APPENDIX A

Proposed Upgrade Trigger Mechanism

PROPOSED TRIGGER MECHANISM MODEL

Background - This document outlines a model for determining the *"acceptable level"* of upgrade for an existing building when it is being altered in accordance with the Vancouver Building By-law. The proposed model is intended for all buildings other than one and two family dwellings. This model is based entirely on categories of work, rather than values of construction and assessment value. The model is intended to form part of a pilot program. This pilot period is intended to be used to test, evaluate and further calibrate the model. Persons wishing to use this model should contact the Code Development Engineer.

Overall Conditions of the Trigger Mechanism Model - When determining the *"acceptable level"* of upgrade for an existing building in accordance with this model, the following overall conditions apply:

1. All new materials and construction work must comply with the Vancouver Building By-law.
2. All unsafe conditions must be corrected to the satisfaction of the Chief Building Official.
3. A rehabilitation, change of use or addition must not create or increase the level of non-conformance of the building.
4. A building whose life is being extended significantly beyond its original design life shall be upgraded to an acceptable level.

Application of the Model - The following outlines the steps required when using this model for determining the *"acceptable level"* of upgrade for an existing building:

Step 1 Determine the appropriate Type of Project and Category of Work for the proposed project using Table A - Definitions of Categories of Work. (See Page 2) Note: when a project involves more than one category of work, the most restrictive upgrade level must be used.

Step 2 Determine the appropriate upgrade level for Fire, Life and Health Safety (F1 to F4), Structural (S1 to S4) and Accessibility (A1 to A4)using the flow chart applicable to the Type of Project and Category of Work determined in Step 1. For Rehabilitation type projects (voluntary building by-law upgrades, repair, minor renovation, major renovation and reconstruction) use Flow Chart No. 1. For Change of Use/Major Occupancy and Small Suite Chang of Use or Occupancy Classification type projects use Flow Chart No. 2. For Addition type projects (horizontal and vertical) use Flow Chart No. 3.

Step 3 Once the appropriate upgrade levels have been determined for Fire, Life and Health Safety, Structural and Accessibility, use Table B - Objectives & Acceptable Solutions for Upgrade Levels (See Pages 3 & 4) to determine the objectives of these levels as well as the acceptable solution deemed to meet the applicable objective.

Specific Guidelines Related to Change of Use/Change of Major Occupancy Type Projects - Where a building is undergoing a change in major occupancy classification or a change in use that results in an occupant load increase of more than 15%, the hazard index for the existing use and proposed use must be determined. The hazard index may be determined using the hazard index tables provided in the 1997 Ontario Building Code (Pages 11-9 to 11-26). A higher level of upgrade is triggered where the hazard index of the proposed use is greater than that of the existing use.

Small suites are defined as suites intended for a Group A Division 2, D, E, Group F Division 2 (wholesale showroom)or Group F, Division 3 occupancy having an occupant load for the entire suite that does not exceed 60 persons.

Table A - Definitions of Categories of Work

(Where a project comprises more than one category of work, the category of work having the most restrictive upgrade level shall apply.)

REHABILITATION PROJECTS

Voluntary Building By-law Upgrades – Voluntary Building By-law upgrades are limited to fire alarm, sprinkler, exit, accessibility, seismic and building envelope upgrades to an existing building.

Repair – Repair is the replacement of any part of an existing building with like or similar type materials for repair or maintenance of the building. Repair work also includes repair to a building due to fire damage. No change of use or reconfiguration of the interior space is permitted for a repair type project.

Minor Renovation – Minor renovations are limited to work within single tenant spaces. Minor renovations may include reconfiguration of the interior space as well as exterior renovations, however change of use or major occupancy classification is not permitted for a minor renovation type project. Where the renovation includes a new interconnected floor space or a new mezzanine, it shall not be considered as a minor renovation.

Major Renovation – Major renovations are limited to work within multiple tenant spaces. Major renovations may include re-configuration of the interior space, interconnected floor spaces, and exterior alterations, however change of use, change of major occupancy classification or new mezzanines may not be considered as a major renovation.

Reconstruction – Reconstruction means any project where extensive renovations are being carried throughout the building that involve substantial reconstruction of the interior floor space that exposes the building's structure. Reconstruction may include repair, renovation, alteration or combination thereof.

CHANGE OF USE & MAJOR OCCUPANCY CLASSIFICATION PROJECTS

Change in Use – Change in use type projects are limited to change of use within a building or portion thereof such that the proposed use is within the existing major occupancy classification.

Change in Major Occupancy Classification – Change in major occupancy classification type projects are limited to a change of use within a building or portion thereof such that the proposed use is outside of the existing major occupancy classification.

Small Suite Change of Use or Occupancy Classification – Small suite change of use or occupancy classification is limited to a suite in a Group A, D, Group F, Division 2 (wholesale showroom), or Group F, Division 3 occupancy and where the occupant load for the entire suite does not exceed 60 persons.

ADDITION PROJECTS

Horizontal Addition – Horizontal additions include both "minor" and "major" horizontal additions. Minor horizontal additions are additions that add a total aggregate *floor area* of not more than 25% of the existing *building area* to the building up to a total maximum aggregate *floor area* of 500 m^2. A Major horizontal addition is an addition which adds a total aggregate *floor area* of more than 25% of the existing *building area* to the building or a total aggregate *floor area* of more than 500 m^2.

Vertical Addition – Vertical additions include both "minor" and "major" vertical additions. Minor vertical additions are additions that add an additional floor level (mezzanine or storey) to a building having a total maximum aggregate *floor area* of not more than 25% of the *building area* up to a total maximum aggregate *floor area* of 500 m^2. Major vertical additions are additions that add an additional floor level (mezzanine or storey) to the building having a total aggregate *floor area* of more than 25% of the existing *building area* or a total aggregate *floor area* of more than 500 m^2.

Table B - Objectives & Acceptable Solutions for Existing Building Upgrade Levels

Level One Upgrade

F1	Exiting to be reviewed to ensure that the exits do not present an unsafe condition.	Project Area - Exits to be upgraded with respect to number, capacity, and fire separations only.
S1	Proposed work must not have an adverse effect on the structural capacity of the existing structure.	Entire Building - Proposed work must not reduce the structural integrity of the existing building.
A1	The proposed work must not adversely affect the existing accessibility level of the building.	Project Area - Existing level of accessibility must be maintained throughout the project area. No additional accessibility enhancements are required.

Notes:

F2 = Level One Fire, Life and Health Safety upgrade.
S2 = Level One Structural upgrade.
A2 = Level One Accessibility upgrade.

Level Two Upgrade

F2	Existing building to meet the fire & life safety requirements of the Building By-law within the project area and have conforming exits leading from the project area to an acceptable open space.	Project Area - Alarms and detectors (only where existing devices are provided), emergency lights, access to exit, exits, exit signs, and exit lights. Public Area (leading from project area to an acceptable open space) - emergency lights, exit signs, access to exit, exits, and flame spread ratings.
S2	Limited structural upgrade required in order to provide minimum protection to building occupants during a seismic event within the project area.	Project Area - Non-structural elements and falling hazards must be restrained to resist lateral loads due to earthquakes within the project area.
A2	A limited level of upgrade shall be provided within the project area to ensure access for persons with disabilities.	Project Area - door clearances, door hardware, and areas of refuge.

Notes:

F2 = Level Two Fire, Life and Health Safety upgrade.
S2 = Level Two Structural upgrade.
A2 = Level Two Accessibility upgrade.

Level 3 Upgrade

Category	Objective Statement	Acceptable Solution
F3	**Existing building to meet fire, life & health safety requirements of the Building By-law within the project area. Existing building to meet fire and life safety requirements of the Building By-law within the public areas.**	**Project Area - Alarms & detectors (only where existing devices are provided), emergency lighting, access to exit, exits, exit signs, exit lights, flame spread ratings, floor assemblies & supports, occupancy separation, standpipes and sprinklers, washrooms. Public Area - Alarms & detectors (only where existing devices are provided), emergency lighting, access to exit, exit, flame spread ratings, occupancy separation, exit signs, and exit lights. Entire Building - Fire fighting access.**
S3	**The building structure shall be upgraded to an acceptable level in order to provide a minimum level of property and life safety to unreinforced masonry or other buildings having less than 30 percent of the current required seismic resistance. Falling hazards over exits and sidewalks must be addressed.**	**Entire Building - Bolting floor and roof structure to bearing walls and strengthening of floor and roof diaphragms as required to safely distribute lateral forces to bearing walls (ie. Bolts Plus) All falling hazards such as cornices, parapets and awnings located above exits and sidewalks must be restrained to resist forces due to a seismic event.**
A3	**The existing building shall be upgraded to an acceptable level in order to ensure complete access within the project area as well as access to the remainder of the building.**	**Project Area - Door clearances, door hardware, accessible washrooms, and areas of refuge. Public Area - Door clearances, door hardware, areas of refuge, washrooms, ramps, and elevators.**

Notes:
F3 = Level Three Fire, Life and Health Safety upgrade.
S3 = Level Three Structural upgrade.
A3 = Level Three Accessibility upgrade.

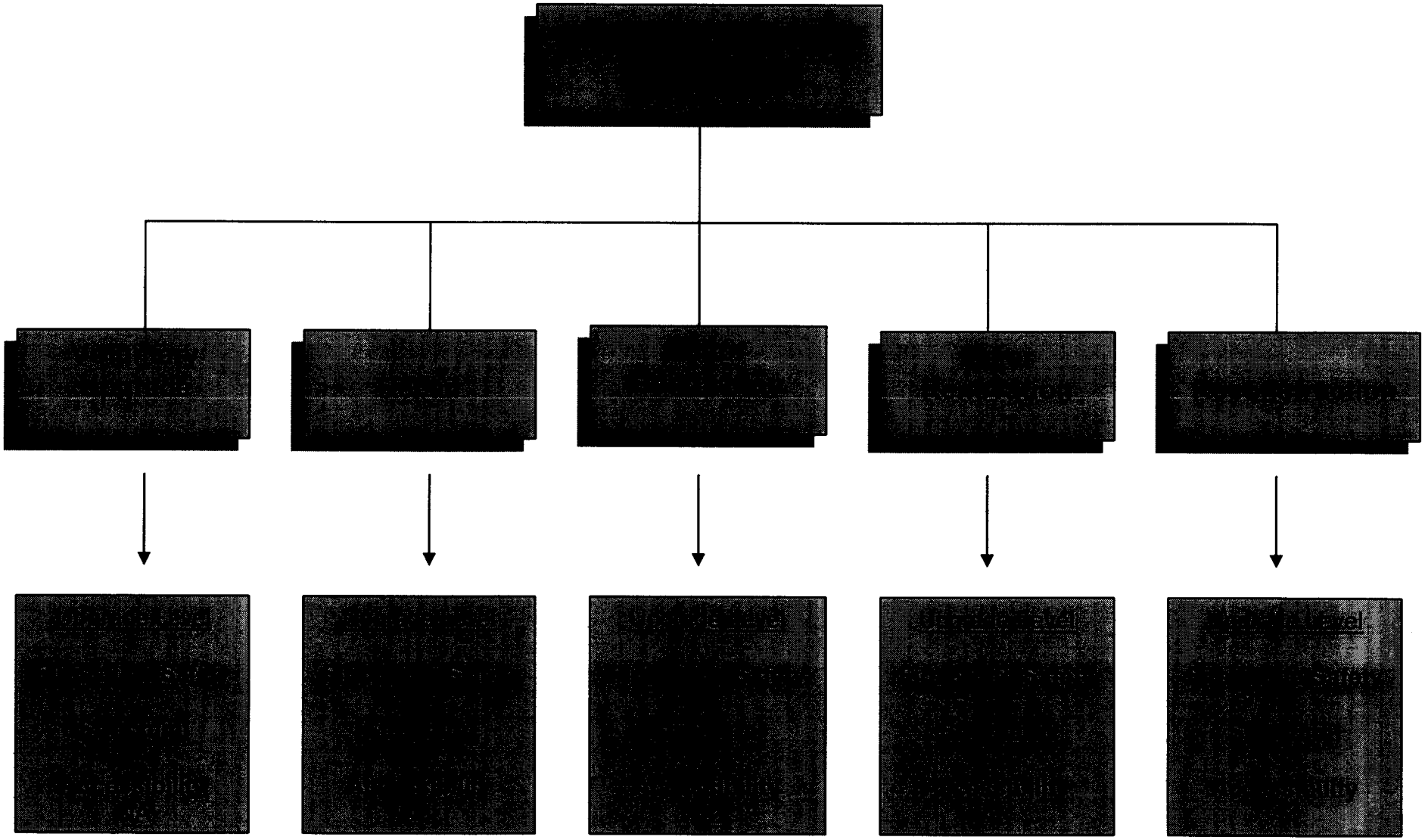
Level 4 Upgrade

Category	Objective Statement	Acceptable Solution
F4	**Entire building to substantially meet the intent of health, fire and life safety requirements of the Building By-law as well as provide protection to adjacent property.**	**Entire Building - Alarms & detectors, emergency lighting, access to exit, exits, exit signs, exit lights, flame spread ratings, fire fighting access & water supply, floor assemblies & support, spatial separation, occupancy separation, standpipes & sprinklers, washrooms, high building requirements, lighting levels, sound transmission classifications, ventilation, and building envelope review.**
S4	**The entire building structure shall be brought up to an acceptable level in order to meet seismic requirements of the By-law.**	**Entire Building - Building to be upgraded to resist 75 percent of the current By-law specified lateral force levels, where the building is evaluated as having less than 60 percent of the current required seismic resistance.**
A4	**The existing building shall be upgraded in order to provide the minimum accessibility requirements of the Building By-law.**	**Entire Building - Building to meet accessibility provisions of the current Building By-law.**

Notes:
F4 = Level Four Fire, Life and Health Safety upgrade.
S4 = Level Four Structural upgrade.
A4 = Level Four Accessibility upgrade.

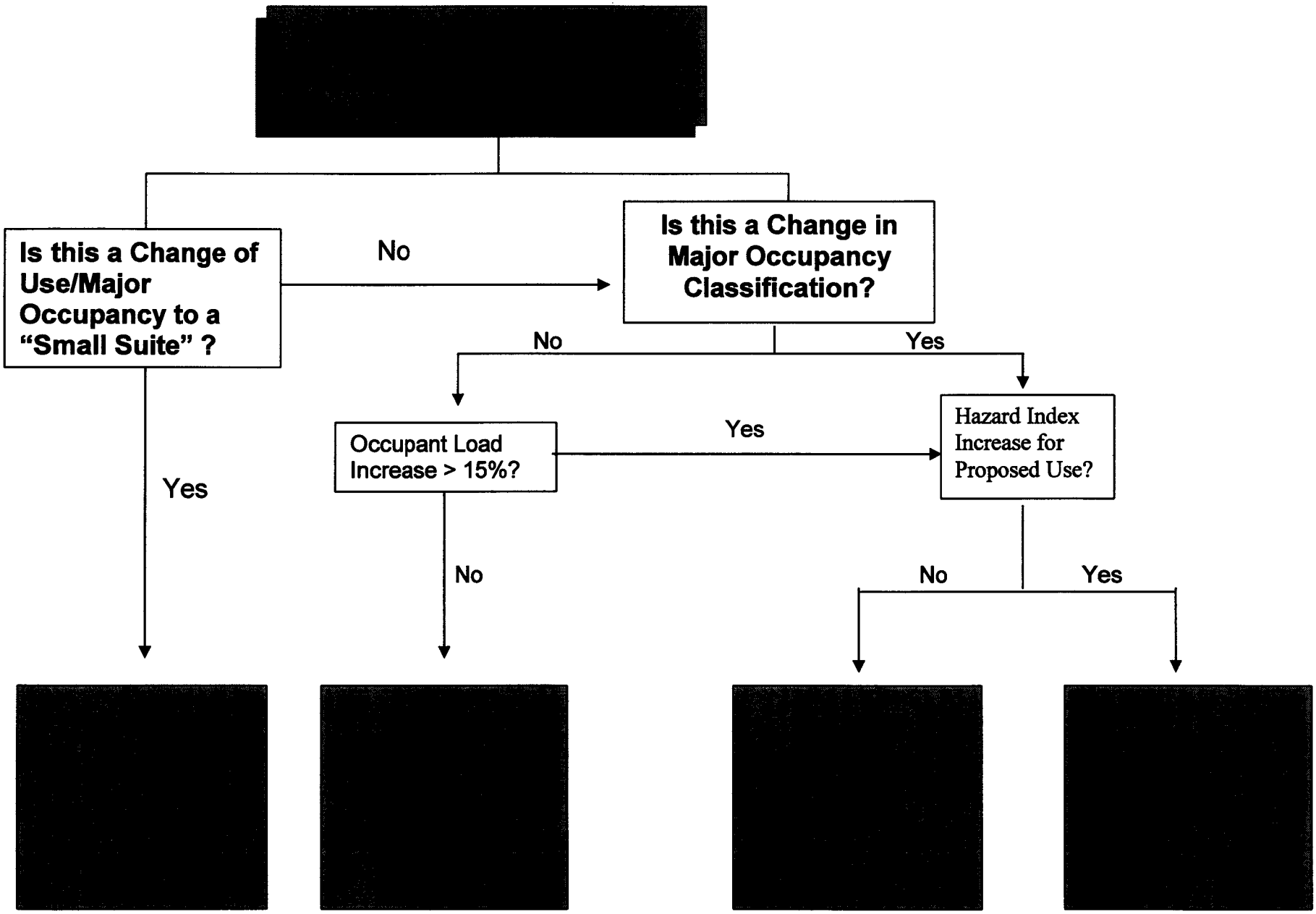
REHABILITATION TYPE PROJECTS

(Flow Chart #1)



CHANGE OF USE/MAJOR OCCUPANCY PROJECTS

(Flow Chart #2)

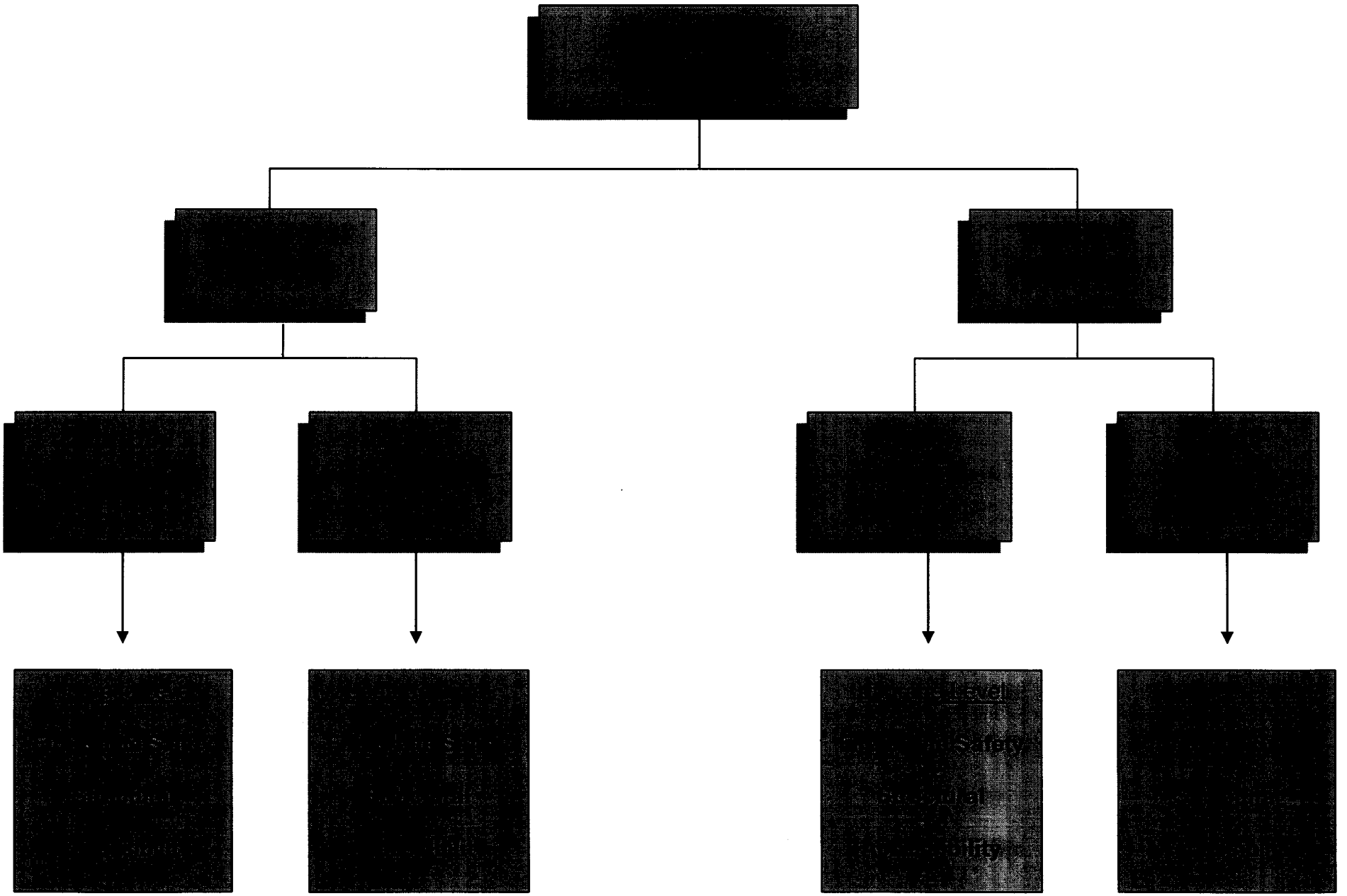


OL = Occupant Load

NOTE: Occupant load increases are based on an increase above the original occupant load at the time of construction.

ADDITION TYPE PROJECT

(Flow Chart #3)



APPENDIX B

Proposed Building By-Law Amendment

APPENDIX B

AMENDMENTS TO THE BUILDING BY-LAW

Part 1
Definitions

Amend section 1.2.3.2.(1) to include the following definitions in the appropriate alphabetical order:

> *Existing building* means a *building* lawfully constructed and completed under a *permit* before submission of the current *permit* application.
>
> *Small suite* means a suite classified as a Group A, Division 2, Group D, Group E, Group F, Division 2 (wholesale showroom) or Group F, Division 3 occupancy where the occupant load for the entire suite does not exceed 60 persons.

Part 10
Existing Buildings

Section 10.1
Application

Delete Section 10.1, and substitute the following:

10.1.1.1. General

1) If construction of an *existing building* occurred before the effective date of this By-law then, despite anything to the contrary in this By-law except for Articles 10.1.1.3 to 10.1.1.8, reconstruction or *alteration* of the *existing building* is not a requirement of this By-law.

2) Except as provided in Sentences 3) and (4), a person who makes an *alteration* to an *existing building* shall

   a) comply with this By-law,

   b) not increase the non-conformity of the *existing building* or create a non-conformity with respect to this By-law, and

   c) upgrade the *existing building* to an *acceptable* level in accordance with the objectives set out in Article 10.1.1.2. [See Appendix A.]

3) If

a) construction or full upgrading of a *building* occurred after June 1, 1987,

b) a person corrects all *unsafe conditions* to an *acceptable* level, and

c) the work does not involve an *addition* or a change in *major occupancy* except for a change of *occupancy* to a *small suite*,

then further upgrading is not a requirement of this By-law.

4) If

a) a person makes an *alteration* to a *one-family dwelling* or *two-family dwelling* without a *sprinkler system*,

b) the *alteration* is not a change of use,

c) the *alteration* will not result in more *dwelling units*, other than a secondary suite, and

d) the value of the *alteration* is less than 50% of the replacement value of the *building*,

then installation of a *sprinkler system* is not a requirement of this By-law.

10.1.1.2. Upgrade Objectives

1) An *alteration* to an *existing building* shall trigger upgrading of the *existing building* in accordance with the following objectives:

a) all *unsafe conditions* shall require correction to an *acceptable* level,

b) all new materials and construction work shall comply with this By-law,

c) an *alteration* shall not create a non-conformity or substantially increase the level of non-conformity of the *existing building* with this By-law,

d) an *acceptable* level of upgrading shall meet requirements having the objectives of health, safety, accessibility, and protection of adjacent property,

e) any significant extension of the life of an *existing building* beyond its

original design life shall require upgrading to an *acceptable* level,

f) an *alteration* to an individual *suite* within an *existing building* shall not trigger upgrades within other any other *suites* except if the *alteration* creates or increases non-conformity with the By-law within such other *suites*, and

g) an *alteration* involving reconstruction of an *existing building* shall require improvement of energy efficiency to an acceptable level.

10.1.1.3. Self-contained Buildings

1) If

a) a person makes an *alteration* to part of an existing *building*, and constructs that part as a completely self-contained separate *building* with a 2 h *non-combustible fire separation*,

b) the self-contained part does not increase or create a non-conformity to the *existing building*, and

c) the self-contained part does not exit through the remaining part of the *existing building*,

then the person shall upgrade the self-contained part to comply with this By-law but upgrading of the remaining part of the *existing building* is not a requirement of this By-law.

10.1.1.4. Relocated Buildings

1) A person who relocates all or any part of an *existing building* either within or into the city, including relocation relative to property lines created by subdivision or consolidation, shall upgrade the *existing building* to an *acceptable* level.

10.1.1.5. Demolished Buildings

1) A person who demolishes all or any part of an *existing building* shall comply with this By-law, and this By-law shall apply to the work involved in the demolition and to the work required to any part of the *existing building* remaining after demolition.

10.1.1.6. Damaged buildings

1) In case of damage to an *existing building*, this By-law and the Vancouver Fire By-law shall apply to the work necessary to reconstruct damaged portions of the *existing building* and to correct any deficiencies in the remainder of the *existing building* to the extent required by Article 10.1.1.2.

10.1.1.7. Unsafe Condition

1) If an *unsafe condition* exists in or about an *existing building*, this By-law and the Vancouver Fire By-law shall apply to the work necessary to correct the *unsafe condition*.

10.1.1.8. Fire Department Upgrade Program

1) If an order issued under the Vancouver Fire By-law requires upgrading of an existing building, and the Chief Building Official is satisfied as to the provision of an acceptable level of safety, the Chief Building Official may allow deviations from this By-law.