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Training Session Content

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Buildings and the Building Envelope

The National Register of Historic Places is the official list of the Nation’s historic places worthy of preservation. Administered by the National Park Service, the National Register is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect America's historic and archeological resources. Typically buildings must be at least fifty years old, must look much like they did historically, and must have played an important role in their community. However, important buildings are often recognized before they are fifty years old, and the significance (use, history, location) may mean you are dealing with a historic building, too, even if it seems too modern to be considered historic.

○ To begin a discussion about your building’s status, and applying for the National Register, consult the State Historic Preservation Office (José Marull (jmarull@prshpo.gobierno.pr) or Juan Llanes (jllanes@prshpo.gobierno.pr).

○ Link to the Fundamentals of Applying for the National Register are included on the appended links list.

Building Maintenance

Create a maintenance plan now. What tasks do you undertake daily, weekly, monthly, and annually to keep your building in good order?

● List them and make sure responsibility for these tasks is clearly assigned.

● For more information on the preparation of maintenance plans, please see Preservation Brief 47: Maintaining the Exterior of Small and Medium Size Historic Buildings (https://www.nps.gov/tps/how-to-preserve/briefs/47-maintaining-exteriors.htm)

Don’t put off routine maintenance. It will prevent big ticket repairs in the long run. Regular roof maintenance is very important. Small leaks can become big problems during an event like a hurricane.

As part of your disaster planning, write down problems that have occurred over the life of your building.

● Use photography to document problems as they occur.

● Consider leaks, rising groundwater, and equipment or infrastructure failures.

As you create your maintenance plan, consider the potential risks in the building’s environment. Are there steps you can take NOW to mitigate risks in the future? The following can become wind-borne debris in a storm:

● HVAC units or other mechanical equipment on your roof or on nearby buildings

● Solar panels

● Trees and windows

● Outdoor sculpture or signage
Resources

National Park Service (NPS) Preservation Briefs are a good place to find best practices for building maintenance and preservation. The online briefs can be found here: https://www.nps.gov/tps/how-to-preserve/briefs.htm

- Recommended place to start:
  - *Preservation Brief 39: Holding the Line, Controlling Unwanted Moisture in Historic Buildings*
  - *Preservation Brief 1: Cleaning and Water-Repellent Treatments for Historic Masonry Buildings*
  - *Preservation Brief 2: Repointing Mortar Joints in Historic Masonry Buildings*

In addition, the NPS has established four treatment approaches for preservation, codified as the Secretary of the Interior’s Standards for the Preservation, Restoration, Rehabilitation, and Reconstruction of Historic Properties. In most cases, the Rehabilitation Standards are appropriate for existing historic buildings that are to remain in active use. The NPS has just published a new edition of these *Standards*, along with guidelines outlining their application. They are available online here: https://www.nps.gov/tps/standards.htm

Grants and Tax Credits

Reach out to your State Historic Preservation Office (SHPO) for grant and financial assistance opportunities: http://www.oech.pr.gov/

In addition, the Historic Rehabilitation Tax Credit Program may be able to provide income tax benefits for projects that meet the Secretary of the Interior’s Standards for the Rehabilitation of Historic Properties.

Disaster Planning

Even an unfinished or imperfect disaster plan is better than no plan at all. Begin now, before the plan is needed. Disaster planning is a cycle, moving through different phases before, during, and after an emergency event.

Prepare

**Risk Assessment**

- Know the risks to your building and collections.
- Write down mitigation strategies for known risks and lessons learned in the past.

**Prioritization**

- Create a list of priority collection items to rescue.
- Label priority objects clearly, for example with red, reflective tags that are easy to spot with a flashlight in the dark.
• Mark priority items on printed floor plans that form part of your disaster plan.

Respond

What supplies do you have?
• Keep a list of emergency supplies, check stocks and expiration dates, replenish regularly.

Who are you calling?
• Keep a list of emergency contacts (security, fire service).
• Create a staff “phone tree” list, where a chain of phone calls is initiated, but you don’t have to make them all.
• Print lists in folded or card form and keep in multiple places, like office, car, and home, and wallet.

Recovery

Working with Vendors:
• Plan ahead. Identify vendors and familiarize yourself with restoration practices before disaster strikes.
• Try to have vendors in mind that are both local and off the island.
• Questions to ask:
  o What restoration techniques are they planning to use?
  o Do they offer 24/7 service? Can you access your collections at all times, even if being treated offsite?
  o How long have they been in business and responding to cultural emergencies?
  o Can they provide at least 3 references of institutions similar to yours? Call them. Fact check what the vendor has told you.
  o What security will they have in place during operations and at their site?
  o Are they using subcontractors?

The New Normal
• Books and papers will not look the same as they did before the event even if you use a vendor or respond quickly.
  o There will be less damage if you are prepared but there still may be some damage.
• Books may swell and warp or become blocked (stuck together) and need to be replaced
• Inks or colors may move or run on signatures and artwork
• Items that may have been stable but fragile may be more fragile and need to be displayed or housed differently
• You may temporarily need to move your collections - it may be that you have a new location altogether
• Even after items have been treated and returned you need to monitor them and the environmental conditions they are in
Once an item has become moldy it will always be more susceptible to getting moldy again

● See later in this document under Frequently Asked Questions: *When the power comes back on, what should my HVAC setpoint be?*

**Mitigate**

**What worked and what didn’t**

● Look at the parts of your plan that worked and strengthen them
● Replace the supplies you used up in your response and pack away what is reusable, like plastic sheeting (where were the supplies? How well did that work?)
● Take a hard look at the parts of the plan that failed.
  ○ Was there enough backup personnel?
  ○ Were assignments clear?
  ○ Was staff familiar with plan?

**Begin again**

● Go back to the Prepare steps and ask the questions again
● Was this event something you missed in your Risk Assessment?
● Has this event changed your Priorities?
● Do more training!

**Resources**

**Salvage wheel:** available FOR FREE in both English and Spanish by writing to HENTF@si.edu. If you would like multiple copies, they can be purchased:


**Websites:**

● Smithsonian Cultural Rescue Initiative: [https://culturalrescue.si.edu/](https://culturalrescue.si.edu/)

**Apps:**

● Emergency Response and Salvage from NCPTT.
Books:
- Field Guide to Emergency Response:
  http://www.conservation-us.org/fieldguide#WIJbe1Q-feQ

Response Plans:
- Council of State Archivists (COSA) Pocket Response Plan- can fit in wallet or ID holder.

Personal Protective Equipment (PPE)
If you are required to do hazardous work by your supervisor, the employer must provide personal protective equipment (PPE) adequate to the hazard presented in most cases.
You may also voluntarily wear PPE including respirators

It is important to wear it correctly. Use the buddy system when putting on (donning) and taking off (doffing) your PPE. Your buddy can assist you and check your equipment, and you can do the same for your buddy. Always dress in a clean area, sometimes referred to as the Green or Cold zone. Have all equipment to hand and have a chair available.

Before you move in to the dirty zone (aka Red or Hot), tell someone where you are going and how long you will be gone. Keep work sessions short. Working in PPE is strenuous (hot, tiring), and working in a hazardous environment requires great concentration. Work with your buddy and have backup or rescue staff in place in the clean zone. It is a good idea to write your name or, preferably, a large number on the back of your Tyvek suit so you are easily identified from a distance.

Eye protection
There are two types of eye protection. Choose the type suited to your work environment and tasks.
- **Safety glasses** can be used to protect from sharps or particulates. It is useful to have the type with an elastic strap to hold them in place while working.
- **Cover goggles** fit closer to the face and are used when working with liquids or in a wet environment, such as when mixing chemicals or when wet cleaning. They are also easier to use as protection over your regular glasses.

Respirators
- **If you have a medical condition that may be affected by wearing a respirator, consult your doctor before wearing.**
• Your face must be clean shaven. Masks cannot seal correctly over facial hair. Contaminated air will move through facial hair and under the mask.
• Makeup, heavy moisturizers, and sunscreen may cause the mask to slip and affect the seal. Makeup can also sweat off into your eyes, making it difficult to see and to work safely.
• If you have long hair, pull it up and away from your face and the back of your neck. A bun or ponytail should sit at the middle of the back of your head.
• Avoid touching your face or hair while working in a dirty environment. Make sure your mask fits well and your hair is away from your face before you begin work.

There are two types of respiratory protection we will be discussing, N95 and “half masks”.

**N95 masks** protect from 95% of 0.3 micron or larger particles. They are used for dust and mold. They do not protect against gases from chemicals like organic vapors or acids. The mask will be stamped with the N95 designation, and there are many manufacturers. 3M and North are common brands. They come in two main styles, a folded, flat mask referred to as a “duckbill” and a formed, cup-style mask. The formed masks can come in more than one size. For example, the 3M N95 mask is a “3M1860” and the small size is a “3M1860S.”

**How to put on your N95 mask (donning):**
Each mask has 2 straps and a metal nose piece. The metal nose piece is at the top of the mask.

1. Holding the mask in front of your face, put the bottom band on first by pulling it on over your head. The strap needs to contact the skin on the back of your neck and below your ears.
2. Pull the top band over and place it on the crown of your head, not at the back.
   a. If your hair is pulled up, the top strap should be well above your ponytail.
3. Make sure straps lay flat and are not twisted. Ask your buddy to check the straps.
4. Shape the metal band over nose.
   a. **DO NOT PINCH** across bridge of nose.
   b. To form the metal band, use your two index fingers to apply pressure down and away from the bridge of your nose until the strap contours to your face. This takes 7-8 passes, or more.
5. Perform user seal checks to confirm a good fit. Perform both a negative and positive check:
   a. Negative check: Cover the mask with both hands, without applying pressure. Take a quick breath in. If air comes in around sides or chin, adjust metal band or straps and test again.
   b. Positive check: Cover the mask with both hands, without applying pressure. Exhale by pushing your breath out. Some air will always escape, but adjust if the mask seal seems incomplete.

**How to take off your mask (doffing)**

1. Remove the bottom strap over head first.
2. Remove the top strap from crown.
3. Try not to touch the outside of the mask when removing it. The particulate matter filtered by the mask is on the outside.
4. If still usable store in a ziploc bag with your name and the date on it.

Half mask elastomeric respirators

This mask style is suitable for longer periods of working with particulates (dust, mold) and filters are available for when you are working with organic vapors (paint, solvents). Half mask respirators come in different brands and sizes and are individually fitted, using a “fit test.” Use the mask that has been determined to be a good fit for you, and always use the same brand of filters as your mask brand. Do not clean with alcohol, as it may damage the mask materials.

There are removable filters in two main types. You must use the same type of filter (indicated by color and with labels) on BOTH sides of your mask.

- **P100 filters:** These purple filters are for particulates only. If your mask is fitted correctly, a P100 filter will remove 99.9% of particles 0.3 microns or larger including asbestos.
- **P100 filter and organic vapor cartridge combination:** This combination is purple and black in color and protects from particulates and organic vapors. If working with acids or other chemicals, a different kind of cartridge must be used.

How to put on your half mask elastomeric respirator (donning):
1. Holding the mask in front of your face, put the bottom straps on first, connecting them at the back. The strap needs to contact the skin on the back of your neck.
   a. If you have long hair, pull it up and out of the way at the middle of the back of your head.
2. Place the top suspension straps on crown of the head, not on the back.
   a. If your hair is pulled up, the straps are above your ponytail.
3. Make sure straps lay flat and are not twisted. Ask your buddy to check the straps.
4. Perform user seal checks to confirm a good fit. Perform both a negative and positive check:
   a. Negative check: Cover the filters with both hands, without applying pressure. Take a sharp breath in. If air comes in around sides or chin, adjust the band or straps and test again.
   b. Positive fit check: Cover the exhalation valve with one hand, without applying pressure. Exhale by pushing air out. Some air will always escape, but adjust if the straps if the seal seems incomplete.

How to take off your half mask elastomeric respirator (doffing)
1. Release the bottom strap first.
2. Remove the top suspension strap over your head
3. Try not to touch the outside of the filters when removing the mask. The particulate matter is on the outside.
4. If still usable, seal the front of the filters with tape and store them in a ziploc bag with your name and the date on it.
5. Wipe your mask with a mask wipe or NON-ALCOHOL wipe, or wash with gentle soap and water. Dry thoroughly.
6. Store your mask in a separate bag with your name on it.

When to change your N95 mask or your half mask filters:
There is no set time limit on masks or filters. However, it is not recommended to keep N95 masks or filters for half masks for more than a year, so watch the date on your storage bag. The useful life of masks and filters depends on the concentration of contaminants in your environment.

- **N95 masks:** Throw it away when it becomes harder to breathe
- **Half mask with P100 filter:** Replace the filters when it becomes harder to breathe
- **Half mask with P100/organic vapor combo filter:** Replace the filters when it becomes harder to breathe OR when you can smell or taste the chemicals in your working environment.

When the above happens, place the N95 mask or respirator filters in a plastic bag and dispose of them with your regular trash. They are not considered hazardous waste.

Gloves
Before putting on gloves, remove all jewelry that could tear or interfere with gloves, including rings, bracelets, and watches. If you wear jewelry into the dirty work environment it will be contaminated and need to be cleaned.

There are several types of gloves commonly available:

- **Nitrile:** These are the preferred glove type.
  - Available in multiple thicknesses. In mm, typically 0.3 or 0.4 up to 0.6 or 0.8
  - Source gloves that are not powdered.
  - Store in a controlled environment, away from light and heat.
  - Watch the expiration date of gloves you purchase, but they will typically last longer. When the cuff begins to crack or fracture, the gloves may be beyond their useful life.
- **Latex:** These are NOT recommended for use.
  - Many people are allergic to latex.
  - Latex gloves are powdered, usually with corn starch. When mixed with sweat, the powder can contaminate the objects you want to keep clean and can also feed mold in your collections. The powder can also dry or irritate your hands.
- **Polyethylene**
  - Generally have poor fit, resulting in reduced manual dexterity.
  - Low resistance to solvents such as alcohol.
We will demonstrate wearing two pairs of gloves, an inner clean pair and an outer dirty pair. The outer pair should be one size larger than the inner pair. If wearing heavy work gloves, the outer nitrile glove can help keep them clean.

**To put on (don) gloves,** turn hand 90 degrees to finger orientation, insert hand, and wiggle fingers and thumb into place. This method is especially helpful when hands are wet or when putting on outer gloves.

**To remove (doff) gloves,** pinch inside of wrist of first glove and twist and roll the glove down and off. Using a clean finger, hook the second glove inside the cuff, not touching the outside of the glove, and turn the glove down and pull off.

- 1st glove: pinch, tuck, roll
- 2nd glove: hook and roll

The inner glove should be taped into place to create a seal. The outer can remain un-taped, to make it easier to replace in case of contamination or a breach. Use painter's tape (usually blue or green masking tape).

- Leave a tab of folded over tape where the wearer can easily reach it for removal.
- This is especially helpful in wet environments.
- Don't make the tape too tight. The wearer should be able to move the wrist freely and comfortably.

**Sleeves**

Sometimes sleeves can provide enough protection, and a full Tyvek suit is not necessary. Sleeves are available in two main types:

- Coated or polyethylene sleeves: For wet work
- Tyvek sleeves: Cooler, use for dry work

Pull sleeves on over clothes, preferably long sleeves to prevent exposure to skin.

- Tape outer gloves to sleeves to create a seal, especially when working with chemicals or in a wet environment.
- When taping gloves to the sleeve, finish with the tab either inside the arm or on the outside, where it can be reached easily.
- Taper and tape top of sleeves when they are too large. Ensure you can still bend elbows and achieve your full reach comfortably.

**Aprons and suits**

Aprons provide limited protection, but may be suitable when working in dry conditions with limited contamination.

Tyvek suits provide more protection to clothes and body, and usually have hoods. Sometimes they have booties and/or thumb holes.
● Thumb holes are not recommended
● Available in a hot environment type, with a more breathable back side (this type may be blue at the back).
● Suits come in multiple sizes. Larger is better. A small suit can tear and breach as you move. Use tape to tailor a larger suit to fit you if necessary.

Donning:
● Have a chair available. Make sure you have nothing sharp or unnecessary in your pockets.
● Sit down to put on the legs of the suit.
● Begin at the bottom, with the booties if present. If you have separate boot covers, tape them to the bottom of the suit, with a tab.
● Gather the legs into your hand to make it easier to step into.
● Pull both legs on and stand up.
● Use tabbed tapes around the ankles to keep the suit from riding up. Don’t make too tight.
● Slowly zip up to the waist only and put on arms, then put on gloves.
● Zip up and put on hood.

If you tear the suit, repair it with a piece of tape that does not have a tab. It is recommended that you tape to the back of your shoulder several pieces of tape for repairs you need to make while working.

Doffing:
Start from the top and work your way down.
● Roll hood back and away from face.
● Unzip to waist and roll down off shoulders and arms, trying not to touch outside of suit.
● Sit down to remove legs and booties.
● Wash hands.

Wearing PPE
When putting on all of the above PPE, do so in the following order:
1. Tyvek suit or apron and sleeves
   a. Zip suit only to waist.
2. Gloves
   a. Inner: do not tape.
   b. Outer: Can be over a pair of thick work gloves if needed. Tape onto outside of sleeve.
3. Zip suit
   a. Tape down storm flap if working in a wet environment.
4. Mask
   a. Do positive and negative fit checks while in the clean zone.
5. Bandana, only if needed
a. Tie on over mask straps to keep sweat from eyes.
b. Remember, if you bring it in it will be contaminated and need to be washed.

6. Hood
   a. Tuck all straps and hair inside.
   b. Do not tape to forehead.

7. Goggles and/or headlamp
   a. Strap over the hood will help hold it in place.

To take off your PPE, do so in the following order:
- If possible, vacuum yourself (or your buddy) with a HEPA filtered vacuum to remove particulates before your begin. If there is no access to a HEPA-filtered vacuum, take off your PPE outdoors or a area where there are no risks of contamination.

1. Remove outer gloves.
2. Use clean inner gloves to remove glasses, goggles, or headlamp.
3. Pull hood back.
4. Doff mask
   a. Bottom strap first
   b. Top strap second
5. Unzip suit.
   a. Roll down to waist, avoid touching outside of suit.
6. Sit down to remove suit legs.
   a. If you plan to reuse the suit, move the suit around as little as possible and place it in a plastic bag labeled with your name.
7. Remove inner gloves, which are now dirty.

Dispose of used PPE in a bag in your regular trash. It is not considered hazardous waste.

Object Handling

General principles
- Handling objects:
  o Work in a clear, clean area with a padded surface. If working with moldy or dirty objects, cover your padded surface with disposable paper or plastic.
  o Use two hands. Use one for support under the weight of the object and one on the side for stability.
  o Do not lift by handles or other protruding parts. Handles are weak spots. Support from underneath instead.
- Moving objects:
  o Plan ahead. Establish a clear route and a clear “landing spot” to put your cart or object.
○ Do not carry objects through your space using hands only. Place objects on a sturdy cart with a padded top. Rubber or inflated cart wheels are best. Always try to keep a safe surface underneath your object.
○ Think about doors, trip hazards, changes in floor level as you plan your route. Walk the route before you move a cart through it.
○ Ask for help from colleagues to lift heavy objects, handle fragile objects, and hold doors while you move a cart.

Materials and supplies

● Options for a padded surface:
  ○ Foam, like Volara.
  ○ Thick paper blotter, perhaps more than one layer
  ○ Foam core

● Cushioning and stabilizers for objects
  ○ Create cushions out of acid-free tissue or soft Tyvek. They can support object parts or form a safe nest for whole objects to rest in.
  ○ Cut blocks from foam, like Ethafoam.

Working in a contaminated exhibition space

If you are removing objects from a contaminated exhibition space or display case, take precautions to prevent contaminating clean areas. Establish dirty and clean zones. Work from dirty to clean.

● Think about the airflow created when opening cases. If objects inside are moldy, everyone present should wear PPE and the surrounding gallery space should be cleaned afterward.
● Avoid lifting dirty objects over clean. Remove less contaminated objects first, if possible.

Working with damaged collections

Objects that have been part of an emergency event, such as a flood, fire, or even loss of the controlled environment due to power outages, are now changed. They may be more fragile than they were before the event. Structural changes on the macro or micro level may have caused weaknesses or sensitivities that were not there before. Before handling, moving, or treating collections that have been through an emergency event:

● Observe the object. Is it structurally damaged? Is the surface damaged?
● Is there soot, mold, or other soiling on the surface? If yes, avoid touching those areas if possible, to prevent the soiling from being compacted and pressed into the surface.
● Have any of the parts been disassociated? Have labels or identifying numbers come off?
● Take pictures of broken objects or scattered groups of objects before moving them.
Cleaning books and objects

The principle is to remove as much particulate material first, if it is dry, by vacuuming. If necessary for cleaning or in order to dry mold, spray or wipe with the alcohol solution described below. Once dry, vacuum again if necessary. Do not vacuum wet objects or slimy mold.

If there is no access to a HEPA-filtered vacuum or any type of vacuum, work outdoors in a sheltered and well-ventilated area where there are no risks of contamination.

Tools for dry cleaning

- **Brushes**
  - Long handles are prefered.
  - Tape around metal components to prevent damage to objects.
  - Cheap is fine.
  - Use size and softness appropriate to objects.
- **Sponges:**
  - “Soot” or “smoke” sponge: a beige colored vulcanized rubber sponge that is useful for picking up fine particulates on dry surfaces. Usually order from a specialist supplier, liker Talas or Gaylord.
  - Cosmetic sponge: A softer, usually white, type of sponge available in wedges and rounds in drugstores and other retailers.
- **Cotton pads:** Cosmetic type can be used for dry or wet cleaning. Each side may have a different texture. Watch for cotton fibers left behind.
- **Fiberglass window screen**
  - Use on flat objects (paper, books) as a barrier to material loss.
  - Tape over vacuum hose. Can also use pantyhose taped to the hose to collect smaller object fragments.
- **HEPA filtered vacuum:**
  - Available in several sizes, styles, and price points
  - Adjustable suction is preferable.
  - Keep exhaust away from objects and humans. It will be hot, and the air current should not pass over moldy objects.
  - Replaceable HEPA filter: Change when suction seems reduced or vacuum tends to get hot. Bag and dispose of the filter in your regular trash.

Alcohol solution for mold drying

Mold can be dried for vacuum or sponge removal by spraying or wiping an alcohol solution on moldy surfaces. The alcohol and water mixture penetrates the mold. It does not kill it, but removes water and makes the mold dormant. **Warning:** Intrinsic materials may be irreversibly altered with the application of this solution.

- Recipe and instructions for mixing
○ Use a mixture of isopropyl and ethanol alcohols to achieve an overall 70% alcohol, 30% water mix. **Warning**: The mix is flammable.


- **How and when to apply**
  - **Do not use** on leather book bindings, coated (waxed or lacquered) metals, painted surfaces, plastics, or other sensitive surfaces.
  - Test all surfaces first in an inconspicuous area.
    - Alcohol will make ballpoint pen and other inks run.
    - Lettering on book bindings may be affected.
  - Spray onto damp, slimy, or smelly mold to dry it and make it dormant.
  - Wipe using cotton pads to remove mold from stable surfaces.

**Cleaning a book**

- Remove loose material with vacuum and brushes. Canvas covers may require more vacuuming as particles lodge in the fabric weave.
- Use 70% alcohol solution on cotton cosmetic wipes.
- Allow to dry.
- Clean again with brushes and vacuum or with sponges.

When wiping or vacuuming, move from the spine of a book toward the outer edges.

If the book is “blocked,” meaning the pages are stuck together, there is little you can do. Consider disposal and replacement.
Frequently Asked Questions

Where can I find PPE supplies? Can I buy from a local retailer?
- Hardware stores often carry masks and Tyvek suits in the painting section, but these will be more costly than buying from a safety supplier, such as Grainger. Grainger is online and also has physical locations in Puerto Rico. They may provide a government discount. Team up with other local institutions to buy in bulk to save money. When buying gloves, it’s okay to ask them about the expiration dates. You want to buy the newest ones you can.

Should I wear PPE at home?
- If you are dealing with mold and other contaminants at home, yes, definitely wear the appropriate equipment to protect yourself.

Can I wear my own clothes when working in a contaminated environment?
- You can, but be very careful about bringing contamination home. You may want to have a set of clothes for dirty work that stays at work and is either washed at work or thrown away.

How do I protect equipment like cameras in a contaminated environment?
- Use plastic bags or plastic wrap to keep equipment you bring on site clean.

Can I use fumigants or herbicides to prevent or treat mold in my buildings and collections?
- Some companies may recommend these chemicals for both your buildings and your collections. Your buildings are more robust and may not be harmed, but your collections are more sensitive to unknown and harsh chemical treatments. Keep in mind these products may be detrimental to YOUR health, too.

Why did some of my collections survive without damage, while mold spread in other areas?
- Much of mold formation has to do with air circulation. It may be that some collections had better air circulation and that helped keep them dry. Also, outer boxes may have allowed the relative humidity of some collections to remain low, as changes were buffered by the additional material.

How can I best work with salvage companies not on the island?
- Follow all the steps and ask all the questions from the Working with a Vendor section of this handout.
  - Talk with someone who has used this vendor
- Contact a sister institution on the mainland or a professional colleague that you trust to be your eyes.
  - Ask if they would be willing to go to the vendor’s facility to check on your materials if you felt it was necessary
  - Would they be willing to spot check materials before it is returned to you?
What grants are available?

- National Endowment for the Humanities: [https://www.neh.gov/grants](https://www.neh.gov/grants)
- Institute of Museum and Library Services: [https://www.imls.gov/grants/apply-grant/available-grants](https://www.imls.gov/grants/apply-grant/available-grants)
- Society of American Archivists: [https://www2.archivists.org/groups/regional-archival-associations-consortium-raac/state-and-federal-grant-resources](https://www2.archivists.org/groups/regional-archival-associations-consortium-raac/state-and-federal-grant-resources)

When the power comes back on, what should my HVAC setpoint be?

- Write down your current temperature and relative humidity readings and the date in the collection area in a notebook or posted sign. (You will want to work with this sheet again)
- Typically it will be too hot and too humid in your building and your collections will have absorbed this heat and moisture over the time the power has been out or the HVAC not working. This can cause problems such as mold and deformation, but so can quick changes! Sudden shifts in Relative Humidity may also cause problems for some items in the collection - wood, ivory and other materials are sensitive to quick drying because they shrink and this can cause cracking. Slower change is better here.

- If you lower your temperature very fast the moisture in your collections may condense on cold surfaces (Mylar, glass, metal). The temperature at which this happens at a certain relative humidity is called the Dewpoint. Also, moisture rising to the surface of object can support mold growth.
  - Use the Image Permanence Institute Dewpoint Calculator slider buttons to see what Dewpoint is at your current Temperature and Relative Humidity as measured in the collection area. [https://www.imagepermanenceinstitute.org/environmental/dew-point-calculator](https://www.imagepermanenceinstitute.org/environmental/dew-point-calculator)
  - Use the sliders to see how you can identify lower Temperature points that will not be at the Dewpoint. Adjust Temperature or Relative Humidity settings on your HVAC panels accordingly
    - This should not be a fast shift. Repeat measuring Temperature and Relative Humidity, noting new Dewpoint and adjusting down every week or so until conditions are close to normal.
    - Do not expect the numbers to change in the same way. Temperature changes very fast! Relative Humidity changes much more slowly. Objects in boxes or cases, or tightly packed shelves will change more slowly.

- Providing air circulation will help the Temperature and Relative Humidity adjust more evenly but use care if you already have mold growth that you are not spreading the spores to clean areas.
• Helpful free webinars for understanding museum environment and HVAC
    https://www.connectingtocollections.org/storage-environments/.
## Useful Links & Resources

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<th>Topic</th>
<th>Link</th>
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<tr>
<td>AIC Field Guide to Emergency Response videos</td>
<td><a href="https://www.youtube.com/playlist?list=PLH0WXCtl2noiqtbY6nN11P-qKbf04lp7t">https://www.youtube.com/playlist?list=PLH0WXCtl2noiqtbY6nN11P-qKbf04lp7t</a></td>
<td>16 videos on best practices during response per type of damage.</td>
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<td>Centers for Disease Control and Prevention (CDC) Health Hazard Evaluations (HHEs) program</td>
<td><a href="https://www.cdc.gov/niosh/hhe/">https://www.cdc.gov/niosh/hhe/</a></td>
<td>see also OSHA &amp; CDC links about Personal Protective Equipment (PPE) below</td>
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<tr>
<td>Centers for Disease Control and Prevention (CDC) PPE grants</td>
<td><a href="https://www.cdc.gov/grants/index.html">https://www.cdc.gov/grants/index.html</a></td>
<td>see also OSHA &amp; CDC links about Personal Protective Equipment (PPE) below</td>
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<tr>
<td>Grainger safety supplies</td>
<td><a href="https://www.grainger.com/">https://www.grainger.com/</a></td>
<td>Grainger has brick and mortar locations in Puerto Rico</td>
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<td>HEPA vacuums, several models and price points</td>
<td><a href="http://www.gaylord.com/c/Vacuums-1">http://www.gaylord.com/c/Vacuums-1</a></td>
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<td>Heritage Emergency National Task Force (FEMA-HENTF) contact, resources, and training</td>
<td><a href="https://culturalrescue.si.edu/hentf/">https://culturalrescue.si.edu/hentf/</a></td>
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<tr>
<td>Category</td>
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<td>HENTF-HEART week-long training program</td>
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<td>National Park Service (NPS) Preservation Briefs</td>
<td><a href="https://www.nps.gov/tps/how-to-preserve/briefs.htm">https://www.nps.gov/tps/how-to-preserve/briefs.htm</a></td>
<td>50 briefs on best practices for the rehabilitation of historic properties. Topics range from masonry re-pointing to the historic of historic lighting rods.</td>
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<td>National Park Service (NPS) Technical Preservation Services</td>
<td><a href="https://www.nps.gov/tps/index.htm">https://www.nps.gov/tps/index.htm</a></td>
<td>Secretary of Interior's Standards</td>
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<td>NPS Historic Rehabilitation Tax Incentives, Department website</td>
<td><a href="https://www.nps.gov/tps/tax-incentives.htm">https://www.nps.gov/tps/tax-incentives.htm</a></td>
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<tr>
<td>NPS Historic Rehabilitation Tax Incentives, Tax Credit Basics</td>
<td><a href="https://www.nps.gov/tps/tax-incentives/before-you-apply.htm">https://www.nps.gov/tps/tax-incentives/before-you-apply.htm</a></td>
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<td>NPS National Register Fundamentals, FAQ about the National Register for potential applicants</td>
<td><a href="https://www.nps.gov/nr/national_register_fundamentals.htm">https://www.nps.gov/nr/national_register_fundamentals.htm</a></td>
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<td>NPS Secretary of the Interior's Standards, Applying the Rehabilitation Standards</td>
<td><a href="https://www.nps.gov/tps/standards/applying-rehabilitation.htm">https://www.nps.gov/tps/standards/applying-rehabilitation.htm</a></td>
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<td>NPS Secretary of the Interior's Standards, Four Approaches to the Treatment of Historic Properties</td>
<td><a href="https://www.nps.gov/tps/standards/four-treatments.htm">https://www.nps.gov/tps/standards/four-treatments.htm</a></td>
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<tr>
<td>NPS Secretary of the Interior's Standards, Rehabilitation Standards and Guidelines</td>
<td><a href="https://www.nps.gov/tps/standards/rehabilitation.htm">https://www.nps.gov/tps/standards/rehabilitation.htm</a></td>
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<td>Object handling and glove selection</td>
<td><a href="https://www.connectingtocollections.org/objecthandlingrecording/">https://www.connectingtocollections.org/objecthandlingrecording/</a></td>
<td>Contains links to other resources as well</td>
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<td>CDC/NIOSH The National Personal Protective Technology Laboratory (NPPTL): Personal protective equipment (PPE)</td>
<td><a href="https://www.cdc.gov/niosh/npptl/default.html">https://www.cdc.gov/niosh/npptl/default.html</a></td>
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<td>OSHA: Personal protective equipment (PPE)</td>
<td><a href="https://www.osha.gov/dte/outreach/intro_osha/7_employeeppe.pdf">https://www.osha.gov/dte/outreach/intro_osha/7_employeeppe.pdf</a></td>
<td>Employer or Employee payment for PPE (see also CDC grants above in list)</td>
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<td>OSHA: Voluntary Use Respirators (Uso Voluntario de Respiradores)</td>
<td><a href="https://www.osha.gov/video/respiratory_protection/voluntaryuse.html">https://www.osha.gov/video/respiratory_protection/voluntaryuse.html</a></td>
<td>Bilingual videos (English and Spanish) on voluntary use of respiratory protections</td>
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<td><a href="https://www.loc.gov/preservation/emergprep/plan/contract.html">https://www.loc.gov/preservation/emergprep/plan/contract.html</a></td>
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