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## Storage in Underground Parking Facilities

The Vancouver Fire Bylaw 11312 does not prohibit the storage of incidental items provided the fire protection system within the parkade is not overtaxed. It is understood that many other jurisdictions interpret the BC Fire Code as “no incidental storage allowed” and this creates much of the confusion and controversy; however this is not the intent of Building or Fire Codes in Canada.

An objective of the British Columbia Fire Code and Vancouver Fire Bylaw 11312 is to limit the probability that, as a result of specific circumstances related to the building or facility, the building or facility will be exposed to an unacceptable risk of damage due to fire. The risks of damage due to fire addressed by the code are those caused by fire or explosion impacting areas beyond its point of origin. If basic measures of good housekeeping are observed, the presence of combustibles may not constitute an undue fire hazard.

The fire protection sprinklers for garages are typically designed to Ordinary Hazard Group 1 which is defined as occupancies where combustibility is low, quantity of combustibles is moderate, stockpiles of combustibles do not exceed 8 feet and fires with moderate rates of heat release are expected. The purpose of this classification is to determine which building and fire code requirements apply to the structure in question and requires classification in accordance with every major occupancy for which the building is used or intended to be used. Typically, this occupancy type is also classified as an “Ordinary Hazard (Group 1) Occupancy” by NFPA 13, standard for the installation of sprinkler systems. Ordinary Hazard (group 1) occupancies are defined as occupancies or portions of other occupancies where combustibility is low, quantity of combustibles is moderate, stockpiles of combustibles do not exceed 8 ft (2.4m), and fires with moderate rates of heat release are expected. Commodities contained within these occupancies are also defined and classified by NFPA 13. Specification of the type, amount, and arrangement of combustibles for any commodity classification is essentially an attempt to define the potential fire severity, based on its burning characteristics, so that the fire can be successfully controlled by the prescribed sprinkler protection for the commodity class. Other examples of Ordinary Hazard Group 1 are restaurant service areas, automobile showrooms, and bakeries. Where the amount of combustibles are excessive (such as in general storage rooms) or higher rates of heat release are expected (if there is a substantial amount of plastics, for example) the fire sprinkler system design must be reviewed by a professional engineer and upgrades may be required.

*(Canoes or kayaks, if they do not exceed the conditions of Ordinary Hazard Group 1 in their numbers, do not obstruct the sprinklers, are not stacked, and if they are secured in place and can remain in place during a fire without affecting aisles and means of egress, would generally be acceptable inside a vehicle storage garage.)*

For the purposes of compliance to acceptable solutions presented by the British Columbia Fire Code and Vancouver Fire Bylaw, the following items can be ordered:

1. To immediately remove ALL 20lbs propane cylinders from within the building, facility and or underground parking garage and store in a secure location on the exterior of the building, facility or structure.
2. Building owner to retain the services of a sprinkler engineer to ascertain whether the currently installed sprinkler system meets the minimum requirements for the current occupancy use with the addition of combustible commodity storage.

Where deemed necessary by a sprinkler engineer, the sprinkler system shall be upgraded to meet the minimum requirements for the current occupancy use and commodity storage and/or remove combustible storage to meet the operational limitations of the sprinkler system.

Again, the intent is to prevent an excessive amount of combustibles in a garage and also to prevent materials from being stored in a haphazard fashion that could affect responding firefighters. Whether a particular storage arrangement complies with the above **is determined on a case by case basis.** For example, bicycles should be, but not necessarily stored in bicycle lockers, or be secured to bicycle racks, and cans of paint or other combustible liquids should be stored inside metal cabinets to prevent their falling and rolling on the floor.

This information is useful and can be passed to Strata Councils to aid in the development of bylaw strategies to mitigate the risk of accidental fire within the parking garage, also allowing for the reasonable storage of materials within the garage.

Should you have further questions or inquiries regarding the information provided above, please do not hesitate to contact the City of Vancouver by dialing 3-1-1 and asking to speak with the Fire Prevention Division of Vancouver Fire Rescue Services.



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