



KANSAS STATE UNIVERSITY - HALE LIBRARY FIRE RESTORATION

Hale Library at Kansas State University suffered extensive damage to its structure and contents after an accidental fire on the roof. Hale Library has more than 1.2 million books in its collection, not including other resources. The following excerpts from the library's blog share an eye-opening experience from the front lines of the library's recovery and restoration project with BELFOR.

After the Hale Library Fire: What's past is prologue

Posted on June 19, 2018 by Sarah McGreer Hoyt

It started shortly after 4 p.m. on Tuesday, May 22.

Alarms went off in Hale Library. Employees reported smoke.

The building was safely evacuated, and emergency personnel from the Manhattan Fire Department, Riley County EMS, Fort Riley, Blue Township and others responded.

In order to save the structure, several hundred thousands of gallons of water flooded the building ...



Inside of Hale Library, the damage was much, much worse than initially hoped. On May 24, President Richard Myers and Dean of K-State Libraries Lori Goetsch saw the destruction for the first time.

"To be honest it was pretty devastating," Dean Goetsch told Brady Baumann of KMAN. "It was heartbreaking to see the amount of damage. In order to enter the library, we of course put on hard hats. We had to put boots on because the water was up to our ankles. ... It was really sad. You know, I've been here for 14 years, and Hale ... feels like home. ... And it was like seeing your home damaged."

Historic Farrell Library bore the worst of the destruction. Holes for the firefighting efforts were cut in the roof, and a lot of the water poured through that part of the building.

Nevertheless, even as K-State Libraries administrators were absorbing the scope of the disaster, they were also launching the recovery process.

Within 48 hours, BELFOR an international disaster recovery and property restoration company, was on site to assess the damage.

On May 27, more than 75 BELFOR workers began removing wet carpet and ceiling tiles from the library. By June 1, their ranks had grown to nearly 200 workers from eight states. They swarmed the site, performing assessment, cleaning and determining what could and could not be salvaged.

Most of the carpet and ceiling tiles in the building have been removed, and it's estimated that about half of the drywall will need to come out.

Two weeks following the fire, all of Hale Library's occupants — 87 K-State Libraries faculty and staff members, 38 IT Services staff members, 2 Academic Learning Center employees and dozens of student employees— were generously welcomed into 13 temporary locations across the university.

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Many, many challenges lie ahead for the recovery effort. Even today, there is very little lighting since electricity has not been restored. The generators on the lawn power dehumidifiers and air cooling units in an attempt to keep the temperature and humidity more manageable. On hot days, it reaches 90 degrees inside the building. Workers have to wear hardhats, vests, and respirator masks, so that combination makes the heat even more oppressive. The sheer scale of the recovery for the 550,000-square-foot Hale Library is immense, and there are new problems to be solved at every turn.

The outpouring of support from faculty, staff, students, alumni, donors and other libraries around the country has been overwhelming. We are profoundly grateful for their generosity and kind words, and we know that with the K-State Family behind us, the long chapter ahead of us has a very, very bright ending for an exciting, new Hale Library.



What happens to wet books?

Posted on June 22, 2018 by Rebekah Branch

After the fire it was critical to address the issue of damaged books, especially those that were wet. Hundreds of thousands of gallons of water were used in the rescue effort, and that water drained down into different parts of the library like Room 117, which was full of books stored on compact shelving.

In order to preserve wet books, it is best to freeze them. The process of freezing the book turns the water into a solid and stops further damage and mold growth. The majority of wet books were part of the circulating collection housed in Room 117. At this point, 3,357 boxes of wet books have been transported out of Hale Library.

Packing and gathering books is a long process that has been complicated by the fact that library personnel could not enter the building for several days. When they finally could start, the water damage had left the building with no power.

Since the books were stored on compact shelves powered by electricity, at first they couldn't move the shelves to access the books. Compact shelving moves on chain-link rails, which allows for libraries to provide more books in less space.



In some places, shelves of wet books started expanding so much that the pressure lifted them off of the shelves.

"We were unable to initially power up the shelving in Hale 117 with battery back-ups, so our wet materials stayed in un-airconditioned, non-climate-controlled conditions for a number of days," said Michelle Turvey-Welch, Head of Metadata, Preservation, and Digital Initiatives.

There is an established protocol that preservationists use when freeze drying books. First, they need to be packed in a specific way: They must be placed spine down in a box that has been thoroughly lined with heavy plastic. Then, those boxes need to be tightly packed in order to help the books maintain their shape.

Next, the boxes are sent to the freezers where they sit for anywhere from several days to several weeks depending on how wet the book is. Housing and Dining Services at K-State was kind enough to loan us the use of their industrial freezer, which is located in the Pittman Building. The freezer is anywhere between negative ten and negative 15 degrees.

The books that were in the freezer have been loaded into refrigerated trucks and shipped to a BELFOR Regional Technical Service Center that specializes in water damaged documents and books in Fort Worth, Texas. The wet books will be put into vacuum freeze dryers that will draw out the rest of the moisture and turn it to water vapor. Then, the books will undergo the final restoration and cleaning process.



Hale Library: Week five update

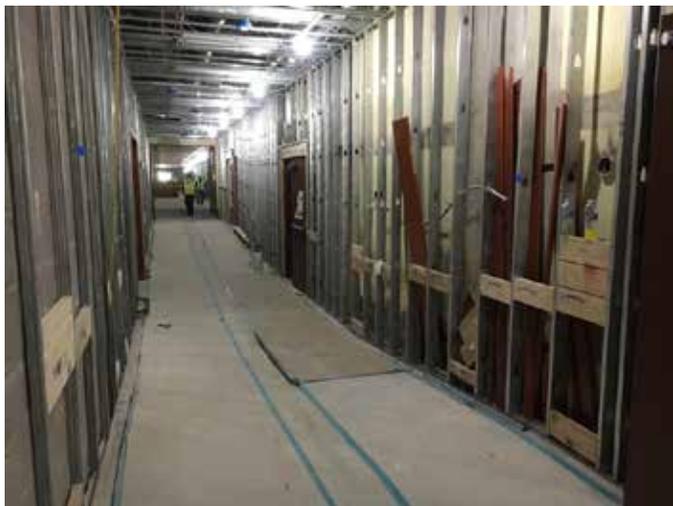
Posted on June 26, 2018 by Rebekah Branch

Today marks five weeks since the May 22 fire at Hale Library. In this update, we have a lot to share about our demolition progress.

A huge amount of damaged drop ceiling, drywall and carpet has been removed.



There was also extensive water damage to the drywall. In some areas, only a few feet needed to be removed, but in other parts, the entire wall had to be demolished and only metal studs remain.



Furniture and technology: Soot damage

Most of the furniture in the building was damaged beyond repair and will need to be thrown away. The tables that were located across all five floors of the building suffered so much smoke damage that the toxic soot cannot be cleaned off of them.

Already, the majority of the furniture from the first through the third floors has been disposed of. All told, it filled a large industrial dumpster 65 times.

Because the soot from the smoke is so toxic, every inch of ductwork in the 550,000-square-foot building will need to be taken down and professionally cleaned.

In addition to the ductwork, all surfaces of every room will have to be professionally cleaned to eliminate the soot. Cleaning the first through fourth floors could take about 10 weeks.

Furniture: Water Damage

The original Farrell library tables suffered intense water damage that stripped and warped the wood beyond repair ...

Book Retrieval

Luckily, not everything was completely unsalvageable. While removing books, the crew and staff were in desperate need of book carts and were able to salvage 30 book carts from the fifth floor.

Progress continues on the book retrieval process. At this point, 30,000 full boxes of books have been removed.



Technology

In the last week, the data center, which had been operating off of generators, was returned to commercial power.

Additionally, the electronics in the building have been assessed, and about 70 percent of what was deemed a loss has been prepared for disposal through the e-waste process.

Obviously, there are many moving parts to the recovery process. Before we can implement our plans for K-State's future Hale Library, the damaged portions of the building must be cleared out. We are making strides forward every day ...

Hale Library: Week six update

Posted on July 3, 2018 by Rebekah Branch

Today marks six weeks since the fire at Hale Library. Since last week, carpet has been completely removed from several floors, more of the drop ceiling system has been taken out, scaffolding has started going up in the Great Room and crews have begun the labor-intensive process of wiping soot from every surface in every room.

The Great Room

The Great Room was the area that received the most damage from the fire, and it will take the longest to restore. In perhaps the most visually dramatic change, scaffolding is being constructed throughout so that crews can access the walls and ceiling and start the cleaning and restoration process.



The murals are on plaster walls that are still drying out, and we are working with preservationists in order to save them.

The First and Second Floors

... As of this week, the first and second floors are completely empty. It's exciting to see a blank canvas emerging. Now the area can be cleaned, and we can start thinking about its future.

Isolated Mold Outbreak in the Stacks

The library is a 550,000-square-foot building, and most of it is still without commercial power, which means that many of our inspections have been conducted with flashlights.

Of course, we are always looking for emerging problems throughout the building, even in places where we initially thought the damage was minimal. However, we now know that lack of light prevented us from identifying one area of concern.

In the last week, we found mold in a small, isolated section of the stacks. So what happened? As the hundreds of thousands of gallons of water that permeated the building during the fire drained from the top floors to the bottom, it flowed along any unrestricted path available. Initially, the stacks were dry, but



some of that water drained down the edges of a pipe. Since there is a gap around the pipe where it passed through each floor, water seeped through to the levels below. As the water progressed down the exterior surface of the pipe, books in the immediate vicinity got wet.

Since this discovery, we have removed the affected books. We remain vigilant for similar leaks and pockets of moisture throughout the stacks.

Packing and Removing Books

Since the last update, we continue to remove books from the library for cleaning at an off-site location. Currently, crews are boxing and moving books on the third and fourth floors.

As of July 2, crews have packed more than 38,000 boxes of books and library materials.

Cleaning Fifth Floor

The fifth floor was relatively unscathed, but it still needs to be professionally cleaned to remediate soot and smoke damage. Even ductwork will be cleaned throughout the entire building.

On fifth, crews are cleaning every accessible surface that was exposed to soot and smoke. It's a very labor-intensive process. First, they vacuum all surfaces - walls, windows, doors, everything - with a HEPA vacuum, which is a vacuum affixed with a filter that can capture particles of 0.3 microns with 99.97% efficiency. Next, the crew goes over everything again with dry chemical sponges. And finally, they wipe the surfaces down with clean washrags.

This process will be repeated on every surface throughout the entire building.

Emptying damaged furniture, construction materials and books from the library is part of the process of creating a clean slate. Day-to-day, sometimes it feels like a slow process that requires an overwhelming amount of labor. When we think about the big picture, though, it's an exciting first step toward renovating Hale Library and creating a new, vibrant research environment that will serve the entire K-State community.

Making an insurance claim? First, count everything.

Posted on July 10, 2018 by Sarah McGreer Hoyt

If you were told to inventory the contents of your house, apartment, office or dorm room, where would you start? How many total items would be on your list?

In order to file an insurance claim after the May 22 fire, the K-State Libraries administration has been managing that overwhelming task. Roberta Johnson, director of administrative and IT services, walked us through the process of inventorying a building that's bigger than nine football fields.

The whole inventory process started on May 28, just six days after the fire. The bulk of the work was completed in about three weeks.

... They signed what Johnson said felt like reams of carbon paper in the process, and the resulting 367 page FFE inventory included 7,749 line items. In many cases, just one of those lines represented more than one thing; for example, one entry might be a record of 35 wooden chairs.

So what happens next?

"This is a 550,000-square-foot building; there are a lot of nooks and crannies," Johnson said. "We're still coming across items, and occasionally we have to go back to the inventory to make sure they've been accounted for. It will take time to clear up any discrepancies."

Only once the loose ends are tied up can the adjuster value the inventory and provide a dollar amount to the insurance company.

"Right now, they've carted out more than 100 industrial-sized dumpsters full of fixtures and furniture, and they're not done yet," Johnson said. "The loss is massive."

What happens to smoke damaged books?

Posted on July 17, 2018 by Rebekah Branch

The soot from the smoke damaged every inch of the library, and it has proven very difficult to remove from surfaces. A combination of the smoke, water, heat, and non-climate controlled building left most surfaces stained. Typically soot can be wiped away, but in this case, it is almost baked on.

... K-State leased Executive Court, an office space near the airport that was most recently occupied by the College of Architecture, Planning and Design during the renovation of their Seaton Hall Complex. As of now, books from rooms 117 and 222 have been moved to Executive Court as well as most of 3rd and 4th floors. We estimate 500,000 books are currently at Executive Court waiting to be cleaned.

To clean a soot-covered book, a HEPA vacuum is used on the book's exterior to remove most of the dirt and soot. Next, the cover, the back, and the spine of the book are wiped down with

a dry chemical sponge. After the outside is clean, the book is opened and the fore edge of the pages is fanned in both directions and wiped down. It takes about 20 minutes to complete this process on a box that holds 12 to 15 books.

After they go through this manual cleaning process, all of the books will go into an ozone chamber in order to neutralize the smell and draw out the carbon. BELFOR has built two ozone containment centers in Executive Court.



After the books are out of the ozone chamber, they go through a "white glove" quality control check. If any soot comes off the book or a smell still lingers from the fire, that book goes through the cleaning process again. Ozoning books can accelerate deterioration of items, so they will not ozone a book more than needed.

The cleaning process of some of the books has begun, but the crew cannot begin cleaning them in earnest until more warehouse space is acquired to store the clean materials. It is important not to put clean books near the carbon-covered books because the clean books would absorb those chemicals again.

... After the books are cleaned, some of the books will be ingested into the annex and will be available for check out upon request. The annex is unable to hold the entire library collection, so hundreds of thousands of additional books will be sent to additional warehouse space, once it is acquired.

... "Many of our books and other materials are out of print," Roberta Johnson, director of administrative and IT services, said. "K-State's resources are the result of years of collecting and carefully managing materials that provide the most relevant information to the faculty, staff and students."

Not only are some of the books out of print, but it would take an exorbitant amount of time for the acquisitions and collection development department to search for and purchase the material. It would be a major undertaking to replace approximately 1.2 million volumes.

... As of right now, BELFOR estimates it could take between six to twelve months.

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Kathryn Talbot: Master of disaster

Posted on July 20, 2018 by Sarah McGreer Hoyt

Kathryn Talbot, K-State Libraries' preservation coordinator, was at home when she received the call about the Hale Library fire on May 22.

"This person kept saying, 'There was a fire, blah, blah,'" Talbot said. "I literally almost went, 'I think you have the wrong number,' before it dawned on me: This is Michelle from work."

After that call from Michelle Turvey-Welch, the Libraries' head of metadata and preservation, Talbot came back to campus feeling relatively calm.

"Driving up you didn't see smoke, so I thought, 'It can't be that bad.'"

But when the firefighters were still working four hours later, Talbot knew that she needed to ask Turvey-Welch for permission to call companies that manage large-scale emergency recovery and restoration.

"We were preregistered with two companies that specialize in cleaning up after emergencies like hurricanes and tornadoes," Talbot said. "So I called to say, 'I think we might need your assistance.' After four hours I knew it really was that bad."



As K-State Libraries' disaster team lead, it's Talbot's job to prepare the organization's employees for the unexpected and to know whom to call in an emergency. By preregistering with disaster recovery companies, Talbot insured that K-State Libraries would be a priority client in case of a large-scale crisis.

"The disaster plan is any library's bible for how to care for the collection during a time of crisis," Lori Goetsch, Dean of Libraries, said. "I'm confident that the damage in Hale Library would have been so much more extreme if it weren't for Kathryn, Michelle, and a really excellent disaster plan."

Once Talbot had made contact with BELFOR Property Restoration, she also called the American Institute for Conservation (AIC), which has a round-the-clock response line.

"I wanted their help in thinking through the situation and knowing which questions to ask the next day," Talbot said.

"It was really super dark, and I couldn't believe at the time they had you put on boots," she said. "I was like, 'Why am I putting on galoshes?' Then, as you walked in the back door, you instantly step into water. It's like, 'Why is there water in the mail room? That's kind of weird.' ... And it was dark and intensely smoky. I figured [water and smoke would be] in the Great Room, but not everywhere."

"We went up all five floors and four of them had water. I knew most of the collection would have to be moved. There was no way that our staff could do that on our own. There was no electricity and ... we had tiny LED lights. It was way creepy."

Talbot went through the building with BELFOR staff members who specialize in handling collections and documents after an emergency. They helped prioritize which areas of Hale Library would be addressed first: Room 117 on Hale Library's first floor suffered the most water damage and the books had to be packed out right away.

By this point, it was Memorial Day weekend, and it became increasingly difficult to contact vendors and arrange supplies. In order to have enough boxes on hand, BELFOR's team bought all of the boxes in stock at Home Depot, Menards, U-Haul and Lowe's in Manhattan, Topeka and Salina.

Today, a little more than eight weeks post-fire, Talbot cites Turvey-Welch's constant support and non-stop work ethic for helping her get past each new unexpected challenge. She also praises the BELFOR crew for helping her wrap her head around the massive scale of the project

"They've been through this before," she said. "I'm like, 'What am I not thinking of? ... What do you need in order to do what you need to do?' My dealings with their team have been highly collaborative."



Help for Hale: BELFOR Property Restoration

Posted on July 24, 2018 by Rebekah Branch

Hale Library is in recovery, but we would not be as far as we are now without BELFOR Property Restoration. Their crews have been working very hard for up to twelve hours a day, six days a week in challenging conditions.



A fraction of the BELFOR crew gathers on the walking mall east of Hale Library. There are nearly 200 BELFOR employees that are working on the recovery.

Book Report: Wet materials and new warehouses

Posted on August 7, 2018 by Rebekah Branch

As soon as K-State Libraries and BELFOR Property Restoration employees were allowed back in Hale Library after the fire, we removed wet books as quickly as possible.

A total of 3,500 boxes of wet books were sent to the BELFOR facility. Once they arrived, a two-step process of freeze drying and then cleaning the books began. The boxes stay in the freeze drying chambers for about a week.

Books that come out of the freeze dry chambers with mold on them are gamma radiated to kill the mold spores, and books with pages that dry wavy are pressed flat. After that, all items that are in acceptable condition will be transported back to Manhattan and stored in a leased offsite facility dedicated to clean materials.

“We reviewed the books during our visit,” said Talbot. “We believe that at least 90 percent of the books will come back to Manhattan. Some will be discolored or have wavy pages, but they are still usable. The books that could not be salvaged were those with excessive mold growth on the interior pages.”



Book Removal

Initially, we hoped that some of the books in Hale Library’s Stacks A-H could be cleaned inside the library. Unfortunately, the temperature and the humidity levels in the building are unreliable. It’s been difficult to ensure the consistent power that’s necessary to run the air conditioning units. As a result, more than 1.5 million items in Hale Library will be removed and cleaned offsite.

K-State Libraries has leased three separate buildings where dirty materials are stored. Executive Court, an office building near the airport that was most recently used by the College of Architecture, Planning & Design during the Seaton Hall renovation, has been filled with more than 68,000 boxes of books.

Since we have tens of thousands of additional boxes to accommodate, we’ve also leased space in the Ag Press building in Manhattan and an entire former lumber yard building on the east edge of Junction City.

Even today, there is very little lighting since electricity has not been restored. The generators on the lawn power dehumidifiers and air cooling units in an attempt to keep the temperature and humidity more manageable. On hot days, it reaches 90 degrees inside the building. Workers have to wear hardhats, vests, and respirator masks, so that combination makes the heat even more oppressive. The sheer scale of the recovery for the 550,000-square-foot Hale Library is immense, and there are new problems to be solved at every turn.



A fresh batch of boxes is unloaded at Hale. They will be used to pack up books and other library material. About 14,000 boxes are delivered multiple times a week.



Office cubicles in the information technology area on the second floor were especially hard-hit with water damage.



Dehumidification - Stabilizing Conditions Inside The Library



Water pooling across the floor and warped tables.



The reserves collection surrounded by water pooling on the carpet.



Charred, scary holes up close and personal in the ceiling that have been covered by a temporary roof.



Second floor after ceiling tiles were removed.



All surfaces are cleaned with HEPA vacuums before they are wiped down with chemical sponges.



The second floor after the carpet, furniture, technology, drop ceiling system and some areas of drywall were removed.



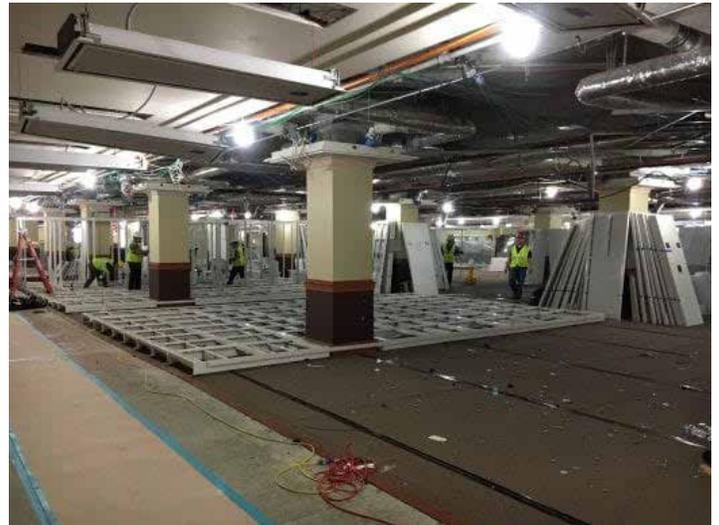
A hole in the Great Room ceiling.



The fourth floor space after the “We Are the Dream” mural was deinstalled. “We Are the Dream,” which was sponsored by the Black Student Union, Movimiento Estudiantil de Chicanos de Aztlan (MEChA, a Hispanic student group), and the Native American Indian Student Body, was painted and dedicated in 1980.



A worker removed paint from a plaster capital to allow water to evaporate from the walls more quickly.



With the books removed from, BELFOR takes down the shelving for removal.



The Academic Learning Center was very near the site where the fire started on the roof and suffered extensive water damage.



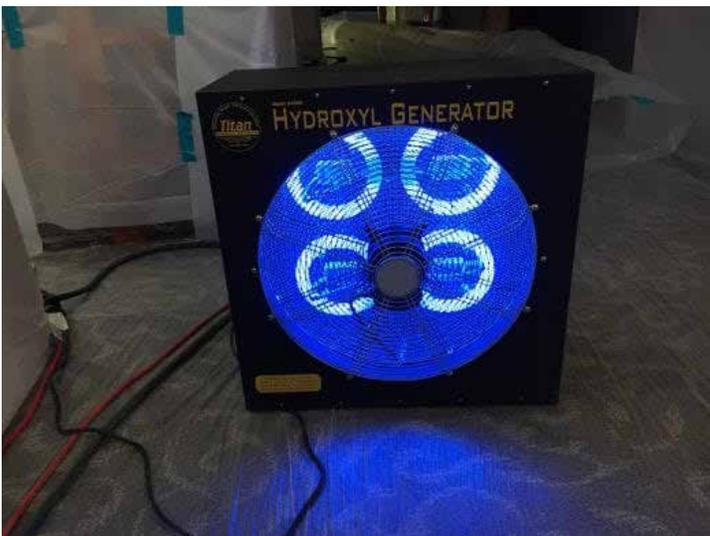
Three massive heating, ventilation and air conditioning (HVAC) units on the roof that were close to the source of the fire were deemed not salvageable, so they had to be removed.



The dehumidifier tubes removing moisture from the Great Room, and a second set of tubes is pumping chilled air in.



A crew member uses a chemical sponge to wipe down the ceiling and duct work.



There are multiple boxes emitting an eerie blue glow across fifth floor. These hydroxyl generators use a phenomenon that occurs in nature to neutralize odor left by the fire.



BELFOR workers help load out boxes of books for cleaning.



BELFOR workers make their way from the first floor to second.

Recovery momentum and magical spaces

Posted on September 12, 2018 by Sarah McGreer Hoyt

... Fortunately, the building is nearly empty now. We've come a long way in the last sixteen weeks. The majority of the collection has been packed out, the duct work is completely clean, and the process of removing soot from all other hard surfaces is nearly complete.

These days, it's gratifying to see the space wiped clean and buzzing with activity. We're moving forward, and the team of conservators, architects, construction workers and craftspeople executing the recovery and restoration plan are wizards at what they do.

Cleaning house: Week eighteen update

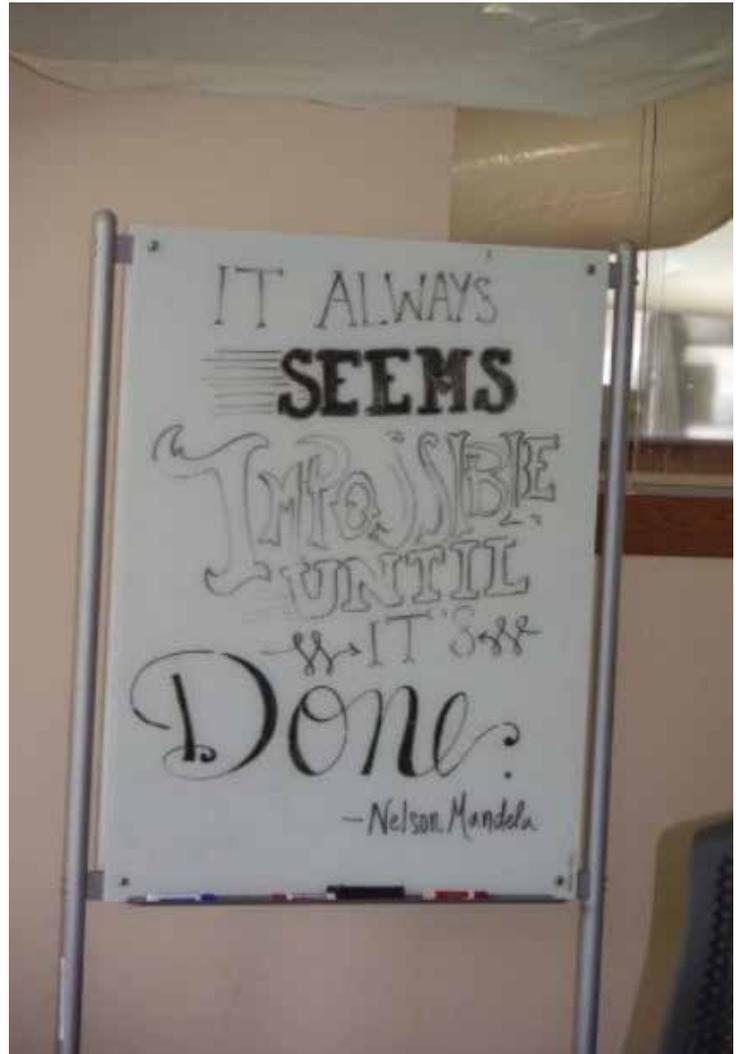
Posted on September 27, 2018 by Sarah McGreer Hoyt

... Elsewhere in Hale Library, most of the recent action has centered on cleaning toxic soot from all surfaces and scraping up the carpet glue. Since that process is nearly complete, the size of the BELFOR Property Restoration crew has been scaled down.

Even though the BELFOR folks are starting to leave Manhattan, they aren't taking a break: As organizations across the Carolinas

assess the devastation wrought by Hurricane Florence, BELFOR will be on the ground with their massive semi-truck command center and their amazing people. We wish them a safe assignment as they begin recovery efforts there.

It's been eighteen weeks of damage assessment and drying out, packing collections and planning. The space is a clean slate, and in forthcoming posts we'll be able to share a lot more about the Hale Library of the future.



This inspirational quote was posted during finals week and has become an unofficial motto for library staff and BELFOR crews. The majority of the whiteboards have been removed with exception of this one, which everyone passes when checking in or out of the building. The sign was created by Jordyn Peyla, a student worker in the Media Development Center.

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