

Demolition Works Measures for Public Safety

To ensure public safety, the control of demolition works is governed by the Buildings Ordinance (BO), Building (Administration) Regulations (B(A)R) and Building (Demolition Works) Regulations (B(DW)R), which impose requirements for:

- (a) application for approval of plans for demolition works;
- (b) application for consent to commence the works;
- (c) site safety supervision;
- (d) appointment of technically competent person to supervise demolition works;
- (e) appointment of operator of powered mechanical plant or equipment; and
- (f) certification of completion of works.

2. This practice note sets out the procedures to be followed by authorized persons (AP), registered structural engineers (RSE) and registered geotechnical engineers (RGE) in meeting these requirements. Some points for practical application are also clarified.

Demolition Proposals

3. All demolition proposals should be submitted for formal approval as prescribed under regulations 8(3) and (4) of the B(A)R. When preparing plans for demolition works, reference should be made to the Code of Practice for Demolition of Buildings 2004 (Demolition Code) issued by the Buildings Department (BD) for guidance for complying with the BO and its subsidiary regulations. The Building Authority (BA) may refuse to approve under section 16(1)(a) and (e) of the BO any demolition proposal which does not contain all the plans and documents prescribed in the regulations.

4. The BA will exercise his discretion to refuse an application for consent to the commencement of demolition works under section 16(3)(a) and (b) of the BO where his approval to the demolition plans for the works has not been given.

Precautionary and Protective Measures

5. Notwithstanding the need to include the precautionary and protective measures for the demolition works on the plans submitted for approval, the following items, which at the time of their erection do not affect the structure of any building, may be erected without the consent of the BA:

- (a) protective screens and safety nets;
- (b) dust screens of plastic or tarpaulin sheets;
- (c) scaffolds and intermediate catchfans;
- (d) hoarding, covered walkway, gantry and catch platforms; and
- (e) shoring and propping for stabilising buildings under demolition or adjoining buildings.

Supervision Plan

6. A supervision plan as defined under section 2(1) of the BO is required to be lodged with the BA by an AP prior to or at the time of application for consent to commence demolition works except for works which satisfy all of the criteria set out in paragraph 11 of the Technical Memorandum for Supervision Plans. The supervision plan should be prepared in accordance with the recommendations in the Code of Practice for Site Supervision 2009 issued by BD. Under section 16(3)(bc) of the BO, the BA may refuse to give his consent to the commencement of demolition works where an AP has not lodged a supervision plan for the works.

Execution and Supervision of Demolition Works

7. AP, RSE, RGE and registered specialist contractors (RSC) are required to observe the requirements on the provision of a full time site engineer for demolition of complex structures, debris disposal and management system, and other execution and supervision particulars as stipulated in the Demolition Code.

8. Where a site engineer is required to be appointed, he/she should be directly responsible to the RSC. Any subsequent change in the appointment of the site engineer should immediately be reported to the AP/RSE/RGE and the BA by the RSC.

Video Record of Demolition Works

9. Video cameras to record the entire demolition process should be provided by the RSC for all types of demolition sites. The video cameras should be installed at strategic locations agreed by the AP/RSE/RGE and be securely protected from being tampered with so that the entire demolition process including the movement of debris and the overall sequence of demolition can be recorded for reference and review purposes. While the exact number of cameras is to be determined by the AP/RSE/RGE, there should be at least one video camera for each site. The location of the video cameras should be shown in the demolition plan.

10. The video records should be kept by the RSC for at least 14 days.

Appointment of Operator of Powered Mechanical Plant or Equipment

11. The use of powered mechanical plant or equipment for demolition works carries risks and particular care should be taken. In certain circumstances, it may even be unsafe and should not be allowed, for example, the use of a crane and hammer in a densely populated area. To ensure public safety, the operator of powered mechanical plant or equipment used in demolition work shall meet the requirements as specified in regulation 9(3) of the B(DW)R.

12. For the purpose of regulation 9(3)(b) of the B(DW)R, an operator should have completed a training course in “Demolition of Building Course for Plant Operators” organised by the Hong Kong Institute of Construction and obtained the relevant certificate. Equivalent training and certificate issued by a recognised examining body may also be favourably considered by the BA for meeting the requirement.

13. An application for consent to the commencement of demolition works must be accompanied by the personal particulars, qualifications and experience of the operators of any powered mechanical plant or equipment proposed to be used in the demolition works in accordance with regulation 31 of the B(A)R. The information to be submitted should include the operators’ name in Chinese and English, Hong Kong identity card number, date of birth, address and telephone number. The BA may refuse the consent application under section 16(3)(b) of the BO where such particulars have not been submitted.

14. The BA will vet the particulars of the plant operators and advise the AP on the suitability of the operators as soon as possible, having regard to their qualifications, experience and training.

15. Where there is a change in the appointment of the operator, the BA should also be notified within 7 days of the change and provided with the personal particulars, qualifications and experience of the new operator.

Danger from Fire or Explosion

16. Dangerous and hazardous materials left by the previous occupants may cause risk of fire or explosion during demolition operation through the leakage or accumulation of gas or vapour. RSC for demolition works should be asked to ensure all flammable goods are removed from site and any other flammable goods are stored in proper storage facilities. All parties are drawn to the attention of the provisions in regulation 6 of the B(DW)R.

Demolition of Dangerous Buildings

17. In addition to the normal procedures under the B(DW)R, some special arrangements specifically apply to the demolition of dangerous buildings under an order issued by the BA. The following notes are given for guidance and are not intended to be exhaustive:

Closure

- (a) Immediately after a closure order has been issued and the building was vacate, the premises should be secured against unauthorised entry. Otherwise, the BA has the authority to secure the building and charge the costs to the owner. An AP, the owner or anyone affected by the closure who wishes to gain entry to the building subsequently, should apply to the Existing Buildings Division (EBD) of BD for a permit;

Shoring

- (b) All shores are preferably of structural steel of Grade 250 or above and in compliance with the Code of Practice for the Structural Use of Steel 2011 or equivalent. The position of dead shores should first be discussed with EBD. Raking shores or more permanent forms of support for party walls and any common structures should also be suitably designed and constructed. Plans should be submitted for agreement prior to their erection;
- (c) In the construction of shores, attention must particularly be given to the connection details between the shoring and the party wall;
- (d) Temporary shoring should be removed after the demolition works have been completed and, where necessary, should be replaced by a more permanent form of support;

Pedestrian Passageways

- (e) Matters relating to pedestrian passageways associated with demolition works are dealt with in Practice Note for Authorized Persons, Registered Structural Engineers and Registered Geotechnical Engineers (PNAP) APP-23;

Joint Demolition

- (f) Where several adjacent buildings are to be demolished, an AP appointed in respect of one of the buildings should not arrange to commence demolition works until the demolition of all buildings can proceed simultaneously. Any consequential delays should be notified to EBD early, so that co-ordination by the parties concerned may be carried out;

Party Walls

- _____
- (g) In most cases, exposed party walls which remain to enclose existing buildings will require raking or flying shores (Appendix A) from the site of the demolished building. In many cases, an order requiring such works may be issued by the BA. Where a party wall is next to a framed building, any such order served may require demolition of the party wall and provision of new enclosure to the framed building;
 - (h) Where conditions permit, the BA may be prepared to consider alternative permanent measures, to be proposed by the AP concerned. Early discussion will avoid delays;
 - (i) Party walls that will remain should be regularly inspected as demolition proceeds and repairs (including rendering, facing up cut brickwork and removing old wood joist ends) should be carried out concurrently with the demolition works or in special circumstances, as soon as possible;

Default Works

- (j) Where works have not commenced or have not been carried out within the period specified in the order, the BA may cause the works to be carried out and then recover the costs plus supervision charges and a surcharge from the owner. The AP appointed should advise his client accordingly and attend to all matters without delay; and

Liaison

- (k) It is the duty of the AP to advise the BA of any unexpected weaknesses in adjacent buildings, structures and ground revealed during the demolition works. He should immediately discuss with EBD when any such problems are encountered.

Street Name Signs on Buildings

18. To ensure efficient replacement of street name plates, AP are requested to inform the Director of Highways of any building to be demolished if street name plates are affixed to such buildings under section 32 of the BO.

Public Drainage System

19. To ensure proper updating of drainage records and better control of drainage connections, APs are requested to inform the Drainage Services Department (Hong Kong and Islands Division/Mainland South Division/Mainland North Division, as appropriate) once the Registered General Building Contractor or RSC has completed the sealing of drains. Regulation 3(2)(b) of the B(DW)R refers.

Demolition Affecting Slopes and Retaining Walls

20. If demolition works affect slopes and retaining walls, the RSE should ensure that all the relevant recommendations by the RGE are incorporated in the demolition plans. Any difference in opinion should be resolved between the RSE and the RGE before submission to the BD. The geotechnical reports and supporting documents are to be prepared and signed by the RGE.

Safety and Convenience of Third Parties

21. Proper protection and safe passage for the public must be provided at all times by the erection and maintenance of suitable hoardings, covered walkways and gantries, and catch platforms.

22. Every effort must be made to minimise any nuisance to the public arising from dust, noise and vibration.

Design of Hoarding, Covered Walkway, Gantry and Catch Platform

23. Reference could be made to Chapter 3 of the Demolition Code for the general design requirements of hoarding, covered walkway, gantry and catch platform. The deck of the catch platform shall be designed to support a uniformly distributed load of 5.0 kPa or a point load of 20 KN acting on an effective area of 300 mm x 300 mm. In accordance with the requirement as stipulated in clause 2.5 of the Code of Practice on Wind Effects in Hong Kong 2019 (Wind Code), a wind load of 37 % of the wind reference pressure as defined in clause 3.2 of the Wind Code without the adjustments for wind directionality and sheltering effect could be adopted for checking the stability of these structures.

24. A design example of a gantry with single bay hoarding on each side is given in Appendix B for reference. If the catch platform which should have a minimum 2 000 mm distance from the existing building line encroaches into the 500 mm (minimum) recess from the carriageway, the catch platform shall be raised to allow 5 500 mm headroom over the carriageway. For narrow service lanes (width 3.5 m or less) which are generally shielded from the wind, a single deck design with the deck functioning as a catch platform fully capable of resisting the superimposed design loads is considered acceptable because of the relatively lower risk associated with these areas. A single deck design for narrow service lanes is given in Appendix B for reference. Structural justification may not be required if the parameters as adopted in the design examples are strictly followed.

25. Site constraints such as the presence of congested underground utilities and narrow pedestrian walkways may sometimes prohibit the construction of footings and counterweight, or render the sole reliance on counterweight for maintaining stability uneconomical. Under such circumstances, AP/RSE are encouraged to consider more economical designs with recyclable materials as alternatives to the examples given in Appendix B. Such alternatives may include the adoption of a rigorous analysis and/or the provision of tie forces at upper levels in securing the stability of the structure, thus reducing counterweight and/or some structural members' sizes.

/Certification ...

Certification on Completion of Demolition Works

26. Within 14 days of the completion of the demolition works, the AP and the RSE shall certify the completion of works in Form BA14A for demolition works. The specified form can be downloaded from BD website www.bd.gov.hk.

Minor Works Relating to Demolition Works

27. Under the Minor Works Control System (MWCS), certain minor building works relating to demolition works have been designated as minor works and may be carried out under the simplified requirements as an alternative to obtaining prior approval and consent under the BO. Reference can be made to Schedule 1 of the Building (Minor Works) Regulation and PNAP APP-147 regarding the list of minor works items and the simplified requirements respectively.

Streamlined Procedures for Carrying out Minor Works before Demolition of Buildings

28. Before demolition of a building, minor building works such as the removal of unauthorised building works, projecting structures and windows of the parent building for various purposes including the installation of precautionary measures and formation of openings in floor slabs to convey debris are usually required. To facilitate these works, in addition to the staged consent procedures of applying separate consent for the commencement of these works and the procedures under MWCS for those falling within the definition of minor works, AP may adopt the streamlined procedures as detailed in Appendix C to carry out such works.

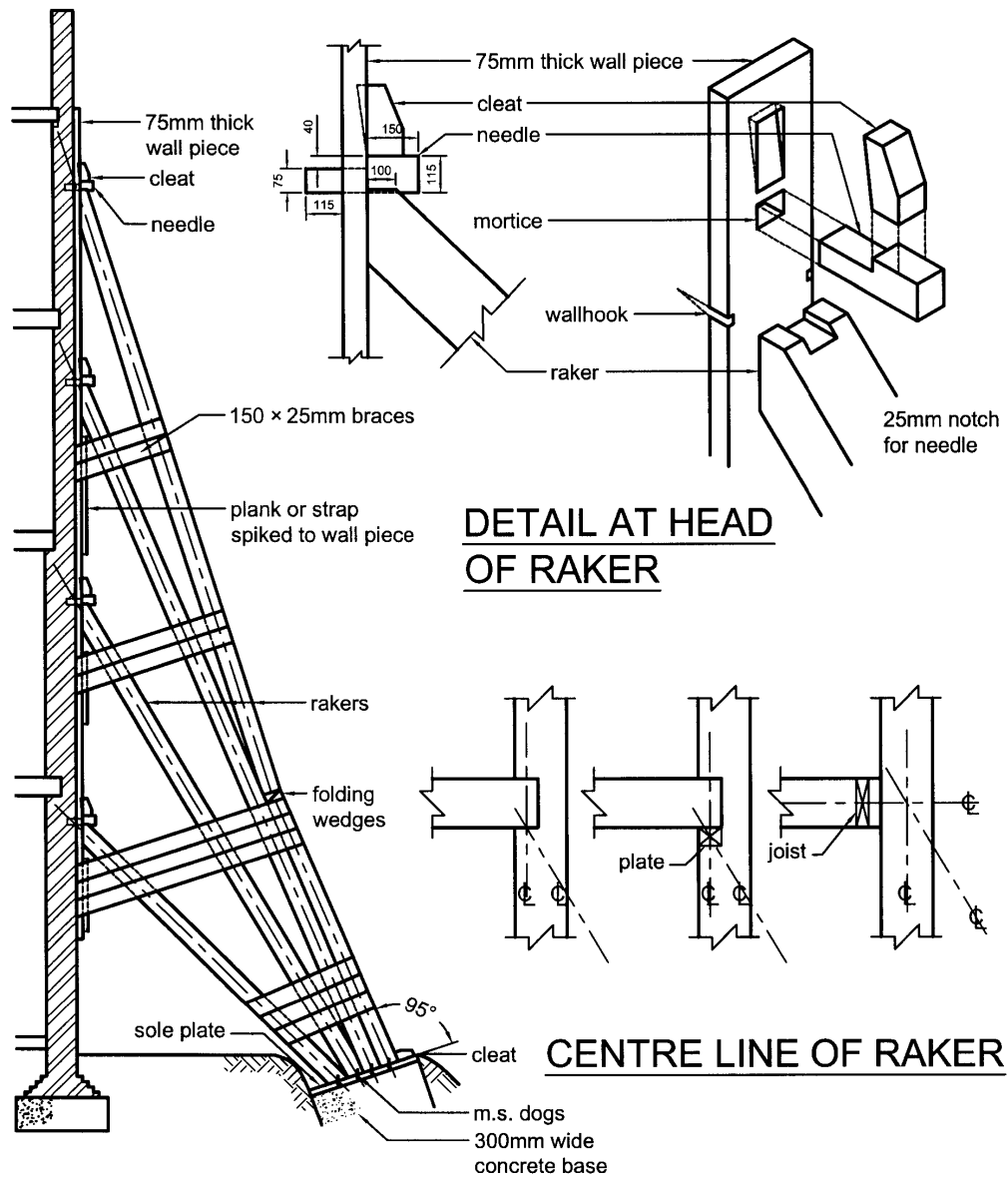
29. A similar practice note has been issued to all registered contractors.

(YU Tak-cheung)
Building Authority

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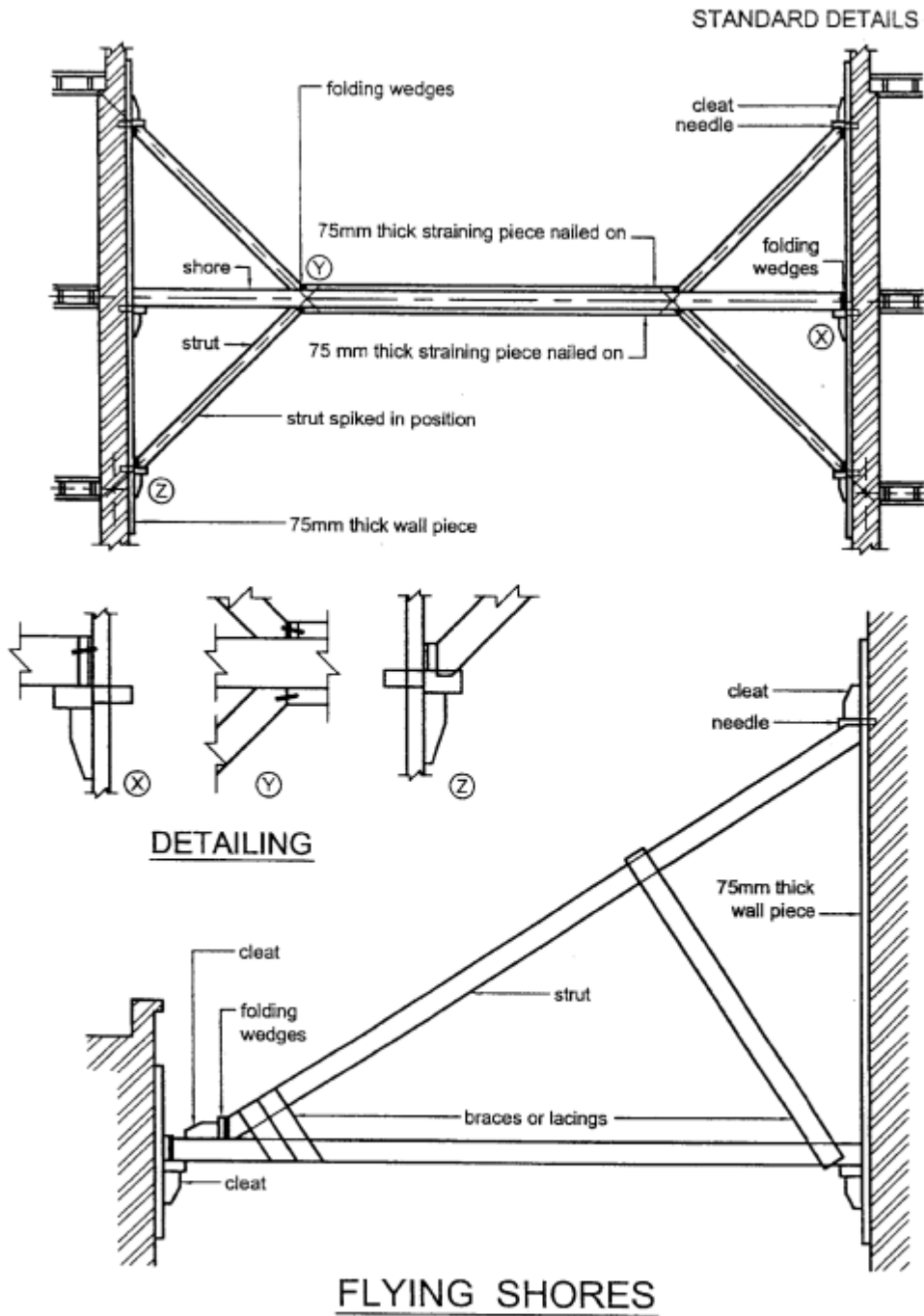
STANDARD DETAILS



RAKING SHORES

NOTES: SPACING OF RAKING SHORES NOT TO EXCEED 5m

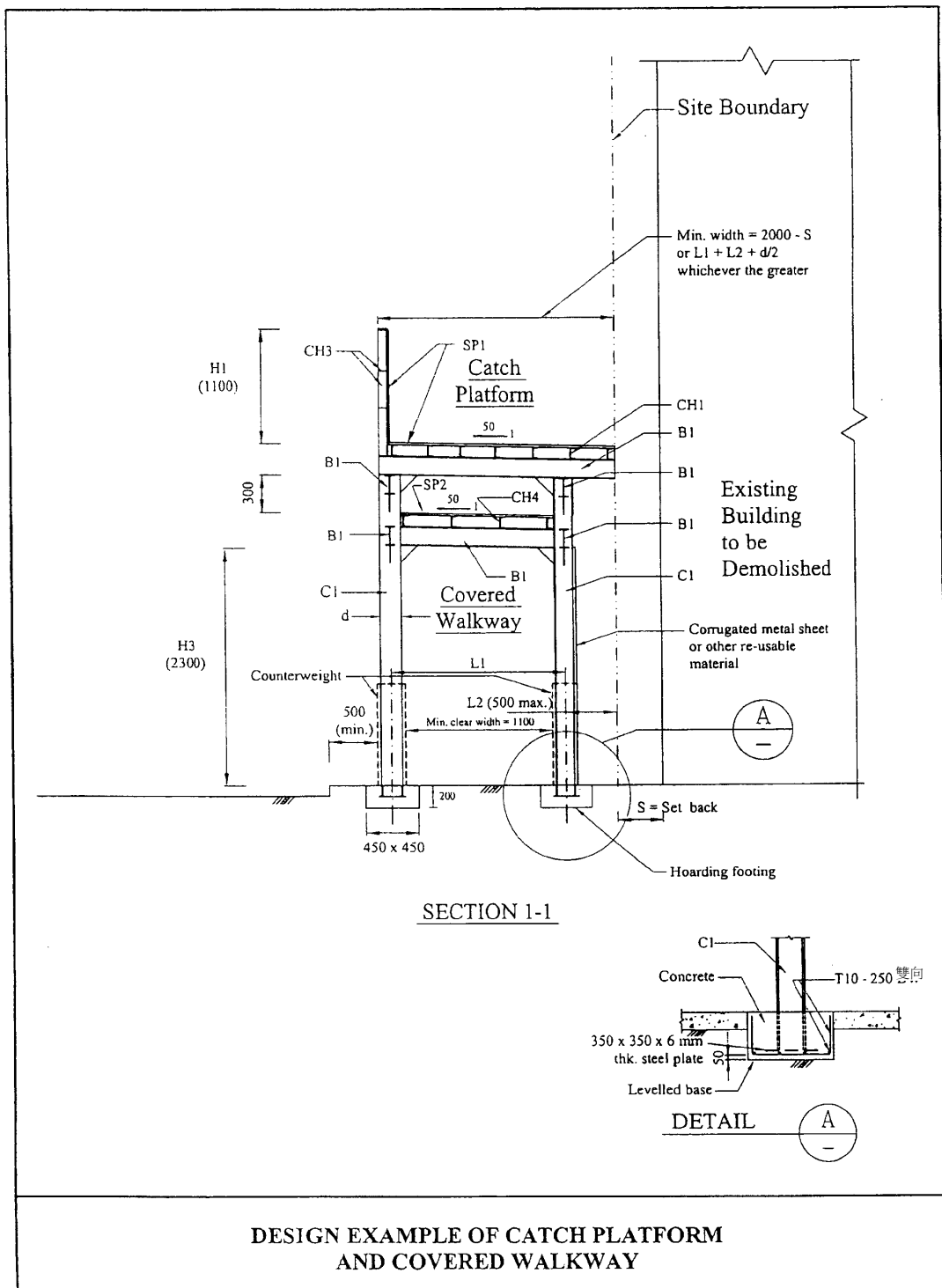
HEIGHT OF WALL	NO. OF RAKERS PER SET	SIZE OF RAKERS
6m	2	150 x 150
9m	3	150 x 150
12m	4	175 x 175
15m	5	200 x 200



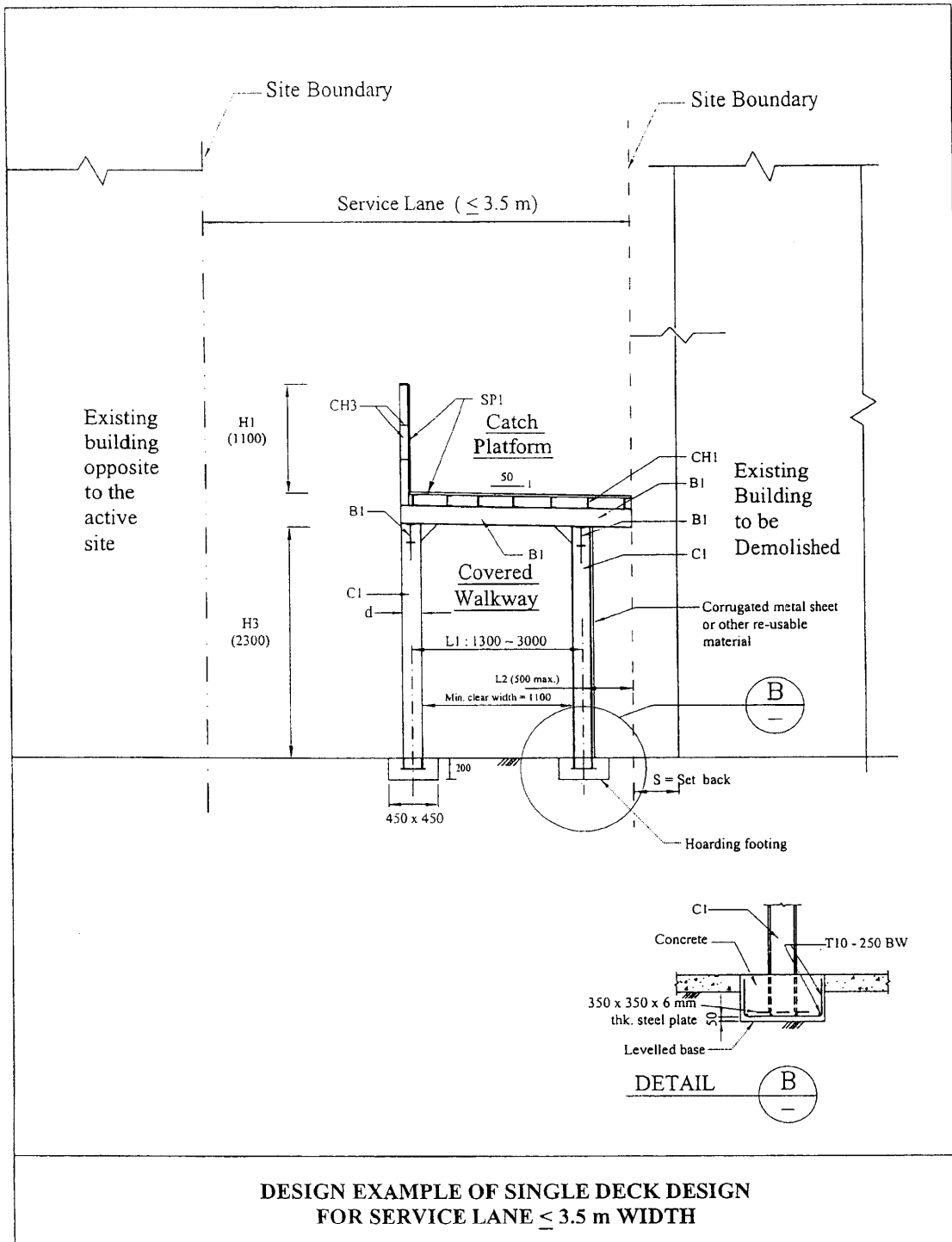
NOTES: SPACING OF FLYING SHORES TO BE 3m - 5m

	SIZE OF MEMBERS	
	SPAN UP TO 5m	SPAN 5m - 11m
FLYING SHORES	125 × 125	150 × 150 TO 225 × 225 (e.g. for 6m — 175 × 175)
RAKING STRUTS	125 × 125	125 × 125 TO 200 × 200

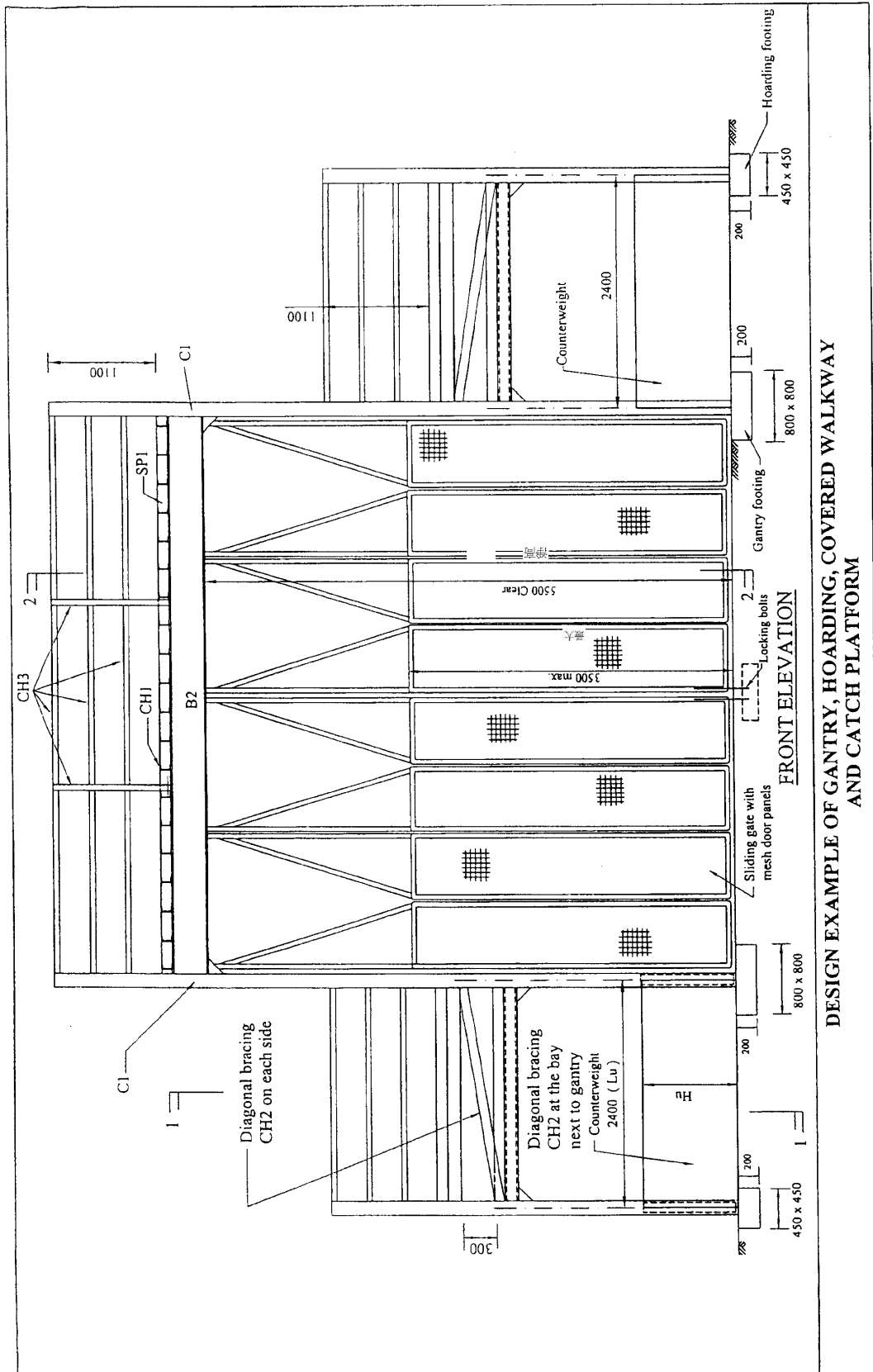
(Rev. 1/2021)



(see page 5 for design assumptions and structural member schedule)

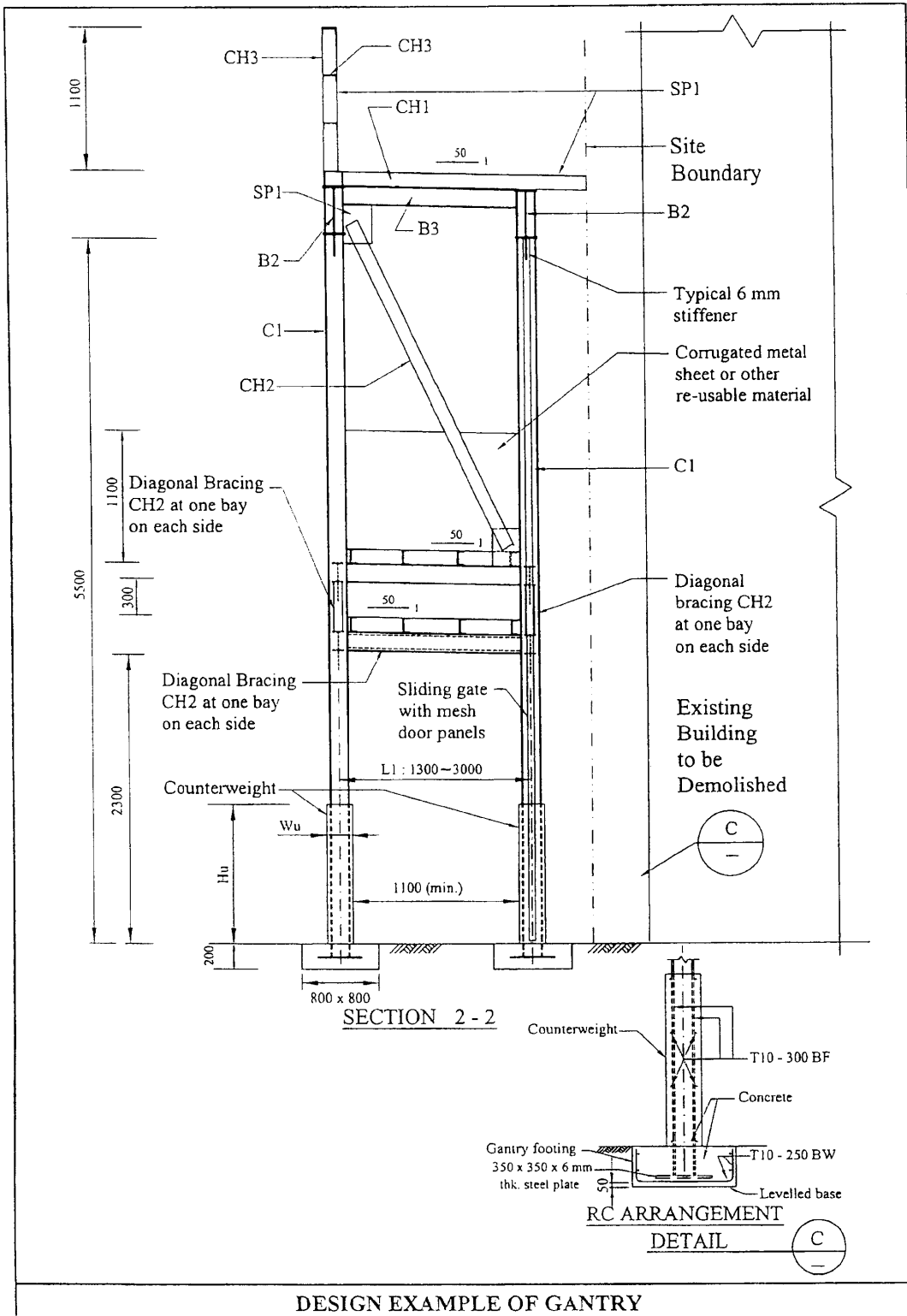


(see page 5 for design assumptions and structural member schedule)



DESIGN EXAMPLE OF GANTRY, HOARDING, COVERED WALKWAY AND CATCH PLATFORM

(see page 5 for design assumptions and structural schedule)



(see page 5 for design assumptions and structural member schedule)

Design assumptions and structural member schedule

Design example :

L1 (m)	1.3≤L1<1.6	1.6≤L1<2.3	2.3≤L1<3.0
L2 (m)	0.5 or less		
H1 (m)	1.1		
H2 (m)	0.9 or less		
H3 (m)	2.3		
S (m)	Any value		
Hoarding/Covered Walkway Footing Size: L×W×D (mm) Rebar size, spacing and location	450×450×200 deep T10 @ 250 B W		
Gantry Footing Size: L×W×D (mm) Rebar size, spacing and location	800×800×200 deep T10@250B W		
Counterweight : Size: Lu×Wu×Hu (mm) Rebar size, spacing and location	2400×200×600 T10@300 B F	2400×200×340 T10@300 B F	Not required
C1	152×152×23 UC		
B1	152×89×16 UB		
B2	305×102×28 UB		
B3	127×76×13 UB		
CH1	127×64×14.9 Channel @ 300 c/c		
CH2	102×51×10.42 Channel		
CH3	127×64×14.9 Channel		
CH4	76×38×6.7Channel @ 600 c/c		
SP1	6mm steel plate of mild steel grade or equivalent		
SP2	3mm steel plate of mild steel grade or equivalent		
加勁板	6mm steel plate of mild steel grade or equivalent		
底板	6mm steel plate of mild steel grade or equivalent		

Design assumptions :

- (a) All structural steelwork shall be grade 250 and design complies with the Code of Practice for the Structural Use of Steel 2011.
- (b) All connections between steel members shall be 6mm fillet weld leg length all round.
- (c) In accordance with clause 2.5 of the Code of Practice on Wind Effects in Hong Kong 2019 (Wind Code), the wind load is based on 37 % of the wind reference pressure as defined in clause 3.2 of the Wind Code without the adjustments for wind directionality and sheltering effect.
- (d) Safe bearing pressure of soil underneath pavement is 100 kPa (or 125 kPa with wind condition).
- (e) No overhang of the catch platform on the side of carriageway is required.
- (f) 6 m bay width of gantry is adopted.
- (g) 2.4 m bay width of hoarding/covered walkway is adopted.

(Rev. 1/2021)

Streamlined Procedures for Carrying out Minor Works (MW) before Demolition of Buildings

The following streamlined procedures for MW to be carried out before demolition of parent building are applicable if the authorized person, registered structural engineer and registered specialist contractor ¹ (Project Team) responsible for the demolition of the parent building are also responsible for such MW.

Notification of Commencement

2. Form MW01 for the MW to be carried out before demolition of the parent building should be submitted not less than 7 days prior to their commencement, together with the application for approval of demolition plans for the parent building, by the same Project Team. The demolition plans should indicate such MW including a statement that protective and precautionary measures in accordance with the Technical Guidelines on Minor Works Control System are to be provided.

3. Photographs showing the locations of the proposed MW are not required if such have been included in the building appraisal report submitted with the demolition plans.

Certification of Completion

4. Form MW02 on completion of the MW should be submitted together with the Form BA14A for completion of demolition of the parent building by the same Project Team. Photographs showing the MW as completed are not required if the whole parent building is demolished subsequent to the completion of the MW.

5. If such MW are completed before the submission of Form BA10 for demolition of the parent building, Form MW02 should be separately submitted together with the necessary documents and information under the MW Control System to New Buildings Division 1 of the Buildings Department.

(1/2021)

¹ The MW should be carried out by the registered specialist contractor (demolition works) (RSC(D)) who is qualified to carry out such either as a registered general building contractor or registered MW contractor for the relevant classes and types of MW. The authorized signatory (AS) from the RSC(D) supervising the demolition of the parent building should also be the AS (registered with the relevant classes types of MW) supervising such MW.