

1-1-2003


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## Recommended Citation

Verheyen, Peter D.; Davis, Carolyn; and Olson, Debra, "Storage of Architectural Materials at the Syracuse University Library" (2003). *Libraries' and Librarians' Publications*. Paper 3.  
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## Storage of Architectural Materials at the Syracuse University Library

### ABSTRACT

When the Department of Special Collections at the Syracuse University Library acquired the papers of Werner Seligmann, an architect and former dean of the Syracuse University School of Architecture, the opportunity presented itself to develop a model storage system that could be applied to the other architectural drawings in the department. While not large in comparison to these other collections, the Seligmann Papers were sizable enough to give us a better understanding of the storage issues involved if we decided to undertake the task of rehousing our other drawings. If such a task were to be undertaken, a new storage system would need to be compact, scalable, economical, and archivally sound. This paper describes the challenges, preservation, cost, and space issues we addressed as well as the method of work we followed to house the Seligmann drawings.

### BACKGROUND

The Syracuse University Library has a long history of collecting the papers, including drawings, of leading architects. Notable among them are William Lescaze, Marcel Breuer, Pietro Belluschi, and Werner Seligmann. These papers have increasingly attracted intense interest from individuals outside the University—owners of property, architectural historians, and museum curators to name only a few.

The collections vary considerably in content, format, and physical condition (fig. 1). In addition to tracings, sketches, plans, blueprints and other reproductions, the collections contain office records, consisting of correspondence, financial data, specifications, photographs, and printed material. It is the oversized visual materials, those exceeding standard letter and legal formats, which have caused the most concern, and frustration, to collection

custodians at the Syracuse University Library. Architectural materials at the Syracuse University Library are stored by architect and then by the architect's "job number," with the various forms of media kept together. While this is not ideal, especially with materials considered by some to be "works of art on paper," the size and use of the collections make this the most practical way of grouping and storing them.

The Library for years has housed plans and renderings in flat storage files. As more large-scale material was added some years ago, it was necessary to turn to more space-efficient storage—hanging files in "Plan Hold" cabinets. Drawings and mediums of all sizes were aligned along one edge in a large folder which was grasped by a metal clamp with wing-nuts to close it tightly. Each large hanging folder was hooked into a rack with the clamp. The rack then slid in and out of the cabinet on small wheels allowing folders to be retrieved (fig. 2).

Awkward at best, and damaging to materials due to the clamping mechanism, this system was continued until the early 1990s. A shift from one off-site storage facility to another in the early 1980s proved how damaging the Plan Hold approach is. The cabinets were shifted full, with the



Fig. 1. Packed materials on shelf



Fig. 2. Plan Hold cabinet



Fig. 3. Damage from Plan Hold cabinet

result that they arrived in the new facility with the contents in conditions ranging from still perfectly aligned to slumped on the base of the Plan Hold cabinet (fig. 3). However, the number of Plan Hold cabinets was finite and new materials, arriving as rolls or in tubes (cardboard and metal), were left as is. Meanwhile, use of these materials increased. New owners of historic homes and exhibition curators were requesting more and more material. As materials were used, it became clear that it was extremely difficult to return plans to the Plan Hold system, and the decision was made to no longer return materials there.

The same problem also occurred with materials in tubes, which were often over-filled and rolled so tightly that removal was very difficult, and reinserting impossible. As a result of these problems, plans were placed in large oak-tag (a heavy, acid-free paper) folders, labeled, and stacked flat to a height of roughly six to eight inches on tables in the Special Collections stack area. Material stored vertically in tubes settles, crushing the lowest edges, with the top edges being damaged when the tube is closed. Often the tubes were so tightly packed staff could not roll the materials tightly enough to return them to the original tubes. Initially materials were stored flat, as described above, but when available flat space ran short, we returned to rolling the plans, allowing them to "loosen," wrapped the new rolls in oak-tag, labeled them, and stored them horizontally on regular manuscript shelving. The two-shelf pass-through approach was used to provide support for the entire length of the roll. Handling a roll, of any diameter, is also far easier than a large folder, and requires less physical effort because one can safely get one's arms around it.

Current policies stipulate that items originating from the Plan Hold cabinets are not returned there. If they come from a tube, the plans may or may not be returned to the original tube. While this approach may be safer for the materials, it makes a mockery of organizational and control systems. Finding aids, which are tied to shelf, Plan Hold, or tube locations, can no longer be relied upon. While interim lists of what is "checked out" are available, a great deal of staff memory is required, memory which resides in a limited number of individuals.

Further attempts at control have focused on preparing lists of plans belonging to a specific project when it is requested. The long-term benefit of this sporadic investment of time is that, once done, future handling is reduced. Early on, we realized that large-scale lists, such as item-level inventories, while desirable, were impossible, impractical, and unnecessary. Aside

from the owners of buildings, projects seem not to be of equal importance to historians and preservationists, with those groups concentrating on well-known structures and "firsts," such as design elements and materials.

#### STORAGE METHODS

Preservation concerns with this variety of architectural materials include flaking media, abrasion, acid and alkaline migration, and physical damage from handling. A point of contention in the debate over architectural records is whether they are to be considered works of art on paper, which many certainly are, or simply "papers" in the archival sense. Ideally, graphic materials should be stored flat in appropriate individual folders or mats and separated by medium. Failing that option, roll storage, if properly done, is the best alternative. While pressure on the bottom of the roll where it is in contact with the shelf may be a concern, having the weight of the roll spread out along its entire length reduces this pressure.

#### THE WERNER SELIGMANN PAPERS

The Seligmann Papers, 1948–1998 (bulk 1955–1998), came to the Department in the summer of 2000 and included an extensive slide collection, models, presentation boards, several boxes of photographs, specifications, competition programs, articles, newspaper clippings, reports, studies, and other items. Also included were several thousand drawings in approximately 230 cardboard tubes and bags, or in some cases, rolled with rubber bands. Blueprints, sepias, and original drawings on trace were

mixed together. All of this was not very different from how other architectural collections were received.

The task of identifying, sorting, describing, and re-housing the papers was undertaken by a faculty member from the School of Architecture and one manuscript processor who was hired by the Library for the project. Both worked part-time while the preservation and access librarian designed the storage system, ordered supplies, and worked with Syracuse University Central Facilities to coordinate construction of the units.

Identifying, sorting, and describing the contents of the 230 tubes took place over the summer and fall of 2001 and rehousing the materials, including transporting the tubes in batches to the remote storage facility, started in December of 2001 and was completed in April of 2002.

#### THE IDEA

Ideally, graphic materials should be stored flat in individual folders or mats and separated by medium. Flat files and folders for all the items proved too expensive and would have required more floorspace than was available.

The system designed for the Seligmann Papers is based around a tube within a tube (fig. 4). By rolling the materials around an inner tube, wrapping it with a protective enclosure, inserting it into a larger tube, and storing it horizontally, the materials are well protected, yet accessible for use. These tube pairs are then nested within “boxes” holding fifty-six tubes (for the vertical units).

#### METHOD OF WORK

While all tubes are acid-free, additional protection was added by wrapping the outside of the three-inch diameter inner tube with acid-free, buffered Permalife paper, and rerolling the drawings around the outside of the tube (fig. 5). A sheet of Mylar, with Velcro coins to hold it closed, then wraps around the roll. For items which may receive heavy use, a tie ribbon can be substituted as the Velcro coins may separate from the Mylar with repeated opening and closing. In addition to keeping the materials on the roll, the wrappers also protect against abrasion incurred as rolls are removed and inserted into the outer tubes. By rolling the materials around a three-inch diameter tube, one is able to get more material on the roll than one could get inside, and still have it fit very comfortably into the six-inch diameter outer tube. As the collection is housed at the remote storage facility, a work surface where materials



Fig. 4. Tube-within tube storage



Fig. 5. Tube-within-tube storage, detail

could be unrolled, viewed, and rerolled was also required. This was accomplished by laying a “box” on its side and attaching a work-surface (fig. 6).

The large tubes are nestled together in a framework resembling a honeycomb, allowing for a high storage density in a relatively small area. The vertical “boxes” hold fifty-six tubes, the horizontal “boxes” fifty-eight tubes. For the Seligmann Papers, this meant that four “boxes” were required, two vertical and two horizontal with top. Vertical units require 36-inch width by 48-inch depth of floorspace, horizontal units 90-inch width by 48-inch depth. The horizontal units incorporate a work-surface critical for viewing these oversized materials.

#### CONSTRUCTION OF THE UNITS

Each storage unit is constructed of three metal shelving frames, 1 x 2s, and half-inch plywood (fig. 7). By reusing



Fig. 6. Work surface on top of a storage unit on its side



Fig. 7. Overall view of tube-storage units

surplus library shelving frames, we were able to easily ensure a very rigid and stable frame and reduce overall construction costs. Appendix 2 depicts the working drawings prepared by Syracuse University's Central Facilities.

In addition to building the "boxes," Central Facilities cut down the inner tubes by two inches so that the endcaps would fit into the larger tubes to protect against dust, and adhered the back caps to the tubes. With the units back to the wall, it was essential that the caps could not be knocked out, as there would be no way to retrieve them save removing all the tubes.

#### NEXT STEPS

Based on the success of the prototype, the decision was made to expand the tube storage units. During the Spring of 2003, work began to rehouse architectural drawings from the Breuer and Belluschi collections. These were housed in thirty-three Plan Hold cabinets, each with twelve hangers, for a total of 396 groupings of drawings. The actual number of drawings per grouping varied wildly. Added to that number are approximately two thousand tubes and folders with drawings and loose items from these and other collections. Current storage was clearly inadequate, with materials originally from one tube, or Plan Hold grouping, scattered at different locations. The most immediate need was to rehouse the materials in the Plan Hold cabinets, and reunite some of the scattered materials with their "parent" tube. In beginning this second phase, we assumed a 1:1 transfer from the Plan Hold groupings to the tubes, requiring the construction of seven additional storage units. The space available along the North wall of the Hawkins Building allowed for the construction of fifteen units, in addition to the four already there, an additional capacity of 444 tubes beyond the 396 tubes required for a total of 840 tubes.

In order to store and transport materials within the library a mobile mini-unit on casters is also being con-

structed. This unit will hold ten tubes, making it possible to move them around as needed without undo effort, especially when researchers request larger quantities of materials.

Staffing and logistical issues surrounding this project were critical. Logistical issues in constructing the new storage units included bringing in the raw materials and rehousing the drawings in a very cramped space. Based on the experience with the prototype, final assembly of the units will happen very quickly. Prior to clearing out the Plan Hold cabinets, the new storage units and tubes were ordered with delivery of the tubes in two batches. The Plan Hold cabinets were then cleared out, and materials temporarily stored on shipping pallets, in a total of 1.5 days by three full-time equivalent staff. The empty cabinets were then removed before the new units arrived. Syracuse University's Central Facilities carpenters assembled the storage units in their shop and delivered them to their final location in two batches. Tubes were pre-cut to their final length prior to shipping so that the back endcap could be attached immediately upon arrival and the tube pair nested in the units. This process was needed, as storage space for this quantity of tubes is unavailable. During the Special Collection Research Center's closure week in May, the materials formerly stored in the Plan Hold cabinets were rehoused into the new units, the inventory updated and annotated, ensuring a higher level of access than previously available, and tubes and endcaps labeled. An informal condition survey was also done at this time. A librarian, a conservator, and an intern from the Museum Studies Program at Syracuse University completed this final phase. Based on the experiences gained during this phase, we believe that further materials can be rehoused using one trained staff member with assistance from an intern or work-study student. With over half the tubes still empty, a schedule is being developed to systematically rehouse the many materials still in inadequate storage conditions

#### SUMMARY

While the Werner Seligmann Papers are a relatively small collection, properly housing the architectural materials posed the same set of challenges faced by the other collections. The tube storage unit described here had to meet four criteria. It had to be compact, scalable, economical, and archivally sound. It met all four, and in doing so provided the Syracuse University Library with invaluable experience as it seeks to tackle many of the problems relating to the use and storage of large quantities of architectural materials. The second phase of this project affirmed the validity of the plan described.

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APPENDIX 1: TABLE SHOWING COSTS FOR SUPPLIES (INCLUDING PART NUMBERS) AND LABOR

Initial Order For Seligmann Project - 4 Units Total (2 Vertical / 2 Horizontal) Completed Spring 2002						
Gaylord Part No.	Size	Price / UM	UM	UM Needed	TOTAL	Actual
ROLL - 4316	4' X 3"	\$74.19	10	24	\$1,780.56	
ROLL - 468	4' X 6"	\$27.49	2	120	\$3,298.80	
PLUG - P206	6"	\$4.49	2	240	\$1,077.60	
MYLAR WRAPS - MJTS	20" X 36"	\$7.60	6	41	\$311.60	
VELCRO COINS - 271012	3/4" dia	\$5.50	40 pairs	23	\$126.50	
Construction Costs - To SUL General Facilities		\$800.00		4	\$3,200.00	
TOTAL @ 4 Units					\$9,795.06	\$9,795.06
Average Cost / Unit					\$2,448.77	
Plan Hold Cabinet Replacement - Northwall of Hawkins Building (15 Vertical Units) Completed Spring 2003						
ROLL - 4316	4' X 3"	\$74.19	10	90	\$6,677.10	\$3,865.50
ROLL - 468	4' X 6"	\$27.49	2	450	\$12,370.50	\$7,600.50
PLUG - P206	6"	\$4.49	2	900	\$4,041.00	\$2,268.00
MYLAR WRAPS - MJTS	20" X 36"	\$7.60	6	150	\$1,140.00	\$871.50
VELCRO COINS - 271012	3/4" dia	\$5.50	40 pairs	70	\$385.00	\$293.30
Shelving Unit Frames - GB1231- 060-179	36" x 90"	\$66.25	ea	45	\$2,981.25	\$0.00
Construction Costs - To SUL General Facilities		\$800.00		15	\$12,000.00	\$12,000.00
Planhold tube need = 400    Surplus tubes = 444    Additional needed to rehouse entire estimated 2000 tubes/pkg of architectural materials = 1556						
To complete rehousing of architectural materials in Plan Hold cabinets @ 15 units:					\$39,594.85	\$26,898.80
Complete Rehousing of Remaining Architectural Collections						
To complete rehousing of remaining architectural materials @ 28 additional units:						\$73,920.00

APPENDIX 2: CONSTRUCTION DIAGRAMS

Prepared by Joseph Guadagnolo, Carpenter's Shop, Syracuse University Central Facilities

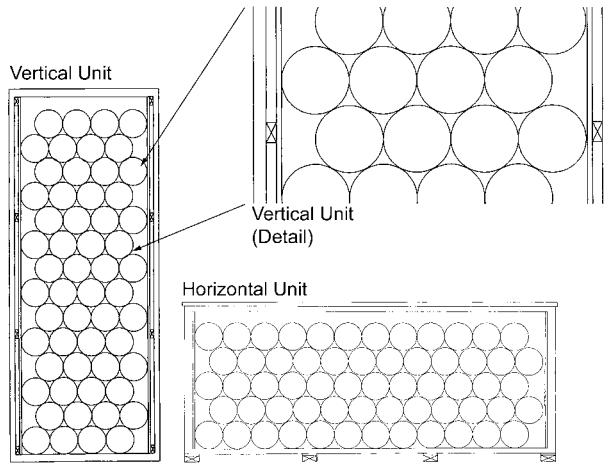


Fig. 8. Diagram of vertical and horizontal storage units

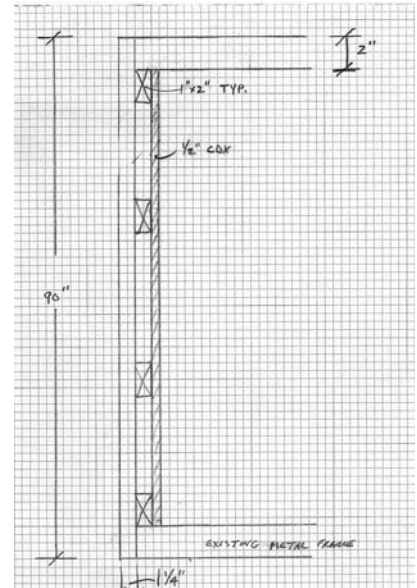


Fig. 10. Vertical dimensions

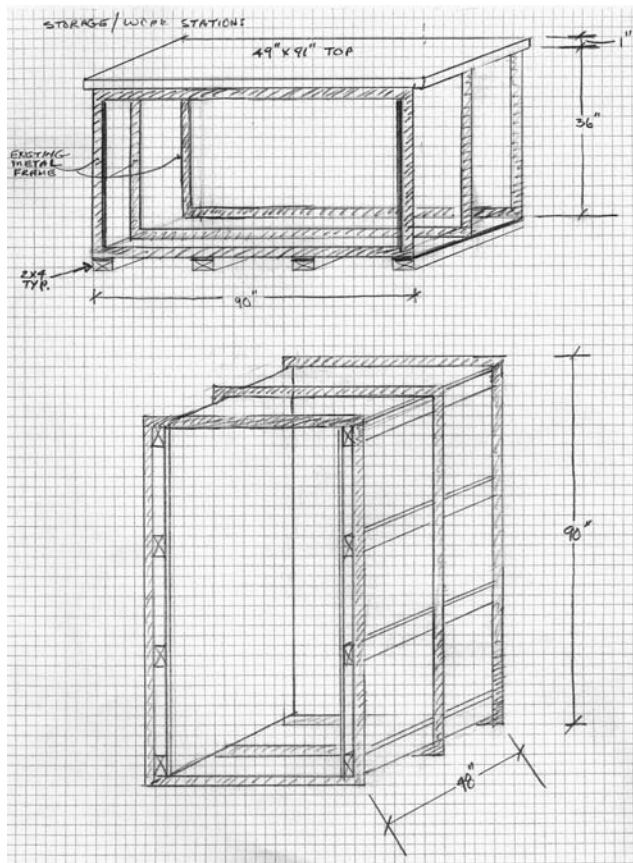


Fig. 9. Overall dimensions

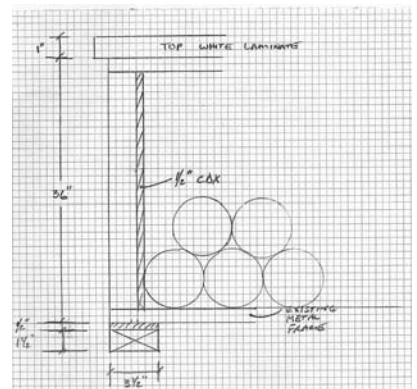


Fig. 11. Horizontal dimensions



Fig. 12. Construction detail