# **Quilts and Textiles - Guidelines on how to Preserve them**

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# Contents:

- 1 What is a quilt?
- 2 Documentation
- **3** Basic principles of Preservation of Quilts and textiles
  - 3.1 Light
  - 3.2 Temperature
  - 3.3 Humidity
  - 3.4 Pests
  - 3.5 Human touch and handling
  - 3.6 Air pollutants

#### 4 Storing and Hanging

- 4.1 Storage
- 4.2 Hanging/Display
- 4.3 Mounting structures
- 5 Cleaning
- 6 Conclusion
- 7 References

# 1 What is a quilt?

Traditionally quilts are made of 3 layers - a cloth top, a layer of batting and backing textile. The technique of quilting sews the three layers together.

The pattern of stitching can be a decorative element particularly if a single piece (a 'whole cloth quilt') of fabric is used for the top layer. In many cases the top is pieced together from patchwork i.e. smaller pieces of fabric. Mathematical precision of patched pieces and needlework stitching are highly valued in traditional handmade craftsmanship. The pattern and color of patchwork on the top layer are integral to the design and may be a clue to the historical time frame of such traditional pieces. Designs have been adapted and have transformed quilting from a traditional bed spread to 2-D wall hangings although traditional pieces should also be treated as art pieces.

The word "Preservation" in this article will focus on basic preventative considerations.

# 2 **Documentation**

It is imperative that textile pieces should be documented. The date or period of creation, together with the creator(s), and the rationale for the work should be explained and attached permanently on the reverse side of the quilt. The stories which are told together with the people involved and the personal attributes form perhaps the most important component of the textile piece. Oral tradition may not be accurate enough and important details need to survive together with the quilt.

In addition to preserving your quilt, preserve historical information about the item, including the name and a photo of the maker. Where was it made and when? Who owned it? Who used it? In addition, information on the care of the quilt is very useful for future owners.

# **3** Basic principles of Preservation of Quilts and textiles

Due to the blending of synthetic with organic fibres (cotton, linen and silk), knowledge on how to preserve these requires specialised techniques and treatment in order to preserve quilts and textiles. A mix of organic and inorganic weave in the same cloth makes conservation difficult - as well as not knowing the exact fibre content of the original fabric.

What we may control better, are environmental factors such as light, temperature, humidity, pest infestations, acid gases and physical touching or handling of textiles.

#### 3.1 Light

Direct and indirect ultraviolet from sunlight speeds up the deterioration of textiles. Therefore, when hanging quilts indoors we need to consider natural light shining on or near the article. Florescent light radiates high ultraviolet and is possibly the most harmful light for textiles. LED lights do not radiate high levels of ultraviolet and are considered the best long-term choice. As a general rule, textiles should not be exposed full time to light of any source and lights should be switched on only when necessary.

50 Lux is seen as the maximum radiation to which textiles should be exposed. UV-film on glass may filter the sunlight's radiation on outside windows. If the article is kept under glass, then use special conservational Plexiglass panels which filter UV. A camera light meter can be used to determine visible light levels.

It makes good sense not to keep lights on in storage facilities - Lights should not be kept on full time during displays. In cases where lights may be highly mounted on high ceilings, the UV can still cause structural disintegration of woven cloth.

#### 3.2 Temperature

All materials are best preserved when temperature fluctuations do not change more than 7% on a daily basis. An average of 20 degrees Celsius is seen as a universal acceptable level. Therefore, climate control will prolong the stability of textile fibres from deteriorating. Rapid increases and decreases of

temperature levels will have a negative impact on textile fibres. Thus it is not advisable to store textiles in attics or basements where there is not consistent climate control.

#### 3.3 Humidity

A constant humidity level between 40-45% should be in order. Humidity levels higher than this may increase mould growth and encourage insect infestations. Too low humidity on the other hand can cause fibres to become brittle. Organic textiles in particular absorb and release moisture depending on the relative humidity of their environment and need a stable humidity. Textiles should be stored away from heating and air conditioning vents.

Extreme climatic fluctuations must be minimised. Temperature and humidity are interrelated. Fibres expand and contract when temperature and humidity levels fluctuate. Therefore, extreme fluctuations can be fatal in the long term as it damages the resiliency, elasticity and strength of fibres. Heat can embrittle and discolour textiles while it can permanently deform synthetics.

High volumes of people in a poorly ventilated space may cause an increase in temperature levels (body temperature spreads) as well as humidity levels (breathing).

#### 3.4 Pests

Clothing moths, silverfish moths, firebrats and carpet beetles are attracted to protein fibres such as wool or silk, while rodents will consume both organic and synthetic textiles. There should therefore always be a subconscious alertness to insects and inspection of textiles on a regular basis should be second nature to anyone working with fabrics. Dust is often a breeding place for insects and the basic smell of dust on textiles should be a first warning to prompt preventative cleaning of the textiles.

Sticky traps close to doors or near textile display or storage areas assist in identifying the type and number of insects present in the area. Clean storage surfaces and floors as well as regular inspection are recommended as part of cheap, effective and good housekeeping.

If an insect infestation is detected, the textile should be isolated and sealed off in a plastic bag so the infestation does not spread further. Pesticide use is not recommended as it contains chemicals. The Henry Ford textile conservation research centre prefers to remove air from an isolated item placed in a plastic bag, by using a vacuum cleaner. The bag is then placed in a large freezer for maximum 24 hours to eradicate pests. Freezing must be rapid and it must be carried out during the warm seasons as insects adjust to outdoor temperatures.

Clothing moths feed on protein rich materials such as wool. Look out for silky white cocoon webbing of clothes moths that attach to the surface of infested textiles.

Carpet beetles also feed on protein rich materials. Chewed holes, furry carcasses, and small worm-like insects indicate infestation.

Firebrats and silverfish feed on starchy materials such as glue and fabric sizing. Silverfish are small greyish insects. They thrive in dark, moist and cool environments such as basements.

#### 3.5 Human touch and handling

Human beings are often the main threat to textile objects such as quilts. Surface compounds, such as oil, sweat and make-up on hands may deposit or transfer onto textiles and will chemically react when temperature or humidity levels are both too high. Cotton or nylon gloves should be worn as a consistent rule and hands should be thoroughly cleaned and no ointments or creams should be present on the hands - even when gloves are worn.



Cotton gloves

Folding quilts or textiles puts undue strain on them as the integrity of the fibres is at risk.

There are general pointers when physically handling or carrying textiles:

- Lay quilts out on clean flat surfaces when examining, cleaning or preparing for displays or storage
- Eating, drinking or smoking in the vicinity of quilts should be avoided as irreversible staining or discolouring may occur.
- Wear clean gloves when touching quilts or wash hands frequently and keep them dry.
- Avoid wearing jewellery, rings, belts, and buckles that can catch or tear textiles during the handling process.
- Use pencils instead of ink pens or markers in the vicinity of quilts to avoid accidental staining.
- Do not place any object on top of quilts.
- Support the entire quilt from beneath when transporting it. For extremely delicate quilts, mat board or polypropylene board can be slid beneath so that the board and not the quilt is handled.

#### 3.6 Air pollutants

If hard types of materials such as metal and marble can react to chemicals present in the air, the rule applies even more to softer materials such as fabrics. Acidic gases are released from outside such as carbon dioxide from traffic, acid rain, ozone, newly painted walls, newly varnished stone or wooden surfaces, smoking inside the house, aerosol sprays. Periodical cleaning is possibly the only solution or ensuring good ventilation to ensure gases don't linger in rooms.

Air conditioning systems or furnace filtration should be inspected on a regular basis to ensure external pollutants are controlled or minimised.

# 4 Storing and Hanging

#### 4.1 Storage

Store quilts flat, if possible. If the quilts must be folded, fold them as few times as possible. Periodically, refold them to redistribute the strain that develops along fold lines. Quilts that remain folded for long periods will develop permanent creases and eventually the fibers are likely to break under the strain along these creases. Avoid stacking heavy quilts or other items on top to prevent creasing the quilts and crushing the batting. Do not roll a folded quilt because it causes severe stress along the fold line.

During storage, protect textiles from direct contact with wood (including cedar chests), regular cardboard, and paper. As they age, these items give off acid by products which are harmful to textiles. Layers of acid- free tissue or washed unbleached cotton muslin can be used to line shelves, boxes or cedar chests, and thereby prevent direct contact of quilts with wood or cardboard (Figure 2). The cotton muslin should be removed and washed yearly and then used again. The acid-free tissue should be replaced at least once every five years to retain its neutral state since it also becomes acidic with age. Avoid colored tissue papers as most are not colorfast and can stain textiles if moistened. Wood can be coated with two layers of polyurethane for additional protection against the acidic byproducts naturally given off by the wood. Allow about one month for the finish to cure, then line the wooden drawer, chest or shelf with unbleached cotton muslin. Plastics should not be used for storage as they may not allow air circulation and may give off harmful byproducts as they age and decompose. In addition, moisture trapped inside tightly sealed plastic bags can result in mildew. Finally, plastics also attract dust as a result of the static electricity generated.

Most textile curators object to folding of fabric pieces due to unnecessary stretching and stress on specific sections of the cloth. For flat pieces of cloth such as quilts, wall hangings, it seems to be best practise to roll the textile like a pancake but using a layer of polyethylene or acid-free tissue papers inbetween like jam inside a Swiss-roll (not a compatible material comparison!). This ensures that the textile can breathe to some extent and there is no heavy weight placed on top like with storing numerous flat textile cloths on top of one another. The rolled-up textile should also be kept in position by using twill tape so it remains in the same position. In such a way many rolled-up textiles can be placed on shelves where the air ventilation circulates well.



Example of correct storing

Whether in storage or on display, the textile pieces should be handled as little as possible

#### 4.2 Hanging/Display

Quilts were meant to be used and displayed. However, improper display can greatly shorten their life. Some precautions can reduce the dangers that display may pose for a quilt.

Avoid displaying a quilt in direct sunlight or in rooms that are lighted most of the time. Do not display them on an outside wall or near a heating vent. Never use nails, staples, tacks or pins to hang a quilt. This creates severe stress in small areas, often breaking threads and causing rust spots.

The weight of the quilt should be evenly distributed over its entire width when hanging . For very sturdy quilts, a cloth sleeve or casing sewn carefully with large stitches (I/4 inch or longer) to the back of the quilt will hold a rod or slat that will distribute the strain evenly across the quilt. The casing should be made of a double layer of fabric so that the rod or slat will not touch the quilt but instead will slide between the two layers of casing fabric.

Take the quilt down periodically (at least every six months) to rest the yarns and fibers. You may want to prepare two quilts with sleeves or casings so that you can rotate the quilts. One can rest while the other is on display.

A quilt may be displayed on a bed, but a fragile or valuable quilt should not be used where people will sit on it or fold or pull on the quilt. Tucking a quilt between the mattresses and springs can cause severe stress and possible damage.

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	Back	

Casing/ Sleeve method (Finch, K and Putnam, G. 1985. *The care and preservation of textiles, p33*). A cloth sleeve or casing can be added to the back of the quilt. The casing should be made of a double layer of fabric so that the rod will not touch the quilt fabric but instead will slide between the two layers of casing fabric.

#### 4.3 Mounting structures

Quilts can be displayed using a number of techniques. Once again, careful consideration is needed when choosing both the materials, as well as the structure for this.

Wooden mountings and frames together with paint or glue have built-in deterioration risks.

Incompatible materials such as rubber and leather should not be mixed.

Regular inspections of these objects are imperative for awareness of any changes in condition.

The following materials should be used when handling or storing/hanging quilts and textiles:

- Acid-free paper
- Cotton or latex gloves
- Polyethylene/Polypropylene Board
- Polyethylene Foam
- Polyethylene Sheeting
- Twill tape (undyed cotton or polyester)

### 5 Cleaning

Washing and repair of quilts and textiles should be attended to by a professional conservator. Commercial dry cleaning is not recommended as harsh chemicals can damage fragile textiles.

Vacuuming is the only cleaning procedure that is recommended for the non-specialist. Caution should be used even when attempting to vacuum fragile and degraded textiles. To ensure that damage does not occur, the following procedure is recommended: Gently brush dirt from the surface with a soft brush. Use a low suction vacuum with a clean brush nozzle attachment with a nylon screen (such as the type used for tent window screens) between the textile and nozzle. The nylon screen should be edged with cotton bias tape. The screen will catch any loose fragments that could be detached during cleaning. Both sides of the textile should be vacuumed. Vacuuming must be carried out gently and in a purposeful way by using the nozzle in lengths to ensure the full lengths of the textile receives suction.

# 6 Conclusion

It is clear that knowledge of different materials used to create textiles will determine extending the life span of the textile piece. Proper handling, displaying and storing methods serve all long- term preservation purposes. Environmental factors with its fluctuations are perhaps the most constant factor together with human handling of the objects which have significant impact on the long-term survival of textile pieces.

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