



BISHOP MUSEUM
Art Conservation Handout

WET CLEANING QUILTS AT HOME

Before attempting to wet clean your quilt on your own, please consult a conservator. The conservator can determine if your quilt is strong enough to be washed. Some very old fabrics may look fine, but will weaken and deteriorate on contact with water. A conservator can also determine if the fabrics used to make your quilt will be prone to shrinkage, dye bleeding, or color change when subjected to water and detergent. The conservator will also go over this handout with you to make sure each step is clear and understandable.

Great care must be taken when you wet clean your quilt because it will cause changes in your quilt. Some of these changes are desirable, such as soil removal and removal of acids from the breakdown of the various fibers in the quilt, but there is always a risk of damage or unwanted changes if the process is not carried out correctly. The wrong type of detergent or poor water quality can cause color changes or staining. Improper technique can tear or deform the quilt. Consult with a conservator to minimize these changes.

We do not recommend you use a standard home washing machine because it subjects the quilt to excessive agitation, even on the gentle cycle. The volume of water in relation to the quilt is also very low, with your quilt taking up the majority of the space within the washer. The typical dryer also subjects the quilt to too much agitation and heat, both of which can damage a wet, heavy quilt.

Likewise, except for the smallest crib quilts, the bath tub is also unsuitable. In addition to the small wash space, you will have to handle the quilt extensively to get it in and out of the bath tub and to rinse all surfaces of the quilt. Hanging a wet quilt on a clothes line is not recommended since the weight of the quilt will cause distortion along the pinned areas and may even tear wet fabrics.

Getting Started

By now you will have seen a conservator and gone over this handout together in detail. The conservator will have determined what type of fibers make up the quilt face, batting, and backing. The conservator will have tested all the colors on your quilt to determine if dyes will bleed during the washing and will have examined the quilt with you to identify tears, losses, and other weak areas on your quilt which may need special treatment before wet cleaning. Together you will have determined whether your quilt is strong enough for washing and that you are strong enough to wash your quilt.

Be forewarned that wet cleaning a quilt using the method to be described takes roughly six hours, not including tank setup, clean up and drying time. Washing one quilt in a day is a very big undertaking. Try to do the washing on a warm, dry day so that the quilt will dry faster. The work will be more pleasant and will go a little faster with more people, but if everything is set up before you start, it is possible to do the actual washing

yourself. You will definitely need help during the drying stage. The whole wet cleaning process involves a lot of bending and kneeling. It would be a good idea to review this entire handout again before you begin.

These are some of the basics to keep in mind when cleaning your quilt:

The more agitation and handling a quilt receives during cleaning, the greater the chances of damage.

The greater the volume of water to the volume of the quilt, the better the cleaning.

The quilt is in its most vulnerable state when it is very wet and exposed.

Stains which have been in the quilt for more than 3 months have reacted chemically with the cloth and in most cases can not be removed.

The following is a list of supplies and equipment you will need to clean your quilt. Most of them are available from local hardware or dry goods stores. Additional towels and mattress pads can be obtained cheaply from thrift stores. Orvus WA Paste® can be found in tack shops and veterinarian suppliers. Ensure® is available from craft or quilt shops and catalogs. All items must be very clean as the wet quilt will readily absorb any dirt.

- Vacuum cleaner
- Fiberglass or nylon window screening
- Nylon netting, needle, and thread
- garden hoses
- 2" x 6" boards- 4
- Carpet padding or low pile carpet
- Continuous length of sheet plastic or rubber
- Bricks or hollow tile blocks
- Submersible pump (optional)
- A pure detergent: Orvus WA Paste® or Ensure®
- New cellulose sponges- 4 per person
- Towels and mattress pads
- Saw horses and large screens (optional)
- Cheese cloth

Water quality differs from place to place. In Hawaii, we are fortunate to have fairly pure water in the neutral pH range. Unless you know your water to have a heavy mineral content (hard water), a high iron content as in Kamuela, or to be contaminated with other chemicals, you can use tap water for washing your quilt.

Preparing the quilt

The first step is to vacuum your quilt to remove loose soils and particulate matter. Lay out your quilt on a very clean, flat surface. If the quilt is strong with no tears or holes, you can place a piece of netting or cheese cloth over the nozzle of your vacuum hose, securing it tightly with rubber bands. If your quilt has weak or ragged areas, find a

piece of fiberglass or nylon window screening roughly 2' x 3'. Wash it twice, once with detergent and once without, to remove any finishes or grime. Place the screening over the quilt so that it is between the quilt and the vacuum nozzle. Wash your hands well. Hold the vacuum nozzle 1/2" to 1" above the surface of the quilt (about the width of your finger) and move it slowly across the entire surface. It is easiest to guide the hose with one hand and use your other hand to support the tip of the nozzle. The nozzle covering and screening are added protection against damaged areas being disturbed by the vacuum suction.

If you do have damaged areas, these need to be protected before immersion in water. Purchase some fine nylon netting from a fabric store. Wash it once in detergent and once in plain water. Baste this netting over all damaged areas, using lines of basting stitches 1" apart to secure the net over tears, holes, and weakened areas. Make sure there is net over both the front and back of holes. Your basting stitches should go through all layers of the quilt and netting.

Preparing your supplies and equipment

Everything should be set up and ready for use before you begin the quilt washing. Prepare all your supplies and work sites before you begin. If you are using a submersible pump, make sure that it is washed inside and out. Wash your hoses, especially the ends which will be in the tank, and make sure your connections to the water supply are tight.

Buy new cellulose or natural sponges. Have at least 4 per person. Before you start, wash these sponges well in hot water to remove any additives or traces of dyes. Have a large stack of clean, dry towels and/or mattress pads on hand. The more you have, the easier it will be to dry your quilt. These should all have been washed at least once and rinsed twice.

Have a drying area set up. You will likely have to dry your quilt overnight, so it is a good idea to set up the drying area indoors. This should be a clean, flat area which is larger than the size of your quilt. If you are able to elevate your quilt for better air circulation, it will dry faster. You can create such a drying table with clean sliding door screens on saw horses. It will also help to have electrical outlets near your drying area so that you can use oscillating fans to help dry the quilt. The faster you can dry your quilt, the less chance of mold growth or other types of damage. Cover the drying surface with layers of cheese cloth which have been washed once in hot water and rinsed at least twice.

The Tank

Find a smooth, even surfaced area. A covered area is preferable. The quilt will receive protection from direct sunlight, which can fade colors. A roof and walls may also decrease the amount of dust and debris which may fall into the tank or on the quilt during cleaning. Placing the tank on a slight slope is all right, and will aid in the draining of the tank.

A water source must be readily available. Hot and cold taps are preferable, but regular garden faucets are acceptable. You will need garden hoses or some other means to carry the water from the source to your tank. You will be using hundreds of gallons of water, so good drainage is essential when it comes to disposing of those hundreds of gallons of water.

Your tank should be a foot longer than the length of the quilt and roughly six feet wide. If the tank is wider than six feet, you will have difficulty reaching the center of your quilt for cleaning. Measure your own arm span to determine the most practical width for your tank. You will need the extra 12" to 15" on the length of the tank to accommodate equipment and to give you space to shift the quilt around in the tank.

Wood boards are the easiest material to obtain to make the sides of your tank. 2" x 6" boards will give you enough height in your tank to fully submerge your quilt. Arrange these in a rectangular form and brace them with bricks at the sides. When the tank is filled, the force of the water will push your boards over unless they are well braced. An alternative is to nail the boards together at the corners or reinforce the corners with metal plates.

The tank is lined with plastic or rubber sheeting to create a shallow pool. The type of lining you use will be determined by your site. If it is in an area which you do not wish to get wet, a water tight tank can be made with commercial fish pond liners or waterbed material. If your site is on a lawn or patio where water leakage is not a problem, the thick polyethylene sheet plastic which is available at hardware stores is a cheap and practical material. The sheet plastic often develops pin hole leaks which will not affect the quilt washing, but may leak as much as a few gallons of water during the day.

If you have found a site with a smooth even surface, this will act as the floor of your tank. If your floor is textured or has an uneven surface, you can line the bottom of the tank with carpet padding, low pile carpet, or mattress pads to even out and soften the floor surface. This will help to prevent punctures in the plastic lining of your tank, and provide a safe surface against which you can press your quilt.

Tank set up

Once your tank is made, rinse the inside with clean water to remove any dirt or water soluble surface coatings on the liner. Wipe the interior with clean cloths or sponges so that it is dry when you arrange the quilt in the tank. Manipulating the quilt when it is unevenly wet can be dangerous.

You can drain your tank in various ways. The easiest is to lay down or remove one of the boards when you want to drain the tank. Hold on to your quilt so that it doesn't float away in the sudden rush of water. Another option is to use a submersible pump to which a hose can be attached. This method provides slower and gentler drainage and you can direct the water away from your work area.

The Procedure

Remember that the quilt is most vulnerable when it is wet and exposed to air. Staining can readily occur if dirt or debris were to fall on the quilt. The water heavy quilt is prone to tearing or deforming if attempts are made to pick it up or move it in this state. These instructions are designed so that you will not have to pick up your quilt until it is almost dry. Be very attentive when your quilt is in the wet stage. If at any time during this procedure you need to stop, be sure to leave your quilt well submersed in water. If you should run out of time at the end of the day, or if you need to leave to find more equipment, your quilt will be more protected underwater from dust, debris, light damage, or other potential calamities. If at any time during the process you have a question or something unusual should happen, call a conservator immediately.

Presoak

Lay the quilt face up in the tank. The top of the quilt is usually the side which people wish to have the cleanest. By placing the top side up, you will be able to watch the quilt for dye bleeding or any other kind of change. However, if the tank is in direct sunlight for the entire cleaning time, placing the quilt face down or placing a cover over the tank to block the sunlight is advisable. If your quilt is wider than the tank you may have to gather it together slightly to fit the tank dimensions.

Fill the tank with room temperature tap water until the entire quilt is 1/2" below the water surface. Place the hoses at the bottom end of the tank in such a way that the incoming water stream is not directly on the quilt. When the tank is full, there is probably 60 to 80 gallons of water in the tank.

Allow the quilt to rest for 20 - 30 minutes. If you are working outside or in a dusty area, you may wish to cover the tank with plastic to keep dirt and debris out. After 20 - 30 minutes, drain the tank. Place some of the water from the tank in a transparent glass. The water will usually be slightly yellow. With age, the fibers of your quilt will begin to deteriorate. In cellulose fibers (cotton, linen, ramie, rayon) these deterioration products are acidic and water soluble. The yellowness of the water indicates that the deterioration products are coming out of your quilt and the quilt is becoming more neutral.

If the water is very yellow, repeat the above procedure. If you are using a water source with hot and cold taps, you may begin to use warm water (not hot water) from this point on. The quilt should remain in the tank undisturbed as you fill and drain it.

Washing

Fill the tank so that quilt is sitting in roughly 1" of water. In a clean bucket, mix up a solution of 1 tablespoon of Orvus® WA Paste to 1 gallon of water. This should be adequate to clean your quilt. The more detergent you use, the more you will have to rinse to remove all of it. Orvus® WA Paste is pure sodium laurylsulfate. Most commercial detergents have other additives to make your clothes brighter, wrinkle free, and fresh smelling.

While these additives are nice for the short term use of daily clothing, they will in time begin to weaken or change the chemistry of the fibers. For longevity, the more pure the detergent, the better. Ensure®, available from quilt supply catalogs and stores, is also acceptable.

Soak some of your clean, new sponges in the detergent solution. Place them on the quilt surface, and with your hand, gently press down. There should be no scrubbing or excessive movement of the quilt. You are forcing the detergent and water through your quilt and forcing out the dirt. Start at one end, and continue with this gentle pressing motion across the entire surface of your quilt. Resoak your sponges in the detergent solution periodically. Make sure that the area you are working on is flat and smooth. Fill the tank with enough water so that the gathered sections of the quilt move easily back and forth without any drag or resistance. You should not have to pull or tug on the quilt to smooth out the area you are sponging.

Once you have flushed detergent and water through your entire quilt, pour any remaining detergent solution over the quilt. Let the quilt rest for another 15 minutes so

that the detergent can bind up as much dirt as possible. Then gently press the whole surface of your quilt again and drain the tank. If the water is very dirty, you can repeat the washing procedure.

Rinsing

When you feel that the quilt is as clean as you can get it, the next step is to rinse out all of the excess detergent and soils. Hold the hoses at the top of the quilt and with moderate water pressure, run the water back and forth across the quilt surface to flush the suds off the quilt, continually draining as you do this. Do not squirt at the quilt, but simply let the water run from the top of the tank to the bottom of the tank. Being on a slight slant will help with drainage.

Once the major amount of visible detergent is gone, begin a series of rinses. Fill the tank so that the quilt is covered with water and with your hand, press gently, as you did when you were doing the detergent cleaning. Try to force as much of the detergent out of the quilt as possible. Drain the tank, and follow with another rinse. When the tank is filled, slap the surface of the water with your hand. Small bubbles will form. If these bubbles stay on the water surface, you still have detergent in your quilt. Continue rinsing until the bubbles that form when you slap the surface of the water pop immediately. It usually takes seven or more rinses to remove all detergent.

If your quilt was wider than the width of the tank, after the last rinse manipulate it under water so that the excess is folded over at one side in a double layer, then drain the tank. To safely manipulate your quilt you may have to fill the tank to full capacity.

Drying

As was stated before, the quilt is in its most vulnerable condition when it is wet and exposed. Staining can readily occur if dirt or debris were to fall on the quilt. The water heavy quilt is prone to tearing or deforming if attempts are made to pick it up or move it in this state. Leave the quilt in the tank until you have removed as much water as possible with the following procedures.

Place the rest of your new, clean sponges on the quilt. They will immediately begin to soak up water. Squeeze the soaked sponges into a bucket or drain and place them on other parts of the quilt to absorb more water. When the sponges stop soaking up water very quickly, you can gently press the sponges into the quilt to pick up more water. Do not move or agitate your quilt when you do this; just gently press down.

When you can not extract any more water with the sponges, take some of the clean towels or mattress pads and lay them in a single layer that covers the quilt. As they absorb water and become wet, remove them and place more dry towels and pads on the quilt. Continue to do this until the quilt is almost dry. If you should run out of towels and pads during this procedure, keep the quilt covered until you have more dry towelling available. This will lessen the chances of debris falling on your quilt and staining or damaging it.

When your quilt feels as dry as it would if you had put it through the spin cycle of your washer, you will be able to move it. Place dry towels or pads over the surface. At this point you will need at least one other person to help you. Starting from one of the side edges, gently begin to roll the quilt on itself to the other side. You are making a quilt/towel jelly roll. Wrap the roll in more dry towels and pads.

For the first time since you placed the quilt in the tank, you are going to pick it up. Again, you will need at least two people. The packet will be quite heavy, and the more people you have to help lift, the better. Place your hands and arms under the roll. Cradle the quilt in your arm and lift in unison. Try not to let the quilt sag when you carry it.

Carry the quilt over to your prepared drying area. Carefully remove the outer layer of towelling, handling the quilt as little as possible. Place the edge of the quilt along one edge of the layers of cheese cloth. Roll out the quilt, and remove the rest of the towelling. Make sure the quilt is lying flat and straight.

Slightly dampen more of the washed cheese cloth and cover the top surface of the quilt. Gently press the cheese cloth to the quilt top so that there is even contact. As the quilt dries, the water will tend to move towards the surface carrying any dirt and detergent residues with it. By pressing the cheese cloth to the quilt, you are forming a new top surface and the residues will rise and stain the cheese cloth instead of the quilt top.

Drying the quilt

If your quilt is in a covered, protected area you can safely leave it to dry overnight. For quicker drying, you may position oscillating fans so that they blow across the surface of the quilt. This will produce quicker and more even drying of the quilt than positioning the fan to blow directly onto the quilt surface. You want the quilt to dry as quickly as possible to reduce the chances of mold growth.

When the quilt is dry, remove any protective netting you may have basted on before washing. You may wish to take color photographs as documentation of the quilt after cleaning. These may be useful in later years, so you can see if any change has occurred in your quilt.

The Conservation Services department at the Bishop Museum also provides other quilt related handouts. "Care of Textiles" is a general handout about the proper environment, storage, and exhibition of textiles. "Mounting Quilts for Display" provides diagrams and instructions for archivally mounting quilts for display.

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