Law Librarians and Library Design, Construction, and Renovation: An Annotated Bibliography and Review of the Literature*

Thomas R. French**

Librarians involved in a construction or renovation project must develop a vision for the project, sell that vision to administrators and building professionals, and work to ensure that the completed project meets the library's needs. Professor French's guide provides a starting point for librarians wishing to study what has been done in other libraries, become aware of the issues they might face, and prepare themselves for the work ahead.

¶1 Librarians involved with the challenges of designing and building new or renovated library space are usually instrumental in seeing that the library's needs are articulated and protected in the design and build process. However, librarians may be at a disadvantage when it comes time to actively participate in the process if they are unprepared to share visions, discuss issues, or properly communicate with administrators or design professionals. Early in the process justifications must be made for new or improved space, answers formulated for questions about technology in the library, and alternatives to building considered. Librarians also must be ready to talk to designers, architects, and builders in a language they can understand to ensure that the design actually serves the needs of the library and the finished product functions as envisioned. To successfully answer these questions and accomplish these tasks, librarians must be—or quickly become—experts on topics ranging from the future of libraries as institutions and the evolving nature of technology to design vocabulary, space planning, and changes in pedagogy. Self-education by reading the literature is obviously one way to become, if not an expert, at least well versed or literate on relevant topics and issues. Paul Healey points out that "[a] library building or remodeling project is a huge event in the professional life of any librarian. As with many situations in life, the more information you have, the better off you'll

** Director of the Law Library and Associate Professor of Law, Syracuse University College of Law, Syracuse, New York. The author would like to thank Laura Gasaway, Anne Klinefelter, Steve Melamut, Deborah K. Webster, and Sandra R. Jones at the University of North Carolina, Kathrine Everett Law Library for their courtesies during fall 2004. The author would also like to thank Jan Fleckenstein, Alissa DiRubbo, and Eric Shute at the H. Douglas Barclay Law Library, Syracuse University College of Law for their assistance. The author thanks Syracuse University and College of Law Dean Hannah Arterian for providing support to write this article.

be."[1] Generally librarians are free with advice, happy to share experiences and provide insight from their own building projects.

¶2 This article attempts to provide a starting point for law librarians, especially those in academic institutions, who want to study what has been done in the recent past, become more aware of issues that they might face, and prepare themselves for the struggles ahead as they embark on new construction or renovation projects. As a bibliographic essay and annotated bibliography, citations to the literature are provided,[2] major works analyzed, and selected Web sites described. The emphasis of this bibliography is on materials published in the library literature during the last ten years. It is organized by topic, including starting and reference sources, to build or not to build, the impact of technology, recent projects, space planning, building design and construction, working with architects, post-occupancy evaluation, and lessons learned.

Starting and Reference Sources

¶3 Librarians may need a few basic sources to inspire their thinking or otherwise begin the self-education process before the construction project gets underway. There are several sources to turn to. *Beyond the Boundaries: Report of the Special Committee on the Future of Law Libraries in the Digital Age*[3] is a good place to start. It provides the best thinking of the law library profession about the future of law libraries as virtual and physical spaces in light of rapid developments in electronic publishing. It addresses questions about the future of the law library, the role of librarians, and the place of the law library within its parent institution by offering various scenarios "focusing on the opportunities for law libraries in a digital future."[4] Each scenario is considered by type of law library, and its "S.W.O.T." (strengths, weaknesses, opportunities, and threats) analysis addresses issues such as facilities, collections, staffing, and services. Legal publishing trends, user expectations, access to information, and other developments affecting law libraries of the future are also studied. Encapsulating much of the recently published literature on the role of libraries in the future, this report should be required reading for all law librarians, but especially for those contemplating a building or renovation project.

¶4 Law librarians desiring more technical or "nuts and bolts" information to prepare themselves for a construction project will be well served by Stephen Margeton's

1. Paul D. Healey, *Librarians Share the Ins and Outs of Library Renovation,* AALL Spectrum, May 2003, at 18, 18.
2. In searching the literature the following sources were consulted: *Index to Legal Periodicals and Books, Library and Information Science Abstracts, Library Literature and Information Science, Current Law Index,* World Cat, ProQuest, Academic Search Elite, Westlaw, LexisNexis, and the Internet.
3. Special Comm. on the Future of Law Libraries in the Digital Age, Am. Ass'n of Law Libraries, Beyond the Boundaries: Report of the Special Committee on the Future of Libraries in the Digital Age (2002).
4. *Id*. at 2.

Introduction to Law Library Design: A Features Approach.[5] This is *the* book on law library design and construction, especially for academic law libraries for which it is the only book-length treatment of the subject. Based on the author's experience with a new building project at Catholic University of America's Columbus College of Law, it provides helpful suggestions, drawings, photographs, and bibliographies for those contemplating a new building or expanding an existing facility. Topics covered include assembling the building team, programming and the process of design development, construction documents, and various physical characteristics of the building (e.g., lighting, flooring, shelving, acoustics, and power). Chapters on amenities, staff space, furniture, and services are also provided. Each chapter is followed by a bibliography leading the reader to additional materials on the relevant subjects. Additional useful information such as subject headings for a construction document filing system and library naming opportunities are covered in an appendix. Margeton's recent annotated bibliography in *Law Library Journal*[6] should also be consulted. It provides concise descriptions of works that he considers the best in the literature and is arranged by topics mirroring those in his treatise.

¶5 *Planning Academic and Research Library Buildings*[7] is a standard reference tool or, as Margeton calls it, "the bible of library planners."[8] Originally written by Keyes Metcalf, this source has provided guidance to the library profession for generations. The current edition updates Metcalf, especially in its coverage of accessibility issues, technology, and automation, although it seems to have missed wireless technology. Encyclopedic in nature, this work addresses the full range of activities relating to library building design and construction from working with architects and planning to moving into the new space. Generously illustrated with drawings, graphs, and diagrams, this source should be consulted, along with Margeton, during all phases of a construction project. Appendixes contain sample planning documents, formulas, guidelines, standards, equipment lists, a glossary of terms, and a bibliography of "useful" publications current through 1997.

¶6 The American Library Association[9] and Neal-Schuman[10] each have published several guidebooks and manuals during the last few years that cover specific

5. Stephen G. Margeton, Introduction to Academic Law Library Design: A Features Approach (2000).
6. Stephen G. Margeton, *Law Library Design Bookshelf—An Annotated Bibliography,* 97 Law Libr. J. 77, 2005 Law Libr. J. 4.
7. Philip D. Leighton & David C. Weber, Planning Academic and Research Library Buildings (3d ed. 2000).
8. Margeton, *supra* note 6, at 80.
9. *E.g.,* Carol R. Brown, Interior Design for Libraries: Drawing on Function and Appeal (2002); Miriam B. Kahn, Protecting Your Libraries Digital Resources: The Essential Guide to Planning and Preservation (2004); William W. Sannwald, Checklist of Library Building Design Considerations (4th ed. 2001).
10. *E.g.,* Pamela Cravey, Protecting Library Staff, Users, Collections, and Facilities: A How-to-Do-It Manual for Librarians (2001); Ruth A. Fraley & Carol Lee Anderson, Library Space Planning: A How-to-Do-It Manual for Assessing, Allocating and Reorganizing Collections, Resources and Facilities (1990); Nolan Lushington, Libraries Designed for Users: A 21st Century Guide (2002).

topics pertaining to library planning and building. Written in nontechnical terms and focusing on the needs of librarians, they provide a quick overview and usually contain checklists, illustrations, and bibliographies.[11]

¶7 After having perused many of these sources, there still may be some gaps in the librarian's self-education that need to be filled. For instance, one must have a solid grasp of the vocabulary of designers and builders. Consultants in Risk Management, a strategic risk management consulting firm, makes several helpful sources for definitions readily available on the Web.[12] Both of these provide one- or two-sentence definitions of terms in nontechnical language. A further source for definitions, including descriptions of architectural symbols, is *Architectural Terms for Educational Planners.*[13]

¶8 Not knowing how to read architectural drawings and other construction documents is another potential knowledge gap. Fortunately there are ways to take care of this. The National Trust for Historic Preservation offers one publication written specifically as a guide for those not having the experience or training needed to read and interpret construction documents.[14] It explains the various steps in developing documents such as contract forms and change orders, and outlines the stages of the design and construction project including the points where reviews are necessary. The book starts at the most basic, drawing sheets and scales, and progresses from there to site development, elevations, floor plans, systems, and building materials. It is an excellent resource for librarians who need to quickly learn to understand drawings and become conversant in their meanings to the extent they can intelligently discuss them with building professionals.

¶9 Several libraries with an interest in architecture have developed guides to topics relevant to architecture and building design. These can provide helpful information and guidance. The Rotch Architecture and Planning Library of the Massachusetts Institute of Technology has made guides for architecture, design and construction, architects and buildings, databases, and electronic journals available via the Web.[15] The Architecture Studies Library at the University of Nevada, Las Vegas provides another valuable resource guide.[16] Materials on this site are listed as reference tools (e.g., dictionaries, indexes, etc.) or resources (e.g., accessi-

11. *See* Margeton, *supra* note 6, at 79–83, for more detailed descriptions of these sources.
12. Consultants in Risk Mgmt., Building Construction Glossary, http://www.c-risk.com/Reference_Library/BC_Glossary_01.htm (last visited Sept. 7, 2005); Consultants in Risk Mgmt., Construction Management Glossary, http://www.c-risk.com/Reference_Library/CM_Glossary_01.htm (last visited Sept. 7, 2005).
13. Woolf/Lang/Christopher Architects, Architectural Terms for Educational Planners (ERIC No. ED460564) (1997).
14. John J. Cullinane, Understanding Architectural Drawings: A Guide for Non-Architects 7 (1993).
15. MIT Libraries, Subject Guides: Architecture, http://libraries.mit.edu/guides/subjects/architecture/index.html (last visited Sept. 7, 2005).
16. Jeanne Brown, Architecture and Building: Resources by Topic, http://library.nevada.edu/arch/rsrce/webrsrce/contents.html (last visited Sept. 7, 2005).

bility/universal design, buildings, libraries, standards and codes). Both of these sites should be bookmarked by librarians involved in a construction project.

Bibliographies and Resource Guides

¶10 Over the years several bibliographies have been published in the library literature that are useful for finding citations to relevant information. *Planning Library Facilities: A Selected, Annotated Bibliography* contains citations with annotations to several hundred items published from 1970 through 1988.[17] Topics covered include facility planning, design, and evaluation and renovation, subdivided by type of library (academic, public, school, and special). Special consideration is given to environmental and security issues. Although dated, this bibliography does provide access to a considerable body of literature published over an almost twenty-year period. Annotations tend to be short—rarely more than fifty words in length—but there is an extensive author and subject index.

¶11 *Law Library Journal* has published relevant bibliographies from time to time. Lucy Salisbury Payne's contribution to the literature covers the years 1985–90.[18] Addressing the needs of library planners for information "to prepare for tomorrow's technological changes,"[19] Payne annotates approximately one hundred articles and books. Topics include planning for academic law libraries, graphics, security, building policies, automation, and technology. Although covering a limited time span, it does cite several articles specifically about law libraries.

¶12 Stephen Margeton's recent annotated bibliography[20] covers books, book chapters, and articles published on several crucial topics for librarians involved in a construction project. Focusing on materials that he believes are the "best" of the literature, Margeton's work is a good complement to the present article because it annotates sources about design, construction documents, and several features not covered here, such as flooring, acoustics, shelving, lighting, signage, staff workspace, and amenities. It concentrates on recent literature and serves as an excellent supplement to Payne and, more specifically, to his own text on law library design.[21]

¶13 Joan Axelroth's "The Impact of Technology on Library Space Planning and Design"[22] has approximately thirty annotations to articles published mostly in the legal press, and thus likely to come to the attention of lawyers, about the way technology will affect the space needs and collections of firm libraries.

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17. Mary Sue Stephenson, Planning Library Facilities: A Selected, Annotated Bibliography, at viii (1990).
18. Lucy Salisbury Payne, *Bricks and Books for the Twenty-First Century: A Selected Bibliography for Academic Law Library Planners,* 82 Law Libr. J. 167 (1990).
19. *Id*. at 168.
20. Margeton, *supra* note 6.
21. Margeton, *supra* note 5.
22. Joan L. Axelroth, *The Impact of Technology on Library Space Planning and Design,* Legal Reference Services. Q., 1999, no. 3, at 11, 18.

¶14 *Planning Library Buildings*[23] is an older and more general bibliography that contains citations to books and articles published between 1980 and 1995 on various topics associated with library facilities planning. Subjects include the planning team, space planning and programming, site selection, automation, interior design, alternatives to new construction, financing, and moving. There is also a section listing building reviews and case studies as well as a bibliography of bibliographies. There are only a few citations to works specifically about law libraries, but it does a good job of covering many topics universal to all building and renovation projects (e.g., asbestos, security, role of consultants, etc.).

¶15 Several organizations and state agencies maintain bibliographies and resource guides on their Web sites that offer librarians citations to the literature and other information to help and inform librarians about issues, procedures, and other topics related to library building projects.

¶16 The American Library Association maintains a selected annotated bibliography covering library building and construction on its Web site.[24] While limited to approximately thirty citations, the ease of accessing this material via the Web and its inclusion of the most important recent works on the subject makes this bibliography a valuable resource. Where appropriate, links to Web sites are provided, leading the reader to such relevant sources as the Standards and Guidelines of the Association of College and Research Librarians and building materials developed by the Library Administration and Management Association, a division of the American Library Association.

¶17 The resource lists of the National Clearinghouse for Educational Facilities[25] are a repository of information on subjects ranging from preplanning, design, case studies, construction, operating costs, and technology to materials and equipment. Books, journals, reports, and Web sites are listed. The "Libraries—Higher Education" section alone contains nearly a hundred annotated citations and links to materials covering lighting, space planning, security guidelines, accessibility issues, building consultants, acoustics, and libraries in the digital age, to name a few. This is one of the most valuable sources of information relevant to library construction available and it is well worth taking the time to scrutinize. This Web site, along with Margeton's book[26] and his *Law Library Journal* bibliography[27] arguably cover the literature or at least provide citations to the most relevant materials available.

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23. ANDERS C. DAHLGREN & ERLA P. HEYNS, PLANNING LIBRARY BUILDINGS: A SELECT BIBLIOGRAPHY (1995).
24. Am. Library Ass'n, Building Libraries and Library Additions: A Selected Annotated Bibliography (ALA Fact Sheet No. 11), http://www.ala.org/ala/alalibrary/libraryfactsheet/Default1446.htm (last visited Sept. 7, 2005).
25. Nat'l Clearinghouse for Educ. Facilities, Resource Lists, http://www.edfacilities.org/rl/index.cfm#Preplanning (last visited Sept. 7, 2005).
26. MARGETON, *supra* note 5.
27. Margeton, *supra* note 6.

Further Reading

Maine State Library, Library Construction Resources, http://www.maine.gov/msl/libs/construction/resources.htm (accessed Sept. 7, 2005).

This is representative of the Web sites maintained by state library agencies to provide information and links to sources relevant to library construction. Like many of them, the Maine site is geared toward public libraries. Various sections cover the planning process, regulations and standards, moving, and architecture and design.

Music Library Facilities Subcommittee, Music Library Association, Music Library Facilities: A Bibliography (2004), http://www.musiclibraryassoc.org/index.html (accessed Sept. 7, 2005).

This bibliography has citations to materials listed under various topics, including music libraries, libraries in general, and specific issues such as accessibility, interior design, safety, preservation, and disaster planning.

National Institute of Building Sciences, Whole Building Design Guide, http://www.wbdg.org/index.php (accessed Sept. 7, 2005).

This portal provides "government and industry practitioners with one-stop access to up-to-date information on a wide range of building-related guidance, criteria and technology from a 'whole building' perspective." It has sections devoted to various types of buildings and spaces, project management, federal regulations, and case studies. The whole building concept is one involving designing buildings in an environmentally responsible way.[28]

Section of Legal Education and Admissions to the Bar, American Bar Association, Books, Bytes and Continuous Renovation: Resource Guide for Law School Facilities, http://www.abanet.org/legaled/committees/bricks-bytes/industry/industry.html#_Library (accessed Sept. 7, 2005).

This Web site has a section on law libraries containing a short annotated bibliography, links to law school library construction projects, and a list of architects who have experience designing law libraries. Unfortunately it does not appear to have been updated in the recent past.

University of British Columbia, School of Library, Archival, and Information Studies, Planning and Building Libraries, http://www.slais.ubc.ca/resources/architecture/index.htm (accessed Sept. 7, 2005).

This Web site provides links to "key resources" for librarians and others interested in planning and building libraries. Its list of links is particularly comprehensive in coverage. The section on barrier-free design includes standards and other information from the International Federation of Library Associations, Australia, Canada, and the United States.

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28. *See* U.S. Dept. of Energy, Building Tool Box: Whole Building Design, http://www.eere.energy.gov/buildings/info/design/wholebuilding (last visited Sept. 7, 2005); Don Prowler, The "Whole Building" Design Approach, http://www.wbdg.org/newsevents/news_wbdg_approach.php (last visited Sept. 7, 2005).

To Build or Not to Build? The Library as Place, the Information Commons

¶18 Early in the construction process librarians may face difficult questions by deans and other administrators: why do we need to build or renovate our current library? Aren't libraries dinosaurs clearly on their way to extinction in the new electronic age? The short answer to these questions is yes, we do need to build and no, electronic resources are not doing away with the need for a physical library. The library's space needs are evolving not shrinking. "Since the 1990s, libraries have moved steadily away from being mere repositories of printed materials to something more complex, more expansive, more exciting, and more indeterminate."[29]

¶19 The evolving nature of libraries is evident in two developments in particular: the concept of the library as place and the library as an information commons. Kathlin Smith sees the library as growing in importance as "*place*—or base—for teaching, learning, and research in the digital age."[30] The information commons, as a location within a library, is a space where access to technology is combined with reference service and collaborative learning spaces designed to enhance group learning and allow for the introduction of new technologies into the curriculum.[31] In other words, the information commons provides the locus for the library as place.

¶20 Rather than dismantling the physical library, our goal should be to design and build libraries that will enhance learning in the electronic environment and add to our users' sense of community. If we fail to meet this challenge, perhaps only then will libraries go down the path to extinction.

Further Reading

Bahr, Alice Harrison. "Library Buildings in a Digital Age, Why Bother? Defending New Library Buildings and Additions to College Administrators and Trustees." *College and Research Libraries News* 61 (2000): 590–91.

Bahr presents a list of ten observations or arguments in support of new library buildings that can be made to administrators who may think digitization will decrease or eliminate the need for a physical library. For instance, she notes that libraries are more than just places for books, they also are learning centers providing space for presentations, conference rooms, collaborative study spaces; libraries can serve as central facilities for video conferencing and distance learning; libraries provide social space; digitization costs are excessive; and libraries provide "a sense of past and present" (p.591).

Bazillion, Richard J. "Planning the Academic Library of the Future." *portal: Libraries and the Academy* 1 (2001): 151–60.

29. Morell D. Boone, *The Way Ahead: Learning Cafes in the Academic Marketplace*, 22 LIBR. HI TECH 323, 323 (2004).
30. Kathlin Smith, *Preface* to COUNCIL ON LIBRARY & INFO. RESOURCES, LIBRARY AS PLACE: RETHINKING ROLES, RETHINKING SPACE, at vii (2005).
31. Laurie A. MacWhinnie, *The Information Commons: The Academic Library of the Future*, 3 PORTAL: LIBR. & ACAD. 241, 244 (2003).

This article suggests that libraries will be with us for the foreseeable future, not as "storehouses" but rather as "knowledge centers" contributing to the educational mission of their parent institutions. Such centers require a physical presence to accommodate various information formats. Designing libraries to meet the mission of academic institutions requires that architects and designers, under the guidance of librarians, understand information technology and "theories of knowledge transfer" (p.152). Bazillion lists necessary assumptions library planners and designers must work from in planning libraries, including the rapid growth of both electronic and book publication, the fact that buildings need to be "integral parts of larger information networks," and the realization that space usage will change over time and no building will age with "perfect grace" (p. 153). These assumptions must be aligned with building flexibility to create the best library possible for the money spent. Successful library buildings offer connectivity throughout the building, are human in scale, pay attention to human comfort, underscore the teaching role of the library and the functional relationships that are apparent from their arrangement or appropriate signage. Bazillion concludes that the entire planning and building process is one "whose purpose is to realize a common vision of the 'library of the future' as defined by those best able to see their way ahead. If the (design) team does its job well, the result will answer those critics who assent that 'building' should be dissociated from 'library' in a networked world" (p.159).

Beagle, Donald. "Conceptualizing an Information Commons." *Journal of Academic Librarianship* 25 (March 1999): 82–89.

Beagle describes the information commons as a physical library space designed to organize work space and service delivery activities around an integrated digital environment. The emergence of the information commons in libraries as a virtual and physical space raises questions about planning and management strategies. Properly done, the information commons, as a physical space, can help a library better support collaborative learning and combine services to library users from information technology, reference, and media staff. Beagle sees the future of library work to be about conceptualizing information as a process of creating knowledge. The information commons facilitates this process, prepares students for new corporate learning environments, enables faculty to use information technology for interdisciplinary research, and empowers "library professionals to redefine the roles that they play in this rapidly changing and sometimes bewildering world" (p.88).

Boone, Morell D. "Monastery to Marketplace: A Paradigm Shift." *Library Hi Tech* 21 (2003): 358–66.

This article discusses the emergence of the "cybrary" during the last ten years as architects and designers have begun to plan libraries that are not only repositories, but also places for interactive learning and research. According to Boone, there has been a paradigm shift from the library as a place serving the needs of a traditional researcher to one in which it is able to accommodate users seeking more unique services such as cafes, learning labs, and meeting rooms. "The emerging library is no longer simply a monastery full of books and journals for scholars, but marketplaces competing for clients by offering different arrays of services" (p.358). Boone is not arguing whether or not electronic resources will replace the need for libraries; he is observing that technology changes and the concept of the library as a place or an information commons are altering the nature of libraries.

Boone, Morell D. "The Way Ahead: Learning Cafes in the Academic Marketplace." *Library Hi Tech* 22 (2004): 323–27.

Recognizing the historical role of cafes as "spheres of collaborative activity and shared learning" (p.324), Boone suggests that "learning cafes" are appropriate for today's and future libraries. He envisions learning cafes as places where information services, including institutional repositories and learning technology services, work together to promote "advanced interactive learning" (p.325). Boone contends that properly planned—following what he labels the "four-A's of facility design" (adaptability, accessibility, aesthetics, and accommodation)—learning cafes can facilitate today's focus on distance education, interactive learning, and knowledge production. He concludes that learning cafes are "going to be one of the most important emerging design elements in library learning center planning in the next decade," offering the possibility of "reconciling the age-old, but evermore pressing, tension between a library's academic mission and the ever increasing technology-centered demands of student, society, and the marketplace" (p.327).

Council on Library and Information Resources. *Library as Place: Rethinking Roles, Rethinking Space*. Washington, D.C.: Council on Library and Information Resources, 2005.

This is a collection of articles written by librarians, professors, and an architect devoted to exploring the effects of technological change and the delivery of information in electronic formats on the creation and design of libraries. Its intended audience is not only librarians, but campus administrators as well. It observes that libraries can provide an antidote to the isolation of researchers using the Internet and as a dynamic learning resource and that "the library can once again become the centerpiece for establishing the intellectual community and scholarly enterprise" (p.3). As less space is needed to house collections, libraries now need to be designed to provide for increased user space. They should be designed by a collaborative effort of librarians, campus administrators, faculty, students, and architects to promote study and learning, including space that allows "students the social dimensions of learning" (p.22). In the digital age, spaces in libraries need to be both functional and inspirational. There is no single formula for designing libraries, but good design "reflects serious consideration of institutional mission and how space can advance that mission—whether it be learning, knowledge production or civic engagement" (p.76).

Crawford, Walt, and Michael Gorman. *Future Libraries: Dreams, Madness, and Reality.* Chicago: American Library Association, 1995.

This book argues that libraries and librarianship have certain enduring values that should not be lost to any technology that happens to be the "fancy of the moment" (p.1). Crawford and Gorman believe libraries will endure because they serve humanity, respect all forms of knowledge communication, use technology to enhance service, protect free access to knowledge, and create the future by honoring the past. They contend that print is not dying; technology has its place, "a good library is not a subsidized bookstore, and librarians are not stock clerks" (p.113). They view the successful library of the future as a place that will have a life beyond its walls by offering services to remote users as well as to users within the library.

Crosbie, Michel J., and Damon D. Hickey. *When Change Is Set in Stone: An Analysis of Seven Academic Libraries by Perry Dean Rogers & Partners*. Chicago: Association of College and Research Libraries, 2001.

The authors, an architectural critic and academic librarian, examine seven buildings designed by the Boston firm of Perry Dean Rogers & Partners. Libraries ranging in size from Colorado State University to the Science Library at the College of Wooster were chosen for inclusion because they "represent the latest thinking" about library design. Illustrated with several glossy photographs, this work covers current design trends and thinking about libraries in the academic world. The authors view libraries as a social space and an important marketing tool for an institution. They believe the library is "ground zero in the digital revolution, the place where we first glimpse the future of how information is stored and disseminated. Today the library is less of a place to stack the canon than a portal through which we can retrieve information from anywhere" (p.5).

Duncan, James M. "The Information Commons: A Model for (Physical) Digital Resource Centers." *Bulletin of the Medical Library Association* 86 (1998): 576–82.

Duncan reports on the information commons at the University of Iowa Health Sciences Library.[32] Differentiating a commons from a computer lab, he believes the mission of the former is to improve teaching, increase access to educational resources, and explore new technologies. Iowa's commons provides a place for courseware development, innovative instruction, research, and independent learning. It has brought "renewed visibility to the library" (p.576). The article discusses the commons' design and construction, budget, staffing, services, usage, and programs.

Halbert, Martin. "Lessons from the Information Commons Frontier." *Journal of Academic Librarianship* 25 (1999): 90–91.

This article discusses changes to service patterns and increased usage that emerged after the introduction of an information commons at Emory University. Halbert concludes that both differentiation and uniformity, in other words "ubiquity" in interfaces, software, etc., is needed to serve the differing needs of patrons. Library staff need to have broad technical skills along with competencies in specific technological operations and subject specialties to provide effective services.

Hass, Leslie, and Jan Robertson. *The Information Commons*. SPEC Kit 281. Washington, D.C.: Association of Research Libraries, 2004.

Based on a survey of ARL member libraries, this is a resource guide for librarians interested in the information commons. The survey was conducted to learn how information commons (or information hubs or arcades) are used, staffed, and supported. It reports on the history of the information commons, funding and budget issues, facilities, equipment, services, personnel, usage, and evaluation. Documents and other information about services, training, policies, and publicity

32. For current information and a virtual tour, see Hardin Library for the Health Sciences, Univ. of Iowa, http://www.lib.uiowa.edu/commons (last visited Sept. 8, 2005).

from specific libraries are included along with a short bibliography and list of Web sites. While only 30% of the respondents reported having an information commons in their libraries, interestingly, "no library indicated that creating an information commons had been a mistake" (p.15).

Heller, James S. "51, 36, 127, Hike: Justifying Law Library Renovation and Expansion Project (Part 1)." *Trends in Law Library Management and Technology* 14, no. 1 (2003): 1–3.

Heller offers strategies that might be used to win the support of influential people and those controlling funding for projects to renovate or expand law school libraries. One way to begin is to tactically appoint faculty and students to a library building committee who will help promote the idea of building new space. Other strategies that can be used include using annual ABA statistics to create comparisons to peer and competitive law schools and conducting tours of the current space to provide visual proof of the need for improvements.

Herring, Mark Y. "10 Reasons Why the Internet Is No Substitute for a Library." *American Libraries* 32 (April 2001): 76–78.

Herring responds to nonlibrarian higher education officials who believe that the Internet is making libraries obsolete. He dismisses these officials as "bean counters" who have "well-intentioned but horribly misguided notions about what is fast becoming Intertopia . . . " (p.76). He states that everything is not free on the Internet, quality control is problematic, and copyright issues limit what is available. He sees the Web as a poor substitute for a library and concludes that saying the Internet is making libraries obsolete "is as silly as saying shoes have made feet unnecessary" (p.78).

Hiller, Steve. "Measure by Measure: Assessing the Viability of the Physical Library." *Bottom Line: Managing Library Finances* 17, no. 4 (2004): 126–31.

Taking into account declining library usage, the growing use of electronic information sources, funding and staffing constraints, this article discusses procedures used at the University of Washington to assess the usefulness of branch libraries to determine if they should be closed or merged with other libraries on campus. Hiller identifies performance or viability measures, such as the number of students and faculty directly supported by the library, dependency of primary users on the library, their actual use of the facility, its physical condition, and the space available for users, collections, and staff. Although focusing on branch libraries in a large university library system, its model could be adapted for use in determining the practicality of a law library expansion project.

Kaufman, Paula. "Whose Good Old Days Are These? A Dozen Predictions for the Digital Age." *Journal of Library Administration* 35, no. 3 (2001): 5–19.

This article predicts libraries will be even more valuable in the future than they are today because everything cannot be digitized and users want a "safe place for intellectual pursuits for finding information, and for entertainment . . . " (p.9). Seeing libraries as a "point of entry" to the information universe as well as a comfortable and safe place for patrons to work and interact with others, Kaufman argues that libraries are growing in importance because they provide help from real human beings and credible and validated collections.

Keller, Michael A., Victoria A. Reich, and Andrew C. Herkovic. "What Is a Library Anymore, Anyway?" *First Monday* 8 (May 2003), http://www.firstmonday.org/issues/issue8_5/keller/index.html (accessed Sept. 8, 2005).

The authors suggest that predictions of the demise of the library in the Internet age are "nonsense." They see libraries as performing services or functions that will continue regardless of changes from print to electronic media; libraries will still acquire collections, make them accessible, and work to preserve them. For libraries to depend on publishers to preserve materials when decisions to "unpublish" or withdraw materials from the Web are not uncommon poses a danger to scholarship. Physical libraries provide the essential service of developing their own local collections and serve as custodians of these collections. The article concludes that as long as libraries continue their traditional roles of building, managing, and preserving collections, they will not fade away.

King, R. James. "The Future of the Special Library: One Person's Perspective." *Serials Review* 30 (2004): 171–75.

In this editorial, King predicts what special libraries will be like in 2010. Most journals will be in digital form, libraries will target subscriptions to specific researchers rather than providing "all journal content to all users"(p.172), and bibliographic control of conference proceedings will improve as they become more available online. Handheld devices and wireless access points will provide more information access, and libraries will provide more outreach. King argues that physical libraries will survive as long as they are designed to accommodate their users' needs in the "Web world."

Kohl, David F. "The Paperless Society . . . Not Quite Yet." *Journal of Academic Librarianship* 39 (May 2004) 177–78.

In this editorial, Kohl states that the future, especially in the area of technology, works out in surprising ways. For instance, as digital resources in libraries have increased, the amount of printing by library users and the volume of book sales to research libraries have grown too. Kohl suggests that because of these "surprises," when it comes to technology, librarians should focus on observation and experience—trial and error—rather than logic.

MacWhinnie, Laurie A. "The Information Commons: The Academic Library of the Future." *portal: Libraries and the Academy* 3 (2003): 241–57.

MacWhinnie provides a good introduction to the concept of the information commons (IC) and its part in ensuring the survival of the physical library. Technology and changing research habits of library users have not doomed libraries, instead they have added to the need for physical space to support them. "Libraries are designing their services and space to accommodate the changing needs and the demands for technology. One model for providing integrated technology and information resources is the Information Commons" (p.243). MacWhinnie includes an overview of several IC projects, including citations to Web sites describing various projects, their mission statements, planning reports, and proposals. She also discusses funding issues and potential sources for funding, cooperative arrangements within institutions, and the need to develop assessment measures. The successful library of the future will "provide the resources students need along with the physical amenities expected, whether skilled research assistance, the latest technology, or comfortable study spaces" (p.254).

Miller, William. "The Library as a Place: Tradition and Evolution." *Library Issues: Briefings for Faculty and Administrators* 22 (January 2002): 1–5.

Responding to questions about the survival of the physical library or its redundancy in the electronic environment, Miller notes that institutions continue to expand or build new libraries and many libraries are not experiencing decreases in foot traffic "despite electronic reserves, submission of reference questions online, and external availability of the full text of thousands of journal articles" (p.1). He argues that physical libraries will not disappear in the foreseeable future because of the prevalence of valuable scholarly materials in print formats; the inability of online collections alone to support the academic mission of an institution; the traditional role played by libraries in acquiring, processing, archiving, and preserving information; the possibility that electronic publishers may simply stop maintaining older, "less commercially interesting" information sources; and various legal and economic considerations. Instead of wishing for the phase-out of libraries to save money, administrators should be encouraging and developing libraries "as integral parts of the learning process" (p.4).

Pengelley, Nicholas, "The Virtual Law School Library." *International Journal of Legal Information* 29 (2001): 615–42.

Pengelley considers changes he sees coming in legal education and law school libraries over the next two decades that will be brought about by Web-based learning, changing lifestyles, increased technological sophistication and expectations of students as well as faculty, and the ever-expanding amount of electronic material available for researchers. Stack space needs will decrease as more materials are available in electronic form or off-site repositories become more common. The library space that becomes available should be used for "expanding comfortable reading and meeting space for students" (p.629). The physical law library will survive if we "reinvent our physical surroundings and leverage the desire for access to the new technologies with the much older desire that people still have to come together in their physical persons—to interact, and to eat and drink. Bookstores have shown us the way" (p.636).

Ranseen, Emily. "The Library as Place: Changing Perspectives." *Library Administration and Management* 16 (2002): 203–07.

Ranseen discusses ways libraries have responded to meet the needs of patrons in a time of "unprecedented change in communications, in terms of both form and speed" (p.203). While a successful library will continue to provide space for quiet concentration and carry on the traditional roles of acquiring, preserving, and storing information, well-designed buildings with lively programming are the ones that will survive. Libraries must accommodate all styles of learning and make people feel comfortable and welcome.

Seeds, Robert S. "Impact of a Digital Archive (JSTOR) on Print Collection Use." *Collection Building* 21, no. 3 (2002): 120–22.

Studying the usage patterns of journals in print and those available electronically through JSTOR, Seeds concludes that the latter were used "much more frequently" than their print counterparts (p.121). This study confirms his beliefs that print journals should be withdrawn or removed to off-site storage and that electronic access to journals is a viable substitute for print.

Seeds, Robert S. "Impact of Remote Library Storage on Information Consumers: 'Sophie's Choice?'" *Collection Building* 19, no. 3 (2000): 105–08.

Seeds discusses factors used to select materials to be moved to off-site storage from a library with zero growth space. These include the existence of duplicate copies, seldom-used materials, canceled serial titles, patron convenience, and intellectual impact on scholarship quality. Although such factors may be obvious, Seeds' analogy to the "lifeboat philosophy, some are sacrificed so that others may survive" (p.106), as a way to explain the removal of materials to faculty is interesting.

Seiss, Judith. "Why We Still Need Physical Libraries." *The One-Person Library* 19 (December 2002): 4–5.

Seiss provides "suggestions for fighting the myth" that libraries are no longer needed with so much information being available "for free" on the Web. They include the need to provide trainers and space for the training; the costs of online information; licensing issues; space, costs, and support issues for computers; the futility of relying on free or limited information from the Web; and the tendency for Web sites to disappear. She suggests that those institutions that believe they can rely on other libraries to support their needs for materials not on the Web might be ignorant and stupid (p.5).

Shlomo, Elka Tenner. "Nicholson Baker Wasn't All Wrong: A Collection Development Policy for Remote Storage Facilities." *Acquisitions Librarian* no. 30 (2003): 117–30.

Remote storage facilities for library materials are nothing new, but it was only in 1986 that a building specifically designed as a library storage facility was built (p.119). This article reviews the history of remote storage facilities and discusses the need for librarians (with faculty input) to create specific guidelines for determining what is to be removed to off-site storage and to consider the facility as a branch library needing a collection development policy when doing so. Using the collection development policy approach with faculty involvement will ensure fairness in decision making and "go a long way toward making the best choices as to which materials should go to storage and which should not" (p.128).

Wilson, Lizabeth A. "If We Build It, Will They Come? Library Users in a Digital World." *Journal of Library Administration* 39, no. 4 (2003): 10–28.

Wilson considers studies of the information-seeking behaviors and Internet use on today's college campuses, mentioning three studies in particular that "should be on everybody's reading and action list" (p.20): OCLC White Paper on the Information Habits of College Students,[33] Dimensions and Use of the Scholarly Information Environment,[34] and The Internet Goes to College: How Students are Living in the Future with Today's Technology.[35] Wilson argues that the results of

33. OCLC Online Computer Library Ctr., OCLC White Paper on the Information Habits of College Students: How Academic Librarians Can Influence Students' Web-Based Information Choices (June 2002), http://www5.oclc.org/downloads/community/informationhabits.pdf.
34. Amy Friedlander, Dimensions and Use of the Scholarly Information Environment (Nov. 2002), http://www.clir.org/pubs/reports/pub110/contents.html.
35. Steve Jones, Pew Internet & Am. Life Project, The Internet Goes to College: How Students Are Living in the Future with Today's Technology (Sept. 15, 2002), http://www.pewinternet.org/pdfs/PIP_College_Report.pdf.

> these and other studies provide measurable proof that researchers prefer digital over print, are comfortable with electronic resources, their on-site library use is changing, and students feel their education has been enhanced by the Internet. Using this information will help us to build "information environments that are useful and efficient for users" (p.27).

Impact of Technology

¶21 Planning and building law libraries to accommodate technology, figuring out just how much space is really needed to house print materials, and answering critics who argue that new space shouldn't be added because technology will ultimately result in the demise—or severe reduction—of the physical library are issues that have haunted librarians for the last generation. They responded to the emerging and widespread perception that libraries could do with less space in the future by acknowledging and promoting the library as a place for social interaction, collaborative learning, and coffee shops. Articles describing a whole new range of services and mission critical elements quite independent of and beyond the traditional concept of the library as a storehouse for books began to fill the professional literature.

¶22 Debates have raged over the question of how best to fulfill the research needs of students and faculty alike: will researchers still use print materials when so many electronic ones are available? What limitations are placed on scholarship that depends completely on the most easily accessible materials (such as those in electronic formats or not located in remote storage facilities)? Will the computer completely replace the book? Does "going digital" provide any real space or cost savings when infrastructure, subscription costs, and staff requirements are considered? Will generational defined prejudices about the readability of materials on a computer screen determine collection development policies? Will today's undergraduates, brought up in the digital age, demand electronic resources and completely overlook print materials when they become law students? If so, what are the implications for the design of law school libraries? From start to finish a law school library building project can easily take five years or more. How can anyone reasonably plan for a new building that far away from completion? Will budgets drive everything so that cheaper is always considered better or just the only reasonable way to go?

¶23 Most of the literature addressing these issues pertains to libraries other than law school libraries. However, there are a few noteworthy exceptions.

¶24 At the rededication of the St. John's University School of Law, three academic law librarians offered their thoughts, later published as part of a rededication symposia in the *St. John's Law Review*.[36] Betty Taylor discusses challenges to books as the primary source of recorded legal information from microforms, electronic databases such as Westlaw and LexisNexis, CD-ROMs, digitization

36. *St. John's University School of Law: Rededication Symposia*, 70 ST. JOHN'S L. REV. 1 (1996).

projects, and the Internet, focusing on the complications these alternatives create for librarians when thinking about service, space, and their ultimate survival.[37] M. Kathleen Price[38] argues that in the information age, librarians, in order to maintain their central role, must add to their traditional skills those of information organization and instruction or lose out to computer professionals and others when their budgets, space, and status are challenged. She discusses ways libraries and librarians have worked to maintain their edge by changing organizational structures, increasing cooperative agreements, and becoming more involved in the educational role of law schools by providing enhanced services and partnering with faculty and students in the research process. Price calls upon library administrators to facilitate these developments by committing the resources needed to keep up with user demands and expectations; planning for, designing, and maintaining technology; and influencing the revision of accreditation standards. She concludes that librarians must develop the "library without walls" and administrators must commit the resources necessary to see that it is done—one small project at a time.[39]

¶25 S. Blair Kauffman offers his views on planning law libraries when the future growth of print collections is uncertain, suggesting that the prudent approach is for flexible planning that will allow for a moderate book growth rate and integrated access to information in other formats.[40] He describes approaches used at Harvard (off-site storage), Columbia (digitizing parts of collection), and Yale (compact shelving) as methods that might be considered by library planners. Kauffman sees these three different approaches as viable methods for handling library space issues. If print collections grow, more books can be digitized, removed to offsite storage, or placed on compact shelving. If print collections become obsolete, Harvard can stop sending books to storage, Columbia will have a better digital collection, and Yale can relinquish its space for other purposes. In any event, these institutions are designing their libraries for "users who will be accessing information in a variety of formats."[41] Kauffman then turns to other crucial aspects of library design and planning: creating facilities that support access to information in other than print formats and services for users, including information technology support. Wiring considerations, quiet zones, computer labs, and staff all require flexibility in design and adequate space. Automation in whatever form has not necessarily led to a decrease in the number of staff in libraries, but it is changing the duties of staff and in ways that cannot be predicted for the future.[42] Kauffman concludes that libraries that are designed to accommodate uncertainty will serve their users best well into the future.[43]

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37. Betty W. Taylor, *Books vs. Non-Book Information,* 70 ST. JOHN'S L. REV. 129, 143 (1996).
38. M. Kathleen Price, *Technology and Law Library Administration,* 70 ST. JOHN'S L. REV. 145 (1996).
39. *Id.* at 161.
40. S. Blair Kauffman, *Technology and Law Library Design,* 70 ST. JOHN'S L. REV. 163, 169 (1996).
41. *Id*. at 173.
42. *Id*. at 178.
43. *Id*. at 179.

¶26 University of Georgia Law Library Director Ann Puckett believes that law school libraries will survive in the wake of computers by distinguishing libraries with responsibilities for "collecting and preserving legal information in perpetuity from those whose mission is more limited to creating a working collection to serve current needs only."[44] She suggests that "just in time" methods of getting information to users would fail if there were no libraries that collect materials "just in case."[45] Book collections in academic law libraries are still growing (as is the need for space to house them), even in the face of increasing electronic collections. Puckett provides arguments to use when dealing with law school deans and other nonlibrary administrators who covet the space in law libraries for other purposes, including answers to the charge that librarians who hold on to their book collections are technophobes. She views libraries as more than warehouses; they also are sources for expert help and gathering places "where users can exchange knowledge, experience, and ideas."[46]

¶27 Penny Hazelton[47] describes the results of a study done to justify space requests in planning a new library. She examined the overlap between materials available on Westlaw and LexisNexis and those in the print collection at the University of Washington Law Library, concluding that only 13% of the hard-copy collection at Washington could be removed to save shelving space because it was also available online in the two major legal databases.[48] Hazelton warns that access to important legal literature can be guaranteed only if a library owns or controls it and raises questions about licensing agreements that exclude access to those of the library's patrons who are not students or faculty of the law school.[49] This article inspired at least two published responses by academic law library directors. While Hazelton studied the space occupied by materials also available online, Michael Chiorazzi considered the possible implications of the *usage* of materials in determining space needs, suggesting that as much as 90% of the materials used for legal research is in 10% of the materials that are available online.[50] Obviously if usage alone is considered, a quick read of Chiorazzi could lead one to conclude that libraries indeed could shrink in size, perhaps even save money if most of the materials used by researchers are online. However, a closer look reveals several hidden expenses associated with digitized resources. Infrastructure costs, such as the purchase and maintenance of hardware and software, and administrative costs are considerable.[51] Collection integrity is at risk as vendors delete individual files

44. Ann Puckett, *Space and Cyberspace In Large Law Libraries*, TRENDS L. LIBR. MGMT & TECH., Mar. 1996, at 1, 1.
45. *Id*. at 4.
46. *Id*.
47. Penny A. Hazelton, *How Much of Your Print Collection is Really on WESTLAW or LEXIS-NEXIS?* LEGAL REFERENCE SERVICES Q., 1999, no.1, at 3.
48. *Id*. at 4.
49. *Id*. at 12.
50. Michael Chiorazzi, *Books, Bytes, Bricks, and Bodies: Thinking About Collection Use in Academic Law Libraries,* LEGAL REFERENCE SERVICES Q., 2002, no. 2/3, at 1, 5.
51. *Id*. at 15.

from databases. Even if law school libraries were to concentrate future collection growth on electronic resources, what should they do with the still-growing print collections? Chiorazzi suggests several possibilities that could be used individually or in combination: compact shelving, removal, remote storage, and redesign of stacks and collection placement.[52] There has been a fundamental change in the use, organization, and content of academic law libraries, whether or not our future is exclusively digital.[53]

¶28 Gordon Russell disagrees with many of Hazelton's assertions in light of the "rapid and continuing technological developments since her report was published."[54] He mentions digitization projects such as HeinOnline and LLMC as providing sources for libraries that greatly reduce the amount of space required to hold them when compared to hard copy. He also refers to developing technologies that may solve problems associated with reading on a screen. The advantage of hindsight greatly strengthens Russell's argument. The years between Hazelton's study and Russell's publication saw an accelerated growth in the amount of materials in electronic format, their ease of use, and growing acceptability by library users. Library planners should learn a lesson here. There is no way to tell for sure just how much and how soon collections will be in nonbook formats, nor how broad in scope collections will become as interdisciplinary work becomes more entrenched in legal scholarship, but it is reasonable to assume that digital collections will grow and access technology will change very fast. Hazelton used CD-ROMs as a point of reference in 1999, Russell looked to HeinOnline in 2002; neither of them included electronic repositories such as the Berkeley Electronic Press (bepress) or the Social Science Research Network (SSRN) in their calculations. Russell believes that to provide better service at less cost, libraries need to function as just-in-time providers rather than just-in-case warehouses.[55] Hazelton was interested in securing as much shelving space as possible for her new library; Russell believes that there is more to today's libraries than shelving for books. "The future library should be designed to meet the desired outcomes of our clients and that is not an emphasis on housing and providing access to books. Integrating the library with the law school to provide maximum use of group space is critical."[56] He sees that by doing this the library can facilitate group learning and become an extension of the formal instruction process.

Further Reading

Dillon, Dennis. "College Libraries: The Long Goodbye." *Chronicle of Higher Education* 51 (December 10, 2004): B5.

52. *Id*. at 19.
53. *Id*. at 24.
54. Gordon Russell, *Re-Engineering the Law Library Resources Today for Tomorrow's Users: A Response to "How Much of Your Print Collection is Really on WESTLAW or LEXIS-NEXIS?* Legal Reference Services Q., 2002, no. 2/3, at 29, 32.
55. *Id*. at 44.
56. *Id*. at 48.

Deans and faculty probably do not regularly read library journals, but many do read the *Chronicle of Higher Education.* In this piece by a librarian at the University of Texas, the author writes about outsourcing, financial constraints, and the rapid replacement of hard-copy formats by electronic resources in libraries. Dillon doubts that we will ever see journals or books disappear, although electronic formats will bring drastic changes in library and publishing operations. Nevertheless, he predicts that print materials will continue to be important in academic publishing and libraries. Libraries, in order to maintain control of the information available on a campus, cannot rely entirely on an outsourced, electronic library, nor can they afford to do so.

Fisher, Christine, "Evolving Technology and Law Library Planning." *St. John's Law Review* 70 (1996): 181–87.

Fisher, a law firm librarian, states that knowing the needs of users is the key to effective planning. By determining users' wants, skills, and needs, librarians can plan for the future of their libraries.

Fisher, Tom. "Impact of Computer Technology on Library Expansions." *Library Administration and Management* 9 (Winter 1995): 31–36.

Fisher writes that the impact of information technology on the physical and functional organization of libraries is "significant and spawns a host of technical issues" (p.31). Increased security, spatial and design challenges, wiring distribution, and mechanical upgrades are listed as some of the issues that accompany the provision of increased information technology in libraries. He argues that "the traditional ambiance" of the library must be preserved despite changes that must be made to accommodate technology.

Gibbons, Susan. "Offering E-books to Your Users: Some Costs and Benefits to Consider." *Bottom Line: Managing Library Finances* 15, no. 2 (2002): 87–91.

Gibbons concludes that e-books have a place in libraries: they provide a way to extend services, gain positive recognition for the library, and facilitate access to patrons with certain disabilities. They do, however, come with costs beyond their list price, including the expense of reading devices, staff, and user training.

Glazer, Sarah. "An Idea Whose Time Has Come Back." *New York Times Book Review*, December 5, 2004, 31.

This article gives pause to those who argue that reading on a computer screen is so uncomfortable that regular print materials will always have a prominent place in libraries. Discussing electronic books and their ascendancy in the United States (a 46% increase in sales between the first quarter of 2003 and the first quarter of 2004), Glazer attributes this to "the explosion of cellphones and other hand-held devices with small screens capable of displaying text" (p.31). E-books combined with handheld devices for reading offer convenience, cost savings over the price of print books, space savings, and portability. Convenience trumps screen size, especially for younger readers.

Recent Library Building or Renovation Projects

¶29 Excluding elementary and secondary schools, there are approximately 30,450 libraries in the United States.[57] Of these, only about 1500 are classified as law libraries and only about 10% of the law libraries are in academic institutions.[58] Not surprisingly, most of the information published about library construction is focused on public, school, or general academic libraries.

¶30 Three library journals publish annual summaries of library building projects in the United States. *American Libraries* publishes an annual architecture issue in April. *Library Journal*'s survey of the previous year's projects is issued in December. Since 2001, *AALL Spectrum*'s May issue contains short articles about specific law library construction or renovation projects.

¶31 The *Library Journal* architecture issue includes statistical information about library buildings classified as either academic or public and by type of project (new buildings, additions and renovations, or renovations only). For each project listed, information such as the total project cost, gross area, cost per square foot, equipment and construction costs, book and seating capacity, and the name of the architect is provided.[59] There is also a six-year cost summary showing the number of projects, size of buildings, and construction and equipment costs. Following this is a directory of architects and several pages of advertisements for architectural firms. The 2004 list included law libraries at the University of Denver and the University of Washington. Other law libraries included in recent years were Brooklyn in 1995, California Western and Seattle in 2000, and Howard in 2001.

¶32 For a wider coverage of law library projects since 2001, *AALL Spectrum* provides short descriptive essays of projects from law schools, firms, courts, and public law libraries. In 2001, "Change is in the Air: Law Librarians Share How They Accommodate Construction and Renovation Projects at Their Libraries"[60] introduces a series of articles highlighting building and renovation projects from Maine to California and Puerto Rico. The authors discuss their experiences with building projects: goals, problems encountered, and lessons learned. Projects discussed were the law school libraries of North Carolina, Maine, Puerto Rico, Oklahoma City, and California Western; the New York Appellate Division Library in Rochester; and the Proskauer Rose law firm library in Manhattan.

¶33 In introducing the second annual architectural series of *AALL Spectrum*, Paul Healey writes that "[p]hysical space is an omnipresent concern for libraries.

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57. Bowker Annual of Library and Book Trade Information 414 (49th ed. 2004).
58. *Id*. at 413.
59. *See, e.g.*, Bette-Lee Fox, *Spend Billions . . . and They Will Come,* Libr. J., Dec. 15, 2004, at 48, 49 (discussing library building projects completed in the United States between July 1, 2003 and June 30, 2004, including 203 public buildings and 36 academic projects, of which two were law school libraries).
60. Thomas R. French, *Change is in the Air: Law Librarians Share How They Accommodate Construction and Renovation Projects at Their Libraries*, AALL Spectrum, May 2001, at 4.

In spite of the growing belief that everything is online, law library space is becoming more precious rather than less."[61] Contributors to this issue were involved in building a library for a new law school by renovating a former corporate headquarters building, remodeling a former jail into a county law library, and moving a law school library across campus without professional movers. What happens when the money runs short is the subject of an article about one state supreme court library experiencing its first structural change since 1941.[62] Another article describes the two-year encampment in temporary quarters of a second state supreme court library during its building project.[63]

¶34 Innovative thinking about space issues is the primary focus of the third annual architectural series in *AALL Spectrum*.[64] Kelly Christianson writes about the challenges of designing to accommodate the law library's space, weight, and security requirements while integrating it into the University of Nevada, Las Vegas (UNLV) law school facility.[65] Planning for new space that will greatly reduce the amount available for books and journals is the topic of Kelly Devlin's contribution.[66] Devlin strikes at many of the themes in the current literature: reduced space, extensive weeding, introduction of compact shelving, and the replacement of large tables for researchers with computer terminals. Jim Milles's contribution[67] is one of the first in the law library literature to deal with the information commons, an area where electronic and print resources are consolidated in one place to facilitate seamless research and group activity by moving computers out of the lab and into the reading room.

¶35 Major renovation projects often take place at the same time and in the same space in which the library must provide services and conduct operations. It is not unusual for collections to be in storage, staff to be temporarily relocated, and users as well as staff confused and inconvenienced. Jean L. Willis and Amy Hale-Janeke address some of these problems in "Some Cheese with Your Whine: San Diego Library Keeps Patrons, Staff Happy During Remodeling Closure."[68] Confronting obstacles such as deciding "where and how to shift books out of the way and then back again; where and how to move furniture out and back"[69] are just a few of the issues the San Diego County Public Law Library faced during

61. Paul D. Healey, *The Path to New Space is Paved with . . .* , AALL Spectrum, May 2002, at 4, 4.
62. Joe K. Stephens, *They Said It Couldn't Be Done . . .* , AALL Spectrum, May 2002, at 12.
63. Julie Tessmer, *Experiences in Temporary Digs Inform Design for Permanent Library*, AALL Spectrum, May 2002, at 14.
64. Symposium, *Librarians Share the Ins and Outs of Library Renovation*, AALL Spectrum, May 2003, at 18.
65. Kelly Christianson, *Paradise Lost and Found: Nevada's Only Law School Library Exchanges Schoolhouse Locale for State-of-the-Art Home,* AALL Spectrum, May 2003, at 20.
66. Kelly Devlin, *Renaissance City Law Library Sees Rebirth on Its Own: Tighter Space, Split Facilities Compel Creative Solutions,* AALL Spectrum, May 2003, at 22.
67. James Milles, *Creating an Information Commons,* AALL Spectrum, May 2003, at 24.
68. Jean L. Willis & Amy Hale-Janeke, *Some Cheese with Your Whine: San Diego Library Keeps Patrons, Staff Happy During Remodeling Closure*, AALL Spectrum, May 2003, at 26.
69. *Id.* at 26.

the project described in this article. Suggested tactics in meeting these challenges include maintaining a database of the tasks, participation by the whole library staff in planning, soliciting suggestions from the entire staff, keeping all involved well informed of progress, and acknowledging their extra work, help, and suggestions. Keeping patrons informed of developments and offering them alternative sources for research can mitigate user frustrations as well.

¶36 In the 2004 architectural issue of *AALL Spectrum*,[70] Mark Estes discusses the downsizing of a law firm library in Denver which "transform[ed] a large, elegant, little-used library into a streamlined space for collections and staff."[71] By taking advantage of the rapidly improving accessibility of online research materials and using compact shelving, the library was able to dramatically decrease its space and shelving needs, freeing up space for the firm's expanding staff. Better use of space and the introduction of an informal *knowledge exchange area* where attorneys and staff could meet to converse has resulted in an increased number of attorneys visiting the library, allowing it to become "not only a destination, but also a place to stop by."[72]

¶37 The new University of St. Thomas Law Library is the subject of Ed Edmonds's contribution[73] to the 2004 symposium. Mindful of the increasing use of collaborative learning in legal education, the St. Thomas library includes spaces designed to "permit active discussion and promote peer interaction."[74] Other design elements incorporated into the St. Thomas design that are being used in many new (or renovated) buildings include layouts to more easily facilitate patron orientation, allowance for after-hours access, and networked reading rooms such as Buffalo's information commons. The St. Thomas library embodies many other features that are state of the art in library design, including design of work space for maximum flexibility, providing natural light in staff work areas, and inclusion of a *signature* reading room that is both functional and impressive. Edmunds concludes that the library is fulfilling "the vision of its planners to create an intellectual hub"[75] for the St. Thomas Law School.

¶38 Mary Kay Jung[76] describes a law firm remodeling project undertaken to allow for staff growth and to provide improved office location, layout, lighting, and collection usage. By taking into account the availability of online resources and the ways attorneys conducted research, the project enabled the library to withdraw significant numbers of hard-copy sets, resulting in a 25% reduction in shelving. The

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70. Symposium, *The Trials and Tribulations of Building or Remodeling a Law Library,* AALL SPECTRUM, May 2004, at 12.
71. Mark E. Estes, *Less is More: Holme Roberts and Owen Cuts its Library Space by Two-Thirds and Creates a More Efficient Space,* AALL SPECTRUM, May 2004, at 14, 14.
72. *Id*. at 15.
73. Ed Edmonds, *The Intellectual Hub of a New Law School: The Schoenecker Law Library Designed for Collaborative Learning,* AALL SPECTRUM, May 2004, at 16.
74. *Id*. at 16.
75. *Id*. at 17.
76. Mary Kay Jung, *Designing a Library for the Computer Age*, AALL SPECTRUM, May 2004, at 18.

project was a success, but like many library projects, compromises had to be made. In the case of the Thompson Coburn library, the director's and electronic services librarian's offices had to be located outside of the library, and technical services ended up with space "not quite as large as we would have liked."[77] Gary Gott[78] also describes a major remodeling project—at the University of North Dakota—where the catalyst for the renovation was the need for greater accessibility in the law library. Ranges had to be removed to make room for more accessible aisles to the point that "it would leave about one-third of the collection with no place to go."[79] Installing compact shelving was the answer to North Dakota's shelving problems; this also provided an opportunity to install new carpeting over tiles in the areas where the shelving was located. Gott describes a pretty straightforward project but, as often happens, unforeseen complications arose. Asbestos abatement, scheduling difficulties, time constraints, miscommunication, and blueprint issues all worked to increase the cost and impact the schedule of the project. Nevertheless, due to a cooperative spirit of all involved and quick thinking on the part of the library staff, modifications were made often on the spot and the finished project made the library a better place for its patrons.

¶39 The 2005 architecture issue of *AALL Spectrum*[80] similarly addresses many of the themes and problems associated with law library design and construction. Private, court, and academic law librarians describe such issues as how to provide space for technology, growing collections, services and staff; working with design and construction professionals; coping with problems as they arise during the building process; and moving collections during the project.

¶40 Lenie Ott[81] describes designing an "open concept" law firm library that would serve as a hub for the firm, encourage communication among lawyers, and help to develop client relationships. While the library decreased in size, innovative and flexible space planning not only allowed technological and training needs to be satisfied, but also enabled the library to redefine and enhance its role within the firm. Aletha Honsowitz and Duane Strojny[82] show how a renovation project, through adaptive reuse of a commercial building (in this case, a warehouse), can serve the needs not only of the law school, but also the community by revitalizing the neighborhood in which the Thomas Cooley satellite campus was located. Brian Baker[83] discusses the "extreme makeover" of the law library at the University of the District of Columbia, fueled by a desire to reduce noise in the library, better house the reserve collection, and create group study space and staff offices. The

77. *Id*. at 19.
78. Gary Gott, *Accessible to All*, AALL Spectrum, May 2004, at 20.
79. *Id*. at 20.
80. Symposium, *Changing Spaces*, AALL Spectrum, May 2005, at 10.
81. Lenie Ott, *Emerging Communication,* AALL Spectrum, May 2005, at 12, 13.
82. Aletha Honsowitz & Duane Strojny, *Heartbeat of the Law School,* AALL Spectrum, May 2005, at 14.
83. Brian L. Baker, *Extreme Makeover*, AALL Spectrum, May 2005, at 20.

library maintained some services during the construction but also provided for its patrons' needs by arranging access for them to the nearby Howard University Law Library. Upon completion, UDC has a "beautiful blend of form and function that transformed a formerly utilitarian space into a gem."[84] Ken Kozlowski[85] describes moving the Supreme Court of Ohio's law library into newly renovated space created by the restoration of an historical building in Columbus. In the end the project was successful, but not problem-free. Two companies were employed—one to break down, move, and later rebuild stacks in the new space; the other to move the books into storage during the project. Unfortunately disagreements between the companies delayed the project. This serves as a reminder that problems may arise in a project no matter how well planned it is. Finally, Regina Smith[86] describes the renovation of the Jenkins Library in Philadelphia. Spurred by the impending lease expiration of the library's space, this project gave the organization the opportunity to identify needed library improvements that could be considered in the planning stages. Ultimately, space was reconfigured, a new conference center was created which allowed for instructional and social events, computer training facilities were provided, and a coffee shop to serve as a community space was included.

¶41 *AALL Spectrum* does a valuable service in publishing the annual architecture issue. It allows librarians to write about their building projects and provides the profession with a quick synopsis of recent developments. Librarians anticipating a building project need to be aware of what others have experienced. These articles not only highlight projects, but usually contain valuable information about problems that arose and solutions for them. The more one is aware of these possibilities (such as delayed deliveries, incorrect blueprints, etc.), the better they can be dealt with when they happen on your project.

¶42 Writings about academic health sciences libraries, which are similar to law libraries in size, book, and seating capacity,[87] as well as in their association with professional schools and their independence from university library systems, provide another source of information useful to law librarians undertaking building projects. Like law libraries, medical libraries do not receive extensive coverage in *Library Journal.* Medical library journals are a more fruitful source of information about medical library construction.

¶43 Virginia M. Bowden provides an example of a medical library building project survey.[88] Providing tables similar to the *Library Journal* surveys, Bowden adds the length of time the projects took to complete—interesting information for those

84. *Id*. at 20.
85. Ken Kozlowski, *New Digs at the Supreme Court of Ohio,* AALL Spectrum, May 2005, at 22.
86. Regina Smith, *Let the Sun Shine In,* AALL Spectrum, May 2005, at 24.
87. The average size of an academic health sciences library in 1997 was 43,574 square feet, with 415 seats. Virginia M. Bowden, *Health Sciences Library Building Projects, 1998 Survey*, 87 Bull. Med. Libr. Ass'n 415, 415 (1999) (citing Annual Statistics of Medical School Libraries in the United States and Canada (1998)).
88. *Id*.

wanting an idea of just how long a project might take. In this survey contributing authors discuss twenty-eight projects which cover new buildings, renovations, and additions. As an example of the project reports included in this survey, Sharyn C. Fradin[89] discusses how work at the Finch University of Health Sciences/Chicago Medical School Learning Resource Center addressed the need for enlarged study space; consolidation of services; and provision of up-to-date computer operations, classrooms, and meeting spaces. The library had reconfigured spaces and made several small additions over the years to accommodate changing needs. Learning from existing shortcomings in the facility and taking into account aspirations of what the new project could provide, planners worked to develop new and improved spaces that would meet current needs and be flexible enough to support changes in the future.[90] Interior improvements included updated furnishing, carpets, and a lighter, brighter color scheme. "A hierarchy was developed for the carpet patterns relating patterns to the type of space in which they were located, and color was used to reinforce directions."[91] This is an interesting concept and one that we can learn from as it shows how attention to simple details can enhance the users' ability to navigate the physical space of a library while decreasing the need for staff assistance or distracting signage.

¶44 A discussion of planning issues in the design of health sciences libraries at the University of North Carolina, the University of Virginia, and Eastern Virginia Medical School provides the focus of another survey of current building projects.[92] This article articulates many of the current themes in the place and function of contemporary libraries. Technology, group learning, computer-literate users, and the evolution of library into an activity center rather than a "place for serious study and quiet reflection"[93] greatly influence thinking about library buildings today. The three libraries all shared similar goals in undertaking their projects: creation of a welcoming atmosphere, upgrading the technology infrastructure, creating additional space, and improving visibility on campus.[94] They confronted issues common to most academic law library planners: balancing space for print and electronic resources, implementing new technology, addressing the demand for various types of study space, and accommodating changes in services due to technological developments and increased availability of electronic resources.[95] Flexibility in design can help deal with these issues today and with any changes that may be needed in the future. One example of such flexibility is to "not bolt stacks to the floor."[96]

89. *Id*. at 419.
90. *Id*. at 420.
91. *Id*. at 421.
92. Patricia H. Nelson, *Current Issues in the Design of Academic Health Sciences Libraries: Findings from Three Recent Facility Projects,* 91 J. Med. Libr. Ass'n 347 (2003).
93. *Id*. at 347.
94. *Id*. at 348.
95. *Id*.
96. *Id*.

¶45 For historical and comparative purposes, a survey by Roy Mersky provides valuable information about law library projects in the United States and Canada completed during the academic building boom of the late 1960s and early 1970s.[97] In reporting the results of a survey of building projects, Mersky provides information about building size, construction and equipment costs, and book and seating capacity; staff space is included for new construction. This survey proves that many of today's building issues are not new. Reading rooms during the survey period were "not being abandoned," and space for microforms and audiovisual materials was a regular feature as were group study rooms.[98] There are some important differences between the law library of twenty-five years ago and today. Some of these show how space flexibility is essential in the design of law libraries. Most of the libraries in Mersky's survey reported providing for typing rooms, but "despite the inevitability of computerized data retrieval and instruction in law schools, only five libraries report making specific physical provisions to house computer terminals."[99] Only a few made any accommodation for disabled users, and "none reported space for an in-house computer."[100]

Further Reading[101]

Arnold, David. "Technology Tightrope." *School Planning and Management* 36 (July 1997): 26-A–26-C.

This article addresses technology-related issues in the design of new libraries in general and the Boston College Law Library in particular. The latter is used as an example of a library that has planned for appropriate technologies and future needs (assuming that book collections will continue to grow along with expanding technologies) so that the physical building itself will not restrict future decisions about staffing or collection formats.

Boyd, Stephanie. "A Traditional Library Goes Virtual." *Online* 26 (March/April 2002): 41–45.

Changing from a library noted for its monumental space to one consisting of regular office cubicles is the subject of this article by the librarian at Bell Canada's Information Resources Center (IRC). Starting with a vision of providing desktop access to the library's resources via an intranet and noticing decreases in demand

97. Roy Mersky, *A Decade of Academic Law Library Construction 1967–76,* 104 LIBR. J. 2519, 2520 (1979) (indicating that more than half of the law schools in the United States reported a renovation or construction project during the decade from the mid-1960s through 1976, including 58 new buildings).
98. *Id*. at 2522.
99. *Id*.
100. *Id*.
101. Dozens of articles have been published during the last few years by librarians and architects describing their construction and renovation projects. Most of these narratives discuss the reason for the projects, the challenges faced in bringing them to fruition, and the results. Typically these were written by individuals involved with the project and immediately after its completion. *See infra* Lessons Learned or Post Occupancy Evaluation sections for articles written after the new spaces were occupied that provide some degree of reflection about the projects.

for traditional library services by its users, the IRC changed its focus to "just in time" acquisitions, decreasing hard-copy collection growth by 90% (p.42). As the library became more virtual and less traditional, budget emphasis shifted. Computing costs were refocused from management software to Web development, acquisitions lines were devoted to licensing fees, and staffing began to reflect the need for people to deal with the Web and increased demands for reference services. Boyd emphasizes the need to keep clients and management informed as these changes are taking place. As the library becomes more virtual and less physical, failing to keep users informed of what is happening may lead them to think the library has disappeared.

Edmonds, Ed. "The University of St. Thomas Law Library: A New Library for a New Era in Legal Education." *Trends in Law Library Management and Technology* 13, no. 2 (2002): 5–8.

Edmunds describes the establishment of the law library at the new University of St. Thomas Law School. Having the opportunity to develop a new library at a new institution afforded planners the opportunity to start with a clean slate. Contemplating the type of building that would be needed, the desirability of making the library the "central force within the educational life of the institution" (p.6), and honoring the more collaborative approach to learning that today's students are accustomed to all helped to drive the design process. Spaces for compact shelving, a balance of formats for the collections, group work, and individual contemplation were designed, as was a more traditional reading room.

Greenfield, Michael M. "Confessions of a Hard-Hat Junkie: Reflections on the Construction of Anheuser-Busch Hall." *Washington University Law Quarterly* 76 (1998): 147–60.

Greenfield, a law professor and chair of the Washington University Law School Building Committee, describes the planning and construction process for a new building in which space issues were dominant. The law school needed more space for faculty, classes, student organizations, the library, and administrative offices. Solutions to the problems were considered, including building an entirely new building or adding to the existing facility. Selection of an architect and unanticipated setbacks such as a change in the university administration are described, as is the design process. Greenfield emphasizes the importance of articulating exact needs and warns that letting the architect make all of the decisions may lead to dissatisfaction with the finished product. He stresses the importance of communication during the process, paying attention to details, maintaining flexibility, expecting surprises, and keeping an exacting watch over the budget.

Jerry, Robert H., II. "A Brief Exploration of Space: Some Observations on Law School Architecture." *University of Toledo Law Review* 36 (2004): 85–93.

University of Florida Law School Dean Robert Jerry writes about how architecture can create a sense of community, affect the attitudes and learning experience of faculty and students, and serve to make a statement about what a law school values. Jerry warns that inadequate space has a diminishing influence on productivity, creativity, and accomplishments within the law school community. He also argues that functional and practical design offers long-term advantages over cutting edge or "state of the art" architecture which may later offend common sense, function, and practicality. He counsels that while many should be

involved in the planning process for a building project, once construction begins, only one voice should represent the law school. He also notes that you should expect unanticipated disruptions, maintain flexibility in the plans, and be aware that you only have one chance to build the space—filling and finishing it can be done later if necessary.

"The Jury Is In on Boston Law School's Library." *Facilities Design & Management* 16 (June 1997): 50–51.

This article describes the reasons for the success of the $11.7 million, 84,500-square-foot Boston College Law Library, including careful planning involving all of the college's constituents, an evaluation of the old facility, assessment of current and long-term needs, and a critique of other libraries. As an example of the flexibility built into the project, portable stacks "can be moved anywhere in the building without jeopardizing the structural integrity of the floors" (p.51).

Kitchel, Ann. "The Creighton University Law Library Renovation and Addition: 1997–1998." *Nebraska Library Association Quarterly* 29 (Summer/Fall 1998): 26–30.

Typical of many libraries built during the 1970s, the Creighton Law Library after thirty years was showing its age. Technological developments, collection growth, and the observation that the library was being used for more than just the "silent study of dusty old books" (p.27) proved the facility's obsolescence. Expansion and renovation provided the cure. Originally built over a parking lot, the library expanded downward to double the space for collections. The number of group study rooms increased from two to nine, a computer classroom was created, and the entire library rewired to accommodate technology. Kitchel concludes with advice to those contemplating a building project: ask lots of questions, visit other libraries, and "keep reminding decision makers and designers that a library not only should look good, but it also must function as a working, growing library" (p.30).

Margeton, Stephen G. "Catholic University's Law Library Emphasized Space, Style, and Technology." *New Library World* 96 (1995): 4–12.

One of the most detailed descriptions of a law library project published in the periodical literature, this article details planning considerations essential for today's technologically oriented law school library. Margeton discusses how space, light, power, network needs, and room for staff and equipment were provided for in the planning documents. He outlines steps essential to developing the project plan: analysis of the operations of older buildings, listing necessary requirements for the new space followed by a wish list of features important to incorporate into the new building. All of these tasks go into the plan before the design process begins. Furniture, lighting details, accessibility requirements, and creating a sense of style are also discussed.

Munde, Gail. "After-Costs of Library Construction: A Case Study of Lied Library at the University of Nevada, Las Vegas." *Bottom Line* 16, no. 4 (2003): 143–50.

Munde discusses "after-costs" that typically arise in a construction project after the new space is occupied and the construction accounts are closed. After-costs normally are paid out of the library's operations budget and can have significant

impact on the library. "No matter how long or how carefully a building project is planned, unforeseen and unimagined needs become obvious once the building is occupied" (p.143). Increased maintenance requirements, punch-list items not completed by contractors, the costs of computer equipment, software and supplies, service agreements on additional equipment, and additional furniture originally not anticipated resulted in many of the after-costs at UNLV. Munde explains how the Lied Library met the challenge of paying the after-costs which amounted to 30% of the library's operating budget during the first year after completion.

"The New Lied Library at the University of Nevada, Las Vegas: Focus on the Planning and Implementation of Technology and Change." *Library Hi Tech* 20 (2002): 8–120.

This is a series of nine articles relating to the planning and construction of the main library at UNLV, a ten-year project. Topics include planning, design and construction, technological features, information commons, and an automated storage and retrieval system. "Much of the success of this venture came by researching technology, and constant revision of plans to incorporate changes" (p.3). Challenges such as contending with design flaws, change orders, construction delays, and evolving technology needs that are common to many library construction projects are covered in these articles.

Oberholzer, Mark. "Legal Transparency." *Texas Architect* (January–February 2003): 26–29.

This article describes a library addition at the South Texas College of Law. Oberholzer, an architecture professor, views the project's extensive use of glass and sense of openness as being successful elements in achieving the college's goal of using the construction to create a new image in downtown Houston. Elements of the design take into account the individual and group study needs of students by providing carrels as well as different size study rooms. The top floor of the library houses conference space and a landscaped roof terrace.

Shedlock, James, and Faith Ross. "A Library for the Twenty-first Century: The Galter Health Sciences Library's Renovation and Expansion Project." *Bulletin of the Medical Library Association* 85 (1997): 176–86.

Shedlock and Ross describe an expansion and renovation project that "strikes a balance between traditional and future libraries, library ambiance and high technology, old and new" (p. 176). The Galter Health Sciences Library at Northwestern University is similar in size to many law school libraries (the project involved 57,000 square feet with shelving for 300,000 volumes), but this renovation and addition is of special interest because it involved a facility that had served, with previous expansions and renovations, as the medical library since 1927. Over the course of time, many architectural features had been lost to renovation projects as had an efficient layout for staff, collections, and services. The new plan was designed not only to solve environmental issues, provide for improved efficiency, accommodate technological changes, and create more space, but also to "restore the old library as a grand space" (p.179). The article argues that libraries are not disappearing in the wake of technological advances. "Rather than replacing the need for space, technology demands its own space.

Information centers, learning resource centers, and computer labs—whatever name is used—all require space to bring users together with the technology that assists them in searching, identifying, and retrieving information" (p.185). In describing the ideal library, Shedlock and Ross succinctly state what every new law library project should strive to accomplish: creation of space for staff offices, service points, special development areas for creating new resources with nearby lounge seating; stacks for historical materials in the periphery, and rare books and special collections to be kept "in a space that would highlight their uniqueness" (p.185).

Shill, Harold B., and Shawn Tonner. "Creating a Better Place: Physical Improvements in Academic Libraries, 1995–2002." *College and Research Libraries* 64 (2003): 431–66.

Shill and Tonner present the results of a survey of more than 350 libraries conducted to determine the types of construction projects and improvements made to libraries during the years 1995–2002. They also review the literature of user behavior in libraries, space planning, and the library as place. Projects generally were done to upgrade facilities or to increase space to accommodate people, technology, and user needs. Results of the survey are categorized by type of project (new, addition, renovation, or some combination) and types of institution, including separate categories for law (5% of the respondents) and medical libraries (6.6%). Several trends were identified by the survey. Library construction is not declining; the addition of special usage areas such as coffee bars and cafes, conference rooms, seminar rooms, and computer labs are common; and a variety of user spaces is frequently provided. The article concludes that "a robust physical facility provides a platform from which libraries have the opportunity to remain vital, pivotal participants in the academic enterprise" (p. 462).

Shill, Harold B., and Shawn Tonner. "Does the Building Still Matter? Usage Patterns in New, Expanded, and Renovated Libraries, 1995–2002." *College and Research Libraries* 65 (2004): 123–50.

This is a companion article to the authors' earlier one reporting the results of their 2003 survey of academic library building projects. In this article, Shill and Tonner discuss the impact of library building improvements on use indicators such as circulation, reference, and exit counts to help building planners project the impact of such improvements on library usage and determine the types of library features most likely to increase it. Their results indicated increases of 80% in exit count, 44.8% in circulation, and 40.1% in reference. The University of San Francisco's new law library experienced more than a thousand-percent increase in exit count during the first year after completion of its new facility in 2000 (p.127). The authors conclude that the factors most relevant to increased usage of a library facility include the number of data ports; percentage of seats with wired network access; the location of service points; and the quality of natural light, user work spaces, facility ambience, and heating and air conditioning. Factors that did not significantly contribute to increased usage included the type of project (renovation or new building), the library's location on campus, the number of group study rooms, or the presence of cybercafés or snack bars. This article is an important resource for librarians who are planning new or renovated facilities because it shows the importance of, and what contributes to, the design

of a high quality facility. It also provides much empirical evidence to show that "well-planned, contemporary libraries are still used heavily in an era of rapid technological change" (p.149) and that students will not abandon libraries that are comfortable and well-equipped—even in the Internet age.

Steele, Mark. "Two New Academic Libraries in San Diego, California." *New Library World* 103 (2002): 216–21.

Architect Steele describes two projects, including the California Western School of Law Library, that followed "the principles that each library should serve its unique group of users; that the surrounding campus or site should influence the design; and that the new building should add to its campus or neighbourhood . . ." (p. 216).

Wood, Richard J. "Capital Improvements: A Guide for the Construction of a Modern Law School." *Capital University Law Review* 27 (1999): 709–82.

This article, written by the chair of the Capital University Law School Building Committee, leads the reader through Capital's building project from the decision to renovate an office building to serve as the law school through the end of the first year after completion. Wood discusses problems and issues "typically encountered in a law school construction project" (p.709) such as the creation of the building committee, space and needs evaluation, funding, hiring architects, and the design process.

Web Sites about Specific Projects

¶46 The World Wide Web presents opportunities for libraries to keep their constituents informed about their building projects, show the progress of the construction, and create a visual history of events. Keeping staff and users informed about the status of the project and any unanticipated problems as they arise is one way to help foster a sense of ownership and participation in those who are not directly involved in the project but do have a stake in its outcome or are directly impacted by construction events. Not only students and staff, but faculty, administrators, and donors can easily keep up with events by accessing the project's Web site. Web sites have been used to publicize the project to the wider community, serve as public relations tools, provide a documentary archive of the project, or even to solicit funds for the construction and provide recognition for donors. Publicizing the project to the wider community, especially planners and librarians at other institutions who may be considering a project, is another reason to mount materials about the project on the Web.

BLUR BLOG: News and Pics From the Blur Epicenter (Barco Library Under Renovation) Barco Law Library, University of Pittsburgh School of Law, http://wblurblog.blogspot.com (accessed Sept. 11, 2005).

This blog highlights renovation and construction in the law library over the summer of 2004. It contains photographs of various stages of the project, offers news updates, and provides other information that might be of interest to the library's users.

Bullocks Wilshire Building, Southwestern University School of Law, http://www.swlaw.edu/bullockswilshire/index.html (accessed Sept. 11, 2005).

This Web site contains information about a former Art Deco luxury department store renovated for use by a law school in Los Angeles. Obviously very proud of the project, Southwestern's site offers a virtual tour of the building, lists awards the renovation received, and provides links for FAQs and giving and naming opportunities.

Case School of Law: Overview of the Renovation, http://www.law.case.edu/tech_library/renovation/content.asp?id=408 (accessed Sept. 11, 2005).

Describes the two-year renovation project of the Judge Ben C. Green Law Library at Case Western Reserve University that will result in a "dynamic meeting place as students and faculty gather in spacious and technology-enhanced study areas and reading room." Places this project among others in the United States, provides a link to the architect's Web site, mentions the off-site storage facility where some of the library's materials will be housed during the project, and provides a link to forms for requesting materials from storage. A project timeline is included as well as latest news and "unfounded rumor of the month" sections and a virtual tour. A fast fact link and a link to the university's development office complete the site.

Historic Renovation of the John Adams Courthouse, http://renovation.socialaw.com/construction.htm (accessed Sept. 11, 2005).

This Web site provides much practical information about the renovation of a century-old Boston courthouse that is home to the Social Law Library. Architectural drawings and a photographic record of construction progress are made available in addition to links to Web sites of contractors and architects involved in the project. This library project is described as providing "a place for people, not just books and computers."

Howard University Library System, Howard University Law Library, http://www.howard.edu/library/Special/lawlib/cover.htm (accessed Sept. 11, 2005).

Howard's Web site has links to a construction cam, floor plans, and a description of the project. Recent photos are included along with a link to a *Washington Post* article about the library.

Jenkins Law Library, Library Renovation Project, http://www.jenkinslaw.org/about/renovations (accessed Sept. 11, 2005).

This Web site provides a weekly update on the progress of Jenkins's renovation project, photos, and a link to the architect's Web site. It also states that the renovation will provide enhanced Internet access, "more comfortable seating, and more natural light throughout the library."

University of California Davis School of Law, Our New Building, http://www.law.ucdavis.edu/about_school/building.html (accessed Sept. 11, 2005).

The Davis project Web site is unique in that it contains the architect's program survey and responses from the law school community. This site is a good source for seeing the kinds of information architects solicit from clients to develop a project plan.

University of Colorado School of Law, New Building Project, http://www.colorado.edu/law/alumdev/newbuilding/index.htm (accessed Sept. 11, 2005).

This site's purpose is to keep students, faculty, staff, alumni, the university community, and local residents informed of developments and progress of a $46 million expansion. It provides drawings of elevations of the building and site plan, contact information for building committee members, and links to the architects' Web sites. This is probably the best Web site for librarians who are interested in the process, documentation, and planning that go into a major project; it posts memos about the design process, facility building plan listing requirements, and justifications for the project. As the actual construction phase of the project is just beginning, more information such as blueprints and drawings are yet to be posted.

University of Denver College of Law, Building "Green," http://www.law.du.edu/secondcenturycampaign/green.html (accessed Sept. 11, 2005).

This site highlights Denver's new 190,000-square-foot law building, including 38,000 square feet of new library space. According to the site, this building will be the first certified "green" law school in the country. For that reason alone, the site is worth perusing as it outlines features in the building's design that led to its "green" building status. Floor plans, design highlights, and naming opportunities are shown on interactive maps of the building.

University of Florida Levin College of Law, Construction, http://www.law.ufl.edu/construction (accessed Sept. 11, 2005).

This construction Web site has site plans, a photo gallery, time line, and virtual tour of the University of Florida's law school and law library renovation and expansion project.

University of Mississippi Law Library Building Committee, http://library.law.olemiss.edu/library/construction.shtml (accessed Sept. 11, 2005).

This Web site is especially useful because it has links to more than two dozen other law school construction Web sites, minutes of the building committee's meetings, and the questionnaire used to solicit comments about current use and future needs to be incorporated into planning. This site is a good example of how the Web can be used to solicit information vital for the planning of a new building, keep constituents informed of developments, and foster a sense of participation in the process by the law school community.

University of North Dakota, Thormodsgard Law Library, Renovation Archive, http://www.law.und.nodak.edu/Library/librenovations/index.php (accessed Sept. 11, 2005).

This site contains a photographic record of North Dakota's law library renovation project to "address issues of patron access to and growth space for the collection" completed during the summer of 2003.

University of Oklahoma College of Law, Donald E. Pray Law Library, Building for a New Century: Photo Archive of Construction, http://www.law.ou.edu/library/const (accessed Sept. 11, 2005).

Oklahoma's new library project is documented here with a photo archive of the progress of the work taken at monthly intervals during the course of construction. Plans, drawings, and renderings of the building also are included.

University of San Francisco, Dorraine Zief Law Library, Building Description and Features, http://www.usfca.edu/law_library/description.htm (accessed Sept. 11, 2005).

The USF law library site contains a list of features included in the design of its library which opened during summer 2000. It has 63,579 gross square feet, a classroom, a meeting room, expanded shelving, and "sufficient space and technology infrastructure to support traditional and innovative library operations, such as a Digital Services area for future digital-based collection research and development." Photos of the finished building are included as well as a list of project donors.

Space Planning

Adamson, Martha C., and Brian P. Bunnett. "Planning Library Spaces to Encourage Collaboration." *Journal of the Medical Library Association* 90 (2002): 437–41.

This article describes the process used at the University of Texas Southwestern Medical Center at Dallas to formulate a plan for renovating its library. Using a "team-based, customer-centered" approach, staff and customer focus groups were utilized, along with site visits to other libraries and literature reviews, to assess the interactions among space, patrons, and librarians. After reviewing the library's strategic plan, philosophy of service, and other documents, planners determined that "collaboration" was an overriding value of the institution. They then used that value in determining the theme for the project planning. Space usage and activities conducted within the library were scrutinized to identify which elements contributed to or detracted from collaboration within the library. Decisions were made about the design of the renovated space based on whether or not the new space would enhance collaboration.

Avenick, Karen. "Planning A New Library: What to Do Before They Give You the Key." *New Jersey Libraries* 28 (Winter 1995): 16–18.

This article presents some very simple but critically important advice to building planners. Successful new building projects result not only from good planning, but also from planners who are "ready for anything" (p. 16). Planners must take into consideration often overlooked details such as the type of landscaping and maintenance problems when lighting fixtures are located on very high ceilings. Avenick says persistence will get you through the punch list and recommends extra money be included in the budget for any surprises that might arise.

Axelroth, Joan L. "The Impact of Technology on Library Space Planning and Design." *Legal Reference Service Quarterly* 17, no. 3 (1999): 11–24.

Axelroth discusses ways for law firm library space planners to cope with the increasing trend toward electronic resources in library collections when it is impossible to determine exactly how much of a collection in the future will be in print as opposed to electronic. Noting the evolution of the firm library from a showplace to a working center, she suggests that this change is not necessarily bad as library space will become more functional. She concludes with a four-page, annotated bibliography covering relevant articles from sources likely to be read by attorneys and firm managers.

Axelroth, Joan L. "The Paperless Society? Law Libraries Move into the 21st Century." *Oregon State Bar Bulletin* 56 (June 1996): 9–14.

Library consultant Axelroth writes about changes in the way attorneys do research, innovations brought to law firm libraries as a result of technology, and predictions that books will soon disappear. While conceding that electronic, CD-ROM, and Internet resources are becoming omnipresent, firms still need space for libraries, and it is "not too early to redesign that space to accommodate changes that have taken place over the last several years" (p.14). Axelroth contends that space in the library needs to be reconfigured rather than eliminated.

Crawford, Walt. "Library Space: The Next Frontier?" *Online* 23 (March/April 1999): 61–66.

Looking beyond the issues of stack space and emerging technologies in libraries, Crawford addresses "the diversity of spaces required in tomorrow's libraries and the power of libraries as places" (p.61). Most libraries will need more study spaces to accommodate changes in pedagogy, meeting space for groups, and reading and research space, all regardless of how much technology moves into libraries. Collections and services, organizational needs, and library missions evolve; space planning needs to provide for these changes.

Dove, Angela. "Designing Space for Knowledge Work." *Library & Information Update* 3 (March 2004): 22–24.

This short article written by a British consultant argues that librarians engaged in space planning should study historical learning spaces such as medieval monastery cloisters and other types of spaces designed specifically for the creation and sharing of knowledge. Learning from museums which share parallel histories and missions with libraries ("both evolved through artifact-based learning, both promote wide access to learning" (p.23)) may also help to enhance the planning process.

Eden, Bradford L., ed. *Innovative Redesign and Reorganization of Library Technical Services: Paths for the Future and Case Studies.* Westport, Conn.: Libraries Unlimited, 2004.

This book explores changes in technical services operations in libraries resulting from the need to "do more with less" as technical services departments are downsized. Theoretical and practical information, research results, and case studies are presented to provide support for technical services librarians "in their efforts to remain viable, functional, and important working units in today's libraries and larger organizational institutions" (p.xii). Although it deals with reorganization of services and work assignments rather than physical space, chapter 19, "Redesigning Technical Services in an Academic Law Library" by Andrea Rabbia, is of particular interest.

Engel, Debra, and Karen Antell. "The Life of the Mind: A Study of Faculty Spaces in Academic Libraries." *College and Research Libraries* 65 (2004): 8–26.

Acknowledging that most studies of library use are conducted to learn about student behavior, this article instead reports on findings based on surveys and interviews with faculty members to learn how faculty use and value faculty library space. Faculty library space is defined by the authors as "any enclosed, lockable, individual space used by faculty members" (p.9). A vast majority of respondents reported that they used their faculty space for research purposes only rather than

as offices or places to meet students. "This study shows that, at least for faculty members who use faculty spaces, the academic library facility in itself retains value as a place for 'the life of the mind'—quiet reflection, sustained concentration, productive research effort, and high-quality writing" (p.18).

Finnerty, Chuck. "Library Planning in the Electronic Era: Are the Stacks Necessary?" *Information Outlook* 6 (August 2002): 6–8, 10.

Finnerty discusses the evolution of special libraries as a "path away from stacks" and large, "just in case" collections. Collection digitization, changes in corporate mission, and mergers will influence the space needs of libraries and may exert pressure on the library to reduce its physical size. Due to the evolving nature of the library within an organization, this article argues that library managers must keep their space-needs assessment current to prove the legitimacy of their space requests.

Jones, David J. "Is Your Building 'Future-Proof'?" *inCite* 24 (October 2003), http://www.alia.org.au/publishing/incite/2003/10/future-proof.html (accessed Aug. 31, 2005).

This article by an Australian library building consultant contrasts two library buildings, constructed twenty years apart, to explain why, when the time came for renovation, the older building was demolished while the newer one was easily expanded. The design error in the earlier building was that it lacked flexibility. It was not modular and elements such as stairs and internal walls interfered with changes in layout. Although it met the purposes of the library at the time it was built, the building was not designed so that it could easily support new space configurations, technology and wiring changes, or upgrades to heating and air conditioning. It had well-defined distinctions between functional areas and did not look beyond its current configuration. The newer building, on the other hand, was designed to facilitate renovation and extension in the future. Elements that made this building "future proof"—able to change as services or demands on the building changed—included a minimum number of load-bearing walls; floor loading suitable for shelving throughout the building; and use of floor, perimeter, and column ducting and suspended ceilings. Jones concludes that if a building has the floor area and is adaptable, it "will be better able than most to cope with whatever the future throws at it."

Martin, Murray S. "Money Matters: Space and Technical Services." *Technicalities* 16 (May 1996): 14–15.

Martin reminds readers that automation and outsourcing in technical services operations has not resulted in a need for less space because certain processing operations (e.g., workflow, cataloging, material distribution, and binding preparations) all require significant and secure space even with automation. He recommends that library planners be mindful of the space needs of technical services and technical services's crucial role in supporting the mission of the library.

Mickalak, Sarah. "Planning Academic Library Facilities: The Library Will Have Walls." *Journal of Library Administration* 20, no. 2 (1994): 93–113.

Mickalak argues that the role of academic research libraries is changing in the face of technology's impact on scholarly communication and changes in teaching

and learning methods, user expectations, library services, and staffing. The physical library will remain for the foreseeable future, but technology will affect the nature of libraries and require special accommodation. As renovations, expansions, or new facilities are being planned, designers need to ensure that library facilities can easily adapt to technological developments and changing patterns of service and use. While designers can design for flexibility, Mickalak contends that library spaces are only as adaptable as the thinking of library managers, and consequently managers have a duty to help planners by documenting strategies for housing the library's functions and services.

Newman, Kim, and Lynn Lorch Metz. "Designing for the Management of Power and Communication Systems Based on Conversations with Jay. G. Frank, FAIA, and Others." *Library Hi Tech* 17 (1999): 339–48.

The purpose of this article is to inform the reader of various options available for the management of power and communication systems within the library. It is a good source for a "crash course" in library wiring. Flexibility is the key to design as it will allow for changes in furniture arrangement and equipment in the future even though built-in flexibility entails higher initial costs.

Nixon, J. M. "A Library Staff Becomes a Team." *Journal of Business & Finance Librarianship* 4, no. 2 (1999): 31–47.

This work describes the "technology of participation" group-planning process that librarians at Purdue used to plan for a reconfiguration of reference, periodicals, and circulation areas to improve space utilization. The process consisted of five workshops to determine a vision, overcome obstacles, design a strategic plan, and prepare a plan of action and a timeline for their project. Goals accomplished, costs, and before and after floor plans are included.

Pennington, Catherine A., ed. *Planning the Small Law Office Library*. Chicago: Section on Law Practice Management, American Bar Association, 1994.

This book answers the question of how small law firms, with limited space and financial resources, can provide for the research needs of their attorneys. It explores the need for a library, where it can be located, finding information, the role of the librarian, and the use of technology. Appendixes covering space-planning guidelines and estimating storage requirements provide useful information for library planners.

Ramsay, Karen M. "B.D. (Before Digital)—A.D. (After Digital): Rethinking Space in a Mid-Sized Academic Library." *Technical Services Quarterly* 19, no. 4 (2002): 31–38.

Ramsay, a University of Rhode Island librarian, discusses what she terms "a monumental shift in the way librarians and their patrons think about library space" (p.31) since the arrival of digital library formats, storage, and delivery systems. In the past, libraries were planned and measured by book space: volumes and shelving. Now needs for digital storage and delivery drive space planning. With less space needed for information resources, Ramsay says libraries can now "liberate" prime space for books for other purposes. Physical space will still be needed for people, but "the physical space that libraries now own will be much too great for the needs of the future in terms of the past" (p.38). The challenge, according to Ramsay is to create space to meet the needs of information seekers.

Sloane, Richard. "Mapping Out Space According to Function." *New York Law Journal* (April 18, 1995): 5.

In this short column, Sloane suggests how a 5000-square-foot library for a firm with 150 attorneys could be apportioned to accommodate library staff, seating, storage, shelving, and other space needs.

Smith, William D., Jr. "Space Priorities In Academic Law Libraries." MSLS thesis. University of North Carolina, Chapel Hill, 2000. 49 leaves.

This thesis is based on a survey of academic law library directors to determine their views on libraries as "physical facilities" and space priorities in planning new or renovated law school libraries. Smith, after reviewing the literature of space planning in libraries, concluded that inadequate attention had been paid to space priorities. His survey of academic law library directors was an effort to fill the gap. His results indicated more than two-thirds of the respondents would give additional stack space high or very high priority in their planning. Group study space and staff office space also ranked high with individual study space coming in somewhat lower. Other space-planning objectives listed in order of priority were computer labs, technology, classrooms, off-site storage, lounge/café/social space, and LAN and microform rooms. Wired carrels and computer labs were given much higher priority than wireless networks for delivering network access. Surveys of users, focus groups, conversations with users, and committees were listed as the primary means directors would use to determine patron preferences in establishing priorities for new or renovated space. On the issue of the role of the physical facility, most directors felt the library would evolve, but certainly not disappear.

Thomas, Mary Augusta. "Redefining Library Space: Managing the Coexistence of Books, Computers, and Readers." *Journal of Academic Librarianship* 26 (2000): 408–15.

This article provides design strategies for incorporating traditional collections, technology, and new services. Thomas argues that the paperless library does not yet exist, but good library design must "provide seamless access to information provided in both electronic and print formats" (p.409). She recommends a well-conceived building program as the basis for a design and states that the major challenge for planners is to incorporate as much flexibility as possible in the plan so that it can accommodate a variety of user spaces and interactions. She concludes that the ideal design will allow for the coexistence of the physical and the virtual library with spaces that reflect "what really happens in the library to support readers" (p.415).

Tilevitz, Sarah Laidlaw. "Reconciling Space and Access Needs in a Small Law Firm Library: A 'Modest Proposal.'" *Law Library Journal* 88 (1996): 96–120.

This article begins with a humorous account of a fictitious law firm's inadequate space-planning process that was done in a hurry, failed to consider anticipated growth, and did not include the firm's librarian in the process. After discussing the deficiencies in the space-planning process, Tilevitz compares several options for a law firm library to think about in managing space crunches. She considers the advantages and disadvantages of both electronic and nontechnical solutions: online, CD-ROM resources, purchasing fewer copies of materials, distributing

certain materials to the offices of attorneys who actually use them, and more reliance on access than ownership of resources.

Xia, Jingfeng. "Library Space Management: A GIS Proposal." *Library Hi Tech* 22 (2004): 375–82.

This article argues that using geographic information systems (GIS) as a tool for library space planning, reorganization, and management would help libraries keep up with rapid change and increase their efficiency and effectiveness at very little cost.

Zendzian, Lynda K. "Space Planning in College Library Technical Services." *Technicalities* 16 (May 1996): 2–4.

This article describes the planning process utilized at Bowdoin College in redesigning technical services spaces to accommodate changes in work patterns and procedures that accompany emerging technologies. The author offers suggestions or practical guidelines for staff to use in reconfiguring space and provides recommendations for space needs that will support technological changes and enhanced services into the future.

Building Design and Construction

Bennett, Scott. *Libraries Designed for Learning.* Washington, D.C.: Council on Library and Information Resources, 2003.

This is a report of a survey of 250 academic librarians and campus officials with follow-up interviews with thirty-one of the respondents in an attempt to discover the extent to which student learning and faculty teaching styles have influenced the design of libraries during a recent ten-year period. Bennett contends that notwithstanding "transformative changes in student learning, faculty teaching methods, and information technology . . . in many respects the libraries designed in the 1990s were not fundamentally different in concept from those designed in the 1960s" (p.2). Nevertheless, library design has changed somewhat: electronic classrooms are often included in the design, space allowed for the integration of print and electronic resources, and efforts are being made to accommodate student collaborative learning styles. This essay describes typical planning processes, calls for universitywide input in the planning process, and states that traditional thinking about library design has focused too much on the service operations of libraries, such as shelving, rather than on their educational impact. For institutions to get full value for their investments in libraries, more attention needs to be paid to reader accommodation and less to the imperatives of shelving. This report is a gold mine of information about factors motivating new construction and renovation projects; it contains tabulations of statistics derived from the survey by date of the project and type of institution involved and transcripts of the follow-up interview responses. Unfortunately, law libraries as a class are not included. A ten-page annotated bibliography of significant literature provides "initial guidance to those who are primarily concerned with 'what' their library project should be, especially in relation to the fundamental learning and teaching missions of their institutions" (p.73) rather than "how" to achieve their purposes.

Blume, Eckhard, and Klaus Kempf. "Building and Space Issues: The German Situation and Solutions." *Library Hi Tech* 21 (2003): 8–20.

Written by two German librarians, this article shows that many of the space issues confronting American librarians are shared by European librarians. The authors contend that the increase in electronic resources is not solving space problems in libraries as space is now needed for simultaneous use of printed and digital or multimedia information. They also state that technology advances make it "nearly impossible" to speculate about libraries of the future, so new libraries must be built allowing for "extreme" flexibility. Interestingly, they note that in Germany there is a trend away from regional book storage facilities, because "the few existing cooperative models have failed" (p. 19).

Boone, Morell D. "Library Design—The Architect's View: A Discussion with Tom Findley." *Library Hi Tech* 20 (2002): 388–92.

Boone reports on an interview he conducted with the architect who designed the Lied Library at the University of Nevada, Las Vegas. They discuss changes in design over the last decade that have been made to accommodate technology in libraries. Emphasis is placed on the importance of planning for both computers and books, while warning against relying too heavily on wireless technology and the risk of not planning wiring pathways adequately. Design features that define the "new library" include natural lighting, indirect lighting systems to facilitate computer usage, and the elements that facilitate the library as both a social gathering place and a place for collaborative learning. Libraries should be designed so that they are spatially ready for the next twenty years and physically ready for at least fifty by designing not for what they are today, but for what you expect they will be in the future.

Demas, Sam, and Jeffrey A. Scherer. "Esprit de Place: Maintaining and Designing Library Buildings to Provide Transcendent Spaces." *American Libraries* 33 (April 2002): 65–68.

This article argues that as educational institutions libraries can serve as "a vital agent in community building" if designed as "welcoming, and enjoyable physical destinations" (p.65). Design elements such as providing for a variety of activities in the library (silent and group) and achieving a balance between order and mess, durability and comfort, and openness and security, contribute to community building. Providing for group and individual study, learning and teaching spaces, technology-free zones, archives, special collections, exhibit space, natural light, and views to the outside are discussed as design trends that help make libraries more useful and attractive.

Dreazen, Elizabeth. "The 1999 AIA/ALA Library Buildings Award Winners." *Library Administration and Management* 13 (Summer 1999): 136–43.

Highlights award-winning designs of six libraries, noted for their distinguished architecture. Noteworthy is the 1999 award given to the Quinnipiac College School of Law Center, which was recognized for its accommodation to scale with the rest of the campus, its technologically advanced building, and the integration of the library "within the larger law school complex to create a sense of place and community for the campus" (p.139).

Foote, Steven M. "Changes in Library Design: An Architect's Perspective." *portal: Libraries and the Academy* 4 (2004): 41–59.

Noting growing trends such as the importance of electronics and collaborative learning, the emerging role of libraries as information commons, and uncertainty about the future, architect Foote describes critical influences on the design of contemporary library buildings. Foote states that the "sleeping giant" is the "growing requirements for collaborative learning space" (p.42). "Every librarian I know has been asked to examine their building with an eye to providing more seminar rooms or group studies" (p.42). Even so, the demand for seating for the solitary reader is still very much with us, and there is still a need for "soaring beautiful interior space" (p.46). Foote contends that architects should design for group study spaces of varying size, create "technology rich" rooms, and provide for the integration of study spaces with instructional spaces (p.54).

Harrington, Drew. "Six Trends in Library Design." *Library Journal* 126 (Buyer's Guide, December 2001): 12–14.

Harrington lists views drawn from conversations with architects and librarians about current design features. Costs of construction require new buildings to be as environmentally sustainable as possible and laid out to decrease the number of staff needed to assist patrons find their way through the library. Flexibility to accommodate technology and a renewed sense of aesthetics are also discussed.

Harrington, Drew. "2003 AIA/ALA Library Building Award Program." *Library Administration and Management* 17 (Fall 2003): 172–79.

While none of the winners described here was a law library, the criteria used or questions asked about a project to determine the winners provide useful guidance for law librarians developing plans for a new or renovated space. For instance: did the design make the library seem important as an institution? Did the design of the library enhance the experience of its users? Was the building functional and beautiful?

Heller, James S. "51, 36, 127, Hike: Justifying a Law Library Renovation and Expansion Project (Part II)." *Trends in Law Library Management and Technology* 14, no. 2 (2003): 4–6.

Using the William and Mary Law Library as an example, this article provides a useful "model" document that can be used to persuade constituent groups of the need for and viability of an expansion and renovation project. It covers the library's efforts to maximize use of inadequate space in an outdated physical plant, accommodations needed to be made under the requirements of the Americans with Disabilities Act, dangers posed by relying too heavily on digital formats, comparisons with benchmark libraries, trends in hard-copy treatise and serial acquisitions, issues involving digital information, and law school accreditation standards.

Margeton, Stephen G. *Introduction to Academic Law Library Design: A Features Approach.* Littleton, Colo.: Fred B. Rothman, 2000.[102]

102. *See supra* note 5 and accompanying text.

McCabe, Gerald B. *Planning for a New Generation of Public Library Buildings.* Westport, Conn.: Greenwood Press, 2000.

Written by a library building consultant, this book provides useful information about the process of new library construction or renovation, regardless of specific library type. Although it concentrates on public library buildings, this is an important source for law librarians as well. McCabe discusses developing the building plan and gathering data for planning. He also addresses site selection, design, and architectural details. He includes checklists to guide librarians through the various processes they will encounter, such as management planning and data collection. McCabe's coverage is broader than just public libraries because "what will work in or for one type of building often will work in another. Innovative ideas raised in one type of structure may and should be considered for another" (p.151).

McCabe, Gerald B., and James R. Kennedy, eds. *Planning the Modern Public Library Building.* Westport, Conn.: Libraries Unlimited, 2003.

Chapters in this book are written by library design consultants, architects, and librarians bringing together their collective perspectives on topics such as library design, planning, the use of technology, joint-use facilities, landscaping, and gaining community support for a building project. Although geared to the public library sector, this work contains valuable information for librarians from all types of libraries who may become or are involved in a building project. The chapter on landscape design and maintenance, a topic not often covered in the literature, is reason alone to consult this book.

McCarthy, Rick. "Libraries, Architecture, and the Light: The Architect's Perspective." *Public Libraries* 39 (2000): 139–40.

Solutions for computer screen glare and noise issues resulting from the use of emerging technologies in libraries are offered, including using lower ceilings in areas for public computers to reduce glare from natural lighting, installing direct lighting fixtures, and using sound absorbing materials to reduce distracting noise levels.

McCarthy, Rick. "Understanding Project Costs and Building Costs." *Bottom Line* 17, no.1 (2004): 6–9.

This article provides information about how to estimate costs of construction on a per-square-foot basis. McCarthy suggests talking with builders in the area as a good first step. He warns that consulting standard reference works to approximate costs should be done with caution as their figures fail to consider geographical differences and that "no one size fits all" applies to library construction. McCarthy also mentions that estimates often fail to take into account the fact that projects cost more than just the building. Generally, building costs account for only 65 to 80% of the total expenses. This article suggests that contingency costs of 10% should be added to the estimate at the conceptual stage and that planners should be aware that project costs per square foot can vary dramatically depending upon the size of the project.

Michaels, Andrea. "Forum III: Physical Spaces for the E-ssential Library." *Library Administration and Management* 17 (Spring 2003): 78–83.

Design consultant Michaels writes about the challenge of designing a library to accommodate the future when the future is unknown. Her solution is to have a thorough understanding of the changing environment, to discuss and understand all aspects of the library's mission during the planning process, and to think differently about libraries or about the benefits of the changing environment. Library building and expansion projects tend to be budget driven; instead, Michaels suggests, programs should motivate the process. Otherwise, space needs will be underestimated and the final product will be inadequate. She discusses several emerging trends in services, predicts more self-service operations for library users, urges that space be used to compliment and support virtual operations, and argues for the need to plan for flexibility and change in design. She concludes by noting that if librarians do not think bigger and more creatively than the most recently completed project of their peers, then their building will be out of date as soon as it is completed.

Rippel, Chris. "What Public Libraries Can Learn from Superstores." *Australasian Public Libraries and Information Services* 16 (December 2003): 147–55.

Although written for public librarians, this article has much to tell law librarians about designing libraries "bookstore style" to make them more inviting and welcoming to patrons. Layout, lighting, and signage are offered as having significant impact on users' behavior in and use of a library.

Sannwald, William W. *Checklist of Library Building Design Considerations.* 4th ed. Chicago: American Library Association, 2001.

This book provides valuable guidance to librarians and building committees by furnishing checklists and forms that can be used to design a building, evaluate existing services, meet ADA requirements, move into a new building, conduct post-occupancy evaluations, and prepare for public events such as groundbreaking and dedications. Each checklist consists of a series of questions to be asked to ensure nothing is overlooked.

Sannwald, William W. "To Build or Not to Build." *Library Administration and Management* 15 (Summer 2001): 155–60.

Sannwald presents a broad overview of current library design issues and identifies several key features that should be part of a design for a new or renovated library. Acknowledging the ongoing change in libraries, the importance of user expectations, and the impact of technology on libraries, he contends that these developments must determine the type and design of future libraries. He suggests that successful libraries are those that are flexible enough to be easily modified in response to the evolving nature of technology and user needs, and that "atmospherics" (light, color, layout etc.) impact the image of the library. Sannwald concludes that future libraries will be a place where people will socialize as well as use resources. "Libraries will continue to exist because they are the tangible link between people and the information they need, and people will always need information" (p.160).

Stone, Dennis J., ed. *University of Connecticut School of Law Library, Law Library Design and Planning.* Hartford, Conn.: 1994.

This compilation of planning documents produced as part of the building project for a new law library at the University of Connecticut includes design drawings,

a project planning guide, and the library's justification for a new building with a twenty-five-year projection of future needs. Many of these documents were compiled during the late 1980s, but still provide valuable information.

Wilson, Alison. "Germany: Leading Library Design." *Library and Information Update* 3 (September 2004): 25–29.

Wilson describes new academic library construction in Germany. Similar to colleagues in the United States, German librarians are contending with new demands associated with the growth of information technology and the realization that libraries, to be viable, must be designed to allow for maximum flexibility and with attention paid to environmental concerns. "The growth of computer technology in the 1990s had a major impact on library planning, raising questions of space for large numbers of machines, suitable lighting, control of temperature and acoustics, cable management and printing facilities" (p.25). As in the United States, German libraries are assuming the role of a social as well as cultural center. The University of Halle's law library is among the libraries discussed.

Working with Architects

American Institute of Architects. *You and Your Architect*. Washington, D.C.: AIA, 2001. 16p., http://www.aia.org/SiteObjects/files/youandyourarchitect.pdf (accessed Sept. 10, 2005).

This brief introduction to the architect-client relationship discusses how to hire an architect, what services to expect, and how best to work with an architect.

Baule, Steve. "Developing Bid Specifications for Facilities Projects." *Knowledge Quest* 31 (September/October 2002): 14–17.

This article examines the purpose and importance of developing requests for proposals and bid specifications. Librarians working to develop these documents should understand the nature of the bid process and specific terms and conditions that should be included to determine if the bidder has the expertise or capacity to complete the project. The documents should also contain specifics about the parties responsible for all the minute details that will arise during the course of construction. Bids should include a detailed cost analysis, liquidated damages clause, and time lines. Baule suggests that librarians should carefully review the sample documents that are often provided by state agencies or other libraries and work closely with architects to develop specifications.

Bazillion, Richard J. "Academic Library Construction: Managing the Design-to-Build Process." *Journal of Library Administration* 36, no. 4 (2002): 49–65.

This article states that a successful construction project results from a partnership among the architect, library, and builder that is based on mutual respect, collaboration, and effective communication. It outlines the roles played by the parties involved, including the librarian's responsibility for developing and articulating the vision of the library to be constructed. The first task, even before architects are hired, is to decide what kind of project management is to be used. Bazillion discusses the pros and cons of various management options that librarians should know about. These include the traditional "design-bid-build strategy" or the more

recently developed "design-build" approach. He prefers design-build for complex projects because of its emphasis on teamwork. The article concludes with a listing of typical problems encountered during the building process that can be best handled by the design-build process: architects' failure to understand the owner's essential design criteria, construction setbacks when particular design aspects are not buildable, inadequate inspections during construction, and cost overruns.

Boone, Morell D. "Library Facility Planning—The Consultant's View: A Chat with Andrea Michaels." *Library Hi Tech* 21 (2003): 246–52.

This article looks at how a library director or planner can move from the vision stage to the planning stage in a construction project, how to choose the right consultants, and how to involve staff in the process. Michaels, a design consultant, talks about her role "in enabling library planners to reach their goals and objectives in designing or re-designing library buildings to strike an appropriate balance between meeting current demands and allowing for space, furnishings, and equipment adaptability to accept desired changes gracefully" (p.25). Boone then discusses when a design consultant is needed and suggests a procedure to be used for hiring and working with one.

Cohen, Elaine, and Aaron Cohen. "Library Architecture and Interior Design." In *Encyclopedia of Library and Information Science,* vol. 2., 1578–84. New York: Marcel Dekker, 2003.

This article reviews the history of and influences on library architecture and design from 1900. The authors discuss changes brought about by the Americans with Disabilities Act, and other recent trends impacting design such as dramatic changes in library operations. During the past decade, library designers have shifted their focus from "place centered facilities that celebrate shelving and other inanimate objects" to more people-centered libraries. The authors note that the more expensive the library project is the more political it tends to be; the library administration must be committed and adept to remain in charge of such a project. Respect, a team approach, excellent visualization, and strategic planning are possible, and projects should always be "predicated upon a well-reasoned needs assessment and building program" (p.1584).

Connor, Evelyn, and Rich Patton. "Partnering with Architects; or, How Do You Get What You Thought You Wanted?" *Colorado Libraries* 21 (Winter 1995): 25–26.

Two librarians discuss how to choose and work with an architect. One of the first questions that should be asked of architects being interviewed is what their greatest failure was. The architect's response to the question "will usually tell you if you can work with the person" (p.26). They also suggest to define what you want to accomplish upfront; hold regular progress meetings; and be honest, listen well, and use humor and respect to lessen the chances of threatening each other's professional opinions. They suggest that staff and users be involved in the process of hiring the architect to foster a sense of ownership among them in the project.

Fenton, Serena. "Architectural Follies." *School Library Journal* 45 (February 1999): 26–29.

Fenton, a former architect and now a school librarian, believes that projects fail because librarians do not understand the design process and are unable to

communicate their needs to architects. She offers advice about how to work with architects to increase the likelihood that the completed project will be satisfactory. Other strategies for librarians working with design professionals: get involved with the project as soon as possible, articulate your needs and priorities so that the architect can understand them, provide the architect with as much relevant information as possible, and question design decisions that you do not understand.

Henry, Clyde. "Building the Road to Success." *Library Journal* 125 (Buyer's Guide, December 2000): 8–10.

This article provides an architect's views and descriptions of the main steps involved in a construction project (planning, design, and construction) and guidance for librarians to follow at each stage to ensure that the final product will meet their needs. Librarians completely new to the process will find this article especially valuable because it clearly describes each stage of a project and points out areas where costs can best be controlled as well as the consequences of making changes to the design as the project progresses.

McCarthy, Richard C. *Designing Better Libraries: Selecting and Working with Building Professionals.* 2d ed. Fort Atkinson, Wis.: Highsmith, 1999.

McCarthy describes the building process from the architect's perspective with suggestions for librarians (as clients) to consider throughout the project. He covers the initial decision as to whether the project is even needed, when to use and how to hire an architect, and the construction process through the final review. He includes checklists for key stages of the project and discusses the advantages and disadvantages of various types of project management, such as the builder or the owner's advisor serving as construction manager, design/build firms, and fast-track construction. Appendixes contain sample requests for proposals, advertisements for bids, and a short bibliography.

Ramos, Theresa. "From the Outside In: Library Renovations from the Perspectives of a Project Manager, an Architect/Designer, and a Technology Consultant." *Journal of Youth Services in Libraries* 14 (Winter 2001): 9–13.

This article makes suggestions for how to use outside consultants in library building projects. Important functions that outside consultants, working with the library, can facilitate include determining a clear goal for the project, developing a written plan to meet this goal, establishing the design process, creating a design program that meets the needs of the library, and project management. A sidebar lists thirteen tips on selecting and working with consultants, including selecting a consultant who has an interest in libraries, will listen to you, and is interested in meeting your needs; sharing your expertise with the consultants, but not micromanaging the project; and becoming conversant in the language of design, architecture, and engineering to better communicate your needs.

Rizzo, Joseph P. "Get with the Program! Building a Vision of Place." *Library Journal* 127 (December 1, 2002): 66–68.

This article recommends hiring a library consultant who can work to bring the diverse interests of library building committee members together to develop the building program. Once the program is written, the architect can then "bring it alive" and keep it moving by conducting visualizing and teambuilding workshops

for the committee. Rizzo, an architect, states that it is up to the librarian and the architect to work together to meld the various perspectives of members of the building committee to create the new vision of the library.

Sannwald, William W. "Early Planning for A New Library." In *Planning the Modern Public Library Building*, 3–16. Westport, Conn.: Libraries Unlimited, 2003.

In one of nineteen chapters covering various aspects of library design, Sannwald addresses several facets of the early stages of the planning process. Assembling the building team, hiring consultants, and selecting the architect are important considerations discussed. He provides a list of questions that can be asked in hiring and checking the references of an architect and lists duties that the architect can be expected to perform.

Sivulich, Kenneth G. "So, Design Me A Box—Part One." *Public Library Quarterly* 20, no. 1 (2001): 3–8.

This article outlines what a public library director would like to have architects do or not do in designing a new library for the city of Jacksonville, Florida. Many of his requests are applicable to law libraries. Sivulich asks architects not to design a generic building; intimidate users with a "grandiose interior design"; confuse users with hidden spaces, nooks, and crannies; or break up floors into difficult-to-reorganize compartmentalized spaces. Instead, he would like architects to provide open airy spaces, a floor plan that is easy to navigate, service points in logical locations, and restrooms and copiers in the same place on each floor. Assigned spaces should be easy to understand and allow for minimum staff supervision. When completed, the library should be functional, flexible enough to allow for future changes in interior space use, aesthetically pleasing, and have appropriate lighting and acoustics.

Post-Occupancy Evaluation

¶47 Post-occupancy evaluation (POE) is a procedure for assessing buildings after they have been built and occupied for a period of time by comparing the perceptions of the building's occupants and users against stated design or performance criteria. Health, safety, and security issues, along with occupants' effective and efficient use of the building, and psychological and social aspects of users' satisfaction and sense of well-being are investigated in the assessment.[103] A post-occupancy evaluation of a new library can provide important insights into the functionality of the building, identify problems with the design, offer solutions to problems, enhance a sense of ownership on the part of users and staff, provide facilities managers with information that can be used to decrease operating costs, and contribute to more successful design and planning for future renovation and construction.[104] Assessing library environments and how space is viewed and used

103. Wolfgang F.E. Preiser, Harvey Z. Rabinowitz & Edward T. White, Post Occupancy Evaluation 17 (1988).

104. *See generally* Jeffery A. Lackney & Paul Zajfen, *Post-Occupancy Evaluation of Public Libraries: Lessons Learned from Three Case Studies*, 19 Libr. Admin. & Mgmt. 16 (2005).

by staff and researchers is essential for identifying design errors and measuring the impact of technological change in libraries.[105] In today's law libraries, where issues of technology, digitization, patron needs, and space are yet to be resolved, considering post-occupancy evaluations of recently built libraries can provide a significant contribution toward the planning of a new library building or the renovation of an existing one. Libraries will continue to exist as long as they are designed to fulfill their missions and be responsive to the needs and wishes of their users.[106] Including staff and users in the evaluation process will help to ensure that these needs and wishes are heard.

¶48 Although the literature of post-occupancy evaluation of library buildings is limited, there are several publications that can be consulted for information about the process, case studies of academic and commercial buildings, or general overviews of the topic. Many articles have been influenced by Preiser, Rabinowitz, and White's *Post Occupancy Evaluation*, the primary purpose of which "is to facilitate useful, economical, timely and beneficial evaluations of buildings."[107] It does this by presenting a general overview and history of POE, discusses the advantages of conducting this type of assessment, and offers guidance for conducting an evaluation. It also contains reports of three case studies, forms and checklists to use for collecting and reporting data, a glossary of terms, and an extensive bibliography. This is an extremely useful source that is well worth consulting. Post-occupancy evaluations are a step in the building process that all law libraries should undertake to help fine-tune new buildings, discover fixable flaws in the design, and help others avoid similar problems in their construction projects.

¶49 The Arizona State University Law Library was the subject of a post-occupancy evaluation in an architecture school thesis written in 1995.[108] It attempted to answer the question of whether or not the unconventional library design used could effectively respond to library functions and to make recommendations to help improve the functional quality of existing and future library buildings. It concluded that users were satisfied with the functional aspects and appearance of the library and that their satisfaction grew over time. Recommendations for future projects included developing private areas in which attorneys could work "out of the public eye" to enhance confidentiality and creating good buffering to decrease the distraction to readers caused by compact shelving.[109] The building program requirements and design guidelines as the evaluative criteria used are included in an appendix.

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105. Joy K. Potthoff et al., *An Evaluation of Patron Perceptions of Library Space Using the Role of Repertory Grid Procedure,* 61 COLL. & RES. LIBR. 191, 192 (2000).
106. Sarah Mickalak, *Planning Academic Library Facilities: The Library Will Have Walls,* 20 J. LIBR. ADMIN. 93, 111 (1994).
107. PREISER, RABINOWITZ & WHITE, *supra* note 103, at x.
108. Direk Senghluang, A Post-Occupancy Evaluation of Functional Performance of a New Law Library Building (1995) (unpublished M.S. thesis, Arizona State University).
109. *Id*. at 55.

¶50 Three articles in the journal *Facilities* provide POE information and guidance for building facility managers. In the first, Preiser views POE as a tool to assist managers in improving their buildings' quality and performance by addressing health, safety, and security issues; environmental aspects; space design; and maintenance issues.[110] Although this particular article focuses on medical facilities at the University of Cincinnati, it offers informative background information and discusses concerns that law librarians may have about their libraries' design. Issues of space allocation, functionality, accessibility problems, aesthetics, privacy, and maintenance costs common to all institutional buildings are covered. Procedures and issues involved with conducting an evaluation also are outlined.

¶51 Horgen and Sheridan expand on the traditional survey of a building's occupants approach to POE by including floor meetings with the occupants and "participatory workshops" that incorporate facility service workers' opinions into the space planning and design process.[111] Using Harvard University's Taubman Building as a case study, the authors discuss the inclusion of maintenance workers in "town meetings" as an important step in determining ways to improve efficiency and reduce costs of operating the building.

¶52 In a third article,[112] Green and Moss discuss the use of SMART value management in the POE process. This particular procedure is concerned with decision structuring rather than decision making by facilitating dialogue and debate among various parties interested in a building through workshops for stakeholders designed to reach a common understanding of the project's objectives.[113] Held early in the programming stage of a project, these workshops help to identify problems and develop proposed solutions to them as a means of establishing design objectives. The data developed in these workshops through staff involvement provide the link with POE.[114] This process could be useful for libraries because it includes staff input and creates reliable information about staff needs and the building's performance or capacity for serving the library's evolving or dynamic mission. POE is about measuring user satisfaction with a building; by evaluating the building in terms of its technical and functional performance as perceived by its users, buildings can be fine-tuned to better meet users' needs.[115] The assessment can also provide data for planning subsequent buildings or renovations. Green and Moss see this as a cycle. POE can be used to judge buildings after they have been occupied and SMART can inform design

110. Wolfgang F.E. Preiser, *Post-Occupancy Evaluation: How to Make Buildings Work Better,* FACILITIES, 1995, no. 11, at 19, 20.
111. Turid Horgen & Sheila Sheridan, *Post-Occupancy Evaluation of Facilities: A Participatory Approach to Programming and Design,* FACILITIES, 1996, no. 7-8, at 16, 16.
112. Stuart D. Green & G.W. Moss, *Value Management and Post-Occupancy Evaluation: Closing the Loop,* FACILITIES, 1998, no. 1–2, at 34.
113. *Id.* at 35.
114. *Id.* at 36.
115. *Id.* at 37.

decisions before they are built. By combining the two, a "cycle of learning" is created so that changing needs and expectations of a building's users can be met. By evaluating the effects of previous decisions about a building, an organization can make better decisions in the future.[116]

Further Reading

Brand, Stewart. *How Buildings Learn: What Happens after They're Built.* New York: Penguin, 1994.

Based on a BBC series, this book investigates what happens to buildings over time or, as Brand states, as buildings are "pushed around" by the forces of technology, money, and fashion (p.5). Chapters deal with facets such as adaptation of buildings to new use, preservation, maintenance issues, how buildings learn from each other, scenario programmed buildings, and how to design buildings that invite adaptation. Scenario planning, in which expected uses of the building are worked out with a view toward the future, allows for unforeseen changes in use so that no matter what happens, you have "maneuvering room." In chapter 12, "Built for Change," Brand discusses issues of building shape and technology. The best shape for a building is the rectangle because it grows and subdivides well and is efficient to use (p.192). Brand cautions against building around new technology. Since it is relatively lightweight and flexible, it is better to have technology adapt to the building; when the next technology comes along, it will be easier to integrate it into the facility. In today's uncertain library environment where issues of technology, services, space, and mission are still unsettled, this book provides librarians with much to think about when developing ways to design libraries that will withstand the test of time.

California Department of General Services, Facility Performance Evaluation, http://www.poe.dgs.ca.gov/default.htm (accessed Sept. 6, 2005).

This Web site serves as a resource for post-occupancy evaluation information for California state agencies. It has an introduction to the concept, a strategic plan outlining the history and use of POE, a glossary of terms, and representative reports.

Enright, Suzanne. "Post-Occupancy Evaluation of UK Library Building Projects: Some Examples of Current Activity." *Liber Quarterly: The Journal of European Research Libraries* 12, no. 1 (2002): 26–45.

Enright gives an overview of post-occupancy evaluations in the United Kingdom that are used to determine how library users view the actual working of library buildings. These studies provide feedback to architects and builders, showing what works and what does not, so that design and construction-related mistakes are not repeated in subsequent buildings. Enright mentions barriers to conducting these assessments, including the belief of users that the building should be problem-free on its first day of use, the costs of doing the assessment, and the fear that they could lead to standardized solutions to problems. Even considering these objections, Enright believes that post-occupancy evaluation is needed as it

116. *Id.* at 38.

can ensure good building design and can empower users by giving them a chance to provide feedback.

James, Dennis C., and Sharon L. Stewart. "Library Design Analysis Using Post-Occupancy Evaluation Methods." *Science and Technology Libraries* 15, no. 2 (1995): 3–15.

This article presents the results of a study designed to determine the perceptions of faculty, students, and staff about the success or failure of the interior design of a science and engineering library. It focused on specific technical, functional, and behavioral aspects of the building. The study's conclusions were used to make recommendations for modifying the building and to better inform the design of a planned addition. Specific recommendations following the survey are described. This is a good introductory article that provides basic guidance for librarians contemplating such a study in their facility.

Kusack, James M. "Facility Evaluation in Libraries: A Strategy and Methodology for Library Managers." *Library Administration and Management* 7 (Spring 1993): 107–11.

This article discusses the need for formal post-occupancy evaluations of facilities and various methods for conducting them. Behavioral mapping, interviews, surveys, focus groups, and observation are reviewed as ways of doing evaluations. Kusack believes that as libraries evolve and needs change, these assessments should be an ongoing part of the management process.

Lackney, Jeffery A., and Paul Zajfen. "Post-Occupancy Evaluation of Public Libraries: Lessons Learned from Three Case Studies." *Library Administration and Management* 19 (Winter 2005): 16–25.

This article discusses the advantages of conducting post-occupancy assessments and describes evaluations undertaken at three vastly different public libraries in California, Utah, and New York. Although the libraries are in different parts of the country and serve vastly different clientele, similar concerns surfaced: insufficient staff work and storage space, glare problems associated with an abundance of natural light, challenges associated with program changes and increased use not anticipated in the design process, and the lack of quiet and group activity spaces. Important lessons learned include the desirability of including a broad spectrum of users and staff in the design and planning process, and the importance of allowing for growing and changing needs of the building over time. An appendix contains sample survey questions that could be adapted to law libraries considering conducting a similar evaluation.

Potthoff, Joy K., et al. "An Evaluation of Patron Perceptions of Library Space Using the Role of Repertory Grid Procedure." *College and Research Libraries* 61 (2000): 191–203.

The authors report on the procedures and results of their study employing the "role repertory grid" method to determine user perceptions of space, architectural features, and environmental elements in an unnamed state university library. The authors used this particular procedure borrowed from the social sciences as their method to evaluate patron perceptions because they found traditional methods described in the library literature (interviews and questionnaires) to suffer from "self-report bias." They concluded that the procedure did have some validity

issues, but resulted in identifying some useful information about the "universe of themes" patrons use in judging library space: perceptions of architecture, learning materials, and function have relevance to the design of building spaces.

Watson, Chris, and Helen McNaught. "'The Best Bit Is When You Come in and They Have Just Made the Coffee': The Post Occupancy Evaluation of the National Archives Building." *Archives and Manuscripts* 26 (May 1998): 46–57.

The authors describe their evaluation of the New Zealand National Archives conducted two-and-one-half years after moving into a new building that was designed and built, as many libraries are, as a compromise between what staff and users wanted and what was affordable. The study was done to determine what needed to be changed in a remodeling project. Interviews were employed to identify physical problems and separate them from organizational problems and "general grumbles."

Lessons Learned

¶53 Opening day of new libraries is usually not the time to criticize the construction or design. After a long construction project ends, librarians normally will feel joy and relief. However, as time passes, issues begin to emerge, mistakes become apparent, and occupants begin to find fault with any aspects of the project that do not meet their expectations. Some of these problems result from design or construction mistakes or oversight. Other issues may arise as needs change or systems, floor plans, or furnishings do not perform as it was assumed they would when they were designed or purchased.

¶54 Librarians who have been involved in a construction project might look back over the process and begin to wonder about what they should have done differently, what they wish they had done differently, or, knowing what they know now, what they wish they had known earlier in the process. Many librarians have published their thoughts about their experiences as a way to inform others less far along in a construction project about what they should look out for or to provide a vehicle for informing future projects. Sometimes these articles are written to vent, to provide closure on the process, or to let colleagues know just what is involved in a project. When beginning a construction project, librarians will first ask themselves, "How do I get started?"[117] Once the project is finished, they might ask, "What have I learned?"

Further Reading

Bazillion, Richard J. "The Wisdom of Hindsight: A New Library One Year Later." *American Libraries* 32 (April 2001): 72–74.

Bazillion explores things that had they been done differently would have produced better results at the new library at Winona State University. Among the

117. Margeton, *supra* note 6, at 78, ¶ 1.

lessons learned are not to rely solely on the architect for expertise to solve engineering problems because vendors usually are better informed about their products; establish floor-plan layouts first to ensure that tables and carrels line up properly with wiring; minimum requirements for power/data grid, elevators, and restrooms usually are inadequate in meeting the needs of the library; and hire architects with previous library design experience.

Dodd, Jeff, John Forys, and Barbara I. Dewey. "Renovating Science Branch Libraries: Two Different Paths." *Science and Technology Libraries* 19, no. 1 (2000): 39–47.

The authors discuss renovation and expansion projects at the biological sciences and engineering libraries at the University of Iowa. Although they were not law libraries, some of the issues they faced are likely to be similar to those in a law school construction project because the libraries were only part of an overall project to expand space for the biology and engineering departments. Consequently the projects were not under the control of the libraries involved. As the larger projects evolved, needs of the libraries did too, but not always in ways that the libraries could control or would have liked. The article concludes with lessons learned, or "reality checks" that can be applied to similar projects. These include having a realistic understanding of what can be achieved with the space and funding allocated to the project, having all parties agree in advance on priorities to be achieved, and having architects consult with the library before imposing design solutions to problems as they arise. Librarians should determine the real center of power in the project as soon as possible, know both current needs and a best estimate for the next five to twenty years, be prepared to justify what they ask for, realize that the parties involved may not speak the same language so be sure to understand what everyone is saying, and design for change and flexibility. Probably the most important lesson with universal application for law librarians in any building project is to be prepared to fight for what you need and to know when to retreat.

Edwards, John D. "Planning and Constructing Law School Buildings: Ten Basic Guidelines." *Law Library Journal* 90 (1998): 423–45.

Drawing on his personal experience with a law school construction project, Edwards talks about what he wished he had known before becoming involved in the project and discusses important points that librarians and others should be aware of when undertaking a construction project. Maintaining a "common-sense perspective" is probably the most important advice offered. Other suggestions include hire a consultant, become knowledgeable, seek input from a variety of people interested in the project (students, faculty, staff, etc.), attend key meetings, visit the site often, and keep good records. The article contains a sample needs survey useful for planners to solicit information from students about what they would like to have in a new building.

Ensor, Pat. "(Inner) Space Planning for the Future Or, If It's Going to be Virtual, Why Does the Furniture Look so Real?" *Technicalities* 16 (May 1996): 8–9.

This article describes a space reconfiguration project to allow for the installation of additional computer terminals at the University of Houston and lessons learned from the experience. The first lesson was that the attractiveness of furniture matters and that it takes time to maintain the attractive appearance. Other lessons include the importance of good wire management both for aesthetics

and safety, the importance of maintaining flexibility by not designing furniture around specific pieces of equipment, and money spent to purchase more durable furniture is a wise investment.

Fout, Deborah J. "Diary of a Hard Hat Librarian." *Public Libraries* 38 (1999): 306–13.

While serving as the project manager at her library as it underwent expansion and remodeling, Fout maintained a diary of her experiences, parts of which are included in this article. This is a good account of the trials, frustrations, and joys of being involved in a construction project and an interesting read for any law librarian in a similar situation. One important lesson from Fout not to be overlooked in a renovation project is the possibility that the original building was not built the way the original plans called for. In this case, original blueprints indicated the existence of steel structural beams. During the renovation it was discovered that the beams were never installed. Correcting the problem added considerable expense to the renovation project.

Gray, Liz. "The Library That We Built." *Knowledge Quest* 31 (September/October 2002): 34–35.

This article by a librarian and space planning consultant recommends that compromises never be made on air conditioning, that librarians understand that no detail is too small or too silly to mention in the planning process, that drawings should be read carefully, and that librarians should pick their battles during the project because they won't get everything they want. Gray concludes that the more advance planning by the library, the more successful the project will be.

Hagloch, Susan B. *Library Building Projects: Tips for Survival.* Englewood, Colo.: Libraries Unlimited, 1994.

This book offers annotated tips covering several aspects of a building project ranging from when one begins to think about the need for the project through the dedication. One suggestion warns that low bidders may be low because they plan to cut corners where they think they can get away with it. Another useful observation is that librarians should never believe a contractor's estimate of how long anything will take to be done. This is followed by a short piece reporting on delays in the occupancy of a new building of nearly a year while punch-list items and disputes with subcontractors were being settled. Other tips especially worth noting include the desirability of having written policies covering forced closings and personnel matters in place before the construction begins, the need to maintain all project-related files so that they are easily accessible for years after the project is finished, and the importance of keeping "meticulous track" of punch lists.

Hazelton, Penny, and Jonathan Franklin. "Moving a Law Library: Lessons Learned while Relocating the University of Washington Law Library from Condon to Gates." *AALL Spectrum* 8 (May 2004): 22–23.

One of the most magnificent law libraries constructed during the last ten years is the law library at the University of Washington. Unfortunately, its story has yet to be published. However, in this article, Penny Hazelton and Jonathan Franklin address the library's move across campus in Seattle. Lessons learned from this

move are appropriate for any construction or renovation project. They include the need to be flexible, to expect the unexpected, to be aware that different staff will be stressed at different times, to keep communications open, to keep the big picture in mind, and to maintain a sense of humor.

Higginbotham, Barbara Buckner. "Managing Emergencies: Small Construction Projects." *Technicalities* 16 (October 1996): 1, 12–14.

After experiencing a construction-related accident caused by the negligence of unsupervised workers resulting in the interior of the Brooklyn College Library being covered in abrasive concrete dust, Higginbotham suggests steps that could have been taken to prevent the mishap. These include inserting into the construction contract protective measures to protect the building's environment and collection and requiring that construction management and security be present at all times work is underway.

Ludwig, Logan. "Designing a Library: Everyone on the Same Page?" *Bulletin of the Medical Library Association* 82 (2001): 204–11.

Ludwig interviews four health sciences library directors about their recently completed or current building projects. They discuss the impetus for their projects, personal challenges during the construction, what they wish they had known before they started, and advice they would give to others before starting a building project. Frustrations mentioned centered on delays, administrative hassles, and working with people in the project "who do not listen" (p.206). The article also describes conflicts between librarians desiring a "building that works" and architects wanting to "make a statement." In retrospect, one director said she wished she had been better prepared on mechanical issues, while another wished she had known the difficulty of satisfying requirements of the state, university, and building codes. Lessons learned included the realization that "some library personalities are not conducive to project work related to libraries" (p.208) and the need to plan for art work and to design for flexibility with fewer built-in features. One of the directors interviewed suggests that librarians should "[b]uild for people—users and staff! Do *not* build for collections! Build beautiful space that can accommodate technology" (p.209). Another advises librarians to "[i]nsist on input for all decisions right from the beginning[,] . . . [m]aintain good relationships with facilities management folks . . . , [k]eep your users informed every step of the way[,] . . . [and] [d]o not be embarrassed or too proud to ask why, where, how, or when" (p.209–10).

Williamsburg Regional Library Staff. *Library Construction from a Staff Perspective.* Jefferson, N.C.: McFarland, 2001.

Most publications about library construction are written by library administrators, designers, or architects. This book is different. It provides commentary from library staff involved in two public library building projects, one a new building, the other a renovation and addition. Keeping your sense of humor, realizing that some details are bound to be missed, and recognizing the importance of befriending contractors are offered as important tips. A glossary of terms is included along with a useful listing of staff comments about what they liked and disliked about the new facilities.

Wilson, Lizabeth A. "Collaborate or Die: Designing Library Space." *ARL Bimonthly Report*, no. 222 (June 2002), http://www.arl.org/newsltr/222/collabwash.html (accessed Sept. 6, 2005).

Wilson describes the lessons learned from a collaborative design process undertaken by students, faculty, librarians, technologists, instructional designers, and an architect at the University of Washington to discern space issues as part of a challenge by the university's provost to do "something about technology in learning" (p.2). She learned that collaborative design does not come naturally, a shared vocabulary is needed to begin the conversation, and negotiating skills are needed as well as a willingness to share control. Collaboration is more than just cooperation, it requires the commitment of the organizations' leaders, a pooling of resources, mutual respect, trust, mentoring, and humor. Ultimately, successful collaboration will magnify available resources, reduce unit costs, and create library spaces that work.

Woodward, Jeannette A. *Countdown to a New Library: Managing the Building Project.* Chicago: American Library Association, 2000.

This book is a must read for inexperienced librarians contemplating a building project. Woodward provides much useful information and advice for those who, "describing their first experience with 'begetting' a new building, complain bitterly about their naiveté at the start of the project. If only they had known . . . if only they had been prepared . . ." (p.1). Woodward addresses challenges such as keeping staff functioning during a building project, dealing with design professionals, understanding the nuts and bolts of construction and environmental issues, and planning for information technology. She has obviously "been there and done that" when it comes to library construction and shares here her wisdom: contractors don't always build what is on the blueprints, librarians should educate the powers that be about what you are trying to build, staff must be involved, preserve the paper trail, don't take "an architect's word on anything" (p.31), and listen to your users.

Woodward, Jeannette A. "The Tale of the Terribly High-Tech Library Building." *American Libraries* 20 (1995): 308–10.

Anyone who has been involved in a construction project will appreciate this article as it presents a composite of things that can go wrong when state-of-the-art heating and air conditioning systems outpace the competence of facilities staff charged with the responsibility of monitoring and maintaining them. Woodward, a librarian, suggests that one way to mitigate problems with systems that need to be fixed is for librarians to keep a copy of all blueprints, wiring diagrams, service manuals, software, and installation guides available for future reference. For safety's sake she cautions against depending on other departments in the organization to maintain these documents.