Julie's Bicycle
SUSTAINING CREATIVITY

Julie's Bicycle Practical Guide:

Waste Management in Buildings

The arts and creative industries are ideally placed to lead on environmental sustainability; with creativity and inspiration they can champion a greener economy, energy efficiency, challenge our reliance on fossil fuels, make creative use of otherwise wasted materials and open new ways to greener production and living.

Waste Management in Buildings: Version 2015

Julie's Bicycle Practical Guide:

Waste Management at Outdoor Events

What this guide will cover

This guide presents a practical approach to waste management in cultural/creative buildings. It will help you take an informed look at your waste management needs and systems and help you make cost effective decisions in managing waste sustainably, which will enhance the experience of the users of your building and contribute to your organisation's efforts in going greener.

It covers the basic principles of waste types and waste treatment, as well as waste management, broken down into short, medium and long term solutions.

Who is this guide for?

This guide is for anyone responsible for the waste management and operations in arts buildings, especially facilities, procurement and general managers. It is intended for buildings and venues of all sizes and uses.

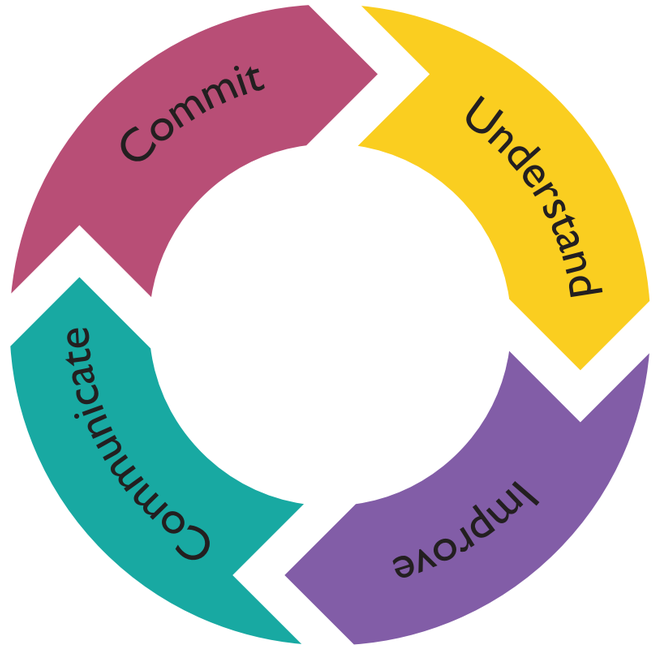
What this guide will not cover

This guide is focused on waste management in the context of environmental sustainability specifically and is not intended to be a comprehensive overview to waste management in general within buildings and venues.

Further artform-specific information, case studies and support can be found at www.juliesbicycle.com

Creating the Conditions for Change

There are four key stages to taking action on environmental sustainability:



- Commit: put in place the structures, resources, policies and responsibilities necessary to support and action your initiatives.
- Understand: understand your impacts and establish systems to measure and monitor them on a continuous basis.
- Improve: implement an action plan to reduce your environmental impact.
- Communicate: engage your stakeholders including your team, suppliers and audiences; share and exchange knowledge with others in the industry.

Your success at integrating environmental sustainability into the way you work is often dependant on the internal culture of your organisation and the resources available to you.

Your key ingredients are: knowledge; skills; time and enthusiastic people.

It's important that the whole organisation should be involved in the process; this is an opportunity to test new ideas, build support and use existing experience.

Without people buy-in, you will at best limit, and at worst fail, to achieve your goals.

And finally, some dedicated, even if modest, budget is also helpful!

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Introduction

Waste has become an accepted feature of our daily lives in volumes that continue to rise. It poses a global challenge contributing to resource scarcity, environmental contamination, diminishing green spaces and climate change. The true cost of waste isn't just what we throw away – but also includes the energy and water used in the extraction of raw materials, manufacturing process, transport and processing of waste.

It's up to us to get smart and think about the way we use our resources, reduce inefficiencies and unnecessary waste, and find environmentally sustainable ways to dispose of things when waste is unavoidable.

Each year, 600 million tonnes of products and materials enter the UK economy, but only 115 million tonnes get recycled. (WRAP)

Waste is a large part of a building's core carbon footprint and environmental impact, and can be an administrative headache for facilities or office managers. On the up side, there are increasing incentives to manage waste more sustainably (such as the landfill tax) and more solutions to avoid waste and repurpose and recycle resources.

Not everything will save money – some measures will cost more and some will save.

The Waste Hierarchy

This guide uses the European Waste Hierarchy (shown below) as outlined in the EU's Revised Waste Framework Directive (2008) and also written into UK waste legislation. The waste hierarchy considers the impact of different waste management options on climate change, air and water quality, and resource depletion, and provides a framework for managing waste responsibly and minimising environmental impacts. It should be used as a structure to help you prioritise your actions, with prevention the most preferred and disposal (usually landfill) the least preferred option.

Note: All businesses are legally required to take reasonable measures to apply the waste hierarchy when disposing of their waste.

Prevention

Avoiding or reducing waste being created by using less material in design and manufacture, designing things so they last longer, keeping things for longer, and by re-using (e.g. selling or buying used items). Include items which are not waste that are re-used again for the same purpose for which they were conceived. Prevention also includes reducing the negative impacts of waste on human health and the environment , e.g. by reducing the amount of harmful substances in materials or products.

Preparing for Reuse

Checking, cleaning, refurbushing or repairing recovery operations, through which products or parts of products that have become waste are prepared so that they can be re-used without any other pre-processing.

Recycling

Reprocessing waste into a new substance, materials, or products that can either be used in the same way as the original, or into something new. This includes composting (if it meets quality protocols) but does not include turning materials into fuel.

Other Recovery

This includes anaerobic digestion, combustion/burning/incineration with energy recovery (as long as it meets certain efficiency standards), and other processes that can produce energy (fuel, heat, power) from waste.

Disposal

Anything that isn't recovery, e.g. landfill and incineration without enery recovery.

Zero Waste / Zero Waste to Landfill?

This approach relies on reclaiming as much material as possible from waste streams for recycling, composting and reuse. To completely avoid landfill, the remaining materials need to be sent for re-processing (Other Recovery) via technologies such as 'waste to energy' (burning waste to create electricity or heat) or mechanical-biological treatment (separation of waste using mechanical and biological technology so that they can be burned or recycled). These technologies are sometimes criticised for encouraging the incineration of waste rather than reducing the amount of waste generated in the first place, or improving systems for re-use, materials recovery, and recycling, which are environmentally preferable.

Ultimately, we want to aim for 'Zero Waste' rather than 'Zero Waste to Landfill'.

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Waste Types and Treatment Processes

Waste Types

Here are some Common Types of Waste at Events:

Type	Source and amounts of waste	Thoughts on recycling
Glass	From bars, restaurants and cafés. In venues, the amount largely depends on glass service policy.	Glass is easily recycled, either as part of a mixture of dry recyclables or preferably as single, colour separated material.
Paper and Cardboard	Typically from offices and packaging.	Widely recycled. Avoid contaminating with food, oil, moisture and glass. In offices consider separating high and low grades of paper (ask your contractor) as you may save money.
Plastics	Sources include drinks bottles, bar cups, packaging, sponsor materials and signage.	It may be important to separate recyclable from non-recyclable plastics to ensure that materials can be reclaimed; check with your waste management contractor.
Metals	Aluminium cans, food packaging and in some cases infrastructure waste.	There may be opportunities for receiving payment for metals, especially if the aluminium and steel can be kept separate.
Wood	In venues, wood is often used in creative projects, staging and set or exhibition construction.	Wood can be re-used if you have storage, or recycled or chipped for other uses. Consider re-using sets at future events or offering them to a company which re-purposes stage sets.
Textiles	Usually from clothes in lost property or art projects.	Textiles are easily re-used or recycled. If your contractor is unable to recycle them you should consider using local clothes banks or donate to charities which can re-sell or re-purpose clothing. Due to their high value it should be easy to arrange collection via a charity or clothing collection contractor.
Oils and fats	Generally produced by catering areas and kitchens.	Should be collected separately and not disposed of down the sink. NB: these products often have a positive value; consider shopping around for a contractor who will pay you a rebate.
Food Waste	Normally from catering, kitchen areas and dressing rooms.	This should be high on your list for segregation as it has high production impacts and causes high negative impacts in landfill. In recent years, collection services have become more prevalent across the UK. Food should be kept free of contaminants as much as possible. Cooked food can also be mixed in many services, however you should check requirements with your contractor.

Compostable or 'Biodegradable serve-ware	Normally from catering, bars, kitchen areas and dressing rooms.	When mixed with recyclable products such as plastics, glass and newspaper, food is often considered a critical contaminant, which can cause the rejection of otherwise clean amounts of material. This makes the recycling of 'serveware' (cups, plates and cutlery) difficult as, by their nature, they have been into contact with food and or drinks before they are discarded. Where it is not possible to use washable crockery, one solution is to serve food and drinks in 'compostable' serveware. This system may require the cooperation of multiple parties: • Use the same packaging throughout the entire venue to avoid the differentiation between materials becoming complicated • Clearly label bins to avoid contamination by other materials. The message should be in line with the type of packaging used i.e. use only paper plates, paper cups and wooden cutlery and write "food, paper plates, paper cups, wooden cutlery " on the bin • Only a few composting facilities exist in the UK that will accept this type of material – check that they can actually compost the whole product stream • 'Biodegradable' does not mean 'compostable'. Bioplastics can end up contaminating other recycling streams • Be wary of compostable plastics like PLA/Bioplastics and cornstarch. These materials look like plastic and usually end up critically contaminating the plastic recycling; we recommend not using these products
Miscellaneous	Common materials that are difficult to deal with include furniture (bulky and mixed composition), polystyrene, sponsor materials and wristbands.	Work with your contractor to find the best solutions for your miscellaneous waste, or better, design a policy to limit the amount of these materials in your building in the first place.
Plasterboard	May arise from building works and is sometimes used in theatre sets.	Gypsum plasterboard has a special classification as a 'non-hazardous non-inert waste'. It must be collected, stored and transported separately because it can produce toxic gas in landfill when in contact with biodegradable waste. Most waste contractors have the capability to deal with it responsibly but you should check whether they intend to landfill it separately or send it for recycling.
Hazardous Waste†	Typical items in venues are batteries, fluorescent bulbs, some white goods, some paints and varnishes (even a small amount of residue can class an empty tin hazardous) and most computer equipment.	Hazardous waste should be stored separately and dealt with by a specialist waste contractor. Hazardous waste must be dealt with according to strict legal guidelines.
Healthcare waste†	Waste from medical provision/first aid including syringes and used bandages.	Should be stored in a container provided by a specialist contractor who can collect and dispose safely.
Sanitary waste	In arts venues this is normally from sanitary bins placed in female toilets.	This waste is not hazardous but is often collected separately as it is deemed 'offensive'.
Batteries, Printer Cartridges †	Offices and stages.	To be recycled separately through specialised schemes.
Waste Electrical and Electronic Equipment (WEEE) †	Offices and technical departments and stages e.g. computers, printers, etc. Also phones from lost property.	Can possibly be sent to community schemes or charities that will manage their re-use or disposal responsibly and may even create a revenue stream by doing so. Otherwise should be dealt with through recycling/collection/supplier take-back schemes. Some WEEE may be classed as hazardous† e.g. white goods and most computer equipment.

† NB: If you generate more than 500 kg of hazardous waste per year you will need to register your premises with the Environment Agency.

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Waste Treatment Processes

The variety of waste treatment and disposal options available can seem overwhelming. However you can establish your needs by thinking about:

- Which processing facilities your waste contractor has access to, and/or intends to use?
- What services do they provide?
- Are they within a reasonable distance?

You might be tied in with an existing municipal service, which will narrow down your choices. Discuss options with your contractor (or other contractors if switching is an option).

Summary of the most common waste treatment and disposal options available in the UK:

Type of Process	The Process Explained	Issues and Impacts (in brief)
Anaerobic Digestion	Organic materials such as food waste, sewage, silage and crops are "digested" in the absence of oxygen to generate biogas (methane) for energy and digestate (compost-like material), which can potentially be used as fertiliser in agriculture.	Material must usually be very 'clean' (i.e. not contaminated with other types of waste) and hence operators are sometimes reluctant to deal with events or venues. This is soon to become a common technology due to government subsidies.
Composting	Organic material is broken down by microbes in an oxygenated environment to make compost. Composting can "bio-stabilise" the organic material effectively enough for it to no longer be considered waste. "In-vessel" systems compost material in containers. In this case meat wastes can be effectively broken down along with vegetable and woody material.	An effective and well-established waste treatment method. As with anaerobic digestion, material should be as free from contaminants as possible. Some processes are capable of accepting compostable paper packaging, though in practice this is rare. Check with your waste contractor what type of compostable packaging they will accept. Recent studies have criticised commercial composting sites for pollution of the surrounding air with bio-aerosols (airborne bugs and biological matter).
Landfill	Usually an ex-quarry is lined and filled with mixed waste in "cells". A protective cap is placed on top. Organic waste biodegrades without oxygen and the resulting biogas is usually collected and burned for energy.	Takes up space. Burdens future generations with the longer-term issues resulting from the toxicity of landfill sites. All landfill sites leak at some point and pollute the surrounding area in some way. Although Methane gas (a much more potent greenhouse gas than CO2) is well managed in most modern landfill sites, some will always escape.
Recycling	This is the sorting of materials such as cans, paper, plastic bottles, textiles, cardboard and glass, which are then sent to "reprocessors" and refined back into raw materials to make new products. There are different types of recycling facilities able to process different types of materials.	Recycling materials ensures that the highest level of embodied energy is recovered compared to other methods of treatment. Not all recycling processes will yield materials of the same quality as the virgin materials which is why it is important to consider waste reduction and preparation for re-use before recycling.
Materials Recovery Facility (MRF)	Various mixed "dry" recyclable materials such as cans, paper, plastic bottles (and glass) are separated mechanically into types before being sold to reprocessors.	A prevalent and effective technology for segregation of clean, dry material. Food contamination causes problems for MRF operators limiting the benefits of this system for events or venues where food is served to the public. Including glass in this system can damage the quality of paper and plastic products, causing problems for reprocessors and sometimes making them un-recyclable. If you are using a MRF, establish which comingled waste it will take (i.e. mixed dry recyclables such as cans and plastic bottles). Ask for a list of acceptable materials and work out if the list matches the materials being generated on site. Ask what quality the material should be e.g. "is it alright if in a bag of cans there are 20 plastic bottles?".
Mechanical Biological Treatment (MBT)	Mixed household and commercial wastes are mechanically separated to recover recyclable materials. The biological fractions are then landfilled, used in landscaping or made into Refuse Derived Fuel, which is used to generate energy.	This technology is becoming more common and is often wrongly marketed as a solution for not separating materials at the point of collection. Many of the products of this type of process are of low quality and should be viewed as a last resort for recovering material after other separation has been attempted.
Waste to Energy Plants (incinerators)	Waste is burned to reduce its volume and hazardousness. Most facilities use the generated heat to make electricity. A small percentage will also capture waste thermal energy (i.e. heat) to heat water and space in buildings.	All modern incinerators follow strict EU emissions thresholds and are monitored in real time so that air pollution is negligible and there is a significant disincentive for operators to breach these limits. Between 20% and 30% of the incinerated material will remain as "bottom ash" which needs to be disposed of in landfill. Furthermore, residues from the pollution filters are toxic and need to be safely contained in special hazardous waste landfill sites. Another objection to incineration as a treatment option is that, in contrast to recycling, much of the embedded energy is lost. In the case of plastics, fossil fuels are being burned which worsens the greenhouse effect. However, in the case of paper, food and garden waste, (renewable) energy is being generated from non-fossil carbon.

What's Recyclable?

Recycling icons, such as these, are universally understood to denote the recyclability of materials. However, these icons indicate that an item is 'theoretically' recyclable and do not guarantee that the facilities or technology to recycle it are available. Check with your waste contractor which materials can actually be recycled responsibly.

Contamination of waste streams may lead to materials which would otherwise be recycled going to landfill, as waste facilities either do not have the technology, or it is not economically viable, to separate materials at the facility. The best way to ensure that your waste will be recycled is by keeping your separate waste streams "clean" of uncontaminated waste.

Types of Collection and Bins

There are two main types of waste collection for recycling: single-bin, where different types of recyclable materials are collected together, or multi-bin, where different types of materials are collected separately (source-segregated). In both cases another bin will be required for everything else that can't be recycled.

- Multi-bin recycling for source-segregated collection requires more space and can be more costly to deliver, but it is the preferred option according to the waste hierarchy and is likely to improve your recycling rates.
- Keep in mind what people in the building might expect to be able to recycle, especially if you are providing single-bins for mixed recycling.
- If opting for a single-bin system, keep the list of recyclables short and sweet. Long lists are confusing and can lead to contamination.
- You may want at least a two-compartment bin (one compartment for recyclables and one for 'residuals' – i.e. non-recyclable general waste). Consider the size required for a particular location, based on the expected volume of waste and frequency of collection.
- The bin design can encourage recycling and discourage contamination through unwanted materials. For example, a round opening will encourage the recycling of cans and bottles, while a slit will encourage paper recycling and discourage people from throwing cans and bottles in with paper recycling.
- Group recycling bins and general waste bins together in public areas.
- If you plan to buy new bins, consider how easy they will be to maintain, clean and move.

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Preparing a Waste Management Plan

Example Outline of a Waste Management Plan:

There are two main types of waste collection for recycling:

- Building details and starting points – description of activities and users of the building
- Overview and purpose – what are you aiming to achieve?
- Key performance indicators – what are your targets and how will you determine success?
- Roles and responsibilities – who has overall responsibility for delivering the plan and who else has a key role or contractual obligation?
- Planning – how will waste be managed? Break this down into the areas of the building you defined
- Communication - break this down into the different stakeholder areas, e.g. audiences, office team, crew, incoming productions and catering.
- Monitoring and reporting – how will you measure your performance, and what is in place with your contractor in terms of reporting figures?
- Evaluation – how will you obtain figures and debriefs from stakeholders to review and build on to make further improvements?

Define Your Starting Points

Understand Your Building and its Users

The way different areas of your building are used and by who affects the types of waste and ways to deal with it.

Divide your building or venue into different areas for analysis and action. For example:

- Foyer, "common domain", gallery floor
- Auditorium/performance space
- Restaurant/café
- Shops
- Bars
- Offices
- Backstage/technical
- Dressing rooms

For each area, identify:

Who is creating waste? What type of material is being produced? What happens to it? Who puts it in the bin(s)?

Do a walk-around and observe your current systems in action. It's useful to do this at different points during the day, especially if your building has a varied schedule (e.g. day-time vs. performance times).

Note: How many bins there are in the different areas of your building? How full these are getting on a daily basis? How frequently are they emptied and by who? Where is waste stored for collection? How frequently is it collected?

Consider material streams you are already dealing with in other ways such as re-use, re-purposing, or donation networks. The idea is to create as complete a picture of where everything is going as possible.

Undertake a survey of some key stakeholders covering the types of waste they generate in the course of their work, how they commonly dispose of it and where they see the greatest wasteful practices or room for improvement. This can be a casual conversation.

Undertake a more formal 'material use' survey of the different departments or area managers and the types of materials and waste they expect to generate. This will help with planning.

Measuring and Monitoring: Set a Baseline

Before you make any changes, define your starting point so you can monitor how successful your initiatives are.

- Collect historical data on your waste. You want to know how much and what type you are generating and how much it is costing you to dispose of.

- For 'type', use as much detail as you have available – this might just be 'general waste' or 'general waste' vs. 'mixed recyclables', or you may be able to break it down further depending on your current waste management systems. You can find this information on your bills. Some waste contractors will now be able to supply this data in actual weight, which is more accurate. Most of the time you will only know what types of bins/skips you have and how often they are collected, so you will only be able to record the volume of waste. In some cases, you may have some information by volume and some by weight. Consider what would be useful indicators for measuring waste prevention. This is an area where you are likely save money on both new purchases and waste disposal as long as you're keeping track. For example, record how much you buy and spend on stationery (e.g. numbers of packets of paper) and other consumables every month.

- Carry out a compositional analysis of your waste. This means surveying the contents of your bins regularly to get a better idea of the types and amounts of different materials and their proportions in your waste. Waste is collected, sorted by hand into a number of pre-determined categories, and weighed. You can do this internally or hire an external waste auditor to help you depending on the scale of your operation.

Doing a Waste Compositional Analysis

If you want to do your own simple waste compositional analysis, you'll need:

- Spring balances, carrier bags, magnets (steel cans will stick to them, aluminium cans won't)
- Gloves, goggles and aprons – you should wear these at all times when handling waste
- A well-ventilated space to do the sorting that can be effectively cleaned – some plastic sheeting for the floor is also recommended
- A raised area (table) to sort on
- Ideally some extra team members to help!

Take some health and safety precautions. We recommend you seek specialist advice before carrying out any activity, especially if you have a lot of public spaces.

- Consider that waste from public areas could potentially contain anything! This includes needles used for medical purposes or by illicit drug users. Infectious items are potentially life-threatening
- Do not analyse medical or sanitary waste
- Gloves should be adequately rated to protect against cuts, punctures and abrasion
- Pick items carefully using tongs or specially rated gloves by hand. Never place your hand into a pile of material, spread it out carefully and identify it before handling
- Ensure you're not bending over by raising the table if standing up or sitting on an adjustable chair
- Take extra special care of hygiene. Do not eat, drink or smoke during or after analysis without washing your hands with antibacterial soap
- Take special care when handling waste bags. Do not brush them against your body or carry anything too heavy, avoid twisting during lifting

Consider issues of confidentiality, although you are working within an organisation, most people expect that if something is placed in a rubbish bin, it will not be seen by anyone else.

Decide whether to audit the whole of your building or only selected bins (and which ones), and when. Covering the whole building will give you a much more in-depth understanding, but is a serious undertaking and may require more manpower. It might be more practical to focus on one area of the building or choose a percentage of the bins in each functional area. If you choose a percentage, keep a record of it so you can multiply and extrapolate your data accordingly. Remember that the samples need to be representative. This means regularly and frequently taking samples to account for variation in the composition.

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Decide on some pre-determined categories to sort into. Think about the types of waste you know are likely to be generated in the building and also speak to your waste contractor or research the types of waste treatment facilities available in your area so you can figure out what categories would be useful. The following list is an example of some categories:

Putrescible (organic)	e.g. food scraps, garden waste
Paper	e.g. Newspaper, magazines and leaflets
Cardboard	Mostly packaging, if heavily soiled with food then add to the food category
Composite	e.g. tetra paks
Textile	e.g. clothes or shoes
Sanitary textile	e.g. feminine hygiene products, nappies
Plastic bottles	e.g. drinks bottles
Plastic pots, tubs and trays	e.g. yogurt pots, salad trays
Plastic film	e.g. carrier bags, pallet wrap
Combustible other	Anything not mentioned above that could conceivably burn
Glass	Bottles – don't include mirrors or ceramic glass which goes in non-combustible other below
Ferrous metal	Usually steel drink or food cans in kitchens
Non-ferrous metal	Usually aluminium cans (anything that's not magnetic)
Non-combustible other	Stones, anything else that won't burn
Special waste	e.g. batteries, electrical equipment (WEEE), furniture, hazardous waste. You may want to create extra sub-categories here if you find lots of one particular item
Wood	e.g. from scenery, set, pallets
Fine <20 mm	Small particles probably aren't worth categorising unless you have too much time on your hands. Just put them in a single "fine" category

On the day, collect your waste from the bins. Keep a record of which bins, what day of the week (or, if a venue, what type of activity took place that day) and the time of day so that if you do any follow-up audits you can keep as many things consistent as possible. Label the bags collected with the day and area they are from. If you already recycle e.g. paper and bins aren't emptied daily, try to collect the waste in a way where you are only collecting one day's worth.

Sort your waste into different material types – the easiest way to do this is by re-sorting into different bags, which you can then weigh using the spring balances. Record your results for each material type for the different areas. We recommend you make a paper copy for the analysis and then add it to a spreadsheet later. If you've only sorted a percentage of the bins, extrapolate the data by multiplying to get an approximation of the total for each area.

Julie's Bicycle's Creative IG Tools

Carbon calculators can help you to understand where your environmental impacts lie, which will help you to create effective management strategies to reduce the negative impacts we have on the environment. The Julie's Bicycle's Creative IG Tools are a suite of carbon calculation tools designed specifically for creative and cultural organisations to help you to measure your carbon footprint on an annual basis. There is a Tool for Venues and a Tool for Offices allowing you to track impacts including energy use, water use and waste, according to industry-specific metrics.

The Tool can convert your waste volumes into approximate waste weights automatically to calculate the associated carbon footprint (although this will not be as accurate as if you have weight data to begin with).

www.juliesbicycle.com/industry-green/ig-tools

Define your Aims and Objectives

Decide what you want to achieve based on your current waste management systems.

- Summarise what you know about how waste is currently managed in your building in a conceptual diagram or flowchart.
- Show where waste is created and use the waste hierarchy to categorise what currently happens to the different types of waste. What are you already re-using or repurposing internally? What are you donating for re-use somewhere else?
- Understand the composition of waste whichis not currently recycled and think about what could be avoided or re-used internally, or through external networks, and what could be recovered for recycling or composting.
- Look for local charities donation points, or Freecycle networks and what kinds of equipment or materials they accept.
- Look at your existing arrangements with the waste contractor, discuss a range of options with them and then check the rest of the market to see what else is on offer. Many waste contractors will only offer services based on their own infrastructure, which will not always offer the most sustainable combination of processing. Look into whether there are any outsourcing providers who may be able to mix local contractors on your behalf to provide better service.
- If you are local authority owned, you may be tied into using your local authority services. However competition rules allow you to look elsewhere if your local authority services aren't up to scratch – remember you're paying for the service whoever it comes from.

Be pragmatic. Whilst a degree of knowledge about waste types and processes is helpful to develop a robust approach to sustainable waste management for venues, it is also important to spend some time researching the most appropriate and cost effective plans specific to your venue and the facilities available locally, as well as being aware of any contractual constraints in place.

- What are the contractual arrangements with sub-contractors like caterers and cleaners? Do they allow you to make relevant changes in procedures without necessitating a change in the contract? For example, if you ask the restaurant/café to use different packaging would this mean an increase in the cost of the food?

Be aware of any local or national laws that apply and could affect your planning and what actions you can undertake. See the Regulations & Legislations section of this Guide.

Bringing all of this information together, set yourself targets according to the waste hiera rchy. These targets should be SMART – specific, measurable, agreed, realistic, and time-bound. Aims and targets will be defined by a number of factors including your starting point, the nature of the building, types of waste, the waste facilities available to you locally and the services offered by your waste contractor.

For Example:

- Increase recycling rates by10%
- Achieve 70% recycling and re-use target in 5 years. Of this, at least 50% should be recycling
- Introduce recycling for more waste streams than paper in the next year
- Find a way to donate or re-use furniture and props
- Increase the amount of composting of food waste
- Reduce the total amount of waste produced
- Zero-Waste-to-Landfill in 3 years

Then put in place a monitoring plan based on the information you collected as part of your starting points.

- What Key Performance Indicators will tell you whether you are meeting your targets or not?
- Who is responsible for gathering this data and where will it be collected? How frequently?
- Will you do a follow-up waste audit, and if so, when?
- Who is responsible for checking progress against targets and suggesting corrective adjustments in your strategies?

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Bristol Old Vic

"We have always separated glass, card and paper from general waste, but historically this was only made available in a few locations around the building. Staff, visiting companies, actors and everyone who works in the Theatre are all more than willing to recycle what they can, but in a busy environment of deadlines and shows going up, it has to be quick and convenient to do so, otherwise the black sacks will continue to fill up. We therefore aimed to put Dry Mixed Recycling floor-standing boxes in almost every location in the building that there is a general waste bin. This isn't feasible everywhere – there isn't enough room in the dressing rooms for example – but the key areas for production of recyclable material (the various offices, green room, mail room, print room, rehearsal rooms) mean that we have 14 boxes within the building that are constantly being used, and are emptied twice weekly into our external bins, as well as collecting glass recycling from the bars. The benefits of one bin for all Dry Mixed Recycling is that we do not need to segregate the recyclable waste ourselves – which would require considerable resources or lots of floor space for separate bins – instead it is sorted upon arrival to the depot by the waste services provider. The results speak for themselves. Since introducing the measures in July 2013, we now recycle 32% of our waste, equivalent to about 30 tonnes of waste that would otherwise go into landfill, and as recycling is cheaper than landfill, have also made considerable savings without any cost outlay in setting up these improved recycling systems!"

Aidan Woodburn, Operations Manager

www.bristololdvic.org.uk

The Sage Gateshead

The Sage Gateshead is an international music venue and music education centre located on the banks of the River Tyne in Newcastle Gateshead. They signed up to the 10:10 climate campaign in 2009 pledging to reduce their greenhouse gas emissions by 10% over the following year. By switching waste contractors and adding new recycling facilities they have significantly reduced the amount of waste sent to landfill.

www.sagegateshead.com/venue-hire/conferences-and-events/environmental-policy

Action Space

Action Space is an independent arts charity based in London. Action Space aims to be a conduit between the learning disability community and contemporary arts world. Most of their artists work with recycled materials. In response to this, Action Space is a member of the Work and Play Scrap Project in Tooting. This enables them to source and exchange unused materials with other organisations. As much as possible they buy paper which is either recycled, from sustainably managed sources or a mixture of both.

www.actionspace.org

Write an action plan listing the ways in which you are going to achieve each of your targets. Assign clear roles and responsibilities within the organisation to each action along with timeframes and deadlines. The following are some possible actions you can undertake:

Short Term Actions

- Improve the signage in your building
- Communicate what can be recycled and remind people to recycle
- Assign 'waste champions' for each area of the building who can focus on what is or isn't working and engage others.
- Introduce clear bags for waste so it can be seen by all and can't be 'hidden'
- Liaise with your waste contractor and encourage them to offer new solutions
- Look for easy wins within your current systems, for example, introducing a paper bin
- Consider changing the placement or layout of the bins
- Liaise with your teams and departments: where do they see opportunities for creating less waste?
- Establish connections with local charities or donation networks

Bins and Signage

Visibility is essential in successful source segregation. It takes two seconds for an event goer to make their decision about which container to throw their object in.

Make it easy:

- Place bins in easily visible and accessible locations.
- Bins and signage should be identical throughout the site.
- Bin signage should be bold and easily visible.
- Provide lighting around the bins at night.
- Use clear and bold wording.
- Use consistent colour coding for material types, ideally following the national WRAP guidelines.
- Supplement signage with symbols or illustrations.
- Avoid negative instructions, which can confuse (e.g. "no glass").
- Avoid long lists of dos and don'ts.
- Do not overshadow with advertising or branding.

Avoid confusing messages such as:

- "Mixed metals" when you mean "cans"
- "Dry mixed recycling" – this probably means different things to different people, so consider a simple list e.g. "cans, plastic bottles, cardboard" instead
- "Paper" can be confusing and lead to food contamination, be specific, e.g. "newspaper", "magazines," "leaflets"

A range of sign-making resources is available from www.partners.wrap.org.uk

Waste Reduction Action Programme (WRAP) is a government funded agency that provides extensive resources for a wide range of sectors. One of its aims is to standardise the colour coding used for recycling materials/bins across the UK. Its guide, Recycle On The Go is designed to help organisations choose bins types, placement and signage. See the Further Reading and Resources section.

www.wrap.org.uk/content/recycle-go-england

Medium Term Actions

- Re-examine your regular purchases and change the types of material used in cafés, bars and offices so that they match the recycling facilities used by your contractor. For example, don't use PP plastic cups in your bar if you can only recycle PET plastic in your area.
- Consider buying new public bins to match the recycling facilities available in your area. If you are replacing bins, also consider their design and size.
- Identify, provide or rent storage for materials and equipment so that you can store and reuse as much as possible.
- If you have an outdoor area, introduce an outdoor compost bin or wormery system.
- Consider changing your waste contractor if you don't feel like your current contractor will help you succeed in achieving your objectives. Look into introducing more waste streams for recycling.
- Negotiate the best contract for your organisation and the type of wastes that it produces.
- Provide specific training to your team and assign responsibilities for the different waste producing areas.
- Work with artistic producers and teams to design productions that create less waste to begin with.

The Lyric Hammersmith switched waste providers from H&F waste to First Mile and have been really happy with the results. They consulted them from the start to understand their needs and provided suitable signage and bins to maximise the capture of recycling on site. Their fun and captivating signage has now filtered down into staff and audience, with detailed and clear information on how to recycle efficiently, recycling points and fun references to polar bears! The Lyric is now recycling all of its waste which makes them zero to landfill theatre.

Kim Grant, Director of Finance, Administration and Operations.

Types of plastic and current common recycling procedures in the UK

Symbol and name of polymer	Uses	Recycling
Polyethylene terephthalate (also PETE or RPET) 	Drinks and oil bottles, salad trays, some disposable plastic beer glasses	Commonly collected for recycling and reprocessed in the UK. Made into polar fleece, furniture, carpet and (sometimes) new beverage containers.
High density polyethylene 	Milk bottles, cleaning products, shampoo bottles	Commonly collected for recycling and reprocessed in the UK. Made into oil, laundry and beverage bottles, drain-pipes, furniture.
Polyvinyl chloride 	Thermal insulation, window and door frames, pipes, tarpaulin, some condiment bottles	Theoretically recyclable but often not easy to find a recycling contractor. Can be made into guttering, flooring, and panelling. Especially important to ensure that PVC isn't treated thermally (burned) as it contains chlorine which converts to highly dangerous dioxins.
Low density polyethylene 	Bin liners, some carrier bags, packaging films	Not commonly collected for recycling in small quantities; however in large quantities this can attract income.
Polypropylene 	Main issues are contamination with food or oil.	Commonly collected for recycling. Often sent overseas for recycling, however more facilities are being constructed for UK reprocessing.
Polystyrene 	Rigid: yogurt pots, plastic cutlery, egg boxes, some disposable drinks glasses (NB these shatter) Expanded: burger boxes, protective packaging, insulation	Expanded products are rarely collected for recycling in the UK. Rigid products are collected for recycling but rarely re-processed in the UK.
Other plastics 	Plastics which do not fall into any of the above categories.	Recycling facilities for these plastics are less common, check with your waste contractor. Local authorities often accept a wide range of plastics at household waste recycling centres.

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Long Term Actions

- Achieve a fully integrated waste management system throughout the building where you know what is coming in and where things are going and optimise this to follow the waste hierarchy as best as possible
- Integrate waste management in all areas of your business – consider the waste implications of decisions at all planning stages (e.g. production design, new purchases, holding events)
- Plan for how everything will be disposed before it is even purchased.

Top Tips for Reducing Waste

Simple measures and policies can reduce the amount and types of waste you are dealing with and help to eliminate materials which either cannot easily be dealt with or tend contaminate recycling:

- Have a policy of only using compostable or washable serve-ware and packaging
- Ban single-use sachets for salt, sauces and milk etc.
- Use reusable cups rather than single use plastic cups for bars
- Provide lists of banned materials to any outside events coming into the space
- Provide guidance to productions about materials to avoid and how to break down projects in a way where materials can be prepared for re-use
- Avoid plastic bottled water and encourage audiences and crew to use re-fillable bottles or provide drinking water in cups
- Discourage unnecessary printing of documents and set printers to print double-sided as standard
- Look into what disposable products you are using that can be replaced with reusable alternatives
- Develop fixing and maintenance skills in-house to extend the lifetime of products you use

Waste Sources and Stakeholder Engagement

Attitudes towards waste vary among your stakeholders. Your audience's front of house will have a different experience to your catering team's back of house or the team working in your offices. You should segment your messaging and strategy accordingly, and identify the groups with the highest potential for change and improvement. Write a communications plan listing the key messages for each group and the avenues of communication available to you for each (contracts, signage, briefings, training, email lists, etc.)

Bars, restaurants and catering are major producers of waste, much of which ends up FOH to be disposed of by audiences rather than members of your team.

- Define the types of materials being used to ensure they can be managed effectively within your existing system
- Pay attention to ensure that effective separation takes place
- Managers should provide adequate facilities for separation and ensure there is enough space for the separated waste
- Often the workforce is temporary, so separation training is essential

Technical are a very low waste producing group although they have the potential to produce some unusual hazardous materials.

- They may generate a quantity of disposable batteries; make sure you have a collection process for these
- Understand the legal requirements to dispose of waste electrical and electronic equipment (the WEEE regulations) and make sure you have processes in place to arrange for pick-up or recycling of any WEEE

Offices:

- Provide adequate facilities for recycling paper and re-use of scrap paper
- Remove individual bins from desks and replace them with a central recycling station
- Read our Practical Guide to Greening the Office for further guidance

Productions can generate huge amounts of waste at the end of a show – from sets and staging to costumes and props, programmes, and anything else no longer needed.

- Liaise closely with the production manager(s) to find out what type of waste will be generated and when and have a plan for its sustainable disposal ahead of time
- Read the Julie's Bicycle Guide to Sustainable Production for more information

Medical:

- Clinical waste needs to be stored, transported and disposed of legally and safely
- Ensure facilities for this are present in First Aid areas

Sponsors play a variety of different roles. They can produce huge volumes of litter through distribution of product samples and branding. They should be liaised with early in the planning stages of any sponsorship deal or any incoming commercial event to establish if they have specific waste management needs.

Put in place a communications strategy for each of these groups:

What kinds of internal communications channels already exist that you could include waste management information in? Can you include environmental commitment clauses in contracts to ensure all parties are aware of and comply with your policies?

Measuring Success

- Collect relevant data and KPIs according to your monitoring plan. Compare these to your targets.
- Be aware of what figures are relevant and what is accurate. For example, if you are sending material to a Mechanical Recovery Facility, include figures on rejections (because material is too contaminated). Make sure the figures on recycling rates you are being given apply to your waste specifically – often, processing facilities will give out the average percentage for all of the waste processed at the facility, rather than breaking it down more specifically.
- Audit your stakeholders: look in the bins and see whether they are following your waste management system.
- Share your achievements with your team, audiences, and other stakeholders to celebrate successes, acknowledge their efforts and maintain momentum.
- Report on your successes publicly in annual reports or on your website. For example, you could report on your annual recycling rates or total waste volumes.

Wembley Stadium

In 2013 Wembley Stadium became one of only 5 other cultural venues to achieve the highest Industry Green certification, 3 stars. The Wembley Stadium Environmental Management System (EMS) covers energy, waste, water, transport and procurement. As a result of a systematic approach to managing its impacts, the stadium managed to reduce total waste volumes by 17%, increase recycling rates from 46% to 65% and composting from 5% to 15%, meaning waste to landfill decreased from 49% to 20%.

http://www.wembleystadium.com/TheStadium/StadiumGuide/Sustainability

Tate

From 2008–12, waste was reduced across Tate by 33% – exceeding their targets. Tate Liverpool and Tate Modern have made considerable savings, reducing waste by over 40%. Overall recycling rates have also improved significantly. They are composting food waste from their cafés and restaurant at Tate Modern and green waste from their landscapes, diverting a valuable resource from landfill. Office and catering operations at Tate Britain and Tate Modern are landfill-free. Waste that cannot be recycled is sent to energy recovery facilities in the South-east, generating power for the National Grid.

http://www.tate.org.uk/about/our-work/our-priorities/improving-the-organisation/environmental-sustainability

Regulations and Legislation

The following are links to some useful references on the UK applicable regulations and legislation that any environmental sustainability measures your organisation undertakes should comply with. Please note that this is not an exhaustive list and should not be considered as legal advice!

All businesses have a duty under the Waste Framework Directive to take reasonable steps to apply the Waste Hierarchy when disposing of waste (see earlier section).

Landfill tax per tonne for 'active' waste (which almost all event waste will fall into) has been increasing by £8 per tonne annually since 2010/11 to drive an increase recycling rates and help the UK meet its goals under the Landfill Directive. It currently stands at £80 per tonne for 2014/15. The landfill tax for 'inert' waste, such as building fabric and excavated earth, is £2.50 per tonne.

Waste transfer and duty of care. All producers of waste have a legal obligation, and a duty of care, to be able to demonstrate that they know exactly how waste is being managed. Waste must be stored, carried and disposed of in accordance with the Environmental Protection Act Section 34. Businesses must keep waste "safe" until it can be collected by a licensed waste business. You must classify your waste as either hazardous or non-hazardous – your waste contractor should be able to help with this.

When removing waste from site, a Waste Transfer Note (WTN) or Consignment Note (CN) for hazardous waste, must be completed prior to or at the point of removal. WTNs must be used for all shipments of inert and non-hazardous wastes. In 2014 a new online waste transfer system called Edoc was introduced to reduce the administrative burden on business.

Waste Carriers License

If you regularly carry waste in your own vehicles you will need to hold a "Waste Carriers License". If you produce more than 500 kg of hazardous waste per year then you will need to register your premises (Hazardous materials include: batteries, fluorescent bulbs, some white goods, some paints and varnishes, most computer equipment).

Defra provides the following guidance:

- Duty of Care: www.gov.uk/managing-your-waste-an-overview
- Waste Transfer Notes: www.gov.uk/how-to-dispose-of-nonhazardous-waste
- Hazardous Waste Consignment Notes: www.gov.uk/government/publications/hazardous-waste-consignment-note
- Waste classification: www.gov.uk/how-to-classify-different-types-of-waste/overview

For Businesses in Scotland - Waste (Scotland) Regulations 2012:

- If you produce more than 50 kg of food waste per week (5 kg after 1st Jan 2016), you must arrange for it to be collected separately.
- You must separate dry recycling (glass, paper, card, plastic, metals) and arrange for separate collection
- From Jan 1st 2016 - macerators which discharge food waste to the sewer will be banned

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Further Reading & Resources

Julie's Bicycle Creative IG Tools

Julie's Bicycle Benchmarks

Julie's Bicycle Practical Guides

The following guides would be useful to read alongside this

- Greening the Office
- Energising Culture
- Water Management in Buildings
- Team Engagement
- Procurement
- Communication & Marketing
- Production

WRAP Recycle on the Go container guide

WRAP Partners provide advice and support materials for waste and recycling communications

London 2012 Zero Waste Events Protocols:

Acknowledgements

We would like to thank Ed Cook for his contributions to this guide. Ed is a Julie's Bicycle Associate and independent waste management consultant with over 12 years' experience in solid waste management and operations. He has managed the waste at more than 350 UK outdoor events over his career; pioneering innovative sustainable waste management solutions all across the UK. He worked on the waste management strategy for the London 2012 Olympics and now provides technical advice across the waste and events industries. Ed has a Master's Degree in Waste and Resource Management from Cranfield University and is a Chartered Waste Manager.

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