
On Again, Off Again: Conservation Aspects in Accessible Display Case Design

The National Museum of Natural History (NMNH) and the National Museum of the American Indian (NMAI) are in the final stretch of a three year collaboration with the Anchorage Museum at Rasmuson Center to create an Alaska Native cultural exhibition. The project, developed in conjunction with the Smithsonian's Arctic Studies Center is intended to provide an unprecedented level of access and interaction between Smithsonian collections and indigenous source communities. The gallery, located in the new wing of the Anchorage Museum, will include both exhibition and research spaces. Floor-to-ceiling glass cases will display almost 600 Alaska Native heritage objects from the Smithsonian collections, and at the same time be available for hands-on examination and discussion by Alaska Native elders, artists, and scholars.

Smithsonian conservators have been working to ensure the long-term preservation of these objects, while simultaneously facilitating the access requirement of the loan. Meeting conservation criteria to allow objects to be safely removed from exhibit for study has been an ongoing process, which has included working closely with exhibition designers, curators, fabricators, and mountmakers. Conservators have also addressed the conservation concerns of display cases utilizing a tensioned rod system to support fragile objects in an active seismic environment and the design of object mounts that properly support objects inside the display case; allowing the objects to be visually accessible for study; and serve as a means of conveyance to bring objects from exhibit cases to the study center. This paper summarizes the conservation challenges of working with a unique exhibition case design in which objects will be routinely removed from exhibition for study and museum programs.

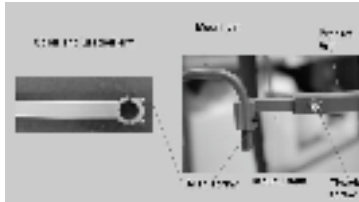
The newly completed expansion wing of the AM holds the 10,000 sq ft Arctic Studies Center Gallery and adjacent

rooms and spaces for the objects to be brought to for study. Ten Alaskan cultural groups are represented in the ASC gallery's seven community cases. The objects are grouped within each case by the three major themes of home and community; land, seas and rivers; and ceremony and celebration. The objects are placed at "use" level with boots on the floor level deck, hats at head height, etc. In addition, there is a large thematic case with cross cultural groupings of objects types including boat models, baskets, pipes, goggles, and masks. The massive floor to ceiling community cases are double sided metal construction tied into the gallery floor and ceiling, with floor to ceiling glass panels. The large glass panels of the cases are also the case doors and open with actuators; the doors slide laterally to allow access to the case interiors.

Objects are displayed in these cases cantilevered from steel rods with attached hardware designed to allow objects to be removed for study and re-installed for exhibition multiple times over the length of the twelve year loan. This case hardware consists of spring tensioned vertical steel rods attached to the ceiling and screwed into the deck, all engineered to meet seismic requirements. Attached at a 90 degree vertical angle to the steel rods are collared, hollow steel bracket arms. The collars of the bracket arms are tightened on the vertical rods with Allen screws and can be infinitely adjusted along the vertical rods. Steel mount stems attached to the object mount slide into the bracket arms and are secured with thumb screws. Both the bracket arms and mount stems are square stock to prevent any rotation of the mounted object. Object mounts are primarily fabricated from brass with a pin extending from the back that drops into a hole in the mount stem. This pin is tightened to the mount stem with a small screw. If required the mounted object can be removed from the system via the pin. The pin also allows some adjustment of the object position in the case.



Details of case hardware and object removal from exhibition case:
via mount pin, below left,
and via mount stem/thumb
screw, below right.



For study, objects are transferred from the case to carts. The object remains in its mount and is detached from the bracket arm via the mount stem. To remove an object the thumb screw on the bracket arm is loosened and the mounted object and attached mount stem slides out as one assembly. Carts, constructed with the same case hardware, have bracket arms to receive the mount stems of the objects. Each cart is designed to hold multiple objects depending on their size. Carts will be moved to a consultation room or an area in the gallery designed for groups such as school children. The access plan is designed so most objects will remain on the carts for study.

The exhibit case design, mounting system, and handling requirements posed new challenges for the project conservators. Initially it was necessary to evaluate whether the selected objects could endure being on display for an extended period, coupled with the stress of additional handling during access for study. When conservators were first asked to review the design for object access, we realized that mount

fabrication would be the most complex part of the project. The factors of the exhibit design of vertical rods, the access component, and the fact that Anchorage is in an earthquake zone necessitated complex mounts. The mountmakers had to create mounts to allow the objects to hang suspended from vertical rods, meet seismic criteria, protect vulnerable parts, hold the object immobile when handled, and serve as a means of conveyance from case to cart and back. Finally, the mountmakers were asked to make a mount that allowed maximum visibility for study such as the backs of masks and interiors of baskets. This was no small task.

The objects chosen for this loan are primarily ethnographic and are made from a wide variety of mostly organic materials including soft woods and other easily marred object types. They are also often constructed with many protruding and dangling parts and are difficult to mount for a standard display. In addition, even after conservation some of these objects remain inherently weak, and the mountmakers were asked to make supportive mounts for these objects. This type of mounting required extensive object handling by the mountmakers who were creating very extensive brass mounts to meet the design requirements. This type of intrusive cage-like mount is not the normal approach of the mount-maker who works to make mounts minimal and invisible. In addition, there was a balance of tightening the brass clips to make the object immobile while at the same time not pressing into or marring soft or friable surfaces.

The exhibition mounting system was new to both the conservators and mountmakers. There was a learning curve for both groups and some frustration early on until conservators could clearly articulate the mounting requirements. For example we asked that objects be locked on their mounts. To mountmakers this meant they could not be removed while to conservators this meant that they could not be removed and also could

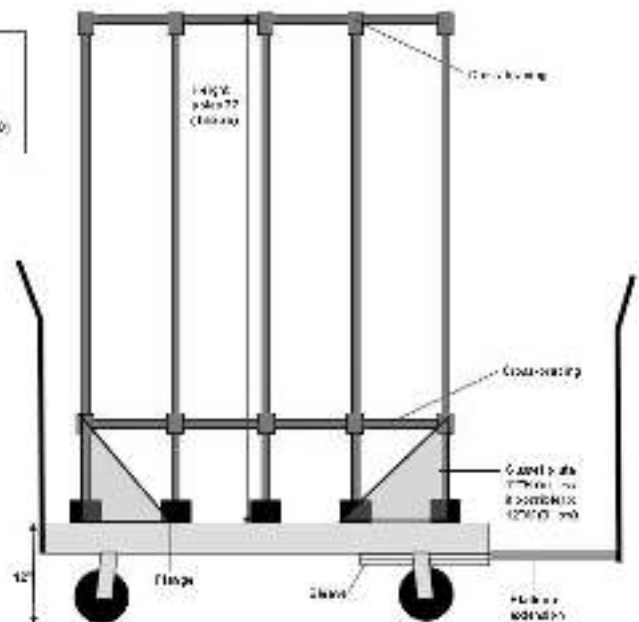


Mount construction in progress.

Elevation of cart

Exhibit case hardware (modified)
29-507W-09571
Major dimensions:
L: 350mm (Judson 402742-000)
D: 114mm (Judson 38714-000)
W: 1955mm (Judson 129404-000)
H: 477mm (Judson 129404-000)

Cart schematic.



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not twist or rotate when handled. Good communication between conservators from two museums, mountmakers, and curators was critical to the success of this project.

Because of the complexity of the design and the untried access component, a full scale wooden mockup of a community case was built at SI's Museum Support Center. This mockup was critical for mount making to test the mounts on an untried vertical rod system. Having full-sized case mockups also allowed the team to confirm object placement in the cases, hopefully eliminating adjustments during install. We could determine if the spacing between objects allowed safe access for removal and also determine the object removal sequence, in other words, what other objects needed to be removed to safely access the target object. We were also able to address any vibration issues and minimize them.

Also, in the early designs the objects that were high up in the case were placed further back in the cases to provide lighting for objects below. Conservators worked with the designer to move the upper objects placed at 7 feet and above forward as much as possible by lengthening the bracket arm to provide safe removal without having to remove the objects below. All of the case positioning became a balancing act because lengthening the bracket arm introduced more vibration in the system but allowed easier and safer access to the object.

Case density was carefully reviewed. A safe working distance between objects for removal is required as removal entailed reaching behind the object, with a small tethered screwdriver to loosen the cylindrical slotted thumb screw on the bracket arm. In the end, for various reasons, enough objects were dropped from the loan to provide the needed distance between objects. For seismic movement the engineers asked for 2 inches between objects but we found about 4 or 5 inches between objects allowed us to reach back to access the thumb screw and release the mount stem.

A significant concern was vibrations in the vertical rods. These vibrations occurred when accessing objects in the cases. Vibration was minimized by additional hardware to tie the vertical rods together and by simply grasping the vertical rod during object handling. The team also worked to keep the distance between the mounted object and vertical rod as short as possible to reduce vibration. Mountmakers also used heavier, stiffer brass stock when making the object mount to reduce any bounce.

Large and long objects such as harpoons often require multiple mount attachments for stable mounting. Multiple mount stems require exacting bracket arm spacing and a more complicated object removal and re-installation. Aligning the mount at two points, while sometimes working blind, proved challenging for some objects, and there is a learning curve for managing the install and de-install to prevent locking while moving the mount stems into the bracket arms in unison.

There were some modifications to the primary mounting system. While the design initially did not include Plexiglas as a mounting component we found that in some cases additional support was needed to provide safe conveyance. We had a large group of boat models constructed of fragile materials such as birchbark and stretched skin, often with projecting paddles. Plexiglas platforms provided the least visible and most protective alternative, allowing removal without handling the object. While these were not part of the original design concept they became a standard component for mounting this exhibit.



Large flat textiles were mounted onto support boards. In a few cases, because of limited access to the thumb screw, a modification of the mounting system allows the support board to be removed from a metal frame that remains in the case while the textile travels flat on a cart for study.

Limited access at the ends of cases, which do not open, restricts access to objects placed at the ends, and some large objects such as snowshoes need staff on both sides of the double sized case to de-install. Some very large or complex objects will not be removed from the cases because of the difficulty of access. Also, some objects such as a rabbit fur garment that actively sheds are not good candidates for removal and will remain in the case. Because some objects will not be removed, care needed to be taken to confirm that the surrounding objects could be maneuvered safely around the fixed object.

There were many practical considerations that became apparent during this process. Install and de-install would be a group effort. It was quickly realized that the steel case components especially the projecting bracket arms present some danger. This confirmed the need for a spotter to ensure the person working in the case does not harm themselves or an object with a careless elbow. Other considerations include possible surface damage of mounts during repeated handling including scratching the Plexiglas and paint of the brass mount and leaving fingerprints on the Plexiglas and show fabric used on some mounts.

As this system is new, all parties will learn along the way. The success of the access component is yet to be determined because it is a new endeavor. The cart system will hopefully allow a high level of access needed for study, cultural consultation, and education while at the same time offering protection for fragile artifacts.

This exhibition has relied very heavily on the expertise and ingenuity of the mount making team, and the conservators extend their thanks to the mountmakers for their patience and hard work.