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Date: 1 October 2021

CIRCULAR TO PROFESSIONAL INSTITUTIONS

Who should know

Building owners, Developers, Architects, Engineers, Transport/ Traffic Consultants and Builders.

PUBLICATION OF LTA'S QUICK GUIDE SERIES FOR DEVELOPMENT RELATED PROPOSALS – 'DESIGN REQUIREMENTS FOR RTS-INTEGRATED DEVELOPMENTS'

1. LTA has released a publication of our 'Quick Guide Series for Development Related Proposals', titled 'Design Requirements for RTS-integrated Developments'. In this publication, we clarify LTA's design requirements pertaining to developments integrated with the Rapid Transit Systems. A publication of this guide is available at LTA's corporate website, under [Industry & Innovations > Industry Matters > Development & Construction Resources> Building Works & Restricted Activities in Railway Protection Zone > Codes of Practice, Standards, Specifications, Guides & Forms](#).
2. The 'Quick Guide Series for Development Related Proposals' was launched in April 2020, and 6 publications have been made till date. The series focusses on street works, vehicle parking, rail & road structural protection proposals and design requirements for integrated developments. The guides complement the existing resource publications and facilitate a deeper understanding of specific issues content on pertinent issues in the built environment in an engaging manner.

Feedback

3. As we strive to continually feature engaging and informative content for our future publications, we are currently conducting a survey on industry's receptivity to our Quick Guide Series. We would like to hear your feedback on the areas done right, as well as any areas for improvement. The feedback received will help us to improve the quality of the guides.

4. Please take some time to complete an online survey form, which can be accessed at the following weblink: <https://forms.gle/VuiVnTcne7HaJ7mQ9>. Alternatively, you may wish to scan the following QR code to access the form directly:



5. We hope that the guides are useful to you. We would appreciate it if you could convey the contents of this circular to relevant members of your respective organisations. If you have any queries, or suggestions on what you would like to see in future guides, please do not hesitate to reach out to us at lta-dbc_registry@lta.gov.sg.
6. Thank you

Koh Min Ee

Director

Infrastructure Protection Division

Development & Building Control Sub-group

QUICK GUIDE SERIES FOR DEVELOPMENT PROPOSALS

Issue 6

Design Requirements for RTS-integrated Developments

Brought to you by
Infrastructure Protection Division
Development & Building Control Sub-Group
In collaboration with:



1. PREFACE

This quick guide clarifies LTA's design requirements for developments integrated with Rapid Transit Systems (RTS). Proposed developments integrated with existing RTS may be initiated by the Developer to enhance the connectivity of the precincts. However, it is subjected to the review and approval by the Authority; it may be stipulated in Urban Redevelopment Authority (URA)'s Government Land Sales (GLS) agreements for developer to provide direct access from the proposed development to RTS stations.

The case studies presented in this series aim to explain and guide you on the basic design requirements to be incorporated in your proposal:

1. UPL connection at station concourse level via station knock-out panels
2. EPL connection to elevated station
3. At-grade connection to station entrance via covered linkways
4. General Mechanical & Electrical (M&E) provision at the interface

2. EXPERIENCE

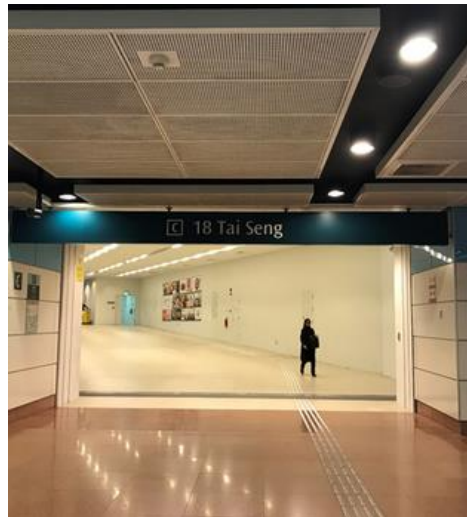
The successful integration of private developments with the RTS will provide a seamless, safe and comfortable journey for commuters. This RTS integration process will require a comprehensive approach that not only addresses the design and functionality of the interface at these boundaries but also the maintenance and ownership of the assets.

Design considerations should include:

1. The ease of maintenance and upkeep of the entrance/exit structures,
2. Protection of assets during construction (artwork/murals),
3. Integrated signage and improved wayfinding features and
4. The prevention of water ingress into the station due to rain while achieving efficient cross-ventilation at the entrances / exits.



High roof over station entrance attracts rainwater



Floor slopes towards RTS side will create flooding issue



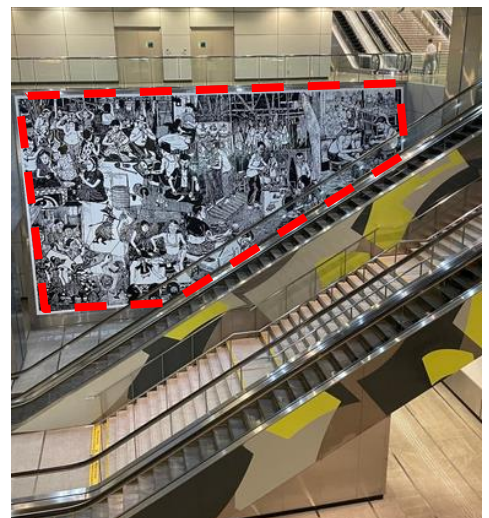
Eaves of entrance is too short and attracts rainwater



Features are difficult to maintain



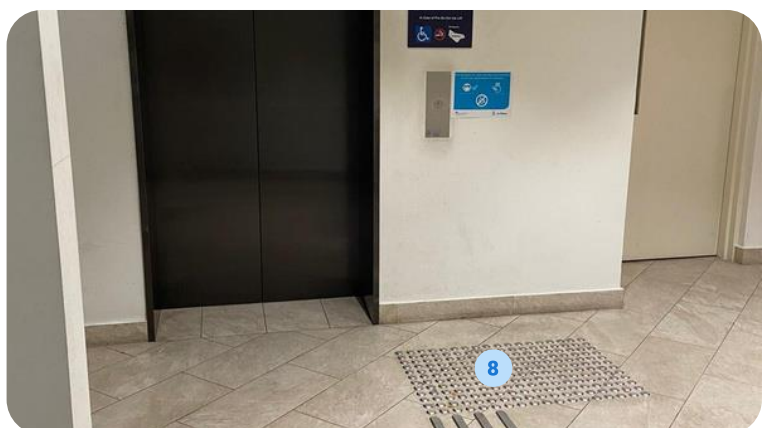
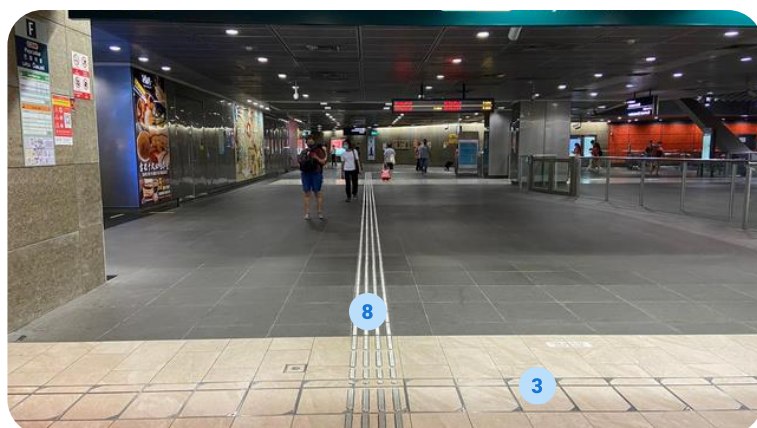
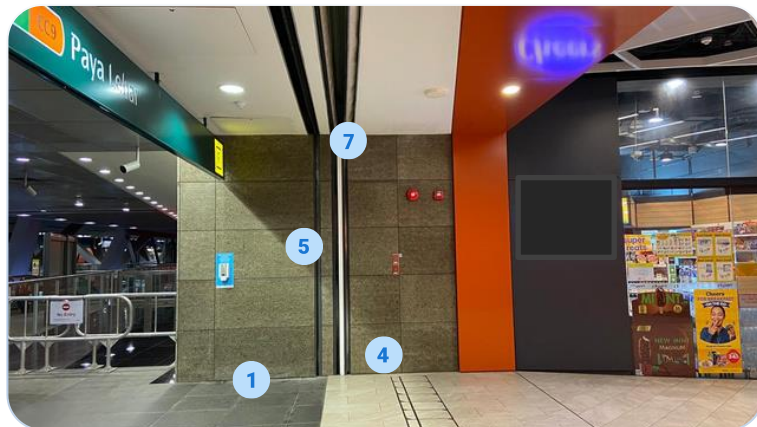
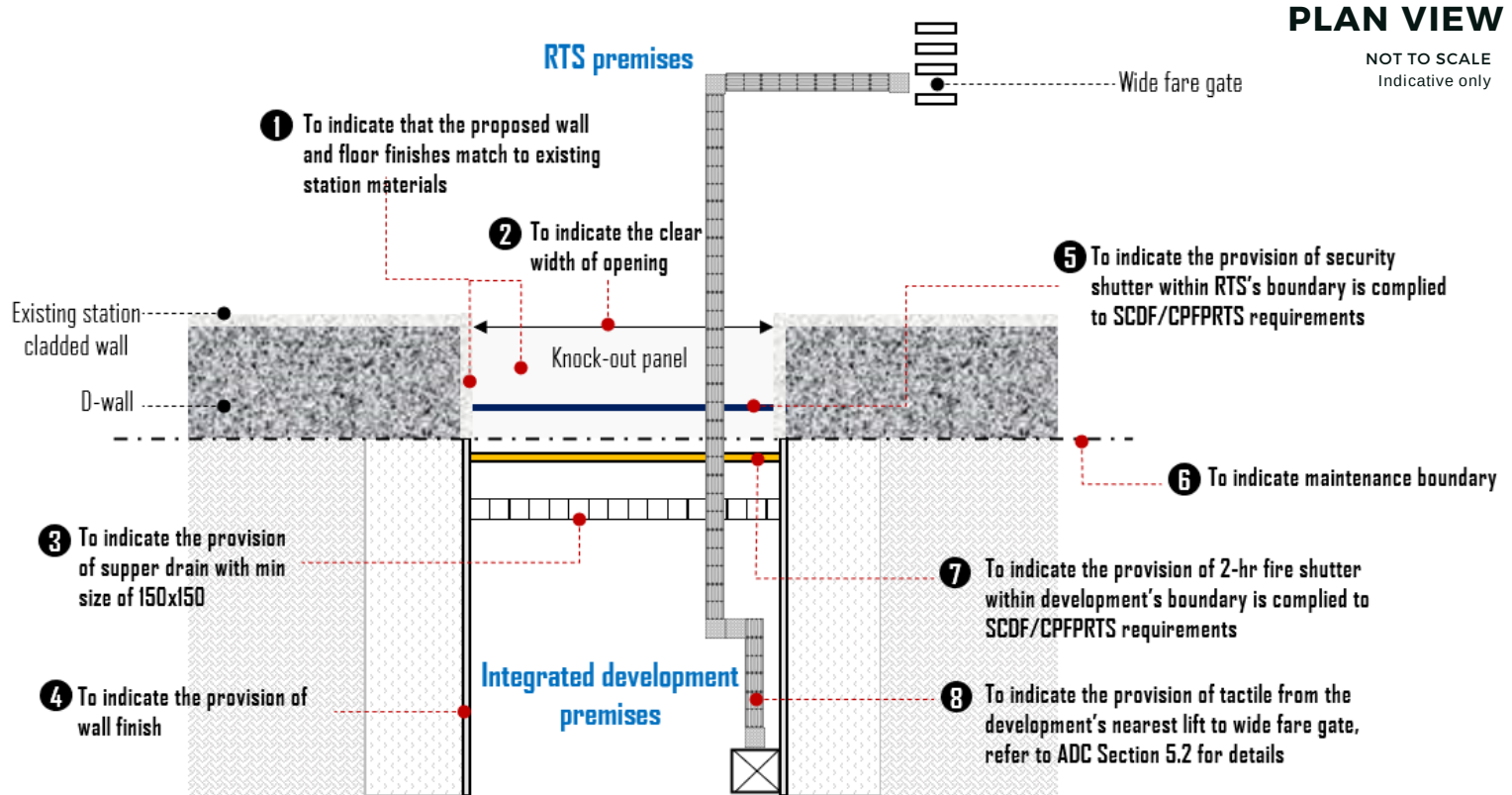
Signage and wayfinding to be updated



Murals to be protected during A&A work

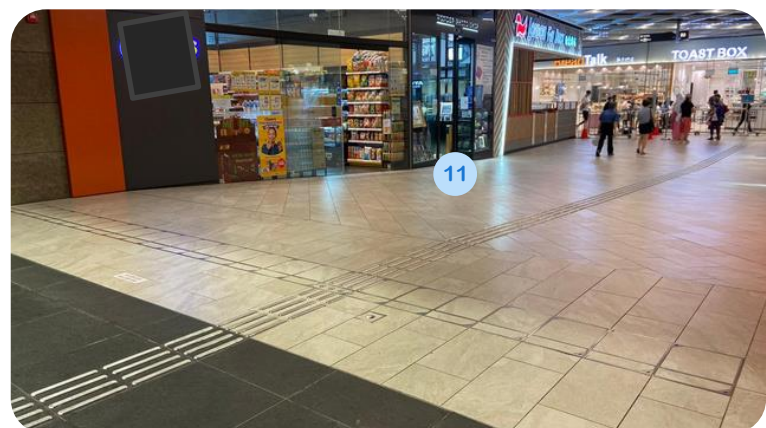
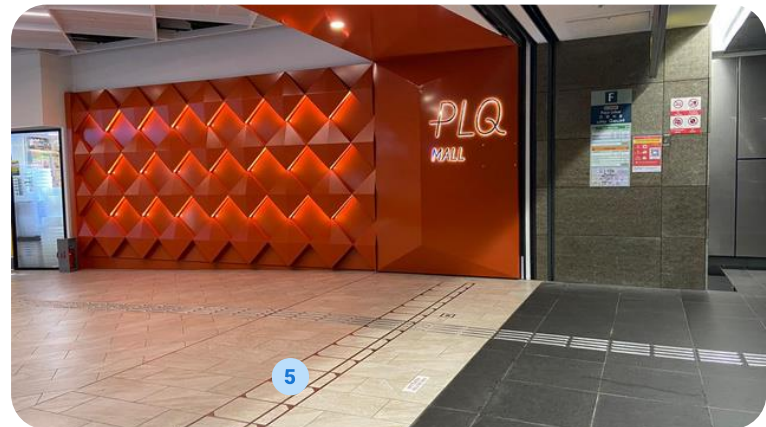
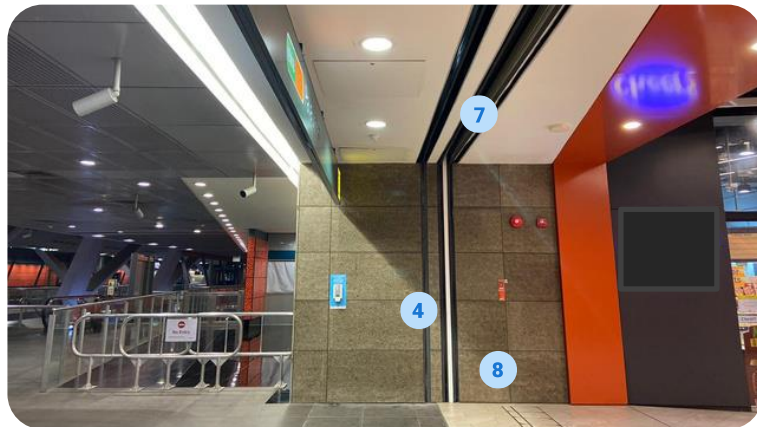
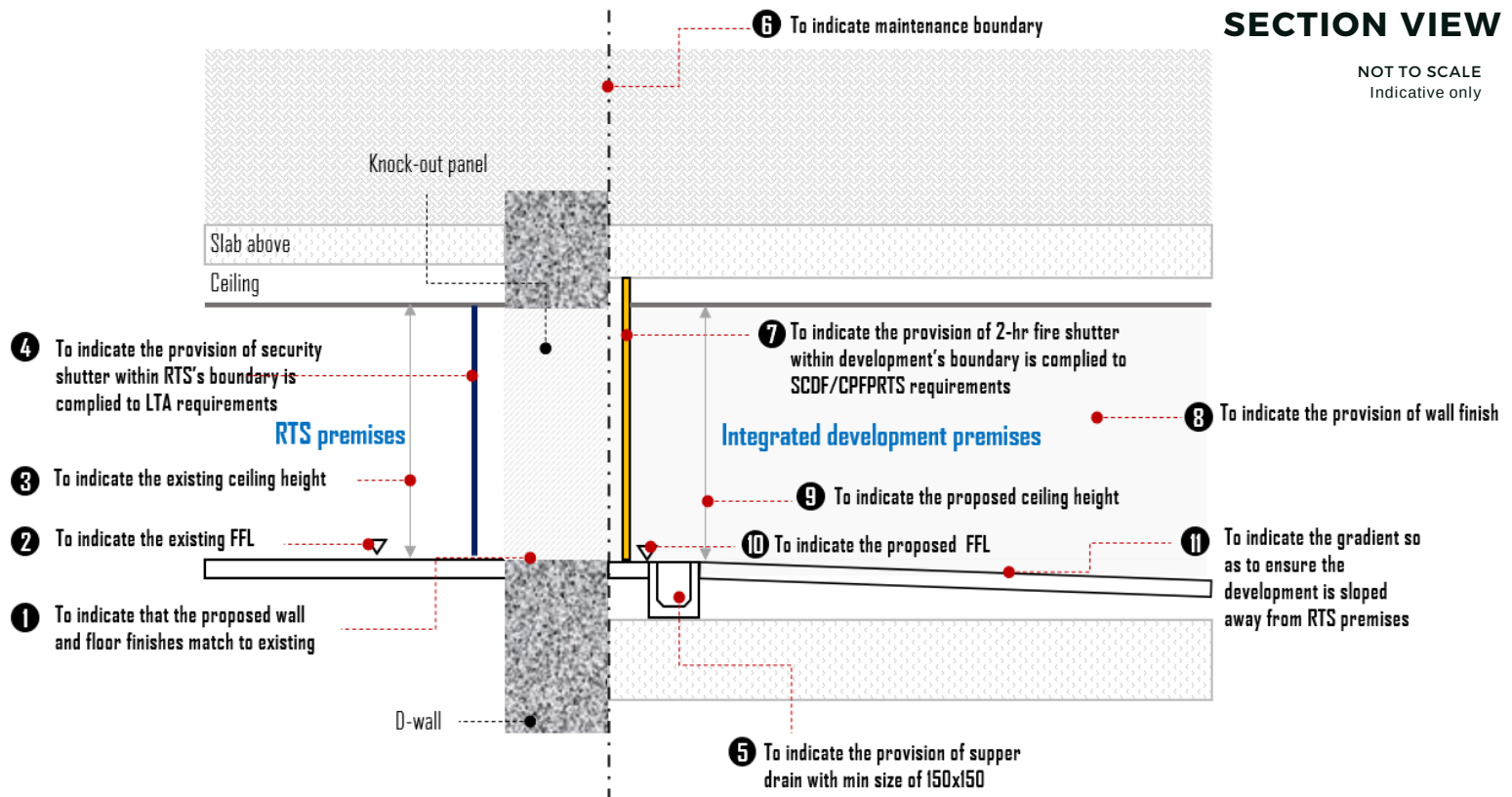
3. CASE STUDY

CASE 1 – UPL CONNECTION AT STATION CONCOURSE LEVEL VIA THE STATION KNOCK-OUT PANELS





CASE 1 – UPL CONNECTION AT STATION CONCOURSE LEVEL VIA THE STATION KNOCK-OUT PANELS

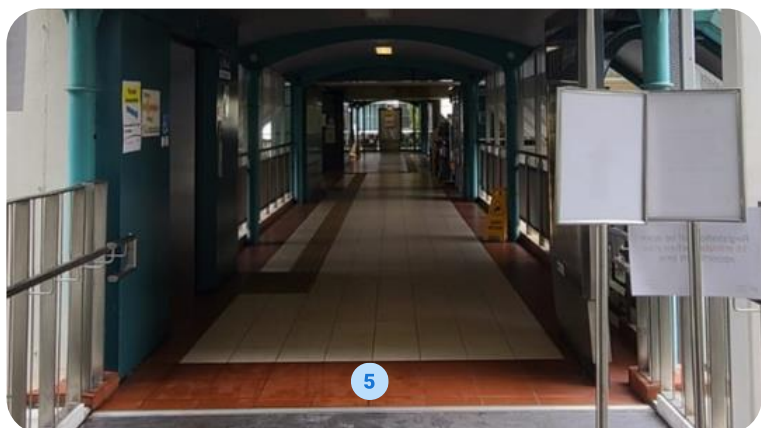
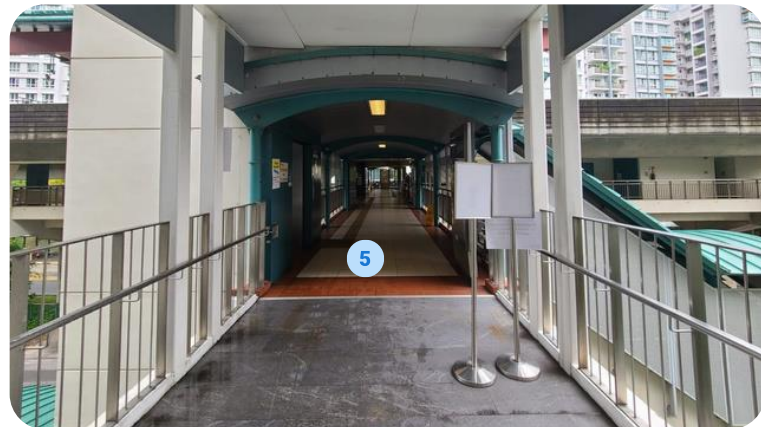
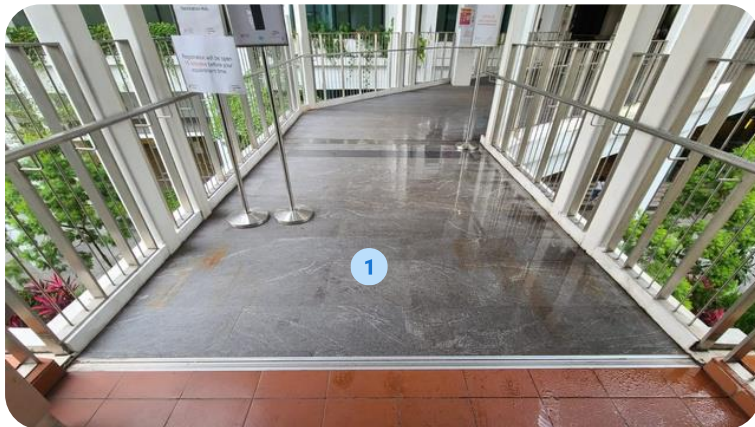
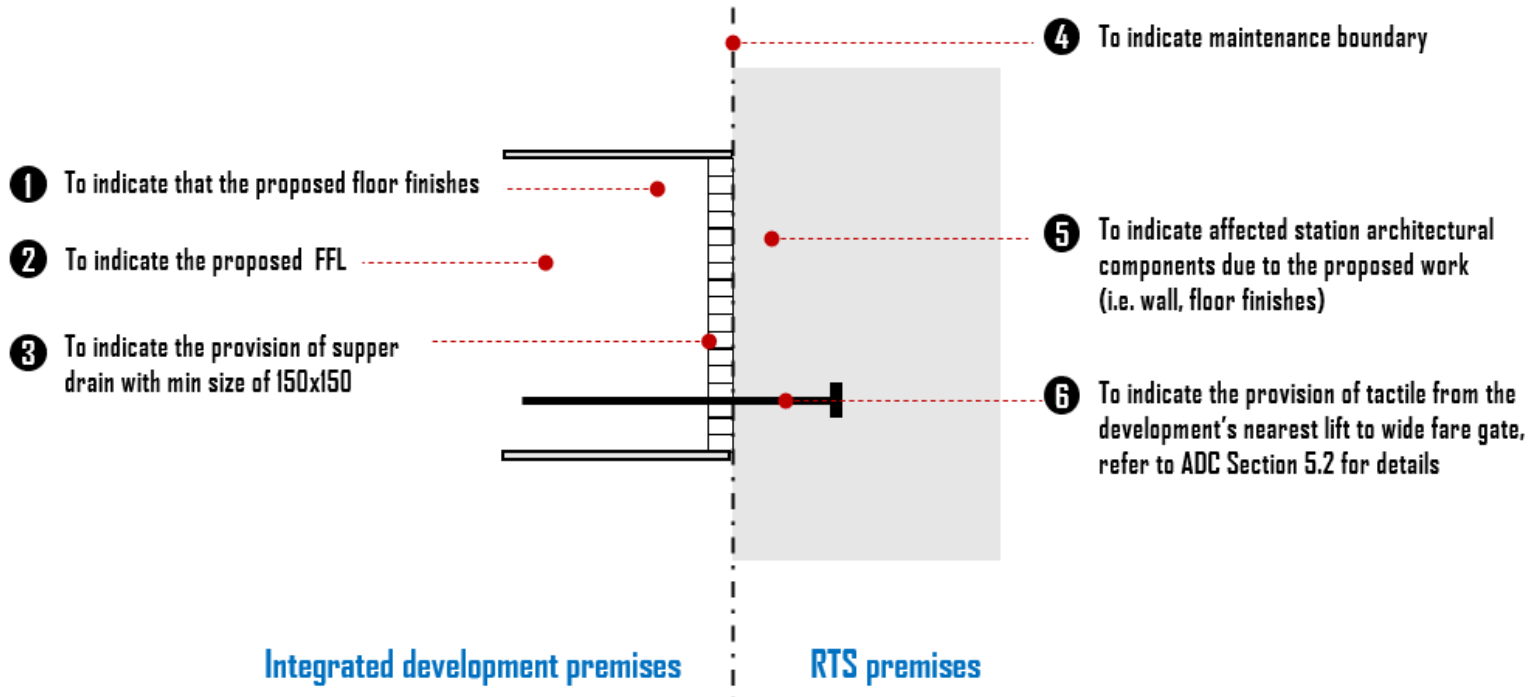




CASE 2 - ELEVATED PEDESTRIAN LINK (EPL) CONNECTION TO ELEVATED STATION

PLAN VIEW

NOT TO SCALE
Indicative only





CASE 2 - ELEVATED PEDESTRIAN LINK (EPL) CONNECTION TO ELEVATED STATION

- 1 To provide the treatment details to prevent any water ingress
- 2 To provide weather protection details
- 3 To provide scupper drain with min size of 150x150
- 4 To indicate the gradient so as to ensure the development is sloped away from RTS premises

SECTION VIEW

NOT TO SCALE
Indicative only

- 2 To provide roof plan and indicate the direction of water flow

- 3 To indicate that the proposed materials for wall (if any) and floor finishes

- 4 To indicate the proposed ceiling height

- 5 To indicate the proposed FFL

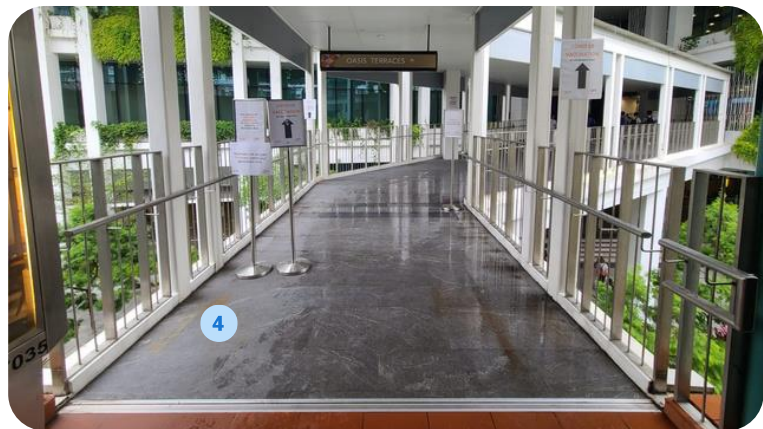
- 6 To confirm that the UPL is of independent structure and does not transfer any loading to existing RTS structure

- 7 To indicate maintenance boundary

Integrated development premises

RTS premises

Road level

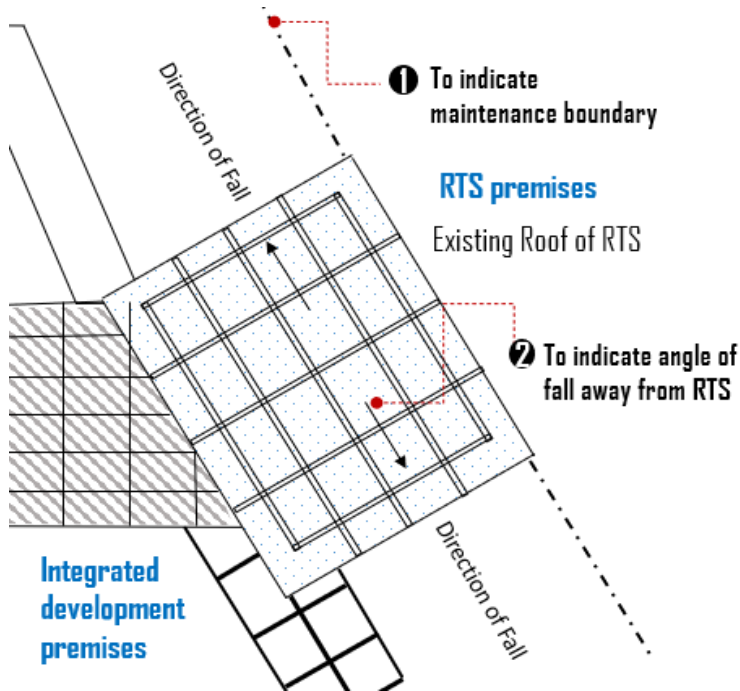




CASE 3 – AT-GRADE CONNECTION TO STATION ENTRANCE VIA COVERED LINKWAYS

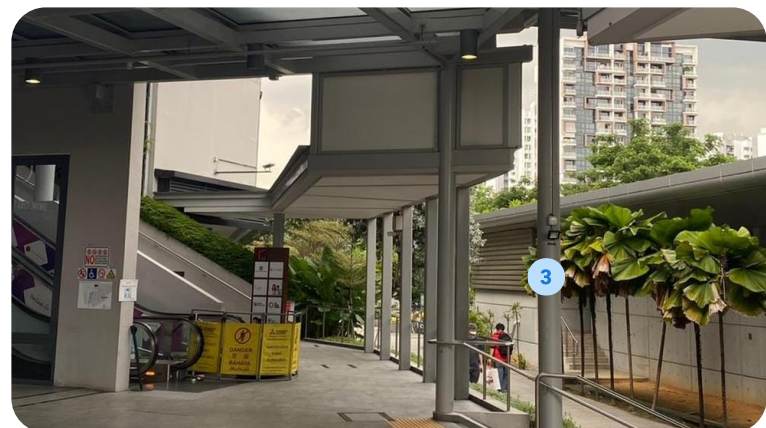
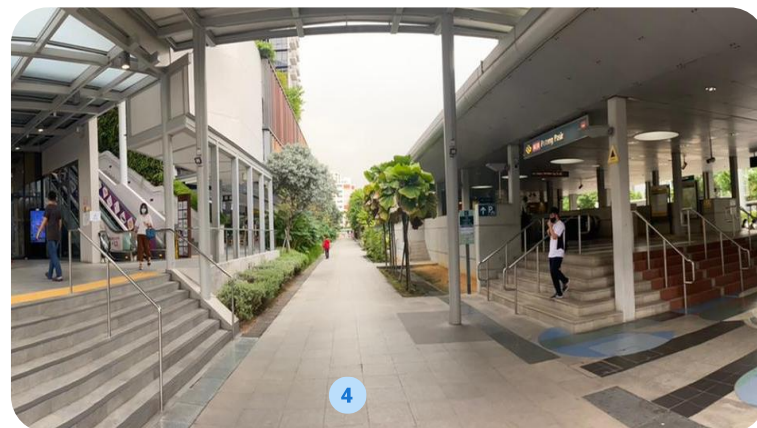
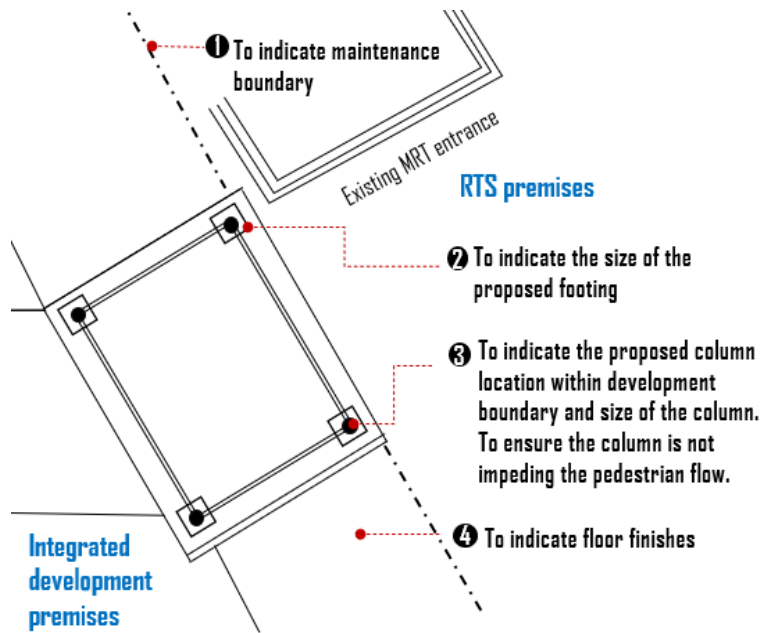
ROOF PLAN

NOT TO SCALE
Indicative only



FLOOR PLAN

NOT TO SCALE
Indicative only

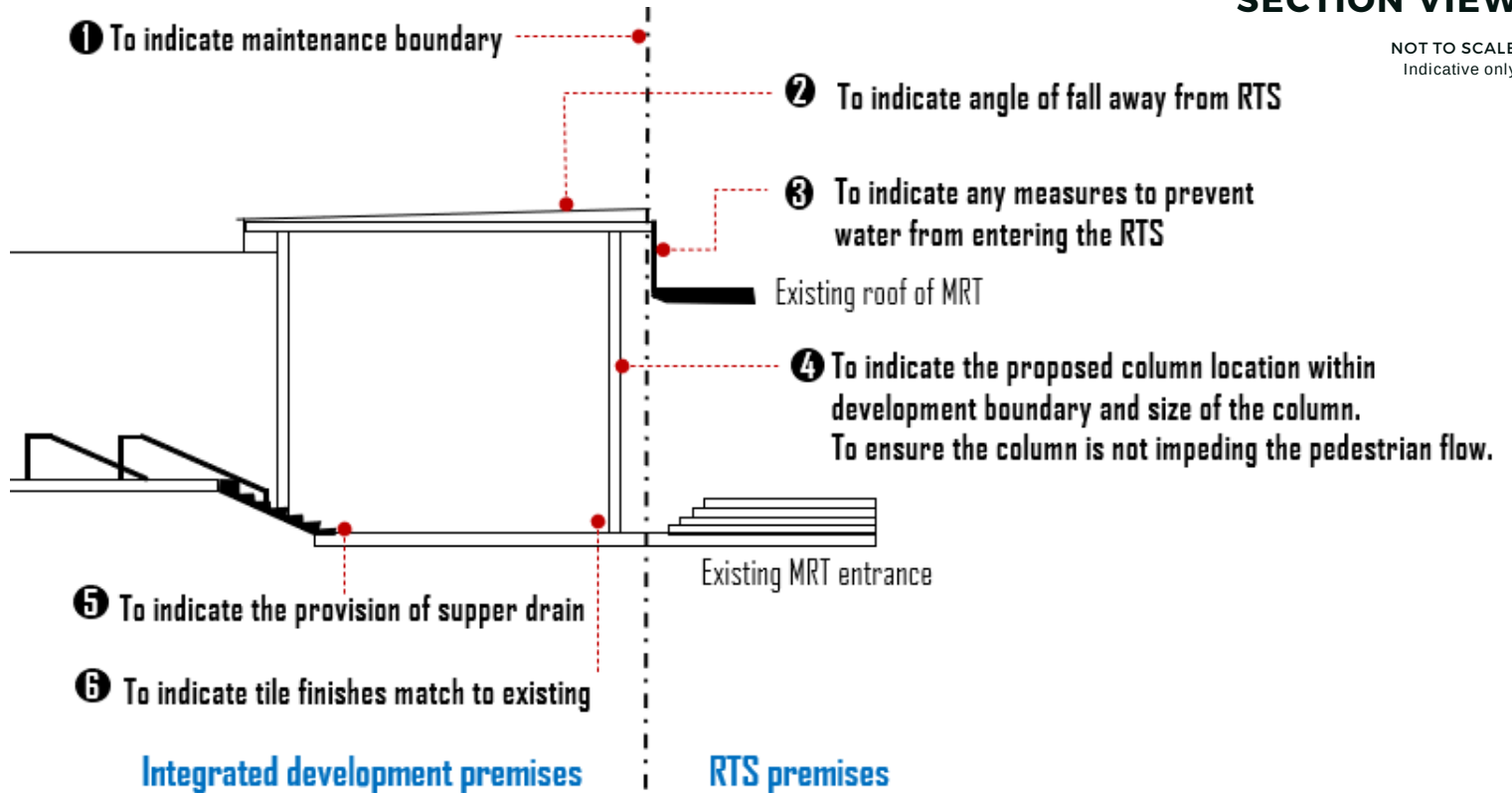




CASE 3 – AT-GRADE CONNECTION TO STATION ENTRANCE VIA COVERED LINKWAYS

SECTION VIEW

NOT TO SCALE
Indicative only

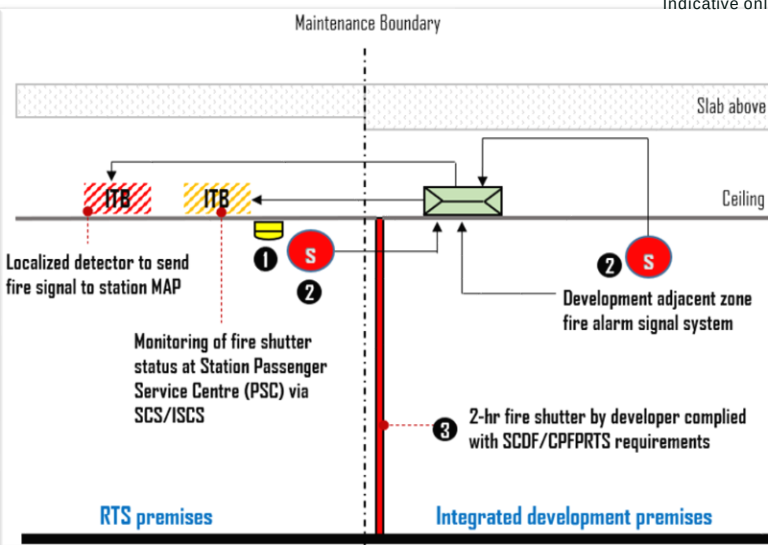




CASE 4 – GENERAL MECHANICAL & ELECTRICAL (M&E) PROVISION AT THE INTERFACE

FIRE SHUTTER DETAIL

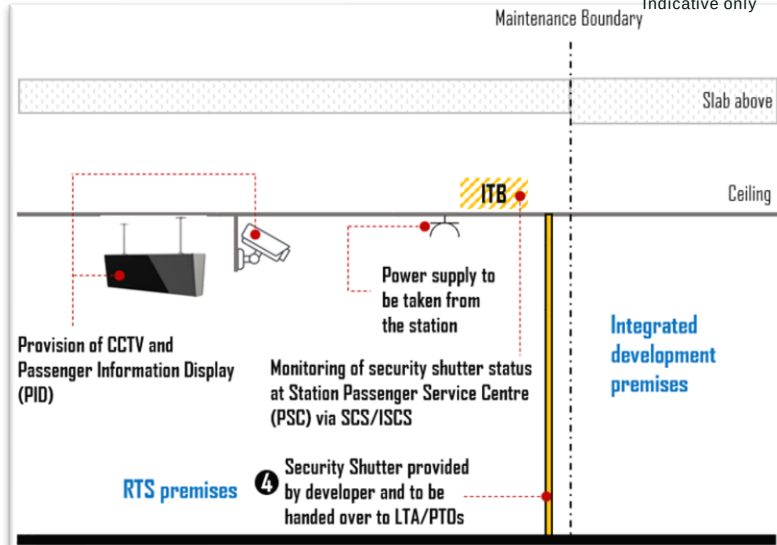
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Provision of Fire Shutter at the Knock Out Panel area

SECURITY SHUTTER DETAIL

NOT TO SCALE
Indicative only



Provision of Security Shutter, PID and CCTV at the Knock Out Panel area (to be complied with LTA requirements)

Legend



Localized Smoke Detector



Interface Terminal Box (ITB)



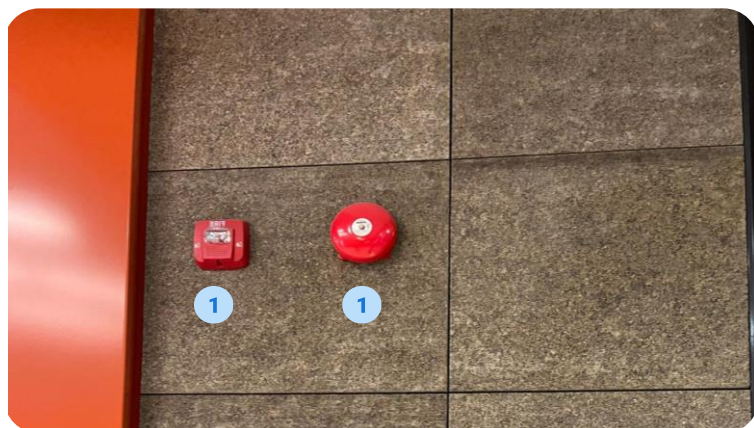
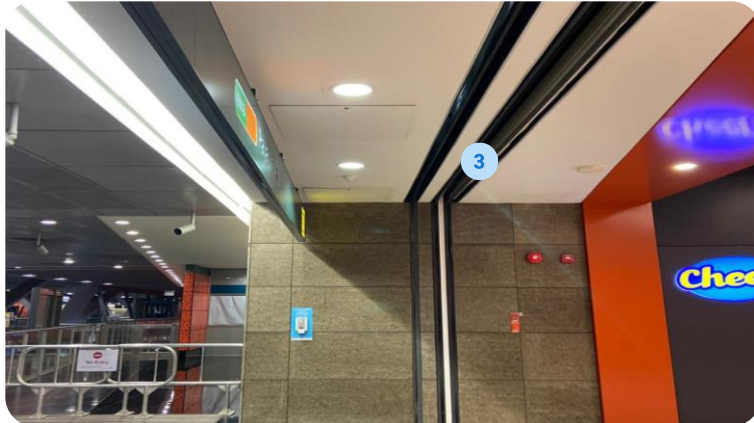
Shutter Control Panel



Strobe Light with alarm



Socket



4. CONCLUSION

This Quick Guide has demonstrated good practices and examples taken from many past projects and experiences. We endeavor to regularly update this Quick Guide by sharing new experiences, initiatives and solutions.

LTA has also developed a checklist that specifies the plans and details to be provided for Architectural Submissions. The checklist is only applicable if the proposed work falls within station boundary and to be handed over to LTA upon completion. You can access this checklist by scanning the following QR Codes:



Covered Linkway



Floor Finishes



Pedestrian Underpass

All publications are made available at LTA's corporate website, under Industry & Innovations > Industry Matters > Development & Construction resources.