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10.5 Retaining and Archiving Records

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Sound archiving policies and procedures offer practical benefits to all architecture firms. After project completion, knowing what records to keep, how long to keep them, and how to store them are important practice considerations for all architecture firms.

In the course of practice, architects generate a lot of paper and countless computer files. Every office grapples with what to do with this mass of information both during the delivery of project services and after those services are complete. Deciding what to keep and what to throw away is best done with a systematic approach rather than leaving such decisions to periodic bouts of office-cleaning frenzy. Even an office with records retention guidelines in place should carefully review them on a periodic basis—particularly in view of the proliferation of electronically generated information and digital storage media and the resulting changes in the role of paper-based documentation.

Managing information does not mean saving everything.

Schinnerer's Guidelines for Improving Practice
(September–October 2002)

DEVELOPING A RECORDS RETENTION POLICY

Different and sometimes conflicting advice is given on the subject of records retention. Some people recommend getting rid of everything as soon as you can, while others suggest keeping everything forever. With such varying advice, it is tempting to manage records retention solely from a legal perspective, in other words, in terms of how long after a project is complete the firm remains vulnerable to potential lawsuits. A number of states have a statute of repose that limits the time in which an action may be brought to a period that begins with a specific documented event, such as substantial completion of a project. These times may range from four to fifteen years. Although familiarity with these laws is necessary, they should not be the only consideration in deciding which records to retain.

Evaluate how your firm currently handles records once a project is no longer active. Take the opportunity to determine which records are important to preserve and to write a records retention policy. Remember, though, that a key factor for the success of such a policy is whether the procedures it mandates are practical for firm employees to implement and maintain in the office environment.

Evaluate Current Practices

A good first step in designing an office records retention policy is to evaluate the firm's current day-to-day project filing and record-keeping practices. In a best-case scenario, minor modifications of existing office procedures can be made to vastly improve future archiving requirements.

A vital cog in records retention policy is the person or people who do the daily work of project record keeping. Is it the project architects, the job captains, the administrative assistants, or a combination of staff? Once this has been determined, find out what typically happens to project documents once a project has concluded.

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LEGAL REASONS FOR RECORDS RETENTION

The time period in which claims can be filed for damages on building projects in a particular state is prescribed in state statutes of repose and statutes of limitations. Nearly all states have one or both of these statutes. To determine how long to keep records for a specific project, architects should check the professional services agreement for the project to verify which state was designated in the “choice of law” provision.

A statute of repose limits the length of time (usually from a project’s date of substantial completion) in which a legal claim may be filed against certain designated parties involved in a construction project. Statutes of limitation designate the period in which a party bringing a claim should have reasonably known of injury or damages.

Statutes of repose are important for those in the construction industry because they protect designated classes of people, such as architects and engineers, from claims on a project after a certain number of years. For example, in Massachusetts, the statute protects contractors, licensed architects, and professional engineers (but excludes

owners and the party in possession of the property) from all torts (civil wrongs or injuries) after six years from the date of substantial completion of a project.

It is important to note, however, that statute of repose time limits are not always accepted. In some states, the statute of repose has been challenged as unconstitutional. Another variable is the way each state applies the statute. The type of legal claim, duration of the actionable period when a claim may be filed (as modifiable by “savings clauses,” which allow for extensions of time), nature of the triggering event that starts the actionable time period, and class of people protected all vary from state to state.

Consult the statute of repose applicable to a particular project to determine the exact time frame and specific restrictions it stipulates. It is a good idea to periodically confirm this information with legal counsel, even for projects in the same jurisdiction, as the time frame and restrictions may change over time and could be subject to interpretation.

► Systems for maintaining current records are discussed in Information Management (10.3).

Answering the following questions will provide a starting point:

- What method of record keeping is used for current projects?
- Once a project is complete, what procedure is used for project archiving?
- Is there a way to retrieve archived information that could be useful for ongoing projects?
- Does the office have historical or legacy reasons for wanting to keep complete project records indefinitely?

Decide What Records to Keep

The topic “Information Management” in this chapter covers the key transition period between completion of a project and the archiving stage. During this time, overall project files can be winnowed to eliminate duplicate and superfluous files. Obvious archival items include drawings, specifications, and other design material, but other records should be retained as well. It is helpful to think of file records in three main archival categories: owner-architect records, team (consultant) records, and architect-contractor records.

Archived documents and records can serve as resources to tell a project story. How were specific decisions made? What were the results of those decisions? Particularly important are any changes in direction for a project. Why did the project go from three stories to two stories? Why did the floor surface change from carpeting to tile? Who approved the window manufacturer change? Documenting these decisions may be important from a legal aspect and for making decisions on future projects. Information accessed from an archived project can be used to help address similar questions for another project.

In addition, clients sometimes return to architects to request record drawings, specifications, or project design data to support their facility management needs. To respond to such requests, many firms still rely on staff “institutional memory”—namely, but-tonholing the grizzled office veteran who seems to have archival information at the tip of his or her tongue. Good record keeping can enhance the ability of staff to quickly retrieve stored information and records.

An effective records retention policy . . . should

- Identify records by category,
- Describe the length of time for retention,
- Designate the method of storage and destruction, and
- Establish a protocol for determining if documents not easily categorized should be retained or purged.

Schinnerer’s Guidelines for Improving Practice
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RECORD KEEPING TO CREATE A LEGACY

While this chapter focuses primarily on business practices that make sense for litigation protection and general record management, firms may have other reasons for archiving their records. Records can be kept for marketing use in a portfolio of the firm's work, as base documents for repeat business, as an archive for clients who want to use the architect's drawings in maintenance and upkeep of their facilities, and to help preserve the firm's and the individual architect's legacy. The first three uses can be easily accommodated within a firm's existing records management practices, but keeping records for architectural legacy requires some additional planning and commitment. Choices a firm makes regarding long-term record keeping, disaster response, storage conditions and long-term maintenance of records, and disposition of records affects the firm's ability to save records for the future.

Choosing Records that Document Your Firm's Legacy

From a practical standpoint, most architects are so busy thinking about the next job that they don't give themselves enough credit for their contributions to the built environment and the effect they may have on cultural history over the long term. Perhaps if they did consider their legacy more, architects would be more attentive to the retention of records that demonstrate the thought process behind their work.

Archivists and curators who preserve collections of architectural drawings focus on all aspects of the design and construction process, not just the end product as represented in as-built or record drawings. As caregivers to these records, they want to make available a broad group of materials—such as correspondence with clients and collaborators, specifications, sketches, design development, and working drawings reflecting the design and construction—to architectural historians, students, and other researchers. This broad spectrum of material allows a researcher to understand why the structure was created, the problems being solved, the influence client politics and funding had on the project, and the architect's initial ideas and collaborative work done to explore various solutions to the design problem.

Archivists cannot save these materials, though, unless architects save them initially. Saving records for legacy requires thinking about record keeping from an intellectual perspective, not just as a way to dispose of materials as soon as possible after a project has been completed.

Deciding to create a legacy record also implies confidence in the work done by the firm and that future generations will want to evaluate, comment on, appraise, and perhaps even write histories about the firm's work. Addressing the following questions can help architects determine which records will best document the firm's work beyond the legal statutes of repose:

- What makes the firm's architectural legacy important? How does the firm's work affect the community and region where a structure is located? Do projects show an innovative design, a use of new technology, or a reflection of an important function for that area?
- What types of records does the firm create during the design and construction process?
- How is project closeout completed? What types of documents are kept? Do the records document the design process well? Do they document the finished project well? Do they reflect the work of the firm and its collaborators?
- Beyond keeping records necessary for litigation protection, which of the records created for a project would document the firm's architectural legacy so others could understand the design process and intent?
- How is the firm saving CAD, BIM, and other digital records for the long term? Are they printed and saved as hard copy? If saved only as digital files, how are they archived? Does the firm have a mechanism in place to convert the digital records to the latest technology as the storage media, software, and hardware change? Does the firm store backups of records off-site? If the firm is in a disaster-prone area, is the backup kept at least fifty miles away?
- How would the firm handle a disaster such as a flood, earthquake, fire, or major water leak? Are the records protected? Will the firm attempt to salvage them if they are damaged?
- What are the storage conditions for the firm's hard copy and digital files?

As part of closeout procedures, records should be dated, labeled, and inventoried so current staff will be able to understand past projects and their types of records and arrangement. Taking time for this step will also allow future staff to access records more efficiently when they are needed for purposes such as marketing, use as base documents, or addressing the needs of clients. A good

(continued)

inventory will also help archivists in the future understand the firm's work. Firms should ensure that inventories are printed and widely distributed, and that copies are kept off-site.

Disaster Planning

Every firm should prepare a disaster plan not only for the safety and well-being of employees but also for the protection and recovery of records. It does not take the severity of a hurricane or an earthquake to disrupt business. A fire, a flood, or even a water leak can destroy records and computer equipment, disrupt communications among employees, and expose employees and records to conditions that may have a long-term effect on their health. Any type of disaster can disrupt the function of a business and can often lead to business failure.

A firm should evaluate which records are critical to the survival of the practice once operations are up and running again. These records should include employee contact information; payroll, client billing, and other financial data; client background and contact information; record and equipment inventories; current project records, including on-the-board and digital drawings; and relevant project data. The firm's vital records, such as office building plans; location of critical shutoffs for water, gas, and electrical power; fire suppression system locations; and insurance information should also be included. Identifying and providing safeguards and backup for vital records will help ensure a firm's survival after a disaster.

Instructions should be prepared for staff so they know whom to contact and the step-by-step procedure to implement once safe human access to damaged office or archive space has been authorized. Potential vendors for digital recovery, decontamination services, freeze-drying facilities, and other equipment needs should also be identified in advance. In addition, a small disaster kit with emergency supplies should be assembled. Flashlights with fresh batteries, waterproof extension cords, rubber boots, rubber gloves, particulate filter face masks, clean interleaving paper for blotting and drying records, plastic sheeting, and fans are all useful for gaining access to water-damaged records.

The Institute for Business & Home Safety (IBHS) and the Small Business Administration (SBA) have collaborated to develop *Open for Business: A Disaster Planning Toolkit for the Small Business Owner*, available online at the IBHS Web site. This guide can be downloaded at www.ibhs.org,

or free single copies in booklet or CD-ROM format can be requested by writing IBHS, 4775 East Fowler Avenue, Tampa, FL 33617. Archival organizations have also created useful templates for evaluating and preparing for disaster response with a focus on historical records. These will drastically cut down on preparation time and provide a blueprint for action. New England Archivists has a template called "DPlan," available from www.dplan.org, and the Council of State Archivists has a template at www.statearchivists.org/prepare/index.htm to help architects prepare a pocket size emergency response list to carry in your wallet for quick access in time of emergency.

Preservation Conditions

Good storage conditions are important for records preservation. Ideally, all records should be kept in a temperature- and humidity-controlled space. Temperatures of $70^{\circ}\text{F} \pm 2^{\circ}$ and relative humidity of 45 percent ± 2 percentage points are comfortable for human beings and work well for storage of paper and digital materials. Since sophisticated HVAC systems are not generally installed in office areas, records should be kept in a location where the temperature and humidity are the most constant. This does not include most basements or attics or an unheated/un-air-conditioned storage shed with huge seasonal temperature and humidity fluctuations. Monitoring potential storage space during a few humid weeks of the summer months will help determine if a space is appropriate, although a multiseason examination is best. High swings in temperature and humidity make a records storage area less desirable. Constant temperature and humidity close to the targets mentioned above are most effective for records preservation.

Other factors also affect record longevity. Exposure to ultraviolet and ambient light fades materials and causes chemical changes to acidic paper, so records should be kept in the dark when not in use. The storage area should be kept clean, not only by occasionally vacuuming the floor and storage containers, but by checking the amount of particulates coming in with the room air. A fancy air filtration system may not be realistic in a firm, but a storage area with an open window next to a busy roadway would not help the longevity of stored records. Food should be kept away from records, since it attracts bugs. Staff should be taught that these records are more than simply tools to do their work and that they should respect the information contained therein by handling the materials carefully. After all, the records are the product of many hours of dedicated staff work.

Finding a Repository to Preserve your Architectural Legacy

Many firms do not have a consistent closeout process or a comprehensive records management procedure. This lack of attention to record keeping often means the staff keeps everything until they are out of space, at which point records are either saved piecemeal or everything is destroyed. An especially vulnerable time is when new staff members come in with little understanding of the legacy of the firm and “clean house” to make room for storage of current project records. To avoid this kind of loss, firms can make it a policy to carefully review records that have exceeded their legal record-keeping requirements before disposition.

Although most firms think their legacy will be preserved by their buildings, this is not always the case. Unfortunately, buildings that epitomize a specific architectural style or period can fall out of favor and be torn down or extensively remodeled to reflect a change in taste. Buildings that are not well maintained or have outlived their original function may be torn down to make room for new structures. However, if important textual job files, photographs, and design and construction drawings are given to an archive for preservation, the firm’s legacy will survive beyond the building.

If there is a Committee for the Preservation of Architectural Records group nearby, a firm can seek the group’s assistance in finding an archival facility that will

take the firm’s records. Firms can also contact local historical societies, museums, private archives, college or university archives, or state archives with an offer of firm records. Donating a small amount of money can offset the cost of preserving the records in appropriate acid-free box and folder housing. Better yet, firms can discuss the possibility of future donations well ahead of time and develop a relationship with a local historical repository. Archives and museums are in the business of preserving culture and history, and they will be interested in the work of architects.

Archivist’s Viewpoint

Architectural Records: Managing Design and Construction Records (Society of American Archivists, 2006), by Waverly Lowell and Tawny Ryan Nelb, can help architects understand the point of view of those who believe the work of architects is important to preserve. The book is written for archivists and curators to help explain the mysteries of the architect’s work process and jargon and makes recommendations for appraisal, arrangement and description, preservation, and use. Although it was written for archivists, the book can be used as a tool to help architects understand what types of documents archivists believe should be preserved and why, as well as how these professionals attack this effort.

Tawny Ryan Nelb

Issues of history and legacy, and even of business referral, are factors involved in the decision to keep records indefinitely. For example, if a firm develops a policy of keeping full project records for only ten years beyond substantial completion, it might wish to have a secondary review process at the end of the ten-year period to consider the following:

1. Does the project have long-term master planning considerations or potential future modifications and additions?
2. Does the project have any long-term use as a model for future projects in the office?
3. Does the project itself have long-term significance as a historic site?
4. Is the project significant from the historical point of view of the firm?
5. Does the owner have ongoing facilities management needs for the project?

If any of these or any similar question is answered in the affirmative, the firm needs a follow-up procedure to determine which documents are to be retained for a longer term. If the firm decides to keep only as-built drawings, project specifications, and final CAD files beyond ten years, it can quickly dispose of other project records.

This topic concentrates on retention of project-specific records and only touches briefly on general business record keeping. Some resources listed in “For More Information” at the end of this topic include recommendations for records retention for general business records—recommendations that probably apply equally well to many businesses and professions. A reasonable archival policy for general business records is to permanently retain

MASTER PROJECT LOG

An excellent tool for design firm record keeping is a master project log that chronologically documents the “story” of a project. In addition to drawings and specifications, the log includes a wide variety of other project records—meeting notes, telephone records, on-site observation reports, requests for information, e-mail correspondence, and so on. The more complex the project, the more difficult it is to compile the log.

A master project log can be as simple as a clipboard chart hung on the wall as a reminder and a means for logging project records. In our digital age, though, more firms are using

digital databases for such logs. Information is entered in the database to record date of issuance, type of record, location of document, and key remarks about its relevance. This type of log or database file makes it easy to review a project story, as well as to search and retrieve information after a project has been completed. Keeping a log requires ongoing maintenance during the project, but it makes archiving much easier once the project has been completed. Those who share project information via project extranet (a secure bulletin board on the Internet) may find creation of this type of project database inherent in the process of electronic documents exchange.

TYPICAL PROJECT RECORDS TO RETAIN

Project records other than drawing sheets, manuals and specifications, and other design material can be categorized as owner-architect records, team (consultant) records, and architect-contractor records. Records in each category that typically should be kept are listed below. In addition, records of transactions concerning the whole team should be kept.

Owner-Architect Records

- Contracts and letters of understanding
- Information provided by the owner (letters, memos, transmittals, e-mail), including memos prepared by the architect to confirm information that was delivered verbally (telephone calls, meetings)
- Presentation and submittal information and data
- Approval letters or meeting minutes that document approvals
- Logs and/or transmittals that record when contract documents were sent and returned
- Submittal and acceptance records of insurance (from owner and contractor)
- Reports of on-site observations
- Reports or directives by owner’s representatives
- Certificate of substantial completion
- Certificate for final payment
- Architectural production budget, schedule, time, and expense records for each phase of design and construction and all relevant project financial records
- Final construction and final project costs

Team Records

Maintaining files of interactions between team members (including all consultants to the project) can be useful if

questions of responsibility and knowledge come into play.

- Minutes of any meetings or conferences, even notes and e-mail following informal meetings
- Memos of telephone conversations
- Logs and/or transmittals showing delivery dates for drawings and specifications
- Responses to requests for information and similar items
- Records of approval of drawings and specifications by the appropriate permitting authority or other jurisdictional authority
- Progress photographs (prints, slides, digital photos)
- Final construction cost (broken down by discipline)
- Fee/billing records by discipline

Architect-Contractor Records

- Bids from all contractors, not just the winning bidder (include subcontractor bids)
- Submittal records
- Action taken regarding progress schedules, testing, or special inspections
- Review and approval of shop drawings, including product data and samples of materials
- Applications and certifications for contractor payments
- Responses to requests for information
- Records of change orders, directives, or other instructions
- Reports of on-site observations

This list has been adapted and updated from text in the Information Management topic in the 13th edition of the Handbook.

all business organizational documents (e.g., partnership agreements, articles of incorporation, and so on) and all tax returns, pension and profit-sharing reports, and contracts. Under such a policy, general accounting support materials (e.g., bank statements, canceled checks, time sheets, etc.) would be kept only for the state's statute of repose period.

For project-specific materials, architects have a variety of items to consider, from original drawings to models to e-mail. What to keep, how long to keep it, and where to keep it all? Once a project has been completed, undertake a general winnowing process; at this point, keep only those documents that “tell the story.” Eliminate superfluous information and documents that are unnecessary or duplicate others. It may be tempting to keep twenty incremental drawing sets in the quest to be comprehensive. However, for clarity's sake, the architect is better served by retaining a single key set of drawings that show development at the end of each major design phase.

Today, most architecture practices use a mix of paper and digital media. It is therefore prudent to keep one paper copy of each document and one digital copy (with a second digital backup copy at another site). Offices that still produce hand-drawn work might retain a print copy combined with the vellum or Mylar originals. In addition, such an office might want to invest in digitally scanning or microfilming drawings to be retained at another location. In general, whether using paper, digital media, or both, consider following the dictum: “two media, two locations.” This practice can help prevent or minimize the risk of loss resulting from vandalism, theft, or disasters such as fires, floods, and earthquakes.

The first stage of the winnowing process at the end of a project can be managed by highlighting the master project log or database to identify what should be archived and what can be discarded. If a master project log was not maintained during the project, one can be created as part of the initial project archiving process. Doing this will save future time and frustration spent trying to attack twenty ambiguously labeled boxes of paper. The materials saved during the first level of records retention should remain as is throughout the first archival period. If a firm has no other overriding priority, the length of the state statute of repose may be a handy and prudent guide to how long this first stage should last.

The second stage may be considered the historical archive stage. As shown in the sample retention schedule, deciding which materials to retain at this point might involve choosing one particularly telling designer's sketchbook or one or two schematic design sheets. Or it may be determined that no material from the project need be saved at all. In this process of paring down the project records, the firm's perspective changes from trying to tell a complete story to picking out a few highlights of the project story for future reference. Think in terms of how the office might return to a project after fifteen years and what information would be of interest at that time, such as how and why a particular design choice was made.

In the sample schedule, representative periods for retention of the primary project documents are based on winnowing the records for the first archive period and selectively reducing them for historical archiving. Of course, every office is different, so each firm should carefully consider its situation and priorities before putting any such schedule into effect.

Develop and Write a Retention Policy

Once a firm has identified its current procedures and determined which records it needs to keep and for how long, the how-to for executing and maintaining a sound records retention system can be tackled. In the past, this was simply a matter of considering how to file and store the vast amounts of paper each project generated. Now that so much work is stored in digital format, the challenge is to develop a coherent strategy for dealing with digital storage as well. Traditionalists may strongly disagree with technologists about whether digital storage will completely replace archives of paper records, but they certainly recognize the trend is toward increased archival storage in digital formats.

Whether a project-based filing system is complex or simple, the majority of architecture firms use some type of job number or similar keying system as a labeling prefix to each job record. Records of a particular project are segregated from those for other projects and from general office documents. Surveys of current practice indicate that a numbering system, such as the year followed by a chronological project number (e.g., 07004 for the fourth project started in 2007) is preferable to relying only on project names because these do not contribute any sense of chronology and similar project names can be confusing. An added benefit of numerically labeled records is that they simplify retrieval of files and folders.

The danger inherent in most office hierarchies is that the answer to the question “Who decides?” is critical to the success or failure of a records retention policy. Obviously, the issue is moot for most sole practitioners, but its importance increases in direct relation to the size of the firm.

To ensure a records retention policy that is realistic, upper-level decision makers, office staff who maintain and archive project records, and the firm librarian, if there is one, should all be involved in developing it. This approach can help ensure the system is one that can be maintained from project to project and will not be relegated to a fancy binder that gathers dust on the shelf.

A key factor for the success of a records retention policy is whether the procedures proposed are practical to implement and maintain in the existing office environment. Records retention is an ongoing process that requires periodic evaluation, from project to project and from year to year. To sustain such an effort, it is important for a firm to have clear lines of responsibility for the archiving effort. Assigning someone to oversee the effort on an ongoing basis is particularly helpful.

IMPLEMENTING YOUR RECORDS RETENTION POLICY

Bear in mind that a records retention policy can only rarely be implemented in one fell swoop. A number of practical issues are associated with implementing an office records retention policy. These include determining how to apply retention procedures, what kinds of formats to use, where records should be stored, and the storage conditions needed for certain types of materials. In addition, decisions will have to be made about issues of security, confidentiality, and insurance. However, a key factor for the success of a records retention policy is ensuring that its procedures are practical to implement and maintain in the existing office environment.

Format of Records

A recent survey of architecture offices from the archivist’s perspective revealed that most of the firms that reported saving their older project drawings electronically had carefully stored the disks but—when challenged—could not find the hardware and software needed to read them. Firms do not realize that when they change equipment or programs, their older electronic files may become obsolete. Every change requires a decision regarding whether to keep the older hardware and software in storage or to migrate the files, which may not be compatible.

The issue of document formats is a volatile one because the role paper plays in offices is changing dramatically. Paper is becoming more of a temporary medium and less an original or even preferred archival medium. For example, if an office routinely corresponds with clients or contractors via e-mail, what is the “original”? The paper message or master project log printed for office distribution is merely a copy—in fact, the correspondence may never be printed on paper at all, and yet it is an essential piece of record keeping.

Traditional archiving methods for paper, vellum, Mylar, and microfiche are no longer as relevant, although they continue to offer firm staff a certain comfort level. Considerable research is available on how to provide a controlled environment to deal with light, humidity, and temperature so that hard-copy documents can be preserved for long-term accessibility. But be warned that investing heavily in such options may not

be a wise records retention policy for the future. Documents and files are increasingly being produced and stored digitally. Given the current state of the profession, it is—to repeat—prudent to follow the policy of “two media, two locations.” One medium is hard copy (paper) and the other is digital—and digital media may indeed replace the traditional backup methods of film and microfiche.

SAMPLE RECORDS RETENTION SCHEDULE

In this schedule, SSR signifies a period for initial retention equal to the applicable state statute of repose period. This may be followed by a secondary process to select records for a historical archive.

All Business Organization Documents

Partnership agreements, articles of incorporation, bylaws, annual meeting minutes, etc. Keep permanently

Accounting/Financial Records

Statements, checks, time sheets, expense reports, payroll, accounts receivable/payable SSR
Income tax returns Keep permanently
Pension/profit-sharing records Keep permanently

Project Records (One Print Set/Hard Copy, Two Digital Copies)

Proposals, job selection correspondence and materials SSR
Contracts Keep permanently
Master project log (or project database) Keep permanently

Drawing and Specifications (One Print Set/Hard Copy, One Microfilm or Two Digital Copies in Separate Locations)

Project designers' sketch books SSR, then select
Preliminary design and sketches (selected) SSR, then select
Feasibility, schematic design, design development sets SSR, then select
Presentations, models, and renderings SSR, then select
Surveys SSR
Consultants' drawings SSR
Final bid and final construction documents Keep permanently
As-built or record drawings Keep permanently

Project Administration (One Print Set/Hard Copy, Two Digital Copies)

Permits and approvals and sign-off Keep permanently
Construction contracts Keep permanently
Shop drawings SSR
Job photos, slides, videos SSR, then select

Correspondence (One Print Set/Hard Copy, Two Digital Copies)

Letters/memos between all contract parties SSR, then select
Studies and reports SSR, then select
Meeting notes SSR
Telephone logs SSR
Project e-mail SSR
Project accounting reports and invoices Keep permanently

A common question on the subject of digital storage has to do with the format of the digital documents. As software programs come and go, a practitioner might, for example, rightly ask today, “What good was archiving all my documents in word processing program X, when that program is no longer widely supported? And how will I know that the documents I archive today will even be readable in ten years?” Certainly these are valid questions, which are perhaps best answered by conservative watchwords such as “safety in numbers” and “stay in the middle of the road.” In today’s state of technology, this primarily means employing widely used mainstream programs. It also means that any records retention policy should include periodic evaluation of the format of the retained documents. As an example, if a common spreadsheet program should start to lose ground to another spreadsheet program, the firm should decide—as a matter of policy—whether to convert, or archive a utility to convert, documents in the older program.

The National CAD Standard (NCS) also will have an effect on the format in which CAD files are stored. Conforming to NCS requirements will help ensure accessibility, usability, uniformity, and readability of archived files stored on-site and off-site. Currently, the NCS requires that files be archived in AutoCAD 14-DWG format. The NCS also strongly recommends archiving CAD files so they have a one-to-one correspondence with each plotted drawing sheet of a set. Many architects have CAD files set up so that a single digital file may be configured in alternative ways to be the source for multiple plotted drawing sheets. This procedure enhances efficiency in the use of CAD data but may lead to confusion for future reconstruction of any particular drawing sheet. Thus, the NCS recommends that each plotted project sheet be separated and archived as a distinct CAD file while these multiple configurations are still fresh in the architect’s mind.

Hard-Copy Storage Issues

Storage issues for items such as linen, vellum, Mylar, photographs, slides, and paper records are well known, if often ignored by architecture offices. The primary enemies of these media are light, temperature, humidity, and pollutants. Sadly, these foes are routinely overlooked when more pressing concerns override them, and firms end up storing their boxes of records in their least expensive spaces, such as basements, attics, garages, and even barns. However, if a firm is up to the task, archivists recommend that all hard-copy information be printed or copied on acid-free or archival-quality paper or media and then stored in a climate-controlled space at 65° to 70°F with relative humidity of 35 percent. Under these conditions, paper records may last as long as 200 years. However, under the worst conditions, they may not survive a neighbor’s plumbing leak next week.

Clearly, such stringent environmental requirements present vast practical problems for all but the most well endowed architecture firms. A common solution is to transfer all information to be kept for the long term to a different and more compact medium, such as microfilm, photographs, and slides. This step—best accomplished at the initial archiving stage at the completion of a project—provides a natural incentive to weed through the mass of initial information. The end result is a more compact and accessible package that is much more likely to be stored in an environmentally appropriate space.

With so much of today’s documentation being produced in a digital format, architecture firms are moving away from long-term microfilm and photographic storage. For many firms, it is easier to scan remaining hand-drawn or hard-copy records into digital formats.

Digital File Storage Issues

Digital storage presents its own unique challenges. Concerns revolve around the media used and the storage location. For example, tape backup of digital files is already falling out of favor, even for short-term storage, and is certainly not viable as a long-term solution. Many offices are turning to CD-ROMs as a medium that can quickly record and store a large amount of data (an entire medium-size project might be archived on three or four

CDs are read through the clear plastic bottom side, but the data are stored just below the label side on top. Keeping both surfaces free of scratches is necessary to retain the information on the disk.

DIGITAL RECORD KEEPING

Digital record keeping has become a major preservation issue. Most architecture firms now use digital records for correspondence or for project records, including creating drawings using computer-aided design (CAD) or, more recently, building information modeling (BIM) software. Unfortunately, as anyone who has lost digital files knows, digital records are among the least reliable forms of storage for the long term. It is ironic that just when paper manufacturers have changed to alkaline processes that make paper last longer than at any time in the past 150 years, the transfer to digital technology has created a whole host of difficult questions for records managers and archivists.

Digital Preservation

Firms keep records for legal reasons and to maintain as-built or record drawings for the life of the building. Preserving a firm's architectural legacy over many generations has even more rigorous longevity requirements. In all cases, the need to keep records may exceed the ability of the firm to keep them in their original digital format. Unlike paper-based records, which require little special effort (other than a fairly stable environment) to preserve for 100 years or more, digital storage media such as tapes, compact discs, and future new media will require ten to fifteen conversions over that same period. Not all conversions are backward-compatible, especially if a few versions of the same software have been skipped. As well, not all conversions accurately translate the data, especially when it comes to CAD records.

It is not yet known how long digital media such as compact discs will actually remain functional. Vendors claim everything from one year to 300 years, depending on their proprietary manufacturing process. The move to dye-based compact discs that are susceptible to degradation from ultraviolet and ambient light presents some concerns even for short-term storage.

In actuality, the preservation of digital storage media is moot in most cases, since the more immediate problem of converting to new software and hardware far surpasses the question of how long the digital storage media will last. Conversion to new storage formats, software, and hardware is the major problem. Due to changes in technology, most people can no longer read a 3½-inch floppy disk on a new computer. Trying to convert older CAD records stored on even more obsolete storage formats, such as 8-inch floppies or Bernoulli boxes, is practically impossible.

Software, too, changes rapidly, and missing conversion to more than one version may put migration to new software at risk.

For records a firm would print for distribution anyway, it is a good idea to avoid relying solely on digital storage material for record keeping until the preservation issues have been resolved. Digital media should be used for instant access (as long as it lasts), and information should be printed onto readily available alkaline or acid-free paper for preservation. Of course, some digital materials will never be printed and must stay in their original digital formats to retain their usefulness and functionality as a record. These materials present difficult problems for the long term.

For archivists and conservators, maintaining digital records is one of the last unresolved preservation frontiers. Archivists and records managers are looking at conversion to migrate old data to new software and hardware, emulation to replicate the "look and feel" of software output, and Web-based preservation technologies. A standard approach has not yet been found.

CAD Records

Since computer-aided design became the drafting workhorse in the 1990s, most firms create a major portion of their drawing and modeling records using digital design software. With complicated interdependent software and often a variety of platforms working together to create a record, CAD records present a difficult problem for architects and others trying to preserve records either for short-term legal requirements or long-term legacy needs. Archivists and other curators, along with organizations such as the National Institute of Standards and Technology, the Library of Congress, and the National Archives and Records Administration (NARA), are trying to develop preservation strategies for all types of electronic records. For example, NARA is working to develop the Electronic Records Archives (ERA) to provide access to electronic records without dependence on any specific software or hardware.

Some design practitioners concerned about the long-term implications of record-keeping and impatient for progress have forged ahead to offer some useful models. In *CAD: A Guide to Good Practice* (Archeology Data Service at <http://ads.ahds.ac.uk/project/goodguides/cad>), Damien Robinson, Harrison Eiteljorg II, Jeremy Huggett, and Kate Fernie focus on standardized drawing

(continued)

conventions, layer naming schemes, file formats, and descriptive data to allow for conversion. Keith Westcott, in *Preservation Handbook: Computer Aided Design* (Arts and Humanities Data Service at <http://ahds.ac.uk/preservation/cad-preservation-handbook.pdf>), discusses a migration approach and saving standard formats. Perhaps the most innovative and complete work yet is the approach of the Art Institute of Chicago (AIC), described in *Collecting, Archiving, and Exhibiting Digital Design Data* (AIC at http://www.artic.edu/aic/collections/dept_architecture/ddd.html). This publication, authored by Kristine Fallon Associates and funded by the Schiff and Graham Foundations, offers a model using a two-tiered preservation strategy in which materials are archived in a limited number of formats and “native data” (the original software, such as Autocad®) is collected and preserved at

the bit stream level. This model also uses DSpace, a Web-based digital library system, to capture, store, index, and preserve digital intellectual output. Critical attention is paid to the metadata (data on data) that describes the information needed to retrieve in standardized ways. The AIC is moving forward with this model and will soon freely provide the software they develop to any interested institution.

Although all the answers have not yet been found to guarantee long-term preservation of digital records, developing methodologies will help archivists, curators, and design firm records managers preserve architectural records, including digital materials, to make sure the cultural contributions of architects survive beyond their buildings.

Tawny Ryan Nelb

CDs). But even CDs have a defined shelf life. The CD-ROM disks an office might typically use today have a projected shelf life of 75 to 100 years after recording. However, an errant scratch on the top or bottom of a CD might completely negate the data, so alternative backups and a maintenance plan need to be part of the records-retention policy.

Some firms are turning to the Internet for online backup and archiving services. Data may be stored on servers located across the continent, which serve as a second location. The caveat to this solution is whether the selected service will still be in business ten years hence. Finding online services with good track records and longevity of operation is an important consideration. (See “For More Information” for some online storage recommendations.)

In any case, it is clear that digital records retention does not permit a firm to simply “store it and forget it.” An archival policy needs to address backup plans as well as periodic reevaluation of media. The advantage, however, is that digital storage is extremely compact and easily transferable from one medium to another or from one location to another.

Security, Confidentiality, and Insurance

It is a sad fact of our times that security against crime and terrorism is now a factor not only in risk assessments of architecture designs but in records retention policies as well. Client confidentiality has certainly always been an issue.

A suggested aspect of any records retention policy is to give each archived project a risk management rating. Depending on the type of practice, certain institutional projects or other potential crime or terrorist targets may be deemed high risk and require protection from easy access by staff as well as outsiders. Keeping certain archived records under lock and key with restricted access and instituting password security on designated digital records are possible security measures for such high-risk projects. Such evaluations and precautions are not welcome chores in everyday practice, but unfortunately, consideration of them has become a part of every architect’s practice.

Insurance is an obvious concern as well. While traditional policies may help cover the cost of replacing hard-copy archived records, loss of electronic records may not be covered unless specifically requested. To stay on top of this, firms should periodically review office insurance provisions as part of the records retention policy.

THE BENEFITS OF EFFECTIVE RECORDS RETENTION

Establishing, maintaining, and executing sound records retention policies and procedures may be unglamorous work, but it is a prudent part of today's architecture practice. An effective records retention program calls for the full support and participation of the firm from top to bottom. Firms need to get started on this important task. The effort involved can produce an excellent return on investment by providing easier access to and more effective use of a firm's institutional knowledge along with a deserved sense of well-being.

For More Information

Architectural Records: Managing Design and Construction Records (Society of American Archivists, 2006), by Waverly Lowell and Tawny Ryan Nelb, is a comprehensive reference providing guidelines for the long-term care of records associated with the profession of architecture. "Records and Information Management: Meeting the Challenge," by Mary Cooper, provides an excellent general guide on record management. A copy of this article is located on the A/E ProNet Web site at www.aepronet.org/pn/vol7-no3.html.

The Web site Architectural Archives in Europe (AAE), at www.architecturearchives.net has information about organizing architecture practice records, including guidelines for management and preservation of materials in both traditional and electronic format. Also available is information on legal requirements for retention and archiving of architectural records in some European countries.

Available on the Art Institute of Chicago Web site is the report "Collecting, Archiving and Exhibiting Digital Design Data," by Kristine Fallon Associates Inc. The section on archiving can be found at www.artic.edu/aic/collections/dept_architecture/dddreport/2A.pdf.

Information about statutes of repose in all fifty states is periodically published by the American Bar Association. An update of this information last appeared in the summer 2001 issue of *The Construction Lawyer* (vol. 21, no. 3). Check www.abanet.org for the most recent information.

For a discussion of building risk assessment issues with respect to records retention, see "Building for a Secure Future," a special report by *Engineering News-Record* and *Architectural Record*, March 25, 2002.

Information about online backup services can be obtained at the Web sites for @Backup (www.atbackup.com), Backup (www.backup.com), BackJack Online Backup for Macintosh (www.backjack.com), Iron Mountain (www.ironmountain.com), and Netstore (www.netstore.net).

Nancy Carlson Schrock and Mary Campbell Cooper presented specific hard-copy storage guidelines and a sample retention schedule in *Records in Architectural Offices: Suggestions for the Organization, Storage and Conservation of Architectural Office Archives*, 3rd ed. (1992). *Blueprints to Bytes: Architectural Records in the Electronic Age* (1999) addresses converting hard-copy media to digital formats. Both of these titles were published by the Committee for the Preservation of Architectural Records. They are no longer in print, but copies may be found in libraries or purchased as used books.

The AIA Small Practice Forum has an article titled "Electronic Document Management for the Small Office" at www.aia.org/spf_a_0304_electronic.

KEYS TO SUCCESSFUL RECORD KEEPING

1. In addition to top management, include those actively involved in project record keeping and archiving when developing and instituting a records retention policy and procedures. If appropriate, make records management an ongoing responsibility of a key staff member.
2. Evaluate your current project record-keeping practices. Adapt or modify existing filing systems to include use of a master project log or project database to keep tabs on all project records. Make it easy to "tell a project story."
3. Establish procedures to close the books on a project with a winnowing process for project archiving.
4. Establish a standard of two or more time periods for project records retention, such as first-level archive (statute of repose) and historical/institutional archive. Develop records retention schedules for all typical documents after assessing accessibility, historical, and legal issues.
5. Be aware of the changing nature of information storage (paper vs. digital), and evaluate current and likely future use. Develop storage guidelines for both hard copy and digital storage. Keep in mind the dictum "two media, two locations" as a useful guideline for all storage.
6. Don't forget to consider insurance, security, and confidentiality issues in performing a risk assessment for each project archive.
7. Do not implement a crash records retention program, but make the process an ongoing one that becomes part of normal daily routine.
8. After creating and documenting a records retention policy and procedures, do not neglect to explain to and train your staff. Be sure to maintain and sustain the program through reevaluation at regular intervals.