

CONSERVATION GUIDELINES
TECHNICAL SUPPLEMENT



UNDERSTANDING

THE FIRST STOREY

Five-Footway & Front Facade

June 1998

SINGAPORE

CONSERVATION GUIDELINES TECHNICAL SUPPLEMENT



UNDERSTANDING

THE FIRST STOREY

Five-Footway & Front Facade

June 1998



Office Address: URBAN REDEVELOPMENT AUTHORITY BUILDING 45 Maxwell Road, Singapore 069118. Telephone No.: 2216666

Mailing Address: Robinson Road, P.O. Box 1393, Singapore 902743. Cable Address: SINURA. Telex: SINURA RS 20703

Telebox: GVT 380 Fax: 2248752

This document is subject to revision from time to time. Nothing herein shall be construed to exempt the person submitting an application or any plans from otherwise complying with the provisions of the Planning Act (Cap 232, Revised Edition 1990) or any rules and/or guidelines made thereunder or any Act or rules and/or guidelines for the time being in force.

The applicant shall not commence any works or carry out or make any renovation, alterations or additions to the building or any part or parts thereof without first obtaining the approval of the Urban Redevelopment Authority and all relevant Competent Authorities. The approval shall be at their absolute discretion and is subject to such terms and conditions as deemed fit.

While every endeavour is made to ensure that the information provided in this document is correct and that any changes thereto will be updated periodically, the Competent Authority and the Urban Redevelopment Authority disclaim all liability for any damage or loss that may be caused as a result of any error, omission or change.

All rights reserved. Reproduction in any form of editorial contents or photographs is strictly prohibited unless written permission is first obtained from the Urban Redevelopment Authority.



INTRODUCTION

The first storey of a conservation shophouse contributes significantly to the traditional character of the building. It is what one experiences as one moves along the five-footway or along the street. Key elements at first storey, such as the five-footway, the columns and the first storey facade, i.e. the shopfront or residential front, are important features which characterise a shophouse. (See Figs 1 to 4)

Restoration works carried out at first storey should respect the original elements of the building. In general, these elements shall be retained and restored. Any modifications for adaptive reuse should take into consideration the retention of the inherent historic character of the building.

Fig 1: The five-footway is a traditional form of covered walkway.



Fig 2: The five-footway is one of the key features of the shophouse. It forms a continuous walkway at the first storey.



Fig 3: A variety of shopfront designs at the first storey reflecting the mix of retail shops/offices/leisure establishments within a streetblock.

Fig 4: A streetblock where the residential fronts are to be retained. Adaptation is permitted to suit the needs of the new commercial uses.




**KEY ELEMENTS
 AT THE
 FIRST STOREY**

The Five-Footway

A unique adaption to the hot and wet climate, the five-footway is a continuous colonnaded covered walkway running the length of the front and sometimes the sides of a shophouse block. Designed as an integral part of the shophouse structure, the five-footway is an important feature at the first storey of the shophouse. It serves as a sheltered space for pedestrian movement and social activities.

(See Fig 5)

Fig 5: The key elements of the five-footway: the floor, the ceiling, the colonnade and the residential front, contribute to its traditional character.



Wall Finishes

The walls and columns framing the five-footway are plastered and painted or tiled with glazed wall tiles arranged as panels below the windows and on the columns. (See Fig 6)

Fig 6: Examples of ornamental plasterworks and polychromatic embossed tiles found on walls and columns at the first storey.



Floor Finishes

Traditional floor finishes for the five-footways include cement screed (plain, coloured, smooth or with gridded rope indentations), clay tiles and granite slabs. (See Figs 7 to 9)

Shophouses of the Early Style often have red-coloured cement screed with gridded rope indentations and granite edged slabs whilst those of the Art Deco Style may have marble-chip terrazzo finishes in a variety of colours or mosaic finishes.



Fig 8: Elaborate use of patterned cement tiles along the five-footway is characteristic of some of the later shophouse styles.

Fig 7: The use of plain cement screed along the five-footway are typical of the earlier shophouse styles.



Fig 9: The use of terracotta tiles with granite edging is also commonly found.



Fig 10: Exposed underside of the upper floor timber joists with the use of plasterboard to conceal the electrical conduits.

Fig 11: Exposed underside of the upper floor timber joists and floor boards enhanced by elaborate cornices.



Ceilings

The ceilings of five-footways are essentially the underside of the upper storey floor joists and floorboards. These are sometimes concealed by a false ceiling of timber frame and cement-board finish. Elaborate cornices, e.g. dentils and plaster relief mouldings are sometimes used.

(See Figs 10 to 12)

Fig 12: Ceiling of painted timber frame with cement-board finish.





Fig 13: The arches accentuate the rhythmic progression along the five-footway.

Columns, Arches and Corbels

The columns at the front of the shophouses form the five-footway colonnades and support the upper floors. The regular spacing of the columns gives a sense of texture and rhythm to the shophouse facade.

The arches, where present, contribute significantly to the streetscape by accentuating the rhythmic progression of the five-footway.

(See Fig 13)

The corbels are short projections at the connections of the beams and the columns. Usually ornamented, they serve to support protruding elements such as balconies or roof eaves.

(See Figs 14 and 15)



Fig 14: Corbels support the canopies at the 2nd storey floor level.

Fig 15: Ornamented corbels are often found in the later shophouse styles.

First Storey Facade

Residential Fronts

These are characterised by timber casement windows flanking a double-leafed timber door or by two double-leafed timber doors and a timber casement window. The rhythm created by the residential fronts gives the street a sense of intimate scale and texture. Shophouses of different styles would have distinctive features in terms of relief motifs, ornaments, vents, fanlights, relief carvings on the timber doors and pintu pagars or plaster panels. It is essential that these features are properly restored in order to retain the authenticity of the design. (See Fig 16)

Fig 16: Residential fronts are characterised by a double-leafed timber door with a pair of timber casement windows on either side. Residential fronts which are adapted for commercial uses have two double-leafed timber doors and a timber casement window.



Fig 17: Traditional shopfront with demountable timber shutter boards.



Fig 19: Traditional shopfront of double-leafed timber shuttered doors.



Fig 18: Traditional shopfront with glass panel display windows.



Fig 20: Traditional shopfront with sliding/folding metal gates.

Shopfronts

Traditional shopfront designs include demountable timber shutter boards, collapsible/sliding/folding timber or metal gates and display cases. Where there were doors, these were either single or double-leafed, glazed or timber-panelled, louvred or of rail and stile design.

(See Figs 17 to 21)

Although modern shopfronts are permitted for adaptive reuse, the retention and restoration of traditional shopfronts is strongly encouraged in order to further retain the historical essence of the shophouses.

Fig 21: Retention of the traditional shopfront on a restored building enhances its historic character.



Ground Movement or Settlement

Cracks along the ground are normally due to ground settlement or movement and indicate a possible failure in the floor slab and waterproofing membrane. (See Fig 22) Some common causes of cracks are :

- a. inadequate drying-out of the floor slab causing an inequilibrium in the moisture content;
- b. lack of proper mixing of the aggregates resulting in the expansion and contraction of the floor slab.

Fig 22: Cracks along the floor indicate settlement of the ground structure and possible damage to the floor slab. In such instances, repair and reconstruction works are usually necessary.



Fig 23: Deteriorated colour cement tiles due to water penetration from the ground.

Water Penetration from the Ground

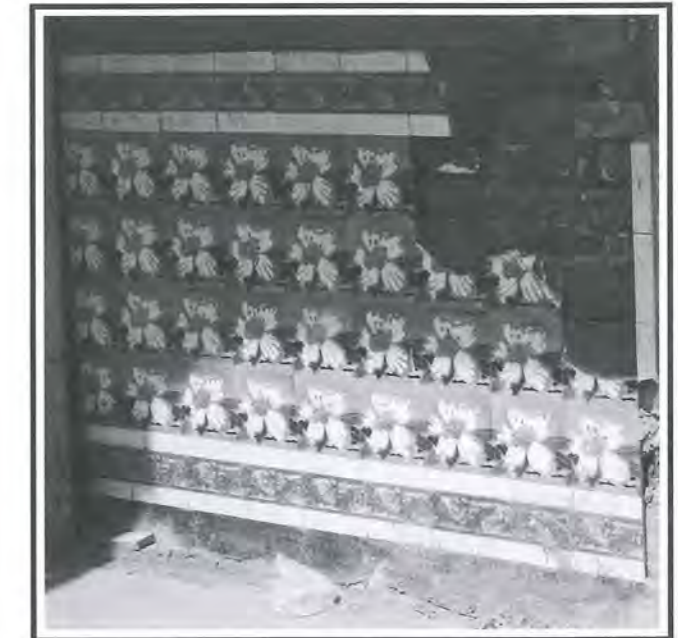
Water penetration, a major cause of failure at the first storey, often occurs at the junctions of the wall and the floor where there is a break between the damp proof course (dpc) in the wall and damp proof membrane (dpm) in the floor, or where there is perforation of the dpc or dpm material. (See Fig 23)

In areas where the water table is high, rising damp may result in the following: the loss of adhesion of wall/floor finishes to the backing aggregate/screed; cracking of the floor finishes due to moisture movement of the screed; the cracking of the plaster wall finish; and the growth of algae, lichens and mosses on the wall/ floor finishes.

Wall and Floor Finishes


If the wall and floor finishes are found suitable for retention, the wall and floor tiles should be properly cleaned and restored. If unsuitable for retention, these finishes should preferably be replaced with traditional finishes in order to retain the historic character of the conservation building. (See Fig 24)

Fig 24: Damaged traditional polychromatic embossed tiles in need of repair.



Timber Doors and Windows

Decay and deterioration of the timber elements at the first storey are caused either by water penetration or by termite infestation from the ground. Deteriorated timber can be detected through visual inspection or with the use of physical probes on the timber members.



RETENTION AND RESTORATION

Retention of the existing elements at first storey is often possible with some cleaning, minor strengthening and repair, where necessary.

(See Figs 25 and 30)

Generally, cleaning methods depend on the materials and the extent of deterioration. Gentle scraping, dry brushing and spraying the surfaces with water before gentle scrubbing with appropriate cleaning agents are usually sufficient to clean the surfaces of stains. However, stains caused by moist timber should be treated with small amounts of mild oxalic acid before scrubbing. Abrasive cleaning should be avoided as it would damage the finishes. Organic growths such as mosses and algae can be removed by gentle scraping with spatula and brushing with nylon bristles before treating with chemical biocide.

Fig 25: Minor repair works and cleaning are required for this cement floor finish.



Fig 26: Part of a deteriorated residential front being replaced.



Fig 28: Spalled plaster on the capital of a column.

Fig 29: Restoration of column capital in progress.

In instances where there is rising damp and if it is not possible to insert a waterproofing membrane, treatment can be carried out by injecting epoxy through drill holes in the affected walls.

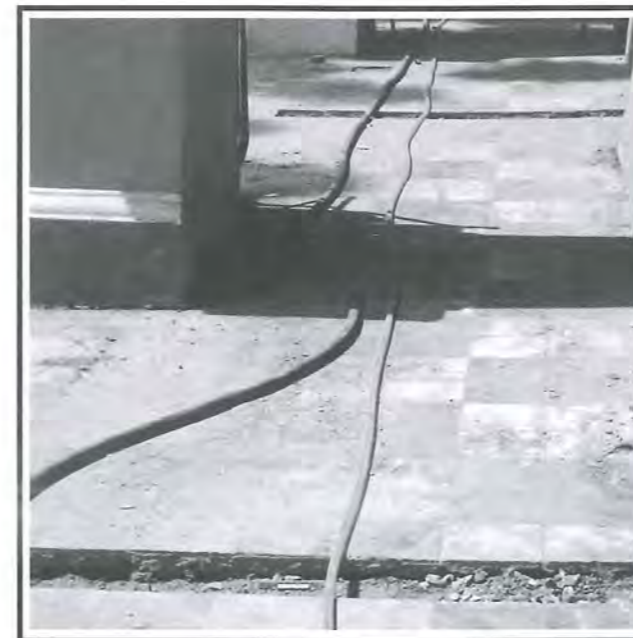


Fig 27: Works carried out to tap service mains in front of the building.



Fig 30: A deteriorated front facade timber beam in the process of being strengthened.



REPLACEMENT

In instances where the damp proof membrane needs to be re-laid or where additional services are required, e.g. water, electrical, sanitary, telecommunications, grease-traps etc, the ground slab would have to be reconstructed. (See Figs 31 to 33) Proper protection, such as temporary shoring or propping of the front facade walls and the upper floor structure, should always be carried out to ensure that the existing partywalls and other structural members are not adversely affected.

When replacing other elements of the first storey, care should be taken to ensure that the new materials match those of the existing so as to retain the traditional character of the building.

Fig 31: The existing floor slab is demolished in order to facilitate the laying of underground services.



Fig 32: Reconstruction of the ground slab in progress.



Fig 33: Ground slab of five-footway completed.



ADAPTATION

The shopfronts have traditionally always changed in relation to the type of trades. This flexibility for adaptive reuse continues today. In order to facilitate the conversion of shophouses with residential fronts to commercial uses, one of the casement windows can be changed to a door so that a separate staircase access to the upper storeys can be created. In addition, the timber-panel infills of the existing doors and windows can be changed to glass infills to allow more visibility into the interior of the shophouses. (See Fig 34)

For the five-footway, natural stone finishes such as slates are permitted (See Fig 35) but highly polished floor finishes should not be used as these surfaces are not sympathetic to the traditional character of the shophouses. They are also hazardous to the public when wet. (See Fig 36)

The polychromatic embossed ceramic tiles found below the timber casement windows on the residential fronts should be retained where possible or replaced with identical tiles. Where it is not possible to retain the damaged tiles or find similar replacements (See Fig 37), the walls should then be finished with plaster and painted.



Fig 34: In facilitating a residential front for commercial adaptive reuse, timber-panel infills of the timber framed casement windows and doors are replaced with glass infills to allow for more visibility into the interior.

Fig 35: Although a non-traditional five-footway material, natural stone finishes are permitted.



Fig 36: Polished five-footway finishes are potentially hazardous to pedestrians as they are slippery when wet.

Fig 37: An example of well-restored polychromatic embossed tiles.





CONCLUSION

The first storey architectural features of a shophouse greatly contribute to its overall historic character. Restoration techniques should take into consideration both the importance of the traditional features and finishes as well as the new services that may be required for the adaptive reuse of the building.

Proper maintenance will ensure that the elements at the first storey do not deteriorate after restoration. Maintenance includes regular checks for water penetration and any organic growths. Regular cleaning with appropriate agents will prevent surface build-ups. Prompt repairs should be carried out whenever the need arises. Proper restoration and maintenance of the elements at the first storey will retain the traditional character of the shophouses. (See Fig 38)

Fig 38: Use of traditional materials and where necessary, faithful reconstruction of the first storey features enhance the historic character of the conservation area.

