CONSTRUCTION & DEMOLITION WASTE

(HAZARDOUS & NON-HAZARDOUS)

DESCRIPTION: Commonly used materials in construction, demolition, renovation and maintenance activities. This factsheet covers only those materials not covered elsewhere in this guide; for guidelines on wood, metal, glass, plastics, and paints see separate factsheets.

GLOBAL PRODUCTION/DISPOSAL: Estimated at between 965 million and 2.5 billion tonnes[1] per annum, and one of the fastest growing sources of waste globally.

COMMON SOURCES: Inert materials (e.g. concrete, masonry, asphalt, roofing shingles, bricks, tiles including non-friable asbestos-containing tiles, ceramics, bituminous mixtures, stones), but also wood, metal, glass, gypsum, plastics, various floor coverings and excavated soil as well as hazardous substances such as treated wood, lead paint, friable asbestos, insulation materials, adhesives and solvents. **See comments on asbestos in 'other comments' section below**.

IMPACTS IF NOT MANAGED CORRECTLY: Many of the raw materials in construction waste have considerable environmental impact as a result of extraction and transportation. Quarrying and other extractive operations may significantly disrupt natural ecosystems, including downstream impacts. Avoiding or reusing construction wastes efficiently helps preserve the environment by slowing the rate of extraction. Hazardous substances outlined above can contaminate soil and waterways if not properly managed. If construction waste is not separated at source, hazardous waste fractions can contaminate the whole mixture hampering recycling of components that have a higher resource value (i.e. high potential for recycling and reuse).[2]

OPTIONS FOR REDUCING: Avoid over-ordering of materials for building sites and request timbers arrive cut to length; minimize demolition of buildings/building parts in favour of controlled dismantling – a systematic disassembly that salvages materials by hand sorting them. Specify sustainable and non-hazardous materials wherever possible; encourage prefabricated building components and offsite construction, especially in locations where waste reuse or disposal options may be limited. Avoid building material wrapping options that include plastic wraps.

OPTIONS FOR REUSING: Materials that can commonly be reused with small adjustments (e.g. cleaning and cutting) include pre-fabricated elements, concrete blocks, pipe, timbers, pallets, tiles, utility poles, metal roofing, stone and slate. Excavated soil can be used for backfilling or landscaping however testing of soil prior to acceptance is recommended. Pallets, plastic sheeting, strapping and other packaging should be returned to suppliers and/or reused on site wherever possible.

OPTIONS FOR RECYCLING: Construction wast is highly recyclable. European legislation mandates to recover 70% by 2020. Crushed concrete can be reused as aggregate to make new concrete (up to 30% in the new mix) and as sub-base for roads and hard paved areas. Other segregated materials that are not contaminated with hazardous waste, can be used in the fabrication of other building elements (e.g., floors, external and internal walls, columns). Scrap steel can be recycled and used to make steel bars used for reinforced concrete for any type of structure (e.g. foundation walls, footings, bridges, highways) and steel structural elements (e.g. beams, girders, trusses and columns). Sorting different materials on-site is key to enabling recycling.[3]

DID YOU KNOW?
Construction waste is the heaviest and often the largest waste stream in municipal wastes[5]. In different regions it accounts on average for 25-35% of all generated waste[6].

Reuse and recycling of construction waste is an opportunity to contain project costs through reduced disposal costs, decreased purchasing costs for new materials, and greater revenue earned from the sale of materials[4].

OTHER OPTIONS (LAST RESORT): The least preferred option is to dispose of construction waste in landfills or designated construction and demolition dumping sites, however landfilling such voluminous waste streams leads to trade-offs in land uses. Avoid illegal dumping.

OTHER COMMENTS: When undertaking building renovations or construction, specifying reclaimed and/or rapidly renewable materials in project design can help to reduce costs and create a market for reused construction materials.

On site, materials including excavated soil should be covered and stored in a bunded area to protect them from the weather and from washing/blowing off site, creating litter or polluting local drains/waterways. Siltation fencing or hay bales if available should be installed around the entire stockpile as a best management practice.

If construction waste is contaminated with hazardous contents and is determined to be a hazardous waste, it will be subject to the control procedures under the Basel Convention for any transboundary movements (import, export and transit). It may also be subject to legal restrictions on its disposal in the country of origin.

One example of hazardous construction waste is friable asbestos, which was widely used as building material throughout the 20th century given its desirable physical properties (e.g. strength, fire resistance, affordability). Prolonged inhalation of friable asbestos fibers causes severe and fatal illnesses such as lung cancer, thus the material has been progressively phased out since the 1980s. Safe removal of asbestos from existing buildings requires specialist handling to prevent health hazards. Another example is gypsum, which can produce hydrogen sulphide; a deadly gas that is heavier than air and can linger at ground level.

ENDNOTES

1 Various sources: UN Environment, 2015, Global Waste Management Outlook, p.89; ISWA, (2015), ISAW report 2015, p.6.
2 European Commission, 2016, Construction and Demolition Waste overview, website: http://ec.europa.eu/environment/waste/construction_demolition.htm.
3 Bio Intelligence Service and European Commission, 2011, website: http://ec.europa.eu/environment/waste/pdf/2011_CDW_Report.pdf
4 UNEP 2015 ibid.
5 UNEP 2015 ibid.
6 Various sources: European Commission, 2016 ibid; UNEP, 2015, *Global Waste Management Outlook p.89*.