

DESIGN AND MATERIALS FOR PHOTOGRAPHIC HOUSING

by

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There are many complex issues that pertain to the physical housings used to contain a photograph collection. Information on this topic is varied and hard to obtain, yet there is a growing need for this information to be widely available, especially for workers in the archival, photographic, museum and cultural heritage community. The goal of this Professional Practice Project was to create an applied guide illustrating the care of photographic collections that could be used as a resource by professionals in the field. *Design and Materials: Suggestions for Photographic Housing* presents my research and analysis of this area of the field as well as an illustrated guide that is intended to be used as a future resource by professional collection managers responsible for large scale photographic collections.

I would like to sincerely thank a number of individuals for all their help and support in completing this project:

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Supplemental Guide

Design and Materials for Photographic Housing

As rugged as they may appear, photographs need to be treated carefully in order to survive for future generations. In as much as temperature and humidity play a large role in their longevity, storage also plays an integral part in the preservation of photographs. How a collection is enclosed, or housed, provides is a major factor in the overall care of the collection and allows the user to be more respectful of the objects at hand. Photographic housings, or enclosures, are designed to help protect the image from light, handling and also abrasion from adjoining images or surfaces. The premise behind them is quite basic, yet they have proven to be essential as a preventative measure in a collection's care.

Photographic enclosures have gained significant importance within the last 30 years. Prior to that time, an assortment of housing techniques was used that allowed for attractive display or ease in handling, although these housings were composed of materials that were not sympathetic to the photographs they contained. Traditional black paper photo albums were composed of highly acidic black paper, which has proven to disintegrate long before the photographs have. "Magnetic" albums, although functional, are manufactured using materials that may cause damage when used for the long-term storage of photographs¹. Cellulose Acetate print sleeves produced by Kodak, at one time highly recommended, have deteriorated over time and must be discarded. In addition, adhesives on paper envelopes have also bled through the paper they bonded with, and too have been found to damage images over time. As a result, the suppliers of materials for photographic collections have been pressured to provide materials that are inert which prevent further damage and deterioration of photographic collections.

The Photographic Activity Test, or PAT, was developed in 1978² in response to growing concerns about the supplies used to house photographic collections. It was designed to investigate materials kept in contact with photographic objects that contained gelatin silver. The PAT would ensure that photographic objects kept in long term storage

¹ Ritzenthaler, Mary Lynn. "Storing and Housing Archival Materials" *Preserving Archives and Manuscripts*. Chicago: Society of American Archivists (1993), 86.

² Lavédrine, Bertrand. *A Guide to the Preventive Conservation of Photographic Collections*. Los Angeles: Getty Publications (2003), 37.

adjacent to such materials would not be deteriorated any further as the result of byproducts from the materials used to house and store the photographs. These tests have been approved by both ANSI and the ISO³ and are still actively employed today. There is no procedure available to test materials that are in contact with non-silver or non-gelatin photographic processes, such as dye transfer or platinum processes. If the photograph being housed was created using a non-silver or non-gelatin process, ensure that the purest quality paper is used, preferably with a high concentration of alpha cellulose.

As new collections emerge and collections managers become aware of photograph deterioration, there is a growing need for knowledge and resources about how to properly house a photograph collection. In addition, existing collections managers are always interested in current techniques and innovative approaches to properly caring for their photographic objects. Some techniques are 'ready-made', such as carefully sized materials available from archival suppliers, while others need to be custom-made to properly fit in a specified space, or to suit one or more photographic objects. Finding information on this topic is a challenge, as a collection caretaker needs to be in contact with a conservator, or a highly trained individual, knowledgeable in the best practices in this area. Otherwise he or she must rely solely on advice and help from archival suppliers, who are seeking to sell products first, and help to the consumer second.

My research problem's initial focus was to delve into what was available as reference material, in order to help collections look after their images. Having a strong personal background in collections that deal with photographs more for informational value rather than as fine art, I chose to focus my research on sources that discussed caring for large quantities of collections, as opposed to individual prints.

Upon finding such a limited quantity of information on storage options, I asked myself what exactly was missing from current material that should be made available to

³ ANSI Standard PHI.53 (1978) and ISO Standard 6051:1979. Lavédrine, 39.

help other collections? My objective was achieved by creating a guide to assist collections in providing better care for their materials. This guide is focused on what I felt was missing from technical information available. It employs examples of how collections are currently housing their materials and also provides better information about creating custom housings for objects requiring non-standard enclosures. Based on primary research in major North American photographic collections the guide can be used as a resource on how to properly care for a photographic collection, in terms of the materials and methods used to house the objects.

Literature Review

In order to complete my task, I was obliged to read all available literature on my topic. In particular, I was looking for material that clearly defined what collections were actively doing to house their photographic materials. Furthermore, I wanted to obtain a better understanding of what materials were available to use and how decisions were made to use them. As diagrams illustrating custom containers were very difficult to find I was also looking intently for this type of information.

I began this process my investigations with what printed information did exist. Material on this topic was limited and difficult to obtain, as this information was often distributed in a sporadic manner. I became dismayed with what little information existed.

The best information I could derive was not from books, but from technical notes available as Adobe Acrobat (.pdf) documents on the Internet. These guides are produced by expert conservators in the field of conservation, designed for people who need practical advice. Because they are available via the World Wide Web, the information is often updated when necessary. The disadvantage to technical notes is that they are often very specific – users must have a precise goal in terms of what they are looking for before utilizing these guides.

Leaflets produced by the Northeast Document Conservation Center (NEDCC) were helpful. The information was concise and accurate and gave the reader an excellent set of tools from which to work. One guide of interest contained instructions on making custom boxes for small books, which could be easily transferable to a small photographic album. Not only were the instructions clear, but they also included sources for obtaining supplies.

Comparable Canadian sources were technical leaflets written by the Canadian Conservation Institute. Although the information is similar to what is produced by NEDCC, they are of equal quality and just as easy to access. The success of these leaflets is that the information is concise and easy to understand, allowing the reader to absorb information and apply it quickly.

Material in book form was the most challenging to obtain. Only a handful of books were found that alluded to my topic. These included the following:

“Storage and Housing Archival Materials” in Mary Lynn Ritzenthaler’s Book *Preserving Archives and Manuscripts* was the one of the most comprehensive textual sources I was able to locate. This chapter spends a great deal of time discussing a variety of storage materials that should and should not be used in photographic collections. The language used is simple to comprehend and suggestions easy to implement. That being said, visual examples of housing were too few for my needs and a large part of this text is dedicated to shelving requirements.

Siegfried Rempel’s *The Care of Photographs* was another source of information. His chapter on “Housing Photographs” was fairly extensive, with a focus on what paper and plastic products to use. Mention of product names and suppliers, primarily Conservation Resources, was found to be a helpful source of information. Conservation Resources are still in business today, a relief to users of this piece of literature, considering that the book was published in 1987. Although Rempel outlines scenarios about how to house different collections, the only illustration she includes demonstrate various hinging techniques for matted prints, a topic not covered in my project.

A Guide to the Preventive Conservation of Photograph Collections by Bertrand Lavédrine was used as one of our main textbooks during the Photographic Preservation and Collections Management course. This book contains a vast amount of information and specifically, information that collections managers should be aware of and using as a resource. Chapter 3, titled "Enclosures", delved in great detail, into the entire spectrum of housing, from the raw materials used to make enclosures to the physical conditions in which to contain photographs. Little attention, however, was paid to custom housing diagrams. Three were included (pg .55) with no instructions on how to physically construct these objects. Recommendations for how to store objects were useful primarily for the most ideal of situations.

Books, Boxes and Portfolios by Franz Zeier was an interesting book, particularly for the number of simply illustrated diagrams used for container construction that were easy to follow. Unfortunately, it was not something I could gather a lot of information from, because the containers listed did not necessarily pertain to photographic objects. What was useful, however, was how information was visually presented, which allows the reader to apply immediately. Accompanied by written step-by-step instructions, this text was useful to draw upon for the guide I wished to create.

Analysis of the Problems/Issues

1. Research and Analysis

It became obvious after searching published materials that I would have to do primary research on my topic. It was necessary to visit collections to determine what was actively being done to house their photographs. Through seeing what methods other collections were employing, I could provide housing ideas for experienced collection caretakers and a better overview for novices. By meeting professionals in the field who had created their own systems for specialized housing of photographs, I know I could assemble relatively unknown information and pass it along to others.

I then had to determine how to select which institutions I would visit and where I would complete my research. I really wanted to focus my efforts at institutions that carried images more for informational value than fine art. In other words, photographic collections of this nature are usually larger in scale and the institution amasses large quantities of photographs for the historic value of the subjects described in the images. Photographs are collected as historic documents as opposed to visual objects that express or interpret; informational images are useful on their own and can accompany textual information. They serve as a document for an event, object, individual or locale. There is not much learning or improvement to be made in this area since they are all cared for so similarly, hence the need to not produce information that is repetitive to what is currently available.

The first two institutions I chose to visit were the Archives of Ontario, in Toronto and Library and Archives Canada in Ottawa. I had been previously employed by the Archives of Ontario and knew of decisions they had made that I wanted to highlight in my work. They are also the second largest public archives in Canada, with a collection of over 1 million photographs. Library and Archives Canada is the largest public archives in Canada with a collection of at least 22 million photographs and dedicated staff and facility for collection preservation.

My next determinations about the other collections I wanted to visit were, in part, based on my limited travel budget. It was highly recommended that I visit the J. Paul Getty Museum and The Getty Research Institute in Los Angeles, California, both leaders in innovative photographic collections care. However, I could not justify the cost of traveling for such a long distance in order to spend only a couple of days there.

After being invited to attend a workshop in Washington D.C., I decided it would be advantageous to visit other institutions during my time there. One of my classmates, had lived and worked in Washington D.C., and assisted me in contacting institutions that I had selected. These included the Smithsonian National Museum of American History and the Smithsonian Institution Archives. Both are well-established institutions with a vast collections of photographs.

After contacting both of these institutions, the head of photographs at the Smithsonian National Museum of American History contacted other Smithsonian institutions on my behalf to see if anyone else were interested in assisting my research. I then received a response from the Smithsonian Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Although a smaller collection, they were eager to help and had some interesting material that could be seen as both informational and fine art.

Having selected five institutions, I was confident that I would be able to carry out the necessary research and create a reasonable overview of my subject area.

I decided to approach all the institutions I chose in the same fashion. I contacted each institution via email and attached a small spreadsheet of the types of housing I wished to see. This spreadsheet⁴ included the image type, possible types of housing and a couple of point-form questions that pertained to that style of housing. I kept my overall list quite broad, asking to see as many types of material as possible. By taking this approach, I could still see a wide range of photographs and housings and complete more research. It could also allow me to be specific at a later time, if I felt that I acquired enough information on one type of housing that I might not have expected if I had narrowed my focus beforehand. This process enabled me to reflect on what information I needed to obtain and how to write about it - an aspect I found more challenging than I anticipated. Each institution I passed this list along to commented on how helpful the spreadsheet was and gave them a very clear idea of what I was looking for.

After gathering my data, I grouped my research by what specific photographic formats were being housed. By doing so, I could compare housings to determine how each enclosure suited the photographic object.

By way of an initial analysis, housings could be viewed as being 'similar' or 'diverse'. Similar housings constituted enclosures that only had slight variances in the different collections. These consisted mostly of negatives, slides, stereocards and albums.

⁴ See page 22 of the guide book (attached)

These photographic formats were fairly straightforward in their collections' care and had few variations in the methods and materials to house them. They are explained further in the published guide⁵. These similarities were never regarded as a negative, but more of a readily solved challenge by photographic collections.

Diverse housings consisted of photographic objects that had a wider range of housing solutions, and were noted in photographic processes that were more challenging to house or required special attention because of damage or deterioration. These included photographic prints, glass plate negatives and panoramic prints. The variances in standard prints were subtler and although they consisted of the same materials, these changes were innovative and assisted the user in different ways. Of all the housings selected, those for glass plate negatives were by far the most varied. This was mostly due to the nature of the glass being so fragile, and the complexity surrounding how to care for broken glass plate negatives. Small glass plates were treated differently than their oversized counterparts and likewise broken images were treated differently than intact images. The published guide⁶ explains in much further detail the range of variances encountered.

Custom housing diagrams were the most difficult types of information to obtain. Many institutions only had a small number that they used for their own reference, and most often these were variations on the same style of container. I deduced that the same containers were being made again and again, and adapted to each individual requirement.

I noted with interest that the information on the custom housing diagrams that I found rarely made it outside the institution where it was developed. As far as I could tell, the reason for this was that the conservators that had developed the design would usually distribute the information to those inside the institution that were going to use it. Diagrams were often hand drawn, with varying amounts of descriptive text. Measurements were often in centimeters rather than inches due to the fact that the metric system was more conducive to obtaining small measurements more accurately. Other diagrams indicated to

⁵ See pages 337, 43 and 52 of the guide book (attached).

⁶ See pages 45-49 of the guidebook (attached).

add exact measurements for thickness of board, or some labeled 'TB' (thickness of board) making it necessary for the user required to compensate his or her own extra widths. I did not anticipate to what degree I would need to standardize the instructions I wished to put in my own guide. I felt by giving the custom instructions the same look and feel, not to mention a similar method of describing how to make each custom enclosure, would create a more cohesive instructions and would allow future readers a better understanding of what to create.

2. Guide Analysis

In addition to completing my research, I was also in the process of my preliminary planning stages for the guide I wished to produce as the end product. The aim was that a range of collections care audiences would find this book of some use. It had to include information that was basic enough for the novice as well as a reference guide for the expert. There was no information in existence that mirrored what I was attempting to create and I felt that this project might not include everything, but would provide an initial framework to build on at a later time.

The structure of my guide was *design* and *materials*. Good design and excellent materials together are the keys to successful housing. If one of the two were poor quality, it would result in a mediocre end product. By using these terms in the title of my guide, the importance of their interdependency is emphasized and the terms also provide an element of structure to the body of my guide.

The first section I felt necessary for the guide is a brief guide in photographic collections care. Designed for the novice, it serves as an introduction to the 'housings' portion of the guide. It outlines what aspects should be taken into consideration when planning to care for photographic objects (see guide Part A, pages 11-21) The emphasis is not to create a lengthy document, but to include points that would guide collections managers in how to think about their collections overall and how to keep in mind a number of aspects when planning their actions. The information presented is developed

through discussions with my advisor Jiuan Jiuan Chen, and from information learned in graduate school through a variety of sources.

Before discussing information on housing ideas, I felt it was imperative to include information on the housing options and materials available through archival suppliers. Products used cannot be found at local stationary stores and it is of the utmost importance that quality materials be utilized. When browsing through the catalogues supplied by these retailers, it is easy for the consumer to feel overwhelmed by the choices and products, especially when the consumer has little experience. I created a table of several products that are very popular within collections, with brief information that was in the 'pros' and 'cons' of each product. Information on the whole is positive, but there are aspects listed that could be problematic in certain situations. It remains the responsibility of the consumer to select the items they wish, but with this chart, they will make more educated decisions on what to select.

I also chose to do a brief price comparison of different products. Every collection must be aware of how much money is being spent, and that certainly rings true with selecting housing materials. I selected sizes or shapes that were comparable and listed the difference in price, which could be negligible or significant, depending on the item. At a glance, an individual can grasp how much products cost and plan accordingly.

The most predominant section of the guide is directly linked to the research completed. For each object that needs to be housed, a brief written portion describes the provided examples. Each example is also shown visually in two ways – first, with a photographic representation and secondly, with an illustration displaying the construction of the enclosure. If a reader wished to construct what he or she sees, limited instructions are provided, in addition to the materials used. The reader has the option of applying the example directly to the collection if appropriate, or potentially adapting an idea to suit his or her own needs.

The final section pertains to the custom housing directions. Brief discussion is provided to describe how each housing construction would be best utilized, with visual instructions on how to construct the container included.

Summary Discussion and Concluding Remarks

Completing a book for a thesis project is creating two bodies of work. The first being the guide itself and second the research and analysis that accompanies it. I developed this project because I knew there was a need for a guide of this kind in the field of photographic preservation. I also felt confident that I had acquired the necessary prerequisite skills and knowledge to create such a guide and was very excited by the prospect of undertaking primary research on photographic housings.

As discussed at different points throughout my master's education, information in photographic preservation has many weak areas; by becoming a professional in this field, I can assist with creating new published sources for individuals to draw upon. My guide is the first step in this process.

Completing my primary research, I had the opportunity to ask what I wanted to learn and see first-hand how collections are actively housing their photographs. It also presented me with opportunity to create my own images to include in the guide. One difficult task was being able to take the most attractive and useful photographs for my purpose. Space to properly view the objects was at a premium in all the collections visited, and in some situations, material was never fully retrieved from the shelves it was stored. In situations where I had the luxury of time and space, I was able to create better photographic documentation of the housings examples presented to me.

Analyzing my findings was a rewarding and interesting task at all stages. Firstly when all the images of one housing were viewed together, it created an immediate learning tool on housing materials. Even before adding written information and diagrams, small and informative pieces of information had already begun to present themselves. Knowing that I alone had access to this privileged information intensified the discovery.

The process of evaluating the degree of variance in each housing illustrated that not every technique had to be radically different to be successful. I had presumed that different institutions would employ similar techniques, yet their subtle differences were more ingenious than I had imagined. I could have never foreseen the range of housing techniques for glass plate negatives, with different solutions depending on size and fragility. I feel that I learned the most from these instances.

If this project could be altered at some point, it would be beneficial to visit other collections and then have more housing examples to select from. The more examples that are seen, the more selective one can be when choosing appropriate housings.

I suspect that this project will prove to be a useful tool for my future career in photographic collections care. Throughout the process of my research, several people have asked me detailed questions of what I have learned and are eager to obtain my results. These comments have not only been an encouragement to my work, but also an affirmation for the need for more practical information on photographic housing information. There is no doubt in my mind that my research will be beneficial for many photographic collections.

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Design & Materials

for Photographic
H o u s i n g s

Dee Psaila

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Please note: this guide is designed to be 6" x 9". An edge marking has been inserted, noting where the pages should be cropped. My apologies for any misunderstandings this may cause. - DP

Acknowledgements

I would like sincerely to thank a number of individuals for all their help and support in completing this project:

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All of the institutions who helped me considerably and welcomed me with open arms into their collections, including Shannon Perich at the National Museum of American History, Sarah Stauderman at the Smithsonian Archives, Martha Smith at the Smithsonian Freer Gallery of Art and Arthur M. Sackler Gallery, Stuart Boden at the Archives of Ontario and Ginette Bonneau, Tania Passafiume and Alison Bullock at Library and Archives Canada.

Informative conversations with Dennis Inch at Archival Methods and Glenn Williams at Carr Mclean Limited.

My family, JADAS and to John – you were there with unwavering support for which I can't thank you enough.

Introduction

Preserving a large photographic collection is a major task, involving a number of problems and concerns. While the range of photographic formats and media has changed considerably throughout the history of photography, there are many aspects of the medium that have remained constant. For example, the photographic photograph resides in an emulsion that is supported by a base. Although the object is relatively stable, it is still susceptible to damage from over-handling, improper storage environments and housing materials. Due to the escalating value of photographs, proper care of photographs has become a higher priority than ever before. With some relatively simple solutions, the longevity of the photographs can drastically increase.

This book is directed at collections that have a large number of photographs with little information about how to house and care for them. For individuals or collections with few contacts in the area of photograph preservation, it is next to impossible to determine what steps other collections have taken to house their photographic objects. Any written information tends to be either material specific (how to house a particular photographic medium) or housing specific (the types of materials and supplies that are available). Texts typically show limited examples of what can be done without really discussing more important issues, such as cost, space and accessibility, issues which collections that have actively preserved photographic collections for some time are quite familiar with.

Since every photograph collection has problems or concerns that pertain to the individual collection, this book can only be used as a guide. Its goal is to provide ideas on how to

approach housing and the materials involved. By learning through example, one can see the range of possibilities a collection can consider and that are actively being used. In addition, one collection could get an idea to customize their housing approach that they might not have considered otherwise. Unless the materials used are improper, there is no such thing as a 'wrong answer' when it comes to housing. Materials should be appropriate for the photograph, the housing should be reversible – that is, the photograph will not be destroyed when removed – the materials and construction time should be allocated efficiently. Anyone should be able to approach the housings you have created and understand how to use and reassemble it.

In some situations, preliminary care has been taken by the creator or another collection manager to care for the collection; this does not have to be removed. In other circumstances, the photographs may need immediate attention, as no proper care has ever been implemented. You need to assess what is a good or bad decision and how to change it if necessary, or why to keep it 'as is'.

Although this book is aimed at a beginner audience, in respect to photographic housing, it does assume knowledge of photographic media. Some books are recommended in (See Recommended Readings and Resources) to help identify particular formats. If there is any doubt about what types of media you are dealing with, the help of a conservator or photographic media expert is highly recommended before commencing. In addition, if severe deterioration problems are visible (through smell, mold, flaking of photograph, etc) these materials should be segregated and the help of a conservator is highly recommended.

For those users who need more help making decisions and learning how to care for a collection it is recommended to start with Part A, Caring for Collections. This section is designed with the aim of helping users learn how to think about housings. Part B, Housing Suggestions, explores and illustrates methods and housing employed by various institutions. Part C, Housing Diagrams, includes drawings of custom containers to help with outfitting your collection. This guide is intended to be used on an "as needed" basis. The illustrated examples present solutions from a variety of collections and ideas that can be applied literally adapted to individual situations.

Design and Materials for Photographic Housing is a summary of research collected from five different photographic collections. The ideas represented are not my own, but taken from examples that are currently used in the collections referenced. Any illustrations created were designed to more clearly represent any of the concepts presented.

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Part A – Caring For Collections

Congratulations! You are the caretaker of a photographic collection. Even if your role seems mundane and repetitive, you are still playing an integral role in the longevity of the photographs at hand. It is a very important responsibility and future generations will benefit from the time and attention you are giving to the photographs under your care.

Overseeing a photograph collection should not be a daunting task. For people who are not familiar with the variety and types of photographs, it is easy to see how one might feel inadequate for the job or overwhelmed by it. Housing photographs can be a complex issue, but it shouldn't be. The most important aspect is learning how to think about the many issues that arise in their care.

This guide deals solely with the housing of photographs. There are many other concerns that go with maintaining a collection and housing is only one aspect. The following sections outline the many concerns that should be addressed when planning or actively taking action to house a collection. Depending on your situation, some points may be more relevant than others, and some things may not apply at all. Over time and through experience, these points will hopefully become second-nature when planning future actions for a photograph collection.

After understanding some basic characteris-

tics of the photographs at hand, the next important step is to address the needs of your collection. As much as it is important to give the photographs the best care you can, you have to ensure that you work within the parameters of the existing collection.

Photograph Concerns

Identification

Can you tell the difference between the photographic processes in your collection? As basic as this sounds, this is one of the most important aspects of dealing with a collection of photographs. Identification is key to working with photographs. Since not all photographs are made the same, knowing about subtle variations can assist in their proper care. For example, the physical difference between nitrate and acetate film supports are very subtle, yet their chemical makeup is quite different, making one of them, nitrate, a fire hazard.

If you are new to caring for collections, this is something that shouldn't be overwhelming. It is not important to know of every photographic process that ever existed, but knowing the basics is key. Similarly to today, the processes that have been used the most, and are therefore found in a majority of collections, consist of processes that have been commercially successful and were used for many years before being discontinued and replaced with newer, better systems. Since it was first announced in 1839, photography has been a medium that uses light sensitive materials. With the exception of recently developed digital media, photographs

are made up of a number of different layers. There is always a support layer, which can be made of glass, metal, acetate, paper, or various other medias. This provides support to the photograph. Some papers contain a baryta layer, composed mostly of barium sulphate in fibre based photographs and a pigmented layer in titanium dioxide in resin coated photographs. This is used to smooth out the paper surface and help with brightening highlight areas of the photograph. The emulsion is usually the top layer of the photograph, which contains the sensitive material that is used to create the photograph. The purpose of the above information is to stress that there are several layers that make up an image.

Knowing the various layers of the photographic object in terms of housing is important, as each layer must be considered during the housing process. Emulsion surfaces may react differently than the support layer, depending on the housing situation. Housings suggested in this guide are appropriate for all layers of the photograph. If necessary, further training is highly encouraged before working on a collection.

By learning about the different processes, you can then take the next step of learning about how each process has lasted over time and the signs of deterioration to watch out for. By taking this initiative, you can have a better handle over your collection and be proactive in its care long before any deterioration occurs. The care of a collection lasts for many years and housing is only

the first step, albeit an important one.

Being aware of what an photograph is composed of and how it might deteriorate could play a role in what type of materials are best suited to house your photographs. One instance would be selecting between buffered or non-buffered board. For instance, knowing that a material is are prone to release acidity over time, such as cellulose acetate and cellulose nitrate, would indicate that such materials be best kept in buffered enclosures that act to neutralize this acidity caused by deterioration.

Size and Condition

A general rule of thumb is that photographs of like sizes are stored together. This allows for less shifting in a container, and for items to be stored as compactly as possible. Items from different collections kept together should be properly identified on the objects and through a finding aid before combining. In addition, photographs that are broken, fragile or experiencing advanced deterioration should be segregated in their own containers. This allows for less damage throughout the collection and for easier access when necessary.

Handling and Care

Always remember to handle photographs carefully, touching photographs by their edges only. Although cotton gloves are most common for handling, other gloves, such as latex or nitrile, are equally as acceptable, as they all protect oils from transferring to photograph. In all cases, never touch the surface

of a photograph.

If photographs are held together using fasteners, such as staples, paper clips or elastic bands, these should be removed if they are causing damage to the photograph. In some collections, photographs are fastened together for a reason, such as they may pertain to particular text documents, or they were arranged together on purpose; these items should stay grouped together (either physically or intellectually) and separated if necessary. Consult a conservator to determine if fasteners should be removed. If they are causing harm to the objects, carefully remove the fasteners. Any information pertaining to the photographs should be written on the enclosure and not on the photograph. If information must be written on the photograph, keep it to a minimum. Use a 2B pencil and as close to the edge on the verso as possible, without pressing too hard into the paper surface.

Collection Concerns

Shelving and Environment

The manner in which a collection is housed should reflect the items stored in it. Human comfort should be a secondary concern. Shelves should be more utilitarian in purpose than aesthetically pleasing, and should be made out of metal, preferably with a powder-coated painted finish. Wood is an unacceptable material, as it can always pose the threat of carrying and housing insects, not to mention that many woods offgas oxidants such as formic acid that can create a potentially harmful environment for your

collection. Shelves should allow for air flow around the objects and have enough space between them to comfortably allow for small ladders and carts to handle and transport objects. In areas that have potential for earthquake damage, ensure that shelving is secured to walls if necessary.

Expansion

In addition to the current storage conditions, room for future acquisitions should also be a consideration. Collections may arrive at an institution in a few boxes. Once you begin to organize and arrange the photographs its size will quickly begin to grow. That means that once photographs are stored in a more linear way, the area they take up will increase. Once you decide how to physically store your photographs, the collection will grow even further with the inclusion of proper housing. For example, if you have a number of 4"x5" negatives, the best practice will be to store each photograph in its own envelope. You then have to factor for the amount of space for the photographs, in addition to the number of envelopes and how much room they will take up.

If you are working in a collection that you expect to be acquiring more photographs in future, you will have to consider expansion of your entire collection. The space you have now will slowly diminish as more material comes in. The last thing you want to do is use up all the space you have now to house a collection, not to mention spending the money on all the supplies and labor to complete the task, only to take it apart in

5-10 years and devise a new way of storing it that would be more space effective. Make sure what you plan is the most effective as well as the most compact.

Money

There is no question that housing a photograph collection is expensive. The photographs themselves are objects worth investing in, and their worth should be reflected by how they are cared for.

Caring for a collection properly takes time and no one can be expected the luxury of housing an entire collection all at once. Especially if money is an issue the best approach is budget by priority. If you are aware of the signs of deterioration of photographs in your collection, photographs that show the most progressed signs of deterioration get re-housed and cared for first. In order to determine what photographs are in need of attention a collections survey, while possibly being a daunting task, is well worth the effort. Photographs that have to be properly stored at a later time can be transferred to a temporary acid free container and kept in a cool, dry place until you have time to give them proper care.

When investigating the best method for housing, it is crucial to remember that there are several methods to house objects, some being more expensive than others. Archival suppliers recognize this concern and offer different products that can complete the same job at different price points. Some products may be worth spending quite a

bit of money on, while lower cost solutions may be sufficient for others. It is up to the collection to try out different supplies out, read reviews and consult other respected sources.

Once you find a product that you like, often it is available for less money when purchased in large quantities. For example, Mylar is available by the roll and can be cut to size when needed, which may be more economical than buying pre-made sleeves. Envelopes and containers can often be bought in bulk. Remember – once you order the supplies, it is imperative that you have physical space to store these items. Even if it is a good deal, if you do not have a place to put the materials, it is not worth spending the money on them until they can be used or stored properly.

Time

Time may be one of the obvious factors when planning to house a collection, but it can often be underestimated – both in terms of importance and amount needed to complete a task.

First off, can your housing task be done by a volunteer or contract worker? Or would you feel better employing an individual who has specialized skills to handle photographs? If the individual in question has never worked with photographs before, can you take the time to train them how to carefully handle them? Depending on the fragility or deterioration of the photographs this may be an important consideration.

People often wonder how long a task will take to complete. This is hard for anyone to determine, as it depends on his or her experience and work ethic. It also takes time for a worker to master a job, no matter how repetitive. After the first week of work, it should be clearer how long the task will take. Keep in mind that unexpected problems often arise and this needs to be factored into your timeline or schedule.

Lastly, if the photographs have information that requires transcribing, this will lengthen the amount of time needed to complete the task. Original information pertinent to the photograph should be transferred as accurately as possible, even if it seems irrelevant.

Requested Photographs

If photographs are requested on a regular basis, this might be an area of concern. Photograph handling is the number one cause of damage. Is there a method of housing you can choose or design that will allow the researcher to view the photograph with minimal handling of the physical object?

Digitization

Making photographs available via the computer is not only the way of the future, but creates a whole new way of accessing photographs without accessing the original object. This allows for heightened preservation of the photograph since little handling is required.

If an object is seen frequently, it might be economical to look into digitizing photographs at the same time as housing. It is

much better to handle an photograph once – to scan and house in the same instance– then to go back at a later time and complete the task. Several funding opportunities exist for institutions to digitize their photographic collections.

Housing Materials

Determining what materials to use to house your photograph collection is a major decision. These materials help protect your collection and assist in the preservation of the photographs. Housing photographs are assigned different levels called *primary housing*, *secondary housing* and *tertiary housing*. *Primary housing* covers the photograph and protects it during initial handling. *Secondary housing* covers and contains the primary housing, and is often a container or box.

Tertiary housing can also be a container or box, but would be present if there were two layers of housing before the final layer of protection from environmental elements. Regardless of where they are stored, it is recommended that materials are securely housed and do not shift around, as this can cause further damage. Whatever housing you select, it is important to remember that **your collection should be handled as little as possible**. Making the decision to house materials in translucent materials can also reduce handling, ensuring that these materials are suitable for the objects being housed.

Materials chosen to house your collection are also dependent on what type of photograph you are housing. Some materials respond better than others to the composi-

tion of the housing material. Buffered paper materials are made using calcium carbonate, which neutralizes acids released, as is the case with some black and white materials. It is best to keep some photographic processes, such as albumen, dry transfer and color processes, in unbuffered material as they do not benefit from this extra layer of protection.

The quality of the materials used to protect your photographs should be of the highest standard available. Purchasing envelopes, boxes and other supplies from the local stationary store is not the wisest option, as it is difficult to determine what the materials are made of and how they will react with the photographs. These products may be incorrectly labeled as archival and may not be archival at all. Archival suppliers specialize in housing materials that result in products that are acid free which will actively help to preserve your collection for decades. Several products are tested using the Photographic Activity Test, or PAT, a standard procedure that tests a variety of materials for how they react chemically with photographs that contain silver or gelatin or silver gelatin. However, PAT does not test physical properties of materials, such as material strength, brittleness, etc. Products that pass this test are clearly identified in product catalogues and are highly recommended for use with photographic objects. Testing has not been done on photographic processes that do not contain silver or gelatin, such as with dye transfer or platinum printing. If the object needing housing is one of these other mate-

rials, use the highest quality paper available.

All of these steps take time to plan and complete, but are well worth the effort. Careful planning is beneficial not only for the current task but for future work. It will prevent work being redone at a later date, allowing your time, money and energy to be put into future projects and not into fixing old tasks.

The following pages illustrate a number of materials to choose from, each having their own unique qualities, available at various price points. As illustrated by this chart, there is no right or wrong answer. The best strategy is to weigh the pros and cons that pertain to your unique situation. Factors include the photographs you want to house, the storage conditions, monies available and room to store materials in the interim.

Housing Materials Chart

Container	Material	PAT	Pros
Boxes	Hollinger	✓	Sturdy boxes, made from acid free board. Boxes designed to stand upright or flat; some box designs allow for drop front; metal edge allows for superior stacking strength. Some suppliers offer moisture resistant coating.
	Solander	✓	Ideal for storing flat artwork; can assist in providing a stable environment in fluctuating environment
	Archival Corrugated Board	✓	Easy to assemble; lightweight; some box designs allow for drop front; acid-free board; buffered board
	Co-polymer plastic; Corrugated Polypropylene (coroplast)		Lightweight, sturdy material; reusable; ideal for cold storage situations since it will not degrade in cold or high moisture conditions; recommended for conditions that are not climate controlled, as it protects more effectively in rapid changes in temperature and relative humidity
	35mm slide storage boxes and cabinets		Allows for many slides to be stored in one container; compact and organized; boxes can be inexpensive
			<div>Hollinger</div> <div>Solander</div> <div>Hollinger</div> <div>Archival board</div> <div>Coroplast</div>

Cons	Available in	Concerns
Must have room to store them when ordered	A variety of sizes; custom boxes available	
Expensive to purchase; take up a lot of room on shelves (must be stored flat)	A variety of sizes	Extremely heavy when packed full
Not ideal for cold storage environments although moisture resistant coating available	A variety of sizes; shipped and stored flat	
Ventilation hole needed for degrading photographs for materials to 'breathe'; difficult to create some custom containers, as it tends not to take adhesives easily and walls of containers may bend.	A variety of sizes; shipped and stored flat; select boxes available with shock-absorption base, ideal for glass plate negatives.	This material has a low melting point and has potential to spontaneously combust at temperatures above 360°C (690°F). This material is best used in conditions with proper fire suppression systems. 1
Housing encourages handling individual photographs; small boxes within large container cumbersome; not transparent; metal cabinets with drawers can be costly and take up a lot of space.	A variety of sizes, shapes and designs. See suppliers for more information.	
16" x 20" x 3"	\$12.20 each	
16" x 20" x 2.5"	\$99.95 each	
10.25" x 15.25" x 5"	\$7.25 each	
15" x 6" x 10"	\$7.60 each	
15" x 12" x 10"	\$12.30 each	

Container	Material	PAT	Pros
Boxes Continued			Avoid commercial corrugated board.

Paper and Board	Archival Corrugated Board	✓	Easy to form and create custom shapes; inexpensive; durable
	Co-polymer plastic; Corrugated Polypropylene (coroplast)		A lightweight alternative to corrugated board; also see above
	Barrier Board (Hollinger Board)	✓	Inexpensive, easy to use, suitable for making small boxes and dividers
	Archival Foam Board/ Foam Core		Lightweight and sturdy; buffered core
	Perma/Dur folder stock	✓	Acid free; sturdy; easy to create custom shapes; available in different thicknesses
	Acid free paper	✓	Neutral; soft; can be used for a variety of different purposes; absorbs some offgassing and acidity; allows for transcription of information
	Archival, acid-free mat board	✓	Sturdy to support photographs; available in different thicknesses (2 ply, 4 ply, etc)

corrugated board
Coroplast
Hollinger board
Perma/Dur
Buffered Mat board
Unbuffered Mat board

Cons	Available in	Concerns
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It is made from acidic board and can degrade over time.

Can be heavy; material might break down in cold storage environments	8" x 10" to 30" x 40" sheets	
Ventilation recommended; see above	30" x 40" or 40" x 60" sheets	

Not as sturdy as corrugated material

24.75 x 34 to 34 x 44

Difficult to manipulate; expensive

32 x 40 to 40 x 60 sheets

Not as sturdy as corrugated material

15 x 20 to 40 x 60, depending on thickness

Opaque qualities does not allow to see objects and encourages handling.

A multitude of different types and sizes. Used to make envelopes and available in individual sheets

Heavy and bulky

8 x 10 to 40 x 60; 2 ply to 8 ply. Not all sizes in all thicknesses.

30" x 40"	\$168.40/25 (\$6.74 each)
30" x 40"	\$174.25/25 (\$6.97 each)
30" x 40"	\$153.00/25 (\$6.12 each)
32" x 40"	\$250.00/100 (\$2.50 each)
32" x 40"	\$228.00/25 (\$9.12 each)
32" x 40"	\$189.00/25 (\$7.56 each)

Container	Material	PAT	Pros
Sleeves	Archival polyester (Mylar, Melinex, etc)	✓	Transparent, inexpensive; different thicknesses of mylar good for a variety of situations
	Polyethylene		Transparent and less expensive than polyester
	Polypropylene sleeves (PrintFile, Perma-Saf, etc)	✓	Transparent material; inexpensive; inert; can be stored upright in file folders or in binders
	Saf-T-Stor 35mm slide storage	✓	Ridgid translucent material; stands upright; easy to remove photographs; better for slide collections that are used more often
	Acid-free paper (buff/non)	✓	Acid free material can absorb acidic vapors from material. Information can be written on enclosure with pencil; available in buffered or non-buffered paper
	Glassine		Translucent material; inexpensive; acid-free; smooth surface does not scratch photographs

Cons	Available in	Concerns
Cannot absorb any offgassing from photographic materials; special pen needed to write on surface.	Pre-folded 'L' sleeves in a variety of sizes; Interlocking sleeves (top and bottom sealed edges) in a variety of sizes; 40" wide rolls in varying lengths; .0015 to .005" thick	Not recommended for material that has flaky emulsion - Static charge can cause damage to prints. Not recommended for photographs that are deteriorating
Less rigid and supportive than polyester; cannot absorb any offgassing from photographic materials; special pen needed to write on surface.	A variety of sizes - see suppliers for more information	
Depending on format, can be tricky to retrieve items (ie 35mm strips); special pens recommended to write on PrintFile material	8.5 x 11 size sheets for film formats ranging from 35mm to 8 x 10	
More expensive than PrintFile system; takes up more space; only one side of photograph is protected	Packages of 25 sheets	
Opaque material allows for viewer to open envelope and see material.	Pre-made envelopes or four-flap design enclosures; oversized for panoramic or large prints	
Not necessarily archival. Recent advances have created a new and improved glassine.	A variety of sizes - see suppliers for more information	Glassine will adhere to emulsion of film and prints if exposed to moisture. It is highly recommended to rehouse any material stored in glassine and avoid use in collections

Container	Material	PAT	Pros
Sleeves Continued			Mylar/Melinex
			Polyethylene
			PrintFile
			Acid Free Paper
			Glassine
			PrintFile

Avoid manilla envelopes and other envelopes from stationary supply stores.

Foams and Buffers

Volara foam

Aesthetically pleasing, non-abrasive, easy to use. Cuts easily with utility knife or scissors. Suitable for long term use.

Polyethylene foam

Economical, non-abrasive, easy to use. Cuts easily with utility knife or scissors.

Ethafoam

Strong, rigid material; easy to manipulate with straight cuts

Volara foam
Polyethylene foam
Ethafoam

Cons	Available in	Concerns
8" x 10"	\$15.55/10 (\$1.55 each)	
8" x 10"	\$17.75/50 (35¢ each)	
8" x 10"	\$26.99/100 (27¢ each)	
8.5" x 10.5"	\$47.70/100 (47¢ each)	
8.25" x 10.25"	\$25.95/100 (26¢ each)	
8" x 10" page for 35mm slides	\$35.70/100 (36¢ each)	
8" x 10" page for 35mm slides	\$67.60/25 (\$2.66 each)	

These can be made from acidic papers and have not been tested to safely store photographs. Avoid PVC plastics as they can degrade and may leave a residue on photographs.

Not suitable for all purposes, thin, expensive	White or black, 1/4" or 1/8" thick, 27 x 35 sheets or 27 x 25' rolls; available with adhesive backing
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May not be suitable for all purposes.	1/4" or 1/8" thick, 24 x 30 sheets or 48 x 150' and 300' rolls; available with adhesive backing
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Slightly abrasive (lining material needed); intricate shapes challenging to make	2" or 4" thick, 12" x 24" and 24" x 108" sheets
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27" x 35" x 1/4"	\$84.55/5 (\$16.91 each)
24" x 30" x 1/4"	\$52.60/25 (\$2.10 each)
12" x 24" x 2"	\$139.95/13 (\$10.77 each)

Container	Material	PAT	Pros
Foams and Buffers continued			Avoid traditional foams and biodegradable packing peanuts, and bubble wrap.
	Buffered interleaving tissue		Soft, lightweight and translucent; best for black and white photographs and formats that offgas
	Non-buffered interleaving tissue		Soft, lightweight and translucent; best for albumen, cyanotype, color prints and dye transfer processes
Adhesives and Fasteners	3M #415 double coated tape	✓	Durable and practical; inert; almost invisible
	Tyvek tape		Strong, durable, flexible; ideal for box construction
	Filmoplast P-90	✓	Durable and flexible; clean, attractive finish
			3M #415 double coated tape Tyvek tape Filmoplast P-90
Adhesives and Fasteners continued	Neutral pH adhesive (PVA glue)		Durable, inert; excellent for stronger materials (corrugated board, etc)
	Archival quality hot-melt glue (3M 3797 or 3748 electrical grade)		Excellent for tasks that require a strong adhesive. Archival quality makes it suitable for use around objects.
	Velcro		Durable resealable fasteners, easy to use

Cons	Available in	Concerns
Foam can degrade over time, packing peanuts can dissolve if exposed to moisture, some bubble papers can leave a mark if bubbles are in direct contact with object.		
Difficult to keep in place, translucent qualities still might require handling to identify object	8" x 10" to 30" x 40" sheets or 40" wide rolls	Interleaving best when material allows for expansion. By applying to an album or object with fixed height may cause pressure and damage.
Difficult to keep in place, translucent qualities still might require handling to identify object	8" x 10" to 30" x 40" sheets or 40" wide rolls	
Cannot be used for all purposes; a stronger adhesive may be necessary	1/4" to 1" wide, 36 yd spools	
Not as aesthetically pleasing as other tapes	1" to 2.25" wide, 50 yd spools	
Expensive; adhesive not as strong as other tapes	3/4" x 164'	
1" x 36 yds.	\$15.30/roll	
1" x 50 yds.	\$9.80/roll	
3/4" x 164'	\$25.50/roll	
Messy, takes a few minutes to set	Dispenser bottles and larger bulk liquid containers	
Messy, takes practice to use. 3M PolygunTC required.		
Adhesive may give over time; overuse and separation of velcro may cause wear on housing	Velcro circles in 5/8" or 7/8" or in velcro tape.	

Container	Material	PAT	Pros
Adhesives and Fasteners Continued	Cotton tying tape		Neutral, soft and durable; multi-purpose; reusable; will not degrade over time
			Avoid inexpensive adhesives, masking tape and 'Scotch' tape, in addition to paper clips, staples and elastic bands.
Other	Pigma pens		Excellent alternative to 'sharpie' markers; permanent
	Polyethylene zipper bags	✓	Inexpensive and inert; contains objects and protects against moisture. Ideal for photographic objects with excessive mold.
	Foil-back labels		Acid free labels with durable acid free adhesive; longer lasting than standard printer labels
			Avoid Sharpie markers and standard computer labels. Sharpie markers may not be suitable for permanent use.

Cons	Available in	Concerns
Cumbersome to take apart; bow or knot can add lump to stack of objects; tying too tight may cause damage	1000 yard spools from 5/16" to 5/8"	
Adhesives can stain over time and cause damage.		
May not adhere to all surfaces. Test before use.		
Bag can be easily punctured; bags do not allow for off-gassing for objects and should not be used for items with advanced deterioration	2" x 3" to 13" x 18"	
As with any label, label might give out over time	a variety of sizes; available for laser printer	
Adhesive on standard computer labels not strong enough for long term use.		
1 - see Pavelka, Karen. Corrugated Polypropylene: Properties and its use in Conservation. Fall 2001.		
Materials, prices and ordering information derived from Carr-McLean, University Products and Gaylord catalogues, published in 2005. Information at time of ordering subject to change.		



Fig. 1

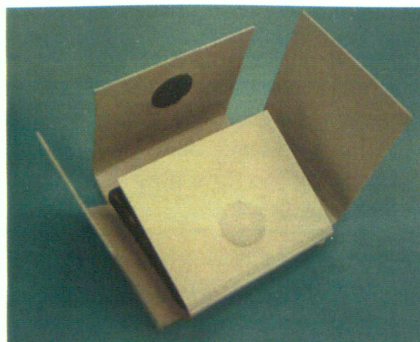


Fig. 2

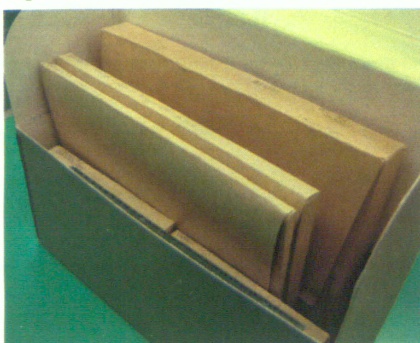


Fig. 3



Fig. 4

Fig. 1 to 3: Examples of basic custom enclosures at the Archives of Ontario, shown open (Fig. 1) with a velcro fastener (Fig. 2) and stored upright in a container (Fig. 3); Fig 4: a custom fit enclosure using ethafoam at Library and Archives Canada.

What if my photograph is missing its case?

It is possible that the case the photograph once resided in has been removed for a variety of reasons. Daguerreotype photographs should be bound with a mat and cover glass at minimum. Ambrotype or tintype photographs should be handled carefully. Custom housing can be constructed if necessary or desired. If an photograph is requested frequently, a Mylar enclosure may be an ideal solution, as it is easier to identify the object and requires less handling. An enclosure made of paper or board is more ideal for photographs that are requested infrequently.

Part B - Housing Suggestions

Cased Photographs

Many well established collections are familiar with cased photographs. These photographs from the first few decades of photography are much more elaborate objects than photographs created today. They are recognized by a photograph on glass or metal, a mat and cover glass and found enclosed in a hard, decorative case.

Design and Materials

Cased photographs, similar to albums, require little housing, as a protective covering protects the object they contain. Small custom-made wrappers, such as a four flap, are often used to protect the case surface and provide a surface to capture pertinent information. It might also be helpful to include a thumbnail sized photograph on the enclosure, to avoid having to open the case to identify the photograph. The first examples from the Archives of Ontario (Fig. 1 and Fig. 2) demonstrate four flaps, which are among the most basic custom enclosures. The photographs are kept upright in a Hollinger box (Fig. 3). For optimal conditions, store photographs upside down, to allow any glass deterioration to remain on the glass, rather than adhering to photograph surface.

A more elaborate housing design is used for some photographs at Library and Archives Canada. (Fig. 4) A pre-made clamshell box is outfitted with a piece of ethafoam. Holes are cut out of the foam to create a custom fit for the objects. Exposed ethafoam surfaces are covered with an aesthetically pleasing acid free paper stock. Cotton twill tape is placed underneath the photographs to allow for easy removal of the objects.

Further housing suggestions on page 59



Fig. 5



Fig. 6

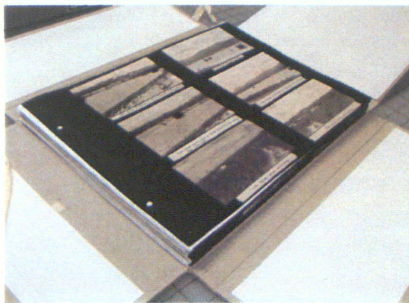


Fig. 8

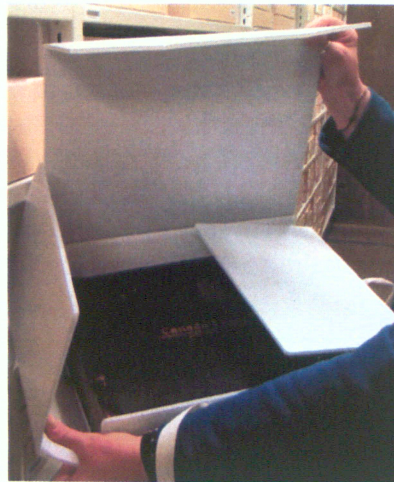


Fig. 7

Clockwise from top left
(Fig. 5 to 8):
custom covered albums; an
album fitted in a pre-made
box; a portfolio cover now
protects loose photo
album pages. a coroplast
custom housing for an
oversized album.

Albums

Albums may seem daunting, but they can be very easy to care for. Since a bound cover, or album, encloses the photographs, the album receives the most housing attention. Leather covered albums are likely to experience 'red rot', a condition occurring when the leather structure deteriorates and becomes powdery, causing staining on adjoining surfaces along with dust and debris. Albums in this state especially need to be enclosed to protect the user as well as the object.

Design and Materials

Smaller albums need only an album wrapper to protect them and can benefit from secondary storage of an additional container if necessary. Depending on the size and width of the album, different custom containers are available to choose from. The most common style is a four-flap style (Fig. 5), constructed from either one or two pieces of Perma/Dur board. Other shapes of wrappers are available and can be found in the custom housing chapter of this guide.

There are two predominant methods to housing albums – creating a custom wrapper or fitting a container. Examples from Library and Archives Canada illustrate both options (Fig. 7). In the case of creating a custom wrapping, this particular album is quite large and would be troublesome to find an existing box that could accommodate it. It is also in good condition and does not require further protection. A custom box constructed from Coroplast creates a sturdy container and protector and acts as a self-sufficient container. Fig. 6 depicts an album enclosed using a premade clamshell box. Excess space around the object is filled using ethafoam pieces. Care must be taken to ensure that the ethafoam will not abrade album cover. Album pages where the cover has been lost

or removed should still be kept together, and preferably in original order. One situation at the Smithsonian Archives (Fig. 8) illustrates where such a problem existed. The album pages were kept together and wrapped with a custom-made portfolio cover. Interleaving tissue could be introduced in between each page. Interleaving tissue protects photographs that are stored in situations where photograph surfaces can abrade each other. In albums where the binding is still intact, adding interleaving tissue can expand the text block significantly and cause stress to the spine. In this situation, the binding had been removed, in order for it to be used effectively.

Further housing suggestions on page 61 and 63.

**Should photographs be removed
from album pages?**

Generally Not. Photographs are kept in the albums they were received in, maintaining the sequential order and context to the photographs. In some instances the album was created to document a particular event. If the album and photographs are in good condition, there may be no valid reason to remove the photographs and rehouse.

Albums created with PVC plastic can cause damage to the photographs by leaving plasticizer residue. Pressure sensitive adhesive in 'magnetic' albums may migrate onto photograph. Although some 'magnetic' albums may not have caused existing damage, it is best to avoid using them if possible. If damage has occurred, consult a conservator then proceed to remove the images from the album. Remember to number photographs sequentially and house them separately from the album.

Paper Based Photographs

Photographs in historical collections are often the most requested type of photographs by researchers. They are positives, hold the most information and are relatively simple to handle. Paper based objects can be cared for in a number of ways. In historic collections, photographs are often kept with corresponding images, grouped into large numbers of prints, and treated as a batch of photographs. In fine art collections, these photographs are most often found carefully matted and stored in a solar box. Collections that contain a significant amount of photographs may have other storage solutions, due to limited space to house several matted prints or the time to care individually for each photograph.

Design and Materials

There are a number of different ways to care for photographic prints. The examples here display only a small number of possibilities. What is key, however, is ensuring that the photograph surface is protected and the paper base is supported by board that is a heavier weight than the photographic paper base, if at all possible. Potential photograph coverings include Mylar or Melinex, interleaving tissue. The more opaque this tissue is, the more difficult it is to identify the object below. Supporting board can range from Perma/Dur board, different grades of Mat board, etc, bearing in mind that thicker board may cost more and will certainly take up more space in your collection. Depending on the use of your collection, it may suffice to wrap the photograph without the backing board.

Designs for print care are varied and are best suited to your collection needs. Examples shown are based on some individual collections and are not meant to present a definitive overview of how prints are stored in museum and archival collections.

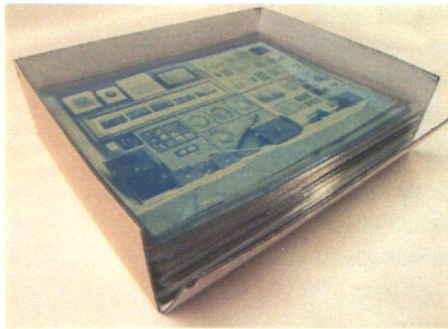


Fig. 9



Fig. 10

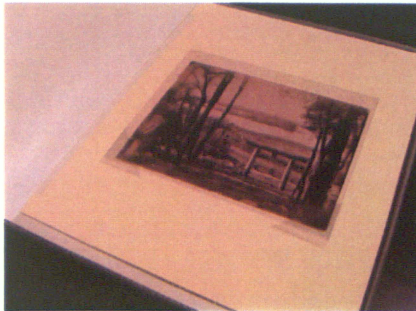


Fig. 11

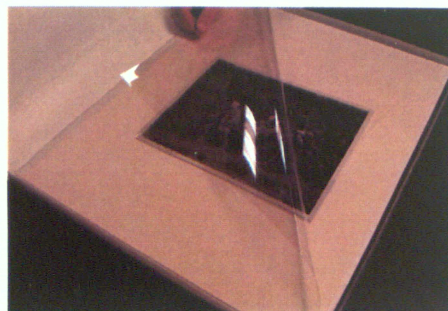


Fig. 12

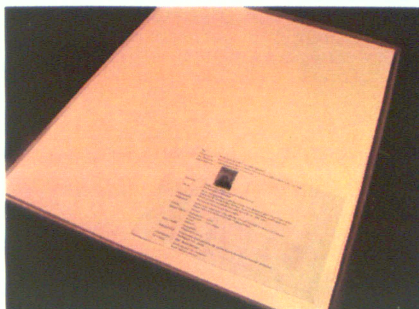


Fig. 13



Fig. 14

Paper Based Photographs - Continued

One simple example (Fig. 9) is from the Smithsonian Archives. Photographs are kept in Mylar sleeves and stored flat in a drop front box. Mylar sleeve can be purchased premade, in an 'L' (top and side edge sealed) or in 'interlocking' style (top and bottom edges are sealed).

Another example can be found in one collection at Library and Archives Canada (Fig. 10), where objects are stored in acid free envelopes that are approximately the same size as the photograph they protect. Information is transcribed to the enclosure and the photographs are stored upright in file folders in a Coroplast box. What is key with this method is that the photographs fill the container and do not 'slump', causing damage to the photographs.

Larger objects are stored slightly differently. One example at the Freer-Sackler Gallery of Art consists of a backing board with two oversized Mylar corners. These help keep the photograph from shifting and still allow easy access. Examples include the print wrapped in Mylar (Fig. 11), and the print and board covered together with Mylar (Fig. 12). Care must be taken that the cut edges of the Mylar used for the corners will not scratch the photograph surface. A cover sheet made with Acid-free paper stock is used to contain the object, and hold any pertinent information. Their example also includes a thumbnail photograph to reduce handling (Fig. 13).

One similar example from Library and Archives Canada illustrates a similar example. Prints are encapsulated in a Mylar sleeve, and the top edge of the mylar is adhered to a supporting board using double sided tape. This allows the viewer to easily see the verso of the photograph (Fig. 14).

Oversized prints can be stored in a Perma/Dur



Fig. 15



Fig. 16



Fig. 17

board folder and kept in large metal drawers for easy access and handling (example not shown).

Further housing suggestions on page 66.

Stereoscopic Cards and 19th Century Photographs Mounted on a Rigid Support

Stereoscopic and some 19th Century photographs, such as cartes-des-visites, cabinet cards and other studio cards, need only slight protection to aid in their future use and handling.

Design and Materials

These objects benefit greatly from a simple Mylar or Melinex sleeve, made of polyester, since this outer protector can easily be removed and allows for protection against fingerprints. Once covered, photographs can be stored in a sturdy container. Boxes designed for specifically for stereo cards are easily available from archival suppliers.

Library and Archives Canada implemented dividers (Fig. 15), used to help identify photographs and prevent excessive handling. The National Museum of American History has used powder-coated drawers to store their stereo cards (Fig. 16) and cartes-des-visite photographs (Fig. 17).



Fig. 19

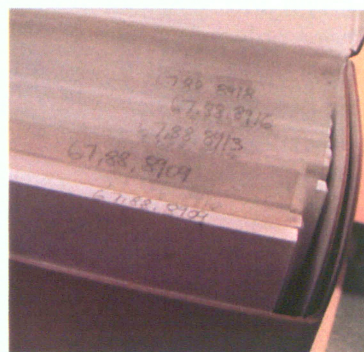


Fig. 18

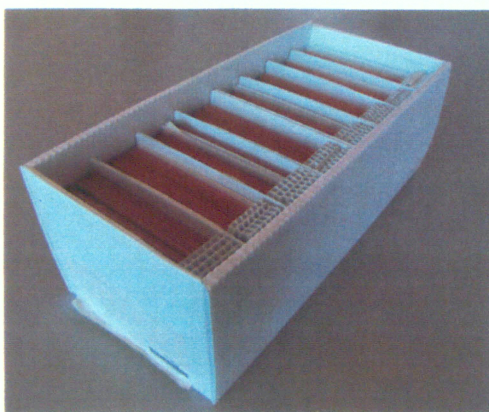


Fig. 20

Counter-clockwise from above (Fig 18 to Fig 20): Photograph dividers for easier retrieval; a spring bottom Coroplast box with Coroplast inserts; archival corrugated board inserted in boxes act as shock absorbers;

Glass Plate Negatives

A popular photographic format for many years, these photographs are cumbersome compared to their flexible replacements. Glass is an important photographic media since there were the only predominant negative used in the 19th and early 20th century, which is why there is such an abundance of these photographs in collections today.

If a glass negative breaks, there is still a need for the collection to retain the broken object and attempt to retain any photograph that remains. Photographs in this section are divided into broken and intact glass as a result. Housing needs increase depending on the fragility of the object. Whenever possible, glass plate negatives should be stored upright. Storing them flat puts excess weight on photographs stored on the bottom of a container.

Design and Materials

Due to glass plate negatives being so heavy and fragile, it is extremely important to house these objects in durable containers that can absorb as much shock as possible when transported. Each collection should carefully assess their budget and time resources when looking to house glass plate photographs as caring for these images can be costly and time consuming.

The smaller the glass plate photograph sizes are, the easier they are to house. A popular pre-made enclosure is a four flap, specially made for awkward glass plate sizes and that compensate for the thickness of the glass. Four flap enclosures need to be handled on a flat surface to encourage careful handling. Acid-free paper envelope enclosures can be substituted if necessary. Glass plate negatives can be stored in appropriately sized Hollinger boxes, bearing in mind that weight is an issue and the box should

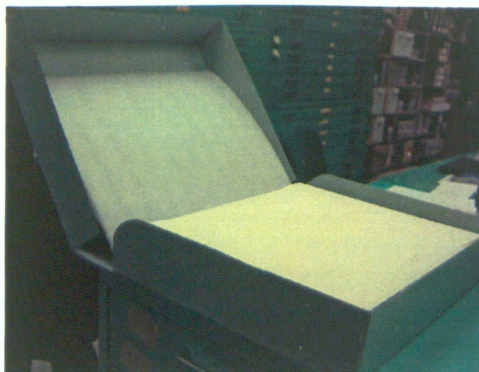


Fig. 21

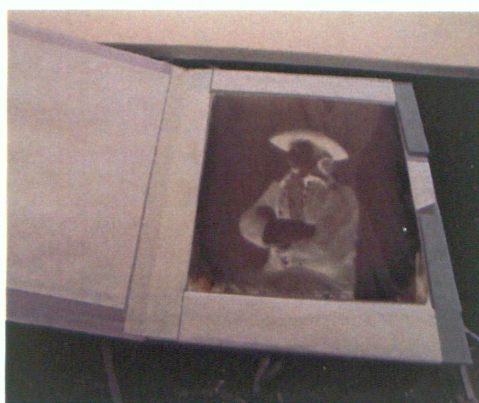


Fig. 22

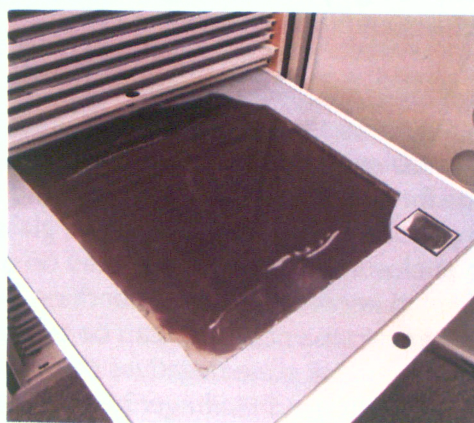


Fig. 23

Top to Bottom (Fig. 22 to 24) - A custom clamshell container for a limited quantity of oversized plates; a custom portfolio for an oversized glass plate negative; an oversized plate in a coin drawer held securely in place with a corrugated board mat.

Glass Plate Negatives - Continued

not be too heavy. Coroplast or blue board pieces can be used as spacers, on box walls and underneath to create a cushion and help absorb any shock from movement or transport.

Intact Glass

The simplest housing and also the most standardized can be found at the National Museum of American History. Glass plate negatives are stored in four-flap sleeves and boxed in small quantities for simpler access. Dividers are placed between groups of objects to reduce handling when locating an photograph (Fig. 18). The Archives of Ontario house their photographs in similar boxes and sleeves (Fig. 19). One improvement they have made is inserting blue board pieces to the bottom, sides and between every few photographs to assist with any shocks the container might receive. Library and Archives Canada has taken a further step and implemented spring bottom containers. These boxes are made from Coroplast and contain a folded piece of Coroplast at the bottom; acting like a spring to assist with any shocks the container might receive. Coroplast spacers are placed between every few photographs to also cushion any small impacts. As photograph sizes increase, Coroplast inserts are placed between each glass plate (Fig. 20).

As plate sizes increase, so do the complexities of housing them. The Archives of Ontario devised one system for housing a few large glass plates in their collection. A custom clamshell box was constructed of blue board. Each photograph is covered in acid free paper and interleaved with ethafoam and a sheet of corrugated board (Fig. 21). Due to weight concerns only a few photographs per container could withstand this design. The National Museum of American History has devised a couple of alternatives for

their oversized glass plate negatives. One design consists of individually housing the photograph in its own blue board portfolio. The photograph is placed in a "sink mat" style housing (Fig. 22). One of the flaps has a hinge made of Tyvek tape to make it easier to remove the photograph from the housing. When not in use, the enclosure package is tied with cotton twill tape and placed in storage. A further design can be seen with the use of coin cabinets. These powder-coated pieces of storage furniture contain numerous thin drawers that can withstand a great deal of weight, and are thus ideal for glass plate negatives. Each drawer is fitted with a blue board mat, custom designed for each photograph, which reflects any damage to the plate if necessary. A Mylar strip is placed under the photograph to assist the plate if removed from the housing. An alternative to this strip could be a larger piece of Mylar that is the same size as the plate, to provide more support when lifting the plate. An added identification feature is a miniature positive print that is adhered to the board (Fig. 23).

Broken Glass

The sink mat remains a staple design feature in the following examples. A sink mat allows for protection on all sides of the photograph and is reversible if necessary. One design for small format broken plates was seen at the Freer-Sackler Gallery of Art. In this instance, one mat was used to accommodate four small photographs. Acid free paper protects the exposed surface, as well as serving as a vehicle for easy removal if desired. Information pertaining to the photograph is transcribed onto the mat. The sink mat is stored within a box but could be adapted for a drawer (Fig. 24). More complicated fractures are also stored in a sink mat. A piece of corrugated board is used to create a space between the broken glass fragments (Fig. 25). One final

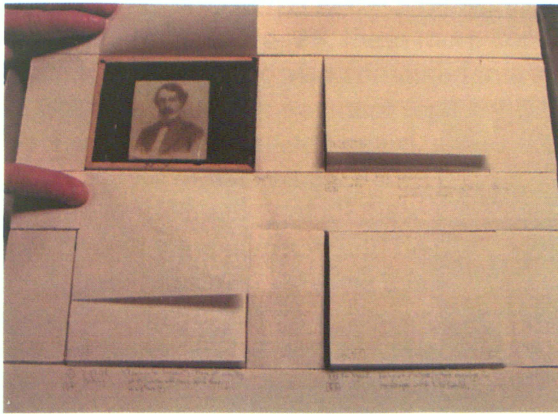


Fig. 24

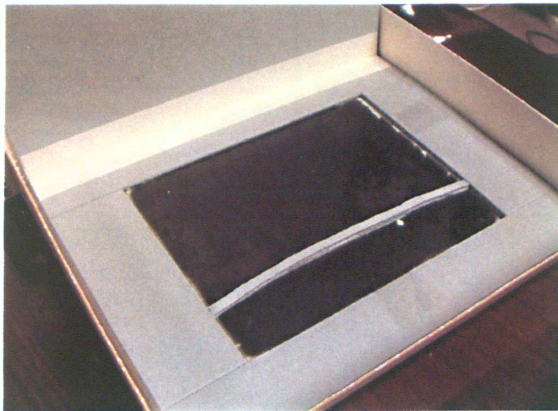


Fig. 25

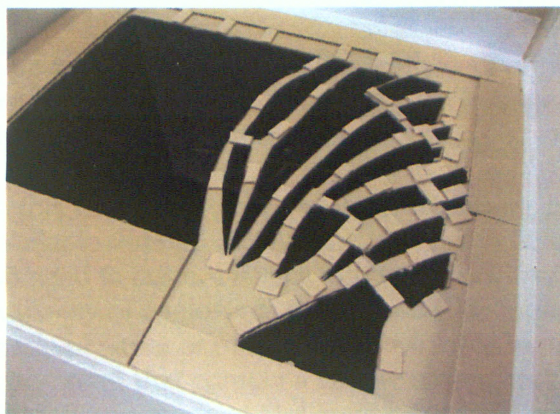


Fig. 26

Fig. 24 - A severely cracked plate held in a custom mat. Acid-free paper is kept around the photograph as a sleeve and to assist with removal.

Fig. 25 and 26 - Broken plates are kept separated with pieces of corrugated board.



Fig. 27

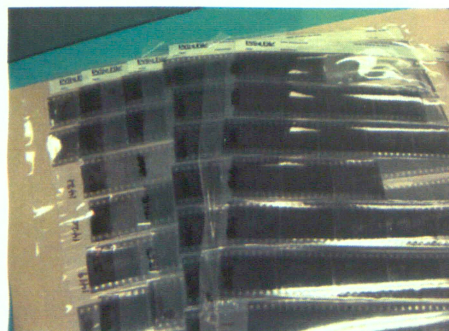


Fig. 28

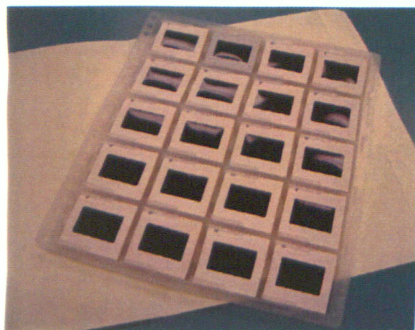


Fig. 29



Fig. 30

Clockwise Above Left (Fig. 29 - Fig. 32): Negatives stored in paper envelopes; 35mm PrintFile Sleeves; 35mm slides in Saf-T-Stor pages; boxed 35mm transparencies.

approach was discovered at the Smithsonian Archives. Similar to Fig. 25, these more complicated fractures were also contained in a sink mat housing, and each fragment separated by only a square of corrugated board, as opposed to a piece that mimicked the entire fracture (Fig. 26). Due to the fragility of all these pieces, no other broken glass plates would be stored on top of these housings. Because this housing is time consuming to create, consider the importance of the photograph to the collection before undertaking this housing.

Further housing suggestions on pages 69.

Negatives and Slides

Storing film is an integral part of any photographic collection. Ranging in sizes from 35mm to 8 x 10 sheet film or larger, negatives and slides are the original photograph and retain the most primitive information that needs to be preserved. As with other photographic formats, all film will degrade over time. To lengthen film's life span it should be, whenever possible, stored in the coldest appropriate environment.

Design and Materials

When looking to store film, it is very important to be aware of the difference between Nitrate and Acetate film. Although enclosures for each type are similar, they are physically very different and need to be separated into their respective types and stored separately.

In this situation, the best storage enclosures are available through archival suppliers with little or no need to custom design additional enclosures. A variety of enclosures that passed PAT testing made of paper or polyester are available in pre-made sizes that contain a variety of formats and sizes. Boxes made of Hollinger board and coroplast are available to provide secondary housing to collection materials.

**What is better -
paper or plastic?**

Paper enclosures tend to be the more favourable solution of the two. Paper enclosures are porous and have the ability to absorb some acids as film degrades and can easily accept pencil to record any information and are preferable for long term storage. Polyethylene enclosures are favoured when the photographs are requested frequently, as they require less handling for identification. Mylar enclosures are not recommended for storage environments with high levels of humidity, as they may inhibit mould growth. Mylar is also not recommended for objects experiencing vinegar syndrome.

A standard housing, easily available and simple to use are paper enclosures. These envelopes come in a variety of sizes to suit the purpose required. This example from the Archives of Ontario (Fig. 27) is similar to one found in any collection. Photographs are stored in envelopes with an outer container designed for the format type as a secondary enclosure.

PrintFile sleeves are an alternative option to paper enclosures. The example illustrated in Fig. 28 demonstrates a sleeve appropriate for 35mm negatives. Many photographs can be stored in a relatively small amount of space and kept in file folders and boxes for easy storage and retrieval.

Housing 35mm slides presents other housing selections. Rigid Saf-T-Stor sleeves (Fig. 29) are made of polypropylene and can easily hold 20 mounted slides. Although they take up more physical space than their PrintFile counterpart, photographs are easy to remove and pages easily stand upright, ideal for file folders and box storage.

A final compact solution for slides is through boxes or metal drawers. Seen in Fig. 30, these boxes hold a lot of photographs in a small space, yet retrieving these objects encourages handling. Photographs that receive little attention where space is at a premium may benefit from this storage solution. It is also important that photographs stored in this storage solution are properly catalogued with a finding aid, in order to prevent overhandling from searching through objects.

Panoramas

Every collection will be forced at some point to house panoramic photographs. Objects of this nature consist of prints that do not follow a standard format and tend to be longer horizontally than traditional photographs. Depending on their use, panoramic photographs can range from several inches long to several feet; thus making them problematic for storage environments that are not purpose-built to accommodate these objects.

Design and Materials

The housing solutions provided below are designed for better handling for the photographic object. Because there are no available prefabricated containers, custom storage solutions are the best approach in this situation. The exterior should be made of a rigid board to support the photographs. Archival corrugated is easy to cut and shape, yet can be heavy in larger sizes. Coroplast board is more resistant to moisture and can be more lightweight.

If a panoramic photograph is flat, as opposed to rolled, it is best to protect the surface between the emulsion and the outer container. Since no envelopes exist in panoramic sizes, interleaving tissue or Mylar are popular choices, depending on condition and needs. Acid-free tissue involves more handling of the photograph, as its translucent qualities do not allow the viewer to see through it, although it is inexpensive and easy to use. Mylar does allow the user to view through it to see the photograph and is a better protector against fingerprints.

The Archives of Ontario have fabricated housings for the numerous panoramas in their collection, most of which are at least 4 feet long. Their goal for these housings was not only to protect the objects but also make them retrievable for

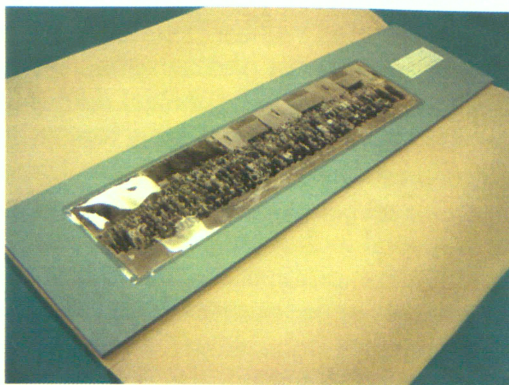


Fig. 31

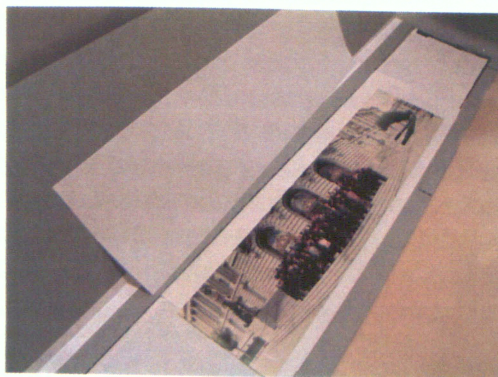


Fig. 32

Above (Fig. 31 and 32):
Panorama package
constructed of corrugated
board; sink mat style
enclosure capable of
containing a number of
photographs.

the staff and thereby accessible to researchers. The custom housing that they have developed is designed for a package of between four or five panoramas (Fig. 31). Each photograph has been humidified and encapsulated in Mylar, and is then adhered using double-sided tape to a support board made of corrugated board. If there is any information on the verso, it has been photocopied, and the facsimile placed beside the photograph. An alternative to this would be to encapsulate the photograph on three sides, or house the object in an 'L' sleeve, in order to still access the verso of the photograph. The entire package is wrapped in a two-sided sleeve, with identification information written on the outside of the package. Lastly, the enclosure is tied with a cotton twill tape.

Another example can be found that the National Museum of American History in Washington, DC. As there are only a few panoramic photographs in their entire collection, their goal was to devise a housing that was suitable for their entire panoramic photo collection. Their solution consists of a sink-mat type folder constructed from corrugated board and matboard (Fig. 32). Numerous objects can be stored in one box with interleaving tissue in between each photograph. A further option would be to encapsulate each photograph in Mylar. Mat board could be used underneath as a support and help remove photographs from the sink-mat.

Further housing suggestions on pages 70.

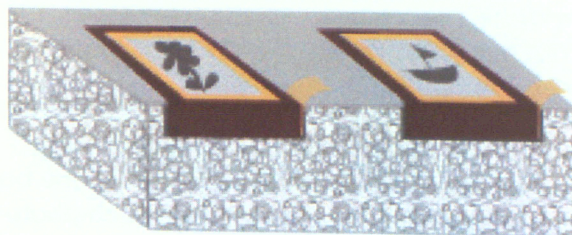


Fig. 4A

Fig. 4A - A cross section of ethafoam insert;
Fig. 4B - view of ethafoam covered in paper, with cotton twill tape tabs for removal of object.

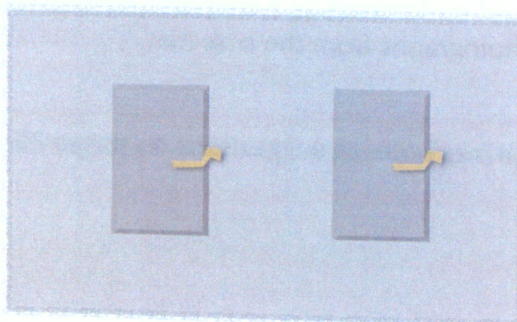
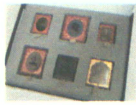


Fig. 4B

Part C - Housing Diagrams



Library and Archives Canada Cased Photograph Suggestion

Continued from page 37

An alternative to the custom individual cases was seen with an example involving a pre-made clamshell box and an ethafoam insert. The foam is covered in paper, to act as a liner between the foam and the object, creating a non-abrasive surface. As seen in Fig. 4A, the photographs sit snugly in the foam and can be retrieved through the aid of a piece of cotton twill tape.

Construction Materials (Fig. 4B)

In order to make this housing, find a clam-shell box that suits your needs, or if necessary construct your own. Next, measure and cut a hole in the foam that is the same size as the photograph you wish to house and slightly deeper than the thickness of the object. Cover the exposed pieces of foam with a thick weight of acid free paper or a thin board. Adhere the paper to the foam using a suitable adhesive. Take care to line the inside of the hole as well. Cut a small piece of cotton twill tape and fasten without having the adhesive come in contact with the object. Another method may be to cut a slit into the foam and covering board and insert the cotton twill tape into the hole. This solution will not use any adhesive and would rely on the ethafoam below to keep it in place.

Use board or paper on top of ethafoam to record any information pertinent to the object below.

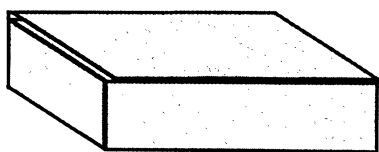


Fig. 5A

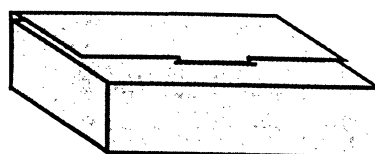


Fig. 5B



Fig. 5C

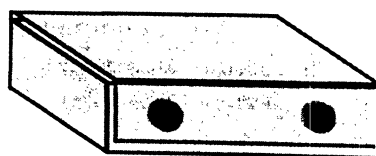
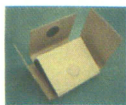


Fig. 5D



Album Wrapper Suggestions

Continued from page 39

There are different styles of custom designed album wrappers, yet they are all based on similar elements. An album needs to be protected on the top, bottom and all four sides. The corners of the wrapping should be as snug as possible to allow for the least amount of air to enter the package as possible. More details on making a custom album wrapper can be found in Part D.

One element that will be discussed in this section is the various methods to fasten your album package. There are different methods available and can be adapted for a variety of small containers.

The best situation is to eliminate fasteners altogether (Fig. 5A). If your album wrapper has perfect folds it will stay intact on its own. If you strive for this you will obtain a very clean looking package. The next best solution is to create a fastener that is part of the housing package (Fig. 5B). By creating an extra tab in your housing, it can assist with keeping the housing closed without adding an extra housing element. The two most popular housing fasteners are cotton twill tape (Fig. 5C) and velcro buttons, often called Velcoins (Fig. 5D). these are very handy, but they have their problems. Tie knots on the sides of packages, as large knots can cause damage to adjacent packages. For extra security, cotton twill tape can be woven through the housing package. Velcro buttons are excellent, but can cause added wear to your housing package. An extra reinforced panel can help maintain the longevity of your wrapper. In addition, the velcro may be stronger than the adhesive used to keep it in place. Carefully shaving the velcro can assist with reducing the grip. Adhesive on velcro may fail over time.

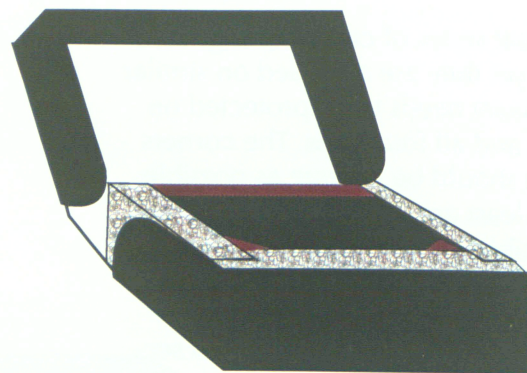


Fig. 6A

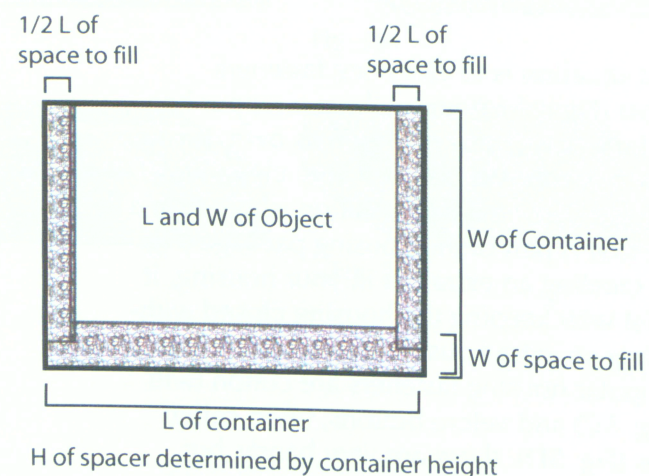


Fig. 6B



Library and Archives Canada Spacer Suggestion

Continued from Page 39

A pre-made clamshell container was used to house this album. To fill the extra space, ethafoam pieces were cut to fit perfectly between the clamshell box and the album. This ensures that the object will not shift excessively when transported. In this situation, spacers were only implemented on three sides of the container, but can be adapted for one to four excess spaces.

In this instance (Fig. 6B), the ethafoam blocks were cut in such a way as to almost lock into each other. The excess length and width (L and W) were measured to ensure the spacer will properly fit the space. The height (H) of the spacer should adequately fit the container and ideally be the same height or slightly smaller. A notch was then cut out of each side of the spacer beside the long edge of the album.

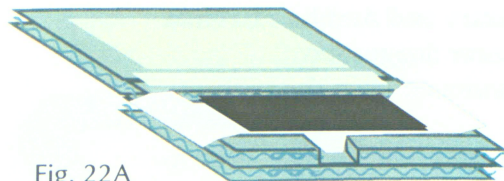


Fig. 22A

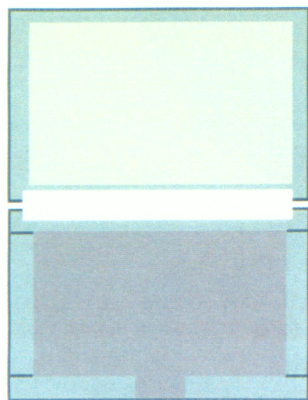


Fig. 22B



Fig. 22C

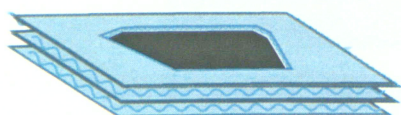


Fig. 23A

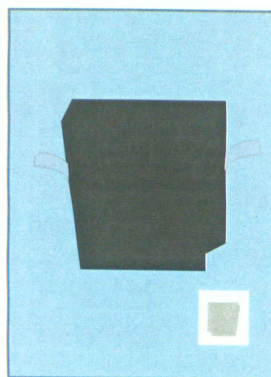


Fig. 23B



Glass Plate Negative Folder Suggestion

Continued from page 48

This folder comfortably holds an oversized glass plate negative. The photograph can be removed from the folder by an oversized piece of acid-free paper that is situated underneath the glass plate (Fig. 22A).

To create this housing, cut two pieces of corrugated board that are at least two inches larger on all sides of the glass plate. Build up the sides of one of the pieces of corrugated board with additional pieces of board sized so that the plate will fit securely within the space provided with as little room as possible to shift around. In Fig. 22B, a notch was left on the side of the folder to allow for a tab to help lift the photograph on the side of the plate. Adhere pieces of corrugated board together with neutral adhesive.

The second piece of corrugated board acts as a cover and can be hinged to the other piece with Tyvek tape. Before placing the photograph in the folder, place the acid free paper below (Fig. 22C). The entire folder can be fastened with cotton twill tape.



Oversized Glass Plate Negative Drawer Insert Suggestion

Continued from page 48

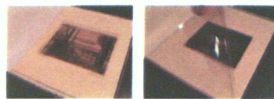
This folder is best suited for a shallow metal drawer that can support the weight of the glass plate.

Similar to the plate in Fig. 22A, a piece of corrugated board has to be cut that allows for extra space around the photograph and that fits the drawer space allotted. The area around the glass plate should be built up with extra corrugated board. In Fig. 23A, the glass plate was traced, al-

lowing for a custom shape to be produced with minimal cuts to the corrugated board on top. Adhere pieces of corrugated board together with appropriate adhesive.

Before placing photograph into housing, put a strip of Mylar that spans width of glass plate, or a piece of Mylar that covers the size of the glass plate, underneath the object. The plate should fit securely in the hole with minimal room for shifting permitted.

If desired, a photographic reproduction of the negative can be created and adhered to the housing for easier retrieval.



Print Housing Suggestions

Continued from page 41

These figures were all kept together as they all have the same elements. Each photograph is supported by an oversized board and is covered with Mylar. Through different variations on the same idea, three different styles of housing are obtainable.

Fig. 11A and 12A demonstrate that the photograph is held in place by two Mylar corners in the lower left and right corners. These can be formed by bending a strip of Mylar to create a point and adhering that strip to the board. Care must be taken to ensure that the Mylar is not cut roughly which could scratch or abrade the photograph surface. The photograph in Fig. 11A is protected by a Mylar sleeve over the entire photograph whereas Fig. 12A has piece of folded Mylar over the entire supporting board.

Fig. 13A is similar to Fig 11A, due to the photograph being enclosed in a Mylar sleeve. The photograph is adhered to a piece of board by a piece of double sided tape, to allow the viewer to see the verso easily.

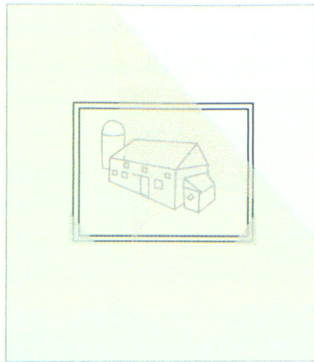


Fig. 11A

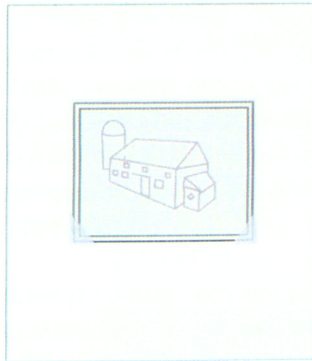


Fig. 12A

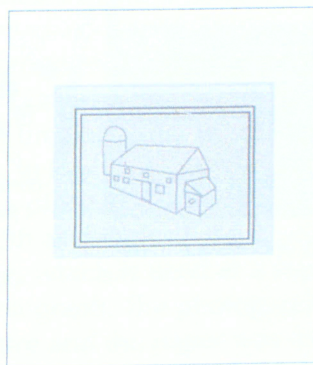


Fig. 13A

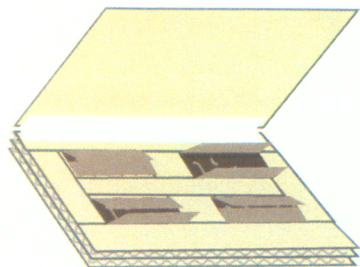


Fig. 24A

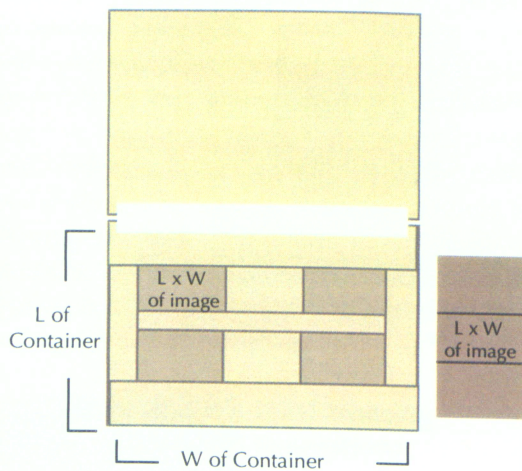


Fig. 24B

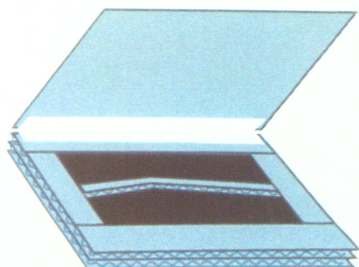


Fig. 25A

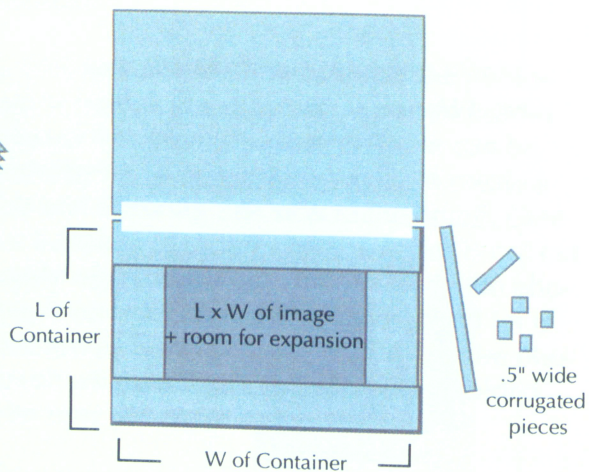


Fig. 25B

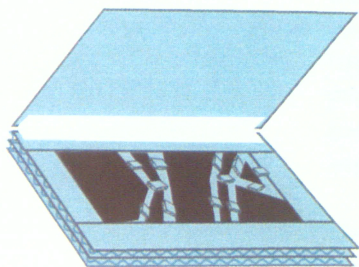


Fig. 26A

To create these housings, determine what size container would suit your needs and space requirements. The supporting board should allow for a few inches of extra space on all sides of the photograph. This will allow for easier handling of photographs when handling multiple objects. A drop-front box will assist when removing photographs from container.



**Broken Glass Plate
Negative Housing
Suggestions**

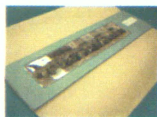
Continued from page 50

These three housings were shown together as they are all based on the same premise - a folder has been created out of corrugated board to safely accommodate the broken photograph(s). Each folder is then placed in a drop-front box for removal if necessary and to ensure no further damage occurs.

In order to create this housing, measure the inner dimensions of the drop front box where the photograph will be situated. Cut two pieces of board that suits these dimensions - one will be used for the base of the folder and the other for the hinged cover. Allow approximately two inches on each side of the folder for additional corrugated board. This is used to ensure the photograph will not slide out of the folder. For plates that have severe cracking and minimal breakage, Fig. 24B may be more appropriate. In this situation, the photograph was placed on a piece of acid free paper that was the same width as the photograph and three times as long, which is used as a supporting tray for the photograph. The photograph was placed in the centre and the paper was folded on either side. This created a two sided folder that protected the photograph and allowed for removal if nec-

essary.

Fig. 25B is more appropriate for plates with severe breakage. Ensure that the housing will have enough space to comfortably house the plate and allow for room to place corrugated spacers between each piece. The spacers can be one continuous piece (Fig. 25A) or in small squares (Fig. 26A) of approximately .5 inches wide board. Adhere all boards with double sided tape, PVA glue, or another neutral adhesive. Hinge top with Tyvek tape.



**Archives of Ontario
Panorama Package**

Continued from Page 55

This package consists of an encapsulated photograph affixed to corrugated board with double-sided tape (Fig. 31A). The bundle is then wrapped in a piece of folder stock and tied with cotton twill tape (Fig. 31B). Location and package information can be added to this wrapper, if necessary.

A piece of corrugated board is cut to be larger than the photograph to allow for safe handling (at least 2" over). This method also suggests that the information on the verso is copied and affixed to the board.

The outer cover is constructed using method shown in Fig. 31D. Measurements are dependent on size of board and thickness of corrugated board stack. Do not put too many photographs in one stack - five photographs maximum.



**Museum of American History
Panorama Package**

Continued from page 55

This package consists of a sink-mat style folder

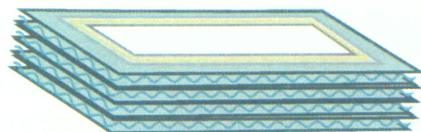


Fig. 31A

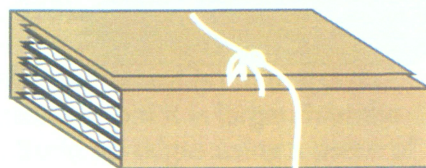


Fig. 31B

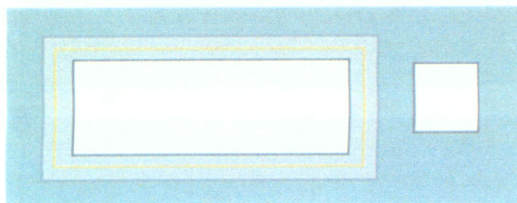
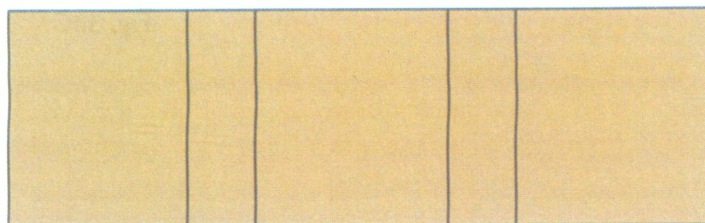


Fig. 31C



L X W of
Panorama
Board

Thicknes
of Package
X Length
of Board

L X W of
Panorama
Board

Thicknes
of Package
X Length
of Board

L X W of
Panorama
Board

Fig. 31D

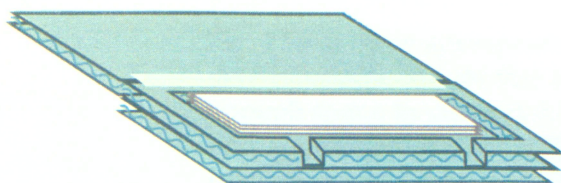


Fig. 32A

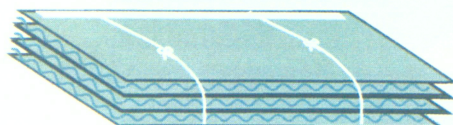


Fig. 32B

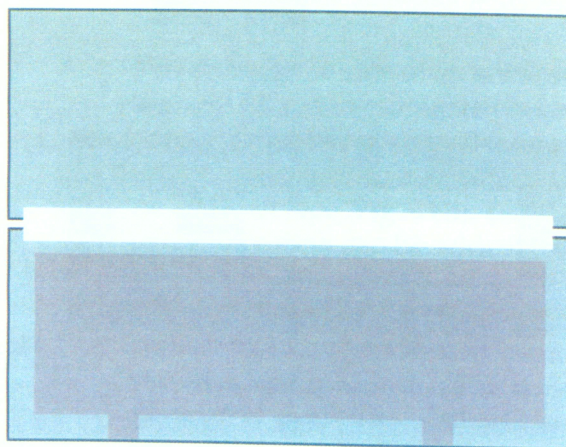


Fig. 32C

constructed from corrugated board. In order to create this package, pieces of board were affixed to the outer edge of the bottom board, using double-sided tape or PVA glue. For easier access, finger spaces were created by leaving gaps in the board. A lid was created using a piece of corrugated board, the same size as the bottom piece, and hinged with Tyvek tape (Fig. 32A). The entire package is sealed with cotton twill tape (Fig. 32B).

A piece of corrugated board is cut to the desired length, ensuring that it is larger than the photograph(s). Build up edges using a piece of board that is approximately 1.5" wide on all four sides. Build up using additional board for extra height.

Use Tyvek tape to fasten a lid to the top of the container that is the same size as the bottom. Reinforce the lid on the outside with additional tape. Tie the package securely with cotton twill tape (Fig. 32C).

Part D - Custom Housings

When all other pre-made options do not suit your purpose, a custom enclosure is the best solution. By designing a custom wrapping you can decide not only the shape and size of the housing, but also what it is made of, how it is fastened and what adhesives are used. It is easy to obtain a professional looking package that can last for many years when you have a good design and use proper materials. In addition to using the best materials to make the housing, the construction tools and workspace are just as important.



- A large workspace with a high table is essential. Spending many hours hunched over a table that is too low can be painful on the lower back and shoulders.
- A good work station should include a surface that can withstand working with sharp objects. A popular choice is a self-healing mat, available at craft stores as well through archival suppliers. The surface of this type of mat does not chip or break away when cut into repeatedly.
- A good straight edge and a ruler is a must. Some rulers are available with a cork backing that can help keep the ruler from slipping on the surface being measured and cut. A straight edge, similar to a ruler, is a heavy straight piece of metal, which can help keeping a straight line when cutting freehand with a blade. Many people prefer working with centimetres rather than inches as it is easier to obtain more precise measurements.
- A bone folder or teflon folder is a very useful tool for most boards and papers. It is a slim object with a rounded yet pointed end. It is used to score boards and papers prior to folding, creating a clean, straight edge. For heavier gauge boards, a board bender is preferred.

- A sharp blade is always essential for making custom enclosures. Look for a blade with a comfortable handle and that the blades can be replaced periodically. For larger jobs, a guillotine or rotary cutter may be preferred.



Diagrams in this guide are made up of four types of lines:

A grey dashed line represents the size of the overall paper or board stock. The enclosure is designed in the cut piece of board and what is in the grey area can be discarded. In addition, measurements in grey at the bottom and side of the diagram represent the size of the overall board.



A solid black line indicates the edge of the box shape. This line can be cut with a blade and separated from the grey area.



A dashed black line indicates a fold line. To create a neat and even fold, score the area with a bone folder or lightly score with a blade.



A green line indicates to compensate for the thickness of the board. In an area where a green line is placed, measure dimensions and add thickness measurement to area shaded. Depending on the type of board used, adding thickness of board may be negligible and might not be needed.



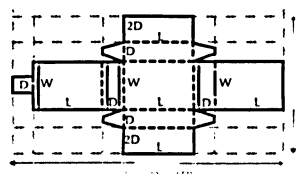
In addition:

L represents the length of the original object

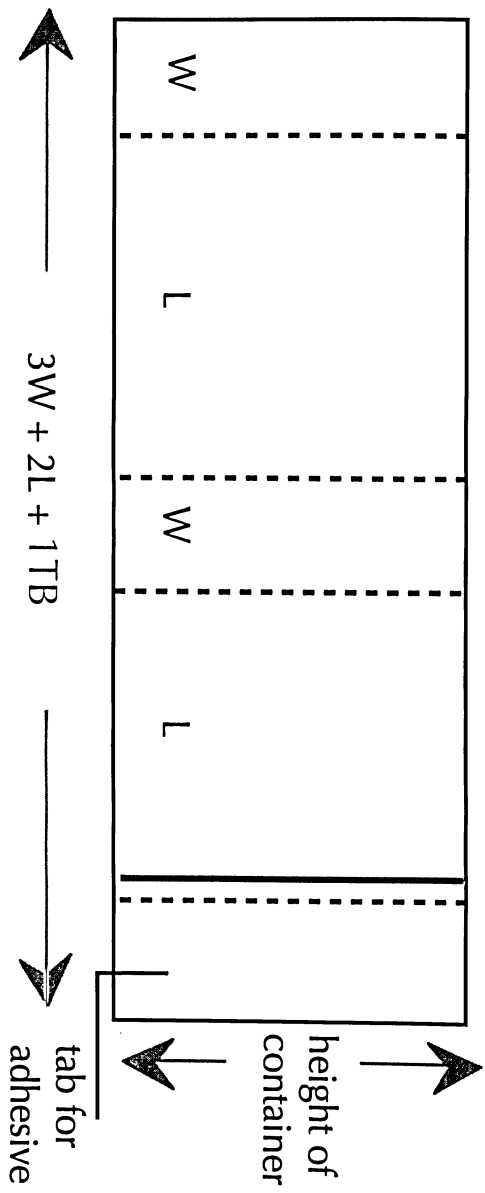
W represents width of the original object

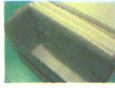
D represents depth, or height, of the original object

TB represents the thickness of board used to make the housing. As stated, add extra dimensions if necessary.



Basic Spacer Diagram:



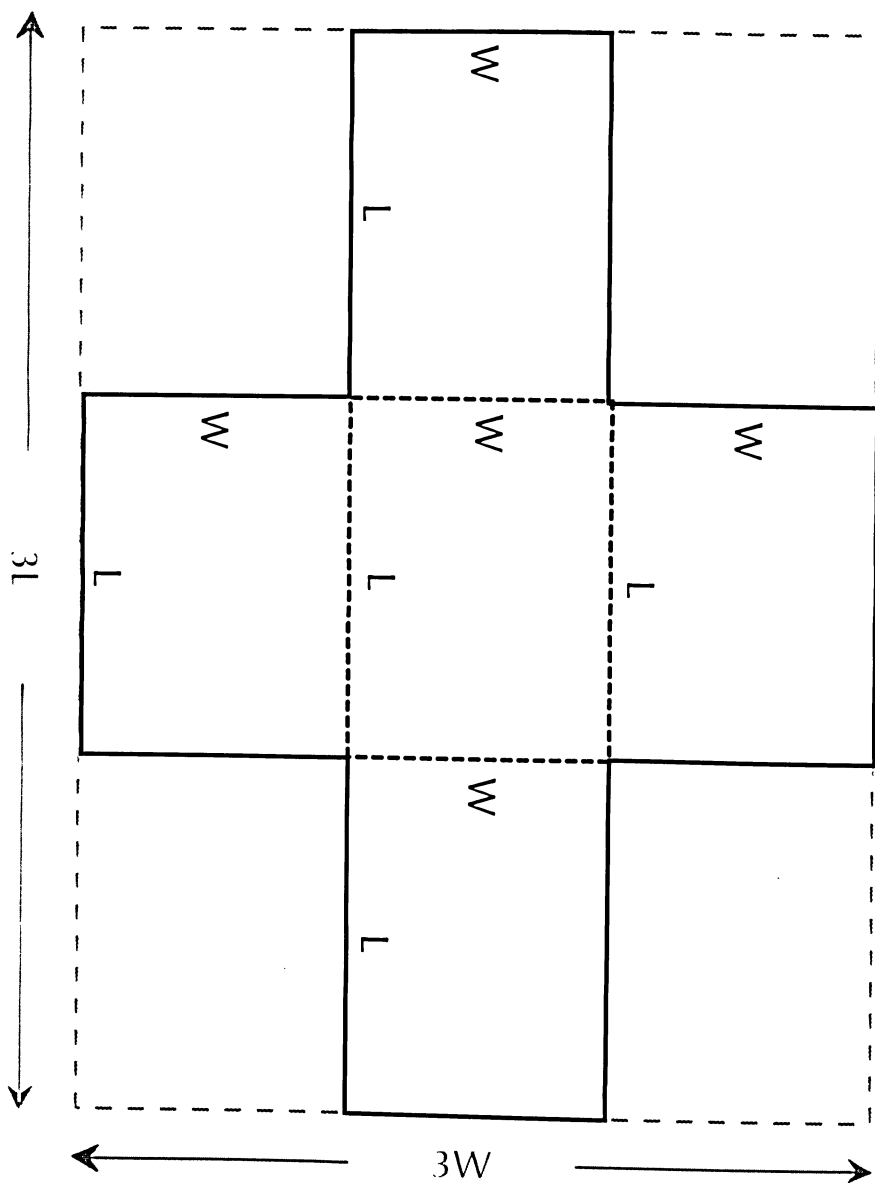


Spacers

Spacers are an efficient and inexpensive way to protect photographic objects when there is excess space in a container. Damage can occur when photographs can shift, slump or bend over during transport.

Essentially, a spacer is a bent piece of durable board, such as Coroplast or corrugated board. Spacers can be made in numerous shapes and sizes, and designed to be simple or complex.

When creating spacers, like other custom containers, aim to use as little adhesive as possible. Double sided tape may not be strong enough, therefore a neutral hot melt adhesive or PVA may be used.



Source: Archives of Ontario Preservation Services guide 1992



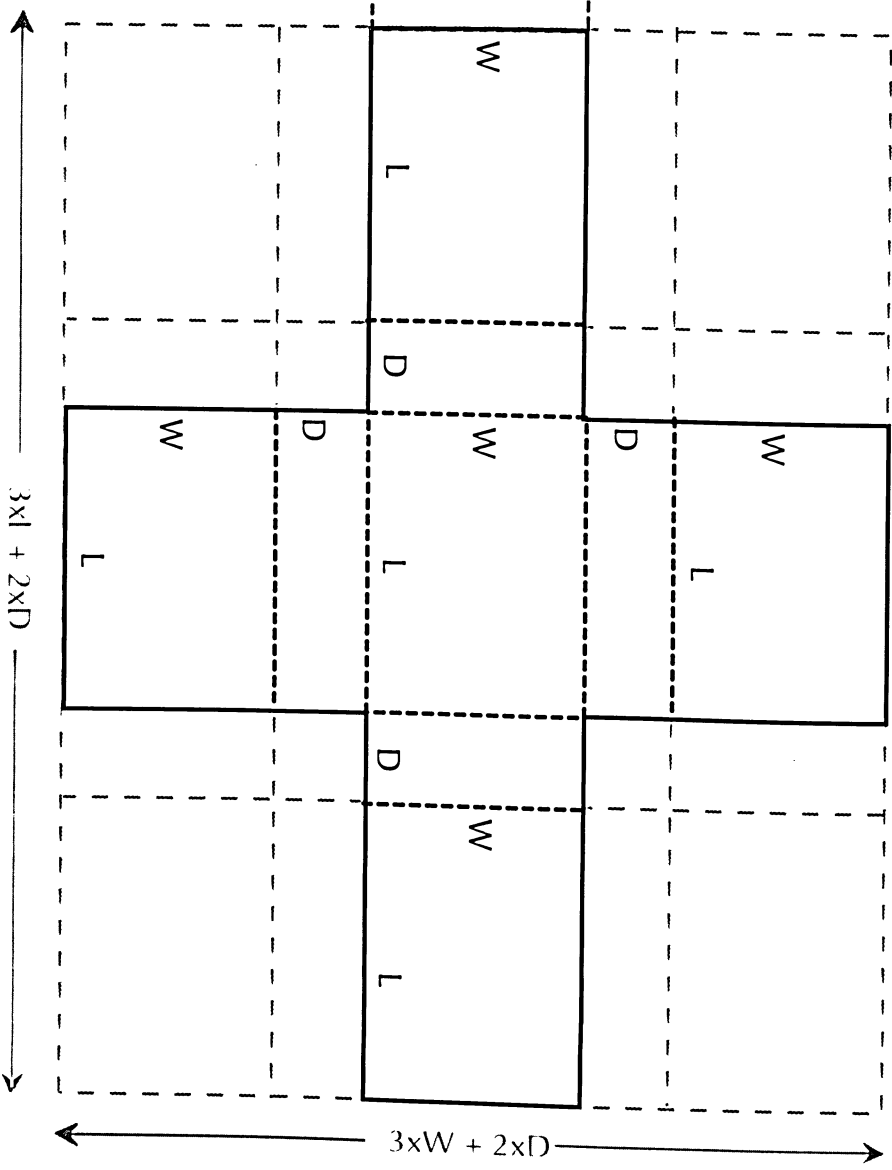
Custom Four Flap

Four-flap enclosures are easily purchased pre-made, but the occasion may arise where making a custom enclosure of this style would be a perfect solution. This enclosure is best for thin materials that require care when opening. Do not put more than one item per four-flap.

Of all the enclosures to make, this is by far the easiest. It involves the least amount of cutting and scoring and is a very simple design. An acid-free paper or thin board is best to use. No space is allotted in this diagram for thickness of board or thickness of item.



For enclosures
with velco
fasteners, an
extra panel is
recommended



Source: Archives of Ontario Preservation Services (handout) 1992



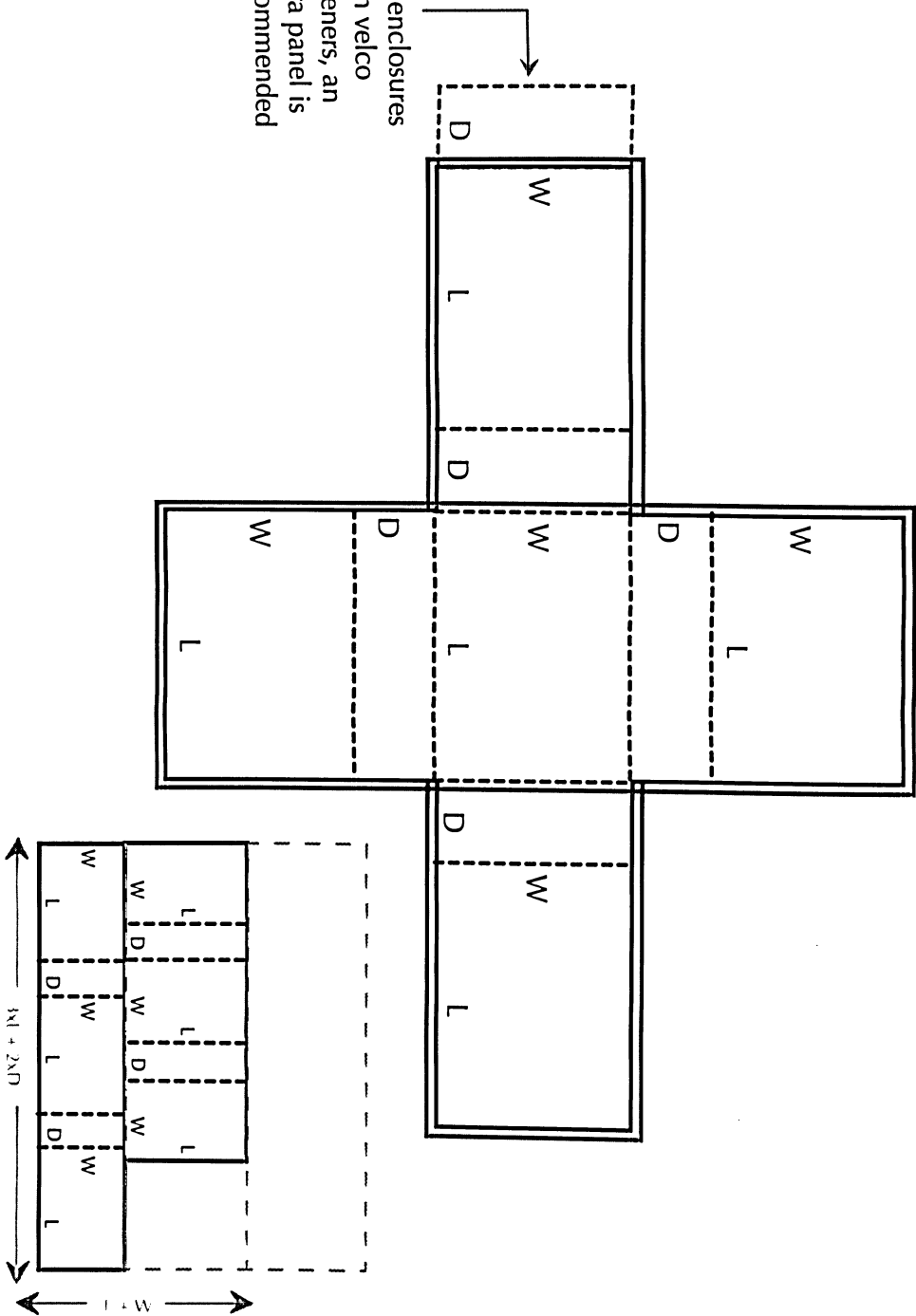
Phase Box – One Piece Design

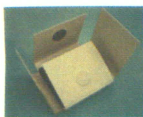
Similar to a four-flap, a phase box is a housing that is comprised of four outer flaps and an area to support the object, yet compensates as well for the thickness of the object. This enclosure is ideal for album wrappers and holding numerous loose objects. The one piece design is a more rigid design than the similar two piece design, as it is constructed from one continuous piece of material.

The design below is constructed using one piece of board. Usually a thin board, such as Perma Dur, is used for this type of enclosure. This design can be easily adapted to suit other materials.

For suggestions on fastening phase box enclosures, see page 61 in Section C.

For enclosures with velco fasteners, an extra panel is recommended



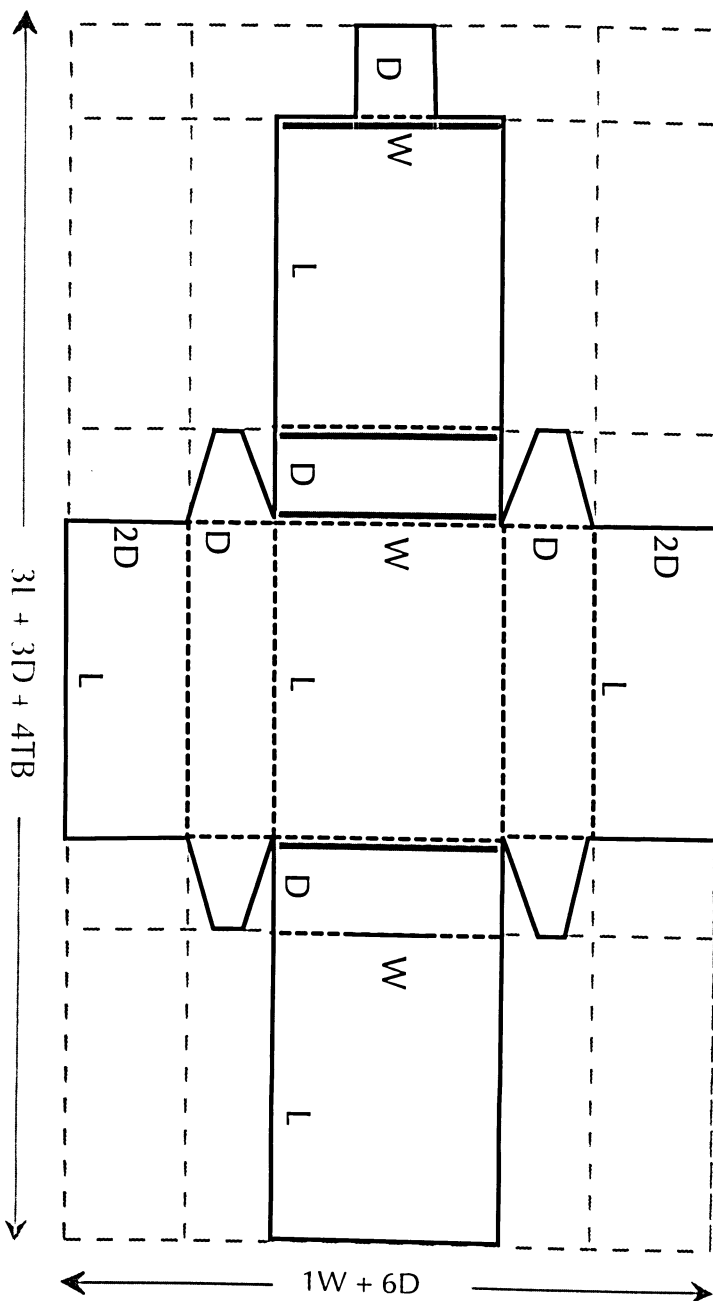


Phase Box – Two Piece Design

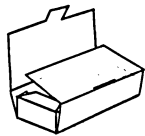
This enclosure is identical to a one piece phase box design, except that it is constructed from two pieces of board, rather than from one large piece. If housing materials are used sparingly in your collection, this design may be ideal for your purposes. It is also more forgiving if an error is made, as an entire piece of board is not wasted.

The design below is constructed using two pieces of board. They can be attached using double sided tape or PVA adhesive. As with the one piece design, a thin board is used for this type of enclosure, such as Perma Dur board, although this design can be adapted for other materials.

For suggestions on fastening phase box enclosures, see page 61 in Section C.



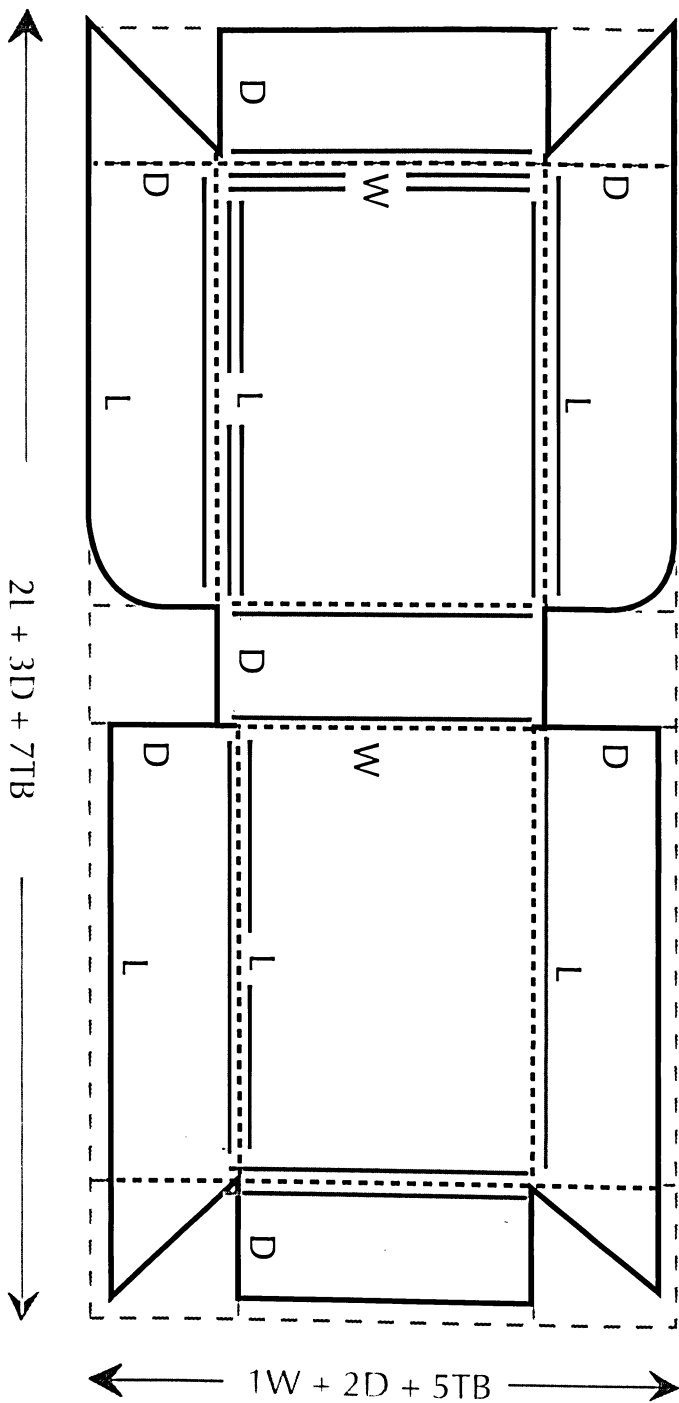
Source: NEDCC Technical Leaflet - Section 3, Leaflet 6



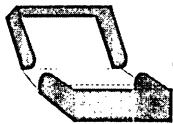
One Piece Enclosure with Corner Flaps

This design is a slight variation from a phase box enclosure. The differences are that this container offers better protection against dust and light with the inclusion of reinforced corners. It also includes a tab that folds into the corner of the box, eliminating the need for an additional fastener. This design is more complex than a phase box, yet can be learned with little effort.

This design is best suited for small to medium albums and lends well with Perma Dur board or comparative folder stock. It can be made with Coroplast or corrugated board for a more heavy duty enclosure purpose. When using thicker board, remember to compensate for the thickness of board, illustrated with green lines in the diagram below. Insert extra thickness as directed.



Source: Library Company's Clamshell Box Project #1641

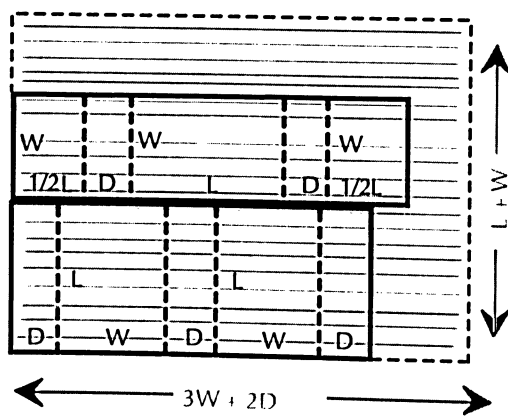
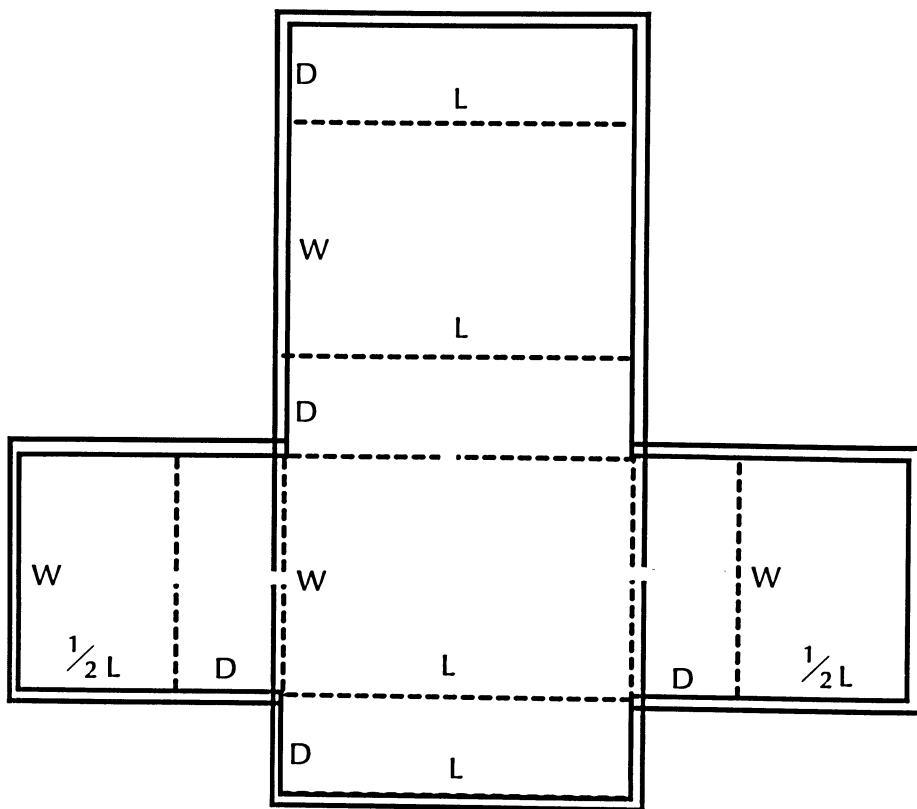


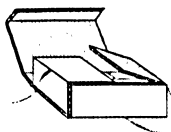
Clamshell

The clamshell container is a classic design, consisting of a base with a hinged lid. This style of container is suitable for objects of any size, provided that board used is of a suitable thickness.

To construct this design, follow the measurements below carefully. Remember that the lower tray (on right side of the diagram) is slightly smaller than the lid, to allow for the lid to fit securely on top.

Measure the length (L), width (W) and depth (D) of desired object(s). Measurements for extra thicknesses of board are illustrated by green lines. Measure and insert accordingly.

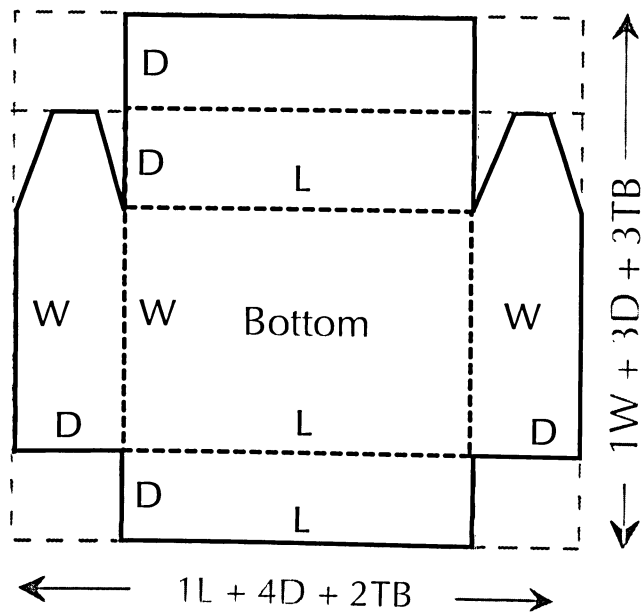
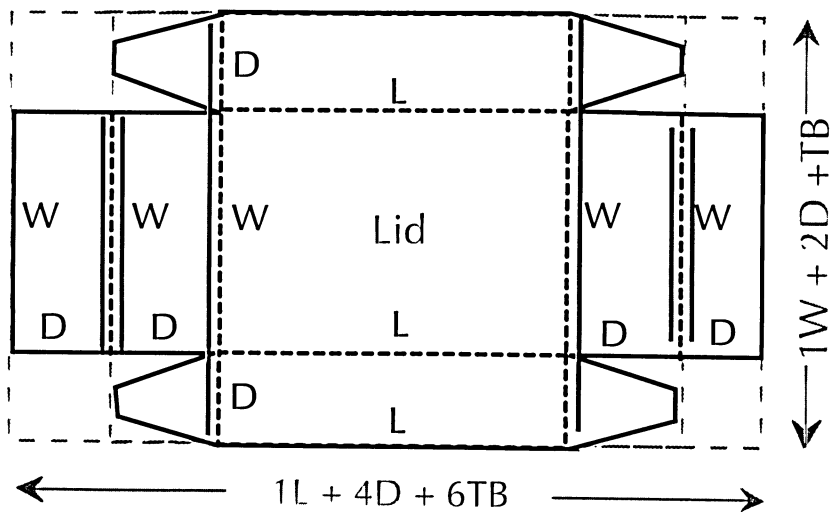




Library and Archives Canada Coroplast Custom Housing

With albums that are quite large, it is often easier to construct a custom container than find an existing box to fit the object. This album wrapper is made from Coroplast board and is durable enough to withstand the weight of the object and provide excellent protection from exterior elements.

This album cover is constructed in two pieces. The diagram on the bottom left demonstrates how the two pieces should be joined, and the adjacent diagram demonstrates the direction of the grain for each piece. It is important that the folds are perpendicular to the direction of the board. The two pieces can be joined with PVA glue, or a neutral hot melt adhesive. To fasten the album, pieces of cotton twill tape are woven through the boards, which prevents the tape from being misplaced and can assist with keeping the two boards together.



Source: Handout provided by Smithsonian National Museum of American History



Drop Front Box

This enclosure is constructed in two parts. The bottom is able to hold a number of items. One side of the box is not joined to the other edges, allowing it to 'drop' and obtain objects with less handling. A custom lid completes the enclosure and serves to protect the objects from dust, light and other exterior elements. These containers are available pre-made from archival suppliers, yet might need to be custom-made depending on your purpose.

This box is excellent for heavier or numerous items, but must be constructed with a heavier board, such as Coroplast or corrugated board. Edge flaps should be adhered with a stronger adhesive, such as PVA glue or a neutral hot melt adhesive. Remember to compensate for board thickness, indicated with green lines in the illustration below.

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