

Appendix A

FIRE SAFETY REQUIREMENTS AFFECTING SHOPHOUSES UNDER CONSERVATION SUBJECT	2-STOREY SHOPHOUSE	3-STOREY SHOPHOUSE	4-STOREY SHOPHOUSE
<p>1 TIMBER FLOOR JOISTS AND BOARDS WITHOUT ADDITION OF NEW ATTIC (There shall be no adjustment of floor levels)</p>	<p>1(a) Timber floor boards to be pressure impregnated with flame retardant chemicals.*¹For timber floor joists that can fulfil the fire-rating requirements, they need not be pressure impregnated.</p> <p style="text-align: center;">OR</p> <p>(b)Timber floor boards lined on the underside between the floor joists with non-combustible boards to achieve 1/2 hour fire-rating.*²</p>	<p>1(a) Timber floor boards to be pressure impregnated with flame retardant chemicals.*¹ For timber floor joists that can fulfil the fire-rating requirements, they need not be pressure impregnated.</p> <p style="text-align: center;">OR</p> <p>(b) Timber floor boards lined on the underside between the floor joists with non-combustible boards to achieve 1/2 hour fire-rating.*²</p>	<p>1 Timber floor joists and boards lined on the underside between the floor joists with non-combustible boards to achieve 1 hour fire-rating.*³</p>
	<p>2 Architects are encouraged to apply 1(a) in order to expose the timber floor joists and boards to retain the existing characteristics of the shophouse.</p>	<p>2 Architects are encouraged to apply 1(a) in order to expose the timber floor joists and boards to retain the existing characteristics of the shophouse.</p>	
	<p>3 Timber floor joists and boards at the soffit of the five-footway ceiling may be left exposed.</p>	<p>3 Timber floor joists and boards at the soffit of the five-footway ceiling may be left exposed.</p>	<p>2 Timber floor joists and boards at the soffit of the five-footway ceiling may be left exposed.</p>
	<p>4 FSB's requirements on travel distances must be complied with.</p>	<p>4 FSB's requirements on travel distances must be complied with.</p>	<p>3 FSB's requirements on travel distances must be complied with.</p>

FOOTNOTE :

*¹ For residential use, this condition does not apply. Existing timber floors may be retained provided there is no increase in floor areas or addition of a new attic.

*² For fire-rating requirement, see attached sketch ([URA/CONSV/GL/FSB 1](#)).

*³ For residential use, method and duration of fire-rating would be evaluated by FSB on a case to case basis.

FSB is now FSSD

FIRE SAFETY REQUIREMENTS AFFECTING SHOPHOUSES UNDER CONSERVATION SUBJECT	2-STOREY SHOPHOUSE	3-STOREY SHOPHOUSE	4-STOREY SHOPHOUSE
<p>2 TIMBER FLOOR JOISTS AND BOARDS WITH ADDITION OF NEW ATTIC (There shall be no adjustment of floor level)</p>	<p>1 Timber floor boards lined on the underside between the floor joists with non-combustible boards to achieve 1/2 hour fire-rating*²</p>	<p>1 Full protection for floor joists and boards of all floors, i.e. timber floor boards lined on the underside between the floor joists to achieve 1 hour fire-rating</p>	<p>1 Full protection for floor joists and boards of all floors, i.e. timber floor boards lined on the underside between the floor joists to achieve 1 hour fire-rating</p>
	<p>2 Timber floor joists and boards at the soffit of the five-footway ceiling may be left exposed.</p>	<p>2 Timber floor joists and boards at the soffit of the five-footway ceiling may be left exposed.</p>	<p>2 Timber floor joists and boards at the soffit of the five-footway ceiling may be left exposed.</p>
	<p>3(a) The floor level of the attic *⁴ should not be lower than the highest point of the front facade window at the last storey, i.e. top of the window or fanlight.</p>	<p>3(a) The floor level of the attic *⁴ should not be lower than the highest point of the front facade window at the last storey, i.e. top of the window or fanlight.</p>	<p>3(a) The floor level of the attic *⁴ should not be lower than the highest point of the front facade window at the last storey, i.e. top of the window or fanlight.</p>
	<p>3(b) The attic floor should be set-back a minimum of 1500 mm from the inner face of the front facade & rear walls to allow for visual connection to the storey below.</p>	<p>3(b) The attic floor should be set-back a minimum of 1500 mm from the inner face of the front facade & rear walls to allow for visual connection to the storey below.</p>	<p>3(b) The attic floor should be set-back a minimum of 1500 mm from the inner face of the front facade & rear walls to allow for visual connection to the storey below.</p>
	<p>4 The floor area of the attic shall not exceed 50% of the floor immediately below or 50 sq. metres, whichever is less, per compartment.</p>	<p>4 The floor area of the attic shall not exceed 50% of the floor immediately below or 50 sq. metres, whichever is less, per compartment.</p>	<p>4 The floor area of the attic shall not exceed 50% of the floor immediately below or 50 sq. metres, whichever is less, per compartment.</p>
	<p>5 An open connecting staircase to the attic may be considered. However, FSB's requirements on travel distances must be complied with.</p>	<p>5 An open connecting staircase to the attic may be considered. However, FSB's requirements on travel distances must be complied with.</p>	<p>5 An open connecting staircase to the attic may be considered. However, FSB's requirements on travel distances must be complied with.</p>

FOOTNOTE :

*⁴ For guidelines on addition of new attic, see attached sketch ([URA/CONSV/GL/FSB 2](#)).

FIRE SAFETY REQUIREMENTS AFFECTING SHOPHOUSES UNDER CONSERVATION SUBJECT	2-STOREY SHOPHOUSE	3-STOREY SHOPHOUSE	4-STOREY SHOPHOUSE
3 PROTECTION OF STAIRCASES	<p>1 Timber staircases, which serve as means of escape, shall be protected and comply with :</p> <p>(a) compartmentation requirements of minimum 1 hour rating.*⁵ and</p> <p>(b) pressure impregnation with flame retardant chemicals.</p>	<p>1 Timber staircases, which serve as means of escape, shall be protected and comply with :</p> <p>(a) compartmentation requirements of minimum 1 hour rating.*⁵ and</p> <p>(b) pressure impregnation with flame retardant chemicals.</p>	<p>1 Timber staircases, which serve as means of escape, shall be protected and comply with :</p> <p>(a) compartmentation requirements of minimum 1 hour rating.*⁵ and</p> <p>(b) pressure impregnation with flame retardant chemicals.</p>
	<p>2 For residential shophouses, without addition of new attic and to be occupied by one family only, the timber staircase may be left exposed and need not be compartmentalised.</p>	<p>2 For residential shophouses, without addition of new attic and to be occupied by one family only, the timber staircase may be left exposed and need not be compartmentalised.</p>	
	<p>3 For non-residential shophouses, the timber staircase may be left exposed at the 2nd storey level, provided the following are complied with:</p> <p>(a) Travel distances on the 2nd storey are complied with, i.e. the distance from the most remote point of the floor to the edge of the staircase landing is less than 13m or alternative escape staircase is available, e.g. rear escape staircase;</p> <p>(b) The timber staircase is pressure impregnated with flame retardant chemicals; and</p> <p>(c) The timber staircase is compartmentalised at the 1st storey by 1 hour fire-rated enclosures.</p> <p>(d) There is no attic level in the 2nd storey.</p>		

FOOTNOTE :

*⁵ For compartmentation requirements on protection of staircases, see attached sketch ([URA/CONSV/GL/FSB 1](#)).

SUBJECT	2-STOREY SHOPHOUSE	3-STOREY SHOPHOUSE	4-STOREY SHOPHOUSE
4 AIRWELL 4.1COVERING OVER AIRWELL			
4.1.1 Same usage for all floors	1 FIXED COVERING A fixed covering up to the level below the main roof eaves with materials approved by FSB *6 is allowed.	1 FIXED COVERING A fixed covering up to the 3rd storey floor level with materials approved by FSB *6 is allowed.	1 FIXED COVERING A fixed covering up to the 3rd storey floor level with materials approved by FSB *6 is allowed.
	2 OPENABLE COVERING A fully openable covering (retractable or spring open type), by activation of smoke detectors and fire alarm system, up to the level below the roof eaves with materials approved by FSB*6 is allowed.	2 OPENABLE COVERING A fully openable covering (retractable or spring open type), by activation of smoke detectors and fire alarm system, up to the level below the roof eaves with materials approved by FSB *6 is allowed.	2 OPENABLE COVERING A fully openable covering (retractable or spring open type), by activation of smoke detectors and fire alarm system, up to the level below the roof eaves with materials approved by FSB *6 is allowed.
4.1.2 Different usage for all floors	1 FIXED COVERING A fixed covering up to the 2nd storey floor level with materials approved by FSB *6 is allowed.	1 FIXED COVERING A fixed covering up to the 2nd storey floor level with materials approved by FSB *6 is allowed.	1 FIXED COVERING A fixed covering up to the 2nd storey floor level with materials approved by FSB *6 is allowed.
	2 OPENABLE COVERING A fully openable covering (retractable or spring open type), by activation of smoke detectors and fire alarm system, up to the level below the roof eaves with materials approved by FSB *6 is allowed.	2 OPENABLE COVERING A fully openable covering (retractable or spring open type), by activation of smoke detectors and fire alarm system, up to the level below the roof eaves with materials approved by FSB *6 is allowed.	2 OPENABLE COVERING A fully openable covering (retractable or spring open type), by activation of smoke detectors and fire alarm system, up to the level below the roof eaves with materials approved by FSB *6 is allowed.
SUBJECT	FOR ALL SHOPHOUSES REGARDLESS OF THE NUMBER OF STOREYS		
4 AIRWELL 4.2COVERING OVER AIRWELL	1 The airwell shall not be enclosed. However, if it is necessary to enclose the airwell in order to comply with the requirements of FSB, only one side of the airwell is allowed to be walled up. This is applicable to all storeys.		

FOOTNOTE :

*6 Some materials acceptable by FSB (Now FSSD)are:

- a Non-drip acrylic
- b Non-drip polycarbonate
- c Glass

SUBJECT	FOR ALL SHOPHOUSES REGARDLESS OF THE NUMBER OF STOREYS
5 AMALGAMATION OF SHOPHOUSE UNITS	<p>1 If the amalgamation of shophouses is more than 2 units, to provide fire shutters or fire doors to the openings at the party wall between every 2 units of shophouses subject to FSB's evaluation on a case to case basis.</p> <p>2 The size and the number of openings at the party wall should be kept to minimum necessary to comply with FSB's requirements and to retain the spatial quality of shophouses in amalgamated units.</p> <p>3 For amalgamation of a great number of shophouse units exceeding a gross floor area of 1,900 square metres, FSB requires sprinkler system to be provided for protection against rapid spread of fire due to higher fire load in a larger space.</p> <p>4 Timber floor joists and boards must be provided with full protection for all floors, i.e. covering the underside of the floor boards in between joists with non-combustible boards if the joist size is adequate.</p> <p>5 Addition of attic floor shall not exceed 50 sq. metres per compartment.</p> <p>6 If the units are to be used for public resort, such as restaurant, association, etc., there should be a minimum of 2 protected staircases per floor.</p>
6 MEANS OF ESCAPE	<p>1 Waiver for insufficient means of escape will not be considered by FSB.</p> <p>2 If there is only one escape route, the maximum travel distance shall not exceed 13m (unsprinklered).^{*7}</p> <p>3 For back-to-back units, if the travel distance exceeds the fire requirement, alternative proposals may be considered by FSB on a case to case basis.</p>
7 ALARM SYSTEM	<p>1 For shophouses not exceeding 3 storeys and/or amalgamation of not more than 2 shophouse units, manual alarm system is acceptable.</p> <p>2 For shophouses exceeding 3 storeys or having an amalgamation of more than 2 units, automatic alarm system must be provided.</p>

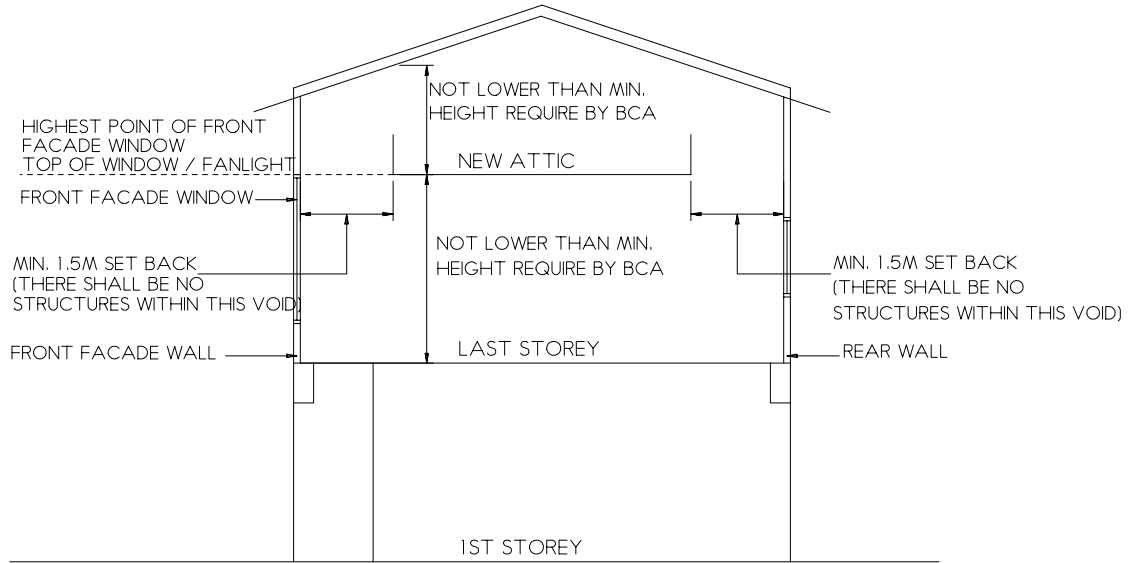
FOOTNOTE :

^{*7} For residential shophouses not exceeding 3 storeys and occupied by one family only, this condition does not apply.

SUBJECT	FOR ALL SHOPHOUSES REGARDLESS OF THE NUMBER OF STOREYS
8 COVERING OF REAR COURT	<p>1 If there is a protected staircase located at the rear court, the entire rear court space may be covered, up to the 2nd storey floor level, provided the staircase discharges directly to the backlane.</p> <p>2 If the staircase does not discharge directly to the backlane but through the rear court, that part of the rear court forming the escape route from the staircase door to the back door shall be made a protected passageway to comply with FSB's requirements.</p>
9 DIRECTION OF DOOR SWING	<p>1 Door swings at the 1st storey are allowed to swing into the units so as not to obstruct the walkways.</p> <p>2 However, where the door serves more than a 50-person occupant load, it must then swing out. In order not to obstruct the walkway, the door should be recessed into the unit.</p>
10 ELECTRICAL/WATER/GAS METERS, TELECOMS TRUNKING AND HOSEREEL PIPES	<p>1 For shophouses with a separate staircase enclosure at the front leading to the upper storeys, electrical and water meters and Telecoms trunking are allowed to be located within the staircase enclosure provided that they are boxed-up with non-combustible materials, e.g. non-combustible boards or metal casing. The meter box may be ventilated as required by PUB.</p> <p>2 All hosereel pipes are to be located within the shophouse and hosereels should be located near exit doorways.</p> <p>3 In order to maintain the facades of shophouses to be as uncluttered as possible with M & E installations, all M & E works should be located within the shophouse or at locations acceptable by FSB, PUB and URA such that they are least obtrusive from the exterior.</p>
SUBJECT	FOR ALL SHOPHOUSES WITH NEW REAR EXTENSION
11 RETENTION OF TIMBER FLOOR IN MAIN BUILDING TO BE CONSERVED WITH NEW REAR EXTENSION OF R.C. FLOORS	<p>Proposals ^{*8} to retain timber floors in the main building to be conserved with new extension of R.C. floors are subject to the following requirements of FSB :</p> <ul style="list-style-type: none"> (a) The old and new blocks are to be treated as separate buildings from the fire safety point of view; (b) Independent escape staircases are to be provided in each of the old and new block and the regulation on maximum travel distance is to be complied with; (c) A fire separation in the form of fire walls and fire doors is to be provided between the old and new blocks in compliance with the Fire Code; and (d) Airwells, if provided, shall have a minimum distance of 4 m apart between window openings. (e) If integration is such that it is considered as a single block, the building (old and new) shall be constructed of reinforced concrete.

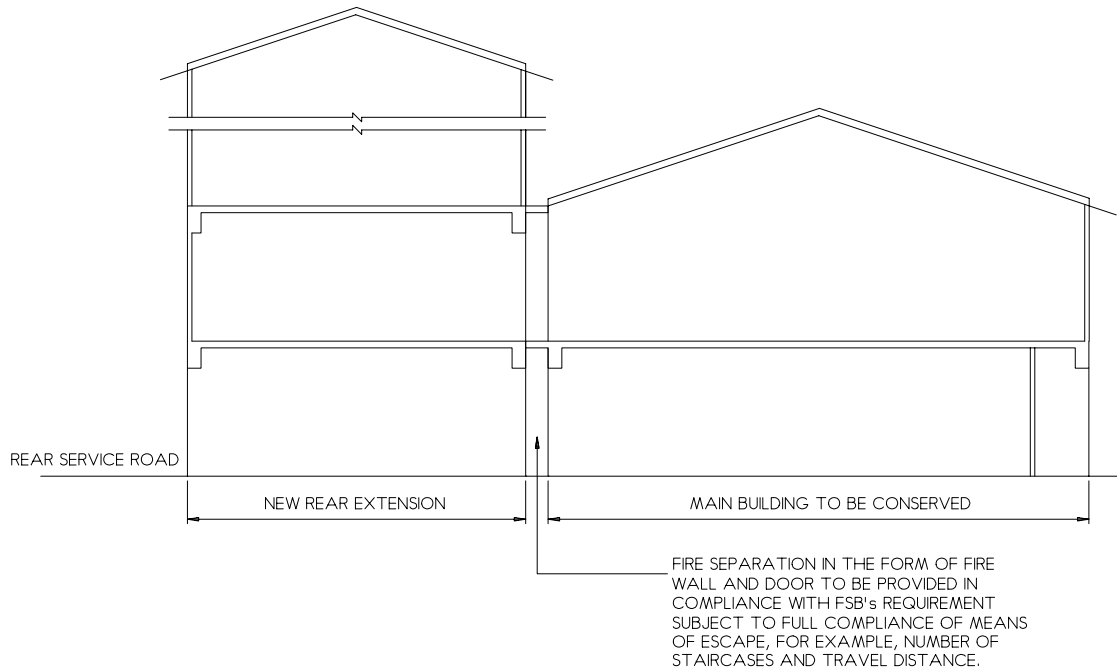
FOOTNOTE :

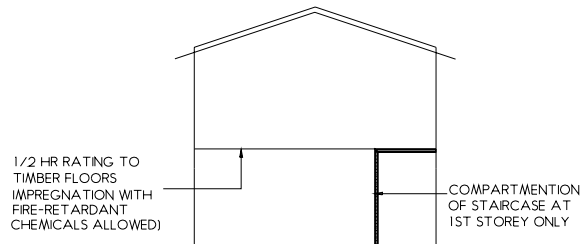
^{*8} For fire safety aspects of the guidelines, see attached sketch ([URA/CONSV/GL/FSB 3](#)).



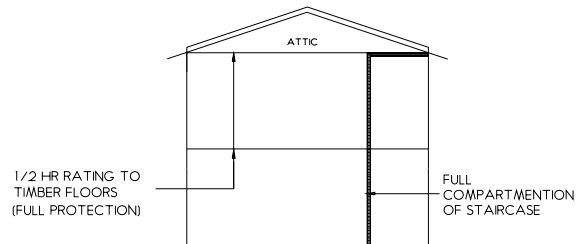
NOTE:
FOR ASYMMETRICAL ROOF PROFILE,
THE REFERENCE POINT OF NEW ATTIC
LEVEL SHALL BE BASED ON THE
FRONT FACADE.

TYPICAL SECTION

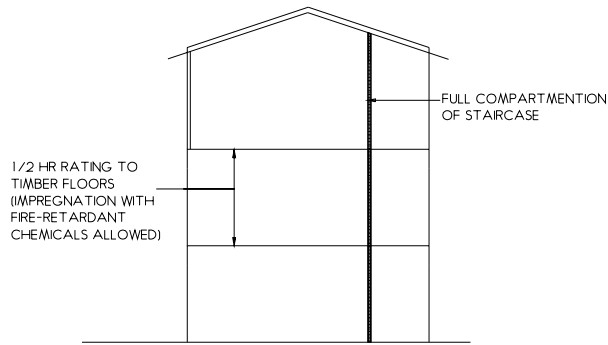




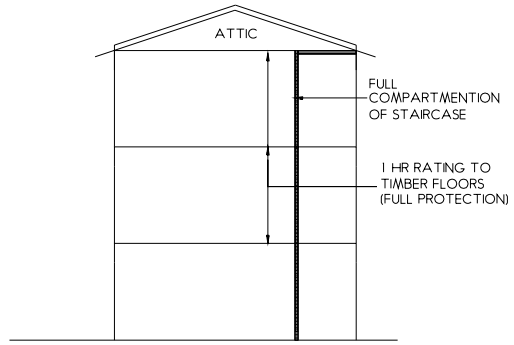
a) RETAIN EXISTING
2-STOREY SHOPHOUSE



b) ADD NEW ATTIC TO EXISTING
2-STOREY SHOPHOUSE



c) RETAIN EXISTING
3-STOREY SHOPHOUSE



d) ADD NEW ATTIC TO EXISTING
3-STOREY SHOPHOUSE