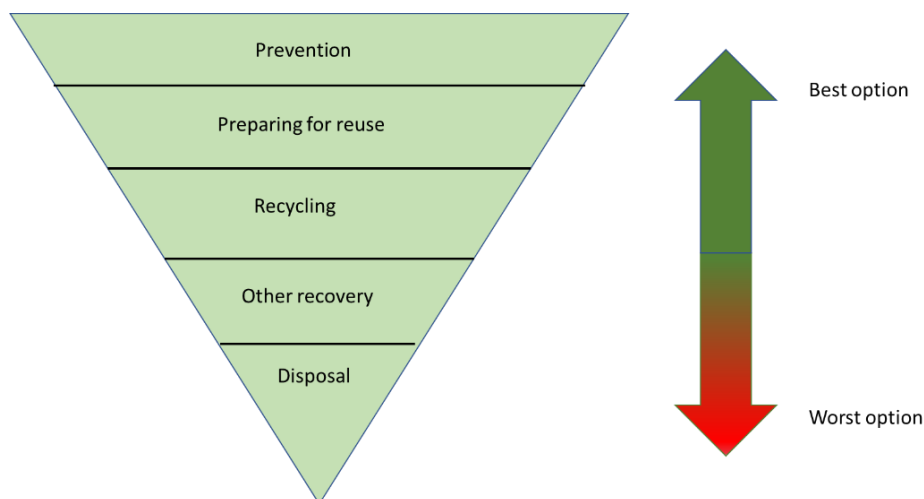


What is the Waste Hierarchy?

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The waste hierarchy is a framework which has been used in UK policy and legislation since the 1990s. The concept is simple, with waste prevention at the top of the waste hierarchy (the preferred option) and disposal at the bottom (the worst option). In between, in order of preference, is preparing for reuse, recycling and recovery. There are standard definitions within [legislation](#) on what constitutes each activity under the waste hierarchy.



Waste Prevention

- Waste prevention measures include reducing the quantity of waste generated, reducing the content of harmful substances, reducing the adverse impacts on environment and human health.
- Other terms may include waste reduction, elimination and minimisation.
- In the majority of cases, waste prevention is focused on materials, products and components before (somewhat confusingly) they become waste.
- Examples of waste prevention include good storage of materials to avoid damage; avoiding over ordering of materials, eliminating excess packaging, designing out waste and extending the lifetime of products.
- For a building/structure, waste prevention may include build nothing, build less, extending the life of a building (thereby not creating demolition waste); designing for adaptability, being more material efficient in the design, and using systems that may create less waste such as modern methods of construction).

Reuse

- Reuse is any operation by which products or components that are not waste are used again for the same purpose.

- Preparing for reuse is checking, cleaning or repairing products or components of products that have become waste to enable them to be reused without any other pre-processing.
- Other terms that encompass reuse are remanufacture, refurbishment, repair, and reclamation/salvage.
- Examples include reclaimed bricks, the reuse of steel beams and reusable packaging systems. Examples of remanufacture can be found for lighting. Reclamation/salvage is often used for reusing architectural items.
- At a building level, the refurbishment of a building is reuse.
- Often, reuse is conflated with recycling, but they are two different activities. Reuse may be seen as a waste prevention activity.

Recycling

- Recycling is any recovery operation where waste materials are reprocessed into products, materials or substances, whether for original or other purposes.
- There are two types of recycling:
 - Closed loop - where the waste materials are recycled back into the same or a similar product (e.g. waste plasterboard being recycled back into plasterboard).
 - Open loop recycling - where the waste material is recycled back into different products (e.g. container glass into fibre glass insulation and plastic bottles into plastic pipes). There tends to be more benefits from closed loop recycling – for example, studies have shown that it is better to use recovered glass to create new glass rather than use it as an aggregate in construction.
- Repurpose may also be a recycling activity, for example using scaffolding planks as furniture.
- Many construction product manufacturers will use recycled materials in their manufacturing processes.
- Terms that are being used more frequently include ‘downcycling’ and ‘upcycling’ due to the increasing prominence of the circular economy concept, which aims to keep products, components, and materials at their highest utility and value. As the names suggest, downcycling is where some value is lost e.g. crushed concrete used in fill applications, and upcycling is where value is enhanced e.g. cladding from recycled plastic bottles.

Other Recovery

- Recovery activities are incineration with energy recovery, gasification and pyrolysis (used for organic waste) which produce energy and anaerobic digestion and composting (also used for organic waste).
- Some waste from construction and demolition activities will be sent for energy recovery e.g. plastic and wood.
- ‘Backfilling’ is a recovery option, where inert materials (mostly from C&D waste) are used for the reclamation of excavated areas or engineering purposes in landscaping. The waste must be suitable for the intended purpose and must substitute non-waste products.
- Sometimes the terms ‘recycling’ and ‘recovery’ are used interchangeably.

Disposal

- The landfilling of waste and the incineration of waste where energy is not recovered are disposal activities.
- In some cases, it may be necessary to landfill waste e.g. hazardous waste such as asbestos.
- Inert waste may be disposed of e.g. to restore quarries where there are planning requirements.

Requirements

Within the [Waste Regulations](#), it is a requirement for all producers of waste to take reasonable measures to apply the waste hierarchy in priority order. However, it is acknowledged that the order does not necessarily have to be followed, the best environmental outcome should be obtained for each waste stream. When a regulator (the [Environment Agency](#) in England) provides a permit for waste facilities to enable them to operate within certain conditions, they should also ensure that the waste hierarchy is applied. This means that they have to decide whether certain activities are ‘recovery’ or ‘disposal’. Guidance has been developed on how to apply the waste hierarchy in [England](#), [Wales](#), [Scotland](#) and [Northern Ireland](#).

Waste Policy and Legislation

Waste policy and legislation in the past has been geared towards the bottom of the waste hierarchy; i.e. reducing the amount that is landfilled (e.g. the [Landfill Tax](#)) and increasing recovery and recycling. For construction and demolition waste (C&D), there is a target within legislation to recover at least 70% of non-hazardous C&D waste by 2020. In the UK we have been comfortably meeting this target since 2010 with [a recovery rate of around 91%](#). The policy focus now is to move up the waste hierarchy.

In England, the [Resources and Waste Strategy](#) published in 2018, has targets of ‘doubling resource productivity’ and ‘eliminating avoidable waste of all kinds by 2050’. A [working interpretation](#) of this target has been produced by the Green Construction Board (GCB), which is aligned to the waste hierarchy, and a [Routemap of how to reach zero avoidable waste \(ZAW\)](#) in the construction sector was published in 2021. This discusses the need to avoid unintended environmental consequences such as the inefficient use of material (e.g. over specification of structural materials) which produces no or little waste; or where recycling may be a more energy intensive option with greater environmental impact. For example, through the transportation of waste where there are no local recycling plants. Similarly, downcycling of materials may be a better option if it is replacing the use of primary materials.

Further reading:

- [Waste Regulations](#)
- [Defra Resources and Waste Strategy, 2018](#)
- [Defra Guidance on Applying the Waste Hierarchy](#)
- [Waste Prevention in England \(2013\)](#)
- [Waste Prevention Programme Consultation \(England\)](#)
- [Green Construction Board Zero Avoidable Waste Working Interpretation](#)
- [Green Construction Board Zero Avoidable Waste Routemap](#)
- [EU Waste Policy on Construction and Demolition Waste](#)
- [Zero Waste Scotland Best practice guide to improving waste management on construction sites](#)

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