



SOLID WASTE SOLUTIONS IN MODERN CITIES

**RAMBOLL DEVELOPS SUSTAINABLE SOLUTIONS TO FUTURE-PROOF
WASTE SYSTEMS IN NEW URBAN AREAS AND BUILDINGS.**

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SUSTAINABLE MANAGEMENT OF WASTE - NOW AND IN THE FUTURE

WASTE SHOULD NOT JUST BE 'OUT OF SIGHT' - BUT SHOULD BE SEEN AS AN IMPORTANT RESOURCE. NEW DEMANDS FOR MANAGEMENT OF WASTE IN THE FUTURE MAKE IT NECESSARY TO PLAN EFFECTIVE WASTE SOLUTIONS AT THE OUTSET OF NEW BUILDING PROJECTS.

Experience shows that the best and cheapest solutions are found when waste management is taken into consideration in line with planning and design of water, wastewater, heating and energy supply. Waste is not just waste, but materials that can be used once more as resources for the manufacture of products or the energy can be recovered through incineration. For this purpose waste must be separated, collected and treated in pure materials suitable for recirculation without loss of quality.

Waste arises wherever people live - in our homes, at our workplaces and in our leisure time. Waste is not just waste. It contains important resources that can be recycled and often sold at a good price. Recyclable materials are, for instance, paper, cardboard, glass, plastics, metals, and organic waste.

Waste as natural part of building projects

To secure sustainable, efficient, and economical management you must incorporate new and smart waste solutions already during the planning and design of new buildings or renovation of existing buildings. Re-

quirements for management of waste will become more stringent in the future, so owners, local authorities, utility companies, housing associations, architects, and consulting engineers must take into consideration future-oriented and efficient solutions from the outset.

We are used to seeing water, wastewater and energy flowing in and out of our buildings in pipes and cables as a natural element of any building project. Why not think of waste in the same manner? If we plan optimally we avoid unnecessary extra costs and inefficient stopgap measures. And we can make everyday lives more comfortable and solutions easier for householders and other users of the buildings.

Needs of the future

In the latest EU Waste Directive, adopted in 2008, a number of new requirements are set up contributing to a higher rate of recycling of household waste and similar waste from institutions and offices. No later than by 2015, EU Member States must introduce separate collection of, at least, paper, cardboard, metal, plastics and glass.

We also expect new requirements for separate collection and biological treatment of food waste and other organic materials. In addition, hazardous waste must be collected and treated in a safe manner that respects the environment.

No later than by 2020 all EU Member States must ensure a rate of recycling or reuse of waste materials from households and similar of at least 50%.

Source separation and space

Source separation as a general principle for separation of waste is the optimal solution for a high rate of recycling. Source separation requires space, since many different fractions must be considered - in the vicinity of residents, workplaces and similar as well as at the central collection sites from where waste is picked up. This sets requirements for both existing and future urban areas and buildings in terms of new and innovative solutions for waste management.

Sustainable urban development and building

Analyses of sustainability and climate impacts from an average Dan-

WASTE MANAGEMENT IN NEW BUILDINGS

Our consultancy services include:

- Coordination with pan-European rules and regulations
- Compliance with requirements in local regulations and directions from working environment authorities
- Impact analyses of suitable technologies for source separation, storage and collection.
- Design of sustainable waste systems for management of source-separated waste.
- Early screening of new building projects to clarify whether future requirements for a modern, sustainable and functional waste system have been considered sufficiently.
- Continuous dialogue with architects and engineers in the design phase about layout and adaptation of the waste system in the building.

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ish family show that climate impacts can be reduced by around 285 kg CO2 equivalents per year and home by introducing efficient source separation of recyclables contained in waste. This clearly demonstrates how important it is to consider future-oriented and efficient solutions for recycling of waste in urban areas, new building projects and in the renovation of existing buildings.

Modern solutions

Tighter statutory requirements and the desire to respect environment and climate imply that we must make sure to establish efficient management of resources contained in waste from homes, workplaces and leisure activities.

Today, several systems and technologies are available on the market and in each individual case it must be decided what suits best the building and its users. Solutions range from manual systems with containers to underground vacuum pipe systems.

These issues have a direct impact on the design, construction, and future use of the building. And it is of utmost importance to be at the

cutting edge - thus avoiding stop-gap solutions later on.

Totality in focus

At Ramboll we keep focus on the totality. Waste solutions must be practical for the users, secure good occupational health for refuse collectors, and future-oriented from a waste technology point-of-view. We also value waste solutions that are architecturally elegant and visually fitted to the surroundings.

Our waste experts can help with a screening of master plans and building projects to assess whether future requirements for a modern, sustainable waste system have been considered sufficiently. If the screening reveals that further assistance is called for we can submit a proposal and a cost estimate and further consultancy.

01 Nordhavn in Copenhagen. Ramboll develops and design the future waste infrastructure for Nordhavn in cooperation with architects and the Municipality of Copenhagen.

02 A kitchen-waste disposer is a solution for source separation. The wastewater treatment plant must have the capacity, be able to bio gasify and the degassed bio sludge can be used for soil purposes.

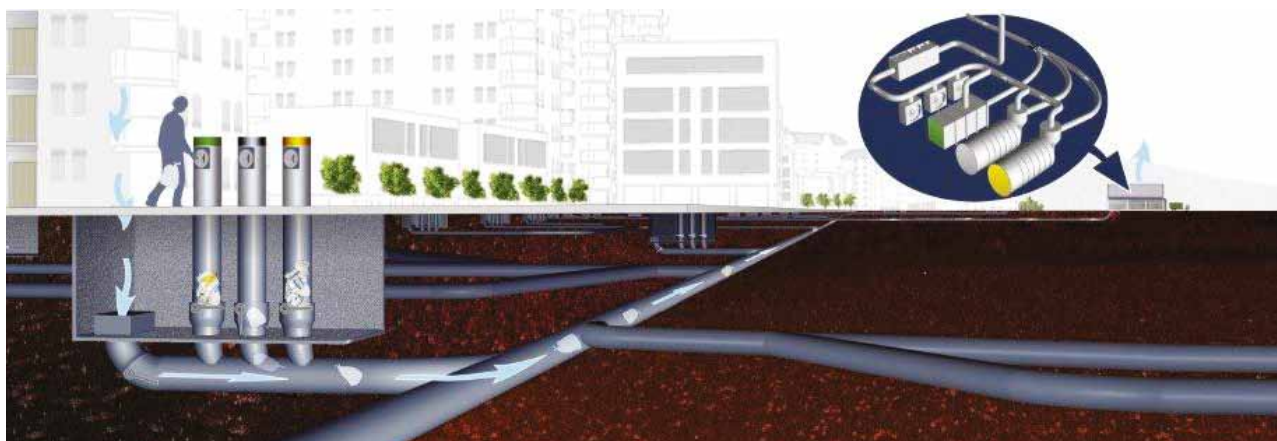
03 Waste management in new buildings



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