

**Collections, Disasters, and Recovery:
A Case Study of the Museum of Chinese in America Archive Fire**

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Collection preservation is an intense job that requires putting constant effort into it. Disaster planning might not seem a pressing concern for cultural institutions, but one single disaster could undo the work they did for years. In the past decade, many heritage landmarks were severely damaged by disasters. On January 23rd, 2020, the Museum of Chinese in America (MOCA) 's Collections and Research Center located at 70 Mulberry Street, Manhattan, experienced a devastating five-alarm fire that put over 85,000 artifacts in danger. After the MOCA archives fire, I interviewed the director of MOCA's Collections Center — Yue Ma and researched on the strategies of adding protection and reducing damages to the artifacts before and after the emergency. This article begins by outlining the regular preventive conservation of collections. Then, by using the case of the fire at 70 Mulberry Street, it explored the entanglement of the real challenges the museum faced, disaster management plan, and recovery methods. At the end of this article, a list of guidelines was provided for museum collections, archives, and libraries.

Preventive Conservation and Disaster Management of Collections

Preventive Conservation

The collection storages of museums, archives, and libraries could differ regarding their locations, spaces, types of collections, and missions. However, they all agree that heat, moisture, light, molds, bugs, dust, and theft could threaten their artifacts if they turn a blind eye to these issues (Te Papa National Services, 2001). Thus, they should establish a regular program of preventive planning as a high priority. They need to always keep this kind of awareness during the process of site selection, construction, layout planning, maintenance, and conservation afterward:

1. Floor selection

The first floor is the best floor for the collections. First of all, it has the load-bearing capacity for placing thick shelves. Secondly, it is convenient to rescue the artifacts on the first floor when an accident occurs. Although the basement can bear lots of weight, it is easy to get wet on rainy days. So, it is not suitable for long-term storage. Floors that are too high are also not ideal for storage. High floors generally have low load-bearing. Meanwhile, because high floors rely on elevators, the elevator would be closed if a disaster occurs. This issue will add challenges to the rescue mission.

1. Wall construction

If conditions permit, museum collections and archives can build double walls with the hollow part as corridors. The double walls can ensure the constant temperature and humidity of the storage.

1. Window placement

Long-term sunlight will accelerate the deterioration of the collections. Therefore, it is necessary to minimize the exposure of the artifacts to the sunlight. The ideal situation is to store the items in the rooms without windows. The collection space with windows requires curtains. The electric lights also need to be turned off by the staff members when the storage room is closed.

1. Collection layout

The first thing to consider is the priority of each type of collection. The staff members should place high priority objects close to the entrance. Second, it is also necessary to control the collections' placement within a safe height to prevent them from falling off the shelves because of vibration. Finally, making a collection map in digital is also very important. The map needs to

mark as much collection information as possible. In this way, when a crisis comes, the staff can quickly determine each type of collection's location and make a suitable rescue plan.

1. Triage room

Molds and bugs can damage artifacts, and if they aren't handled by the collection staff properly, they can infect other items in the collection. Every time a new item arrives, it needs to be carefully checked and disinfected by the team. Constructing a triage room is useful to execute this series of tasks.

1. Supplemental tools

Fire alarm installation is indispensable in the storage. The team also should place fire extinguishers, waterproof packages, carts, boots, and gloves in easily accessible places.

1. Security enforcement

The storage needs to be accessible to only a limited number of people, such as collection staff and curators. Researchers should not get into the storage space by themselves. A better way is to take the document out through collection staff. Installing security cameras also can enhance the safety of the building.

Cultural institutions can easily find the templates of preventive planning in guide books. Yet, a customized, practical, and flexible approach is required so that organizations can keep their unique collections in good condition and implement appropriate actions efficiently when facing incidents or more significant challenges - such as disasters.

Disaster Management

In the past decade, many heritage landmarks such as Notre Dame Cathedral, 2019; National Museum of Brazil, 2018; The Bell Tower of the Novodevichy Monastery Moscow, 2015, were severely damaged by fire (TRT World, 2019). These recent events have reminded us that any collection may be at risk. In general, the fire could be the most destructive type of disaster to the artifacts. The threats also could be triggered by other things. There are two kinds of disasters, which can be hazardous for human lives, buildings, and collections, such as natural disasters¹ and man-made disasters². Large or small, natural and man-made emergencies could put an institution's staff and artifacts in danger (Ansari, 2008, p17).

Museum collections, archives, and libraries can consider regular preventive conservation plans as a part of disaster management. Small-scale emergencies could be restricted by quickly reacted staff members if an appropriate maintenance plan existed in advance. However, to enhance resilience from severe incidents, a more comprehensive and systematic disaster management program has to be established, which should priorly include a risk assessment. A wise first step is to draft a list of possible risks based on the local climate, the storage building's surroundings, and the institution's weakness against certain kinds of disasters. In the next stage, the planner needs to make an emergency preparedness plan that puts the collection's vulnerable parts under care and eliminates as many risks as possible. The foresight should then come along with the rest of the program: the rescue plan and recovery plan.

Although priority lists and guidance notes are made, supplemental tools and contact information are provided, the real emergency response could still be chaotic. Many organizations have developed

¹ Storm, flood, earthquake, forest fire, etc.

² Power outage, chemical spills, arson, bomb threats, etc.

their disaster management plans. Some users found the methods did not work as effectively as they had hoped. However, it is less overwhelming if the issues have been considered in advance, rather than first evaluated in a real emergency.

The Museum of Chinese in America Archive Fire

Fire at 70 Mulberry Street

70 Mulberry is a historic red brick building located in the heart of Manhattan Chinatown. Owned by the city and administered by the Department of Citywide Administrative Services, it served as the office space of HT Chen Dance Center, United East Athletics Association, Chinatown Manpower Project, and CPC Chinatown Senior Center (Think! Chinatown, n.d.). On the second floor of this building, located the MOCA's Collections and Research Center, which housed over 85,000 artifacts that collectively tell the story of more than a century of Chinese immigration in the US.

Yue Ma, the director of MOCA's Collections and Research Center, said that the museum faced many challenges in preserving their collections at 70 Mulberry. This building has many windows. And, because it is 130-year old, its vulnerable floor and walls have holes in it. Since MOCA's collection center first moved to 70 Mulberry, the collection staff carefully drafted the customized preventive conservation plan. Yue used a room with the most windows as the office space, and she made sure all the collections were stored in places with few or no windows. To prevent mice and bugs, the staff blocked all visible holes with barbed wire. Although many maintenance actions were executed, issues still existed. With the expansion of MOCA's collections, the storage space was gradually running out. Many artifacts have to be hung on the walls or piled up high on the shelves.



Figure 1. Zhao, J. (2020, January). MOCA's Collections and Research Center at 70 Mulberry Street, New York. Retrieved from https://media.newyorker.com/photos/5e2f1214261ed00008d2f094/master/w_2560%2Cc_limit/Hsu-MOCAFire-1.jpg

On January 23, 2020, the 70 Mulberry experienced a five-alarm fire. Around 8 pm, the fire started on the fourth floor and quickly burned to the fifth floor, destroying its roof. The collapse extended to the third floor, and the shake caused MOCA's collections on the high shelves to fall. Firefighters soon arrived and pumped water into the building for more than 20 hours. Water penetrated the floors, accumulated, and soaked many collections on the lower shelves and artifacts that fell on the floor. After two days of rescue, the fire was finally gone. By carefully observing the building that just suffered from a fire, people could see the collection boxes through an opened window of the second floor. Came across the disaster and exposed to the weather through the opened window, the storage space loses the constant temperature and humidity. Much worse, the museum staff members were told that no one would be allowed to enter and retrieve the items for months.

MOCA's Fire Recovery

Ideally, air drying and freeze drying wet collections need to be done within 48 hours after the disaster occurred to get good restoration (see Library of Congress, n.d., for more). But the reality is often cruel. The first retrieval was soon carried out on January 29th and 31st. Then, the city delayed initial retrieval efforts out of safety concerns, which would have resulted in irreparable damage (Ho, 2020). After multiple communications with the city officials and getting support from the public, MOCA finally got the approval of retrieving the remaining collections at 70 Mulberry on March 8th. About 20 workers that wore protective hats and masks passed more than 2,000 boxes of artifacts during that day.



Figure 2. Zhao, J. (2020, March). Workers are retrieving collections from MOCA's Collections and Research Center on March 8th, 2020.

Before the 70 Mulberry fire, MOCA didn't have a comprehensive disaster management plan but an outline, the awareness was also embedded in the museum staff's mind when they were planning regular collection maintenance. They previously created a map of the storages and the shelves, and

input collections' locations into PastPerfect, which marked the majority of locations and information of their collections. This map helped the staff member set the priority after the disaster and provided a guideline to the workers who retrieved the artifacts. Like the digital map, during the salvage, many of their other plans proved to be effective. However, challenges still exist, and MOCA still has a long way to go.

In the following days after the fire, MOCA received hundreds of emails from different organizations and individuals. After countless communications back and forth, MOCA finally cooperated with four organizations to recover their collections: DORIS(NYC Department of Records and Information Services), AFR-NYC(Alliance for Response New York City), Polygon³, and TERS.

1/3 of MOCA collections were retrieved during the first retrieving on Jan.29th and 31st. Under the four professionals(DORIS and MOCA Staff)' brief check, the artifacts with little damage were transported to the fourth floor of 215 Centre Street - a space that the owner lent to MOCA after the 70 Mulberry's fire. With the assistance of volunteers from the city, temporary shelves and tables were quickly installed to place salvaged collections. Meanwhile, the conservation volunteers from the AFR-NYC started taking out the artifacts in the boxes, wiping off the molds on them, and leaving them on tables for air drying.

For the objects that were severely damaged by water, the restoration work was much more complicated. They were transported to the Polygon. The first step taken by the company's staff was putting all the collections into a freezing room to stop the deterioration. Then, the team freeze-dried the artifacts by putting them into a chamber. Polygon was recommended to MOCA by colleagues working in libraries. And, the mediums that the company previously restored were mostly papers. They don't have many experiences of restoring objects that are made of other materials. MOCA has multimedia

³ Founded in 1955, Polygon is a company with drying technologies and facilities, offering services within the areas of temporary climate solutions, document recovery, and emergency drying solutions.

collections, including paper works and vinyl, films, DVDs, and magnetic tapes. Some of the objects⁴ mentioned can not be freeze-dried, and the company staff was not familiar with this conservation knowledge. Everything was put into the freezing room during the weekend, and on the next Monday, media materials such as glass negatives, films, types, and DVDs were taken out under Yue Ma's in-person guidance.



Figure 3. Ma, Y. (2020). Polygon's chamber for freeze-drying artifacts, 2020. Retrieved from <https://user-images.githubusercontent.com/47676628/89826840-d3fb7880-db24-11ea-94d1-e4d8d62f5bbf.jpg>

The second retrieving happened on March 8th, MOCA was able to retrieve the rest 2/3 of its collections. Since the building was not considered safe so that everything was directly put into a freeze truck and transported to TERS. MOCA staff was not able to get closer to the building and check any box. All works were done by the city contractors.

⁴ Paper document can be restored by freeze drying. But objects such as vinyl, films, DVDs, and magnetic tapes only can be air dried.

Soon after, the COVID-19 came. Following social distancing, MOCA's main space located at 215 Centre Street in Manhattan remained closed till October. But, its fire recovery mission didn't stop during the COVID-19 pandemic. As Yue Ma has mentioned in one of her interviews, the recovery was a multimillion-dollar mission. The insurance money that the museum received would not cover it all. Fortunately, the large amount of financial support from the public has become the game-changer. MOCA raised over \$60,000 by setting up a GoFundMe page in January (Kinsella, 2020). Moreover, many on-going grants MOCA has received were put into the recovery tasks with grant providers' permission. In late September, MOCA's president Nancy Yao Maasbach was told that the museum had been chosen to receive a \$3 million grant from the "America's Cultural Treasures" initiative, which provides pandemic relief for art organizations run by people of color (Errico, 2020). Having received help in many ways, MOCA still counted every penny for moving forward during the pandemic.

MOCA Workshop: Collections and Research Center

In October, nine-month after the fire at 70 Mulberry Street, MOCA began to re-storage their collections in its new home - MOCA Workshop: Collections and Research Center located at 3 Howard Street, Manhattan, one block away from the museum's main space. Rented by MOCA recently, the building was previously used as a boutique with a fashion studio. Compared to 70 Mulberry, this place is more suitable for collection maintenance in many ways. First of all, it's relatively new, and it's two-times bigger than the previous one, holding about 5,000 square feet' space. The new archive can store more artifacts and accommodate a studio to document collections and shoot oral history videos. Secondly, since it occupies both the first and second floors, MOCA decided to transform its archive into a publicly accessible research space by constructing a reference library by the first-floor entrance. Finally, MOCA will apply a new freestanding shelving system to the new archive, which will make the preservation process more flexible and efficient. However, this building has big windows. Then, the construction team

found there was no fire alarm. The security also could be a problem since the first floor's library will be accessible to the public. Although the new space is adequate, these issues still should be addressed during the construction.

As the arrival of MOCA's 40th anniversary, MOCA opened the MOCA Workshop for public viewing on October 17th and announced their future recovery plans. One goal is to cooperate with schools to let students learn about collection management and conservation knowledge by restoring MOCA's collections. "Everything is coming back. It has been stabilized. This is the beginning of a new tomorrow," said Nancy Yao Maasbach during the anniversary (Hsu, 2020).



Figure 4. Zhao, J. (2020, October). MOCA Workshop: Collections and Research Center.

Conclusion

The case of the Museum of Chinese in America Archive fire revealed what challenges a museum would face when it came across disaster. More importantly, it brings messages to many cultural institutions for how to improve their previous disaster planning:

1. Site selection

Choosing an appropriate site is a good start. An adequate space suitable for the collection can make the maintenance process much more comfortable and enhance the collections' resilience to disasters. If the space is not ideal, the staff should improve it and eliminate the potential risks.

1. Disaster plan and testing

Many cultural institutions have a regular maintenance plan for their collections. The standard method is often not sufficient when a disaster occurs. A plan specifically for disaster-preparation needs to be made. Also, an outdated or impractical disaster plan could quickly fail when the real threats came. Thus, the disaster plan needs to be updated and tested.

1. Collection map

Time is limited to disaster recovery. In order to retrieve the collections efficiently and appropriately, a collection map should be previously made. Also, the map has to be as detailed as it can be.

1. Training

A successful emergency response relies on a collaborative approach with staff working together in clearly defined roles, with guidance on what they need to organize and what they are authorized to do (Matthews, Smith & Knowles, 2009, p9). Training in the procedures will give individuals greater confidence in their position and make the disaster response less overwhelming.

1. Conservation knowledge

The knowledge of conservation is essential for collection recovery. Otherwise, the retrieved objects could suffer from second or third damages. The knowledge includes conservation methods for different materials, restoration facilities, and restoration companies.

1. Public relationship

A good relationship with the public would be tremendously helpful for incident response. Moreover, keeping a clear mind is crucial while communicating with the public and hearing advice from different sources.

Museums, archives, and libraries care for their collection in the trust of the public. Therefore, it is vital for them to ensure the safety of their storage, maintain their buildings, and minimize the risks. Meanwhile, one thing that should also be concerned is that when the system was put to a real test, the regular plans could fail in spectacular fashion. In the end, this article recommends cultural institutions to set crisis awareness, take measurements, and consider the aspects of preventive conservation and disaster management comprehensively.

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