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Old vs New – Sustainability in theatre

An investigation into the use of sustainable materials, such as polystyrene alternatives and how they compare when using them

By Ashling Ryan

In 2024 global greenhouse gas (GHG) emissions increased by 1.3% to 53.2 Gigatonnes of CO₂ equivalent gases (CO₂e), a record high. According to the (Joint Research Centre, 2025), as of June 2024, about 107 countries responsible for roughly 82% of GHG emissions had laws or policies pledging to reach net-zero emissions. Since 1990 the UK has reduced its GHG emissions by 50%, with the Government committing to a 100% reduction of GHG emissions by 2050 to reach net zero. The Climate Change Committee (2024) reported that as of July 2024 the UK was off track to reach net zero emissions by 2050.

The United Nations Environment Programme (2024) report that currently, only 19% of municipal solid waste (MSW) is recycled globally, with Western Europe having the highest recycling rate at 56% of MSW being recycled. Globally, more than two billion tonnes of MSW are created per year.

The Creative Industries Policy and Evidence Centre (2022) found that the annual GHG emissions of London theatres (excluding audience travel) was 50,000 tonnes CO₂e with audience travel estimated to add an extra 35,000 tonnes of CO₂e, while a film production with a budget of over US\$70m is estimated to produce around 2,840 tonnes of CO₂. To help reduce these emissions, in 2011 BAFTA developed Albert with broadcasters and production companies. The online tool can be used to calculate the amount of GHG emissions that are caused by a production. Since its creation more than 1,300 television production companies use the tool and footprints have been calculated for 7,500 productions.

The Greater London Authority (2008) estimates that 5% of theatre related emissions are a result of production materials such as set and props. Chambers (2026) reports that theatre carbon emissions increased by 74% in 2024-25. Of the theatre emissions for 2024-25, venues-based operations, such as heating, electricity, and audience travel, accounted for 80%. The Department for Culture, Media & Sport (2023) found that if just 100 UK theatres were made fully sustainable it could save 6500 tonnes of CO₂ per year.

The Indigo Act Green survey gathered 17,450 responses from audiences of cultural organisations, such as theatres and arts centres. Of those responses, “72% think cultural organisations have a responsibility to influence society about the climate emergency” but only “16% think cultural organisations place great importance on the role they play in the climate emergency” Indigo Ltd (2024). These responses highlight the opinion of audiences that theatre needs to become more sustainable.

In this investigation I plan to evaluate sustainable alternatives to traditional methods of prop making, through both materials and methods, in comparison to the traditional making process. I will also explore what the biggest barriers to working sustainably are, and what can be done to work around these.

Within theatre, changes are already being made to become more sustainable. Whether that is through changes to the buildings to become more energy efficient and less wasteful, creating stores to encourage the sharing of props and costumes, or freelancers making changes to the methods and materials that they use. The National Theatre (2024b) Green Store has around 131,000 costume items and 22,000 props stored that can be shared/hired out. Many freelance artists are passionate about encouraging other industry professionals to work sustainably such as Aimee Bunyard (2026), a freelance scenic artist who created Greener Scenics to help inform other scenic artists about sustainable materials. The Theatre Green Book by Buro Happold and Renew Culture Ltd (2024) is leading these changes with resources to help both theatres and freelancers to make changes and work towards the Theatre Green Book standard. There is also training available to help industry professionals work more sustainably. The Theatre Green Book have a free webinar run by Sedgwick (2026), which explains how the production calculator is used to track the environmental impact of a theatre production, they also run free webinars to explain the basics of the Theatre Green Book. Ruth Stringer (2026a) runs carbon literacy training as part of the Society of British Theatre Designers, the training covers the basics of how theatre affects the climate crisis, how that affects us, and what we can do about it. Albert (2019) is an organisation founded in 2011 to help reduce the impact that film and TV have on the environment. They have created the BAFTA Albert Education Partnership, an initiative for UK higher education institutions with media courses. Through this initiative, students learn about the climate crisis and learn about sustainability within the screen industries. 49 institutions across the UK are currently

partnered with Albert, ensuring that graduates entering the industry are already considering sustainability within their own work.

While many people believe that sustainability is important within theatre, film and television, there are many barriers that prevent this. I have spoken to many prop makers and designers to find out what they feel are preventing them from working more sustainably. Shannon Breen (2025) a freelance prop maker and sfx makeup artist, said that while she often considers how she can work to be sustainable, it is cost and access to materials that prevent her. She has also found that often the sustainable option is also less durable than the traditional option and so needs replacing more. Because of this, in her current practice, she chooses to use sustainable methods rather than materials, such as buying good-quality tools that last or using paper rather than plastic to cover her desk. The majority of prop makers that I spoke to agreed that one of the biggest barriers to working sustainably is the budget restrictions.

Alison Tanqueray (2025) at the Royal Shakespeare Company agreed that that budget is the main thing that limits her, but also that deadlines can have an impact. However, these challenges don't stop her from working sustainably in other ways. She keeps old props, altering and refurbishing them for future use, or hiring them out once a show has finished. Wood and metal offcuts are saved for repurposing and water-based paints are used instead of aerosol as much as possible. Even paper is used in an environmentally friendly way, using recycled paper and then recycling paper props into handmade paper which can then be sold. She said that the props she works with are varied and so there generally isn't one material that they typically use, with the exception of polystyrene which she has been unable to find an alternative for. While having to use polystyrene isn't ideal the offcuts that are unusable are sent back to the factory to be recycled.

I also spoke with Ruth Stringer (2026b) a theatre designer who is one of the directors of Ecostage, an initiative to make the performing arts sector more sustainable. I spoke to her both over email and when attending the Carbon Literacy training that she runs. One of the things that she finds to be a challenge is getting the whole team involved. If designers and directors aren't considering sustainability it can make it challenging for the production team to work sustainably. There can also be challenges if a workshop is unwilling to make change. When it comes to budget and time restraints making sustainability challenging, she explained that she tries to use one new sustainable material a year. This means that the cost and time can be spread out making it easier, this is why she feels that people should be less focused on doing it perfectly and instead trying to make small sustainable changes where possible to make a big difference. Ruth often works with repurposed materials, such as old sets and scraps from previous projects, as well as using modular staging instead of building a new structure. She explained that generally she is "more focused on avoiding hazardous materials than in using new sustainable materials". One of the sustainable materials that she does use is Dekozell as an alternative to idenden, finding that it takes colour well and is easier to transport due to it being lightweight. It does, however, take much longer to dry and can be challenging to get off your trowel and onto the surface.

Torben Schacht (2026), the head of props at the Welsh National Opera, agreed that it is typically cost preventing him from working more sustainably. However, he explained that for him, the sustainability in his work comes from the longevity of the products they use. He will work from stock items, when possible, some of which may have been in storage for over 50 years and have been reused and repaired many times. He also uses metal and timber offcuts from their partner organisation CTS, a set construction company, preventing them from going to waste.

As well as speaking to prop makers, I spoke to Aimee Bunyard (2026), a freelance scenic artist. One of the issues she faces when trying to work sustainably is a "lack of willingness from designers to choose to use the eco products". She explained that having examples of sustainable alternatives is helpful, which is why she started Greener Scenics where she promotes sustainability in scenic art, as there isn't very much information available for those in the industry. She regularly uses eco paints such as Lakeland, Earthborn, Eico, Graphenstone and Edward Bulmer, finding that at times it is actually better than standard off-the-shelf paint, having great coverage. A downside of eco paint, aside from cost, is that it goes off quicker.

Alongside speaking to prop makers working within theatre, I have spoken to Nadja Nikko (2025) who has worked on high-end television shows, such as HBO's House of the Dragon, to see what the differences are. She has said that, while she tries to work sustainably on her own projects, she isn't always able to on commissioned projects as it is not always her decision. Generally, she aims to reduce the use of toxic materials when she is able, however, Nikko (2025) feels that "it is a constant balance of using the things that make sense and are affordable, and the use of sustainable materials". She has even chosen not to do some of the projects that she has wanted to as she can't justify the use of certain materials. When asked about what sustainable materials she already uses within her practice, she explained that she doesn't feel there are any sustainable materials that would work for her as materials are generally required to be extremely durable and

often need certain properties such as flexibility. Some materials she feels are better than others, such as oil-based clays that can be reused many times or printed moulds that allow her to skip some of the “worse materials”, however, they are not perfect and can still be harmful to the environment. To put it simply, the biggest barriers are “cost, durability, and efficiency. The most toxic materials - polyurethanes and polyester - are fast, strong and reliable”. Nikko feels that one of the best ways for the film industry to work more sustainably is through planning and collaboration, specifically with visual effects. This collaboration would reduce the number of props that are required. An example that she gave for this was the use of swords, are hundreds needed to be made when they could be added digitally? This is particularly relevant when many props are made and then go unused. While having handmade items is important, using both physical props and visual effects in partnership could help reduce materials usage. Within the film industry there is also the challenge of licensing when it comes to reusing props as they are rarely able to be reused or rented for other projects, meaning many props are created to be single use.

The Theatre Green Book (2025) Impact Survey also questioned people on the barriers that they face to working sustainably, finding that motivation is not an issue with 90% of people saying they have a commitment and sense of responsibility when it comes to the sustainability and the aims of the Theatre Green Book. However, only 16% said that they had the resources to make these changes, in terms of both time and money. And just 5% of freelancers said that they had the support that they needed to make a change. When it comes to changes within organisations, many also stated that they were limited by schedules, financial constraints, and staffing. The report states that “There is also repeated emphasis on materials guidance, with requests for accessible registers or databases of recognised and approved sustainable materials” (Theatre Green Book, 2025, P. 12). This highlights just how important it is for people to experiment with new materials and share their findings to allow others to make the change to a more sustainable alternative without the limitations of finding time to test them. Another barrier that was found within the survey was that while 70% of the UK theatre workforce is freelancers, only 27% feel that they have the time and resources to work in a more environmentally friendly way. One of the barriers mentioned was their “limited authority to enforce sustainable practices” (Theatre Green Book, 2025, P. 13).

While low budgets can make working sustainably hard, it can also force people to work in a way that is environmentally friendly, such as buying second hand items and reusing them. This keeps costs low and reduces the environmental impact. As shown by the people that I have spoken to, there are many ways to work around the cost restrictions that prevent sustainable working.

One of the barriers to working sustainably that prop makers mentioned was the lack of alternatives to harmful materials. Through my research I found various sustainable alternatives, although some have disadvantages that prevent them from being used. I focused on three different areas when looking at materials, the base, such as polystyrene, the texturing, such as idenden, and the painting.

My focus for the base material was polystyrene, something that is regularly used when making props and sets. The waste from this generally ends up in landfills or incinerators and takes centuries to decompose. Even as it does begin to breakdown, it does so very slowly, breaking into smaller pieces known as microplastics. These then end up in oceans where marine life can ingest them. The chemicals used in the manufacturing process are toxic and cause air pollution. Polystyrene can be recycled but this isn’t always possible, particularly once coated for use in prop making, resulting in it going to landfill. Composta Block is very similar to polystyrene but with fewer environmental impacts.

Composta Block is made from expanded poly-lactic-acid (PLA) derived from plant biomass such as corn and sugarcane. It was declared 100% Carbon neutral by the Environmental Protection Encouragement Agency (EPEA) and also meets the EPEA cradle to cradle (C2C) requirements. C2C requires that materials follow a cyclical lifecycle rather than a linear one, to be certified C2C a product must fit one of two cyclical systems. The first is biological cycle, where the material naturally biodegrades, the second is technology cycle, where materials can be recycled or reused. After 26 weeks of composting at room temperature, Composta Block did not disintegrate, meaning that it is not home compostable. It does, however, disintegrate during industrial composting. It is currently produced in the Netherlands and shipped to the UK, but production will soon be moving to the UK reducing the environmental impacts of shipping. Composta Block is advertised by Flints (2025a) to have a density halfway between standard polystyrene and Modelfoam, which can allow for more detail when carving. It is recommended that to carve you use knives, brushes, and other alternatives to hot wires due to the need for using higher temperatures to cut the Composta Block which can result in more smoke. It can be glued and coated in the same way as polystyrene as well as having more coating options due to the added solvent resistance.

For texturing, I focused on an alternative for Idenden. Idenden or Flintex are acrylic copolymer emulsions and so are plastic based, therefore they are harmful to the environment if they end up in landfill. An alternative I found was Dekozell, made from 100% cellulose, a byproduct of wood fibre. These fibres can be mixed with water to create a textured paste, glue can be added for water resistance and pigment can also be added to the mix. This mix can be applied to surfaces in many ways including spraying and brushing, a trowel can also be used but it is recommended that PVA is added to make application easier. Dry Dekozell can be stored for at least 10 years and is lightweight making it easy to transport. Additional materials such as sand or Styrofoam beads can be mixed in to create different textures. When applied in a thin layer, up to 1mm thick, it will take around 1 day to dry. This increases to around 3 days for a layer around 5mm thick. The Dekozell plaster can be painted over with standard interior paint, or a waterproof primer can be used before painting. A range of textures can be achieved using different application methods and water ratios, such as bark, moss, slate, and brickwork.

When working with Dekozell, glue must often be added to get the desired texture, rather than using PVA glue, Collall Nature Glue can be used. It is a starch-based glue created with potato dextrin which is dissolved in water. The glue has a brown colour which stays even once dry. It isn't water resistant, however, this does mean that the glue can be soaked to remove, making it easier to reuse elements.

For paints there are many sustainable options. Jennings (2025) explained that Bristol paints are acrylic, although this isn't environmentally friendly, they have low volatile organic compounds (VOC) meaning they release minimal harsh fumes which add to air pollution. They also use biodegradable packaging where possible, although they haven't yet found a tough enough biodegradable bag for transporting paint, and have been using electric vehicles for six years. Graphenstone create ecofriendly paints for interiors and exteriors, Flints have collaborated with them to provide GrafClean paint. A plastic free, water-based paint with trace VOC that is C2C certified. GrafClean has high coverage and is made with graphene fibres that make it durable and flexible. Through Flints, GrafClean is available in 14 carefully chosen colours for scenic artists as well as the 96 colours in their standard range. GrafClean is also available as a transparent base which can be used with concentrated liquid pigments or dry scenic powder pigments. When unopened it can be stored for 36 months from the date of manufacture. White GrafClean is advertised as having around 6-8m² coverage per litre, compared to Bristol StandTex White which has around 8-10m² coverage per litre. GrafClean is the only sustainable paint available from Flints. Another brand of sustainable paint is Lakeland, their paints are VOC free and contain no plastic. They are also non-hazardous to waterways and aquatic plant life and organisms. All packaging is 100% recyclable and their paint is made to order in the UK so doesn't need to be shipped far. Their paints also contain 3x more pigment than the normal amount found in most wall paints. Lakeland paints should be used within 12 months of purchase. Earthborn paints are clay based low VOC paints. Their Lifestyle paints are a durable, ultra-low sheen emulsion with approximately 10-14 m² coverage per litre. Their Claypaint is an ultra-matt emulsion containing no acrylics with roughly 10m² coverage per litre. Earthborn also create a matt wall glaze which is water based, low VOC, and acrylic free, covering approximately 50m² per litre. Eico paints are low VOC, environmentally friendly paints with 8-10m² coverage per litre.

Flints (2025b) is the UK's leading theatrical supplier, over the last few years they have made many changes to their packaging and deliveries to make them more sustainable. All their boxes are recycled and recyclable, if buying from their trade counter the bags are now durable paper bags. They have found that paint needs to be in a bag when shipping in case of spills to protect the other items, to keep this sustainable they use a new plastic bag which can be recycled within 6 months and if it ends up in the environment it will biodegrade. All West End deliveries are completed with an electric van, this van is then charged at their new unit, which is powered entirely by renewable energy.

Another consideration when prop making is the gloves being used. Often nitrile gloves are used when working with messy materials or those that can irritate skin. Nitrile can take over 100 years to breakdown, Biotouch nitrile gloves, available at The Glove Store (2025), are a biodegradable alternative that reaches 81% biodegradation in 490 days.

I have found that there is a very large difference in materials costs with the sustainable option typically costing much more than the traditional material. For this comparison I have gone off of the pricing on Flints (2025c), except for the paints, where only the GrafClean is from Flints, the others are from the company's own website.

Material	Amount	Price (excluding VAT)
Polystyrene		
Polystyrene sheet	1200 x 2400 x 50mm	£30.55
Composta Block	855 x 565 x 40 mm	£49.50
Textures		
Idenden	10L	£127.46
Flintex	10L	£88.98
Dekozell	1.9 kg	£69.95
Glues		
Flints PVA	5kg	£38.85
Collall Nature Glue	5L	£64.00
White Paint		
Flints Exhibition White	5L	£34.85
Bristol StandTex	6kg or approximately 3.87L	£37.45
Lakeland matt	5L	£87.50
GrafClean	4L	£70.83
Earthborn Claypaint	5L	£85.42
Earthborn Lifestyle	5L	£81.67
Eico Alterior Matt	4.5L	£79.42
Eico Helmatt	4.5L	£74.38
Glazes		
Flints Emulsion Glaze Matt	5L	£46.35
Earthborn Matt Wall Glaze	2.5L	£98.00

The Composta Block sheet from Flints is the only size that I have been able to find and so any larger props will require multiple sheets to be glued together, unfortunately this would need to be done with a glue that isn't sustainable and would result in many seams that may affect the final product. There are many sustainable paints, all of which cost more than the traditional options. Due to price differences between colours, I have focused only on white paint. While the sustainable paints have a high cost, they are generally high quality, performing just as well if not better than some traditional paints as Aimee Bunyard (2026) explained. Unfortunately, it is this large price difference that prevents many people from working with sustainable materials.

However, changing the materials that you use isn't the only way to make props more sustainable. There are some changes that are easy to make, especially on a budget, such as reducing material usage where possible and reusing what is available. The Theatre Green Book (2021) has many recommendations on ways to work more sustainably, with guides to sustainable working in various areas including props, training on using their production calculator to find the environmental impact of a show, and production guidance within version 2 of the Theatre Green Book. When it comes to props, their main recommendations are to first ensure that there is time and budget to allow for working sustainably, then consider how materials can be reduced through design. Where possible props should be reused or be made with recycled materials, buying new unsustainable materials only as a last resort. This follows a circular economy rather than a linear economy. When an item is bought, used, then binned, it is following a linear economy. Instead, people should aim to follow a circular economy, where items are reused, repaired, and recycled where possible. They also recommend that designers aren't overly specific about what they want, allowing for flexibility so that the outcome can be made in a sustainable way. Last minute ordering should be avoided where possible, instead, reducing the number of deliveries by making large orders, this will be helped by planning what is needed early in the process. Waste should be reduced where possible, reducing the environmental impact, as well as saving money on materials.

Sustainability is slowly becoming a requirement for a lot of different funding bodies, however, there is little funding specifically for sustainability. Creative Industries Policy and Evidence Centre (2022, p. 32) reports that since 2012 the Arts Council England's funding agreements with over 800 National Portfolio Organisations (NPOs) has required the use of the Creative Green Tools, developed by Julie's Bicycle, to calculate their environmental impact. These NPOs are required to report their impact in a range of areas such as energy use, waste, water consumption and travel. It is also an expectation that they submit environmental policies and action plans. Funding from Creative Scotland also requires that organisations funded by them report their carbon emissions and carbon management plans, with a target of all creative businesses

reaching Net Zero by 2045. The British Film Institute (BFI) (2023) announced that they would be launching the BFI National Lottery Sustainable Screen Fund, to support organisations with expertise in environmental sustainability. This fund has awarded £299,800 to Julie's Bicycle and £286,955 to BAFTA albert, who, in turn, will support all BFI funding recipients. In 2020, Screen Scotland commissioned Creative Carbon Scotland to create a report identifying how Screen Scotland could better promote a reduction of carbon emissions in the screen sector. One of the suggestions was that Screen Scotland introduced mandatory carbon reporting for all funded projects. Creative Wales are also making changes to funding, beginning to make sustainability a funding requirement. The National Theatre has announced that freelance designers and directors who meet certain sustainability challenges will be given additional payments. This will help with any additional costs, as Mock (2023, p. 4) found that sustainable production practices can increase workloads and therefore labour costs, putting freelancers at a disadvantage. There is also funding available for theatres to make changes to their buildings so that they are more sustainable, The Wolfson Foundation (2024) started working with Theatres Trust in 2017 and have since awarded grants totalling over £750,000 to help 46 theatres across the UK to improve their buildings. Of these, 32 were to help improve environmental sustainability.

For my comparison I will be making two stone tablet props, one made traditionally and one sustainably, that will be placed within a jungle set built by Rob Axtell. The tablets will show a dragon that is the same as the puppet that is being created by Sam Measor. Janis Peraworasakul will interact with this tablet during her movement piece, this will then introduce Sam's puppet. I will also be making two candle holders, with one being created sustainably and the other traditionally. These will be made to go in the castle set that is being built by Rob Axtell and painted by Imogen Bissett. The set will be a recreation of a section of Cardiff castle and so the candle holders will need to be an accurate recreation. Working on these two separate props will allow me to focus on two different aims with working sustainably. The stone tablet will allow me to work in the most sustainable way possible, even if this results in the two props looking different. For the candle holders I will be aiming for them to look identical, this may result in having to use some materials that are not sustainable.

When ordering the materials that I need to create my props, I have made sure to coordinate with those that I am working with to ensure that we have one collective delivery from Flints rather than many. This saves on packaging and reduces CO2 emissions that would come from many separate deliveries. Of the many different eco paints, I chose to use GrafClean for my comparison as this was the only one available through Flints, saving packaging and shipping.

While making I discovered that Composta Block handles very similarly to polystyrene, I found my blade became dull faster when carving the Composta Block. The beads crumble apart slightly easier than polystyrene, this wasn't a big issue when carving but did make sanding much harder. Because of the beads coming apart during sanding, the surface was left uneven. Composta Block holds detail well, but a sharp blade should be used to prevent any beads from coming off. Dekozell is challenging to apply as it can be quite sticky, staying on the brush or trowel more than the surface. This becomes less of a problem as you get used to using it. Dekozell dries much harder than Flintex, occasionally blobs dried to be sharp but this was easily fixed with some sanding. Flintex can create many textures depending on what it is mixed with, Dekozell has less options but still has many possible uses. I found that I preferred the stone effect created with Dekozell than the one made with Flintex and sawdust. The main challenge I found when it came to painting was the Dekozell becoming soft from the paint, this could be due to the fact that nature glue is water soluble. While it was annoying at first, I quickly worked around it, painting in layers and waiting for it to dry. The Dekozell getting damp also helped to slightly smooth it, removing the sharp edges. The drying time did slow the process slightly as Dekozell takes longer to dry than the Flintex. When mixing paint into the Flintex I found that it had a warm tone to it as it is a warm cream colour rather than pure white. I found no changes to colour when using Dekozell, even with the nature glue, which dries with an orange tint. This meant that I was able to easily mix the colour I wanted with paint and then add the Dekozell with no colour change. This also means that a bright base colour can be achieved with Dekozell, unlike Flintex which is an opaque cream colour, making it difficult to achieve a vibrant result. While it is easier to mix colour into Dekozell, I found the coverage slightly patchy and so I had to paint a base layer over it once dry, something that wasn't an issue with Flintex. I found that both props took the same amount of time to create if excluding drying time. If including drying time, the sustainable stone tablet took longer as the Dekozell dries much slower than idenden.

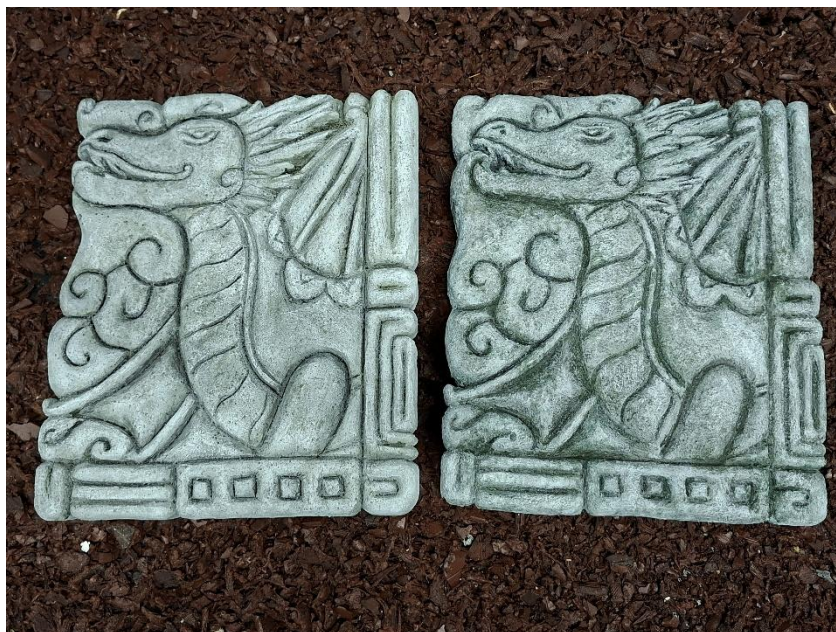
For the candle holders the focus was on making them look the same, even if I had to sacrifice the sustainability to achieve this. As a result the only sustainable material that I used was the Composta Block. From a distance the two look identical, when looking closer some differences become visible, such as the slightly more textured top of the Composta Block one as it doesn't sand quite as well as the polystyrene. When looking closely it is also possible to see the join between

Composta Block layers as it is only sold in sheets. I feel that I was able to get slightly more detail in the polystyrene, but this isn't immediately noticeable.



From left to Right, Polystyrene, Composta Block

The stone tablets have much more of a difference between them. One of the first things that you will notice if picking up the prop is the weight difference. The Composta Block is heavier, weighing 318g, compared to the polystyrene, weighing 133g. The two tablets also look quite different, I feel the base looks very similar, however the texturing looks very different. The Flintex has a relatively smooth finish with a more subtle texture, compared to the Dekozell which has a very rough look. The Dekozell has also meant a small amount of detail has been lost, but this is something I really like as it makes it look like much older stone, rather than something that has been recently carved and hasn't aged. Although the Flintex has a smoother finish than the Dekozell, more sawdust or an alternative additive would help to create the same texture as Dekozell. It is hard to compare the look of the paint as I only had the budget to buy sustainable white paint, which I used as a base. I found the pigment of the sustainable paint compared to the flints paint to be very similar. The main difference in colour came from the warm tint caused by the Flintex, to counter this I used a cool wash which then made the tablets the same colour. Because of the story that we wanted to tell within the short film, I added extra ageing to the sustainable tablet so the final outcomes look different.



From left to right, Polystyrene and Flintex, Composta Block and Dekozell

Although one prop is made from materials with low CO2 emissions that aren't harmful to the environment, the traditionally made prop would be considered to be the most sustainable if following the Theatre Green Book (2026)

production calculator. The calculator scores the sourcing and disposal of the material out of 5, with 1 being the best. Using new sustainable materials has a score of 4, only 1 better than new unsustainable materials. This is because the priority is on minimising waste and shipping by first reusing the materials and props that you already have in storage, with 1 being a reused element with minor modifications. Using the calculator, the polystyrene would be rated a 3, Props modified/adapted or made from recycled materials, because I took polystyrene from a previous project and reused it. The sustainable props were made from new sustainable materials and is therefore rated a 4. However, if I had bought polystyrene specifically for this project rather than reusing what I had, it would then be less sustainable than the Composta Block.

I found that generally people were able to tell the difference between the sustainable and traditionally made props, however, they often took a long time looking at both and comparing them before they were able to work out which was sustainable. The stone tablet was easier for people to tell, as the texturing is very different on each, but the candle holders look almost identical.



Polystyrene candle holder



Composta Block candle holder

Going forward, I will try to implement some of the sustainable materials in my own practice. While the Composta Block is a good material, it's not one that I will be able to regularly use due to the high cost and limitations of sheet size. However, the Dekozell is something that I will happily continue to use and experiment with especially given the fact that it is much easier to transport than idenden. I will also continue to use GrafClean paints when the budget allows. While using more sustainable materials is an important change to make, I feel it's more important to work in a sustainable way, prioritising the longevity of a prop and reusing materials you already have.

Overall, I have found that there are various options that can be considered when aiming to work sustainably within theatre and prop making. Each of the sustainable materials that I trialled were great examples of environmentally friendly alternatives to traditional materials. However, they each had some drawbacks that may prevent them from being used within many projects. Although I think that Composta Block has a much smaller environmental impact than polystyrene, the price difference is, unfortunately, likely to prevent it from becoming a commonly used material within the industry. Dekozell, on the other hand, is a great alternative as it not only creates various textures but is lightweight making it easier to transport than idenden. When it comes to paints, there are many sustainable options, most perform well with great coverage and a range of colours. They do cost more than traditional paints but are great when budget allows for them. There are several ways that productions can help to improve sustainability, this includes budgeting to allow for sustainable materials to be used and planning for sustainable working early in the preproduction stages so that things can be designed with the environmental impact in mind. While more theatres need to be doing this, there is already a large amount of progress being made by the Theatre Green Book and Julie's Bicycle, with a Theatre Green Book (2025) survey finding that since version 2 of the Theatre Green Book released in June 2024, over 350 organisations and 650 theatre workers have committed to working to its standards. The props that I have created demonstrate that working sustainably doesn't have to be at the cost of the overall look, with both candle holders looking the same and the sustainable stone

tablet looking better than the traditional one. These props also highlight that working with sustainable methods is just as important as the materials that are used.

There is much more funding available for upgrading buildings to be energy efficient and environmentally friendly but there is very little available for working sustainably on props and sets. Because of this, there are quite a few materials that, while sustainable, cost too much for makers to use within their own practice. Instead, I feel that a focus should be on working in a sustainable manner, reusing materials where possible and reducing waste in all departments. While there is still a lot to be done when it comes to sustainability within the industry, a large amount of progress is being made and I hope to continue working on this within my own work, working in a sustainable way while also encouraging others to make changes within their own work. If everyone begins to make small changes it will make a big difference.

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