

Guidelines to Marking, Packing and Moving Artwork and Fragile Items

Equipment and materials

The following table provides guidance on the use of some of the most common types of packing equipment and materials.

Equipment and materials	Use
Acid-free tissue – unglazed, in sheet form (preferable for most items) or in rolls	Protection of vulnerable items, by wrapping or padding out excess space.
Archival manila paper (300gsm)	Protection by wrapping or interleaving between items.
Bubble wrap – small bubbles. In a range of widths and lengths. Match size to crate sizes.	Protection of wide range of items. Lining crates. Smooth side should face towards collection items. Not usually in direct contact with collection items.
Bubble wrap – large bubbles.	In a range of widths and lengths. Match size to crate sizes. Lining base of crates to reduce vibration. Padding and protection for large items. Smooth side should face towards collection items. Not usually in direct contact with collection items.
Cable ties – minimum size 200 x 8mm (but check crates). May be different colours to help identify different parts of collection.	Security of crates. Laced through handles but care must be taken not to impede carrying.
Cardboard boxes	To hold items that have already been wrapped. Cannot be stacked.
Cotton tape	To hold packing materials closed around items. Bows should be positioned at head or fore-edge of books, and for other items, along a side that will not have pressure on it in the crate.

Foam padding – inert polyethylene foam, such as plastazote®	Can be used to reduce movement and vibration within boxes or crates.
Ladders	Ladders may be necessary to reach high shelves and should be checked for stability, portability and suitability for the job in hand. All staff and helpers should have training in their use. Scaffold towers, battery-operated lifts or forklift pallet stackers may be required if a large number of shelves is beyond easy reach or if the collection is housed on an upper gallery with a narrow access route. Training for their use should be included in the budget and schedule.
Masking tape	To hold packing materials closed around items. Maximum duration of use 6 months, as adhesives may stain items through packing materials if left on too long. Must not be in direct contact with any collection item.
Plastic crates – high density polypropylene with lids (attached or separate). No ventilation holes at base.	Protection of packed material. May be stacked up to 5 high, depending on weight of contents. Crates should be rectangular, rigid and lidded, flat sided with vertical walls, and should not have ventilation holes (certainly not at the bottom). Cardboard boxes are less expensive than plastic crates but they do not provide sufficient protection (especially if they become wet) and cannot be stacked safely. Crates may be hired or bought, or the removals company may provide their own. The number of crates required will depend on whether they are being unpacked at their destination as they arrive or left in storage. The size of crates for each particular move will depend on the size of items. The ability of personnel to lift a full crate, and the suitability of items for stacking should also be assessed when deciding on crate size. Crate lids should be secured. Oversize items may be put into open stacking trays, although protection from the weather must be provided.
Strapping – polypropylene, 1cm wide, non-serrated metal seals. Tensioner, sealer and coil holder also required to use this method.	Security of crates, used widthways or lengthways around crate, depending on design of crate. If crates to be stacked, tension must be correctly adjusted, so strapping doesn't snap. Crates must not be carried by strapping.

Shrink wrapping/Vacuum packing	Protection of items. Main advantage is that it protects against incorrect environmental conditions. Disadvantage is that some material may be damaged, e.g. books with detached boards, limp material, books with yapp edges, albums or other mixed media material.
Tables/ Working surfaces	Tables should be strong, stable and high enough for individuals packing crates to be able to stand straight. Most trestle and collapsible tables are designed for people to sit at, and tables may need to be raised. A simple and inexpensive way of raising a table's height without destabilising it, is to cut 20cm thick dense foam to size and place on top of the table. Health and Safety Officers must be consulted to ensure that tables are safe to work on and that any adaptations fall within health and safety regulations. Tables should be covered with padding of some kind, for example a folded cloth, with heavy-duty plastic sheeting on top. This creates an easily-cleaned, smooth but forgiving surface on which to work.
Trolleys	Trolleys can reduce much of the stress of carrying heavy crates, especially if it is some distance to the exit. Make sure that they will go through all necessary doors and passages when loaded with crates and that they will fit in lifts. Ramps should be provided if there are steps along the route.
Wooden tailor-made crates with inert polyethylene foam lining. May be environmentally conditioned. Expensive to buy but may be leased.	To protect items sensitive to changes in RH and temperature. To protect difficult-to-pack items. To protect oversize items.

Packing methodology

These criteria apply where the move is to be handled by staff but they can be used as a standard against which removals companies may be assessed, or adapted as part of the tender specification.

- The degree of packing required will increase if material is to be stored in crates for any length of time. Books that are packed flat on top of each other should be packed spine to fore-edge to avoid compression of the spines. If the collection comprises mainly 19th and 20th century books placed flat in crates, storage should be kept to a maximum of 6 months. Any material standing on its spine in a crate should be stored for no more than 3 months.

- Packing should be carried out in a production line, for example, the person lining crates with bubble wrap should do enough for fifty crates, not one or two at a time.
 - Materials for packing must be pre-cut in good time, so that packers do not have to wait while crates or materials are being prepared.
 - It is sensible to switch roles from time to time, to overcome tedium and fatigue that may result in damage and injury.
 - If using a removals company, a member of staff should work with each team to ensure that work is being carried out according to the specification in the contract.
- The following table provides guidance on packing a range of formats likely to be found in library and archive collections:

Item	Packing materials	Alignment in crate	Risk if not packed properly
Archival material – folders e.g. with treasury tags	Archive box, phase-box	Flat	Creasing, crumpling, tears
Archival material – unframed photographs	Inert polyester pocket or 100% unbuffered cotton paper folder and archive box ¹⁰	Flat	Permanent damage to emulsion layers. Pressure damage to items beneath if too many stored in a box.
Archival material – rolled items	Acid-free tissue, cube tube, cotton bag	Flat and well padded	Compression, creasing, damage to seals

Archival material – single-sheets	Polyester pocket, manila folder, archive box	Flat	Creasing, crumpling, tears
AV material – CDs/ DVDs	None, unless enclosure case damaged	Upright	Cracked enclosure, damage to surface
AV material – videos	None, unless enclosure case damaged	Upright	Cracked enclosure, damage to casing, tape
AV material – vinyl records	Archival manila paper for interleaving, inert polyethylene foam such as plastazote®	Similar sizes together standing on edge, supported by inert polyester foam padding	Chipping, broken records
Books/bound volumes in good condition	Acid-free tissue, archival paper, or none	Flat or on spine	Damage to structure from vibration/jolting
Books/bound volumes in poor condition	Acid-free tissue, and possibly bubble wrap	Flat	Damage to structure from vibration/jolting; loss of covering and text materials
Books/bound volumes – albums	Acid-free tissue and archive box	Flat in single layer or upright with shaped padding beneath	Compression of contents, resulting in damage and/or losses; damage to binding structure along joints
Books/bound volumes with clasps	Acid-free tissue and bubble wrap, archive box and acid-free tissue, phase box	Flat	Damage to structure from vibration/jolting; damage to other material in crate
Books/bound volumes with limp bindings	Acid-free tissue	Flat or on spine	Creased or torn covering materials
Books/bound volumes – braille books	Archive box and acid-free tissue for padding	Flat in single layer or vertical with shaped padding beneath	Compression of contents, resulting in damage and/or loss of text; damage to binding structure along joints
Framed material	Acid-free tissue and archive box	Flat	Damage to frames, broken or cracked glass

Framed material – pastels	Small items into archive box with padding; large items into custom-made boxes	Flat with, image upwards	Movement of media resulting in blurring/loss of image
Glass – glass-mounted papyri	Acid-free tissue or bubble-wrap, inert polyethylene foam, such as plastazote®	Upright, on long edge, with foam lining beneath and between	Cracked or broken glass
Glass – glass plate negative/positive photographs	100% cotton unbuffered paper enclosure and archive box	Upright, on longest edge in archive box, stored upright in crate	Cracked or broken glass, damaged emulsion layer

Crates should be lined with bubble-wrap, with the bubbles towards the crate and the smooth surface towards the packed material. A layer of inert polyethylene foam, such as plastazote® or large-bubbled bubble-wrap in the bottom of each crate may be used help to reduce vibration. Items with particular sensitivities may need speciallymade packing cases to give maximum protection against environmental changes and vibration during transit. The cases may need to arrive early to be conditioned to ambient RH (Relative Humidity) and temperature levels.

Marking and labelling

All material should have an identifying mark on the outside of the packaging. If items are to be shelved by size when stored, marks on the wrapping can also help to identify the moving sequence (particularly important if relying on external contractors to move the collection). Colour coding can be helpful, for example using different-coloured crates or labelling for archives and printed books. The following points should be taken into account:

- Shelfmarks should be pencilled onto the outside of the wrapping at the head of the spine so that books may, if necessary, still be shelved in the correct sequence and the right way up despite being tissue-wrapped.
- Pre-printed self-adhesive labels could be used in the short term but there is a risk that if the tissue remains on the books, adhesive residues will leach through it.
- Barcodes should not be stuck directly onto books or archives, although they may be stuck to protective enclosures, whether acid-free tissue or an archive box. Pairs of barcodes, one on a folded slip of paper inside the packing and the other fastened to the outside work well.
- Crates should be labelled and/or barcoded and the contents listed, so that it is easier to position crates at the store or destination as close as possible to the shelves on which their contents will be housed.
- A list of shelfmarks or inventory numbers with an additional column into which the box numbers may be written should be prepared before packing starts. An accurate list of the crates and their contents is vital for security purposes.

Moving

Fragile material may require monitoring during transport, possibly for vibration or fluctuations in environment. Air-ride suspension lorries may be used to reduce vibration, which can be monitored by placing vibration data loggers inside crates. All crates should be properly secured inside the truck before leaving the premises.

Depending on the available space, manpower and floor loading, crates can be moved in a steady flow, at selected intervals or all at once. If moving small quantities of books and archives, it is probably easier to pack them all at the same time and then remove them to their destination. Large collections are better moved in a steady stream: crates should be moved in batches to their destination as soon as they are packed, with a team ready to deal with them as they arrive.

Scanning barcodes at different checkpoints ensures the security of the collection, by highlighting anomalies such as missing crates or items. Each area of operations should have an overseer, in touch with the other overseers, to enable the swift resolution of problems. Adequate time should be allowed to place the collection in its new surroundings.