Moving library and archive collections

There are a number of reasons for moving collections, such as relocation, renovation, or rearrangement of collections. Moves may involve relocating the whole or part of a collection, within a building or complex of buildings or offsite altogether. This booklet provides guidance on best practice for moving library and archive collections, but is not intended to address the routine movement of books within a library or archive. A move presents a one-off chance for improving collection care and management, an opportunity to undertake a stock audit, rearrange and upgrade storage, improve housekeeping, and to clean, stabilise and re-house collections.

1 Project Management

A single member of staff should take on the role of project manager, if necessary full time, to manage the complex job of keeping all aspects of a move under control. It is likely that the project manager will need to liaise with a range of in-house staff and external contractors to ensure the smooth running of the project. These are likely to include:

- Library and archive managers/personnel
- Transport/relocation companies
Health and safety personnel
• Estates personnel
• Architects/builders
• Insurers
• Security personnel
• Equipment suppliers
• Conservators
• Local authorities.

Budgets for all stages of the project should be discussed, estimated and information centralised with the project manager to ensure that the likely overall cost is assessed before any work is undertaken. A timetable with start and finish dates for each element of the move should be prepared for all those involved, with allowances to minimise the effect of unforeseen problems, which may dramatically affect the project.

2 Risk management

Risks in collection moves can arise from:

• The sheer number of items to be handled
• Incomplete/inaccurate records
• Lack of (trained) personnel
• Lack of time
• Unrealistic access requirements
• Lack of space
• Restricted finances
• Constraints imposed by other contractors e.g. over-running building works.

Early assessment of risks to both collections and personnel allows input at the planning stage, when extra finance may be made available for protection of the material to be moved and maintenance of sensible staffing levels throughout the project. The example below highlights some of the most common risks and suggests ways to mitigate those risks. Organisations should carry out their own risk assessments.
<table>
<thead>
<tr>
<th>Threat</th>
<th>Risk level</th>
<th>Risk mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical damage to collection</td>
<td>High</td>
<td>Condition assessment well in advance of move. Conservation: stabilisation and re-housing. Handling training for staff, contractors and volunteers. Adequate vetting of contractors. Appropriate packing methodology and materials. Adequate time allowed for each stage with additional contingency of 10%.</td>
</tr>
<tr>
<td>Physical problems for personnel</td>
<td>High</td>
<td>Selection of appropriate personnel for physical roles. Training in all tasks. Regular changing of tasks when carrying out repetitive actions, such as packing. Use of correct equipment e.g. work surfaces set at the right height.</td>
</tr>
<tr>
<td>Theft</td>
<td>Medium</td>
<td>Use of library and archive staff in security roles to oversee packing and move, especially if external contractors are on site. Barcoding/tracking of collection and crates. Use of secure fastenings for crate lids. Audit of stock at each stage of move. Adequate insurance cover.</td>
</tr>
<tr>
<td>Accidental loss</td>
<td>Low</td>
<td>Accurate catalogue records/shelf-lists in electronic format. Methodical sequence/production line for packing and placing items in crates and crates in/out of vehicles, and removing items from crates.</td>
</tr>
</tbody>
</table>

3 Inventories

A collection may comprise many different formats: rare books, modern books, bound and loose archives, albums, journals, gramophone records, videos, CDs, DVDs or any combination of these. Storage areas may also contain non-collection items, such as desks and chairs, busts, ink-stands and library steps, which may also need to be moved. At the planning stage, it is essential to count the number of individual items being moved. Cataloguing systems often identify sets of books as a single item, but each volume must be counted individually for the move. Conversely, archives may be listed as individual items but stored in groups in archive boxes. The number of boxes to be moved should be counted, not the number of items. Electronic catalogue records/shelf-lists must be accurate, and a complete stock audit should be undertaken prior to packing. Desks and tables may be kept in situ if they are likely to be appropriate as packing surfaces.
4 Storage furniture

It will be necessary to calculate storage requirements at the destination store (as well as any interim store) based on current shelving arrangements, factoring in any collection rearrangement/repackaging and expansion room. The length and depth of shelving should be measured at the current store and at the destination store (as well as any interim storage area). Shelving can be broken down into units, and the maximum and minimum height/depth and actual space occupied recorded for each unit. A move presents a one-off chance to upgrade the arrangement of a collection, and time spent at this stage often saves months of work later. Arranging bound material by size, whether in the interim storage area or a new building, uses space more efficiently and reduces the risk of distortion and structural damage. It is likely that space savings can be made in some areas, but more space will be required for storage upgrades and rearrangement. A move provides an ideal opportunity to upgrade storage furniture, for example, by providing horizontal shelving for elephant folios or large drawings. It may be possible to provide for future space requirements if the collection is still growing. An allowance of 3-5mm per item should be made for any additional book boxes or bookshoes.

If the floor can take the weight and if access to the collection is not required, shelving in an interim storage area can be deeper than in permanent storage. Books may be double or treble banked, with less headroom than normal, and archival boxes may be stacked higher than usual, subject to the weight and nature of their contents. Adjustable metal shelving is often ideal for interim storage, provided that the ends are packed out with board to prevent screws or bolts damaging books or unprotected items. Wooden shelving is generally acceptable but should be lined with archival board if it is rough or new. The load-bearing of the shelving must be assessed, as some metal shelving is not as strong as it looks. Some manufacturers include a 10% allowance for shelf deflection. It is not advisable to store collections (bound materials in particular) on sagging shelves, so understanding the weight of collections is crucial when buying shelving.

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1 A minimum expansion capacity of 20 years is recommended in PD 5454:2012 Guide for the storage and exhibition of archival materials
2 For more information refer to the Preservation Advisory Centre booklet, Library and archive storage furniture www.bl.uk/blpac/pdf/storage.pdf
5 Buildings

The move may take place between a number of different rooms or buildings. The main areas of concern will be the environment, floor strength, and physical protection for the building.

During a move collection items may pass through a number of different environments: their original location, rooms leading to the outside of the building, the removals truck, interim storage and their final destination. Collections items are sensitive to changes in environment, especially parchment/vellum books, bound archives and documents, which are at greatest risk of distortion, caused by fluctuations in relative humidity levels. Relative humidity (RH) and temperature levels should, if possible, be monitored for at least a year in advance of a move, especially at the original location and final destination. A stable environment or gradual transition between two different environments will reduce the risk of damage to sensitive items. It may not be possible to control the environment during transportation (although air-conditioned trucks are available), but books and archives may be wrapped in such a way as to buffer against environmental changes during transit e.g by using several layers of acid-free tissue followed by 3-4 layers of bubble-wrap. Interim storage areas may not have ideal conditions but it is possible to create environmentally-controlled areas within a building or store by making rooms within rooms, heated with oil-filled radiators controlled by a humidistat. Expert advice should be sought on the best type of equipment for this. New or renovated buildings may have materials and surface finishes that require drying. Builders’ and manufacturers’ advice on safe drying and offgassing times should be sought well in advance.

Before books are moved, floor loading capacities must be assessed by the architect, surveyor or structural engineer. Their findings will determine how the collection is moved and stored, the rate at which items are removed from shelves, the number of people required, the area available for stacking crates and the frequency with which they have to be removed from the premises and unloaded at their destination.

It may be necessary to protect parts of the building, for example banisters, carpets, fixtures or fittings:

- Materials used should, if possible, be fire-retardant or fire-resistant.

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3 For more information refer to the Preservation Advisory Centre booklet, Managing the library and archive environment  www.bl.uk/blpac/pdf/environment.pdf
• Free-standing frameworks may be built around immovable objects, such as sculptures.
• Floors may need protecting with board or matting, but slippery materials such as plastic sheeting should be avoided.
• Ramps may be installed on single or small flights of steps, especially if trolleys are to be used.

6 Transportation

Packing and moving may be carried out by staff, volunteers or by a specialist removals company. If using a specialist removals company:

• Company references should always be checked. The experience of colleagues who have moved their collections should be sought. No matter how experienced such companies are, it is always worth watching them in action as part of the tender process, in particular to assess their handling.
• Repair costs for items damaged during the move as a result of poor handling or packing can add thousands of pounds onto the bill. Provision for repairing damage caused by poor handling must be considered before the contract is agreed.
• Insurance cover for the collection and the amount of cover per lorry load should be checked.
• A condition assessment should be made before and after moving, so that any item damaged in transit can be identified immediately. Conservation costs should be borne by the removals company.
• The contract should not be signed without having been assessed by those with a working knowledge of the collections and should be as specific as possible e.g. detailing the way in which materials are used and crates are lined, how much work is to be carried out each day, where responsibility lies if there is a glitch in the flow of packing materials and equipment. The less specific the contract, the less its worth.
• Ensure that they have understood the layout of the building/s and any peculiarities or potential problems, such as differing floor levels or narrow passageways.

Logistics

The order in which the collection is to be moved and unpacked must be carefully considered and mapped. In the long term, it is cheaper to put items into their correct place straight away, rather than being rushed into a random storage arrangement. The following points should be taken into account:

4 For more information refer to The National Trust Manual of Housekeeping (Chapter 62 Building work: planning and protection)
• The route through the building to the loading area should be identified well in advance and steps avoided if possible.
• Other staff or contractors may need access through the packing area or along the route to the removal vehicles. Whilst it makes sense to try to pack and unpack in some kind of sequence, this may not always be possible.
• Other staff or contractors may need access to lifts, so a lift operator (with access key) may be required to maximise operational efficiency.
• Lifts should be serviced before the move starts.
• It may not be possible to access different mobile shelving units at the same time.
• There may be objects on top or in front of bookshelves which have to be moved to gain access to the shelves.
• Packing materials and crates take up space and if packing is taking place prior to the move, storage for empty crates, packing materials and pre-cut packing materials should be available, as well as for packed crates.
• Materials, such as bubble-wrap and acid-free tissue, require cutting to size and transferral to packing stations, so organising the flow of packing materials and equipment is a task central to the success of a move, requiring logistical skills and full-time application.
• The route to the destination should be checked for roadworks or anything that might affect estimated timings.

Security

• Tracking the collection during the move is important and this aspect of the move should be discussed with insurers.
• Simple labelling of items and crates can be used. Shelfmarks can be pencilled on wrapped books and numbered labels can be adhered to crates.
• Barcoding is more efficient and items/crates can be scanned at a number of points e.g. when an item is taken off a shelf, when it is packed, when it is placed in a crate, when the crate is put into/and taken out of a lorry, and when the item is placed in store or at its final destination. Barcodes may be stuck directly onto boxes or packing materials, or onto slips of paper which can be inserted into collection items.
• Crates may be secured with strapping or with cable ties through handles. The method used will depend on the design of crates and how they are to be carried and stacked.
• Vehicles with GPS tracking may be used.
7 Personnel

Moving collections is hard work and some tasks require physical strength and fitness, so the suitability of staff for the move must be assessed. Those with bad backs, dust or mould allergies, bronchial problems or other disabilities may be at risk. People unfamiliar with the collection or buildings may be brought in to help with the move e.g. volunteers or students, but they will require training before they are ready to work. Staff will also require training in any job which is new to them. This will help avoid injury and damage to the collection. Failure to provide training for all personnel involved, including contractors, will result in time wasted and additional stress for those managing the project. Ensure that there are proper staff and volunteer policies and procedures in place. The number of staff or helpers required will depend on available space, the way in which the move is planned and how quickly the job has to be done. The collection may be moved by in-house staff or a removals company. The latter will supply staff to pack and move the collection but it is advisable to have members of staff working alongside them, for security reasons and to ensure that the collection is handled properly.

8 Conservation

Assessment

It is important that the condition of the collection is assessed as soon as the nature of the move is understood. Items need to be able to withstand being removed from a shelf, packed, placed in a crate, transported and re-shelved, possibly twice. Without a record of condition, insurance may be invalidated and redress unobtainable. Any vulnerable items that could be easily damaged during the move must be identified, for example:

- Volumes with detached boards, broken sewing, torn or loose covering materials or dust-jackets, or embossed, reversed or limp bindings.
- Archival material with tears, decaying self-adhesive tape or protruding material e.g. a print slipping out of a portfolio or album. Brittle material, folded items and documents with seals.
- Warped or distorted material (which may need special packing).
- Items at risk because of their construction or contents e.g. albums, braille books or pastels.

Material should be assessed by an experienced conservator, preferably working with a member of the library or archive team. Protective enclosures and labelling should also be assessed and upgraded if necessary.

Damaged material should be stabilised prior to the move. A programme of in situ conservation may be advisable, especially if repairs or custom-made protective boxes or other enclosures are required. The work can be carried out by conservators, trained staff or volunteers, depending on the complexity of the work required.

**Cleaning**

If possible, the collection should be cleaned, at least externally, before being moved. This not only prevents dirt being transferred to other collection items and to the destination storage area, but also provides the opportunity to inspect the condition of each item before the move. Items may be dry cleaned, using brushes made from natural fibres, such as pony hair or hog’s bristle, smoke sponges or a vacuum cleaner with a HEPA (High Efficiency Particulate Air) filter and variable suction control, preferably made to an industrial specification. Expert advice should be sought on the best method of cleaning and staff should be instructed in the use of tools and materials.

- Those carrying out the cleaning should be trained in book and archive handling and cleaning and should wear masks with a relevant protection factor.
- Overalls or old clothes are likely to be essential.
- If there is a mould problem, personnel should wear close-fitting vinyl or nitrile gloves and masks with a protection rating of FFP2 or FFP3. Ear defenders may be required if vacuum cleaners are in use for long periods of time.

Action should be taken to control pests or mould prior to any move to avoid the recurrence of these problems in the storage or destination areas.

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6 A conservator accredited by Icon, the Institute of Conservation or the Archives and Records Association. For more information refer to Guidelines for choosing and working with a conservator at [www.conservationregister.com/picon-workingwithaconservator.asp](http://www.conservationregister.com/picon-workingwithaconservator.asp)

7 For more information refer to the Preservation Advisory Centre booklet, Damaged books [www.bl.uk/blpac/pdf/damaged.pdf](http://www.bl.uk/blpac/pdf/damaged.pdf).

8 For more information refer to the Preservation Advisory booklet, Cleaning books and documents [www.bl.uk/blpac/pdf/clean.pdf](http://www.bl.uk/blpac/pdf/clean.pdf).

9 For more information refer to the Preservation Advisory Centre booklet, Managing pests in paper-based collections [www.bl.uk/blpac/pdf/pests.pdf](http://www.bl.uk/blpac/pdf/pests.pdf).
Re-housing

Some or all of the collection may well already be protected by a range of enclosures, such as boxes and folders. These may be in good condition or could be damaged or made from poor quality materials. The following considerations apply:

• Existing unsuitable enclosures and packaging may provide enough protection for the move if time and funding are short, but should be replaced if possible prior to the move.
• Even good quality archival boxes may not be appropriate for moving items. A few small items in a large box would be at risk if not properly padded, and the contents of an overfilled box could be torn or compressed.
• Archive boxes should be checked to ensure that their contents are safe and unable to move around within them. Folders and pockets should be just smaller than the internal width and length of the box, even if this means that folders are larger than their contents.
• If time and funding permit, all books that are vulnerable should be put into individual phase-boxes, for example, books with damaged spines or crumbling text blocks. However, adequate packing with acid-free tissue and correct alignment in a crate will be sufficient to protect most material from damage.
• Book covering materials with a damaged surface, such as leather with red rot, should be provided with a phase-box or a melinex®/mylar® polyester wrapper.
• Ties/tapes holding books or bundles of archive material together should be checked and removed if touching the edges of text blocks or documents and the item boxed instead. Any ties with buckles should be removed and those tied too tightly retied properly.
• Small-format books are particularly at risk and may require the box to be lined with an inert polyethylene foam such as plastazote® with recesses cut out to hold them.

9 Packing

The time it takes to pack a collection will depend on a number of factors. The height of the shelves, the number of people available and the method/degree of packing will all have an impact. A practice run on one or two shelves will allow you to estimate the time it takes to line a crate, remove boxes of archives from high shelves, wrap and crate books of various sizes, or protect oversize items. Working in teams in a production line will speed up the process. The safety of the collection must be of primary importance and whilst careful packing may take longer it will save money in the long term.
• Items in good condition may need no packing, whereas anything damaged or with fragile components may require a high level of protection.
• Oversize items may be too large to fit into standard crates in which case custom-made crates may be required. It may be advisable to categorise items according to size, especially if space is a problem.
• Time spent organising the workspace and ensuring that equipment, such as work surfaces and lighting, is close to the items that need to be packed and fit for purpose saves time during packing and protects personnel.

**Equipment and materials**

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

<table>
<thead>
<tr>
<th>Equipment and materials</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acid-free tissue – unglazed, in sheet form (preferable for most items) or in rolls</td>
<td>Protection of vulnerable items, by wrapping or padding out excess space.</td>
</tr>
<tr>
<td>Archival manila paper (300gsm)</td>
<td>Protection by wrapping or interleaving between items.</td>
</tr>
<tr>
<td>Bubble wrap – small bubbles. In a range of widths and lengths. Match size to crate sizes.</td>
<td>Protection of wide range of items. Lining crates. Smooth side should face towards collection items. Not usually in direct contact with collection items.</td>
</tr>
<tr>
<td>Bubble wrap – large bubbles.</td>
<td>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.</td>
</tr>
<tr>
<td>Cable ties – minimum size 200 x 8mm (but check crates). May be different colours to help identify different parts of collection.</td>
<td>Security of crates. Laced through handles but care must be taken not to impede carrying.</td>
</tr>
<tr>
<td>Cardboard boxes</td>
<td>To hold items that have already been wrapped. Cannot be stacked.</td>
</tr>
<tr>
<td>Cotton tape</td>
<td>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.</td>
</tr>
<tr>
<td>Foam padding – inert polyethylene foam, such as plastazote®</td>
<td>Can be used to reduce movement and vibration within boxes or crates.</td>
</tr>
<tr>
<td>----------------------------------------------------------</td>
<td>------------------------------------------------------------------</td>
</tr>
<tr>
<td>Ladders</td>
<td>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.</td>
</tr>
<tr>
<td>Masking tape</td>
<td>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.</td>
</tr>
<tr>
<td>Plastic crates – high density polypropylene with lids (attached or separate). No ventilation holes at base.</td>
<td>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.</td>
</tr>
<tr>
<td>Strapping – polypropylene, 1cm wide, non-serrated metal seals. Tensioner, sealer and coil holder also required to use this method.</td>
<td>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.</td>
</tr>
<tr>
<td>Shrink wrapping/Vacuum packing</td>
<td>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.</td>
</tr>
<tr>
<td>Tables/ Working surfaces</td>
<td>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.</td>
</tr>
<tr>
<td>Trolleys</td>
<td>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.</td>
</tr>
<tr>
<td>Wooden tailor-made crates with inert polyethylene foam lining. May be environmentally conditioned. Expensive to buy but may be leased.</td>
<td>To protect items sensitive to changes in RH and temperature. To protect difficult-to-pack items. To protect oversize items.</td>
</tr>
</tbody>
</table>
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:

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

10 For more information on suitable storage materials refer to the Preservation Advisory Centre booklet, *Preserving historic photographs* [www.bl.uk/blpac/pdf/photographic.pdf](http://www.bl.uk/blpac/pdf/photographic.pdf)
| 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 specially-made 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.

Archival material

• Archival material may already be protected by boxes, folders, tubes and other enclosures, either because it is already well-housed or as part of a pre-move stabilisation programme.
• Boxes should be checked to ensure that their contents are safe from being damaged within the box if being moved.
• Acid-free tissue puffs may be used as extra padding if necessary.
• Any unboxed archival material should be wrapped in acid-free tissue and crated in smaller crates to avoid compression in large crates.
• Flat works may be wrapped in tissue and sandwiched between pieces of archival or mount board for protection and support.
• Photographic material should be wrapped in photon™ or argentia paper, or melinex® or mylar® polyester, not acid-free tissue.
• Boxed archives should be put in crates lined with bubble-wrap to protect them and to make it easier to carry several at a time.
• Tubes may be bound together with webbing straps or placed in crates or stacking trays.
• Tissue-wrapped items should be stacked with larger, heavier and more robust items at the bottom of the crate and lighter, more fragile ones on top.
• Any wedge-shaped items should be stacked with thick and thin ends alternating.

Books and bound volumes

• Rare books, loose archival material or bindings with torn or flaking covering should be wrapped in acid-free tissue, to prevent abrasion and loss of material, and to provide some cushioning during transit. Sheets of unglazed 1000 x 750mm tissue should be used, as these are big enough for most items and can be halved or quartered for smaller items.
• Books should preferably be moved lying flat, as in this position jolts cannot cause movement of the text block within the boards and thus put undue strain on the binding structure. However, this is more time consuming than packing books upright or on their spines in shelf order in crates, especially during the unpacking phase, and thus more costly. Should time and financial constraints make it impossible to lay books flat, most books can be laid on their spines but care must be taken to protect those with weaknesses caused by deterioration or whose weaknesses are intrinsically part of their design, e.g. limp or yapp-edged bindings. It may be possible to combine
methods and pack weaker books flat and stand those with more robust structures on their spines or upright. An assessment of robustness can take place during cleaning.

- Braille books should be transported upright, with plenty of padding, such as large bubble-wrap beneath them.
- Albums require special attention and should usually be laid flat, without any heavy objects on top, so as not to compress contents, which may vary in thickness and fragility.
- Tissue-wrapped books should be laid flat in the bubble-wrap lined crates, spine to fore-edge and not fore-edge to fore-edge. This will prevent boards digging into text blocks should the crates be jolted. Once the crate is full, excess space should be packed out with bubble-wrap.
- Books too large to fit into crates should be individually wrapped first in acid-free tissue and then in at least two layers of bubble-wrap and placed in open stacking trays, such as bakery trays.
- Vulnerable oversize books should be wrapped in several layers of tissue and four separate layers of bubble-wrap. Identification of large items ahead of schedule is important in order to know how many trays will be required.

Once each storage area is emptied of its contents, there should be a thorough search of the shelves and the spaces behind and beneath them to find any pieces of archival material or bindings which have become detached. These should be kept in clear, self-sealing, bags, labelled with the shelf number, so that there is a chance that the pieces may be married up at a later stage. The bags may be made of polythene, but polyester should be used if storage is likely to be long term.

10 Moving

If library or archive staff are packing and crating the collection, a removals company should be brought in to carry the crates to the lorries as well as to drive them from one location to another. Crates are generally very heavy and should not be moved by those unused to lifting weights all day. 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.

11 Conclusion

Packing and moving a collection is hard work but it cannot be emphasised enough that preparation and planning with all those involved is the key to a successful move. Appointing project managers, liaising with a range of departments within the organisation and with external contractors and advisors, and planning and budgeting as far as possible in advance of the move, are essential to the smooth running of the whole operation. The careful selection and training of personnel will ensure that the potential for harm to both them and the collection is kept to a minimum.

Additional reading


Fortriede, S.C. Moving your library: getting the collection from here to there, Chicago: American Library Association, 2010


Preservation guidance booklets

The following booklets can be downloaded free of charge at www.bl.uk/blpac/publicationsleaf.html

Free printed copies are also available.

Basic preservation for library and archive collections
Building a preservation policy
Cleaning books and documents
Damaged books
Library and archive storage furniture
Making the most of funding opportunities for preservation and conservation projects
Managing pests in paper-based collections
Managing the library and archive environment
Mould outbreaks in library and archive collections Moving library and archive collections
Preservation of photographic material
Salvaging library and archive collections
Self-service copying of library and archive materials
Understanding and caring for bookbindings
Using library and archive collections

The Preservation Advisory Centre promotes the benefit of good preservation practice and provides support in the form of information services, training and preservation management tools.

www.bl.uk/blpac