Guidelines for Selective Demolition & On Site Sorting

Public Fill Committee
Civil Engineering and Development Department

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1. Goal

The goal of "Selective Demolition and On-site Sorting" is to facilitate recovery of construction and demolition (C&D) materials for beneficial reuse/recycling, thus minimizing the burden on municipal landfills and public filling areas.

2. Selective Demolition

"**Selective Demolition**" involves sequencing the demolition activities to allow the separation and sorting of building materials. In general, domestic wastes such as furniture, household appliances, etc., metal components such as window frames, pipes, etc., timber components such as doors, wooden floors, etc., other wastes such as tiles, asphaltic materials, ceramic products should be removed one by one first.

The main demolition shall begin after all the above non-structural materials have been stripped and removed. As most old building blocks are built with brick walls on concrete frames, the percentage of brick is extremely high, ranging from 60% to 80%. To avoid mixing the non-recyclable bricks and tiles with the broken concrete, it is highly recommended to plan the demolition sequence such that brick walls are demolished first and stockpiled separately before the demolition of structural members.

3. On-site Sorting

Without the implementation of selective demolition, all types of demolished materials will be mixed together. As a good practice, they should be sorted on-site and be separated into different groups including broken concrete, rock, bricks, rubbles, asphalt, soft inert material and non-inert waste. Sorted materials should be delivered to the recycling facilities as far as possible.

(a) Broken concrete and rock can be delivered to:
Construction and Demolition Material Recycling Facility at Tuen Mun Area 38 (http://www.cedd.gov.hk/eng/services/recycling/index.htm)

(b) Other sorted materials can be delivered to :
Respective Recovery/Recycling Companies in Hong Kong
(A list of recovery/recycling companies in Hong Kong can be obtained from EPD's website:
http://www.epd.gov.hk/epd/english/environmentinhk/waste/guide_ref/guide_ref_dwc.html)

4. Technical References

Reference can be made to the following technical circular and code of practice:

(a) Environment, Transport and Works Bureau Technical Circular (Works) No. 15/2003 – Waste Management on Construction Sites
(Softcopy of the technical circular can be downloaded from
http://www.etwb.gov.hk/technical_circulars/index.aspx?langno=1&nodeid=1108)

(b) Draft Code of Practice for Demolition of Buildings issued by Buildings Department
(Softcopy of the code of practice can be downloaded from
http://www.info.gov.hk/bd/english/documents/code/dcop/e_dcop.htm)

5. Examples

Photo No. 1 shows the implementation of the Selective Demolition. The concrete structure is demolished after all domestic waste has been removed.

Photo Nos. 2 – 6 show the sorted materials which are stockpiled separately for subsequent delivery, disposal or recycling.

Photo Nos. 7 – 9 show the mixed demolished material without the implementation of "Selective Demolition". If this material is delivered to the recycling facility, due to high content of non-recyclable material and non-inert waste, extensive sorting is required prior to feeding to the plant. It results in recycling uneconomically and inefficiently. If this material is delivered to public filling areas as fill for reclamation, the recyclable material will be wasted and the public filling capacity will be unnecessarily reduced.

Photo Nos. 10 – 11 show the sorted broken concrete delivered to recycling facilities. Owing to high purity, this material can be fed to the crushing plant directly. As further sorting is not required, it results in recycling economically and efficiently.

Photo Nos. 12 – 13 show the sorted non-recyclable public fill delivered to public filling facilities. Owing to high purity, this material will be delivered to public filling areas as fill for reclamation projects. As recyclable material has been sorted out, the amount of public fill is minimized and the public filling capacity can be saved.

Photo Nos. 14 – 15 show the mixed public fill (both recyclable and non-recyclable) delivered to public filling facilities. Owing to high content of non-recyclable material, this material cannot be fed to the recycling plant directly. To facilitate the recycling process, extensive sorting is required. It results in recycling uneconomically and inefficiently.

Photo No. 16 shows the mixed C&D material (both public fill and non-inert waste) delivered to public filling facilities. This material does not comply with the conditions as stipulated in the Dumping Licence for disposal of material at public filling facilities. Therefore, they will be rejected and can only be accommodated at landfill. As a result, landfill capacity will be unnecessarily reduced.

6. Illustration projects

There are successful real examples, where the clients and demolition contractors have gained valuable experiences in selective demolition. These illustration projects include both private and public projects as shown in **Appendix A**.

** End **

Photographs

Photo No. 1
Structure demolished selectively

Photo No. 2
Sorted broken concrete stockpiled separately

Photo No. 3
Sorted broken concrete stockpiled separately

Photo No. 4
Sorted non-recyclable public fill stockpiled separately

Photo No. 5
Sorted steel stockpiled separately

Photo No. 6
Sorted non-inert waste stockpiled separately

Photo No. 7
Mixed demolished material results in recycling uneconomically and inefficiently

Photo No. 8
Mixed demolished material results in recycling uneconomically and inefficiently

Photo No. 9
Mixed demolished material results in recycling uneconomically and inefficiently

Photo No. 10
Sorted broken concrete delivered to recycling facilities

Photo No. 11
Sorted broken concrete delivered to recycling facilities

Photo No. 12
Sorted non-recyclable C&D materials delivered to public filling facilities for use as public fill for reclamation

Photo No. 13
Sorted non-recyclable C&D materials delivered to public filling facilities for use as public fill for reclamation

Photo No. 14
Highly mixed public fill (both recyclable and non-recyclable) delivered to public filling facilities

Photo No. 15
Highly mixed public fill (both recyclable and non-recyclable) delivered to public filling facilities

Photo No. 16
Mixed C&D material (both public fill and non-inert waste) wrongly delivered to public filling facilities

Appendix A

Appendix A

List of Projects Adopting Selective Demolition

Private Projects		
	Name	**Client**
(a)	Re-development of KMB Lai Chi Kok Bus Depot	Sun Hung Kai Real Estate Agency Ltd.
(b)	Demolition for Two 22 Storeys Industrial Towers, Aik San & Melbourne Buildings at Quarry Bay	Swire Properties Ltd.
Public Projects		
	Name	**Client**
(a)	Demolition of North Point Estate	Housing Department
(b)	Demolition of Lower Ngau Tau Kok Estate	Housing Department
(c)	Redevelopment of the Staff Quarters for the New Rehabilitation Block at Tuen Mun Hospital	ArchSD
(d)	Demolition of Kai Tak Terminal Building	TDD