NATIONAL PARK SERVICE

Conserve O Gram

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Dusting Wood Objects

Dust is comprised of a mixture of airborne particles of both organic and inorganic origin. The composition and size of the particles can vary considerably among geographic areas and even within a given location. When it settles out of the air, dust becomes a concern for museum objects because it has the potential to damage the object and detracts from its appearance. The nature and extent of the damage is often dependent on the components of the dust. Hard and sharp particles, such as those of a siliceous origin, tend to cause abrasion, while particles of organic origin are more likely to cause chemical damage. Additionally, most conservation scientists believe that the presence of dust attracts water vapor from the air due to the large cumulative surface area of the particles and thereby creates a microclimate of higher relative humidity in proximity to the object.

The process of removing dust from artifacts has the potential to damage sensitive surfaces no matter which techniques or materials are used. Therefore the best strategy to deal with dust in a museum environment is to prevent or limit its accumulation on objects whenever possible. To limit accumulations, ensure that storage and exhibit spaces have an effective dust filtration system and that HVAC systems are serviced and cleaned regularly. Protect stored objects with dust covers (see *COG* 4/2) or place them in well gasketed storage cabinets.

Enclosed display cases that limit air infiltration provide the best protection for objects on exhibit. However, under some display circumstances, such as in historic furnished structures, objects cannot be protected in this way. Good housekeeping procedures and site practices can minimize accumulations of dust under these conditions and reduce the need for dust removal from the artifacts themselves. Foremost is regular vacuuming of the exhibit environment with HEPA (high efficiency particulate air) vacuums and prompt changing of bags. These vacuums pick up a wide range of dust particle sizes and limit reintroduction of dust into the air. The use of entrance door mats, weather-stripping and door sweeps will also reduce the dust levels in the exhibit environment, as will appropriate materials for exterior landscape features such as visitor pathways.

Before handling or dusting finished wood (i.e., wood coated with varnish, shellac, paint or lacquer), check the condition of the finish. Finishes that are unstable (e.g., flaking, cracking, lifting edges) or wood surfaces that have splintered or have loose or lifting veneer should not be dusted. Request the advice of a conservator when objects are in this condition or if you suspect the finish is original.

Removing Dust with a Vacuum

Vacuuming is, under most circumstances, the most effective and least damaging way to remove dust from stable finished wooden surfaces. It is also the preferred method for the removal of dust from unfinished wood because these surfaces tend to snag fabric, and wiping

with a cloth can imbed soils in the pores of the wood.

For most stable furniture surfaces, a clean brush attachment can be used to gently wipe the surface parallel to the wood grain. Micro tool adapter kits that attach to standard vacuum hoses are useful for removing dust from nooks and crannies in furniture and carving. These kits include a variety of small nozzles and brushes. When using the micro tools be sure that the vacuum suction is reduced to avoid putting strain on the motor. Battery-operated vacuums, manufactured primarily for use with electronic equipment, are also effective in removing dust from small, delicate wooden objects. The suction is considerably weaker than that of conventional vacuums and, like the micro tools, the narrow nozzle allows access to areas not possible with larger vacuum attachments. These units are quite light and are battery operated so they can be used where electric power is not available.

Use a soft artist's brush in conjunction with the vacuum brush attachment when removing dust from delicate surfaces, such as gold leaf, fragile objects easily damaged by physical pressure, and where the dust is particularly abrasive and likely to scratch highly polished surfaces. Hold the vacuum nozzle just above the wood surface. With the soft brush in the other hand, gently sweep the dust off the surface and toward the vacuum cleaner nozzle. In order to capture as much dust as possible, use a brush that is no wider than the nozzle of the vacuum. Reduce the vacuum suction to the extent practicable.

Removing Dust with Cloths

When removing dust with a cloth, turn the cloth frequently, presenting a clean surface to the object with each pass. Have a number of clean cloths on hand. Where possible, wipe the cloth in the direction of the grain. If you feel the cloth snag or see fibers imbedded on the surface, cease wiping and use only a vacuum and brush to remove dust.

Traditionally, soft cotton cloths were recommended for use in dusting museum furniture and wooden objects. However, natural fiber cloths, if untreated, have limited ability to trap and hold dust. This is a particular problem in environments with low relative humidity where the dust and cloth develop a static charge and repel one another. If you are dusting wood in stable condition, dampening the cloth can mitigate this problem. If there is any question as to whether the finish is water-soluble, test with a dampened cotton swab in a hidden area. After dusting with the dampened cloth, go over the surface with a dry cloth. Take care that moisture is not left on the surface and that dust is not pushed into corners and crevices of the furniture. Do not use a moistened cloth to dust unfinished wood as this creates a possibility that the soils will migrate into the wood.

In recent years synthetic micro-fiber dust cloths have been developed. These cloths, manufactured originally for the printing and electronics industries, are finding increased use in museums because they are more effective in attracting and trapping dust, are lint free, and generally have no surface treatment.

The fabric of the these dust cloths is comprised of extremely fine fibers that are star or triangular in cross section. Some types are woven while others are non-woven. The structure of the fiber gives the cloth extensive surface area with many interstices where dust can be trapped. Additionally, the fibers of these clothes have a tendency to produce a strong static charge that helps to attract dust

particles. There are two types of micro fiber cloths; those that are washable and reusable and those intended for a single use. The reusable clothes are made from Tyvek stitched with nylon. Washing provides the advantage of softening the texture of the cloth and will not affect the ability of the cloth to attract dust. The cloths should be washed by themselves to avoid picking up lint from other fabrics, which may reduce their ability to trap and hold dust. Some of the single use cloths have small amounts of mineral oil coatings. Although this probably will not present a problem for most surfaces they should not be used on museum objects until it can be determined that they do not leave a residue.

Removing Dust with Compressed Air

In circumstances where dusty surfaces are not accessible or are particularly fragile, compressed air, used in conjunction with a vacuum, is helpful in removing dust. For example, this technique is useful in removing dust from recesses in the interior of case furniture, irregular surfaces such as rush or wicker seating and from deeply carved surfaces. The vacuum nozzle should be held close to the surface receiving the stream of air to capture as much of the airborne dust as possible. Since it is unlikely that the vacuum will capture all the dust disturbed by the air stream it is advisable to remove particularly dusty objects from the exhibit or storage area before dusting. Use compressed air only when the pressure can be regulated. It should be set as low as possible to do the job and should be limited to about five pounds.

If an air compressor is not available, canisters containing compressed gases can be used. These aerosol dusters were developed primarily for use in photo processing but have recently found use in museum collections as well. Hold the can upright with the nozzle at least four inches from the object and do not shake it during use. There is evidence that some aerosol dusters contain trace amounts of oil, which may harm certain types of surfaces. There is no clear indication that wood finishes are affected.

Keep Cleaning Tools Clean

Clean the cloths, brushes, and brush attachments with a mild solution of Ivory Soap Flakes or highly concentrated Orvus Paste and water, rinse well, and let dry completely before reusing. Do not use fabric softeners in washing dust cloths. Label dusting tools and do not use the same ones for the floor as are used for museum objects.

To Remove Dust From Wood Objects

Use	Do Not Use
Vacuum with clean brush attachment—use micro tool adapter kits for nooks and crannies.	**Feather Duster**—they scatter the dust into the air and broken feathers can scratch the furniture surface.
Untreated Synthetic Micro-Fiber Dust Cloths	**Commercially Treated Dust Cloths**—they may also contain silicones or other damaging additives.
Compressed air with a vacuum—use compressed air only when pressure can be regulated.	**Commercial Formulations**—such as aerosol or liquid furniture polishes, that frequently contain silicones (see *Conserve 0 Gram* 7/6) and tung, lemon, or linseed oil.

Sources for Supplies

Micro-tool Adapter Kit

Clotilde
1-800-772-2891
www.clotilde.com

University Products
1-800-628-1912
www.archivalsuppliers.com

HEPA Vacuums

University Products
1-800-628-1912
www.archivalsuppliers.com

The Airfilter Store
www.theairfilterstore.com

Microfiber Dust Cloths

Dustbunny
Modern Solutions
www.modernsolutions.com

The Airfilter Store
www.theairfilterstore.com

Cyber-Fabric
Modern Solutions
www.modernsolution.com

Preserve-It
University Products
www.archivalsuppliers.com

References

Cloonan, Michele V. "An Analysis of Dust Cloths for Library Materials." *Abbey Newsletter* 7, no. 3 (1983).

Commoner, Lucy. "A Preliminary Overview of Electrostatic and Micro-fiber Cleaning Cloths." *AIC News* 26, no. 5 (2001): 13-15.

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