



REDUCE, REUSE, REOPEN: BACKSTAGE TOOLKIT

SUSTAINABLE SOLUTIONS FOR REOPENING THEATRE

The theatre community has made great strides in sustainability over the last decade. As we consider how to reopen our theatres and return to work, we have the opportunity to further integrate sustainable solutions into our protocols. **Prioritizing health and safety does not need to come at the expense of the environment.** In fact, the COVID-19 crisis shines a spotlight on the inextricable link between the health and safety of our people and our planet.

Our industry faces an enormous number of challenges and a series of interconnected crises, from the economic impacts of COVID-19 to a much-needed reckoning with systemic racism to climate change. These issues are intersectional and we now have a unique opportunity to **redefine our priorities to promote social and environmental well-being.**

This document is not intended to replace or supersede Health and Safety requirements - it is a companion document, intended to assist in decision-making at all levels and provide sustainable resources for consideration in those decisions.

This document was written by and for the Broadway, off-Broadway, and touring theatre community and, as such, provides many NYC-focused vendors and solutions. However, **the recommendations are applicable to theatre makers and artists in any location.** We suggest readers seek out local, comparable alternatives and reach out to the Broadway Green Alliance for assistance or to share suggestions.

This guide outlines solutions that directly address the needs presented by COVID-19, to keep the health of our planet and all who inhabit it at the forefront of our efforts to rebuild our industry. We know that some of these suggestions are changes in the way things have been done. **We'll continue to update this Toolkit with your feedback and as guidance changes** - it is a living document.

Please email questions to the [BGA](#) and visit our [website](#) to learn more.

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SECTION 1: ENVIRONMENTAL HEALTH & SAFETY

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Current Situation	COVID-19 Challenge	Sustainable Solution
<p>Much of the PPE produced and provided is single-use. This causes increased waste¹ and a threat to wildlife if not disposed of properly².</p>	<p>PPE needs to be worn at appropriate times in the workplace.</p>	<p>Provide company members with a set of 2-layered cloth³ reusable face masks to be cared for by each individual.</p>

Sustainable Recommendations and Opportunities:

<input type="checkbox"/>	<p>Purchase reusable masks from local vendors, such as costume shops within the Costume Industry Coalition (all based in New York, New York).</p>
<input type="checkbox"/>	<p>Purchase EcoBreathe Recyclable Masks from Frontline Sanitizing. This product is a 100% fully recyclable, three-ply, disposable face mask.</p>
<input type="checkbox"/>	<p>Shows and theatres can personalize masks with custom branding.</p>
<input type="checkbox"/>	<p>If single-use PPE is required, dispose of it responsibly by cutting the straps before placing it into the trash. PPE can be disposed of in regular waste streams (it is not considered to be a biohazard). If possible, opt into specialized recycling programs offered by TerraCycle.</p>

¹ [COVID-19 Pandemic Repercussions on the Use and Management of Plastics](#)

² [The Problem With Throwing Away Face Masks](#)

³ [How to Select, Wear, and Clean Your Mask](#)

CLEANING PRODUCTS

Current Situation	COVID-19 Challenge	Sustainable Solution
Many of the CDC recommended cleaners are scented or made of harsh chemicals.	Frequent cleaning and disinfecting is required.	Utilize cleaners from CDC List N ⁴ and from the New York State Registered Disinfectants Based on EPA List ⁵ that are also Green Seal Certified ⁶ or Safer Choice Standard ⁷ cleaning products.

Recommended cleaners, approved by the Centers for Disease Control and Prevention, and recommended by the Environmental Protection Agency:

Clorox® Disinfecting Bio Stain & Odor Remover
Clorox® Pet Solutions Stain & Odor Remover Spray
SurfaceWise®2
PURELL® Healthcare Surface Disinfectant No Bleach, No Harsh Fumes, (Fragrance Free)
Windex® Disinfectant Cleaner Multi-Surface
Force of Nature Activator Capsule
Envirox H₂Orange₂ Concentrate 117 (Registered under the name Axen(R) 30)
Ecolab Peroxide Multi Surface Cleaner and Disinfectant
Diversey's Oxivir® Tb Ready-to-Use Liquid

⁴ [List N Tool: COVID-19 Disinfectants](#)

⁵ [New York State Registered Disinfectants Based on EPA List](#)

⁶ [How to Safely Clean and Disinfect for Coronavirus](#)

⁷ [Safer Choice Standard and Criteria](#)

HYGIENE & PERSONAL SANITATION

Current Situation	COVID-19 Challenge	Sustainable Solution
Many commercial products are readily available to fulfill these needs, but they are wasteful and not environmentally friendly.	Increased personal sanitation and hygiene requirements.	Install contactless solutions that promote hygiene and eliminate the need for added single-use products. When that is not possible, purchase environmentally friendly options.

Sustainable Recommendations and Opportunities:

<input type="checkbox"/>	Install foot-pedal door openers and trash can openers to support hygiene and reduce paper towel usage.
<input type="checkbox"/>	Source unbleached, 100% recycled paper products (hand towels, tissues, and toilet paper) or from sustainable materials, such as bamboo. Recommended brands (A+ ratings from the NRDC) include Seventh Generation , Thrive Market , Everspring , and Green Forest .
<input type="checkbox"/>	For contactless hand washing stations , use unscented soaps with environmental certifications and follow the WELL Standards for Hand Washing .
<input type="checkbox"/>	Use refillable hand sanitizer stations or aluminum, refillable bottles in lieu of single-use bottles. If individual hand sanitizers are needed, consider using aluminum, reusable, pocket-size bottles .
<input type="checkbox"/>	Buy larger, bulk containers of goods to reduce the amount of packaging waste.

SECTION 2: BACKSTAGE & RUN OF SHOW

STAGE MANAGEMENT

- Use digital communications and scripts. Cultivate an “opt out” culture, where digital is the norm and company members must choose to “opt out” to receive hard copies. To avoid financial barriers to company members, consider providing tablets for those who need them.
- Utilize digital blocking and paperwork options. Some recommended programs include [Scriptation](#) and [Stage Write](#). This [video](#) discusses how five-time Tony Award winner, Susan Stroman (*The Producers*), utilized Stage Write during her Broadway show, *Marie, Dancing Still – A New Musical*, at all stages of production: in pre-production, rehearsals, and to create an accurate document showing all the moving pieces.
- Use digital call boards with a display screen or virtual callboards - accessible by phone or computer - for essential information.
- Switch to a digital house board, currently in use at several Broadway theatres.
- Remove paper and pen signups, opting for digital alternatives, such as [QR codes](#). View this step-by-step informational guide for Stage Managers titled, [“How to Create a Paperless Sign-In Sheet for Theatrical Productions”](#).
- Utilize digital portals to distribute information such as contact sheets and rehearsal schedules, as well as to collect forms, such as personal day and vacation requests.
- Encourage company members to bring their own food and beverages - in reusable containers - for breaks and in between shows. Refer to **FOOD** on page 14.
- If water stations are not available, provide water in aluminum cans over single-use plastic. Refer to **CUPS & WATER BOTTLES** on pages 10 & 11 for canned water options.

COMPANY MANAGEMENT

- Use digital portals for ticket signups, house seat requests, payroll changes, vacation requests, personal day requests, and any other essential documents.

MUSICIANS & PLAYING AREA

- Encourage the personal use of digital musical scores and parts, utilizing tablets or other devices.
- Utilize LED lighting in pit lights, such as the [Bulbrite bulb](#) used by HAMILTON on Broadway.
- Recycle instrument strings and clippings, including nylon, steel, and orchestral strings, to [Playback – D’Addario’s String Recycling Program](#), powered by [TerraCycle](#).

PERFORMERS

- To better assist with cleaning at dressing stations and to begin to eliminate single-use items, distribute personal bins for all company members to contain reusable items, such as:
 - Reusable Bottles (refer to **CUPS & WATER BOTTLES** on pages 10 & 11).
 - Reusable Cutlery (refer to **CUTLERY** on page 13).
 - Personal dishware and other personal items.
- Encourage performers to bring their own coffee and meals, in reusable containers. Refer to **FOOD** on page 14.
- Promote the use of greener cleaning supplies for dishware, surfaces, and personal products (refer back to **pg. 4** for recommended, green cleaning products).

SCENIC & CARPENTRY

- In coordination with Production Management, the scenic and carpentry production team should create a sustainable pre-production and post-production plan.
- Consider HVAC air flow and backstage COVID-19 space requirements in scenic plans ahead of time.
- Consult with the appointed COVID-19 Coordinator before plans are drawn out to decrease the amount of waste produced when the set arrives at the theatre.
- Use resources like [ArtCube](#), [Big Reuse](#), or [Craigslist](#) to repurpose materials and props, or [Scenery](#) for drops, masking, or curtains. Broadway Green Captain, Mara Davi, outlined how Scenery has diverted 29,150 lbs. of theatrical material from the landfill in her case study titled, "[Saving the Scene: Scenery Bags Case Study](#)".

WARDROBE, HAIR, & MAKEUP

- The CDC recommends⁸ using warm water and drying items completely when performing laundry duties to protect against COVID-19. As an environmentally friendly option, consider the use of an [eco-friendly detergent](#). Sustainable and scent-free options include [AspenClean: Natural Laundry Detergent Unscented](#) and [Vaska Laundry Detergent Tablets, Scent Free](#).
- Instead of providing bite-lites for wardrobe, hair, and makeup staff for quick changes, provide [USB rechargeable headlamps](#) or [USB rechargeable neck lights](#), which do not come into contact with the user's mouth and provide a greener alternative.
- Promote the process of recycling worn costume pieces, fabric scraps, or leftover yardage that cannot be used by donating them to high schools and colleges, when possible, or to organizations like [FABSCRAP](#), [Scenery](#), [Materials for the Arts](#), [Wearable Collections](#), or the [TDF Costume Collection](#).
- Recycle personal care and beauty items through (often free) specialty recycling programs, such as [TerraCycle](#).

⁸ [Cleaning and Disinfection for Households](#)

LIGHTING

- Encourage the use of LED lighting fixtures. This saves on energy usage for the light itself, produces less heat, saves on HVAC cost and emissions, and reduces the use of disposable gel. In addition to stage lighting, switch to LED fixtures in the following areas:
 - Dressing room mirror lighting.
 - Work lights, including rehearsal works.
 - House lighting.
- Encourage less paperwork printing by providing tablets for technicians (spot ops, etc).
- Install motion sensors in common places, such as bathrooms, green rooms, etc.
- Employ reusable options for [labels](#), zip-ties, and other common perishables. Try old-fashioned tie-line!

SOUND

- Limit battery purchases of non-rechargeable batteries. Instead, add recharge stations to the sound rental package and purchase rechargeable batteries for microphones and other departments' needs, including headlamps and flashlights. This [article](#) outlines how WICKED on Broadway switched to rechargeable batteries, helping the production further its sustainability goals and save considerable money annually.
- Disinfect microphone packs, headsets, and radios with a greener product made of Hypochlorous acid ([Diversey All Purpose Virex® Disinfectant Cleaner](#)) or a 70% alcohol-soaked cloth, rather than alcohol wipes which are not biodegradable.
- Avoid the sharing of microphone packs, headsets, or radios to avoid the waste involved in sanitizing and changing out windscreens.

PROPS

- Consider miming props in the rehearsal room, rather than bringing them in at the start of the rehearsal process. When physical props are required - in tech and performances - spray each prop with a disinfectant between uses by different performers, rather than utilizing disposable wipes.
- Store prop food and other perishables in glass tupperware or reusable containers.
- Use an eco-friendly [dishwasher detergent](#) or [dish soap](#) when sanitizing prop dishware.
- Coffee breaks & supplies:
 - Say no to extras, such as sugars, stirring straws, napkins, etc.
 - Employ reusable shopping bags.
 - See **FOOD** on page 14.

PRODUCTION MANAGEMENT

- See **ENVIRONMENTAL HEALTH & SAFETY** starting on page 3 and implement those practices.

- Look for FSC or SFI certification on lumber and paper, which ensures fiber came from sustainably managed forests or sources⁹.
- CO Adaptive Architecture outlined some sustainable measures to consider when renovating an existing or creating a new theatrical space in a case study titled, [“Sustainable Theatrical Space”](#).
- Consider the numbers involved with providing and disposing of PPE and attempt not to overorder.
- Implement strategies presented in the [Sustainable Production Toolkit](#).
- If you are based in NYC, take advantage of the (city-funded: Mayor's Office of Sustainability), free NYC Accelerator Program. This program and other [HVAC incentives](#) provide resources to conduct energy audits and consultations to comply with local laws, and especially comply with building carbon emission limits (local law 97 or Local Law 95) to improve your building energy efficiency grade from its current grade towards an "A". [USL Technology](#), a [sub-consultant of ICF](#), works with the city to provide [services such as these](#).

GREEN ROOM

- Do not stock the green room with single-use supplies (such as cups, plates, cutlery, etc.) - instead, provide each company member with their own set of reusable supplies for which they are personally responsible. Refer to **CUTLERY** on page 13 and **CUPS & WATER BOTTLES** on pages 10 & 11. These items can be stored in each company member's personal bin or locker.
- If possible, install a dishwasher in the green room or other common space.
- Install motion sensors in common places, such as the green room.
- Install automatic faucets in all backstage sinks, to save water and to avoid an additional contact surface.
- If paper towels must be used, encourage the use of unbleached, 100% recycled paper towels. Refer to **HYGIENE & PERSONAL SANITATION Sustainable Recommendations & Opportunities** on page 5.

⁹ [Forest Stewardship Council vs. Sustainable Forestry Initiative: A Comparison of the Standards](#)

SECTION 3: Operations: Food & Hydration

CUPS & WATER BOTTLES

Current Situation	COVID-19 Challenge	Sustainable Solution
American single-use plastic consumption has grown by approximately 250-300% since the beginning of the pandemic ¹⁰ .	Potential contamination of materials, whether single-use or reusable.	Utilize reusable items along with basic hygiene practices. These items are proven safe by over 125 virologists, epidemiologists, and health experts ¹¹ and by WHO guidance ¹² .

Sustainable Recommendations and Opportunities:

<input type="checkbox"/>	Encourage the use of personal reusable bottles, tumblers, mugs, and thermoses for all company members.
<input type="checkbox"/>	Purchase reusable bottles made primarily from stainless steel, glass, or BPA-free material over paper or plastic cups ¹³ .
<input type="checkbox"/>	Shows and theatres can personalize bottles with custom branding to promote a commitment to sustainability.
<input type="checkbox"/>	Opt for larger bottles to limit the amount of daily refills.
<input type="checkbox"/>	Choose reusable bottles equipped for hot and cold beverages to decrease waste and save money.

¹⁰ [Covid-19 has led to a pandemic of plastic pollution](#)

¹¹ [Reusable Cups, Bags Safe to Use During Covid-19, Greenpeace Says](#)

¹² From Oceanic Global: [WHO Guidance for Food Business](#) and [WHO Guidance for the Accommodation Sector](#) makes no recommendation to use disposable items other than cleaning products.

¹³ [Plastic, metal or glass: What's the best material for a reusable water bottle?](#)



If reusable is not an option, use single-use cup options that are recyclable and/or compostable within local waste management ([Oceanic Global's Greenwashing Guide](#)). Recommended cup materials can be aluminum, paper, bamboo, and other materials depending on the local waste streams.

Recommended reusable bottle and single-use cup companies include:

EcoPlum Business Gifts: 17oz Triple-Insulated Stainless Steel Bottle
Naeco: Naeco Bottle: 20oz Vacuum-Insulated Steel
Package Free: Package Free Tumbler With Straw, Package Free Water Bottle
Stojo: Collapsible, reusable coffee cup
Klean Kanteen: Mugs and Tumblers
Ball: Recyclable Aluminum Cups
Katom: Pinewood Cups
EcoPlum Business Gifts: Compostable Recycled Paper White Cup
RCup: Reusable Cups

WATER

Current Situation	COVID-19 Challenge	Sustainable Solution
Concern about shared water sources is leading people to consider choosing single-use bottles instead.	Contaminated touchpoints and dispensers.	Opt for contactless water sources, or utilize water sources already in place and implement disinfectant procedures ¹⁴ .

Many Broadway theatres have made excellent progress toward this sustainable goal by installing plumbed lines. This is an opportunity to adapt the infrastructure in place to the current circumstance.

Sustainable Recommendations and Opportunities:

<input type="checkbox"/>	Install energy-efficient, contactless refillable water dispensers backstage.
<input type="checkbox"/>	If not done already, install plumbed lines to common water cooler locations, to avoid handling water jugs. This will also save on fuel consumption and space.
<input type="checkbox"/>	If water dispensers are not available, avoid purchasing water in single-use plastic bottles and opt for canned water, such as Ever & Ever: Still Water or Liquid Death: Still and Sparkling Water . Canned water is preferred over boxed water as aluminum is infinitely recyclable.

Recommended refillable water dispenser companies include:

¹⁴ [Stability of SARS-CoV-2 in different environmental conditions](#)

[WET Global: Specializes in refill stations for live events](#)

[US PureWater: Offers touchless motion sensors](#)

[FloWater: Offers foot pedal to control the water flow](#)

CUTLERY

Current Situation	COVID-19 Challenge	Sustainable Solution
Concern about contamination has led to increased use of single-use cutlery. From PPE, packaging, and single-use items used for food delivery and distribution, 2020 is on track to see a 30% increase in waste production from 2019 ¹⁵ .	Contaminated surfaces of reusable cutlery.	Use reusable utensils - issue a personal set to each company member and require self-maintenance. "Reusable items that can be sanitized are safer than single-use items that have less contact traceability ¹⁶ ."

Sustainable Recommendations and Opportunities:

<input type="checkbox"/>	Distribute or encourage the use of stainless steel, bamboo, or otherwise reusable cutlery to each company member, to be washed and maintained by each individual.
<input type="checkbox"/>	Shows and theatres can personalize utensil sets with custom branding to promote a commitment to sustainability.
<input type="checkbox"/>	If reusable cutlery is not an option, consider alternatives to plastic that are recyclable or compostable with your local waste stream management.

Recommended utensil sets include:

[Package Free: Reusable Bamboo Cutlery Set](#)

¹⁵ [COVID-19 Pandemic Repercussions on the Use and Management of Plastics](#)

¹⁶ [COVID-19 Plastic-Free Reopening Guidelines](#)

[EcoPlum Business Gifts: Bamboo Travel Utensil Set in Carrying Case from Recycled Bottles](#)

FOOD

Current Situation	COVID-19 Challenge	Sustainable Solution
<p>Concern about contamination is leading to increased single-serving and single-use food packaging. From PPE, packaging, and single-use items used for food delivery and distribution, 2020 is on track to see a 30% increase in waste production from 2019¹⁷.</p>	<p>Shared hospitality and food presents contamination risk.</p>	<p>Reduce the supply of food and hospitality in rehearsal and backstage. Encourage company members to bring in their own food and coffee, in reusable containers.</p>

When hospitality is required, consider the following sustainability practices:

<input type="checkbox"/>	<p>Source food locally - eating locally is one of the most important considerations for sustainable food procurement. Choosing locally-sourced options and ingredients also mitigates the exposure risk from a long supply chain and frequent changing of hands¹⁸.</p>
<input type="checkbox"/>	<p>Implement strategies to properly dispose of food scraps and waste. Keeping food and wood waste out of a landfill will reduce methane emissions, a potent greenhouse gas and contributor to climate change¹⁹. You can do this by composting with a company such as Royal Waste or by donating excess food to organizations such as DonateNYC, City Harvest, or Food Bank For New York City.</p>

¹⁷ [COVID-19 Pandemic Repercussions on the Use and Management of Plastics](#)

¹⁸ [COVID-19 Plastic-Free Reopening Guidelines](#)

¹⁹ [PGA Green Production Guide](#)