

A New Answer for a New Age

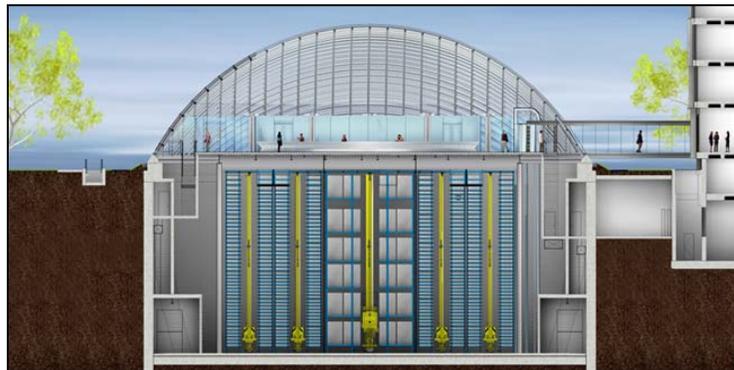
Building Successfully for the University of Chicago's New Research Library



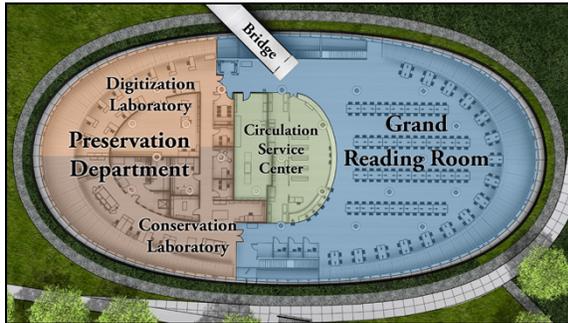
In the last several years, an issue has arisen around the topic of libraries and their usefulness. The answer isn't always to digitize every piece of printed material within the library's walls. Sociological studies have shown that researchers who have access to digitized media also spend more time with the original print items. Such is the case at the University of Chicago in Chicago, Illinois (USA). At a time when many universities were turning their collections over to the Google Books mass digitization project, the University of Chicago opted to build a radical new archive-and-retrieval system for

researchers who wanted to touch and feel the romance of the original printed works.

Under the creative vision of architect Helmut Jahn, Barton Malow Construction began by digging a sixty-foot hole in the ground next door to the existing Regenstein Library. In this "underground" area, teams constructed an automated archive and retrieval system that can house nearly 3.5 million books and other printed items. Fifty-foot-tall cranes retrieve the books held in 2-foot-by-four-foot bins set into "stacks" along the shelving that extends five stories below ground. This automated system allows the print items to be densely stacked, taking up only 1/7 the space of a traditional open-shelf library.



Researchers receive their requested items from librarians who operate the system through the use of bar code technology combined with customized software for archival and retrieval. They study their research treasures in the Grand Reading Room; or if the items are very rare and fragile, they use special reading areas that are specially temperature and humidity controlled (70-74 degrees F. and 45% humidity). When they are through with their research, the librarians return the volumes to their storage bins via the automated cranes.



The Grand Reading Room and the circulation service center take up about 2/3 of the elliptical space that houses the single above-ground floor of the library. The remaining third of the floor is devoted to preservation of the collections before and during archiving, as well as a digitization laboratory, where copies of printed works are also securely preserved digitally. The unique covering for the top floor is a steel-reinforced glass dome, which is 35 feet tall at its apex.

Work began in 2008, and several unique construction practices were put into effect, including the building of a sixty-foot-tall slurry wall to serve as the foundation of the underground building. Not every undertaking went according to plan, though. In 2008 an 8.5-inch thick lightweight concrete slab was poured in place to serve as the substrate for the wooden flooring that would be installed throughout the Grand Reading Room and Preservation Department. By 2011, the concrete still had readings of 100% RH (relative humidity), which doomed any efforts to complete the wood flooring installation.

Dick Buckman, the project manager for Mr. David's Flooring International, consulted with MAPEI to determine how best to reduce the moisture and move the project forward. MAPEI's Field Technical Consultant, Keith Moore, suggested that the installer use *Planiseal™ EMB* epoxy moisture barrier. *Planiseal EMB* is designed to reduce moisture transmission rates on concrete slabs with up to 25 lbs. MVER (moisture vapor emission rate) and 100% RH when it is applied in an 18-mil thickness. Moore trained the entire team from Mr. David's Flooring and certified them in the use of *Planiseal EMB*. That same day the team began coating the entire 15,000 square feet of interior space with *Planiseal EMB* to greatly reduce the porosity of the slab and bring it within required specifications.



To further prepare the surface for a flawless wood floor installation, the installation crews used MAPEI's *Planibond® EBA* epoxy bonding agent and *Planitop® FD* full-depth repair mortar to fill deep voids around the central heating ducts dispersed across the floor space. Next, they applied *Primer WE™*, a water-based primer that increases adhesion to non-porous substrates. Over top of the *Primer E*, Mr. David's crew pumped MAPEI's *Ultraplán® M20 Plus*, a quick-setting, high-compressive strength self-leveling underlayment that produced an ultra-smooth surface for installing the wood flooring.

As an extra layer of defense against moisture intrusion, Mr. David's crew installed the sound-reduction mats beneath the wood with *Ultrabond ECO® 995*, a multi-functional eco-friendly wood adhesive that has the additional characteristic of a moisture reduction barrier.

With the help of new products from MAPEI's innovative Research & Development labs, Mr. David's Flooring was able to resolve a serious problem and bring the construction phase of the library to a close. On May 16, 2011, Mansueto Library opened its "automated" doors to bring a new age of answers to researchers on the University of Chicago campus and around the world.



A photo of the MAPEI products used in this project