
The Elmer L. Andersen Library: Accomplishing the Impossible

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ABSTRACT

USING THE PLANNING, DESIGN, AND CONSTRUCTION of the Elmer L. Andersen Library as a case study, this article explores the variety of planning and design issues that must be addressed in the building process. The Andersen Library is unique for its site selection and for the successful joining of eight archives and special collection units in a single building. This exploration looks at how the internal library planning meshes with the architectural design process; how chance events can present innovative design opportunities; and how the political process can affect funding priorities and other realities.

INTRODUCTION

More than any project undertaken at the University of Minnesota, the building of the Elmer L. Andersen Library was believed by many to be a virtual impossibility. A complete description of all that went into the planning, funding, engineering, designing, and construction of the building that became the Elmer L. Andersen Library would far exceed any reasonable bounds. This article focuses on those issues central to these five aspects of this building's creation.

The planning challenged us because never at the University of Minnesota, or as far as we could tell anywhere in the world, had so many archives and special collections been brought together in a single building and combined with a high-density storage center. Securing state funding for the project was difficult. Explaining such an innovative idea in simple language was next to impossible. Elements of mined space engineering were all successfully used for many years in other building projects, but the combina-

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tion of all these engineering techniques in a single building was unique. Even the construction process resulted in several engineering solutions being developed in the field while the building was under construction. This added to the novelty of the engineering and construction accomplishment.

This project represented a personal challenge as well. In my role as the Library Facilities Planner for the University of Minnesota Libraries, I coordinate the writing of the building program statement and serve as the principal liaison between the library planning group and the design team. My position also has responsibility for organizing the lobbying effort once a project is presented for funding. Finally, I am responsible for planning and executing the move into the facility. Despite all of these obstacles and challenges, the Elmer L. Andersen Library is now a reality, serving its users more successfully than we imagined.

A BRIEF HISTORY

I suspect the origins and development of the archives and special collections at the University of Minnesota are not unique. With the exception of the University Archives, many of the collections grew out of the research interests of individual faculty. The founding of the University Archives in 1959 resulted from the need to organize the historic records of the university in preparation for the celebration of its centennial. The facilities support for the collections, or more properly the *lack* of support, is probably not novel. Many of the collections began in a single room in a corner of an existing library building. Often the collections were staffed on a part-time basis. As the collections grew, they outstripped their quarters, triggering a series of moves from one location to another for the next twenty-five to thirty years! Many of these moves were described in sketchily written records as "temporary." The "temporary" home for the Immigration History Research Center in an old coffee company warehouse lasted for twenty-five years! Housing special collections and archives like these in such poor quarters went beyond benign neglect. While these quarters had nothing to recommend themselves, many of the university's special collections, most notably the Children's Literature Research Collection, the Immigration History Research Center, and the Social Welfare History Archives, have risen to national and even international prominence.

There was recognition for many years that something needed to be done with the archives units, but what that "something" should be varied widely. The Immigration History Research Center got as far as developing a schematic plan for a new building on the land adjacent to their coffee warehouse home. The curator of Special Collections proposed a special collection center to be built on open land adjacent to the Humanities and Social Sciences Library. There was no thought given to the idea of combining with other archival units, not to mention including a high-density storage center. There are token mentions of a need to address the space require-

ments of these collections in the library annual reports dating back to mid-1960. Each biennial capital plan for the libraries also mentions this cluster of unmet building needs. More and more often we were confronted with the “archives problem” and the growing need for some sort of storage solution for the general collections. It was not until 1989 that the university received a legislative appropriation of several million dollars for architectural design of the former main library building on the campus. Included in that appropriation was \$150,000 for “a predesign study for the Minnesota Library Access Center.”

THE PLANNING

With planning funds in hand, a building advisory committee was formed, bringing together people representing the collection and user stakeholders. Ten archives and special collections were candidates for inclusion in the program. Early in the planning process it became clear that two of the collections had such a strong tie to the libraries that housed them that they best remained where they were. A program was written describing a building with appropriate staff and user space and 2 million volumes of archive and special collection storage. The program also called for 2 million volumes of high-density general collection storage. It made good operational and political sense to designate MINITEX Library Information Network as the operating unit for the proposed storage center, so space for their operations and staff of over 100 was added to the program. (MINITEX is an interlibrary resource-sharing network based at the university and operated by the State of Minnesota since 1971.)

The decision to develop a building program combining eight archives and special collections was not a simple one. With the exception of the University Archives, each of the other seven collections have well-developed friends’ groups on whom they depend for volunteer and financial support. These friends’ groups are often an important part of the network that identifies and cultivates additions to the collections. A strong individual identity for each unit was an essential planning requirement.

At the same time, there were practical and political forces working in direct opposition to the concern for individual identity. General support for higher education in Minnesota was declining. Only those building projects demonstrating rigorous economy of design were getting support. It seemed almost a foregone conclusion that significant efficiencies would result from bringing these eight units together in one location. As a result, the building planning committee was charged to write a program statement with as many shared operations as possible.

The ideal site for the building was on the West Bank of the Minneapolis Campus where the humanities and social science faculty was located. (The Mississippi River runs through the Minneapolis Campus, rather than along its western edge, since a campus expansion in the early 1960s that

crossed the river to what is now the "West Bank.") While this location made the best programmatic sense, the West Bank Campus is severely landlocked, both by the river and a residential/business community.

While the early building programming effort was going on, I was invited to a meeting at the office of the University Architect, where two faculty members from the university's Underground Space Research Center were making a presentation. This research center began in the 1960s and was devoted to studying the development and applications of mined space. The focus of the presentation was on the ways mined space could be used to expand parking on the campus. In the course of the presentation one of the faculty observed that once a mined space is created and closed again from outside weather influences, the space maintains a constant year round temperature of 57° F and a relative humidity around 70 percent. This observation immediately caught my attention. While 70 percent relative humidity is too wet for paper storage, 57° F, on the other hand, is very close to ideal. Even more important in our part of the world is the prospect of environmental stability. The exceptionally dry conditions during Minnesota winters create a serious challenge to designing hospitable indoor environments for paper storage. Another passing observation in the presentation also caught my attention. The university had already negotiated an easement with the City Park Board on each side of the river from the street to the face of the river bluff in the event that mined space ever became something to be pursued. Not only did the possibility of mined space offer a design solution for our building, the political groundwork to make it happen was already in place.

We completed the building program and selected Meyer, Scherer, and Rockcastle, Ltd., to do a predesign study. As the predesign process got underway, I asked the design team to develop one conception of the building making use of mined space, just to see how it might work. If the collection storage component of the program was separated from the staff and user space and located in mined space, the site requirements changed radically. The massing study of an entirely above-ground structure already demonstrated that at least five acres of land would be needed. The closest piece of land that large was over a mile from the campus. The staff and user portions of the building could easily be accommodated on a much smaller piece of land, and there were several such possibilities on the West Bank Campus. The mined space concept caught the imagination of the predesign team, and of the four iterations they developed of the building, three made use of mined space.

The process to select the final design team began in 1994. It resulted in the selection of Stageberg Partners, Inc., with James Stageberg as the design principal for the building. The University Libraries already had two years experience working with Mr. Stageberg and his firm on the design of another project for the libraries. I don't think I have ever seen an architect so deter-

mined to get a commission as Mr. Stageberg was to get this one. He spent hours and hours of his own time visiting various archives and records storage centers around the country prior to getting the commission. In retrospect, Mr. Stageberg commented, "What architect *wouldn't* want a commission like this one . . . a chance to design a building that has never been built before?" The enthusiasm of James Stageberg was coupled with the enthusiasm and expertise of Charles Nelson and his associates, and a momentum was built around the project that carried us through some enormous difficulties in the months ahead. (Mr. Nelson was one of three faculty who founded the University of Minnesota's Underground Space Center. His private firm, CAN Consulting Engineers, has an international reputation for their geotechnical engineering expertise.) Charles Nelson's team of consulting geotechnical engineers was also part of the predesign team, informing the planning process with their expertise from the very beginning.

As the actual architectural design got underway, the tensions between individual identities and shared functions became more and more an issue for the curators' planning team. I began to understand more clearly the cautions offered by my library planning colleagues about our chances for success. The variety of opinions among the curators went far beyond the need for individual identity and began to touch on deeply held values defining good archival management practice. The most complicated of these design challenges centered on the planning for the research room.

Yielding to the pressure for shared functions, we wrote into the program a single research room supporting the user needs of all eight units. As we began to refine our expectations for the design of this room, sharp differences of opinion arose. In a word, there was no way to reach consensus. It is imperative that the hard work and open-mindedness of the curators' planning group be acknowledged. Never have I seen a group of professionals work harder to accomplish an end that would serve everyone's needs.

As our struggles over how to design the research room went on, the design team was developing the above ground footprint of the building. It was clear that the building would have four floors above ground, with the lowest and largest floor housing the MINITEX operations. The eight archive units would be distributed among the remaining three floors. How they would be arranged was not entirely arbitrary because some combinations of units resulted in a better fit than others.

About the time we thought we would come to total gridlock in our planning, three of the curators came to my office to see me. It was clear from the latest schematic plans we received from the architects that they would be together on one floor. Their reason for coming to me was to ask, since they were in basic agreement among themselves about how they saw the research room design, why they couldn't have their own research room on their floor? With the fundamental planning axiom—that subdividing space always results in lower efficiency—ringing in my ears, I was tempted to tell

them no immediately. Instead, I promised at least to bring the idea to the design team. It turned out the design team was having their own struggles fitting some of the required nonassignable functions and the larger program spaces into the building. The possibilities of designing more than one research room worked like magic to break the planning logjam for everyone. The result is a building with three research rooms. Two of them are quite similar in design. The third research room honors an aspect viewed as essential by the two units who share it. This research room is totally interior to the two office suites and may only be entered by passing through one or the other of the suites.

The architectural design team worked directly with individual curators, doing everything possible to customize their office suites to meet their individual needs. They also worked hard to design an entry to each suite that reinforced a sense of individual identity. Part of this uniqueness was accomplished with individual exhibit spaces at the entrance to each suite supporting standing exhibits featuring the collection strengths of that particular unit.

SECURING THE FUNDING

Describing the predesign planning and the schematic planning in sequence as I have above does not accurately reflect the funding realities. Since the Andersen Library planning was initiated by a predesign authorization in 1989, there was an interval of five years before the architectural design funds were appropriated in 1994.

In any given capital funding year, the University of Minnesota has three or four times the number of projects on the table than they can bring to the Legislature for funding. This makes the process of getting into the university's biennial capital request highly competitive. In our case, we benefited greatly in the university's internal capital request process by the fact that the president of the university was himself a practicing researcher and a strong supporter of the project. In 1994 the university went to the Legislature with a request for \$2.4 million based on a total project cost of \$41 million. It is typical in our state bonding process for a project, especially the higher priced ones, to get an authorization for architectural design funds in one biennial request with the construction funds coming a minimum of two years later.

Even though the design request is a fraction of the total construction request, each capital project goes through the full round of committee hearings and discussions. The hearing process was very instructive for this project because it revealed a split in mind-set among the legislators. Half of the legislators understood the importance of preserving primary research materials to the research mission of the university. While they supported the archive collections, these legislators did not think a high-density storage center made any sense. The idea that we would keep books not in heavy use made no sense to them.

The other half of the Legislature could see the value in the storage center, especially since it had the potential to reduce crowding in the libraries in their legislative district. The storage center held out the hope for them that there would be fewer requests for library construction in the future. This group of legislators did not understand archives, thinking the university really ought not to be in the business of collecting rare and unique materials anyway. They saw this as the responsibility of the Minnesota Historical Society, for whom they had just funded and constructed a new building.

Nevertheless, we were successful in securing the design funds so the planning process could continue. We came away from the experience with a sobering reality check. It was clear that securing the construction funds would face serious opposition in the Legislature. With projects the size of ours, there is rarely more than one opportunity to bring the project forward for funding. We knew we could not miss our chance.

Even before the 1994 Legislative Session adjourned, we set to work building our legislative strategy for the 1996 session. A retired legislator who was a vocal supporter of the project told us that the single most effective way of influencing legislative opinion was through direct constituent contacts. With this advice in hand, we took the membership lists of all the friends' groups and matched up every legislator with two or more constituents, preferably with no direct connection to the university. Through the MINITEX network, we mobilized the libraries across the state, asking them to contact their legislators and tell them how important the building was to their library and their legislative district.

The results of our efforts began to show late in 1995 as we prepared for the 1996 legislative session. The University of Minnesota's professional lobbyist began to report back that legislators were asking her, "Why does *everyone* think this is such an important project?" We realized that all of our hard work over the spring and summer was paying dividends.

Meanwhile inflation adjustments drove the cost of the building up to \$43.1 million. As we entered a new round of legislative committee hearings, the question that was impossible to finesse was, "What would this building cost if you didn't build it underground?" The only honest answer to the question was \$12 million less. Each time this question arose, our hopes for success dimmed.

Again, describing this after the fact makes the whole process seem much simpler than it actually was. During the final weeks of the legislative session, those of us who were key supporters of the project were at the Capitol an average of eighty hours a week!

When the final bonding bill was adopted, we secured an authorization for \$38.6 million, \$3.6 million less than we requested. The loss of this money sent us scrambling back to the drawing board and resulted in a redesign of the building from three caverns to two. The two remaining caverns were somewhat larger than originally planned, but the loss of the third cavern

meant the growth capacity was shortened from the twelve to fifteen years we predicted to somewhere between five and eight years. Nevertheless, we had cleared the legislative gauntlet and had secured the construction funds for the project!

THE CONSTRUCTION CHALLENGE

The first phase of construction was mining the cavern spaces out of the soft sandstone layer underneath the harder limestone layer. The limestone was to form the roof of the caverns. The river gorge afforded us direct access to the sandstone, allowing for cheaper horizontal mining rather than vertical. The shaping of the limestone face of the entry into the bluff required some blasting of the limestone. A site investigation of the neighboring buildings revealed that the art building situated immediately to the north of our site was filled with very fragile asbestos. Before any construction work could begin, we had to fully abate this building.

This lay description of the process of mining the cavern spaces is also a serious understatement of what actually occurred. As I sat in each week's construction progress meeting, the precision of the engineering and the wealth of information brought to the project amazed me. The geotechnical engineers knew well in advance where every water-laden seam in the limestone was located. This was critical information because the project was mandated to take extreme care to collect all ground water and dispose of it safely to protect against the possibility of any environmental contamination.

Without going into thousands of words of highly technical description of this phase of the construction, suffice it to say that four construction machines were invented specifically to undertake various aspects of the mining for this building. The engineering and construction industries have recognized the building with five national building awards for excellence in various aspects of engineering.

With the twelve months of mining completed, we had two cavern spaces inside the Mississippi River bluff, each measuring 65 feet in width, 22 feet in height, and 680 feet in length. (Four football fields can be housed in the caverns with room to spare!) The next phase was the construction of the prefabricated concrete storage buildings inside the caverns, the connecting link through the limestone ceiling to the surface building and the surface building itself. The second phase of construction took an additional seventeen months to complete.

The concept of a building-within-a-building for the storage chambers is an important feature of the building's design. These interior storage buildings are completely encased in a continuous rubber membrane, an inch of insulating material, and a foil vapor-barrier to protect against water intrusion of any sort. The vapor-barrier also prevents moisture migration from the more humid cavern spaces into the storage buildings. The cavern conditions form a kind of environmental "cocoon" enveloping the storage build-

ings and making it a relatively easy matter to maintain the 62° F. and 50 percent relative humidity operating conditions inside the storage chambers.

The storage chambers and the surrounding cavern spaces each have separate ventilating and air-conditioning systems. The pressure balance between the storage buildings and the caverns is positive so all airflow is from inside the buildings out rather than drawing unconditioned air into the storage environment.

To date, the only significant disappointment in the construction of the building is the original loss of funding resulting in one fewer cavern than in the original design. The practical impact of this loss has been felt most keenly by the archive collections. They moved into the building at about 85 percent of total capacity rather than the hoped for 70 percent. The storage center is also filling more rapidly than we hoped. The storage center problem is more manageable since we have more direct control over the rate at which we accession materials into the storage center than we have over archive collection growth.

One indicator of the dramatic improvement the Andersen Library represents over the previous storage conditions for these collections is reflected in the difficulties the mechanical engineers had trying to balance the relative humidity systems when we first occupied the building. The engineers were concerned there was a serious flaw in their design until we pointed out it was very possible the collections which were already moved into the building were so dry they were acting like a gigantic sponge soaking up moisture as fast as it could be pumped into the air. It took about four months after the collections were moved in before readings approaching the design conditions for relative humidity could be recorded.

WHAT THE ANDERSEN LIBRARY HAS ACCOMPLISHED

First, the building has rescued these valuable primary research materials from an almost certain premature destruction. Had that early demise not resulted from the abysmal environmental conditions in which most of them were stored, the imminent threats of fire or catastrophic water damage would have done the trick. Nearly as important as securing the preservation future of these collections, the Andersen Library has had a dramatic effect on the use of these materials.

Because the building is located less than a thousand yards from the principal users, it has become a magnet not only for collection use but for a wide variety of meetings, conferences, and symposia on topics related to one or more of the collections. The Andersen Library opened to the public shortly after the start of the spring semester in 2000. With no particular fanfare surrounding the opening of the building to the public prior to the official grand opening almost four months later, initial use was close to what the collections experienced in their previous locations. All eight of the collections combined could only demonstrate use statistics of a dozen or

so users per day prior to their move into the Andersen Library. By the end of the semester, this number had climbed to over fifty per day, and now it regularly runs considerably higher. Compared with user statistics in the typical academic research library, these numbers are low, but keep in mind that this building is entirely a special collections facility with a reasonably select user population.

A more telling statistic is the use of the conference center that was designed into the building. This center totals about 2,200 square feet of space that can be used as a single room or subdivided into three smaller rooms, two rooms, etc. In the first month Andersen Library was open, there were twelve meetings held in this conference suite. The second month number climbed to twenty-eight; since then this space supports an average of over fifty meetings a month. The events include: multiday conferences, some with national and international audiences; classes meeting in conjunction with collection materials from one or more of the collections; and social events that their planners desire to be in one of the nicest buildings on the campus. These educational events have become a major part of the overall outreach effort of the University Libraries. Even the social events have potential for research and teaching, since the conference center is immediately adjacent to an exhibition area, featuring a thematic exhibit year-round. Participants at all of the events hosted in the Andersen Library are free to roam around the building and discover on their own the rich treasures contained in these collections.

Another important feature of the design is the security control in the building. Access to the storage chambers is particularly rigorous. Other than the occasional chaperoned tour of the cavern spaces for groups interested in the design and construction of the building, the storage chambers are normally closed to direct public access. The excellent security the Andersen Library provides for the collections it now houses supports the effort to get collection descriptions into the national bibliographic utilities. This visibility, both in the bibliographic utilities and on the various Internet Web pages designed by the individual units, is drawing much greater attention to these resources. We are confident that use of these unique materials will continue to increase.

In conclusion, the design and construction of the Elmer L. Andersen Library has enabled the University of Minnesota Libraries to ensure the long-term preservation of their most valuable information resources. The innovative combination of mined space with a modest surface building allowed the building to be located immediately adjacent to the academic disciplines most likely to rely on these resources for their own teaching and research. Locating the building in such a central location on the campus has already resulted in many accidental discoveries of the exciting world of primary research materials. Seeing actual diaries, letters, manuscripts, original architectural drawings, and original illustrations for children's

books, to mention but a few of this building's treasures, has sparked interest in new and exciting ways to learn.

This article would be incomplete without a few words about Elmer L. Andersen, after whom this building is named. It is unique that the university chose to name a building after a living individual, but in this case the choice could not have been more fitting. Elmer L. Andersen is a former governor of the state and a member of the university's Board of Regents and its chair for a number of years. He is a lifelong supporter of education in general and libraries in particular. The library that bears his name is now the home for his private library, a collection of over 16,000 volumes noted for the many rare items it contains. Governor Andersen's remarks at the dedication of the building sum up the importance of this library best of all. He said, "And what nobler purpose can there be for a University than to gather up the prizes of a culture, preserve them, propagate them, make them available so that the best of what has gone before can be preserved and built on."