinkler system.

The fire began in a third-floor suite made up of a bedroom and a study room, on the floor of which was a mattress. At about 1 a.m., a student who lived in the suite decided to sleep in the study room and tossed off his shirt, which landed on a desk lamp on the floor next to the mattress. About two hours later, the shirt caught fire.

As the fire spread, it activated the single fire sprinkler and woke the student in the study room and his roommate in the bedroom. The two quickly left the suite and alerted other third-floor residents.

Fire sprinkler extinguishes frat house fire – Maine (continued)

The water flow and smoke detectors on the third floor tripped the fire alarm, alerting the fire department at 3:17 a.m. Firefighters arrived within five minutes, and one crew advanced a single hose line into the house, where they discovered that the sprinkler had extinguished the fire. Other crews conducted a primary search and evacuated a few students still sleeping on the second floor.

The property, valued at \$100,600, sustained \$20,000 in damage. Its contents, valued at \$100,000, sustained a \$3,000 loss. There were no injuries.

Kenneth J. Tremblay. 2003. Firewatch. *NFPA Journal*, September/October, 16.

Sprinkler extinguishes flash fire – California

A 2-year-old child was injured when he placed an open gasoline container next to an operating natural-gas water heater. The heater's pilot light ignited the gasoline fumes in a flash fire that severely burned the child and activated a sprinkler in the garage.

The one-story, single-family, wood-frame house, which was 40 feet (12 meters) long and 75 feet (23 meters) wide, was built on a concrete slab and had an asphalt shingle roof. A wet-pipe sprinkler system had been installed, but the system wasn't monitored. There was no report of smoke alarms.

An occupant called 911, and the father rescued the burned boy from the garage as a single sprinkler extinguished the fire. The toddler, who suffered burns to 80 percent of his body, and his father, who had burns on both arms, were taken to the hospital. Property loss was estimated at \$100.

Kenneth J. Tremblay. 2002. Firewatch. *NFPA Journal*, November/December, 21.

Residential sprinkler saves home – Washington

A residential sprinkler system in a single-family home under renovation proved its value when it extinguished a fire started by a cigarette in a waste barrel in the garage. Only the debris and the plastic barrel in which the fire started were damaged by fire.

Investigators determined that the fire ignited after the construction workers had left for the day. Although the property wasn't yet occupied, a residential sprinkler system had already been installed in the 4,200-square-foot (390-square-meter) house following the requirements of NFPA 13D, *Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes*. Upon the fire department's recommendation, the homeowner had also provided sprinkler protection in the garage where the fire occurred.

Because a local alarm had yet to be connected, the single activated sprinkler went unnoticed until the next morning. Fire damage was limited to \$30, or the cost of the plastic barrel. After 15 hours of operation, however, the sprinkler had caused \$2,400 worth of water damage to the dry wall and three low-voltage lighting system transformers.

Residential sprinkler saves home – Washington (continued)

The combined fire and water damage was 1 percent or less of the total value of the property, estimated in the “hundreds of thousands of dollars.”

The fire marshal later noted that, “Automatic fire sprinklers aid in the detection and control of residential fires, providing improved protection against injury, life loss, and property damage.”

Kenneth J. Tremblay. 2001. Firewatch. *NFPA Journal*, January/February, 20-21.

Residential sprinkler contains dwelling fire – California

A residential sprinkler system prevented a fire from spreading into the living area of a single-family home.

The two-story wood-framed structure was 70 feet (21 meters) long and 40 feet (12 meters) wide. A residential sprinkler system was installed throughout. It was unclear whether smoke alarms were present.

A paper bag of fireplace ashes had been placed on the wooden deck by the front door the night before. Shortly after midnight, the bag ignited, and the fire spread to the deck, siding, and front door. The door’s seal failed, which allowed the fire to penetrate the building setting off the heat activated sprinkler.

The occupant used a garden hose on the deck to control the exterior fire and the residential sprinkler controlled the interior fire until firefighters arrived after receiving a 911 call at 12:50 a.m. The property, valued at \$330,000, suffered a structure loss of \$15,000 and a contents loss of \$2,000.

Kenneth J. Tremblay. 2000. Firewatch. *NFPA Journal*, July/August, 18.

Residential sprinkler contains dwelling fire - California

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The occupant used a garden hose on the deck to control the exterior fire and the residential sprinkler controlled the interior fire until firefighters arrived after receiving a 911 call at 12:50 a.m. The property, valued at \$330,000, suffered a structure loss of \$15,000 and a contents loss of \$2,000.

Kenneth J. Tremblay. 2000. Firewatch. *NFPA Journal*, July August, 18.

ASSISTED LIVING APARTMENT

Sprinkler controls fire in assisted-living unit – Colorado

A single sprinkler controlled a fire that began when a couch was intentionally ignited in an assisted-living apartment. No one in the unit was injured, and all the fire suppression and detection systems operated properly.

The complex, which had multiple additions, included an independent-living apartment building with 116 units and 51 assisted-living units. The fire occurred in the original structure, a steel-frame, four-story building, which had concrete floors and walls and a brick veneer. The building, which measured 200 by 50 feet (61 by 15 meters), had a metal-deck roof with built-up roof covering. Hardwired smoke detectors provided coverage in the common spaces, and the building was equipped with pull stations and a wet-pipe sprinkler system. A central station alarm company monitored all systems.

The fire was intentionally set in a second-floor unit, where it was discovered by an employee before the smoke alarm or sprinkler activated. Staff members removed the unit's occupant and used the pull station, thereby notifying the fire department at 5:30 a.m. The sprinkler then activated, controlling the flames and preventing fire spread.

Fire crews' response was upgraded when follow-up calls confirmed the fire. Upon arrival, firefighters were informed of a possible trapped victim and began a search and rescue. However, they were soon informed that the occupant was outside, so they proceeded to the unit of origin. Meanwhile, police officers worked with the facility's staff to evacuate the other units on the floor safely.

By the time firefighters entered the room, little fire remained. They used a fire extinguisher to put out the flames, then shut down the sprinkler and started ventilation. A secondary search confirmed that everyone had been evacuated safely from the area.

The building, estimated to be worth \$2.4 million, sustained only \$2,000 in damage. The total value of the contents wasn't reported, although losses were estimated at \$1,000.

The fire department sought criminal charges of first-degree arson in this case, but the judge reduced the charges to fourth-degree arson due to the lack of structural damage.

Kenneth J. Tremblay. 2002. Firewatch. *NFPA Journal*, March/April, 24-25.

Sprinkler saves occupants of assisted-living facility – Minnesota

An 84-year-old man living in an assisted-living facility ignited a cardboard box with a lighter, filling his apartment with smoke and trapping himself and his wife. A single sprinkler controlled the fire until firefighters rescued the pair and extinguished the blaze with an extinguisher.

The three-story, wood structure was 400 feet (122 meters) long and 70 feet (21 meters) high. Occupants lived independently in the building, although staff was onsite. A wet-pipe sprinkler system protected the living spaces, and a dry-pipe system covered the attic. A smoke detection system protected the common areas, and individual units had localized smoke alarms. All the interconnected systems were monitored.

Sprinkler saves occupants of assisted-living facility – Minnesota (continued)

At 11:26 p.m., the fire department received a water flow alarm, and the fire was confirmed while the fire department was en route. Staff members led firefighters to the third floor, where smoke coming from the doorway of the unit filled the hallway.

Entering the apartment, firefighters quickly rescued the elderly couple and used a pressurized water extinguisher to extinguish the fire in the bedroom. The sprinkler had confined the fire to the bedroom, though flames had spread from the cardboard box to a vacuum cleaner, carpet, and bedding before it was extinguished.

The man and his 76-year-old wife were treated for smoke inhalation at the scene. The husband was transferred to the facility's memory-loss unit for his own protection.

Valued at \$7 million, the building sustained \$30,000 in damage. Loss to the contents was undetermined.

Kenneth J. Tremblay. 2002. Firewatch. *NFPA Journal*, March/April, 24.

DORMITORY

Sprinkler controls dorm fire – Illinois

Discarded smoking materials ignited a couch in the basement of a dorm, and a sprinkler above the couch controlled it.

The five-story building of ordinary construction housed 240 students. A smoke detection system covered the corridors, and a wet-pipe sprinkler system covered the basement. Both systems were supervised and provided alarm to campus security. The dorm was occupied at the time of the fire but had been evacuated before the fire department arrived.

Firefighters responding to the 1:45 a.m. alarm were notified enroute of smoke in the building. A campus security officer led firefighters to a basement lounge where smoke had banked down about 1 to 2 feet (0.3 to 0.6 meters) from the ceiling and water was discharging from the fused sprinkler. They confirmed that the fire had been extinguished and ordered a fan to remove the smoke. They also shut off the sprinkler valve to limit water damage.

Investigators determined that discarded smoking materials led to the fire, which resulted in a loss estimated at \$2,000, compared to a building and its contents value of \$11 million.

Fire officials were quoted as saying, "If it weren't for the sprinkler system, we would've had a very serious fire."

Kenneth J. Tremblay. 2000. Firewatch. *NFPA Journal*, November/December, 16-17.

SENIOR HOUSING

Sprinkler saves occupant of senior housing – Nevada

An elderly woman suffered first-degree burns and smoke exposure during a fire in the bedroom of her apartment in a 236-unit building for older adults.

However, she escaped additional injury when her attempted escape by wheelchair came to a stop under an operating sprinkler, which controlled the blaze and kept most of the heat and smoke away from her.

Constructed of concrete and concrete-block, the four-story apartment building had complete coverage by smoke detection equipment and a wet-pipe sprinkler system. At the time of the fire, all but one unit was occupied.

The water-flow alarm system alerted the central station alarm company, which notified the fire department at 3:08 a.m. Arriving six minutes after the alarm, firefighters saw smoke and flames coming from the window of an apartment on the fourth floor. The incident commander ordered a second alarm, bringing a total of 20 units and 50 firefighters to the scene.

Reaching the fourth floor, two companies entered the burning apartment, one with a hose attached to a standpipe. They found the woman just inside the door under the spray of the sprinkler.

She was evacuated and taken to the hospital as additional fire crews ventilated the building and knocked the fire down. The rest of the fourth-floor occupants were evacuated to the lobby, and residents of the first, second, and third floors were evacuated or sheltered in place.

Investigators determined that the woman had been smoking in bed and touched her bed linens with her cigarette, starting the fire. As flames spread, she got into her wheelchair, but couldn't make it out of the unit.

The fire department credits the sprinkler with saving her life. The smoke alarm did not activate for undetermined reasons. Fire damage was limited to the woman's apartment, with losses estimated at \$15,000.

Kenneth J. Tremblay. 2005. Firewatch. *NFPA Journal*, September/October, 32.

ASSEMBLY

Sprinklers control fire in unoccupied restaurant - Maryland

When a malfunctioning dryer in an unoccupied restaurant heated its contents to ignition temperature, two sprinklers controlled the resulting fire. Arriving firefighters saw water coming from a rear door and smoke inside a window. When they entered the locked building, they quickly extinguished the remaining fire with a pressurized water extinguisher.

The single-story restaurant, which was closed for the night was of ordinary construction. It had a sprinkler system of unreported type and coverage.

Firefighters responded to a central station alarm company's water flow alarm at 6:57 a.m. When they arrived five minutes later, they found water coming from under a rear door and saw smoke and water spray hitting the inside of a security window. The firefighters requested a full alarm assignment and tried to enter the building using keys from a key repository. Unfortunately, the locks had been changed, and the keys were useless.

By removing the security window, firefighters were able to operate the panic hardware on the inside of the door and open it. Once enough personnel were on the scene to maintain a back-up team of two firefighters for the two-member entry team, firefighters quickly located the blaze in a rear storeroom. The only visible flames at this point were inside the dryer where the sprinklers couldn't reach them.

Using a pressurized water extinguisher, firefighters quickly extinguished the fire as other crews ventilated the building and conducted a primary search.

Investigators determined that a clothes dryer with a large load malfunctioned, preventing the heating element from cooling. The fire caused an estimated \$5,000 in structural damage and \$2,500 in content losses. The fire department instructed the manager to have the suppression system restored before reopening the business.

Kenneth J. Tremblay. 2000. Firewatch. *NFPA Journal*, January/February, 19.

Sprinkler controls fire in movie theater - Georgia

A single sprinkler controlled several fires set by an arsonist in an unoccupied movie theater. People were evacuated from the operating theaters in the multiplex before the fire department arrived.

The two-story theater had concrete block walls with a protected steel frame. An operating smoke detection system covered all areas, including the duct work in the HVAC system. The sprinklers system was a wet-pipe system built to an engineered design.

A theater manager called the fire department at 8:37 p.m. to report heavy smoke in the building. The first firefighters arrived three minutes later. As additional units arrived, they were deployed in primary search, fire attack, water supply, and sprinkler support.

Sprinkler controls fire in Movie Theater: Georgia (Continued)

Since the sprinklers were controlling the fire spread, firefighters were able to find the origin quickly. Fire fighters stretched a 1 ¾ -inch hose line into the unoccupied theater to extinguish remaining hot spots, and positive-pressure fans removed smoke, as the sprinkler system was shut down to limit water damage. Crews mopped up the area by removing standing water.

Investigators found multiple points of origin in the seating at the front of the theater and along a side walkway. No tickets had been sold for that particular theater at the time of the fire.

The fire was declared incendiary and remains under investigation. There was no damage to the structure, which was valued at \$500,000. Contents loss was estimated at \$30,000. There were no injuries.

Kenneth J. Tremblay. 2000. Firewatch. *NFPA Journal*, November/December, 14, 16.

STORE AND OTHER MERCANTILE

Sparks from electrical wiring ignite combustible - Washington

Vibrations from operating HVAC equipment led to a breakdown of electrical tape used to cover wiring splices in an electrical raceway in a large retail mall. The resulting arcing onto the metal raceway covering caused molten slag to drop onto improperly stored holiday decorations directly below the raceway. A single sprinkler controlled the fire, which caused only \$2,000 in damage.

The single-story mall contained more than 100 retail stores and covered 715,200 square feet (66,444 square meters). Constructed of concrete tilt-up walls, the mall had a wood roof that was supported by unprotected steel framing and topped with a built-up covering. Smoke detectors were in the HVAC system, but the system didn't cover the stores. A monitored wet-pipe sprinkler system provided full coverage with 165°F (74°C) sprinklers.

The mall was closed for the night with security guards on duty when the fire department received a water flow alarm at 4:30 a.m. Responding firefighters found that a single sprinkler had operated and extinguished a fire in a rear-exit corridor. The blaze had consumed a cardboard box of holiday decorations, which had been ignited by an arc from an electrical raceway 7 feet (2 meters) above grade.

Investigators determined that protective sleeves covered other splices, and these sleeves had now been applied to all splices.

The sprinkler not only extinguished the fire, but it also sounded the alarm before the HVAC smoke detectors or a security guard discovered the fire. The mall and its contents had a combined value of \$160 million and incurred losses of only \$2,000.

Kenneth J. Tremblay. 2000. Firewatch. *NFPA Journal*, May/June, 32.

Sprinkler prevents loss of shopping center - North Carolina

One sprinkler extinguished a small fire in a department store before it spread to the eight other tenants of a shopping mall. The fire occurred at night when the store was closed.

The single-story department store, which measured 50 by 20 feet (15 by 6 meters), had concrete block walls with a brick veneer and a flat, steel-supported roof. A monitored, wet-pipe sprinkler system that provided full coverage protected the property. There were no smoke detectors.

The fire department received the alarm at 11:23 p.m. from a municipal system alarm connected to the water flow. When firefighters arrived, they connected and supported the sprinkler system, forced the front door, and advanced a hose line into the retail display area.

When they discovered that the sprinkler had extinguished the fire, the crews overhauled the scene and began investigating its cause. Apparently, a large display cabinet had damaged an electrical cord under it, causing resistance which led to heat

Sprinkler prevents loss of shopping center: North Carolina (Continued)

build-up. The wooden cabinet and carpet ignited, and the fire spread to material on the wall before the sprinkler activated.

The unit of origin, which had a value of \$72,000, suffered \$5,000 in structural damage. Damage to its contents, valued at \$50,000, was estimated at \$2,000. There were no injuries, and adjoining tenants weren't affected by the incident.

Kenneth J. Tremblay. 2000. Firewatch. *NFPA Journal*, May/June, 34.

Single sprinkler controls big-box retail fire - Washington

A large home supply store suffered minor losses after a sprinkler activated during the night and extinguished a fire that began spontaneously in oil-soaked refuse.

The single-story building had concrete tilt-up walls, with open web steel roof trusses and a plywood roof deck with a built-up covering. It was 560 feet (171 meters) long, 275 feet (84 meters) wide, and 25 feet (8 meters) high. The building had a heat detection system and five separate sprinkler systems. Three wet-pipe systems provided coverage to the main part of the building, while a fourth covered the rack storage area. A dry-pipe system covered the loading docks and canopy. A public fire service communication station monitored all the systems.

Firefighters responded to a water flow alarm at 11:58 p.m., four hours after the last employee left for the evening. When they arrived, they found that a cardboard box on the loading dock had ignited and a single sprinkler had extinguished the fire.

Investigators found that rags used to clean up a spill of linseed oil-based paint or stain earlier in the day had been placed in a cardboard box and left by the loading dock.

This type of spontaneous ignition fire had occurred before, only two weeks earlier, but employees had used fire extinguishers to put it out and hadn't called the fire department.

The building was valued at \$15 million, and its contents at \$9 million. The structure suffered \$1,000 in damage, with content loss estimated at \$2,000.

Kenneth J. Tremblay. 2000. Firewatch. *NFPA Journal*, March/April, 21.

Unattended heat gun ignites combustibles - Washington

An employee of a large sporting-goods store left a heat gun operating and unattended while he talked to a friend. Heat from the tool ignited nearby combustibles and started a fire. A single sprinkler extinguished the fire just as employees discharged two dry chemical fire extinguishers into the room.

The store was an anchor store in a two-story eight-unit strip mall. Each floor of the building, which was of concrete tilt-up construction with a wood joist roof structure, covered 7,800 square feet (725 square meters). The other stores in the mall were of similar construction but were only one story high and 6,000 square feet (557 square meters) in size. There was one smoke alarm per floor, and a wet-pipe ordinary hazard

Unattended heat gun ignites combustibles: Washington (Continued)

sprinkler system protected the entire building. The store was open for business at the time of the fire.

The employee was using the heat gun to repair ski boots in a first-floor room, and he left it operating and unattended when he went to talk to a friend on the second floor. It wasn't until they saw smoke coming through a wall that the employee remembered the still-operating heat gun.

The two men ran to the first-floor room, where they found flames reaching the ceiling and heavy smoke. They simultaneously discharged two fire extinguishers into the room, just as the sprinkler operated and extinguished the fire.

Firefighters responded to the 11:45 a.m. water flow alarm and found that the fire had already been extinguished by the sprinkler.

Damage to the \$2 million store was estimated at \$2,000. The store's contents valued at \$800,000, suffered a loss of \$18,000. The store re-opened in less than 24 hours, and the other mall stores reopened 30 minutes after the alarm. There were no injuries.

Kenneth J. Tremblay, 2000. Firewatch. *NFPA Journal*, March/April, 22.

OFFICE

State, Date, Time of Alarm, Dollar Loss	Property Characteristics and Operating Status	Fire Protection Systems	Fire Development	Contributing Factors
Illinois August 11, 1999 5:58 a.m. \$6,000,000	This four-story office building of fire resistive construction covered a ground-floor area of 45,375 square feet (4,215.4 square meters). The building was occupied, and areas undergoing renovation were closed off.	The building had a partial coverage smoke detector system, which activated, and a partial-coverage wet-pipe sprinkler system. Even though the sprinklers weren't in the area of ignition, 57 heads operated and helped contain the fire.	The fire broke out in electrical equipment and multiple forms of combustible materials on the second floor. One civilian was injured in this fire.	None reported.
Stephen G. Badger and Thomas Johnson. 2000. 1999 Large-Loss Fires and Explosions. <i>NFPA Journal</i> , November/December, 93.				

MANUFACTURING PROCESSING

Sprinkler foil arson attempt - Connecticut

Five sprinklers foiled an arsonist's attempt to damage a manufacturing plant.

The two-story building was constructed of steel columns and beams, with a brick exterior. Unprotected steel supported a metal deck roof shingled in asphalt. The building, which measured 150-feet (46-meters) by 116-feet (35-meters), included a basement. Heat detectors and a wet-pipe sprinkler system provided full coverage. The plant was operating at the time of the fire, although only a third of its employees were on site.

Nearly 10 minutes passed before the building's owner called the fire department after hearing the alarm because he went to investigate its cause. Upon confirming a fire in the basement, he dialed 911 at 11:58 a.m. When firefighters arrived with three engines, a tanker, a rescue vehicle, and an EMS vehicle, they found that the fire was almost out.

Investigators identified three points of origin in the basement, two between large rolls of paper stored on wooden pallets and another between cardboard boxes and the paper rolls. A cigarette lighter was used.

There were no injuries and the operating sprinklers limited the property loss to \$400 against nearly \$700,000 in structure and contents value.

Kenneth J. Tremblay. 2000. Firewatch. *NFPA Journal*, March/April, p.23.

State, Date, Time of Alarm, Dollar Loss	Property Characteristics and Operating Status	Fire Protection Systems	Fire Development	Contributing Factors
Texas June 23, 1999 11:29 a.m. \$20,000,000	This three-story plastics manufacturing plant was of open steel frame construction. The ground-floor area wasn't reported. The plant was operating when the fire broke out.	There was no information reported on automatic detection systems. The plant had a partial coverage deluge sprinkler system that operated and successfully contained the fire.	An unknown source ignited a leak of a flammable liquid, butadiene, causing an explosion and fire. Two civilians suffered fatal burns, and four were injured.	None reported.
Stephen G. Badger and Thomas Johnson. 2000. 1999 Large-Loss Fires and Explosions. <i>NFPA Journal</i> , November/December, 84.				

Location, Date, Time of Alarm, Number of Deaths	Occupancy Type and Use, Construction Type, Number of Stories, and Operating Status	Detection Systems	Suppression Systems	Fire Origin and Path	Contributing Factors
Massachusetts February 25, 1999 3:05 p.m. Three	Iron castings manufacturing plant; protected, noncombustible construction; one story; operating.	None.	Sixty-one of the plant's wet-pipe sprinklers helped control the fire.	The point of origin was a gas-fired oven, but the exact cause is unknown. The flexible exhaust duct drew in a fireball, which explosively ignited accumulated dusts. The blast blew off the building's roof and walls.	Poor housekeeping allowed explosive organic dusts to build up in the ductwork.
Robert S. McCarthy. 2000. 1999 Catastrophic Fires. <i>NFPA Journal</i> , September/October, 60.					

INCIDENTS OF INTEREST

Sprinklered apartment building destroyed by fire in unprotected area – Ohio

A fire that began on the balcony of a third-floor apartment spread to concealed spaces above the residential sprinkler system in this large building. The balconies allowed the fire to spread around the nearest fire wall, which meant the blaze burned in two fire divisions, as well as the concealed spaces.

The three-story, 27-unit apartment building was 210 feet (64 meters) long and 30 feet (9 meters) wide. Wood framing and trusses were used for walls and floors, and asphalt shingles covered the roof. The building was divided by two-hour-rated fire walls into three fire divisions, each containing three units on each floor. Sprinklers had been installed in each apartment based on NFPA 13R, *Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height*. Single-station smoke alarms were also present in each unit.

The fire was first detected by a resident returning home after work, who called the fire department at 4:45 a.m. Several other occupants were awakened by the sound of flames and by other occupants, who beat on their doors to sound the alarm. All the occupants evacuated safely, some with help from first arriving firefighters.

Responding within seven minutes of the alarm, firefighters noted flames coming from the roof. Firefighters from two engines and a medical unit placed two hose lines on the building's upper floors, while others completed the connection to the water supply. The incident commander immediately called for additional help, including an aerial platform and ladder.

The fire appeared concentrated in the attic at the center of the apartment building, but flames threatened to spread to either side of the structure. After aerial master streams had been used to slow down and shrink the fire, interior hose lines were used to attack remaining fire pockets. During what they thought was the overhaul phase, firefighters discovered that the flames had spread to the other fire divisions through the ceiling/floor voids. They opened up the ceilings and walls to complete extinguishment.

Investigators determined that the fire began on the balcony of a third-floor unit in the center of the building. Although the exact ignition scenario couldn't be confirmed, a propane-fired gas grill that had recently been used appears to have failed or been left partially turned-on, leading to the ignition. Flames spread to the attic, then above the sprinklers in the concealed space.

The blaze intensified as the grill's propane cylinder failed, releasing gas into the flames. The propane cylinder of the gas grill on the adjacent balcony also failed as the fire spread around the fire wall separating them. The two cylinders feeding the fire had what investigators called a "direct and devastating" effect. Three sprinklers operated late in the fire, when flames finally spread into areas protected by the sprinkler system.

One firefighter cut his hand during overhaul, and a resident was injured when she fell while leaving the building. The building, valued at \$1.2 million, suffered losses estimated at \$1 million. Damage to the contents, valued at \$275,000, was estimated at \$200,000.

Kenneth J. Tremblay, 2001, Firewatch, *NFPA Journal*, March/April, 22.

Sprinklers extinguish fire in home oxygen unit – Arizona

Careless disposal of smoking materials contributed to the smoke-inhalation death of a woman in her single-family home, despite the activation of two sprinklers that extinguished the flames.

The single-story, wood-frame house, which measured 50 feet (15 meters) by 40 feet (12 meters), had a stucco exterior and a tile roof. The home had a wet-pipe residential sprinkler system and a local smoke alarm, but neither system was monitored, and the smoke alarm may not have activated during the fire.

Investigators believe that smoking materials carelessly disposed of in a wastebasket ignited paper. When the occupant discovered the fire, she moved the wastebasket to the sink to extinguish it, but not before the fire burned through plastic oxygen tubing running under the basket. Flames spread along the oxygen-enriched tubing, igniting an upholstered stool and the oxygen generator in the first-floor living room. The fire was finally extinguished by two sprinklers, which operated above each burning item.

Water flowing from under the garage alerted a neighbor, who called the fire department at 9:30 a.m. Responding firefighters discovered the woman in the bathroom, where she had succumbed to smoke inhalation.

The house and its contents, valued at \$200,000, suffered an estimated loss of \$40,000.

Kenneth J. Tremblay. 2004. Firewatch. *NFPA Journal*, November/December, 17.



Fire Chiefs' Association of British Columbia



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AUTOMATIC SPRINKLER SYSTEMS Actual Installation Costs

City of North Vancouver

The Belle Arbour - 245 St. David's	\$ 1.37 sq.ft.
Old Library Site - 128 West 8th	\$ 1.30 sq.ft.
Victoria Park high rise - 160 West Keith	\$1,300.00 per unit

Information supplied by; Larry Cabbage
Newhart Mechanical
North Vancouver
Phone 604-988-1944

City of Langley

Michaud Gardens Phase II - 5568-201A Street	\$ 1.20 sq.ft.
Meadows At Langley, Phase V - 20894-57 Ave.	\$ 1.20 sq.ft.

Information supplied by: Graham McCollum
Barbican
Phone 604-669-4388

City of Peachland

Residential Single Family Homes	
4,700 sq.ft. - \$4,950.00	\$ 1.05 sq. ft.
2,824 sq.ft. - \$2,925.00	\$ 1.04 sq. ft.
2,880 sq.ft. - \$2,515.25	\$.87 sq. ft.

Information supplied by Kevin Peterson
K.P.Mechanical Ltd.
Peachland
Phone 604-767-6163

Lower Mainland Commercial/Industrial

10,000 sq.ft. warehouse	\$ 2.00 sq. ft.
Commercial retail stores	\$ 1.10 sq. ft. -\$1.40 sq. ft.

Information supplied by: Bill Keys

Grinnell Fire Protection
Phone 604-940-8869

RETURN

THE CORPORATION OF THE VILLAGE OF PEMBERTON

BY-LAW NO. 401, 1997

Being a bylaw to amend the Village of Pemberton Building Bylaw No. 93, 1973 to provide for the regulation of Sprinklering of Buildings.

WHEREAS on the fifth day of December, 1974, the Council for the Village of Pemberton enacted a Building Bylaw;

AND WHEREAS the Council now deems it desirable to amend the said bylaw to provide for the regulation of sprinklering of buildings for the protection of same from fire;

NOW THEREFORE, the Council of the Village of Pemberton, in open meeting assembled, enacts as follows:

1) Bylaw No. 93 of the Village of Pemberton cited as the "Village of Pemberton Building By-law No. 93, 1973.", is hereby amended by inserting the following as section 13:

"Sprinklering

13

a) For the purposes of regulating the construction of certain buildings for precautions against fire, the following zones shall be established as the fire limit areas:

multi family zones, industrial zones, commercial zones, and comprehensive development zones as set out under the Village of Pemberton Building Bylaw No. 93, 1973 as amended from time to time.

b) Fire sprinklers are required to be installed in all buildings in fire limit areas constructed, structurally renovated or structurally altered after September 1, 1997.

c) A building permit will not be issued for construction, structural renovation or structural alteration of a building in a fire limit area unless the applicant for the building permit submits a design drawing showing the location where fire sprinklers will be installed.

d) All sprinklers shall be installed and maintained in accordance with National Fire Protection Association Standards for the Installation of Fire Sprinklers - N.F.P.A.13."

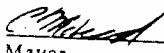
2) This Bylaw may be cited as the "Village of Pemberton Building Bylaw No. 93, 1973, Amendment Bylaw No. 401, 1997

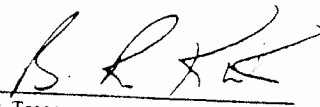
READ A FIRST TIME this 6 day of May, 1997.

READ A SECOND TIME this 6 day of May, 1997.

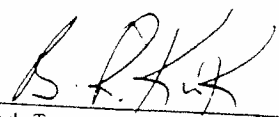
READ A THIRD TIME this 6 day of May, 1997.

RECONSIDERED, FINALLY PASSED AND ADOPTED this 8 day of May, 1997.

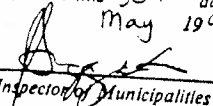

Mayor

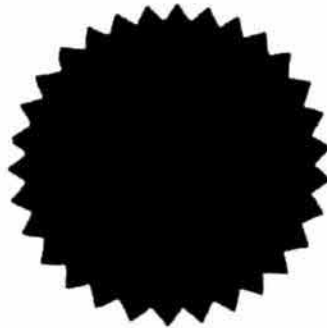

Clerk-Treasurer

Certified to be a true copy of
"The Village of Pemberton Building
Bylaw No. 93, 1973, Amendment Bylaw
No. 401, 1997.


Clerk-Treasurer

A true copy of By-Law No. 401
registered in the office of the Inspector
of Municipalities this 30th day of
May 1997.


Deputy Inspector of Municipalities





Date: August 14, 2007

From: Lori Pilon, Administrator

Subject: Secondary Suites

Received by Council _____

Meeting No. _____

Date _____

BACKGROUND AND COMMENTS

Council requested that Staff provide information related to secondary suites for discussion purposes and to provide guidelines to deal with the issue of non-conforming suites within the Village.

Currently, if the Village receives a complaint about a home that may have a non-conforming suite that is impacting the neighbourhood as a result of increased traffic, parking, dogs or noise a letter or the bylaw enforcement officer is sent to address the specific issue, but not the issue of the non-conforming suite. In the past, if a complaint was received related to a non-conforming suite, the Village had our lawyer send a letter advising the owner the suite was to be removed or the Village would consider seeking an injunction to require compliance.

At the Committee of the Whole meeting, held on Tuesday, March 20, 2007, the Building Inspector provided Council with a verbal report on concerns related to non-conforming secondary suites. The briefing included information on the Village's Zoning Bylaw, as well as the following potential issues associated with non-conforming secondary suites: liability for the Village, flood plain restrictions, building code requirements, homes with more than one suite and safety issues related to fire protection, health and safety. The following motion was passed:

THAT with regard to secondary suites Council requests:

THAT Staff examine what the legal risks are with regard to not enforcing the flood level covenants and building code contraventions;

THAT in no event will more than one (1) secondary suite be permitted;

THAT health and safety issues be enforced;

THAT utilities be charged for all suites that are brought to the Village's attention;
and

THAT Staff draft a policy that balances limited resources for enforcement with compliance for health and safety issues and mitigating risk for the Village.

Issues

Zoning Bylaw One (1) single residential dwelling plus one (1) only accessory suite, is permitted in a RS-1 zone or, if the lot size and lot width meet the requirements, a duplex dwelling unit is permitted. Section 210 of the Bylaw specifically limits the number of accessory suites to one (1) per lot and if a duplex dwelling unit, no accessory suites are permitted. The zoning bylaw also requires that one additional space be provided for an accessory suite.

Flood Plain If a property is located within a flood plain pursuant to both the Ministry of the Environment Flood Plain Mapping and the Village's Hazardous Lands Map (Schedule B of OCP Bylaw 435, 1999) a Section 215 covenant is registered on the title of the property which states:

(a) No area used for habitation, business or storage of goods damageable by floodwaters shall be located within any building at an elevation such that the underside of the floor system thereof is less than the Flood Construction Level as given in the table below.

If a secondary suites is proposed to be located below the required Flood Construction Level and contrary to a Section 215 covenant the Village would normally not issue a building permit. To do so would transfer any liability for flooding to the Village.

B.C. Building Code

The current (2006) edition of the British Columbia Building Code sets out requirements for secondary suites in Section 9.36 and speaks to requirements such as ceiling height, exit requirements and means of egress, fire separations, heating, smoke alarms etc. The requirements are significantly different and more onerous when there is more than one residential suite. The Building Code requirements all relate to occupant safety and neither the Village Council nor the Building Inspector has the authority to waive or alter the Provincial Building Code.

BC Assessment BC Assessment will investigate any concerns or questions that are brought to their attention on an individual's property or any other property. If there is a suite on the property it will be assessed if BC Assessment is made aware of it.

The Village copies BC Assessment Authority on all building permits issued which triggers a reassessment. If a building permit is not taken out, BC Assessment Authority has no way of knowing that the building has been improved.

See attached information on appraisals and property assessments from the BCAA website: www.bcassesment.ca

Utility Billing In 2000 all homeowners (including townhouses) were billed as if they had a secondary suite and were required to complete a statutory declaration swearing that they did not have a suite in order to have their bill reduced accordingly. Since then, only those homeowners that did not complete a statutory declaration are invoiced for a secondary suite.

COMPLAINT REGARDING NON-CONFORMING SUITE AT 7406 LARCH STREET

Property located in a RS-1 zone with two secondary suites. One suite was located in the garage, and building permits had not been obtained for the construction of either suite.

A registered letter was sent on July 13 instructing that the garage suite be removed by July 31, 2007 or legal action would be taken by the Village to have the suite removed.

Issues

Zoning Bylaw Two suites are not permitted.

Flood Plain A Section 215 covenant is registered on the title of the property. The Flood Construction Level applicable to this property is 209.4 m. The ground elevation at the subject lot is approximately 207.5 m or about 2 m or 6.5 feet below the required Flood Construction Level.

Both secondary suites are located below the required Flood Construction Level, so the Village would normally not issue a building permit for a use contrary to the Section 215 covenant. To do so would transfer liability to the Village.

B.C. Building Code The Building Permit issued for this property was for a single family dwelling only (no accessory suite) and the date of issue was 27 November 1989. A Final Inspection notice was issued for a single family dwelling on 28 January 1992. There is no indication on the submitted and approved plans or in the subsequent inspection reports that the accessory suite(s) have ever been approved by the Village nor has a Building Permit been issued for the suite(s). The current and past Building Bylaws require that a Building Permit be obtained for any work of this sort.

The Building Inspector would be unable to issue a Building Permit should one be sought by the owner unless the current BC Building Code requirements can be met.

BC Assessment The property has likely not been assessed for the two secondary suites. BC Assessment will be requested to investigate and correct assessment if required.

Utility Billing The property has been billed for one secondary suite. On July 19, 2007 the Village adjusted the bill and invoiced for two suites.

Attachments:

BC Assessment Authority – Information

Email from Chris Murdy dated March 19, 2007

Registered Letter to Mr. George Samaris dated July 13, 2007

Sample letter from City of White Rock

BC ASSESSMENT AUTHORITY - INFORMATION

Real Estate Appraisal and Property Assessment

British Columbia's *Assessment Act* requires that every property owner receive a property assessment reflecting market values effective July 1 of the preceding year. Market value is the price an unencumbered property would sell for if a reasonable amount of time is allowed to find a purchaser.

Private and public appraisers use a number of generally accepted valuation approaches to develop market value estimates - direct comparison, cost and income. Each approach analyzes highest and best use of the property, most probable use of the property and which use would return the highest value, considering legal, economic and social factors.

Direct Comparison Approach

The Direct Comparison Approach is based on the premise that the value of a specific property is set by the price an informed purchaser would pay for a comparable property, offering similar desirability and usefulness. This requires an understanding of all market variables, including location, property size, physical features and economic factors. Assessors may make adjustments, if required. For example, if an analysis of a property sold in May indicated that the overall market price for similar properties has moved as of July 1 the previous year, an adjustment would reflect the sale price as of last July 1. Since the real estate market changes, the adjustment process is an important part of developing market-value indicators. The process of identifying and analyzing comparable property sales is repeated until a satisfactory range of value indicators for the subject property is established and a final estimate of value is possible.

Cost Approach

The Cost Approach to property assessment is based on the premise that an informed purchaser will judge the value of a property by market price and rents of similar properties, and will also consider the cost of buying land with similar characteristics and constructing a new building. This assumes the cost of replacing the existing building plus the value of the land equals market value.

The steps in applying the Cost Approach include:

- estimating the site value (land and site improvements) through review of comparable sales;

- estimating the cost of replacing the existing building with one of similar usefulness (reflecting current building design and materials); and
- deducting all sources of depreciation, including physical deterioration ("wear and tear" on a building) and functional and economic obsolescence. Functional obsolescence is the reduced ability of the building to perform the function it was originally designed and built for. Economic obsolescence refers to external forces that affect the ability of the buildings to continue to perform, including changes in transportation corridors, new types of building design demanded by the market, etc.

The Cost Approach is used most often when the property being appraised is new or nearly new, where there are no comparable sales, or where the improvements are

What is market value?

Market value for assessment purposes is the price an unencumbered property would sell for on July 1 of the preceding year if a reasonable amount of time is allowed to find a purchaser.

How is market value determined?

When establishing the market value for a particular property, BC Assessment considers each property's unique characteristics. These are the same characteristics that a home purchaser would consider, including size, layout, shape, age, finish, quality, number of carports, garages, sundecks and condition of buildings. Services in the area, location, views and neighborhood may also influence a property's market value.

Appraisers may enter a home to conduct property inspections, ensuring that the description and condition of a property is accurately reflected on the Property Assessment Notice. BC Assessment appraisers analyze all real estate sales in their area and develop common units of comparison and corresponding values. They review similarities and differences between properties to arrive at a uniform assessed value for a particular property.

Lori Pilon

From: Chris Murdy [csm@murdymcallister.com]
Sent: Monday, March 19, 2007 11:26 AM
To: lpilon@pemberton.ca
Subject: RE: Enforcement

Hi Lori - I agree generally with the comments you received from the MIA. In particular I think there are some risks in going too far with respect to not enforcing a bylaw.

Generally the Village has some flexibility. The Courts have recognized that enforcement is discretionary, refused to compel local governments to enforce and conformed that in particular for smaller municipalities that a complaint driven policy is defensible.

In addition, Section 289 of the Local Government Act provides a defense against claims for failure to enforce the building bylaw or the Code.

I also agree in particular with Mitch that a genuine policy decision, based on factors such as limited resources will be very helpful in defending any claims as being based on policy rather than operational decisions. As the MIA indicated, even if a defense is established, there can be significant defense costs incurred.

Where this becomes problematic will be decisions to not enforce at all where there are health or safety factors at play. I think that it would be better to formulate a policy approach that attempted to balance the various competing interests. For example there may be instances where all that you would want to do would be to get a notice on title to help limit claims by any future purchasers based on enforcement issues. There may be a number of issues where as you indicated no action may be justified. In such cases that of course raises the ancillary question of why the Village would regulate at all if there is no intention to enforce the requirements.

-----Original Message-----

From: Lori Pilon [mailto:lpilon@pemberton.ca]
Sent: Monday, March 19, 2007 9:46 AM
To: Chris Murdy
Subject: FW: Enforcement

Hi Chris,

Due to limited resources the Village currently has a complaint based enforcement system. In some cases Council would like to be able to direct staff to not enforce certain infractions due to a variety reasons such as limited resources or not wanting to 'open a can of worms'. For example, many home in Pemberton have constructed secondary suites without building permits and within the floodplain where covenants have been registered against their properties by the Village and the MoE prohibiting having habitable areas in either the basement or garage (which are now occupied by a suite). Would the Village be at risk if Council requested that staff not act on complaints that dealt with flood plain issues? Building Code issues? Municipal Bylaw issues?

Comments from MIA on same questions below.

Lori Pilon
 Chief Administrative Officer
 Village of Pemberton
 Box 100, 7400 Prospect Street
 Pemberton, BC V0N 2L0
 Ph: (604) 894-6135 ext 225
 Fax: (604) 894-5708
 Website: www.pemberton.ca

From: Keith Gibson [mailto:kgibson@miabc.org]
Sent: Monday, March 19, 2007 9:23 AM

To: Mitch Kenyon; lpilon@pemberton.ca
Subject: RE: Enforcement

Lori

This is an issue which should be discussed with the Village's legal counsel. Enforcement is a tricky issue as you know. Considering the issue you raised is relative to life and safety their may be an onus on Council to do something.

Keith

From: Mitch Kenyon
Sent: Friday, March 16, 2007 10:54 AM
To: 'lpilon@pemberton.ca'
Cc: Keith Gibson
Subject: RE: Enforcement

Hi Lori,

Would you be at risk? Yes. We currently have a claim where the owner added many extensions to his building some with permits, some without. He also refused to put in the required sprinkler system. The building later burnt down and the owner is suing the municipality alleging we should have forced him to put in the sprinkler system. Regardless of whether we are found liable or not, this claim will cost us a lot to defend.

If there is a flood in Pemberton, you can bet people will sue. You can minimize your exposure by having council make a policy decision that lowers the standard of care based on resources available. I would suggest you have that decision reviewed by your legal counsel to see if it would hold up in court.

I have also forwarded your question to our risk manager Keith to see if he has any additional thoughts.

Regards,

Mitch

From: Lori Pilon [mailto:lpilon@pemberton.ca]
Sent: March 15, 2007 5:48 PM
To: Mitch Kenyon
Subject: Enforcement

Hi Mitch,

Due to limited resources the Village currently has a complaint based enforcement system. In some cases Council would like to be able to direct staff to not enforce certain infractions due to a variety reasons such as limited resources or not wanting to 'open a can of worms'. For example, many home in Pemberton have constructed secondary suites without building permits and within the floodplain where covenants have been registered against their properties by the Village and the MoE prohibiting having habitable areas in either the basement or garage (which are now occupied by a suite). Would the Village be at risk if Council requested that staff not act on complaints that dealt with flood plain issues? Building Code issues? Municipal Bylaw issues?

Thanks Mitch.

Lori Pilon
 Chief Administrative Officer
 Village of Pemberton
 Box 100, 7400 Prospect Street
 Pemberton, BC V0N 2L0
 Ph: (604) 894-6135 ext 225
 Fax: (604) 894-5708



Village of PEMBERTON

July 13, 2007

Mr. George Samaris
7406 Larch Street,
Pemberton, BC
V0N 2L0

REGISTERED LETTER

**Re: Non-conforming suite
7406 Larch Street
Pemberton**

Dear Mr. Samaris:

The Village of Pemberton has received several complaints regarding a non-conforming suite located in the garage of your home located at 7406 Larch Street in Pemberton.

Your property is zoned RS-1 which permits one (1) *single residential dwelling* plus one (1) only *accessory suite* and Section 210 of Zoning Bylaw No. 466, 2001 specifically limits the number of *accessory suites* to one (1) per lot. In this regard, the garage suite is not in compliance with the Zoning Bylaw and must be removed.

At the In Camera Meeting of Council, held Tuesday, July 10, 2007, made the following resolution related to your property:

THAT the owner be instructed to immediately remove the garage suite at this time and if the suite is not removed appropriate legal action be taken by the Village:

AND THAT the owner be asked to resolve the dog, parking and noise issues:

In this regard, the Village respectfully requests that the garage suite be removed by **July 31, 2007** and that your current tenants be reminded to keep all dogs tied up, parking contained to the property and be respectful of the neighbours with respect to noise.

PO Box 100
7400 Prospect Street
Pemberton
British Columbia
CANADA
V0N 2L0

P. 604 894.6135
F. 604 894.6136

Email:
admin@pemberton.ca

Website:
www.pemberton.ca

With regard to the garage suite, the Building Inspector will contact you within the next two weeks to arrange for an inspection of the premises in order to confirm the suite has been removed. Should the suite not be removed by this date the matter will be referred to the Village's solicitors to commence legal action that will include seeking an injunction to require compliance with the bylaw and court costs.

If you have any questions, please do not hesitate to call Richard Diamond, Building Inspector, at the Village Office.

Yours truly,

VILLAGE OF PEMBERTON



Lori Pilon
Administrator

Cc: Richard Diamond, Building Inspector
Chris Murdy, Murdy & McAllister



THE CORPORATION OF THE
CITY OF WHITE ROCK
 1522 MILLIKEN AVENUE, WHITE ROCK, B.C. V3B 1Y6
 Telephone: (604) 541-2100 Fax: (604) 541-2115

FINANCIAL SERVICES DEPARTMENT

March 28, 2003

«Name»
 «Name_2»
 «Address1»
 «Address2»
 «Address3»
 «Postal»

Attn Jordan Sturdy
 From Larry Anderson

RECEIVED

MAR 22 2007

Village of Pemberton

Dear Sir/Madam

**Re: Secondary Suite Located at «Prop_addr»
 Tax Roll No. «Roll_Number»**

Our records show that you are the registered owner(s) of the property located at the above noted address.

The City of White Rock has implemented a program to have secondary self-contained suites pay their share of the cost of sanitary sewer services. This has been by means of activating the existing provisions of the City's Sewer Connection and Rental Charges Bylaw. This Bylaw stipulates that an annual fee of \$169 be charged for each secondary self-contained suite.

Based on the City's records we believe the residence located at the above noted address has a secondary self-contained suite. A secondary self-contained suite is generally defined as a set of rooms containing cooking, washroom, and sleeping facilities which are capable of being locked off. The suite need not be currently occupied. There may be more than one suite, and in that case, each suite will be charged the above fee.

If you DO NOT have a secondary self-contained suite at the above noted address, please call (604) 541-2148 by April 17, 2003 to arrange for a Bylaw Officer to visit the residence. If the Bylaw Officer confirms there is no secondary self-contained suite, you will not be charged for the additional sewer user fee. If we do not hear from you by April 17, 2003 the additional sewer user fee will be added to your property taxes.

Please note that payment of this fee in no way legalizes the existence of the suite with respect to our zoning or building bylaws.

We appreciate your time and assistance in this matter.

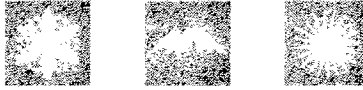
Sincerely

Sandra Kurylo
 Director of Financial Services

Building Permit Requirements: Roofing and Cladding on Single Family Dwellings
July 19, 2007

Name of Municipality	Roofing Regulations	Cladding Regulations	Development Regulations
North Vancouver	If re-roofing with same material, no permit required. If material or structural variation, permit is required. If DVP present, permit is required.	If re-cladding with same material, no permit required. If rainscreen alteration, permit is required. If DVP present, permit is required.	Development Variance Permits in certain areas for roofing and cladding.
Squamish	If re-roofing without a structural variation or sheathing change, no permit is required.	Cladding does require a permit. Changing windows/size/shape requires a permit.	No Regulations.
Sechelt	Only required if structural alterations, renovations or major repairs are undertaken.	Not required for repair or replacement.	No data.
Langley	If re-roofing with same material, permit is not required. If a change in material or structure, permit is required. If development restriction in place, permit is required.	Cladding does not require a permit, unless required by development restrictions.	Development Restrictions are set in place by developers of certain subdivisions, and are not mitigated by the municipality.
White Rock	If re-roofing with same material, permit is not required. If a change in the structural integrity, permit is required. For a complex building, it depends on the situation.	Cladding does not require a permit unless a full rainscreen replacement is involved. For a complex building, it depends on the situation.	Development Permits are not required for SFD, but are required for complex buildings.

Whistler	A permit is required for all construction, including re-roofing. However, a 3 rd party inspection is accepted in lieu of the municipality inspection.	A permit is required for all construction including re-cladding. However a 3 rd party inspection is accepted in lieu of the municipality inspection.	Development Permits are required where applicable.
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THE WHISTLER REAL ESTATE
C O M P A N Y L I M I T E D

June 28, 2007

Mayor & Council
Village of Pemberton
7400 Prospect Street
Pemberton BC
V0N 2L0

Re: Pemberton Industrial Park

Dear Mayor & Council:

I am writing to suggest a minor amendment to the M-1 zoning. I would like to propose "office" as an outright use in the Pemberton Industrial Park. This could be limited to the second floor only.

Any concern that this may impact development of properties in the Village can be responded to as follows:

1. It is unlikely that any second floor office would be constructed in the Village. My reasoning for this is that second floors are more likely to be developed as residential given the significantly higher values that residential generates.
2. Certain businesses would prefer to locate in this area as it is more convenient to their suppliers and/or their clients.
3. I have been involved with Function Junction in Whistler for 25+ years. While similar concerns have been raised in Whistler, they have never materialized. Office and personal service tenants are allowed as an outright use on the second floors in Function Junction.

The M-1 zoning in the industrial park will require ongoing tweaking in order to bring it into conformance with today's realities.

If you require any more information, please do not hesitate to contact me.

Sincerely

Drew Meredith
Whistler Real Estate Co. Ltd.



DESIGNERS • BUILDERS • DEVELOPERS

October 21, 2003

Village of Pemberton
Box 100
Pemberton B.C. V0N 2L0

Attention: Mr. Bryan Kirk

By fax : 604-894-5708

Dear Bryan,

RE: Blundell Residence


The Pemberton Plateau Townhouse project is being developed by Pemberton Ridge Properties Ltd. who in turn have hired Windridge Properties Ltd. to construct 29 Townhomes on their property. Windridge Properties Ltd. has hired RNM Blasting to do all the blasting at the site. Any damage to surrounding property because of blasting is the sole responsibility of RNM Blasting.

We have notified RNM Blasting of the potential problems with the Blundell residence. Ron McLeod of RNM Blasting has had his adjustor examine the Blundell residence. I have included this report for your examination.

There was also a concern about the preload we put in the vicinity of the Blundell residence the preload compressed about $\frac{3}{4}$ of 1" in total. There would be no compression outside the preload area which would have affected the Blundell residence.

Thank you,

Yours truly,
WINDRIDGE PROPERTIES LTD.



Greg Farquharson
Vice President

JC\GF\BryanKOct8

FROM : OCEAN SUN / DYER

PHONE NO. : 604 898 1532

Oct. 06 2003 08:34PM P1



OCEAN SUN

PROFESSIONAL SERVICES LIMITED

Box 1239
1070 Christie View Drive
Nanaimo, B.C.
Canada, V9N 1T0

Telephone: (604) 898-3334
Fax: (604) 898-1302
Email: osun@osun.com

Project #03-121

October 4th, 2003

Windridge Properties Limited
c/o R.N.M Drilling & Blasting Limited
P.O. Box 2306,
SQUAMISH, B.C.
V0N 3G0

Attention: Mr. Ron McLeod

Dear Sirs:

**Re: REVIEW OF RESIDENTIAL STRUCTURE
DAMAGE CLAIM - MR. TERRY BLUNDELL
OLD PEMBERTON FARM ROAD EAST
PEMBERTON, B.C.**

In accordance with your request, Ocean Sun Professional Services Limited (Ocean Sun) conducted a visual review of the residential structure owned by Mr. Terry Blundell on August 31st, 2003. The purpose of the review was to visually examine the existing structure and provide an opinion as to possible causes for damage sustained by the structure. Mr. Blundell claimed that damage sustained by his residence over the past 8 months was solely due to ongoing blasting operations at the adjacent residential development site. Windridge Properties Limited was the developer and R.N.M. Drilling & Blasting was the blasting contractor.

On the afternoon of August 31st, 2003, the undersigned met with Mr. Blundell at his residence. The residence was located on the east side of Old Pemberton Farm Road about 100 m north of the T-intersection with Pinewood Drive. The Windridge site was located immediately east of Mr. Blundell's property with the toe of the rock wall approximately 13 m east of the residence itself.

Mr. Blundell provided the following information:

- The house was build using interlocking cedar timber;
- The house rested on cedar logs which were integral to the house;
- The house had been moved within the confines of his property in the past;
- He was not sure what the soil subgrade beneath the house consisted of;
- He started noticing damage to the house about the same time the blasting commenced; and
- He claimed fly rock from blasting damaged the windshield on his pick-up truck.

FROM : OCEAN SUN / DYER

PHONE NO. : 604 898 1532

Oct. 06 2003 08:35PM P.

Project #03-121
 October 4th, 2003
 Page 2 of 3

Ocean Sun noted the following:

- The house consisted of a square, single story, wood-framed (cedar timber) "cabin" with an approximate dimension of 4.5 m. It had a two-sided, sloped roof with cedar shakes. The exterior sides of the cabin, below the roof line, were surfaced with stucco. The main door was located on the north side of the cabin. There were several metal-framed windows with metal sliders. The interior of the cabin consisted of one room (kitchen, bed, recreation area) and a small bathroom. The interior walls were gyproc. The floor was wood. There was a small attic space above the ceiling;
- Both the front and bathroom door frames were tilted or twisted such that the doors did not easily close;
- There were numerous small (hairline) cracks in the exterior stucco around the cabin;
- Both the north and west slider windows were twisted such that it was difficult to move the sliders;
- The interior wood floor was "bowed" up in the centre of the cabin;
- The gyproc showed distress cracks at the corners of the interior walls; Many of the gyproc screws were starting to protrude;
- The ceiling was bowed.

The damage to Mr. Blundell's cabin is consistent with bending and/or twisting of the structure. The distorted door and window frames, the bowed up floor and ceiling, and the gyproc sheets separating at the wall corners all indicate the whole cabin has been distorted and/or bent/twisted. Such damage may be caused by the following:

- a. Differential consolidation settlement of the soil subgrade supporting the cabin;
- b. Differential settlement/deterioration of organic material in the soil subgrade;
- c. Decay/deterioration of the log "foundation system,"
- d. Moving the cabin to a new location on the property where the subgrade was not adequately levelled;
- e. Damage to the log "foundation system" as a result of moving the cabin;
- f. Large ground motions from excessively large blasts.

The most likely cause for the existing damage to the cabin is one of or a combination of items a. to c. Blasting is the most unlikely cause of the damage.

Typical damage to a structure resulting from excessive blast vibrations could consist of cracked plaster, cracked gyproc walls, cracked or broken windows, cracked or broken mirrors, and damage to unsecured objects as they fall from shelves or tables. Such damage results from the momentary distortion (rapid movement) of the structure as the blast vibrations pass through it. The distortion of the structure is momentary with the structure returning to its original shape after the blast vibrations have passed through the structure. Permanent distortion would only result if the blast vibrations were so massively excessive, that the structure was moved off its foundations, the subgrade below the structure had been "heaved", or the supporting beams, walls and columns in the structure were dislodged.

Damage to the exterior stucco (hairline cracks) on the exterior of the cabin, however, is consistent with damage that typically may result from blasting.

FROM : OCEAN SUN / DYER

PHONE NO. : 604 898 1532

Oct. 06 2003 08:36PM P3

Project #03-121
October 4th, 2003
Page 3 of 3

Damage to structures results when the ground motion or ground "velocity" becomes excessive. Below a peak particle velocity of 2 inches/second, no damage usually results. This is considered to be the threshold velocity for damage to structures. At a velocity in the order of 4 - 5 inches/second, plaster may crack. At velocities in the order of 20 - 25 inches/second, concrete or rock may start to break. It is understood that R.N.M. Drilling & Blasting routinely monitored blasts using a peak velocity recorder. It is further understood that the maximum velocity recorded in the vicinity of the cabin was 0.3 inches/second.

It is estimated that a ground velocity well above 20 inches/second would be required to cause major damage to the cabin. A blast at this level would most certainly cause damage to surrounding structures as well. As it is understood that there have been no other complaints or reports of damage in the area, it seems highly unlikely that any blasts in this order of magnitude were ever initiated.

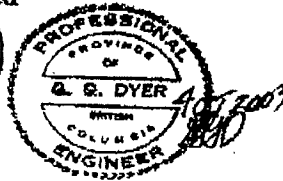
In order to more accurately determine the cause of the damage to the Mr. Blundell's cabin, the log "foundation system" and the subgrade beneath the cabin should be examined.

In conclusion, it is highly unlikely that blast vibrations caused the damage to Mr. Blundell's cabin. Ocean Sun was pleased to provide assistance to you on this project. If you have any questions, or require any further assistance, please do not hesitate to contact the undersigned at your convenience.

Respectfully submitted,
Ocean Sun Professional Services Limited

per:

Geoffrey G. Dyer
Geoffrey G. Dyer, M.Eng.; P.Eng.
Consulting Geotechnical Engineer



**Code of Conduct for the Mayor, Council and Staff
of the Village of Pemberton**

The *Community Charter* sets out the powers given to BC municipalities and also establishes ethical standards for elected officials. The *Charter* focuses almost exclusively on issues related to conflict of interest. The provisions include:

- the recognition of both pecuniary and non-pecuniary conflicts of interest
- the obligation to declare a conflict of interest
- restrictions on participation if in a conflict of interest
- further restrictions on the exercise of influence when a council member is in a conflict of interest
- restrictions on the acceptance of fees, gifts or personal benefits connected with the member's performance of public duties
- obligations with respect to the disclosure of gifts
- obligations with respect to the disclosure of contracts between a council member or a former council member and the municipality
- restrictions on the use of information not available to the general public to further a private interest, and
- procedures for recovering any financial gains resulting from the contravention of the ethical standards.

Building on the provisions of the *Community Charter*, this Code of Conduct establishes further standards for the Mayor, Councilors and Staff of the Village of Pemberton related to conflict of interest, confidentiality of information, working relationships and governance. This combination of B.C. law and Village policy is designed to ensure that the Mayor, Councilors and Staff of the Village of Pemberton aspire to the highest standards of public service integrity.

In this policy 'Member' includes Mayor, Councilors and Staff of the Village of Pemberton

Conflict of Interest

- A Member is in a conflict of interest when the member has a pecuniary or non-pecuniary interest, in a matter which is immediate and distinct from the public interest and could, or could appear to, influence the way in which the member carries out his or her public duties.

- Members must avoid any situation that could cause a reasonably well-informed person to believe that they may have brought bias or partiality to a question before the Village.
- Members will not use their position to secure special privileges, favours, or exemptions for themselves, their business or any other person.
- Members who declare a non-pecuniary interest are subject to the full range of restrictions and exceptions set out in the Community Charter with respect to a Council member with a direct or indirect pecuniary interest.
- Members shall be vigilant in their duty to serve the public interest when faced with lobbying activity. Lobbying is usually defined as direct or indirect efforts to solicit members support and influence the Council's decision on behalf of another party, business or an organization, often away from public scrutiny.
- Members will not use public resources, staff time or supplies not available to the public for personal reasons.

Confidentiality of Information

- Members will be as transparent as possible with the public concerning the conduct of Village business while respecting the need to protect information that is designated as confidential.
- Confidential information will only be shared with individuals authorized to see it.
- The provisions of the *Freedom of Information and Protection of Privacy Act* will be respected especially with respect to the protection of personal or private business information.
- Members will disclose or discuss details of any person or organization being considered for employment or contract only with those officials directly involved in the selection process.
- Members will discuss *in camera* items only with those involved in the *in camera* discussions or with members designated to be informed.

Working Relationships

- Members will ensure that they comply with the Village's Harassment Policy.
- Members will not engage in personal comments at any time, in or out of public meetings, which may serve to discredit, abuse or otherwise reflect on the character or motives of other Members.

- Members will not make negative comments to any person about the performance of any staff member, or volunteer of the Village, except during *in camera* discussions or to the Administrator.
- Members will demonstrate a commitment to full and informed consultation with other Council members within the decision making framework.

Governance

- Members will adhere to the Village's council-manager structure of government, where Council determines the policies and the Administrator conducts the administrative functions of the Village. Members, therefore, will defer to the authority and responsibility of the Administrator in all matters relating to the management of staff or their duties.
- Members will refrain from using their position to improperly influence members of staff in their duties or functions or to gain an advantage for themselves, their business or others.
- Members will respect the cost of human resources and not use those resources for unnecessary, improper or inefficient purposes.
- Members will demonstrate respect for the bylaws by adhering to all Village bylaws and policies, and will never instruct or encourage any individual, organization or business to violate any Village policy or bylaw.
- Members are entitled to present their own views, but in doing so should acknowledge respect for the decision making processes of Council .

From: Lori Pilon [mailto:lpilon@pemberton.ca]
Sent: Friday, July 27, 2007 11:53 AM
To: Russell Mack
Cc: Jordan Sturdy; David MacKenzie; Richard Diamond
Subject: Survey Requirements at Airport

Hi Russell,

Richard spoke to Paul Bunbury about surveying and pinning corner posts for both the air and land side lots on the east side of the Prime Air building. He advised of the following:

- ❖ To pin the airside road way and two lot (provide plan as well) corners would be \$10,000 max. provided we give Paul permission to use the airstrip which would require closing the strip for several days. Much more if not.

Jordan thought that if we are able to remove the brush and improve sight lines they may be able to do the work at \$10,000 without closing the runway, which would be our preference. Could you (and Richard and Jordan possibly) have a look and see if that sounds like a plan...and also whether the Works department could do the brushing with our machine?

Also, as discussed during the airport tour if any fill come available in the mean time it could go to start building up the road.

Thanks!

Lori Pilon
Chief Administrative Officer
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