

Quality Assessment of Construction & Demolition Waste

CDW

Description

This assessment methodology is a guide that aims to guarantee the quality of the building works when CDW is used in construction, in particular for sewage and water network infrastructures. This guide can be used as a procedure to use residual materials from demolitions, such as concrete, by understanding how they will perform in new construction uses. When material is recovered in demolition or renovation works, the procedure will show the correct steps to follow in order to assess the quality desired for municipal infrastructure works. Standard quality assurance is fundamental to ensure safe revalorisation of CDW, thus avoiding downcycling or dumping by allowing for the materials' safe and reliable reuse.

Keywords:

- #Demolition; #Renovation
- #Handling CDW
- #Classification
- #Procurement
- #Reuse; #Recycle

Target user:

- Local governments - (e.g. departments of buildings & infrastructure, environment, urban development, procurement)
- Businesses - (e.g. construction & demolition contractors, building & infrastructure owners, waste managers)

Format:

- Evaluation methodology (document, in English and Spanish)

Development

For this tool, data from a previous project (ARCO) was used to verify the technical suitability of the use of construction waste material as constituent filling materials in canalisation works, both in the pipe bed and in the filling of the same. This guide was developed by a work group which include the environmental area, design engineering area, procurement area, and innovation area from EMASESA, the water and waste water management company of Seville. This multidisciplinary team has worked together developing each part of the guide. The guide includes sections such as study of state of the art, CDW volume estimation tool in water and sewage works, CDW handling recommendations, selective demolition, CDW classification and appropriate uses, CDW treatment procedures and steps, quality





control system, tests for leaching of recycled aggregates, tests in-situ, control of densities and moisture, and circular clauses in public procurement.

Barriers:

The main barriers to deal with are the different kinds of public works and the variety of materials to be recycled. The different legal frameworks depending on each country should also be considered.

Deployment

In CityLoops, [Seville](#) will use this methodology to test a procedure in which materials recovered in planned renovation works of underground pipes in certain city streets can be used again in sewage and water network building works. Material such as concrete pavements and pipes, earth and mixed demolition waste could be used in this way. This tool will ensure high-quality performance of the materials in future uses and confidence of those building with these materials or effected by their use.

Replication

Others interested in the methodology are welcome to use it. When materials become available from construction, renovation or demolition works, the methodology can be followed to test their suitability for recycling or reuse. Despite the fact that this methodology could be used by any municipality, so far it has been developed with the construction of water cycle infrastructure works in mind. Likewise, it must be considered that the legal regulations of each country must be complied with, which could vary from the legal framework in which the guide has been based. Part of the tool developed consists of a spreadsheet which incorporates different kinds of materials. To use this part, a basic configuration has to be done by each user. The tool includes its own configuration manual.

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