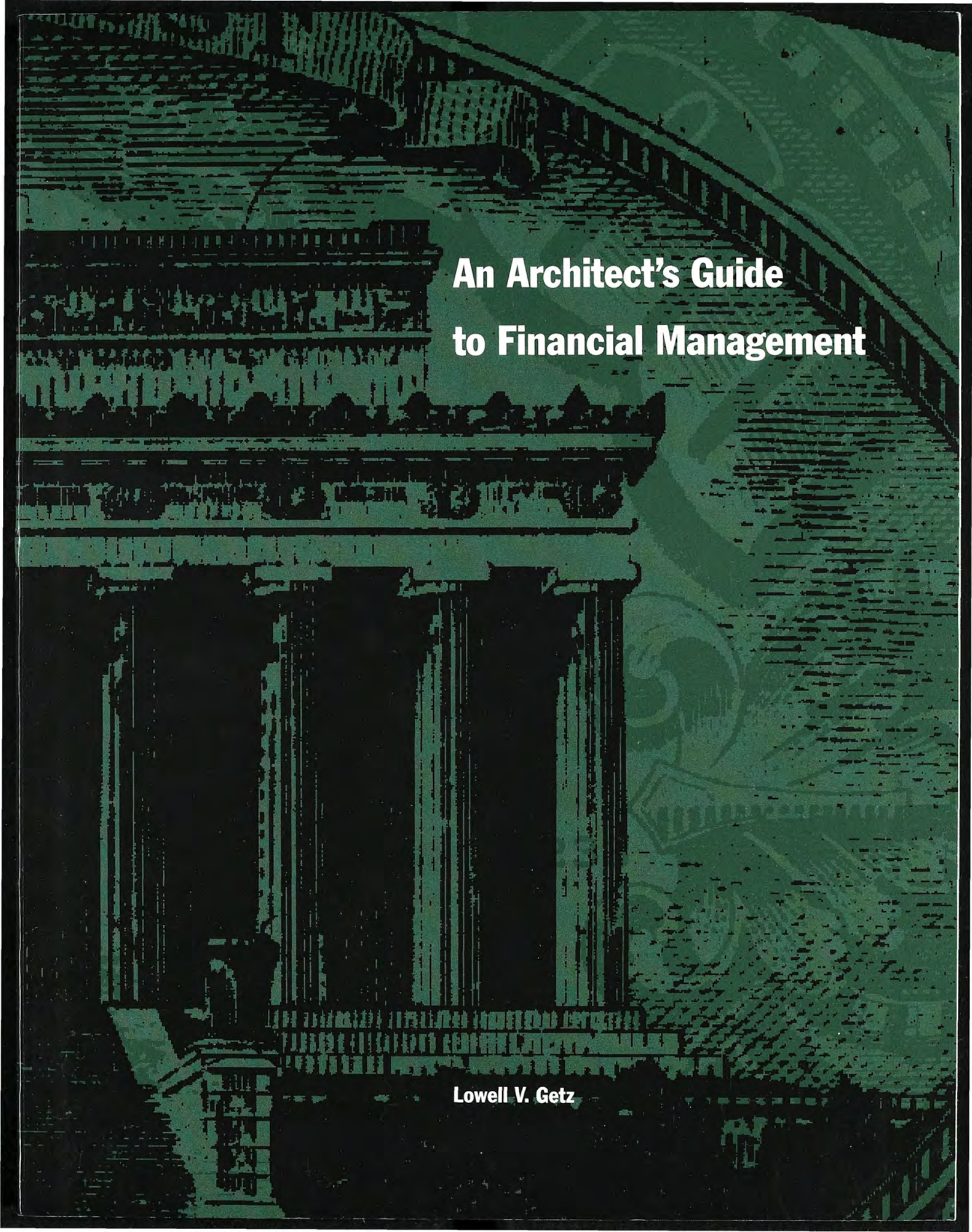




An Architect's Guide to Financial Management

Lowell V. Getz

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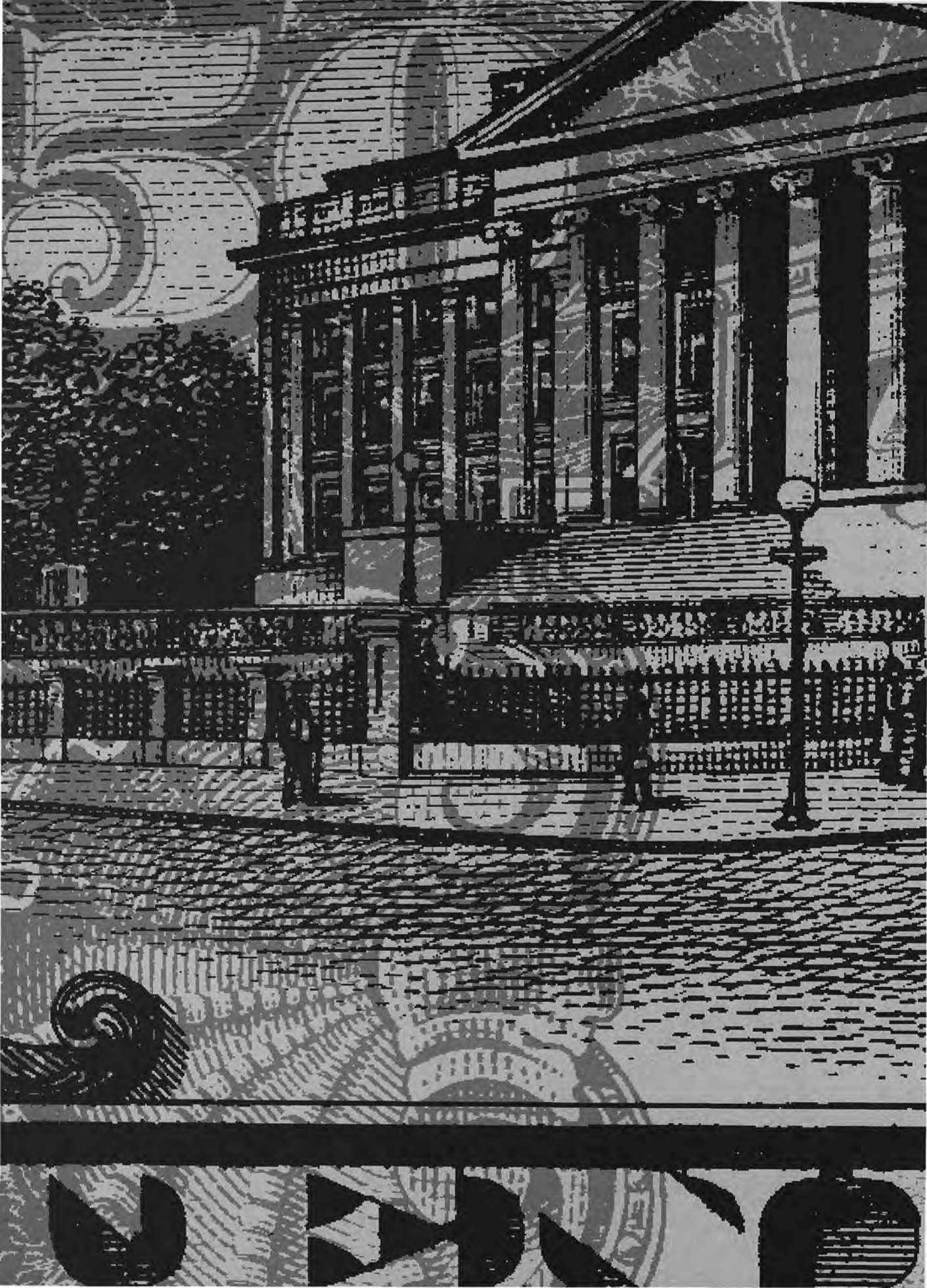
This book is an update of *Financial Management for Architects* by Robert F. Mattox, FAIA, published by the American Institute of Architects in 1980. Its purpose is to help architects understand the financial management aspect of their practice and its importance to their success. A great deal has changed in the practice of architecture since the 1980s, most notably the introduction and widespread use of computers by firms of all sizes. This book builds on the principles outlined in Mattox's book and brings them up to date with present technology.

Along with changes in technology have come changes in clients. They are not only more knowledgeable but also more demanding. As increased competition has provided them with more alternatives, they have begun to pressure architects to produce projects faster, cheaper, and better. Thus, there is an even greater need for architecture firms to manage their finances.

The book is organized in a sequence that starts with a review of basic accounting and financial principles. It then discusses areas of financial planning and control. The process of pricing projects through to billing and collection is discussed at length. Finally, certain specialized areas, such as government contracting and ownership transition, are also covered.

Architects who have little or no training in finance should find the book useful. It should provide a sufficient overview for them to ask questions of their accountant and delve into areas of further interest.

Thanks is given to several individuals who participated in the development of the book. Chet Shuman and Bernie Buelow of Harper and Shuman assisted the author with preparation of the chapter on computerized accounting systems. Lee Hewlett Askew III, FAIA, David L. Hoffman, FAIA, and Jerry Laiserin, AIA, reviewed the manuscript and offered many useful comments and suggestions. Joseph A. Demkin, AIA, of the AIA Press managed the review and editorial process.



As a core business component, financial management is vital in helping architecture firms reach their goals. Putting financial management to work, however, does not mean architects must become accountants or financial specialists. With just a basic understanding of financial concepts, architects can be more effective in planning, directing, and managing activities to build financially sound design practices.

Architecture firms that combine professional excellence with sound financial management are usually the most successful. They can pay for the finest talent, obtain state-of-the-art equipment, and reward the principals for their efforts. Nonetheless, architects, like other professionals, have been slow to recognize the importance of the financial function to their organizations. The focus on the design dimension of an architecture practice frequently overshadows the time devoted to its business aspects. Moreover, architects generally are not trained in financial matters.

Despite these attitudes, managing an architecture firm is no different than managing any other type of professional practice, such as a law or accounting firm. All require the use of good business skills to survive. This means managing people, using limited resources productively, complying with government regulations, and developing a market for services.

In small architecture firms one principal often performs the financial and administrative functions in addition to other duties. This can work well, particularly if the principal can supplement his or her education by taking courses or attending seminars on finance and management. Management of a small firm may also be divided between an outside principal and an inside principal according to individual temperaments. The outside principal may be marketing-oriented and concerned with business development, while the inside

principal is production oriented and manages operations that may include the financial function.

Financial management, as a key component of general business management, goes beyond accounting and bookkeeping. Modern financial management includes all functions that bear on the financial health of a firm: understanding financial statement, acquiring capital equipment, forecasting cash requirements, negotiating for a line-of-credit, seeking and acting upon legal and tax advice, and planning for future growth.

THE ELEMENTS OF FINANCIAL MANAGEMENT

The key to financial management is recognizing the early warning signals that indicate a firm is headed for financial trouble. Financial statements show what happened in the past, and this historical information can provide clues about what is likely to happen in the future. It is important for architects to know how to look for these clues and how to read the signs early enough to take corrective action.

If early warning signals are ignored, a firm may reach the point where it is too late to take corrective action. In such cases, architects are still responsible for finishing the job. Despite the financial losses incurred, they can learn from the experience and should be able to recognize the signals the next time they appear.

This book reviews the main elements of financial management with a focus on what architects must know about each of them. These elements include:

■ Financial planning

establishing goals and objectives, budgeting operations, and profit planning

■ Accounting

maintaining records of financial transactions for management and tax purposes

■ Project management

maintaining records on individual projects and tasks within projects

Financial statements show what happened in the past, and this historical information can provide clues about what is likely to happen in the future.

■ **Cash management**

billing, collecting, and disbursing cash

■ **Asset management**

identifying capital equipment needs and determining the most effective way of obtaining or disposing of equipment

■ **Financing operations**

obtaining the correct balance of debt and equity to finance the firm's operations

■ **Compensation**

establishing compensation levels for principals and staff, including salary, benefits, and discretionary distributions

■ **Valuation**

determining firm value for internal transfer of ownership or sale to an outside entity.

Architects who take an interest in and learn more about financial management will know when to hire accountants and other consultants to handle the technical aspects and will be able to better manage this vital part of their business. Although architects do not need to be accountants, they should have a basic understanding of accounting concepts. For example, they do not have to know how to prepare a financial statement, but they should be able to read financial statements and glean important information quickly.

THE PROCESS OF FINANCIAL MANAGEMENT

Management is a dynamic and continuous process. Its basic activities include organizing, planning, and controlling the operations of a firm. These activities—equally applicable to financial management as they are to general and project management—provide a framework for addressing matters of finance for firms of any size.

Organizing

Organizing consists of establishing the staff needed to perform the financial function. When a firm is small, one of the principals is usually responsible for all financial matters. As a firm grows, however, decisions have to be made about how the financial function will be structured and handled. At a certain point in the growth of a firm, a separate position is likely to be required, and the responsibilities and duties of that position need to be defined before the firm assigns existing staff or recruits new staff for the position.

Planning

The planning component of financial management requires a firm to establish goals that are appropriate, realistic, and achievable. Goals must be defined, communicated, translated into an action plan, and periodically updated. The action plan outlines when and how specific actions will be taken to accomplish the goals.

Firms must have well-defined goals in order to achieve success. If a firm operates successfully without goals, its success may be due to a favorable market for its services, an individual who is talented at bringing in work, or simply good fortune. None of these conditions is permanent. Goals are necessary for even the smallest firm to have continuing success.

Planning must be both long term and short term. Long-term goals establish directions in which the firm wants to move that reflect the purpose of the organization. Short-term goals are results that are achievable in the near term and that are measurable in terms of dollars, completion date, or some observable effect. For example, a firm might decide on a long-term goal of being recognized as a leader in the health care field. A short-term goal might be to associate with another firm, one experienced in areas of health care design in which the firm is weak, in order to acquire broader expertise. Both long-term and short-term goals can be identified in financial and nonfinancial terms.

An action plan identifies specific steps to be taken to achieve short-term goals. Each step in the plan should be clearly defined with regard to timing, responsibility, and measurement of success. One year and five years are commonly accepted periods for planning, with the five-year plan revised each year in light of new developments.

Because every firm has limited resources to spend in achieving its goals, goals must be assigned priorities. A goal may be more important at one time than another because of internal or external conditions and events. Progress may be made toward several goals simultaneously. Well-formulated goals help identify decisions that need to be made and help with day-to-day operating decisions.

The goals of a firm need to tie in directly with that firm's overall strategic plan and must be compatible with it. For example, a small firm may have two partners, one in his mid-fifties and one in her mid-forties. The older partner wishes to retire in ten years. The goals of the firm need to be directed toward accomplishing this objective. Goals would include preparing the younger partner to assume leadership, training one or two others for management positions, and ensuring that financial resources are adequate to fund the buyout of the older partner.

Careful planning over a ten-year period will ensure that both clients and staff are comfortable with the change. A gradual transition is best so that existing relationships are not upset. By the time the older partner is ready to retire, the transition will have been accomplished and the firm will be ready to move ahead under the new leadership.

Exhibit 1-1 shows the elements involved in the planning process, and exhibit 1-2 is a sample long-range plan.

Goals are necessary for even the smallest firm to have continuing success.

Goals Broad statements that describe the firm and what it hopes to accomplish.

Example for a large firm: "We see ourselves as problem solvers for clients in all aspects of architecture."

Example for a small firm: "We want a reputation as the premier architects of multifamily residential housing in the southwestern region of the state."

Objectives Milestones en route to achieving goals.

Example for a large firm: "We want to become a full-service architecture firm serving clients throughout the Northwest. We will serve these clients through regional offices located in key cities."

Example for a small firm: "We need to broaden our capabilities by offering an interiors service to clients."

Strategies The approach to or means of using resources to achieve goals and objectives.

Example for a large firm: "We need to open an office in Seattle to serve as a base for clients in the Northwest."

Example for a small firm: Search for a small (up to five-person) interiors firm for acquisition or hire someone to provide this capability and organize a staff.

Tactics Specific actions or steps to implement strategies within time and budget constraints.

Example for a large firm: "During the next six months we will open the Seattle office, staffed by four people currently working on the XYZ project, and will budget \$100,000 over the next year for a marketing effort that will make the office self-sufficient by the end of the second year."

Example for a small firm: "During the next six months investigate possible acquisition prospects through contacts at the state society and through friends. If nothing definite develops, begin search for candidate for employment with at least ten years' experience in managing a small interiors department of a large firm."

Exhibit 1-1 Elements of the Planning Process



Goal: Expand into new geographic location

Objectives / Strategies:

1. Expand existing project office into full-scale branch office
 - a. Evaluate current base of work and estimate follow-on assignments from existing project.
 - b. Estimate amount of additional project work necessary to convert to branch office
 - c. Evaluate market potential through in-depth review of prospects, competition, economy, etc., by discussions with bankers, chamber of commerce, and business leaders in community
2. Seek merger partner
 - a. Establish criteria for candidates
 - b. Conduct search through
 - (1) Discussions with friends at professional society meetings
 - (2) Research prior joint-venture partners
 - (3) Use third-party intermediary to search for likely candidates
 - c. If no tangible success in six months, consider #3
3. Start up new office
 - a. Determine who will manage the office through
 - (1) Evaluation of internal staff
 - (2) Outside search for candidates
 - b. Search for suitable office location through
 - (1) Local real estate agents
 - (2) Friends in city
 - (3) Personal observation
 - c. Office manager to research the market in city and develop a plan to achieve self-sufficiency
 - (1) Use marketing assistance from home office
 - (2) Marketing principal in home office will assist in developing realistic plan

Tactics

Execution of expense budgets, manpower schedules, and time sequence plans to accomplish each strategic element.

Exhibit 1-2

Sample Long-Range Plan



Controlling

Control includes the activities necessary to keep a firm on course toward reaching its goals. Evaluating performance in light of certain criteria gives managers the information they need to identify actions that will bring a firm back on course. To exercise such control effectively, there must be criteria against which to judge performance, information to determine progress, and an individual responsible for taking corrective measures.

Control is largely a matter of style. Any of several management approaches can be used to achieve similar goals. Management by *exception* looks for variances from preestablished norms. Management by *objectives* measures progress toward actions previously agreed on to move the organization in a desired direction.

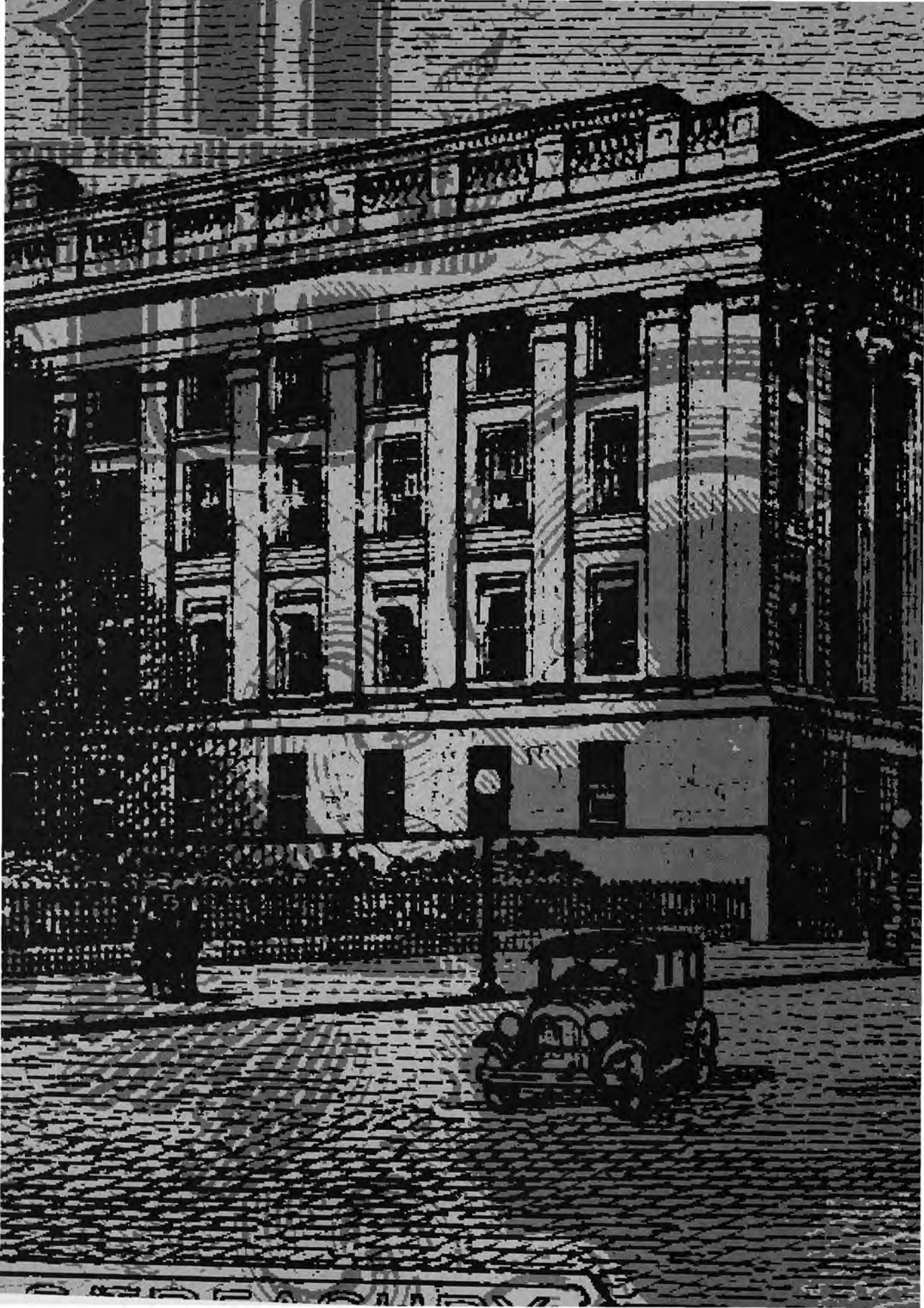
Total quality management programs seek to minimize errors in a firm's output. The chosen style should suit the tasks, people, and working environment of a particular architecture firm. Managers must understand clearly what measures will be used to judge performance and must provide for distribution of timely information to those needing it.

Performance should be evaluated at regular intervals. In a small firm, the principals are generally familiar with all aspects of the operation and know the status of all projects. As a firm grows, the principals become further removed from day-to-day operations and depend more on status

reports to stay informed and keep control. Along with this, it is important to develop financial indicators relevant to the firm and to monitor these indicators on a continual basis. Often, the direction and trend of the ratios and indexes used to measure financial performance are as important as the figures themselves at given points in time.

Challenge and rewards

The balancing act of managing finances, human resources, operations, and technology is a difficult one, but all are integral to the success of a creative design firm. Finance is an important aspect of running a firm, and the rewards are considerable for those willing to learn it.



The role of the financial manager in an architecture firm varies with the size of the firm. In a small practice, the financial manager—often termed business manager—may perform other duties such as supervising clerical staff. In medium-sized and large firms, the financial management role focuses increasingly on matters of finance.

Architects often find it hard to know when to hire someone to handle financial matters. In small firms, one of the principals or a spouse may keep the records while an outside public accountant handles the payroll and prepares tax returns. Accountants who have worked with a variety of businesses can be a valuable resource to architecture firms by demonstrating how to prepare budgets, cash forecasts, and other financial reports. However, especially during the tax season, accountants are often too busy to provide their clients with such help. To gain the most from an accounting firm, architects may need to ask for the assistance they need.

As a firm grows, a principal who has handled administrative duties may buy a financial software package and hire an assistant to enter data and run the accounting system. This employee should be someone with training in accounting or someone who will receive training on the job. When a firm reaches 30 to 40 people, an accountant or financial manager is often necessary.

The position of business manager in small firms often combines administrative functions, such as supervision of clerical staff, with the financial function. The business manager handles all business management aspects of the firm, making the job varied and important enough to attract a capable person. Often someone already in the firm who is familiar with all aspects of its operation can take on this position. With additional training, this individual may be

able to grow into the business manager's position.

A small firm can also acquire financial management capability by hiring an architect with some business administration training and an interest in the business management aspects of the firm. If this individual wishes to pursue administrative activities along with design it may be possible to split these duties. This arrangement works when a bookkeeper or knowledgeable accountant handles the detailed duties in accounting.

THE FINANCIAL MANAGER'S

PLACE IN THE FIRM

The person in charge of financial matters in an architecture firm is in a unique position. From a financial perspective, he or she probably knows more about what is going on in a firm than anyone else. Although the financial manager may know little about design and technical issues, others in the firm usually lack a perspective on money matters and do not have firsthand knowledge of the financial status of projects.

Sharing this perspective with staff members in management positions is an important part of the financial manager's job. In particular, the financial manager must keep project managers informed of the status of their projects and answer their questions. Everything from time charges to the smallest detail of expenses falls into the purview of the staff member responsible for managing finances.

Because a financial manager's background and training are different from that of an architect, there may be a communication gap with technical staff. It is up to the financial manager to make the changes needed to span this gap. He or she must become a skilled communicator, eliminating technical jargon in discussions with the staff and introducing new ways of thinking about financial and accounting matters.

A financial manager in an architecture firm must be able to produce reports important to architects. Design professionals often need information quickly, particularly about projects. Project managers frequently want the

The financial manager must keep project managers informed of the status of their projects and answer their questions.

Exhibit 2-1
Financial Position
Description
for a Small Firm

financial manager's best guess as to the outcome of the reporting period before financial statements are complete. In these cases, approximate rather than precise information is adequate. The manner in which financial managers respond to these "unreasonable" requests will distinguish those who are accepted as part of the management team from those who are excluded because the technical staff does not understand what they do.

DEFINING THE JOB OF FINANCIAL MANAGER

Before looking for a financial manager, it is important to write a well-thought-out description of the position. The requirements of the position can vary with the size of the firm and the number of people on the financial staff. Exhibit 2-1 includes a description for a business manager for a small firm, and exhibit 2-2 includes one for a financial manager in a medium to large firm. A well-defined description can save time for both the firm and a prospective employee.

In large firms the financial manager's position requires a business administration background with experience in a professional services firm. The candidate may also have an undergraduate degree in a technical discipline and a graduate degree in business administration.

Title: Business manager
Reports to: Managing partner

PRIMARY RESPONSIBILITIES

1. Manages books of account, prepares financial statements and project management reports.
2. Prepares budgets, analyzes variances, and advises the managing partner so that corrective action can be taken.
3. Prepares work papers and schedules needed by outside accountants to prepare tax returns.
4. Supervises billings, collections, and disbursements of funds.
5. Manages the cash position of the firm and prepares cash reports and forecasts for the managing partner.
6. Reviews liability insurance and employee insurance programs for adequacy.

ADDITIONAL DUTIES

1. Manages support staff, including secretaries (except partners' secretaries), bookkeeper, librarian, receptionist, and mailroom personnel.
2. Purchasing, including supplies.
3. Supervises all other office management functions, such as personnel records, insurance claims, central files, and the firm's automobiles.

QUALIFICATIONS

Bachelor's degree in business administration or in a design discipline; MBA highly desirable.

Exhibit 2-2
Financial Position
Description for a Medium
to Large Firm

Responsibilities	Title: Financial manager Reports to: President	Duties
1. Planning: Provide projections of short- and long-term financial objectives, develop and maintain financial plans that guide the firm toward attainment of these objectives, and report financial status on a regular basis to allow for adjustments to plans. 2. Controlling: Develop, direct, and coordinate budgets and projections to ensure that technical functions are consistently executed in accordance with legal requirements and sound business practice. Coordinate audits, provide reports that help all departments perform within the limits of the firm's financial plan, and initiate measures and procedures by which the firm's business is conducted with maximum efficiency and economy. 3. Financing: Recommend means for providing funds to meet long- and short-term requirements, manage funds in order to meet capital needs of the firm, review current financial position regularly and note any significant deviations from sound management, and develop and recommend appropriate action.		1. Review overall financial objectives, strategies, and policies of the firm to make certain they are consistent with approved purposes and objectives. 2. Review the organizational plans and succession plans, both short and long range. 3. Through continuing contact with departments, keep abreast of operating plans that affect financial projections including staffing, capital expenditures, and operating programs. 4. Ensure that all appropriate firmwide and departmental objectives, policies, and procedures are communicated and explained to all employees under his or her direction. 5. Advise senior management of the impact of legislation and regulations on the firm's affairs. 6. Maintain liaison with such governmental agencies as necessary in order to ensure compliance with local, state, and federal regulations. 7. Ensure that accounting operations are effectively and efficiently performed.

8. Prepare periodic financial, analytical, and interpretive reports for management, and provide statistical and analytical services to project managers and department heads.

9. Ensure that all legal requirements for proper recordkeeping are met, as well as all recording and reporting requirements for regulatory agencies as required by law.

10. Work closely with senior management in analyzing the firm's long- and short-term capital requirements.

11. Maintain adequate funds to meet current requirements and obligations, and consult with senior management in planning future requirements.

12. Recommend to senior management sources of funds, assist in the negotiation of loans as required, and follow up on the repayment of loans as funds become available and as terms of agreements stipulate.

13. Develop investment program and manage firm's investments.

14. Maintain contact with banking executives and financial officers of other firms in order to exchange information of mutual value and interest.

15. Ensure protection of assets through adequate internal controls and develop an insurance program providing protection against insurable risks.

16. Review and approve the financial aspects of proposals before submission to clients.

17. Help departments formulate pricing policy and provide data for review and analysis.

18. Prescribe the basic terms and conditions to be used in contracts including type of contract, payment terms, and rights granted or obtained.

19. Prepare or supervise preparation and filing of tax returns and oversee all tax matters.

20. Assist in determining cost impact of various strategic and tactical plans under consideration.

1. Education: Bachelor's degree in business administration with primary studies in accounting and finance; MBA and/or CPA desirable.

2. Experience: At least ___ years' experience in finance and accounting of which at least ___ years should be in a management position at a service firm requiring financial forecasting, planning, and reporting.* Computer experience necessary.

3. Competence: Established competence with acceptable references from supervisors.

4. Characteristics: Disciplined time management and attention to detail balanced with the ability to see the organizational whole while having flexibility in approach. Requires a person skilled at communicating with management personnel and directors of the firm. Integrity, technical competence, openness to new approaches, ability to work with others, and willingness to operate with a small staff are paramount.

*Number of years will depend on salary offered.

Exhibit 2-3
Salary Survey of
Selected Financial
Positions

	Staff size (1 to 20 people)	Controller ¹	Business Manager ²
Median			
Salary		\$ 34,802	\$ 48,296
Bonus		3,000	1,701
Total compensation ³		\$38,302	\$55,118

¹ The controller has primary responsibility for maintaining the firm's financial records. In large firms, where accounting is done at the group or division level, there may be a controller for each accounting group. This position differs from chief financial officer in that the controller usually does not have full authority over the firm's financial assets. The difference between a controller and a business manager is that the controller typically deals only with financial matters.

² The business manager is usually responsible for all administrative aspects of a firm, including accounting, personnel, and general office management. Typically, this is the first nontechnical (other than clerical) person added to the staff. The position is uncommon in larger firms where the individual with financial responsibility generally does not handle other tasks.

³ Figures are not additive because each is compiled from statistical averages.

Source:
 1995 Executive Management
 Salary Survey, *PSMJ*

Experience in a service organization rather than one dealing with products is also generally preferable. Financial managers usually report to the chief executive officer or managing principal of a firm.

If the financial manager's position also includes such duties as supervision of the support staff and purchasing, the firm needs to make this clear before hiring.

Salary level for this position is sometimes difficult to determine. However, salary surveys, employment agencies, and executive recruiters can all be helpful (see exhibit 2-3 for a sample salary survey). In a large firm, the position of a financial manager is generally on a level with other principals, and the firm should offer the usual perquisites to the financial manager.

Management's view of the role of the financial manager will determine the kind of person hired and influence the attitude of the individual after settling into the job. Principals should inform staff about the purpose of the position and make it clear that the firm has created the position to help achieve its financial goals and to improve its management capabilities.

HIRING THE BEST PERSON

Firms may sometimes find it advantageous to create a more attractive position to obtain the best person available. One way of doing this is to make a portion of the time for the financial position billable. For example, a firm working for government agencies may need someone with experience in regulations and permits. By training the financial manager in this work, a firm can free up a technical person for other responsibilities. In effect, the position can be more helpful to the firm and more interesting for the individual.

When a candidate applies for the position of financial manager, he or she should submit a résumé showing his or her education and work experience. The firm should thoroughly check all references. When interviewing candidates, it is important to determine whether they can work unsupervised. A financial manager in an architecture firm generally has no one to turn to about technical financial questions. Therefore, an individual who has worked independently in smaller firms is likely to be more comfortable in this position.

The hiring process can take considerable time, but it is worth hiring the right person the first time. In this process, the firm needs to ensure that the individual has the proper credentials, has experience relevant to the firm, is prepared to listen and understand the particular needs of the firm, and is someone with whom principals and managers feel comfortable working.

The hiring process can take considerable time, but it is worth hiring the right person the first time.



U.S. CAPITOL

Financial statements and reports contain important information about a firm's well-being and prospects. With an understanding of basic accounting concepts and the methods used to develop these statements, architects can interpret this information, apply further analysis, and identify changes and trends that measure a firm's overall performance and financial health.

Financial statements contain important information and data used in financial management. By interpreting, analyzing, and evaluating this information, firms can make informed decisions about future actions. However, before this can happen, architects should grasp basic accounting concepts and principles and understand the approaches and methods used to generate various financial reports.

Accounting is the language of finance. It is the medium through which financial and business transactions are recorded and through which statements on the status of accounts are prepared. Accounting assembles and maintains historical data about the firm's financial transactions. By analyzing this data, firm principals make decisions about the future and focus on managing the firm's assets to achieve short- and long-term goals.

ACCOUNTING PRINCIPLES

This book is primarily about finance, not accounting. However, because finance depends heavily on accounting data, it is useful to explain some of the principles used in the accounting process.

The use of certain accounting principles is essential in order to have reliable, consistent information for recordkeeping and reporting, and anyone working with financial information must understand these principles as described below. Applying them results in the fairest presentation and reporting of financial information.

■ Fixed assets are recorded at their purchase cost, and accounting records usually do not normally reflect subsequent changes in the market value of these assets. This principle is used because there can be no argument about the original cost of an asset, whereas its value at any later time is a matter of judgment. Depreciation reduces the cost of an asset to reflect its decline in value over time.

■ A firm is an entity separate from the owners, and owners should never include personal transactions in the firm's business records. This concept applies to a firm of any size and of any form including a proprietorship, partnership, or corporation. Although corporations are separate entities for tax and legal matters and proprietorships and partnerships have aspects which are not, the records of all three types of organizations should reflect only transactions of the business.

■ Accounting procedures assume a firm will continue indefinitely into the future. This assumption permits certain items to be set up as fixed assets and depreciated over their useful lives. Writing off the cost of an asset over several years assumes the firm will continue in business for an indefinite time.

■ Revenues should be matched as closely as possible with their related expenses. The practice of architecture involves acquiring resources (labor, space, equipment) that are costs to the firm. These resources are then used to produce professional services. As services are performed, the resources are consumed and revenues are generated from clients. The revenues flowing into the firm replenish the resources previously consumed, and the firm is again ready to perform new services. The purpose of matching revenues with expenses is to avoid overstating or understating profits or losses.

If this matching process is not performed, management can be misled about the generation of profits or losses. For example, consider the case of a structural engineer who is performing services for an architect as a consultant. The project is contracted on a lump-sum basis, and the architect calculates his percentage of completion on the project based on the work he and the engineer have performed to date. However, because the engineer is late sending his invoice to the architect, the architect overlooks the engineer's costs when adding up the costs of the project to date. Consequently, the project looks profitable and the architect thinks he can spend more time on it than had originally been budgeted. When the engineer's invoice arrives the following month, the project costs could exceed the budget.

"Everything should be made as simple as possible, but not simpler."

Albert Einstein

- Reports are prepared on a conservative basis. When values are not easily determined, accounting generally favors a conservative approach to estimating them. For example, when an architect believes an account receivable will not be collected, a reserve should be established against it. Later, if the account is collected, the reserve can be removed or applied against another doubtful account.

- Full disclosure is required. Accounting reports should reflect all facts bearing on transactions. Accounting practices should not result in a financial picture made to look either better or worse than it actually is. Accounting requires that estimates be made based on judgment, such as determining the useful life of equipment, but these estimates must be as realistic as possible.

- Consistency in preparing financial reports is important in order to achieve a reliable basis for comparison from year to year. Analysis of trends gives an indication of what is likely to occur in the future. Statements prepared on a consistent basis allow valid conclusions to be drawn from them.

METHODS OF ACCOUNTING

Two methods of accounting are commonly used—the cash basis and the accrual basis. A third method, a combination of the two called the hybrid method, is sometimes employed.

In accounting on a cash basis, revenue is recognized when cash is received and expenses are recognized when cash is paid. Cash-basis financial statements are easy to put together, which makes it possible for people with little training in accounting to prepare them. Essentially, cash-basis statements give the status of the firm's cash position, similar to a checkbook balance.

Many architecture firms that never need to borrow money rely on cash-basis financial statements because that is how the tax returns are prepared. Since these statements do not have to be shared with people outside the firm, such as bankers, they can be prepared in any way that management prefers. Firm managers are mainly interested in using these statements to monitor the firm's cash position for tax purposes.

However, financial statements prepared on a cash basis do not give an accurate view of a firm's financial status. Cash-basis statements do not reflect revenues the firm has actually earned but simply the invoice amounts clients have paid. Likewise, expenses in cash accounting show only costs that have been paid. For example, if an insurance premium for the year is paid in advance, cash-basis accounting would

reflect the entire expense in the month in which it is paid. At the same time, the statement would not reflect a consultant expense the firm had incurred but not yet paid.

Accounting on an accrual basis recognizes revenue when it is earned, whether or not payment has been received. Similarly, accrual accounting recognizes expenses when they are incurred, regardless of whether the firm has made payment.

Many expenses such as rent, utilities, and telephone are paid monthly. Some expenses are incurred and recognized before they are paid. The most common example of this type of expense is the cost of a consultant. After a consultant bills the architect, the architect bills the client but may not pay the consultant until the client pays. On the architect's books the invoice to the client is a receivable, and the consultant's fee is a payable. In accrual accounting, the revenue is recognized and the related expenses are matched even though there has been no exchange of cash.

What happens if the client does not pay after the architect has recognized the revenue? In this case, which should be rare, the invoice is written off as soon as it is determined to be uncollectible. The concept of accrual accounting is still valid.

Although accrual accounting is more useful than the cash method for management purposes, it is important to have the ability to produce cash-basis statements as well. Tax regulations permit certain professional service firms to use cash-basis reporting for tax purposes even when the firm uses accrual-basis reporting for management purposes. This distinction is important, because it allows the firm to pay taxes on money when it is received. The tax laws give this benefit to professional services firms that do not have inventories on the theory that taxable income will even out over time. In exchange, these firms pay taxes at the highest level, currently 35 percent, rather than on a graduated basis. The firm's accountant will make the necessary conversion from accrual to cash basis at year's end when tax returns are prepared.

Tax regulations permit certain professional service firms to use cash-basis reporting for tax purposes even when the firm uses accrual-basis reporting for management purposes.

REPORTING FORMATS

FOR FINANCIAL STATEMENTS

An operating budget should be planned to lead a firm toward the goals established by its owners. Comparing actual performance data of an architecture firm with the planned performance figures in the operating budget can help keep a firm on track. When deviations occur, management can take corrective action. To help monitor the firm's performance, there are several kinds of reporting methods. These include variance reporting, exception reporting, and common-size reporting.

Variance reporting

This reporting method monitors actual versus planned performance. Financial statements compare actual results with budgeted figures and show the difference between the two in a variance column as either a positive or negative amount. Negative variances in revenues are "bad" because they are less than planned, while positive variances are "good" because they indicate more revenue than planned. Conversely, negative variances in expenses are warning signals because they indicate higher expenses than planned; positive expense variances indicate spending at levels lower than planned. For the profit variance, positive numbers mean more profits than planned. This type of report allows managers to quickly scan the variance column and immediately discern problem areas.

Variations can occur month to month

for both revenues and expenses. Revenues can vary due to client delays in decision-making and scheduling problems in producing work. Direct labor expenses may vary because of sickness, vacations, holidays, overtime, pay increases, and hiring and termination of employees. Other direct expenses vary as a result of negotiated expenses for outside engineers and other consultants and from expenses for printing, computers, and travel. Variations in indirect expenses are most often caused by the assignment of personnel to projects. Favorable variations in indirect labor costs occur as more time is charged directly to projects, leaving less time in the indirect category. Other variations in indirect expenses may arise from price fluctuations in supplies or insurance premiums.

Variance reporting allows managers to identify problem areas quickly and to concentrate on taking corrective action. On the other hand, variance reporting comparisons may not be valid if circumstances change and budgets are not changed to reflect this. In this case, variances will show up each month and in many cases increase over time because the underlying cause has not been corrected. Exhibits 3-1 and 3-2 show examples of variance reporting.

Exception reporting

This reporting method highlights unfavorable information on the theory that managers should concentrate their efforts on correcting problem areas. For example,

An operating budget should be planned to lead a firm toward the goals established by its owners.

a list of projects that are exceeding their budgets by 10 percent would appear in an exception report, as illustrated in exhibit 3-3.

Exception reporting directs managers' attention to areas currently experiencing problems, but it does not give any indication of impending difficulties. A careful analysis of all the projects might give a better indication of where managers should spend their time. Projects that are about to exceed their budget can often be corrected, whereas those already over budget are usually difficult to bring back into line.

Common-size reporting

Common-size reporting presents financial information on a percentage basis in order to examine the relationships between various accounts. For example, on a balance sheet, the total assets would be 100 percent, and each account would be a percentage of the total. Although this presentation makes it possible to compare a firm with firms of different sizes, the usefulness of the comparison is limited because different firms have different characteristics. Nonetheless, common-size statements may give managers useful insight if the firm shows widely different characteristics than its peers. For example, a firm with a debt load higher than comparable firms would indicate that it is vulnerable in case of a downturn in revenues. Exhibit 3-4 illustrates a common-size financial statement.

TYPES OF FINANCIAL REPORTS

Balance sheets and income statements represent the two basic types of financial reports. The balance sheet is a status report for a given point in time. The income statement is an activity report for a specific period of time summarizing financial activities that have occurred since the last balance sheet statement was issued. The income statement shows revenues and expenses for its reporting period along with the resulting profit or loss, identifying financial activities that have given rise to changes in the balance sheet. Each of these reports is discussed below in further detail.

Balance sheet

The balance sheet in exhibit 3-1, shown in the format of a variance report, provides a financial snapshot of a firm on a given date. The structure of the report is best illustrated by the following formula:

$$\text{assets} = \text{liabilities} + \text{owners' equity}$$

Assets consist of what the firm owns, liabilities are what the firm owes to creditors, and owners' equity is what the owners have invested in the firm.

Assets are traditionally shown on the left side of the balance sheet and liabilities on the right. Alternatively, when a vertical format is used, assets are presented first, followed by liabilities and owners' equity. Assets are categorized as current, fixed (long-term), or "other."

The balance sheet provides a financial snapshot of a firm on a given date.

■ **Current assets** are those likely to be consumed within one year and include such accounts as receivables, unbilled revenues, and prepaid expenses. Receivables and unbilled revenue represent the value of services rendered by the firm and will, in time, be converted into cash. Prepaid expenses represent costs to the firm that have not yet been used in producing services.

■ **Fixed assets** (also called furniture, fixtures, and equipment) include long-term assets that are subject to depreciation, such as buildings, automobiles, furniture, computers, and equipment. The value of these assets diminishes over time as they wear out. Computers, in particular, become obsolete quickly and need to be replaced. Depreciation is an accounting procedure whereby a portion of the cost of these assets is written off over their useful lives.

■ **Other assets** may include the cash surrender value of life insurance policies as well as long-term investments or property owned by the firm that is unrelated to its business activities.

Liabilities reflect what the firm owes to creditors, including bank debt. Liabilities are subdivided into current and long-term liabilities.

■ **Current liabilities** include those that will come due within a year, such as notes and accounts payable, taxes, and interest payable. Deferred taxes also fall into the category of a current liability. Since deferred taxes are often not well understood, they are discussed briefly below.

Most firms pay taxes on the cash basis. However, when financial information is prepared on an accrual basis by an outside accountant, deferred taxes usually appear. They basically represent the difference between what is owed in taxes on the accrual versus the cash basis, although there may be other items in the account as well. Deferred taxes are taxes that eventually will have to be paid on accounts receivable and work in progress. They represent a liability that most firms will not have to pay directly since new accounts receivable are being generated as the old ones are collected, creating a kind of rolling liability. If a firm were to go out of business, there would be a tax liability as the receivables are collected.

■ **Long-term liabilities** include obligations that will come due in more than a year, such as portions of notes and mortgages that are beyond the twelve-month cutoff.

The *owners' equity* represents the owners' investment in a firm and is the difference between assets and liabilities. This equity is called stockholders' or shareholders' equity in a corporation and

Exhibit 3-1
**Sample Balance Sheet–
Variance Report
(As of December 31)**

	Actual	Budget	Variance
Assets			

Current assets

Cash	\$ 6,000	\$ 10,000	\$ 4,000
Short-term investments	3,000	5,000	2,000
Accounts receivable	230,000	250,000	20,000
Work in progress	150,000	160,000	10,000
Prepaid expenses	10,000	15,000	5,000
Total current assets	399,000	440,000	41,000

Fixed assets

Property and equipment (net of depreciation)	40,000	40,000	0
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Total assets	439,000	480,000	41,000
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**Liabilities and
Shareholders' Equity**
Current liabilities

Accrued expenses	\$ 15,000	\$ 20,000	\$ 5,000
Note payable	10,000	10,000	0
Deferred income tax	135,000	140,000	5,000
Accounts payable	20,000	25,000	5,000
Total current liabilities	180,000	195,000	15,000

Long-term liabilities

Long-term debt	30,000	30,000	0
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Shareholders' equity

Capital stock	50,000	50,000	0
Retained earnings	179,000	205,000	26,000
Total shareholders' equity	229,000	255,000	26,000

**Total liabilities and
shareholder's equity**

439,000	480,000	41,000
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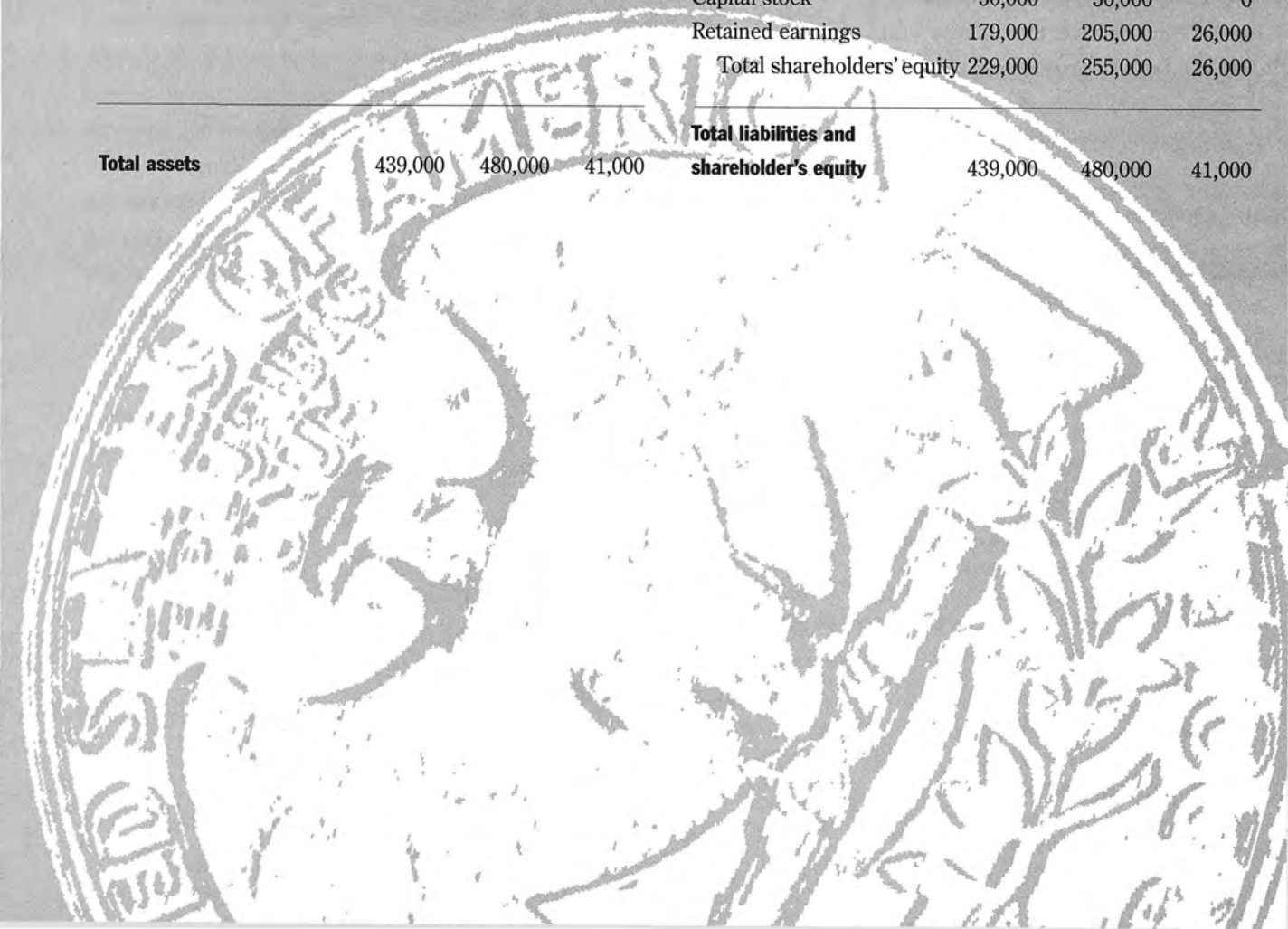


Exhibit 3-2
**Sample Income Statement—
Variance Report
(for Period Ending
December 31)**

	Actual	Budget	Variance	Actual	Budget	Variance
	Current Period			Year-to-Date		
Professional services (net revenue)	\$ 42,000	\$ 46,200	\$ (4,200)	\$ 508,200	\$ 559,000	\$ (50,800)
Reimbursables & consultants	8,700	9,500	(800)	105,000	115,000	(10,000)
Gross revenue	50,700	55,700	(5,000)	613,200	674,000	(60,800)
Other revenue	2,000	2,000	0	24,200	0	
Total revenue	52,700	57,700	(5,000)	637,400	698,200	(60,800)
Reimbursable expenses						
Consultants						
Other direct costs	8,000	8,800	800	96,800	106,400	9,600
Subtotal	8,000	8,800	800	96,800	106,400	9,600
Total revenue less reimbursable expenses	44,700	48,900	(4,200)	540,600	591,800	(51,200)
Direct expenses						
Direct labor	10,800	11,000	200	130,600	133,100	2,500
Other direct expenses	100	100	0	1,200	1,200	0
Subtotal	10,900	11,100	200	131,800	134,300	2,500
Contribution before overhead & profit	33,800	37,800	(4,000)	408,800	457,500	(48,700)
Indirect expenses						
Indirect labor	6,800	7,000	200	82,200	84,700	2,500
Vacation/holiday/sick leave	3,000	3,300	300	36,300	39,900	3,600
Payroll taxes	4,000	4,000	0	48,400	48,400	0
Payroll insurance & benefits	2,000	2,200	200	24,200	26,600	2,400
Rent	3,800	4,100	300	45,900	49,600	3,700
Telephone	900	900	0	10,800	10,800	0
Office maintenance & supplies	3,000	2,300	(700)	36,300	27,800	(8,500)
Professional liability insurance	2,000	2,000	0	24,200	24,200	0
Other insurance	1,200	1,000	(200)	14,500	12,100	(2,400)
Miscellaneous	2,100	2,000	(100)	25,400	24,100	(1,300)
Total indirect expenses	28,800	28,800	0	348,200	348,200	0
Profit before taxes & distributions	5,000	9,000	(4,000)	60,600	109,300	(48,700)
Bonuses	3,000	6,000	3,000	36,300	90,000	53,700
Profit before taxes	\$ 2,000	\$ 3,000	\$ (1,000)	\$ 24,300	\$ 19,300	\$ 5,000

Note: Parentheses denote unfavorable variances.

Projects Exceeding Budget by 10 Percent	Project Revenue	Profit/Loss
Apartment complex	\$60,234	\$19,000
Office building	\$7,489	(\$1,210)
Shopping center	\$129,834	\$26,000
Church	\$12,468	\$4,000
Warehouse	\$19,334	(\$4,200)

Exhibit 3-3
Sample Exception
Report

partners' capital in a partnership.

In a corporation, owners' equity is generally shown in three categories of accounts: common stock at par, paid-in capital, and retained earnings. The value of common stock at par reflects the minimum legal amount at which shares of the corporation were issued and is calculated by multiplying the number of shares issued times the par value per share. Paid-in capital is that portion of the value of the stock that investors have contributed in excess of par value. Thus, \$1 par stock sold for \$10 per share would add \$1 per share to the common stock-at-par account and \$9 per share to the paid-in capital account. The category of retained earnings represents the net income accumulated in the firm through the years. The retained earnings account is increased by net income after taxes or decreased by losses incurred.

Income statement

The income statement records revenues and expenses and the resulting profit over a period of time. A sample income statement, in the form of a variance report, is shown in exhibit 3-2.

Revenues

Total revenues coming into the firm can be classified as operating or nonoperating. Operating revenues, representing payments by clients for services rendered, can be subdivided into gross and net revenues. Gross revenue is all income earned on a project, while net revenue excludes "pass-through" items such as reimbursables and consultant costs. This separation helps distinguish between revenues that are payments for services rendered by the firm's own efforts and revenues that are expenses paid by the client.

Reimbursables are expenses that the client has agreed to pay for over and above payments for professional services. It is important to remember that financing reimbursables and administering consultant contracts represent costs to the architecture firm. If these financing and administrative costs are not covered by marking up the pass-through expenses, then those costs come out of the architect's profit on a project. That is why it is standard practice to add a markup of at least 10 percent to reimbursable expenses when they are billed to a client.

Nonoperating revenues are derived from sources other than projects and include income from rental properties or interest on investments. These revenues usually constitute a minor portion of the firm's revenues, but they contribute to the firm's profit.

Future revenue that can be generated on existing contracts but has not been earned or billed is called backlog. Backlog does not appear in financial statements. However, the firm should keep track of the value of new contracts and work remaining on current projects.

Revenue that has been earned but not yet billed is called unbilled revenue and is carried on the balance sheet as an asset. Unbilled revenue becomes a receivable account when an invoice is sent to the client. Unbilled revenue is also called "work in progress" or unbilled services.

Revenue billed before it is earned should be reflected in the balance sheet as a liability called deferred revenue or as negative work in progress. The recognition of this revenue is delayed until it has actually been earned.

Expenses

Expenses are categorized as nonoperating, reimbursable, direct, or indirect. A goal of financial management is to match revenue with expense, both in type and timing.

Nonoperating expenses, which are expenses not related to the primary mission of the firm, should be matched with nonoperating revenue. Examples of nonoperating expenses include the costs for rental property owned by the firm as well as expenses associated with investments. These expenses should be matched against the corresponding revenues for these items to determine profit or loss.

Reimbursable expenses should be offset against reimbursable revenues. Any markup on reimbursable expenses will contribute to the firm's profit as long as associated expenses, such as the interest cost for carrying these expenses, are covered. Items usually agreed to as reimbursable expenses include transportation in connection with projects; living expenses in connection with overnight out-of-town travel; long-distance communications; fees paid for securing agency approvals; costs for reproducing documents; and project-related postage and shipping charges.

A goal of financial management is to match revenue with expense, both in type and timing.

Direct expenses are those that can be assigned to specific projects. They include the following:

- Direct labor expense consisting of gross salaries charged to projects. Benefits are not included in this category. Instead, benefit costs are included as an indirect expense. (Direct personnel expenses represent another form of direct expense used in certain types of contracts. A discussion of direct personnel expenses is included later in this chapter.)
- Outside services are expenses incurred by independent contractors or outside consultants that are not reimbursable.
- Other direct expenses include production, travel expenses, long distance communications, computing, and items paid on the client's behalf that are not reimbursable.

Indirect expenses are not assigned to specific projects but are necessary for operating the firm. Indirect expenses include marketing costs, space costs (rent or mortgage), utilities, telephone, depreciation, amortization, and insurance.

To illustrate how expenses can be classified, long distance telephone costs for a project would be classified as reimbursable if the agreement identifies them as a separate reimbursable expense. The same long distance telephone costs would be a direct expense to the project in the absence of such an agreement. Long distance telephone expenses for marketing purposes are an indirect expense.

Expenses that are paid only if there are profits at the end of a year include profit-sharing, staff bonuses, and principals' bonuses. Other discretionary items include deferred compensation plans, employer 401k plan matches, and employee stock ownership plans (ESOPs). Bonuses must meet the test of "reasonable compensation" to the principals. Various court decisions have ruled on what is considered reasonable. Regulations affecting the other discretionary items should be discussed with the firm's accountant and attorney.

Profits may be distributed to the owners of a firm or may be retained in the firm. The general rule is that up to \$150,000 can be retained without subjecting the firm to a tax on excess retained earnings. Amounts above that may be retained if the firm can prove a business need for the additional funds, such

Profits may be distributed to the owners of a firm or may be retained in the firm.

Balance Sheet**Exhibit 3-4
Common Size
Financial Statement**

Assets	Cash	4.90
	Accounts receivable	49.40
	Work in process	11.60
	Other current assets	4.10
	Total current assets	76.60
	Furniture, fixtures and equipment (net of deprec.)	23.40
	<i>Total assets</i>	100.00
Liabilities	Accounts payable	7.90
	Deferred taxes	8.20
	Accrued expenses	10.40
	Current portion of debt	3.80
	Other current liabilities	9.80
	Total current liabilities	37.90
	Long-term portion of debt	8.10
	Other liabilities	4.50
	<i>Total liabilities</i>	50.00
Equity	Total equity	42.80
	Total liabilities and equity	100.00

Income Statement

Gross revenue	121.10
Less: reimbursables and consultants	21.10
Net revenues	100.00
Less: direct labor and expenses	35.80
Contribution to overhead and profit	62.90
Less: indirect expenses	55.70
Income before distributions and taxes	6.00
Less: discretionary distributions	4.60
Income before taxes	2.50

Note: Numbers are statistical averages and therefore are not additive.

as for capital equipment or expansion.

The procedures for retaining earnings in a firm vary according to the form of organization. Proprietorships and partnerships do not pay income taxes as business entities; rather, the profits or losses of the firm's operations are passed on to the owners in proportion to their individual shares in the firm. The proprietor or partners pay personal income taxes on these profits. If the proprietor or partners need more capital in the firm, they must reinvest their after-tax dollars.

DIRECT PERSONNEL EXPENSES

As previously noted, the concept of direct personnel expense (DPE) is used in certain types of contracting, including some government contracting. The concept comes from the two categories of expense that compose overhead. The first is payroll burden consisting of employee insurance and taxes. The second consists of all other overhead items called general and administrative expenses (i.e., rent, depreciation, and professional liability insurance). The sum of these expense categories equals overhead.

Exhibit 3-5 Formulas for Calculating the Overhead Rate and DPE Ratio

$$\text{Overhead Rate} = \frac{\text{Payroll Burden (0.40)} + \text{General \& Administration Expense (1.27)}}{\text{Direct Labor (1.00)}} = 1.67$$

$$\text{DPE Ratio} = \frac{\text{General \& Administration Expense (1.27)}}{\text{Direct Labor (1.00)} + \text{Payroll Burden (0.40)}} = 0.91$$

An overhead rate is calculated by dividing direct labor, meaning labor charged to jobs, into total overhead consisting of payroll burden and general and administrative expenses. Industry statistics show that, on average, for every dollar of direct labor, an additional \$1.67 of overhead must be covered before profit is earned (see exhibit 3-5). The DPE ratio moves the payroll burden from the numerator to the denominator.

Since the results are significantly different, it is important clearly to define the terms for each when calculating the above ratios. Some clients react more favorably to overhead rate while others prefer the DPE ratio. Therefore, it is important to understand the client's preferences and comply with them.

Using industry-established norms, \$1.00 in direct labor plus \$1.67 in overhead means that total cost is \$2.67. If the firm achieves a 3.0 multiplier on its direct labor, the difference—or 33 cents—represents profit, which amounts to about 12 percent on costs or 11 percent in revenues. With this information, management can determine the lowest multiplier to accept before profit is eliminated. In this example, the break-even multiplier would be 2.7.

INTERPRETING FINANCIAL STATEMENTS

The architect needs to know how to read the financial statements to gather the information that is important to the firm. Significant changes in individual accounts from month to month need to be investigated and the reasons for the changes determined. After a while, the architect will gain an understanding of the financial characteristics of the firm so that the changes will be better understood. For example, a percentage increase in the chargeable ratio (to be discussed in chapter four along with other indicators) can often translate into an immediate effect on profit for that month. A slippage in revenues can likewise be expected to have a certain impact on profit. For example, a 1 percent decline in revenues might be expected to decrease profit by 4 to 5 percent.

The architect needs to know how to read the financial statements to gather the information that is important to the firm.



Financial statements provide a starting point for determining the financial health of a firm. Further study and analysis of certain figures in them can create a fuller, more useful financial picture.

Ratio analysis develops indicators that express a firm's profitability, productivity, and activity in ratios rather than in dollars.

These indicators can be used to compare current and past financial performance, identify significant performance trends, and gauge the firm's financial performance against that of similar firms.

Financial analysis delves deeper into financial statements and reports to develop useful information for management. Using certain data from income statements and balance sheets, financial analysis can provide answers to such questions as:

- What is the relationship of indirect labor to total labor?
- On average, how long does it take to receive payment of invoices?
- What percent of revenue is profit?
- What is the multiplier on direct salary?
- What is the relationship between bank debt and stockholders' equity?
- Does the firm's work have a seasonal nature?
- When will the firm need to borrow from the bank and for how long?

RATIO ANALYSIS

Ratio analysis provides an effective tool for answering these questions. It generates indicators—expressed in numbers rather than dollars—to measure profitability, activity, and financial strength of a firm. Using these indicators, usually referred to as ratios, management can build a sharper profile of how a firm is doing and obtain enough information to put it back on track if necessary. Because ratio analysis has certain inherent strengths and weaknesses, the following points should always be kept in mind:

■ Ratios are calculated from accounting statements and therefore are only as valid as the accounting data. If the accounting data are not accurate or up-to-date, the ratios may be misleading.

■ Ratio analysis requires comparison and is most useful when current experience is related to prior performance or to a budget. Comparison with similar firms can also provide insights.

■ Ratio analyses are most helpful when trends are established. They can then be studied over several years, while attempts are made to improve them.

■ Ratio analyses are meaningful only if the person using them understands the limitations and characteristics of each ratio.

■ Ratios do not provide clues to problems or offer solutions, although they identify conditions that may need further study. Improvement of a ratio is not always possible because changes necessary to improve one ratio may produce unfavorable results in another.

Generally, it is necessary to look beyond a ratio to find the cause of a problem and to suggest solutions. When using ratios to gauge the performance of a firm, architects should attempt to maintain them in reasonable ranges. By studying ratios over time, a firm can better determine the range in which it operates. The relevance of particular ratios may change over time as a firm grows in size and capabilities.

Many types of ratios can be developed, so architects must determine which ones are most appropriate for their firms. For example, in an architecture firm, net revenues are a more important measure of revenue than gross revenues.

This chapter discusses four categories of ratios (see exhibit 4-1):

■ profitability ratios, which measure the overall effectiveness of a firm's financial operations

■ productivity ratios, which measure the overall efficiency of a firm's operations

■ activity ratios, which measure how well certain resources are being used

■ liquidity ratios, which measure the extent to which a firm is financed by debt and equity.

PROFITABILITY RATIOS

In an architecture firm, the bottom line is profit before taxes and distributions. Distributions include discretionary payments, such as bonuses, profit-sharing contributions, and employee stock ownership plan (ESOP) contributions. The employer matching contribution to a 401k plan may or may not be considered discretionary.

Profit-sharing plans, ESOPs, and 401k plans with matching funds are categorized as defined contribution plans, and there are limitations on how much can be contributed to these plans each year. The amount is largely determined by how much the firm earns and can afford to contribute each year. The

In an architecture firm, the bottom line is profit before taxes and distributions.

eventual payout to the participant is based on the amount of money in an individual's account at retirement. Pension plans, on the other hand, are categorized as defined benefit plans. The amount of benefit to the participant at the time of retirement is based on an individual's most recent salary or some other defined amount. Actuaries determine the contribution needed each year to provide the ultimate benefit. Pension plans are not considered discretionary because these payments must be made each year.

Profitability ratios may be used to compare profits with net revenues, gross revenues, return on assets, and return on net worth. The ratio for profits on net revenue indicates the efficiency with which a firm produces professional services. This ratio is one of the better measures of financial performance and is the one most commonly used by architecture firms. An important assumption underlying the use of this ratio is that salaries have been paid for all staff, including owners, commensurate with their role as employees and that bonuses are identified as separate payments. The ratio of profits on gross revenue takes into account profits earned on pass-through items as well. This ratio is not as meaningful as the ratio measuring profits on net revenue.

Profits calculated after discretionary items and taxes are also less meaningful because they are derived from managed numbers. Therefore, ratios of return on

assets or return on net worth are expected to be small because most firms distribute profits as bonuses and minimize taxes paid by the firm.

What target should a firm have for profitability? Budgeting for a 20 percent profit is not unreasonable. Some well-managed firms that control their costs and make sure they get paid for their work consistently reach these or even higher levels. Industry averages, however, show that most firms do not come close to achieving these results.

PRODUCTIVITY RATIOS

Productivity measures the degree to which project efforts are able to generate earned revenue. Productivity ratios include net multipliers of direct labor expense, revenue per "full-time equivalent" employee, payroll utilization ratios, and chargeability ratios.

A net multiplier ratio indicates how well a firm converts direct time into revenue. This ratio is obtained by dividing dollars of net revenue by dollars of direct labor expense. Note that net revenues eliminate all subcontractor and reimbursable expenses and represent only the revenues generated in the direct labor category. It is important to calculate net multiplier ratios consistently from one time to the next; otherwise, the comparisons will not be meaningful.

What target should a firm have for profitability? Budgeting for a 20 percent profit is not unreasonable.

Exhibit 4-1
Key Ratios
Profitability
Ratios

 Profits as
 % of net
 revenues

$$= \frac{\text{Profit before taxes \& distribution}}{\text{Net revenues}}$$

8.0 %

11.5 %

 Profits as
 % of gross
 revenues

$$= \frac{\text{Profit before taxes \& distribution}}{\text{Gross revenues}}$$

6.4

9.1

 Return
 on
 assets

$$= \frac{\text{Profit after tax}}{\text{Total assets}}$$

4.9

4.7

 Return
 on net
 worth

$$= \frac{\text{Profit after tax}}{\text{Stockholders' equity}}$$

15.3

19.5

Productivity
Ratios

 Net
 multiplier

$$= \frac{\text{Net revenues}}{\text{Direct labor expenses}}$$

2.77

2.82

 Net revenue
 per
 total staff

$$= \frac{\text{Net revenue}}{\text{Number of employees}}$$

\$69,659

\$71,611

 Salaries
 per
 total staff

$$= \frac{\text{Total salaries}}{\text{Number of employees}}$$

\$40,647

\$41,376

 Chargeable
 ratio

$$= \frac{\text{Direct labor expenses}}{\text{Total labor expenses}}$$

62.3

62.6

 Overhead rate
 (before profit
 distribution)

$$= \frac{\text{Payroll burden and G\&A expenses}}{\text{Direct labor expenses}}$$

152.2

154.1

Median*

Mean*

Activity Ratios			Median	Mean
	Average collection period	= $\frac{\text{Average accounts receivable}}{\text{Average daily gross revenues}}$	69 days	72 days
	Unbilled fees in work in progress	= $\frac{\text{Average work in progress}}{\text{Average daily gross revenues}}$	29 days	30 days
	Net fee backlog as a percentage of net revenues	= $\frac{\text{Contracted backlog}}{\text{Net revenues}}$	63.0%	73.8%
	Net fee backlog as days revenue	= $\frac{\text{Net fee backlog}}{\text{Daily revenue}}$	229 days	268 days

Liquidity Ratios				
	Current ratio	= $\frac{\text{Current assets}}{\text{Current liabilities (with deferred taxes)}}$	1.66	2.16
		= $\frac{\text{Current assets}}{\text{Current liabilities (without deferred taxes)}}$	2.21	2.66
	Bank debt to equity	= $\frac{\text{Total bank debt}}{\text{Stockholders' equity}}$	38.6	53.0
	Total liabilities to net worth	= $\frac{\text{Total liabilities}}{\text{Stockholders' equity}}$	1201	33.5

*Source: Industry statistics obtained from the *Financial Statistics Survey for Professional Services Firms*, published annually by PSMJ Resources, 10 Midland Avenue, Newton, Massachusetts 02158.

The net revenue per total staff ratio shows the rate at which a firm is able to generate net revenue per full-time equivalent staff member. (Sometimes, this ratio is also calculated for net revenue per technical staff member.) Use of full-time equivalents is more representative because variations in overtime and part-time efforts are reduced to a common denominator. Full-time equivalents are calculated by dividing the total number of hours (direct plus indirect) in a year by 2,080 hours (40 hours per week x 52 weeks). The ratio then becomes meaningful as a basis of comparison among firms and for the same firm over time.

The salaries per total staff ratio indicates the average salary for the firm. It is calculated by dividing total salaries by the total number of full-time equivalent staff.

The overhead rate and chargeable ratio represent two types of utilization ratios. The overhead rate is a measure of how efficiently a firm is operating. It is determined by dividing the payroll burden and general and administrative expenses by the cost of direct labor. A high overhead rate indicates inefficiency and can often be traced to lack of billable time on the part of principals.

The chargeable ratio is one of the most useful ratios for an architecture firm. This ratio indicates the proportion of total staff time devoted to projects. Expressed as a percentage, the calculation for this ratio divides the direct labor hours by the total hours available. The higher the percentage, the better chance the firm has to be profitable,

assuming the chargeable hours can be billed.

A chargeable ratio can also be calculated using direct labor expense divided by the total payroll where payroll equals direct labor plus indirect labor. This ratio (based on dollars) will be lower than the chargeable ratio figure (based on hours) because higher paid people are generally less billable.

ACTIVITY RATIOS

Activity ratios show how effectively a firm is using its resources. The activity ratios discussed here measure the average collection period, unbilled fees against work in progress, the net fee backlog against net revenue, and net fee backlog as day's revenue.

One of the most important activity ratios is the average collection period ratio, which indicates the number of days required to collect accounts receivable. This ratio is derived by dividing the dollar amount of the average accounts receivable by the average amount of gross revenue received per day. The average collection period should be maintained at a reasonably low level to minimize bank financing. The industry average is around 69 days; in other words, it takes 69 days from the time invoices are sent until a check arrives. Careful management can reduce the average collection time by several days or even weeks.

A high overhead rate indicates inefficiency and can often be traced to lack of billable time on the part of principals.

A general indication of the costs or savings involved in an average day's collection can be found by multiplying one average day's revenue by the average cost of capital, that is, the average rate paid for bank loans or the desired rate of return on owners' equity. Thus, if an average day's revenue is \$1,000, bank loans cost 10 percent, and 10 percent is also the minimum return required by the owners, each day's average revenue of \$1,000 requires an average of \$100 in financing cost for a year. If the firm can reduce its average collection period by 20 days through more aggressive follow-up on past-due accounts, its financing costs will be reduced by about \$2,000 and its financing requirements by \$20,000 over a year. The savings are even more dramatic during periods of high interest rates.

The ratio of average unbilled work in progress is figured by dividing the dollar amount of average work in progress by the average dollar amount of gross revenue per day. The industry average is 29 days. With monthly billing on all projects and a uniform output per day, unbilled fees for work in progress should average closer to 15 days.

Backlog ratios examine work under contract that is not yet complete and are a key indicator of where the firm will be in three or four months. Examples of backlog ratios include net fee backlog per net revenue and net fee backlog per days of revenue. The first is calculated by dividing the amount of contracted backlog work by the net revenue. The second is calculated

by dividing the net fee backlog by the daily revenue.

The direction of backlog is more important than actual backlog figures themselves. If the backlog ratio is increasing, it means the firm may have to start looking for staff because it takes time to hire people. If the ratio is decreasing, it means the firm is running short of work, and principals need to step up their marketing efforts.

Backlog is sometimes hard to define. For example, it is difficult to calculate backlog on indefinite quantity contracts when a government agency gives out work under a master contract on a work order basis. It is also difficult to estimate backlog on certain hourly contracts. In all cases, however, the most important consideration is to estimate backlog conservatively.

LIQUIDITY RATIOS

Liquidity ratios are intended to test the firm's ability to meet short-term obligations. Liquidity is related directly to working capital, and short-term liquidity is best studied through cash flow forecasts, as described in chapter 11.

The *current ratio* is often portrayed as a measure of liquidity. It is defined as current assets divided by current liabilities. Most bankers like to see a current ratio of at least 2, meaning the firm has \$2 of current assets to cover \$1 of current liabilities. The current ratio says nothing of future activities that will convert current assets to cash or match the timing of current liability obligations

Backlog ratios...are a key indicator of where the firm will be in three or four months.

with the cash available. Matching cash available with liabilities coming due is best accomplished through cash flow forecasting, which analyzes cash receipts and cash disbursements. Long-term financial strength is the ability of a firm to meet its continuing debt obligations, which are not as sensitive to the immediate availability of cash.

The *bank debt to equity* ratio is a useful ratio that relates bank debt to total stockholders' equity. Industry averages show a fairly conservative ratio of 38.6 percent, which means that bank debt represents 38.6 percent of the total equity invested by the owners. Any higher ratio could become a problem in a declining market for a firm that has to meet high debt service charges.

Bankers often use a *total liabilities to net worth* ratio to determine the credit-worthiness of a firm. A high ratio indicates that the banker is not likely to extend further credit. The industry average is 120 percent, which seems high for architecture firms subject to the fluctuations of the construction cycle.

Lenders are interested in these ratios to determine the proportion of equity supplied by owners and the amount of risk involved if the firm increases its long-term debt. Shareholders are interested in the amount of their equity invested in a firm in comparison to the firm's prospects for the future. Growth may depend on additional stockholder investment if the bank is not willing to lend all the funds required.

BREAK-EVEN ANALYSIS

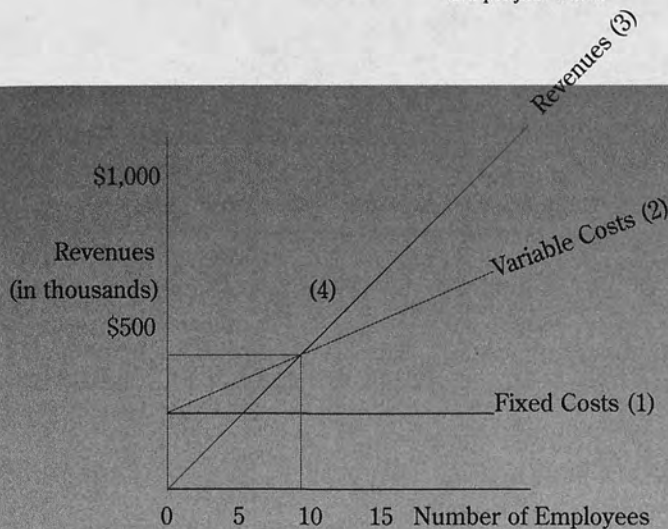
In addition to ratio analysis, break-even analysis represents another useful financial tool for firms. This analysis examines revenues and costs to determine the point at which there is neither profit nor loss.

It can be useful for making management decisions such as how large a newly established branch office must be to become profitable.

Break-even analysis begins by grouping costs in the categories of fixed and variable. Fixed costs are those not expected to vary for the foreseeable future, such as rent and depreciation. Variable costs change depending on volume of work and degree of activity. Examples of variable costs include direct labor, printing, and telephone expense. In reality, variable costs do not go up in a straight line but in steps. That is, once a certain plateau is reached, more activity can be added before the variable costs go up again significantly. The juncture where revenue crosses the total of fixed and variable costs is the break-even point. Exhibit 4-2 illustrates an application of break-even analysis.

Bankers often use a ratio of total liabilities to net worth to determine credit-worthiness of a firm.

(3) Opening an office requires certain fixed costs plus variable costs incurred to accomplish the project work.



(2) Variable costs vary with volume, i.e., direct labor, telephone expense, office supplies.

(1) Fixed costs do not vary with volume of operations up to a point, i.e., rent, depreciation, management staff.

(4) The cost factors used in this example indicate that the break-even point is reached when the office reaches the size of about eight people and generates a volume of about \$450,000 in project revenue. Below that point it operates at a loss and above that a profit is achieved. The profit is not as wide as that shown because fixed costs tend to increase in a staircase pattern as volume increases.

Exhibit 4-2
Sample Break-Even
Analysis

APPLYING FINANCIAL ANALYSIS

Architects can determine how their firms are performing by first understanding financial analysis concepts, then developing key ratios, and by monitoring key indicators on a monthly basis. When needed, they can take corrective measures to get ratios back in line with targets.

Key operating ratios for tracking the financial health of an architecture firm include profit as a percentage of net revenues, net multiplier, overhead rate, and chargeable ratio. In addition, backlog is a key consideration of the firm's future performance, and monitoring this indicator is also vital.



Lines between financial management issues and certain personnel administration matters often are blurred. Therefore, it is important for financial managers to understand personnel matters that are relevant to finance.

Examples include the classification of employees, staff scheduling, reporting and monitoring of time, and staff compensation.

In certain circumstances, personnel matters have an effect on financial management, and the lines between personnel administration and finance are blurred. These items are discussed here, not with the thought that they are necessarily part of financial management, but rather that they should not be overlooked because personnel and finance employees consider them part of the other's responsibility.

EMPLOYEE STATUS

Employees are classified as either exempt or nonexempt. Exempt employees are excluded from the wage and hour laws, whereas nonexempt employees are not. The classification status for employees is linked to the level of their responsibilities within a firm. People in a management category are generally exempt from the wage and hour laws and do not have to be paid time-and-a-half for overtime. Nonexempt employees must be paid time-and-a-half for more than 40 hours in a week. For example, the law does not permit a secretary to work 50 hours in one week and then be given 10 hours off the following week. The time and payment are calculated on a weekly basis.

Nonexempt employees are defined by the type of work they do and their degree of supervision. For example, secretaries, technicians, and bookkeepers are nonexempt. Whether architects are exempt or nonexempt is unclear. A junior architect, even with a professional designation, is

likely to be considered nonexempt if he or she works under close supervision. A problem could arise, for example if a disgruntled employee triggered a Department of Labor audit.

INDEPENDENT CONTRACTORS

Another personnel issue facing architects is the status of independent contractors. The IRS definition of an independent contractor is tested by a series of questions about conditions under which an individual works. Unfortunately, the IRS definition of what constitutes an independent contractor and the method for determining this has caused more confusion than it has resolved.

Nevertheless, many architecture firms use independent contractors to keep personnel costs under control in cyclical periods. If in doubt about whether an individual is an independent contractor, it is best to classify him or her as an employee and pay the taxes. It will be much less expensive than facing an IRS challenge.

Further problems could arise if a person were hurt on the job and filed a worker's compensation claim. Workers' compensation insurance is designed to shield employers from claims by employees for injuries suffered on the job. However, only bona fide employees are covered by this insurance. An individual could file a claim, and it could later be determined that he or she should have been covered as an employee but was classified as an independent contractor to save payroll taxes. Under these circumstances, the

insurance company could deny coverage and the employer would be responsible. Back payroll taxes as well as penalties could also be assessed in this situation.

In cases involving exempt/nonexempt employees and independent contractors, it is best to follow the law to the letter. This is true because, in case of a challenge, the burden of proof is on the employer and the sympathy of the court is usually with the employee.

SCHEDULING OF STAFF

Matching workload generated by projects with staff available to perform the work is a continuing challenge for principals in an architecture firm. Forecasting total staff needs and making project assignments are critical parts of this process. Perfect alignment of staff available with project demand is seldom realized, as there is usually either too much or too little work for the staff available. Staff leveling is the process of smoothing project demands to align more closely with the supply of personnel time and talent.

Perfect alignment of staff available with project demand is seldom realized, as there is usually either too much or too little work for the staff available.

The matching process has three dimensions—people, projects, and time. Leveling requires forecasting project personnel requirements, forecasting personnel available to satisfy these requirements, and matching the two forecasts for periods in the future. The task is not always easy given the variability of project services and schedules on the one hand and the variability of efficiency, talents, and staff availability on the other.

Assigning staff to projects is at least a weekly, if not daily, task of project managers. The financial impact should be clear: If project work is not productive, the firm will not reach its profit goals. The discussion here focuses only on the larger problems of matching total staff needs with total staff available. The process described can be implemented at the firm level or at more detailed levels, such as studios, departments, or employee classifications. The size and nature of the projects will determine the level of detail employed. Suggested steps are outlined here:

- Forecast the hours required to complete each project (by whatever detail of phase or service the project warrants).
- Distribute those hours across the planning period. A week is the usual time frame considered and three to six months is as long a planning period as is useful in most firms. The project managers decide the number of hours needed for each

project in each of several upcoming weeks. This forecast gives a demand profile.

- Forecast the number of direct labor hours available based on the available staff and the expected chargeable ratio or percent of total time expected to be chargeable to projects.
- Distribute these hours over the weeks of the planning period used in the demand profile. Consider additions to and subtractions from staff occasioned by newly hired and terminated employees. If the total number of personnel is small, vacations, illnesses, leaves of absence, and other reductions in available staff time can cause significant fluctuations in available direct time. This forecast provides a profile of available time.
- Subtract one forecast from the other to yield the number of hours per week that is either excess demand (too much work) or excess capacity (too little).

Assigning staff to projects is at least a weekly, if not daily, task of project managers. The financial impact should be clear: If project work is not productive, the firm will not reach its profit goals.



This process results in specific assignments of individuals to projects week by week.

The leveling process minimizes the differences between staff needed and staff available. Some actions to consider are

- Rescheduling work from overloaded weeks to underutilized weeks.
- Expediting or delaying the beginning or completion of a project phase.
- Having staff work overtime for brief periods.
- Controlling paid time off such as vacations and attendance at professional meetings.
- Subcontracting some of the work to other firms in the short term. The decision to subcontract is an important one and must be considered in light of maintaining quality, budget, and time commitments.
- Adding or reducing staff.

Not all of these actions are always possible. Some techniques will be more useful at one time than another, and some measures take longer than others to implement. For example, overtime can be authorized immediately, but hiring new personnel can be a lengthy process. Over the long term, staff forecasts can be affected by increased productivity through improved operating procedures and increased use of technology.

Exhibit 5-1 shows a sample staff planning schedule. Several software programs on the

Exhibit 5-1
Sample Staff Planning
Schedule

September (Week Beginning)	6 (Actual)			13 (Forecast)			20 (Forecast)			27 (Forecast)		
	Required	Available	Variance	Required	Available	Variance	Required	Available	Variance	Required	Available	Variance
D. Sanborn												
Project A	8	8		4	0		3	6				
Project B	8	4	-4	8	8	7	7					
Project C	8	0	-8	16	24		5	0				
L. Alexander												
Project Y	10	14	4	10	14		10	12		10		
Project Z	6	10	4	8	8		13	13		12		

Note:

This report was prepared after the week of September 6th was completed and the variances posted. Managers now need to adjust for the work not completed through September 6th as well as for what will be needed in the future.



market would be helpful for establishing and operating a scheduling system.

REPORTING TIME

Recording, collecting, reporting, and analyzing time expended in a firm is of primary concern to administrative and financial personnel. Both direct and indirect time can be productive or unproductive depending on whether the time spent moves the firm toward its goals. Time charged for illness, vacations, and holidays is a normal part of personnel administration. Time allotted to such indirect functions as marketing, personnel, finance, long-range planning, employee training, and continuing education is essential to a firm's survival.

MONITORING TIME

To develop information against which time budgets can be compared, a process for collecting and reporting time must be designed and implemented. Time reporting systems are discussed in chapter 13.

Essential elements of the time record needed to develop time budgets are employee identification, project identification, and number of hours spent. Time reporting should parallel the structure of the project budget. Indicating the phase or services performed may be useful, depending on the terms of the contract and the size of the project. In certain contracts, the services performed are identified and budgeted. Billing in such cases will need to identify these services. Management will need to monitor the accuracy of the estimates and, when necessary, request additional revenue for additional services. Feedback from time reporting can be useful for budgeting and estimating future projects.

Time reports should permit analysis of an individual's distribution of time in a way that allows managers to redirect staff efforts as needed. Time reports can provide information on studio or department efforts, providing a basis of comparison with other studios or departments in the firm. Also, target time utilization ratios can be developed from the information in time reports.

It is critical that project managers receive these reports regularly and in a timely manner. With the present state of technology and the ability to network computers, most firms can readily accomplish this.

Feedback from time reporting can be useful for budgeting and estimating future projects.

COMPENSATING STAFF

There are cash and noncash forms of compensation. Cash forms of compensation include

- Salary
- Performance bonuses
- Employer matching contributions to 401k plans and contributions to profit-sharing plans

When deciding how much compensation is appropriate, the firm's principals must consider such factors as the market price of an individual's talent, the availability of comparable talent, the individual's knowledge of firm operations, and the value of the individual to the firm. Pay scales should be set to match employee performance and should be at market rates for similar positions. Bonuses are given in addition to salary in a year in which the firm is successful, rewarding the people who contributed to that success.

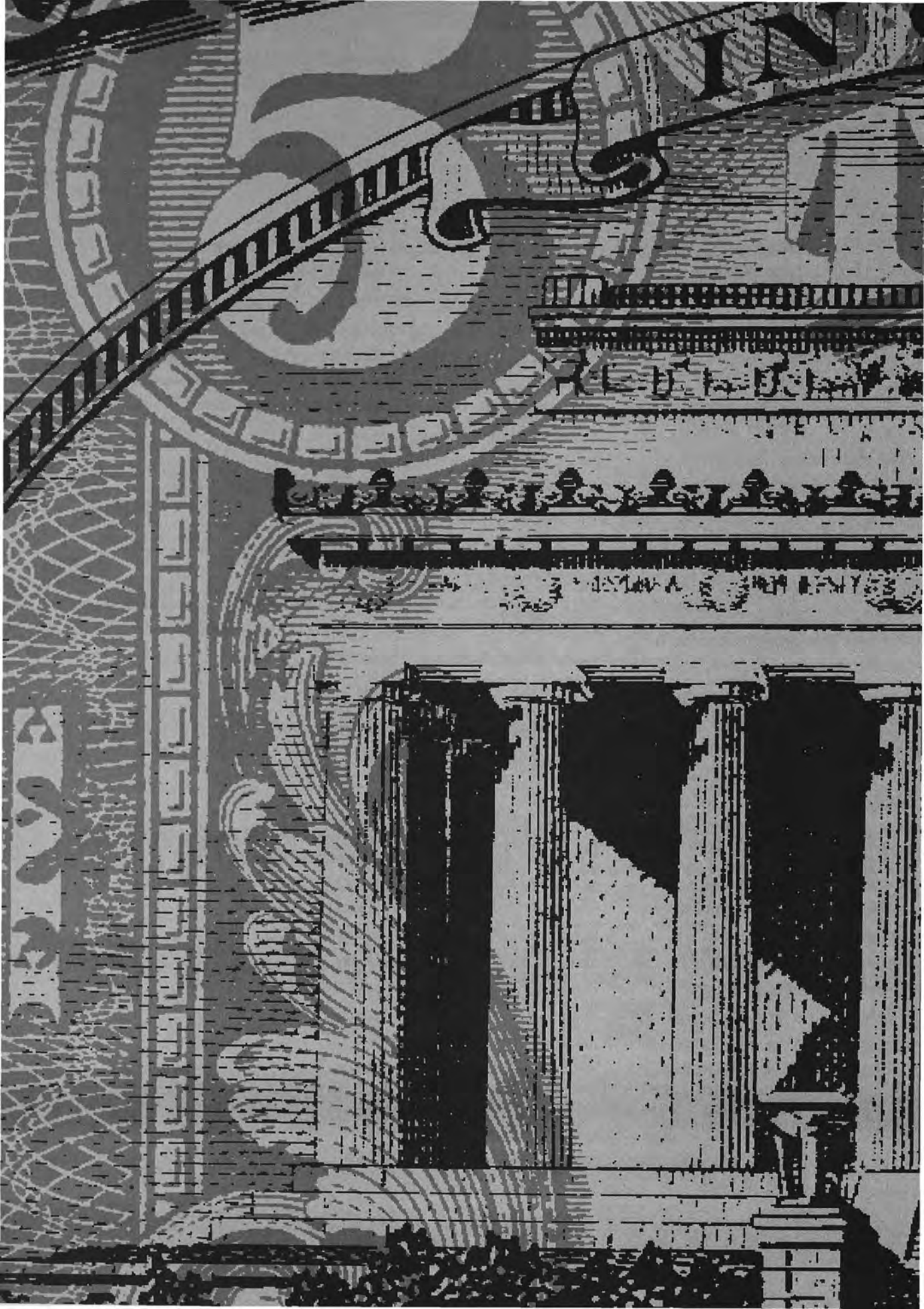
Many firms administer compensation by establishing ranges of pay for various categories of employees. Salary ranges can overlap these classifications. Individual employees within a class may be paid differently depending on their abilities and performance. Management needs to identify differences, reward accordingly, and be prepared to explain differences in pay.

Noncash forms of compensation are usually classified as employee benefits. These benefits are a cost to the firm, but they are not received by the employee as cash (except for paid time off). Many firms provide a yearly statement summarizing total compensation (wages and benefits) so their employees become more aware of the value they receive in the form of cash and noncash compensation. Benefits may include:

- Insurance (health, life, accidental death and dismemberment, disability, workers' compensation).
- Educational programs and financial assistance with continuing education.
- Dues paid for professional registration and expenses for attending professional association meetings.

In most small and medium-sized architecture firms, the business manager or principal in charge of administration supervises the personnel administration aspects of finance. Technical issues and questions involving these matters may require consultation with the firm's attorney or accountant. The business manager or principal needs to know when he or she needs the services of these specialists.

Bonuses are given in addition to salary in a year in which the firm is successful, rewarding the people who contributed to that success.



For financial planning, architects consider how probable future events affect a firm. They then develop short-term and long-term financial plans with detailed actions for achieving desired financial objectives and goals. Equipped with a well-thought-out financial plan, a firm can better manage and direct its efforts toward actions that have the greatest likelihood of improving its future position.

While accounting provides records of the past, planning looks to the future. Financial planning encourages managers to develop financial goals, to assess the impact of those goals on the firm, and to develop action plans to produce desired results. Planning is affected by marketing decisions, personnel issues, and the need for new and expanded technology. Although financial plans deal with unknowns, they can guide how a firm's resources are used to achieve its goals. Business planning determines which factors most affect profit and considers them to achieve profit goals.

The annual business plan is a statement reflecting the revenues that should be generated and the expenses that will be incurred to achieve desired profits. In effect, the business plan produces a budgeted income statement for a designated planning period. A budgeted balance sheet reflects the projected amounts for assets, liabilities, and owners' equity at the end of the planning period. Budgeted financial statements model the planned performance of the firm.

Annual business planning leads to effective management. It should not be regarded as a task to be completed at the beginning of the period and the resulting plan filed away. Rather, business planning is an ongoing process. As a management tool, a business plan formalizes a firm's financial goals and establishes its financial performance criteria, making it possible to measure performance by comparing actual

results with the desired results in the plan. Business plans are also useful for highlighting unplanned events and making corrections. They must be reviewed and refined continually so a firm's financial planners can assess where the firm is headed and what progress it is making toward the defined goals.

Long-range planning (that is, 12 months or longer) is difficult because management often cannot see beyond three or four months. However, because it takes time to hire people, open and close offices, and enter new markets, it is important to undertake it.

Managers must be responsible for making planned events happen. The financial manager must monitor a firm's progress toward its goals and communicate significant variances to the principals and others involved in the planning process. Variances from the plan are identified and analyzed. When possible, corrective actions are taken to bring operations into line with the plan or the plan is revised to more nearly reflect reality.

Analysis of performance against the plan can identify trouble. When are direct expenses excessive for revenues generated? When should indirect expenses be altered? When does new revenue need to be acquired to maintain a reasonable workload and to achieve expected levels of operations? When should profit goals be reduced? Analysis can also recognize success in meeting a plan's goals.

ESTABLISHING FINANCIAL GOALS

Profit provides a return on investment and rewards the owner for risks involved. Profit sustains the firm in periods of recession and provides a vehicle for growth.

It is important for an architecture firm to establish an annual profit goal. Each firm has its own reasons for doing this. For example, the principals may want to increase personal compensation, add more to their profit-sharing plan, or retain earnings for future growth or downturns. Although these are legitimate reasons for setting profit goals, the targets must be realistic and obtainable. Many factors such as the level and quality of services rendered, productivity of employees, and investment in technology with long-term payoffs, help to determine whether a particular profit goal can be achieved. Unrealistic profit goals can be harmful if they force a firm into unwise business practices that could tarnish its reputation, impair performance of personnel, or threaten financial stability.

The profit goal is the level at which reasonable goals of the firm can be met to satisfy short-term uses of profits without sacrificing the long-term health of the firm. For example, high profits often can be achieved in the short term, but such profit levels may only be attainable if the firm fails to keep up with state-of-the-art technology, which will require greater future expenditures. Likewise, paying personnel below market levels can result in loss of staff, and cutting back marketing efforts may lead to a future decline in revenues. Determining the

Profit sustains the firm in periods of recession and provides a vehicle for growth.

proper balance between short- and long-term profitability is a difficult management task that is unique to each firm.

ANNUAL BUSINESS PLAN

The business plan is a form of a budgeted income statement—a statement showing what the firm wants the performance to look like for the planning period. Assuming the firm's goals have been established and a marketing plan (discussed below) and financial goals have been defined, the next steps are to develop a budgeted income statement. First, the firm sets the target revenues for the period based on a marketing plan, which has its roots in the stated goals of the firm. Second, the firm estimates the direct labor and reimbursable expenses required to generate those revenues. Third, indirect expenses are estimated to support the firm at the budgeted level. Fourth, the budgeted income statement is assembled. The bottom line is planned profit.

MARKETING PLAN

The *marketing plan* identifies the volume of revenue for a firm to acquire during a planning period. It also identifies broad strategies and specific actions for marketing that will produce the target revenues. For budgeting purposes, this information is summarized into the amount of revenue the firm can expect to acquire from various sources. (See exhibit 6-1 for a sample marketing plan.)

Sources of revenue can be forecast based on a market analysis. For example, potential market segments might be 50 percent residential, 40 percent commercial, and 10 percent religious. This split is based on past patterns of the firm's work as modified to estimate new projects expected in the planning period. Other factors can also be used in the analysis of potential markets. For example, they could be studied by project type, client type, geographic location, or the form of professional services.

Projects can be classified as residential, religious, health-related, industrial, educational, and so forth. Clients can be categorized as government (federal, state, and municipal), individual, corporate, and institutional. Geographic location, which could be a detailed level of the project and client segments, is useful for firms with multiple offices or a specialized practice covering a broad geographic base. The type of service to be rendered—planning, feasibility studies, full architectural services,

“There are three principles in architecture: get the work, get the work and get the work.”
Louis Hellman

energy management, or interior design, for instance—would offer yet another basis for segmenting the sources of revenue.

A firm may work with mostly private or mostly government clients or with a mixture of client types. Likewise, the range of project types may be narrow or broad. Revenue projections can be as simple or as complex as needed so that the firm can plan and monitor its marketing efforts. Estimating revenue by various combinations of market segments focuses the attention of the firm and makes it possible to evaluate the marketing efforts needed to acquire projected revenues.

BACKLOG

In the financial sense, backlog represents the reserve supply or accumulation of expected revenue for projects under contract but for which work is yet to be performed. Backlog, however, does not include expected revenue from projects not yet under contract. When scheduled over the coming months, the backlog tends to fall off rapidly. Only firms that have large projects extending over long periods or smaller firms on continuing retainers can project a significant backlog beyond six to twelve months. The nature of architecture practice is to perform new work as soon as possible after it is acquired. Because most projects can be completed within six to twelve months, most of the design backlog will be consumed in that period. The firm must constantly add to backlog as the staff works it down.

There are usually potential projects that the principals feel the firm has a reasonable chance of acquiring. Although these prospects are not ordinarily included in backlog because there are no contracts, they can be tracked and their expected revenues estimated. The potential value of these prospects suggests the likelihood the firm has of achieving its marketing goals.

Some firms assign a probability factor to prospective projects and then summarize them to create a potential contract backlog. For example, assume a firm is one of three architecture firms making a proposal on Project A having a fee estimated at \$100,000. All three firms have an equal chance of getting this project. Also assume the firm has been told confidentially by a client that it is virtually certain of getting Project B with fees estimated at \$30,000. The firm has also submitted its qualifications for Project C, valued at \$50,000, but many local firms are competing for this government project and a short list has not yet been announced. Potential backlog could be estimated as follows:

Name	Amount	Percent Probability	Potential Backlog
A	\$100,000	33%	\$ 33,000
B	30,000	90%	27,000
C	50,000	10%	5,000
Total			\$ 65,000

Exhibit 6-1
Sample Marketing Plan
(in thousands)

	Total	January	February	March	April	May	June	July	August	September	October	November	December
Current Projects													
James	40	40	40	20									
Johnson	40	40	40										
Jones	20	20	20	20	20	20							
et al.													
Total backlog	\$ 360												
Outstanding Proposals													
Smith					20	20	40	40					
Thomas					20	20	40	40					
Williams					20	20	20	20	20				
et al.						20							
Total outstanding proposals	\$ 320												
Unidentified future work													
Office buildings							20	20	40	40	40	40	
Shopping centers							20	20	20	20	20	20	
Warehouses								20	20	20	20	20	
et al.								20	20	20	20	20	
Total unidentified future work	\$ 520												
Grand total	\$1200	\$100	\$100	\$100	\$100	\$100	\$100	\$140	\$100	\$100	\$100	\$100	\$100

	Number on staff	Yearly salary	Available hours	Hourly rate	% billable time	Billable hours	Direct labor (rounded)	Indirect labor (rounded)
Principals	2	\$75,000	4,160	\$36.06	60%	2,496	\$90,000	\$60,000
Senior Architect	2	\$5,5000	4,160	\$26.44	75%	3,120	\$83,000	\$27,000
Architect	2	\$45,000	4,160	\$21.63	80%	3,328	\$72,000	\$18,000
Senior Technician	4	\$35,000	8,320	\$16.83	75%	6,240	\$105,000	\$35,000
Technician	1	\$30,000	2,080	\$14.42	85%	1,768	\$25,000	\$5,000
Administration	1	\$30,000	2,080	\$9.62	0	0	\$0	\$30,000
Total		\$550,000					\$375,000	\$175,000

Exhibit 6-2
Sample Direct Labor
Estimate

DIRECT LABOR ESTIMATE

When project revenues to be earned in the planning period have been targeted, the cost of the efforts to produce those revenues must be estimated. This is shown in the direct labor estimate (see exhibit 6-2).

A direct labor estimate determines the projected capacity of a firm during a planning period. Capacity means the potential to produce project revenues, given a forecast of staff, salaries, and chargeable ratio. An estimate of the anticipated number and mix of staff leads to an estimate of the revenue volume that could be generated. The difference between the target revenues and anticipated capacity of a firm is a measure of whether it is staffed adequately. If the target revenues are greater than the anticipated capacity, additional personnel or higher productivity will be required. If the target revenues are less than the anticipated capacity, either the target can be increased if the market potential exists or the firm will need to reduce its staff. There are four steps in estimating the capacity of a firm to generate revenue:

- Establish compensation for all staff (employees and principals).
- Estimate targets for time utilization for all staff.
- Distribute time and salaries to direct and indirect activities.
- Estimate probable revenues to be generated from direct labor expense.

To implement these steps, begin by establishing and forecasting salaries for all staff (employees and principals). Then distribute time and salaries by means of the chargeable ratio. In distributing time, the standard number of hours for the planning year must be decided, significant indirect activities must be identified, and chargeable ratios must be established for both employees and principals.

For hours available in the standard or base year, most firms use 2,080 hours (52 weeks times 40 hours per week). Whatever number is chosen should be used consistently in all budgets. Typically, higher percentages of the time of design and production staff will be directed toward project work, and lower percentages of the time of personnel involved in marketing and general office activities will be devoted to projects.

In establishing the distribution of salary, list each employee together with estimated annual salary and percentage distribution of time to direct and indirect activities. Also list by function anticipated positions that will be added to the staff during the year. For these, show the estimated salary prorated for the portion of the planning period they will be employed. The chargeable ratio can then be applied to salaries to distribute the costs to direct and indirect labor.

The difference between the targeted revenues and anticipated capacity of a firm is a measure of whether it is staffed adequately.

As a check on this method of estimating the capacity of a firm, estimate probable revenue. This can be accomplished by applying a multiplier to the direct labor expense. This multiplier indicates the dollars of revenue generated per dollar of direct labor expense and should be the same multiplier used in the profit plan (discussed later in this chapter). The expected revenue figure derived in this way indicates the approximate capacity of the firm under its anticipated staffing plan for the planning period. This estimate should then be compared with the revenue generated in the marketing plan.

Consultant fees may constitute a significant portion of project expense if a firm does not have these capabilities in-house. Firms specializing in one or more project types may need to consider subcontracting to specialists in such areas as programming, lighting, acoustics, and food service. Experience in past relationships and anticipated requirements for specific projects during the planning period will help firms estimate these expenses.

Other direct expenses for projects can be incurred for such items as out-of-town travel, long distance communication, copying and reproduction of documents, and shipping and handling. These expenditures must be charged as direct expenses if they will not be reimbursed by the client.

OVERHEAD EXPENSE BUDGET

Indirect expenses, also called overhead, are expenses that are necessary for the conduct of business but cannot be charged to a project. Indirect expenses are aggregated and each project is charged with a part of the total indirect expenses. The allocation is usually based on the portion of the total direct labor expense a project bears for the period. Indirect expenses consist of two broad categories that include indirect labor and nonlabor expenses.

Indirect labor expense covers all efforts that are a necessary part of the practice but do not directly generate revenue: marketing, business management, secretarial, accounting, general administration, paid time off (holiday, vacation, sick), and continuing education. Since these activities do not directly generate revenue, their cost must be borne by revenue generated by direct labor expense. All personnel time, including that of employees and principals, must be charged either to projects as direct time or to an overhead activity as indirect time.

Indirect labor expense is usually estimated as a percentage of total payroll. Total payroll equals direct and indirect labor expense. A firm may first estimate the total payroll necessary to produce the planned revenues and then estimate an appropriate chargeable ratio to determine direct labor. The balance is then assigned to indirect activities.

Other indirect expenses are for nonlabor items. They are based on the size and mix of

**Indirect expenses...
are necessary for the
conduct of business but
cannot be charged to a
project.**

staff, project types, services provided, market area covered, and plans for growth.

Indirect expenses may be estimated by general categories, using percentages of revenue, direct labor expense, or total payroll. Sometimes the indirect expense is committed for a specific period, such as expenses for leased space or automobiles. The major categories of indirect expenses are

- Payroll benefits (FICA, unemployment insurance, workers' compensation insurance)
- Other benefits (employee group life and health insurance, continuing education assistance)
- Office expenses (rent, utilities, postage)
- Legal and financial expenses (accounting, professional liability insurance)
- Automobile and travel expense (automobile gas and oil, insurance, and mileage)
- Depreciation and amortization (furniture and equipment, vehicles, leasehold improvements)
- Marketing/public relations/business development (brochures, conventions, business entertainment).

The proper number of indirect expense items will be different for each firm. The need for information should be established first, and then the number and detail within the indirect expense accounts can be tailored to those needs. This part of the overhead expense budget should be as detailed as appropriate to facilitate the budgeting process and later analysis of performance. Exhibit 6-3 illustrates an overhead expense budget.

In developing budgets for indirect expenses, principals should consider the following:

- Last year's actual amount should not be accepted automatically as a guideline for this year. Consider changes in project mix, personnel, technology, and the general economy to justify any increase or decrease in expense.
- Focus attention on accounts the firm can best control. Some indirect expenses such as FICA and workers' compensation can be controlled only through the number of employees hired. Expenses more easily controlled by the firm include those for business development, training, and management perquisites.
- Short-term economies can be misleading. For example, reducing marketing expense may jeopardize the ability to acquire new work in the future. Similarly, reducing certain kinds of insurance may be unwise.

Reducing marketing expense may jeopardize the ability to acquire new work in the future.

	Prior Year	Net Change	Current Year
Indirect labor	\$165,000	\$10,000	\$175,000
Vacation/holiday/sick leave	40,000	4,000	44,000
Payroll taxes	100,000	0	100,000
Payroll insurance and benefits	90,000	3,000	93,000
Rent	16,000	5,000	21,000
Telephone	20,000	3,000	23,000
Office maintenance and supplies	10,000	1,000	11,000
Professional liability insurance	20,000	2,000	22,000
Other insurance	8,000	2,000	10,000
Miscellaneous	51,000	1,000	51,000
Total	\$520,000	\$31,000	\$550,000

Exhibit 6-3
Sample Overhead
Expense Budget

	Firm Operations	Consultants and Reimbursables
Direct labor	\$ 375,000	
Reimbursable expenses		\$ 9,500
Other consultants—cost		\$ 171,400
Markup on consultants and reimbursable expenses		\$ 8,600
Overhead	\$ 550,000	
Profit (20% on revenue)	\$ 275,000*	

Exhibit 6-4
Sample Profit Plan

Revenue	\$1,200,000	= 3.2 multiplier
Direct Labor	\$ 375,000	

* Profit calculated as follows:

Direct labor	\$ 375,000
Overhead	\$ 550,000
Calculation of revenue	\$ 925,000 ÷ 0.80 = \$1,200,000 (rounded)
Less: total expenses	925,000
Profit to be earned	\$275,000

■ Increased productivity can generate more revenue per dollar of direct labor expense. Spending for technology rather than personnel typically shifts some costs from variable labor expense to fixed nonlabor expense. However, it is important to keep office technology current to avoid the necessity of spending large amounts in a short time to catch up.

PROFIT PLAN

Once figures for labor and overhead expenses have been generated, the firm should develop a profit plan. A profit plan establishes the targeted profit a firm hopes to achieve and it can be used as the basis for pricing projects, which will be discussed in the next chapter.

The profit plan, as shown in exhibit 6-4, recognizes that the principals are entitled to a return on their investment and that staff members may share in the operating profit generated by the firm. The return on investment is usually combined with the principals' bonuses into one figure called the principals' bonus. This is because return on investment is actually a dividend that would be double-taxed, at both the firm and the individual level.

Although it is a goal, the profit plan recognizes that all projects cannot be accomplished at the 3.2 multiplier shown in Exhibit 6-4. There can be other business reasons and considerations why the principals may decide to take a project for a lower multiplier.

ASSEMBLING A BUDGETED INCOME STATEMENT

The goal of estimating revenues and expenses is to project how a firm's income statement might look at the end of a planning period. To study the results of these decisions, the figures are assembled as an income statement (see exhibit 6-5). When the plan is assembled, it can be analyzed by asking questions, examining its profitability, calculating financial ratios, comparing it to the firm's capacity to generate revenue, and having managers assess its probability of success. A few questions to be asked are listed below. Answers to these and similar questions can help assess the reality of the plan.

- Does the firm have the ability to acquire projects in size and number that will produce the revenue needed to support the plan?
- Can the revenue be produced with the direct labor budgeted?
- Does the level of revenue provide enough growth or too much growth for the health of the firm?
- Can outside consulting services be obtained at the expected cost in the time period estimated?
- Is the chargeable ratio and distribution of total labor expense to direct and indirect categories reasonable?

A profit plan establishes the targeted profit a firm hopes to achieve.

- Can experienced staff in the needed disciplines be found and hired at the planned level of compensation?
- Is it feasible to assume that personnel can control the quality and timeliness of service within these budgets?
- Is the mix of personnel appropriate to marketing, producing, and managing the work?
- Have adequate indirect expenses been budgeted?

The ratios described in chapter four for analyzing financial statements can be applied to the budgeted income statement. These indicators can be used for evaluating both budgeted and actual performance to signal strengths or weaknesses of the firm's financial condition. The calculated ratios for the profit plan can also serve as criteria for evaluating later performance.

PLANNING FOR STAFF, FACILITIES, AND EQUIPMENT

Since hiring the right person can take several months, a human resources plan is an important planning tool. Management needs to estimate the number of people required, define their areas of expertise, and decide when they will join the firm based on how long it takes to hire them. See the sample plan in exhibit 6-6.

Development of a facilities plan is particularly helpful for multioffice firms.

It lists branch office locations, the square footage of each, and the date each lease expires. With this information, management is able to plan a course of action when a lease expires. Exhibit 6-7 shows a facilities plan. With the increasing need for equipment in today's architecture firms, budgeting for capital expenditures is becoming more important. A capital expenditures budget is, in effect, a "wish list" for the kinds of equipment needed by the firm, when it will be needed, and how it will be financed. The list is prioritized based on the amount of money the firm can afford to spend in this area. Exhibit 6-8 is a sample capital expenditures budget.

Income Statement Fiscal Year Ending 12/31 (Plan Year)

Revenues	Budget
Professional fees	\$ 1,200,000
Consultants and reimbursable expenses	189,500
Total revenues	\$ 1,389,500
Expenses	\$375,000
Consultants and direct project expenses	180,900
Overhead	550,000
Total expenses	1,105,900
Profit before taxes*	\$ 283,600
* Consists of the following from the profit plan	
Profit (20% on revenue)	\$ 275,000
Markup on consultants and reimbursable expenses	8,600
	\$ 283,600

Exhibit 6-5**Sample Budgeted
Income Statement**

	New Hires			Departures			Comments
	Quantity and category		Date needed	Quantity and category		Date Expected	
Office A							
Architect	1 Junior		June 30				If Project A does not materialize, will not be needed
Architect	1 Intermediate		Sept to Dec				Needed to handle anticipated increased workload
Landscape Architect	1 Intermediate		July				Needed for expanded landscape department
Student Architect				1 Trainee		Fall	Summer intern. Returning to school, will not replace

Exhibit 6-6**Sample Human
Resources Plan****Staffing by office
and discipline**

Office	Number of employees	Expectations for growth or decline	Square feet of space occupied	Date of lease expiration	Future plans
Office A	10	Remain the same	2,000	July xxxx	Renew lease
Office B	16	Expected to grow to 25 to 30 people	4,000	Sept. xxxx	Seek expanded space in building or decide to move by (date)

Exhibit 6-7
Sample Facilities Plan

Year: XXXX	Total	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Replacement of furniture and equipment	\$2,000	\$1,000			\$1,000
Four (4) personal computers with software	\$20,000				\$20,000
New furniture	\$35,000			\$35,000	
Other equipment	\$18,000	\$3,000	\$6,000	\$4,000	\$5,000
Total	\$75,000	\$4,000	\$6,000	\$39,000	\$26,000

Exhibit 6-8
Sample Capital Expenditures Budget

ACHIEVING FINANCIAL GOALS

Financial plans must be realistic and to achieve the goals stated in those plans requires the concerted efforts of everyone in the firm. Managers must especially be aware of plans and their implications for operations. For instance, managers might agree that the proposed utilization of personnel is appropriate, that marketing efforts will not be curtailed, and that plans for new equipment will not be postponed. On the other hand, they might have to agree that hiring certain new personnel will be postponed until a certain level of backlog is achieved, that additional personnel benefits will be postponed, and that the new equipment will have to wait. Such conclusions are integral to the plan.

The budget is a plan for action.

As financial reports are produced, performance should be analyzed in light of the business plan. The financial manager must be able to explain differences between actual and budget data. However, not all answers to financial problems are numerical. Experience and knowledge of operations also helps planning for the future be more meaningful and more accurate. Planning considerations also relate to people, policies, procedures, external economic and social conditions, and other nonfinancial matters. The financial manager must be able to relate the financial results of the firm to factors beyond accounting reports.

If the business plan fails to meet the goals for profit, if the financial ratios are not acceptable, or if management cannot support the plan, the plan must be reworked by examining the assumptions and judgments involved in preparing it. In this process, any number of the factors in the plan may have to be changed—number of personnel, percent utilization, levels of nonlabor expenses, and even inclusion or exclusion of certain expenses. Only through successive planning iterations can a workable business plan for the firm be developed.



Effective project management is essential for the successful architecture firm. Even before a project starts, architects can affect profitability when they price and negotiate contracts for design services. The basic steps involved in this process are developing thought-out project plans and budgets, addressing factors that affect profitability, evaluating and selecting appropriate compensation methods, and developing well-defined agreements.

Financial success in terms of profit begins with negotiating adequate payment for the services to be rendered on a project. In this case "adequate" means sufficient to cover all costs, plus a reasonable profit, for the firm's efforts. The agreement with the client establishes the amount of compensation, timing, and method of payment. Firms should negotiate agreements carefully and amend them as needed during the project to reflect changes in the scope of services. Verbal agreements between the client and the firm need to be immediately documented so there are no questions at the time of billing.

PROJECT SUMMARY REPORTS

One of the most valuable resources for pricing projects is the summary report that project managers prepare at the end of a job (see exhibit 7-1). These reports may be in the form of a memo to the file describing the project and pointing out its strengths and weaknesses. The project manager reviews what was difficult about either the client or the job that created problems. If the job experiences cost overruns, the project summary gives the reasons for this.

It is useful if the project summary contains various comparisons such as labor costs as a percentage of construction costs, labor costs per square foot, and labor hours per drawing. These comparisons serve as a cross-check on a budget prepared by hours and dollars. Further comparisons of these

budgets with actual costs incurred in various phases of the project are also useful.

The project summary can be valuable when it is time to price similar projects. Reviewing financial results on past efforts helps a project manager decide whether certain additional costs should be included in some projects. For example, some types of projects may be more expensive for the firm to undertake because they require a greater than normal expenditure of time by senior people or closer monitoring by the project manager. Other types of projects may be more expensive than normal because of the type of client. Clients inexperienced in hiring architects may require more attention as the work progresses. The accumulation of summary reports for these types of projects will highlight the need to provide additional time and budget to accomplish them.

PLANNING FOR PROFIT

When pricing projects, a project manager must be certain to include enough project management time in the job. It is also important to have a budget sufficient to handle end-of-the-job costs, such as extra meetings and additional computer runs. Remembering to budget for sufficient project management, particularly near the end of a project, comes through experience.

When planning a budget, it is also necessary to review it in terms of the firm's profit policy. For example, can the job expect to achieve the desired level of profit or is it going to be done at a lower profit? Profit on

each project will vary based on several factors. Site studies or predesign services sometimes are undertaken at low profit in order to develop a more profitable project with the client in the future. However, this practice often locks a firm into a series of low profit jobs and the expected payoffs never materialize. The decision to deviate from the profit policy when accepting work should be made by the principals of the firm. They must keep in mind that the total profit of all projects must yield the profit goal for the firm.

Profits can vary not only by project but also by phase within a project. Therefore, a firm's profitability for any period must take into account the status of current projects in the office. Reports on a firm's financial condition are useful for identifying which projects are profitable. Management can then avoid projects on which it cannot make a reasonable profit. The timeliness and accuracy of this information are critical for management decisions.

The pricing of projects should include contingency planning. A five percent allowance for contingencies is not unreasonable. Those jobs that have no contingencies are the ones that are likely to overrun. Contingency costs should not be considered a part of profit.

Firms with a unique and valuable expertise or a specialty in an area can sometimes base their services on the value the architect brings to the client. For example, if an architect saves a client considerable maintenance costs on a project through familiarity with a

The pricing of projects should include contingency planning. A five percent allowance for contingencies is not unreasonable. Contingency costs should not be considered a part of profit.

To: Managing principal

From: Project architect

Subject: Design of nursing home

Project Description: A contract between our firm and ABC Company, a developer, was signed to do the preliminary study, concept design, and master space plans to replace the 160-bed nursing home with a new facility. Our firm was designated the prime professional for the project, and we used Blank M/E/P Engineering and Smith Associates (facilities consultant) as consultants.

The preliminary study was to begin February 1, but because of delays caused by the developer's lack of funds, the work did not start until May. Through the use of overtime we were able to bring the project back on schedule, and it went out for bids within two weeks of the date originally decided.

Type of Contract We agreed to provide the above service in two parts. The preliminary study was to be compensated on an hourly basis and the concept and master space plans on a lump sum.

Project Schedule The preliminary study was completed in July at a cost of \$20,000. After review, the owner decided on August 1 to proceed with the concept design and master space plans, and we agreed on a lump sum of \$50,000 for architectural design and \$200,000 for consultants. Final plans were completed and reviewed on January 1.

Project Team J. Smith served as project manager on the project and was assisted by B. Jones. R. Gray worked closely with the subconsultants and was responsible for coordination of their work.

Project Costs Our firm did the preliminary study and budgeted \$50,000 for the design phase of the project. Using our standard multiplier, which provides for a 20% profit, we earned \$4,000 profit on the \$20,000 study. Direct labor for design amounted to \$15,000 and reimbursable expenses were \$6,000. Total project costs were \$48,000 when a 1.8 overhead was taken into account. Billings to the client for our portion of the work totaled \$50,000. Thus a 4% profit on cost was realized.

Summary Additional hours were spent in the design phase to accommodate several changes in the nursing stations that were requested by the client. We felt we were entitled to an additional fee for these changes, but the client tended to be difficult throughout the project and insisted it was our misunderstanding of his original intentions.

The project gave us an opportunity to work in a somewhat different area of our health care work. I felt that the client was pleased with our efforts and would contact us again.

Note: A breakdown of direct labor hours on this project by classification of personnel should be analyzed for future use. These historical hours can then be applied using current rates to arrive at proposed direct labor dollars on similar projects.

Exhibit 7-1

Sample Report on Completed Project

unique design, he or she has performed a valuable service. In such cases, being compensated for more than the value of the hours expended is fair.

Some clients view architectural services as a commodity to be given to the lowest bidder. If an architect specializes in this type of work, it is wise to have efficient and repetitive systems in place to deliver services quickly at the lowest cost.

PRICING COMPUTER SERVICES

Computer time can be charged either directly or indirectly. It is rarely charged as a direct expense in the private sector, but certain public clients expect it. To derive an hourly rate for computer services, annual computer costs are divided by an estimate of total hours per year. Every project that uses the computer is then charged the hourly rate and none of these costs are included in the overhead rate. The hourly rate for computer charges does not include the cost of operators, nor does it include any profit.

Direct costing of computer time was used more extensively in the past. Today, clients expect architects to use computers on all projects, which means computers are becoming more like other overhead expenses. The idea of direct costing seemed fair in the past because it meant only jobs that required computers were charged. Now that virtually all projects require computers, direct charging is being done away with and all costs go into overhead. This approach,

however, brings up another problem. Many firms work for government agencies that have what they call an overhead cap. The agency will pay no more than a certain amount, say 130 percent of direct labor, for overhead. Most firms will not be able to cover their costs if they include computer costs within these caps. Therefore, a firm must decide whether to work for these agencies and accept a lower profit.

ESCALATION FACTORS

Architects should take into account escalating rates when pricing projects. Escalated rates provide for charging rates that are in effect while the work is being accomplished. As an example, consider a project awarded in January, with work beginning in June and finishing in December. Historically, the firm has given 6 percent wage increases each year. It is therefore necessary to escalate the salaries in the proposal to the midpoint of the project, which is September. January salaries need to be escalated by three-fourths of 6 percent, or 4.5 percent. That way, compensation reflects the salaries in effect while the job is in progress. Along with this, the firm should keep vendor prices current so the firm does not experience a loss on these items when it submits reimbursable expenses.

When projects extend over more than one year, it is important to discuss the escalation factor early in negotiations with the client, especially certain government

Architects should take into account escalating rates when pricing projects. Escalated rates provide for charging rates that are in effect while the work is being accomplished.

clients. Government agencies apply escalation extensively on large defense contracts. Architects should not hesitate to remind government negotiators that the same principles should apply to smaller architectural projects.

COMPENSATION METHODS

There are several methods for compensating architectural services. They can be based on a percentage of construction cost, on an agreed-upon fixed amount (lump sum), on the costs incurred by the architect (costs plus fixed fee), and on the number of units of construction. These methods can be used independently or in combination.

Regardless of the compensation method, it is important to carefully plan for reimbursable and direct expenses, what indirect expenses will be allocated, and what profit is expected. It is important also to be certain that the agreement for services permits proper and timely billings. Using the standard AIA contract documents will ensure an architect has negotiated the best terms and has not overlooked any important clauses.

Several methods of contracting for services are described below. Exhibit 7-2 also contains further examples of these methods.

Lump sum

The amount of compensation may be fixed at the outset of a project or as soon as the scope and schedule of the project are clear enough for the architect to forecast services, tasks, and costs accurately. The client and architect may then agree on a lump sum for compensation. To avoid misunderstanding, services to be provided should be clearly listed and described in the agreement. An alternative method is to combine a stipulated sum for design services with an hourly arrangement for all other services, such as construction inspection.

Accepting a contract for a lump sum is effective for projects with a well-defined scope of services that specifies what the architect must do for that sum. As a firm becomes more efficient at performing this kind of work, the profit margin for lump sum contracts will begin to grow.

The risk of a lump sum job is substantial if unforeseen problems are encountered or if there are misunderstandings with the client. In these situations, the architect may have to devote additional work to the project without getting paid.

Percentage of construction cost

This method of contracting is not based directly on the architect's cost for providing services but on an assumed correlation between construction costs and the architect's efforts. Compensation is determined by multiplying the budgeted estimate of final construction costs by a percentage rate. The

It is important to carefully plan for reimbursable and direct expenses, what indirect expenses will be allocated, and what profit is expected.

Exhibit 7-2
Examples of Basic
Contract Types

Lump Sum

A firm agrees to do a certain project for a total price of \$75,000. Regardless of whether the work takes longer or shorter than estimated, the firm receives \$75,000 as full compensation. The firm bears the full risk and may achieve an extra reward if efficient, or it may lose money if the estimate is too low to cover the defined scope of work.

Percentage of Construction

The terms of agreement provide for the firm to receive 6 percent of the cost of construction. For estimating purposes the construction cost is fixed at \$2 million. The firm invoices the client monthly based upon the percentage of completion against a project revenue estimate of \$120,000. When bids are received and the construction contract is awarded for, say, \$1.9 million, the firm must adjust the latest invoice to reflect a project price reduced to \$114,000.

Cost Plus Fixed Fee

A firm agrees to perform work at a rate to cover direct labor costs, overhead, and reimbursable expenses plus consultants' costs. For estimating purposes this amount is expected to be \$50,000. In addition, the firm will receive a fee or profit of \$5,000 on the project. In a true cost-plus-fixed fee arrangement the firm receives all costs whether they were above or below the \$50,000. Salaries are the actual amounts paid, and overhead is determined on a provisional basis and then adjusted at the conclusion of the project. In any event the firm would only receive \$5,000 as profit. There should be little risk in pure cost-plus-fixed fee contracts since all costs are supposed to be recoverable.

However because these contracts contain an upset limit, the risk shifts dramatically to the architect who is not paid for costs above the limit established in the contract.

Multiple of Direct Labor Expense

A firm marks up base hourly labor rates by a factor of 3.2 to cover total overhead and profit to arrive at the billing rate to the client. Reimbursable expenses are invoiced separately.

Multiple of Direct Personnel Expense

A firm marks up base salary rates by a factor of 1.4 to cover fringe benefits. The multiplier used is 2.3 applied to direct personnel expense. This is equivalent to the 3.2 multiplier used above ($1.4 \times 2.3 = 3.2$).

Hourly or Daily Billing Rates

All personnel in the firm are classified into groups according to their level of skill, and an hourly rate that includes overhead and profit is established. Project work is invoiced at these rates plus reimbursable expenses. See the schedule of hourly charges in exhibit 7-3.

Cost per Unit

The cost for architectural design of a large hotel complex is estimated to be 2 percent of construction cost per square foot.

Retainer

A retainer arrangement with a large client provides that a principal of the architecture firm will work a minimum of 10 hours per month over a three-month period at a cost of \$2,000 per month. Time required above 10 hours will be billed at standard hourly rates.

rate is negotiated and varies depending on the type, size, cost, quality, and complexity of the project; the scope of the services to be rendered; and the method of awarding construction contracts. Once the rate is fixed, however, compensation varies as a result of the final construction cost. Some government agencies have established schedules of these rates, and some individual firms have developed their own schedules.

There are inherent inequities for both client and architect in contracting for services according to a percentage of construction cost. The architect has little incentive to control project construction cost. In addition, compensation may increase or decrease as a result of fluctuations in the construction market.

If the architect's fee is determined as a percentage of construction cost, a stipulated sum is often figured by applying a percentage rate once a project has reached a stage at which construction costs can be estimated reasonably accurately. Before that stage, compensation is on an hourly basis. Frequently, all or part of these preliminary payments are credited to the final sum negotiated. If this method is used, it is advisable to estimate the cost of the services rendered on an hourly basis as a check on the percent of construction cost. This estimate then becomes the basis for the project budget. As in the case of lump sum projects, consultants should be tied to the same kind of fee arrangement.

Cost plus fixed fee

Cost plus fixed fee arrangements provide for compensation that is based on the architect's cost plus a fixed fee or profit for the job. There is usually an upper limit to the amount the client will pay under this arrangement, which places an unwarranted risk on the professional. If the project does not consume all the estimated costs, the architects are paid only what they have spent plus the full profit. If the architects spend more than the upper limit, they must take the overrun out of the fixed fee or profit on the job. It is a difficult way of contracting, but a favorite of certain government agencies.

Multiple of direct labor expense

This method of compensation relates directly to the amount of time required to provide professional services for a project. It is one of several methods suited to large, complex projects in which the scope is not well-defined and to projects requiring special or supplemental services. Under this method, direct labor expense incurred on a project is multiplied by a factor that covers indirect expenses and profit. A variation of the method allows principals' time to be paid at a fixed hourly rate and other staff at a multiple of direct labor expense. However, if all labor, including the principals', is established at rates appropriate to each individual's role in the firm, there should be fewer problems in charging time at the agreed multiplier.

**"There is nothing
so frightening as a
million dollars."**

Frank Lloyd Wright

In choosing the multiplier, it is important to analyze all elements that contribute to expense and profit to ensure the multiplier is adequate. Reimbursable expenses are accounted for and itemized separately at the time of billing. Note that consultant services are considered reimbursables under this method of compensation.

A drawback to using multipliers is that anyone who happens to see an invoice can learn the salaries of any staff members working on the project. One way to overcome this is to send the client a schedule of rates for individuals who will work on the project. Invoices would show only the individual names, hours, and total amount due. The client can then check the arithmetic before paying the invoice.

Multiple of direct personnel expense

This method of compensation is similar to that employing a multiple of direct labor expense. Direct personnel expense is defined as the direct labor of all personnel engaged on the project plus the cost of their benefits, such as employment taxes and insurance.

The direct personnel expense base is higher than direct labor expense, and the multiplier will therefore be lower to achieve the same revenue. For example, if direct personnel expense equals 140 percent of direct labor expense, a multiplier for direct personnel expense of 2.3 provides the same revenue as a multiplier of 3.2 for direct labor expense. ($1.4 \text{ DPE} \times 2.3 \text{ multiplier} = 3.2$).

Both methods are attractive to clients, who pay only for time as it is applied to a project. The methods are attractive to the architect because indirect expenses and profit are provided for each hour of professional time charged to the project.

Hourly or daily billing rates

This method of compensation, not unlike the multiple of direct labor expense or multiple of direct personnel expense methods, is suitable when time required to solve a problem is difficult to predict. Hourly or daily rates are established by category of personnel or for specific personnel who will be assigned to the project. These rates include allowances for direct labor expense, a pro rata share of indirect expenses, and profit. Outside services such as engineering are treated as reimbursables. Billings for these services are usually marked up to recognize the architects' coordination on the project, accounting for expenses and the risk involved in working with consultants.

The client may find this method more attractive than the multiple of direct labor expense or direct personnel expense because the rates do not identify proportions of salary, indirect expense, and profit. The client sees only one rate for a class of employees. The professional may find billings simpler as well. A variant of the hourly method is the use of daily billing rates.

Some government agencies put caps on principals' billing rate. When these caps are encountered, principal time must be kept to a minimum.

Hourly or daily billing rates...are suitable when time required to solve a problem is difficult to predict.

Care should be exercised when working under an hourly billing basis since the rates become outdated very quickly as individuals move up in the various salary categories. If this method of contracting is used, the architect should review average rates at least quarterly so they can be updated on new contracts. An example of this pricing method is shown in exhibit 7-3.

Cost per unit

Firms involved in repetitive projects can sometimes acquire sufficient experience to enable them to prepare a project estimate using factors other than direct labor and expenses. Two methods are "unit area" and "unit cost."

Compensation according to unit area is computed by multiplying an area or portion of a building by compensation per unit area or cost per square foot. The unit compensation factor may be applied to gross areas for large, simple projects, such as warehouses, or to net areas when used for layout of tenant spaces in shopping centers and office buildings. Under this method a factor is applied to the cost of each unit.

The unit cost method of compensation is similar to that for the unit area, except the units to which the factors are applied are generally larger. For instance, the unit compensation values can be applied to the cost per hotel room or per apartment. As with the unit area method, considerable experience is required to make accurate estimates. A problem with using this method is the

difficulty in recognizing differences in the complexity of nonrepetitive projects.

Retainer

Working on retainer is an arrangement in which architects agree to make a certain amount of time available to the client, usually the time of a principal. The client may want the architect to be on call and available for a given period but does not know how much time will be necessary. An approximation is made of the number of hours the client anticipates will be needed, and the architect bills for this amount each month. If more time is spent, it is paid for on an hourly basis, but if less time is spent, the architect is still paid the retainer for being on call. These arrangements are usually renegotiated on a quarterly basis to keep them fair to both parties.

Combined methods

Complex projects and repetitive work often require several methods of compensation. Projects considered to be complex are usually those with multiple owners, several user groups, different building types, various sites, or phased construction. After dividing projects into smaller components, appropriate methods of compensation can be applied to each. For example, early phases may be paid on an hourly basis. Later phases, when the scope of the project and required services are better defined,

Complex projects and repetitive work often require several methods of compensation.

Exhibit 7-3
Sample Hourly
Billing Rates

Effective:
 January 1
 (Plan Year)

Personnel	Hourly Rate
Principal	\$ 120
Senior architect	75
Architect	50
Technician	45
Junior staff	35

Direct Project Expenses

Expenses incurred in connection with the project will be billed at cost plus a markup of 10 percent. Examples of such expenses are travel, reproduction costs, telephone, and shipping and postage. Subconsultants will be billed at their cost plus a 10 percent markup.

Notes

1. The above rates are hourly for a normal 8-hour day. Overtime and work on weekends and holidays are billed at time and one-half except for principals and senior architects.
2. Invoices are payable on presentation and become past due after 30 days. Interest charges at 10 percent per annum are added to past due invoices.

may be compensated on a lump-sum basis. This approach is fair because the architect is assured of adequate compensation, and the owner is not obligated on an open-ended basis.

Other

Design-build represents another method of contracting that is finding increased use, particularly among certain government agencies. Under this arrangement an architect is hired as part of a construction team, which is usually led by a contractor. Some architects feel they lose a portion of their independence by working for a contractor. Others believe they no longer are judged on the quality of their design efforts. However, many owners prefer design-build because it simplifies the contracting process and may lessen the chances for conflict between architects, engineers, contractors, and subcontractors.

EVALUATION OF COMPENSATION METHODS

Architects might consider the following questions when evaluating compensation methods for a particular project:

- Does the method allow the architect to cover expenses and achieve a reasonable profit?
- Does the method represent the value of the architect's services to the client?
- Does the method allow changes in compensation during the project as a result of changes in scope of services or events

outside the architect's control?

- Does the method permit increases in compensation due to rises in the cost of providing services over the course of an extended project?
- Could the method create legal problems?
- Does the method encourage the client to cooperate in completing the project?
- Does the method provide proper incentives for the architect and consultants to provide high-quality project services?
- Is the method easy for all parties to understand?
- Does the method allow the client to predetermine costs for the architect's services?
- Does the method provide compensation for risk involved?

See exhibit 7-4 for a checklist for evaluating various contract types.

Some criteria may apply more to one project than another. Factors such as the working relationship of client and architect, the nature and duration of the project, the familiarity of the architect with the services to be performed, and the likelihood and extent of changes in the scope of work must all be considered in selecting a compensation method for a project.

In some cases clients will not accept the standard AIA contracting documents and will insist on using their own forms. When negotiating these contracts, it is

The compensation method should allow the architect to cover expenses and achieve a reasonable profit?

important to use legal assistance. If clients provide their own contracts, the firm's attorney and professional liability insurance representative may need to review the contract terms. Insurance clauses should be reviewed to ensure that the firm's coverage is adequate.

Some contracts are in the form of a purchase order, which are designed to purchase goods, not services. Architects should read purchase orders carefully because most of them are written to provide for payment after the goods or services are delivered. In some cases a purchase order may need to be revised so the architect will be paid as the work progresses.

Retainage is another important contract consideration. Many clients, particularly government agencies, insist on retaining a portion of monthly billings to ensure compliance with the contract. The retainage is released after the contract is completed. Financing the retainage comes out of the architect's profit, so it is important to keep the withheld amounts to a minimum. One solution is to negotiate a reduction in retainage, say from 10 percent to 5 percent, when a project reaches a certain milestone or percentage of completion. What constitutes project completion also needs to be carefully defined. For example, if a project will not be considered complete until a closeout audit has been performed, an architect may have to wait years to receive the retainage.

Architects need to review contracts from a financial as well as a technical viewpoint.

Certain contract terms—such as what constitutes an acceptable invoice, interest provisions for late payment, and what documents (such as a progress report) are required to accompany an invoice—should be understood in advance so that payments are not delayed.

A policy should be in place for negotiating additional revenue for additional services before completing the work. Waiting until after a change or addition has been completed reduces the likelihood of getting paid for extra work. Project managers should be trained in the importance of discussing additional services with a principal before undertaking any additional work. Whether to bill for the change or absorb the costs is a management decision to be made by the principal and not by the project manager.

FORMS OF AGREEMENT

Good financial management begins with agreements for services that are well-defined and executed in a timely manner. Architectural and engineering societies have produced various standard forms of agreement to make the legal aspects of contracting for services as straightforward and error-free as possible. The forms can be used in conjunction with other documents developed by these societies, such as agreements between owner and contractor, agreements between architect and engineer, and the general conditions of the contract for construction.

These documents are products of the combined efforts of the professional societies, government organizations, client and contrac-

Whether to bill for the change or absorb the costs is a management decision to be made by the principal and not by the project manager.

tor representatives, and legal and insurance counsel. The documents are updated periodically as new conditions arise. The forms of agreement allow the architect to enter into the compensation arrangements described earlier in this chapter.

When entering into owner-architect agreements other than those provided in AIA contract documents, the architect should exercise the following cautions:

- Be certain the scope of the project and the services to be performed are well-defined. If the scope of the project is misunderstood, compensation may not be adequate or the proper clauses for adjusting compensation may not be included.
- Provide procedures to accommodate additional services if the project expands in scope beyond what was originally defined. Project managers, eager to demonstrate competence in many areas, often undertake additional services too easily (called "scope creep") without the principal's knowledge. Make sure the client understands the extent of services and the required compensation for those services before providing them. Services in connection with interior design or graphics, for example, should be identified as soon as the need arises and arrangements made to accommodate them if they are beyond the scope of the original agreement.
- Review the agreement to make sure it covers the basis for compensation, terms of payment (timing and amount), and settle-

ment in case the project is altered, postponed, or abandoned. The agreement should also define expenses that are to be reimbursable or paid directly by the client and expenses that are the firm's responsibility.

- Check the contract for provisions that may void all or part of professional liability insurance coverage. It is advisable to have all nonstandard contracts reviewed by the firm's liability insurance representative.
- Make certain the client's responsibilities to provide information, make decisions, participate in meetings, and make timely payments are spelled out and understood. Clients should understand their responsibilities for the successful completion of the project.
- Identify the consultants required for the project, including who they are, who hires them, and how they will be paid.
- Examine the conditions under which the coordination of agreements with other professionals is accomplished.

STEPS IN THE NEGOTIATING PROCESS

Following is a summary of the steps to be followed in the negotiating process:

- Determine with the client the scope of services and the responsibilities of the client and architect in carrying out those services.

Good financial management begins with agreements for services that are well-defined and executed in a timely manner.

Exhibit 7-4
Comparative Analysis of
Contract Types

Contract Type	Defined Scope	Probable Low Risk	Possible High Profit	Ease of Invoicing
Cost plus fixed fee	Yes	Yes	No	No
Multiplier times direct labor	No	Yes	No	No
Percentage of construction costs	Yes	No	Yes	Yes
Lump sum	Yes	No	Yes	Yes
Standard billing rates	No	Yes	No	No
Retainer	No	Yes	No	No

Example: Cost Plus Fixed Fee Contract

Defined scope	Yes, needs well-defined scope because costs are established in the contract
Low risk	Yes, should be low risk since all costs are supposedly paid for (see text for problems encountered when upset limits are imposed)
High profit	No, profit is limited to the fixed fee
Ease of invoicing	No, invoice must detail the costs incurred and portion of the fixed fee earned

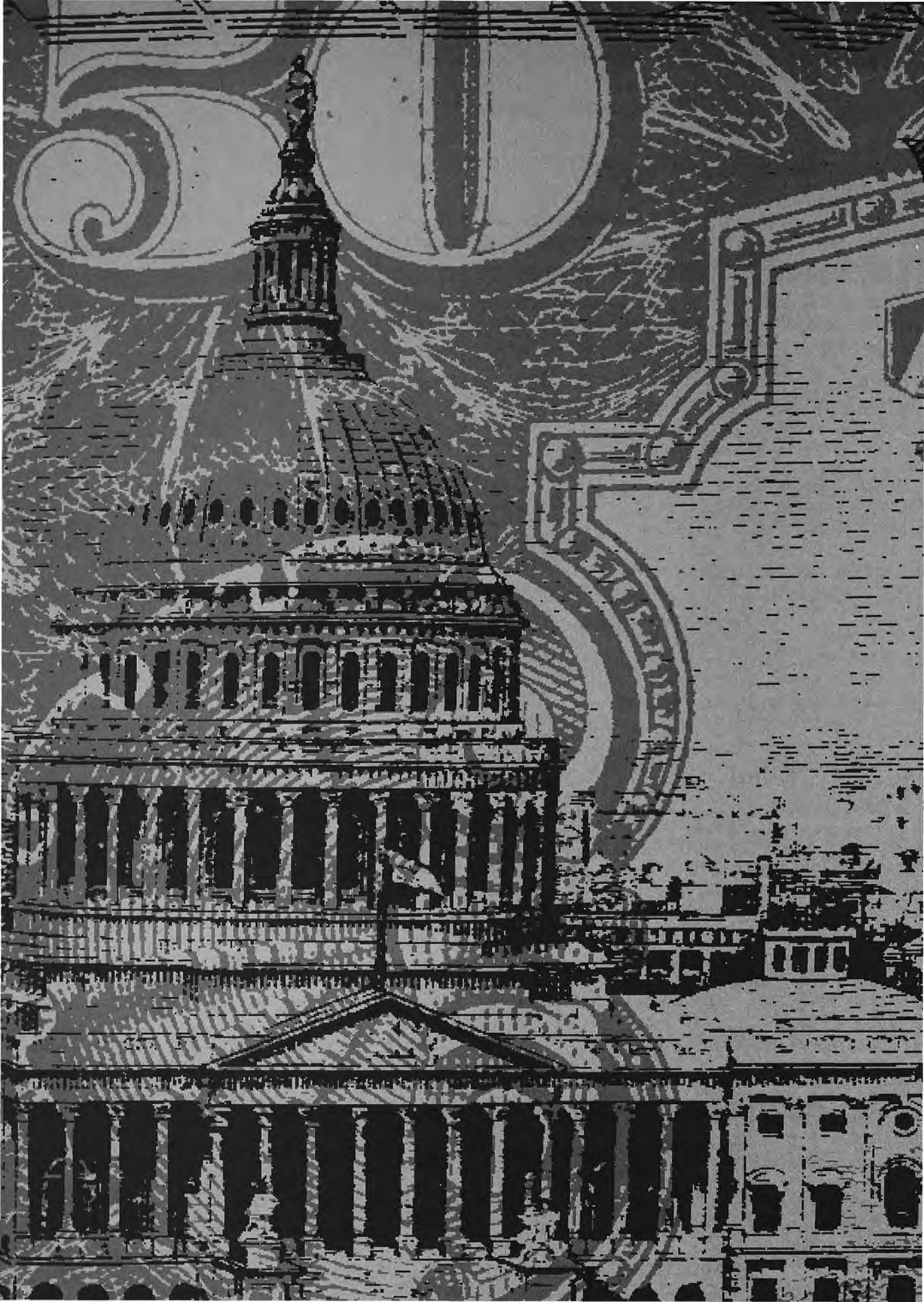
- Estimate the number of direct labor hours required to provide each service, the cost, and amounts of compensation.
- Summarize for each project phase the revenue and reimbursable expenses.
- Use the results of these steps to negotiate a description of services and the amount and method of compensation.
- Sign an agreement for professional services.
- Formalize the budget (prepared during negotiations) and discuss the project plan with the team.
- Scope of services related to the terms of the owner-architect agreement and services the architect has agreed to provide
- Amount of compensation for services, correlated with the architect's compensation and the services to be rendered
- Reimbursement for specific expenses
- Terms of billing and payment
- Owner of documents
- Termination procedures, including termination payments if any
- Liability of the consultant and requirements for insurance, including deductible amounts and limits of liability with respect to the scope of the project
- Signatures and seals if required.

AGREEMENTS WITH CONSULTANTS

Architect-consultant agreements are important. Most architecture firms without in-house engineering staffs pay a significant portion of revenues for the services of outside consultants. Furthermore, many professional liability claims against architects involve services provided by engineers and other specialists. Consulting services affect financial performance, both in terms of revenues and liability exposure. The following represents a basic guide for a well-executed architect-consultant agreement:

- Names of parties and date of the agreement
- Coordination of the agreement with the prime contract

Careful preparation and administration of agreements with consultants will help an architect with financial planning, project budget preparation, cost control, and long-term reduction of exposure to professional liability claims.



With a carefully crafted contract in place, the quest for profitability continues with project management activities that include planning, budgeting, monitoring, evaluating, and taking corrective actions as needed. To make financial matters an integral part of this process, the firm must clearly communicate financial goals, for both the firm and the project, to those responsible for project management decisions.

The first step in effective project management is to develop a project plan. A project plan is the strategy by which the project will be accomplished—that is, the total delivery of services contracted. The plan considers applications of all available resources:

- People (specific individuals or types of talents needed depending on the size and nature of the project, including timing, cost, and availability of outside resources)
- Time (schedule of milestones, hours required by service and phase)
- Money (distribution of revenue to cover professional service reimbursables, direct expenses, indirect expenses, contingencies, and profit by phases)
- Facilities (working environment)
- Technology (computer equipment and other)

The project plan should be formalized and communicated to everyone involved in the project. The plan identifies specific goals for the performance of the project, and it is vital that everyone on the team be aware of these goals. The plan document is essential. For a small, brief study the plan might be documented on one page; a larger project might require several pages. It is important to document the plan because the process requires the manager to think through the project and requires coordinating with other project schedules. It also provides criteria

by which to evaluate the project at intermediate points and at its conclusion. A preliminary project plan is often prepared before the contract for services is negotiated as a means of determining the required contract amount. Some of the items to be documented in a project plan are as follows:

- Project identifying number (usually assigned by the accounting department after a signed contract is received)
- Project name
- Project description
- Project location
- Principal in charge
- Project manager
- Client name
- Client representative
- Client's address and telephone
- Construction budget
- Anticipated construction contract type
- Type of professional services agreement
- Basis and timing of payments to architect
- Outside engineers
- Other outside consultants
- Time schedule
(beginning and ending of each phase)
- Project budget
(dollars and hours by phases)

Every project must have one person responsible for its execution. That individual, the project manager, is responsible and accountable for the total project performance. The project manager must have tools to manage the project and the authority to make decisions.

PROJECT BUDGETS

The project budget is an integral part of the project plan. It is the financial yardstick against which the project's financial performance is judged. Each project should be planned for revenues, expenses, and contribution to profit. Exhibit 8-1 is an example of a project budget.

In cost-based methods of budgeting, the efforts required to produce the desired scope of services are determined. Costs of personnel and outside services are built up to arrive at the revenue estimate. This method is prevalent as clients have become more cost conscious. Cost-based methods clearly identify the effort involved and are advantageous to clients who want to see what they are paying for. Clients can clearly identify changes in services and costs. Exhibit 8-2 is an example of cost-based budgeting.

Another method of budgeting is hours-based budgeting. This budget begins with a predetermined revenue estimate, and the project manager works backward to determine the number of hours available to accomplish the project. An example of an hours-based budget is shown in exhibit 8-3. Care should be taken when estimating by

Each project should be planned for revenues, expenses, and contribution to profit.

hours only, because labor dollars used will vary depending on the labor rates of the staff working on the project. Although budget dollars often can be saved by using lower-priced people on a project, these people usually are less experienced and take longer to accomplish their tasks, so the anticipated savings may not materialize. Hours-based budgeting is often used when a client offers a lump sum and the architect is asked to provide certain services. The architect can respond by defining alternative services that can be rendered for the lump sum. Traditionally, this method has been used with percentage of construction cost contracts. The architect is given a fixed amount of revenue and has to determine the efforts by discipline and phase that can produce the project at a profit.

Budgets are prepared by breaking down revenue into components. Profit is calculated based on the profit plan of the firm but also recognizing the potential for profit on the project. Outside services and other direct expenses are subtracted from the balance. The remaining dollars provide an operating budget to cover direct labor expense and that portion of indirect expenses to be borne by the project.

An indirect expense allowance is subtracted from the operating budget. Indirect expenses are usually estimated for a project as a percentage of direct labor expense. This percentage is taken from the firm's profit plan and represents the amount of

indirect expense to be allocated to the project. The balance of the operating budget is available for direct labor expense, which may then be distributed to the appropriate detail using phase, service, discipline, and staff level. The level of detail is a matter of judgment, considering the size of the project and complexity of the services to be provided.

PROJECT INITIATION

It is critical to have the project manager involved in the negotiation of the project so that he or she agrees with the total project budget. Problems can arise at the very beginning if the project manager does not believe the project can be accomplished for the negotiated price. Project managers who are involved in the negotiating process will have a better understanding of the needs of the client and why the project was negotiated for a certain amount.

Project initiation takes place when the project plan is approved by management and a project number is assigned. Two files are set up for each job. The project manager keeps materials in the project file, and the accounting file contains the original contract and original initiation form. The accounting file contains all items that pertain to billing of the job.

Exhibit 8-4 shows a sample project initiation form. The project manager completes the form at the beginning of the project and then submits it to the accounting department, which assigns a number to the

Project managers who are involved in the negotiating process will have a better understanding of the needs of the client and why the project was negotiated for a certain amount.

Exhibit 8-1
Budgeting Form
for Detailed Budgeting
by Task Element

Project Name _____

Project Number _____

	Month start	Month end	Personnel classification assigned*	Days	Day rate*	Amount
LABOR						
Task element						

Subtotal labor _____

DIRECT EXPENSES (Show calculations below)

Travel	Location	No. of R/T	Cost per R/T	Extension
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____

Subtotal travel _____

Subsistence	Location	No. of R/T	Cost per R/T	Extension
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____

Subtotal subsistence _____

Other direct expenses In-house materials (estimate labor separately and include under appropriate task element)

Outside services (include total price for both labor and materials)

Consultants (complete schedule at right and enter total here)

Temporary field/office help**

Total direct expenses

Total direct expenses at 110%

Contingency***

Total direct labor and expenses (show monthly breakdown on next page) →

→	Consultant's name	Brief description of work to be performed	Contract terms***	Days or hours	Rate	Amount
	_____	_____	_____	_____	_____	
	_____	_____	_____	_____	_____	

Total Labor and Expenses (monthly breakdown)

Month	_____	_____	_____	_____	_____	_____
Total labor and expenses	_____	_____	_____	_____	_____	_____

*Personnel classification rates (include overhead and profit)

Principals	\$ _____	Technical staff	\$ _____
Project manager	_____	Other	_____
Professional staff	A _____	All other personnel at actual	
	B _____	or estimated rates.	
	C _____		
	D _____		
	E _____		

**Full-time personnel should be included under the appropriate task element.

Use this line for additional personnel that cannot be readily identified, i.e., temporary help.

***Identify basis of payment, i.e., fixed price, time and charges, etc.

****5% included in each task element or else total included here.

Submitted by _____ Date _____
(Project Manager)

Approved by _____ Date _____
(Principal)

This report is used to budget a project by task or phase. In this case daily labor rates include overhead and profit. Note the detail required in budgeting expenses. After the total is budgeted, provision is then made to break down the budget by months to compare with actual performance.

Exhibit 8-2
Example of
Cost-Based Pricing

	Hours	Salary Rate	Multiplier (Salary x 3)	Total
Project manager	100	\$33.00	\$100.00	\$10,000
Architects	400	\$20.00	\$60.00	\$24,000
Technicians	500	\$13.00	\$40.00	\$20,000
Subtotal direct labor				\$54,000
Consultants and reimbursable expenses (\$15,000) markup @ 10%				\$17,000
Overhead at 150% of direct labor				\$81,000
Profit at 20% of direct labor and overhead				\$27,000
Subtotal				\$179,000
Contingency @ 5% of subtotal				\$9,000
Project budget				\$188,000

project. Accounting personnel use this information for billing purposes. Upon completion of the project, the final project accounting report is attached to the project summary to give a complete history of the job for future reference.

RECORDING PROJECT REVENUE AND COSTS

Revenue is recorded on hourly projects based on the amount of time expended. It should be recorded on lump-sum jobs based on a percent complete. The percent complete is not based on how much of a budget has been spent to date, but rather it is a design or technical estimate of the percent complete. That is, if the architect has spent 50 percent of the project revenue but has only accomplished 40 percent of the work, then the project is only 40 percent complete and is recording a loss. It is much better to know this early in the project when corrective action can be taken rather than at the end when nothing can be done. This is illustrated in exhibit 8-5.

To record the full costs of a project, the overhead rate is established at the beginning of the year. Generally this is a provisional overhead rate for the new year and remains in effect unless circumstances require a change during the year.

Sometimes the situation arises when a project is overrun and the project manager wishes to come in on weekends to complete it, but he or she does not want to record the time since it is personal time. If the time is not charged, then management will not

know the real costs to finish that job. This is important information when pricing future projects.

In this case, the project manager is confusing project administration with performance reviews. These are two different subjects. It is necessary for the project manager to record all time on the job for control purposes. The fact that the project manager is willing to devote personal time to finish the job should be reflected in his or her performance reviews. Principals need to recognize these situations and reward the project manager appropriately for the extra effort.

One point that many clients do not understand is the markup on consultants and reimbursable expenses. These markups are not profit on profit. The firm has responsibilities in managing consultants and financing receivables. In addition, professional liability insurance premiums usually are based on gross fees that include consultants. If these costs are not recovered through the markup on consultants and reimbursable expenses, then they will come out of the architect's profit on the project.

If the architect has spent 50 percent of the project revenue but has only accomplished 40 percent of the work, then the project is only 40 percent complete and is recording a loss.

Exhibit 8-3
Example of Hours-
Based Budgeting

In-House Design	Schematic design	\$50,000
	Design development	\$60,000
	Construction documents	\$100,000
	Bidding	\$5,000
	Construction administration	\$50,000
	Contingency	\$15,000
	Subtotal	\$280,000
Consultants	Structural	\$25,000
	MEP	\$50,000
	Civil	\$10,000
	Graphics	\$5,000
	Interiors	\$20,000
	Subtotal	\$110,000
Reimbursable expenses	Travel	\$5,000
	Reproduction	\$20,000
	Other	\$0
	Subtotal	\$25,000
		Total \$415,000
Calculation of available hours	Project budget	\$415,000
	Less: 10% markup on reimbursable expenses and consultants	\$14,000
	Less: Profit @ 20% on in-house design	\$56,000
	Cost budget	\$345,000
Less:	Consultants	\$110,000
	Direct expenses	\$25,000
	Overhead @1.5	\$140,000
Net labor cost		\$70,000
Average hourly rate		\$20.00/hr
Total hours available for project		3,500

Note: Confirm whether the scope of work can be accomplished within these hours.

Project name _____ Project no _____
 Location _____
 Client contact _____
 A/E proj. mgr. _____
 A/E PIC _____
 Start design _____ Bid date _____ Start construction _____

Exhibit 8-4
Project Initiation
Form

Consultants

Structural _____
 Civil _____
 Mechanical _____
 Electrical _____
 Landscape _____
 Other _____
 Other _____

Contract Basis (Check one)

- ☐ Percentage fee
☐ Fixed fee
☐ Cost plus fee
☐ Hourly
☐ Other _____

Fee Amount

Services (Indicate percentage of fee for each phase):

Programming/feasibility _____ %
 Schematic design _____ %
 Design development _____ %
 Construction documents _____ %
 Bidding/negotiation _____ %
 Construction phase _____ %

Signed _____ Date _____

Project manager

Exhibit 8-5
Sample of
Project Budgeting

	Actual	Budget
Revenue		
Lump Sum (40 percent complete based on design or technical evaluation)	\$ 40,000	\$100,000
Expenses		
Direct labor spent 50 percent	\$ 15,000	\$ 30,000
Overhead @ 150 percent	\$ 22,500	\$ 45,000
Other direct expenses-spent 40 percent	\$ 4,000	\$ 10,000
Total expenses	\$ 41,500	\$ 85,000
Profit / Loss	(\$ 1,500)	\$ 15,000

Exhibit 8-6
Sample Project Status
for Small firm

Project	(a) Contract Amount	(b) Percent Complete	(c) Earned	(d) Billed to Date	(e) Collected to Date	(f)=(d)-(e) Accounts Receivable	(g)=(c)-(d) Work in Process	(h)=(a)-(c) Backlog
Project A	\$100,000	40%	\$40,000	\$30,000	\$25,000	\$5,000	\$10,000	\$60,000

Exhibit 8-7
Sample Estimate
of Future Work

	Construction costs	Estimated fee	Start date
Project X	\$1,300,000	\$30,000	Winter 1997
Project Y	\$2,000,000	\$160,000	Spring 1998

MONITORING PROJECT PERFORMANCE

Monitoring financial performance requires a systematic procedure for capturing and recording project costs and a method for analyzing them. Although project progress can be reported in several ways, most reports compare performance against a budget. Both budget and performance can be displayed as (1) direct hours, (2) direct labor expense, (3) direct expenses other than direct labor expense (by category), (4) reimbursable expenses (by category), and (5) project totals. Comparing performance with budget gives measures of progress. The following data are entered in the reports.

- Personnel data include names, classification, discipline, rate of pay, and target utilization of time.
- Project data include project identification number, name, project manager, and budgets for hours and direct labor expense broken down by phase, discipline, or task; if appropriate, include outside consultants and reimbursables.
- Time records are the primary means of collecting data from all staff, including principals. The hours worked on each project are broken down by phase or task if the budgets are prepared at this level of detail. Indirect activities are charged to a separate set of project codes.

- A record of expenses charged to the project.
- Processing the data from these sources produces various reports, which will be discussed in chapter 12.

The benefits of a project control system are better communications, better estimating procedures, and accountability. Employees know what is expected of them. Clients know the amount of billings each month and can anticipate when payments will be required. The budgets established for each service rendered can promote increased efficiency and productivity, benefiting both the architect and the client. By establishing a database of time and expenses for various types of services and conditions, project managers have a basis for estimating time and expenses required for future projects.

Exhibits 8-6 and 8-7 are sample spreadsheets that can be developed by small firms to monitor the status of projects and estimates of future work.



Overhead is a collective term that describes expenses not chargeable to specific projects. Because overhead affects profitability directly, architects must consider opportunities and strategies for controlling overhead expenses.

Rising overhead costs are an early warning signal that something is amiss with a firm's finances. If left unchecked, this can significantly affect a firm's profitability. Once a rise in overhead is observed, the principals should put procedures in place to help get it back under control. A starting point is to compare the firm's overhead accounts with industry statistics (as shown in exhibit 9-1) and to determine whether there are significant differences. However, exercise control carefully to avoid cutting costs too deeply. Drastic cutbacks can cause a decline in the level of service or the development of organizational inefficiencies, which can only be corrected by restoring many of the cutback items.

One approach to controlling overhead is to assign responsibility for each category of expense in the organization to the appropriate person. This ensures that all expenses are being watched. For example, project expenses should be the responsibility of the project manager, and department heads should be responsible for such costs as indirect labor that affect their department. Firmwide costs, such as interest and rent, should be monitored by a principal.

Controlling overhead first requires an analysis of each account category and the development of recommendations for improvement. Sometimes these recommendations, in addition to controlling overhead expenses, can improve the overall management of the firm as will be apparent in the following review of major overhead categories.

Exhibit 9-1
Comparison of
Overhead Items
as a Percent of
Direct Labor

Payroll Burden

	PSMJ Statistics (Median)	Your Firm
Payroll taxes	13.9%	
Vacation, sick leave, holiday	13.7	
Group insurance	8.9	
Retirement contribution	0.5	
All other fringe benefits	1.7	
Incentive/bonuses	10.3	
Total payroll burden	52.2	

General and Administrative Expense

Indirect (nonproject) labor	34.0	
Computer expense	2.3	
Space costs	14.2	
General insurance	1.5	
Professional liability insurance	4.4	
Interest	2.0	
Telephone	2.6	
Bad debts	1.7	
Registration and licenses	0.5	
Training and education	1.1	
Legal and accounting	2.0	
Production supplies	2.4	
Office supplies	3.0	
Taxes and permits	2.0	
Marketing costs	15.4	
All other general overhead	8.4	

Total	92.3	
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Source: 1995 Financial Statistics Survey, *PSMJ*

INDIRECT LABOR

Indirect labor is usually the largest and most controllable expense in overhead. Thus, it is important to be able to record different kinds of indirect labor such as marketing, administration, professional development, and training time. If a firm is training a CADD operator, for example, and all time charges are assigned to the project being worked on, the job is likely to exceed its budget. Perhaps it would be better to charge half the time to the project and the other half to training, depending on the skill level of the individual.

It is important to have billable goals for each category of staff in the firm. Generally, the lower categories are more billable than the senior categories because the principals are also involved with marketing and administration. The range of billable time for principals varies with the organization. For example, firms that do little marketing for new clients, relying instead on repeat work from existing clients, would expect their principals to have more billable time and therefore a higher chargeable ratio.

INSURANCE

Another significant overhead item is insurance, which can be classified into general liability and professional liability insurance.

Costs for general liability insurance can be controlled because this type of insurance is very competitive. Better rates are usually offered for integrated insurance programs that combine liability, automobile, fire, and theft coverage into a single package. Obtain quotations from several carriers in order to secure the best value.

Architecture firms differ from many other businesses in their need for valuable-papers insurance, and this coverage should not be overlooked. Determine a firm's maximum exposure with the help of an insurance broker to be sure coverage is adequate.

The cost of professional liability insurance is more difficult to control. Some companies, like Schinnerer/CNA and DPIC, offer discounts for attending loss-prevention seminars and participating in peer reviews. These insurance companies also recognize that if architects can include limitation-of-liability clauses in their client contracts they should be rewarded with discounts as well. These discounts can be significant. Because the insurance market is cyclical, it is important to find a professional liability insurance carrier that has a history of serving architects over many years. Some insurance carriers come into the professional liability market when times are good and there are profits to be made but depart in difficult

Because the insurance market is cyclical, it is important to find a professional liability insurance carrier that has a history of serving architects over many years.

times, leaving their customers to seek other carriers. Despite the consideration of reliability, it is still good practice to check for competitive rates.

Architects should also consider using a project policy in certain circumstances. With this type of policy, the carrier insures a project rather than a firm. Everyone who works on the project, including the architect, engineer, contractor, and subcontractors, is insured under a master contract. Project insurance is effective if it can be charged as a direct expense and paid for by the client. It is expensive because risk is not spread around and is mainly applicable to larger projects.

Insurance rates reflect the fact that certain types of design services are riskier than others. For example, design work carries more risk than a feasibility study. When completing an insurance application, it is necessary to accurately list the types of work performed. It is also wise to increase deductibles to the maximum the firm can afford.

Insurance rates are often based on gross rather than net revenues. This means the architect is paying for consultants who may have their own insurance. If this is the case, it is sometimes possible to arrange for consultants to invoice the client directly rather than through the architect. Of course, the architect still maintains responsibility for the work product.

OFFICE SPACE

Obviously, modern office space in the downtown of a major city is the most expensive location. However, many architects feel their office space should project their image, so this is a nonfinancial consideration. Other architects have located their offices in attractively renovated space in older buildings. Aside from aesthetic considerations, certain actions can be taken to control real estate costs.

Subletting unused space on short-term leases is a viable option. Consider renegotiating a lease or looking for other options when the lease expires. Writing and implementing a facilities plan (see chapter 6) allows a firm to examine its options well before it is faced with making a decision.

EQUIPMENT ACQUISITION

When acquiring capital equipment, it is important to analyze whether to lease, rent, or buy (see exhibit 9-2). Equipment rental might be examined as a temporary means for cost saving. Also, renting all equipment from a single source offers the opportunity to negotiate better terms.

If an architecture firm is large enough, it can offset the need for some or all of its reproduction and copying equipment by inviting an independent printshop to set up an operation on the firm's premises. The shop can do the firm's work at a special rate and be available to serve other customers as well.

Exhibit 9-2
Cost Comparison for
Lease, Purchase, or
Rental for \$100,000
of Equipment

PURCHASING

In many cases, purchasing is the least expensive method of obtaining equipment. Once it is fully depreciated, owned equipment can be operated “free.” (However, keep in mind that most high-tech equipment becomes obsolete before it is completely depreciated.) Purchasing gives the architect full control over the equipment—the firm can have it moved, modified, or disposed of when it no longer fulfills its original need. The main disadvantage of purchasing is that it requires working capital (or reduces borrowing capacity) that the firm could apply elsewhere for the purpose of growth. Along with this, the owner must consider the costs for maintenance and insurance.

LEASING

The advantage of leasing is that it ties up fewer funds. Generally, the first and last month’s lease payments are significantly lower than the down payment on a purchase. By buying in high volume, leasing companies often can acquire equipment for less than a buyer of a single item.

For accounting purposes, leases are classified as operating or capital leases. An operating lease generally covers a short time period. This type of lease appears on the balance sheet as a footnote and on the income statement as an expense similar to that for a rental payment.

A capital lease extends over a longer period, and the lessee often has the option to purchase at the end of the lease term. In this case, the leased equipment appears on the firm’s balance sheet as an asset with the offsetting lease obligation as a liability. As with an operating lease, the capital lease expense appears on the income statement. However, the liability shown for the capital-leased equipment may limit the ability of a firm to obtain additional financing for other purposes.

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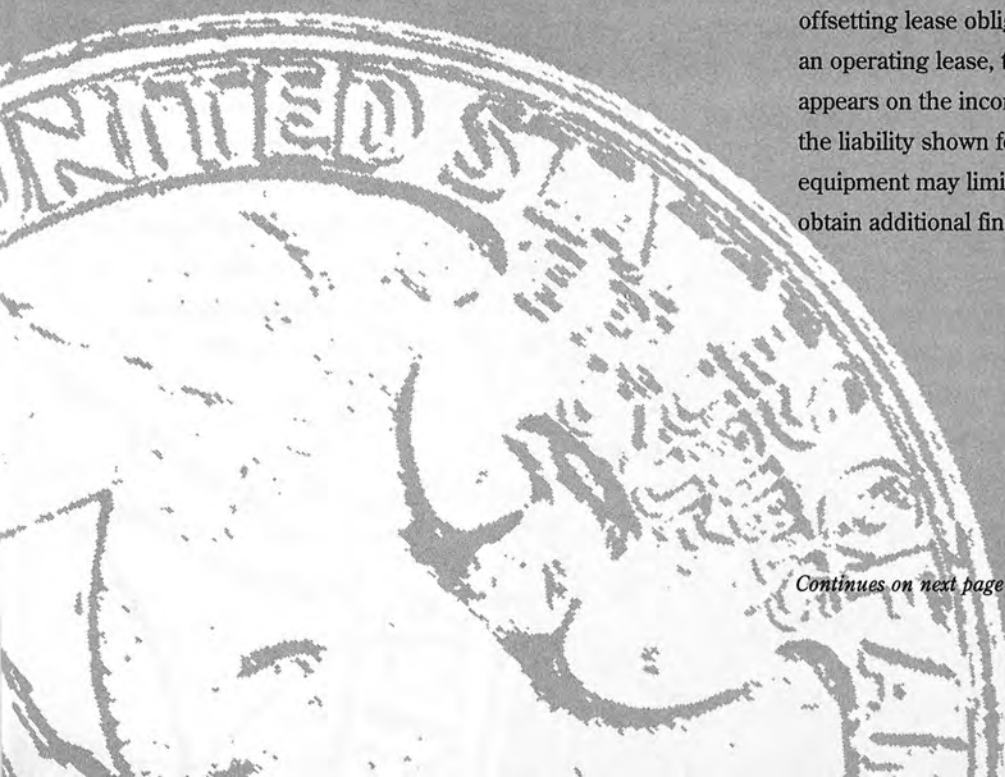


Exhibit 9-2
continued

Another consideration in leasing is whether to choose an open-end or closed-end lease. An open-end lease allows the lessee to buy the equipment at the end of the lease at its current fair market value. Fair market value may be the approximate depreciated cost and is an unknown factor when the lease is signed. A closed-end lease establishes the eventual purchase price of the equipment, which is usually set at the depreciated cost of the equipment. With a closed-end lease, the architect has more certainty in knowing what the firm's obligation will be if it decides to buy the equipment at the end of the lease term.

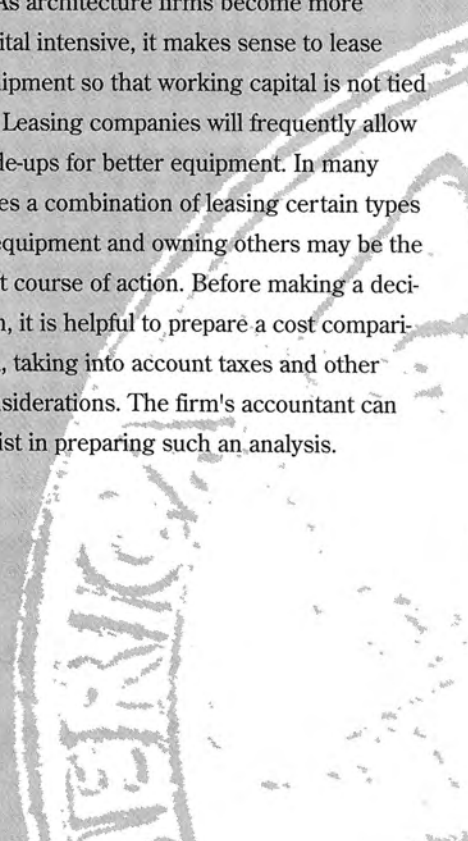
A lease has the disadvantage of being a fixed obligation. Moreover, the firm needs a track record with the leasing company, as it does with a bank, to get the best terms. Because the cost of the lease includes depreciation, interest, and profit to the leasing company, leasing becomes more expensive in periods of high interest rates.

RENTING

Renting is the third method of acquiring equipment. It is usually for a shorter period of time than that for leasing, and there is no option to buy at the end of the rental term. There are several advantages to renting. First, a firm has the equipment only when it is needed. Second, the firm can try different types of equipment before deciding which one to buy or lease. Finally, renting can be useful in solving a temporary overload situation.

Renting has the disadvantage of being the most expensive way to acquire equipment. Furthermore, rental equipment may not be available when needed, and it often is not in good condition.

As architecture firms become more capital intensive, it makes sense to lease equipment so that working capital is not tied up. Leasing companies will frequently allow trade-ups for better equipment. In many cases a combination of leasing certain types of equipment and owning others may be the best course of action. Before making a decision, it is helpful to prepare a cost comparison, taking into account taxes and other considerations. The firm's accountant can assist in preparing such an analysis.



Staff development and training is a necessary overhead expense that should not be ignored—even in slack times

LEGAL AND ACCOUNTING SERVICES

Legal and accounting services also need to be controlled. Accept only itemized invoices from attorneys so their work product and time spent on each activity can be reviewed. If the principals are satisfied with their attorney and accountant, they should remain with them. As these advisors become familiar with the firm, their counsel becomes more valuable.

When hiring accountants, remember there are three levels of service an accountant can perform annually in addition to tax preparation service: a compilation, a review, and an audit.

The *compilation* consists of an accountant assembling all the firm's information into a financial statement with no further examination of the information. This is a mechanized task the accountant uses software to perform.

In performing a *review*, an accountant undertakes some limited analysis of the information presented. For example, he or she will look at the reasonableness of the information and do some ratio analysis. Because the reviewed statements are still a limited service, the accountant will not express an opinion about them. In many cases banks will accept reviewed statements, but they would prefer an audit, depending on their degree of risk and comfort level with the principals of the firm.

An *audit* is a complete service in which the auditor performs a rigorous examination in order to express an opinion on the statements.

There is a significant difference in the price of these three services. Audits cost several times more than a compilation and significantly more than a review. Some savings can be accomplished if an architecture firm's accounting personnel can prepare some of the supporting schedules. Several accounting firms should be interviewed and proposals obtained from at least three before deciding which one to accept.

STAFF TRAINING

Staff development and training is a necessary overhead expense that should not be ignored—even in slack times. However, staff training costs need to be controlled. In larger firms, holding in-house seminars is often more cost-efficient than sending several people out of town. Another good device is to have brown-bag lunches in which employees who have received outside training present what they have learned to other staff members.

MARKETING COSTS

Business development is a difficult cost to control. A balance needs to be struck between the efforts needed to obtain new business and the costs incurred. Scatter-shot marketing efforts are largely wasted,

but it is often necessary to spend considerable sums to obtain a large project.

A marketing budget should be established at the beginning of the year and both time and expenses tracked against this budget. The marketing budget consists of a series of activities that need to be performed with time and expense estimates attached. For example, the principals may decide to visit all previous clients that the firm worked for over the last three years. They may also decide to print a new brochure and hold an open house to celebrate an anniversary. Budgets are established for all of these activities and, if necessary, certain ones are eliminated or postponed to fit the marketing budget. The budget is then monitored by the principal in charge of marketing to ensure that the planned activities are carried out.

For a particular project, the principals must decide whether to prepare a proposal after weighing the nature of the competition and the likelihood of success. In this process, it is helpful to review historical marketing data on previous work for the client and whether the projects were profitable.

BENEFITS

Employee benefits can also be reviewed for cost control. As health care costs have risen sharply over the years, many firms have had to increase the deductible or require employees to cover a larger portion of these benefits.

Savings through managed care programs, such as health maintenance organizations and preferred provider organizations, have been successful in bringing health care costs under control. Principals should ask their insurance brokers for assistance in this area. If the architect has not signed an agent of record letter with the broker, or if the letter has been rescinded, it may be helpful to seek bids from other brokers.

MONITORING OVERHEAD

Larger firms often establish committees to examine overhead costs on a regular basis. Working in conjunction with the business or financial manager, the committee usually reviews a few overhead costs at a time in order to identify areas for improvement. After the first group of expenses has been reviewed and recommendations submitted to the managing principals, another group is selected for review until all overhead items have been examined. By this time, the committee is ready to begin the process again.

While overhead costs must be constantly monitored, much of the control comes in exercising good business judgment. In many cases the efficiency and effectiveness of a firm will increase through better control of these costs.



Invoicing for completed services and collecting those fees are important activities in the cash cycle of an architecture firm.

Firms can bring their cycles of working capital into better balance by expediting the billing process and following procedures in place for collecting outstanding fees.

Invoicing and collecting fees involve a knowledge of the working capital cycle in an architecture firm. How working capital (defined in chapter 2 as assets minus liabilities) cycles through a firm determines how much of it is needed. Unless a prepayment is negotiated with a client at the beginning of a project, there will always be a sum of money used by the firm for project work before the client pays the firm.

Initial expenses incurred by the firm on a project represent an advance to the client that must be financed out of the firm's working capital. The firm forgoes the use of those funds until the client pays an invoice and replenishes the cash supply. When payment is received, cash is recycled and used to pay current costs. The cash cycle, therefore, may be described as follows:

- Using cash to pay for current costs as services are rendered and expenses incurred
- Billing the client for services rendered and waiting for the invoice to be paid
- Collecting the receivable that provides new cash to pay for costs incurred for current services being rendered

The problem with the working capital cycle is that the conversion to work in progress is automatic but billing is not. Collecting accounts receivable is the slowest part of the cycle. The billing portion is within the control of the firm, which means that invoices should be sent promptly.

However, the accounting department must carry out three major functions at the end of each month: prepare invoices, pay the staff, and close the books in order to prepare financial statements. All of these activities are important.

With computerization, accounting processes are speeded up and the firm has the ability to create draft invoices as soon as the time sheets are processed. This means that all time sheets must be in on time. If the principals set an example there is usually no problem with the rest of the staff.

Another delay can occur during the review and approval of an invoice by the project manager. The project manager reviews the invoice in advance to make certain it is correct; however, the process should not be delayed if the project manager is out of town or otherwise unavailable. Rather, there should be a procedure in place for approvals to be accomplished within 24 hours. If a project manager is unavailable, a deputy or one of the principals should have the authority to approve the invoice. The invoicing process can also be expedited by using standardized invoice formats whenever possible. Standard formats are those available within the accounting system the firm has selected. They eliminate the need to prepare individual invoices on a word processor, which can delay the process significantly.

Supporting an invoice with documentation such as time sheets and expense reports is an added cost that also should be considered. Most clients do not want or need copies of

time sheets and expense reports, but for those who do, the cost for this extra service must be built into the project estimate or it will reduce the architect's profit on the job.

OBTAINING CREDIT REFERENCES

Credit references should be obtained on new clients who come to the firm unsolicited or whom the architect does not know well. The architect should ask a client for the name of his or her banker. Since bankers prefer talking with each other, ask your banker to call the client's banker for a reference. Your banker will learn the size of the client's outstanding credit line, the client's loan payment record, and the client's average balance. This information will help determine the amount of credit to extend.

Dun & Bradstreet and other credit reporting agencies are another source of information, but your own banker is likely to provide more current information.

COLLECTION PROCESS

The next step is to speed up the collection process. Unless they offer a discount for quicker payment, architects expect to be paid in 30 days, and it is common practice to note this on the invoice. However, since the average collection of receivables takes longer than 30 days, steps must be taken to expedite the process.

The status of accounts receivable can be tracked through an aging schedule (see exhibit 10-1). The schedule, showing all work in progress, lists current accounts receivable, and those over 30, 60, and 90 days. This basic tool for managing receivables should be distributed to all project managers to ensure that all overdue accounts are followed up.

It is important to have a collection procedure in place so that an invoice does not become past due before the project manager realizes it. The procedure should provide for certain types of follow-up by the project manager—or principal, if necessary—after 30, 45, or 60 days. A sample collection procedure is described in exhibit 10-2. The project manager should be responsible for collections and should not be relieved of this responsibility until the last invoice has been paid.

Interest on late payments can be collected only if the contract contains such a provision. When billing, the interest amount should be listed separately on invoices, showing how it was calculated and referencing the pertinent contract clause.

Otherwise, a difficult client has one more opportunity to question the invoice. The interest payment can become a negotiating tool. For example, offering to forego the interest if the client pays within three days is one approach that may be taken with a slow-paying client.

Some clients question the details on every invoice, and for them it may be wise to invoice for labor and expenses separately. Labor costs are rarely questioned because they are supported by time sheets, but expenses may require further explanation. If the invoice for labor is paid on time, the architect can more easily afford to wait for payment of expenses until all questions have been resolved.

Another idea that has worked well with government agencies and larger clients is for the architect to become acquainted with someone in the agency's accounts payable section. It should be standard operating procedure for architects' billing people to be introduced to the client's payable people no later than project initiation. If possible, it is better to meet in person, rather than communicating by telephone. That person can be helpful in guiding the firm's invoices through the right channels for payment.

If a project is started late in a month, architects will often save the charges until more time and expenses are accumulated rather than sending out an invoice for a small amount. When working with large organizations, such as a government agency, it is better to send the initial invoice

Interest on late payments can be collected only if the contract contains such a provision.

Exhibit 10-1
Sample Accounts
Receivable/
Work-in-Progress
Aging Schedule

Project	Grand Total	Work in Progress	Total Accounts Receivable	Current	30 days	60 days	90 days	Over 90 days	Retainers
Project A	\$10,000	\$3,000	\$7,000	\$4,000	\$2,000	\$1,000			
Project B	\$ 8,000	\$8,000							
Project C	\$15,000	\$0	\$15,000					\$15,000	
Project D	\$26,000	\$4,000	\$22,000	\$6,000	\$3,000	\$1,000	\$12,000		
Project E	\$ 5,000		\$ 5,000						\$5,000
	\$64,000	\$15,000	\$49,000	\$10,000	\$5,000	\$2,000	\$12,000	\$15,000	\$5,000

Exhibit 10-2
Sample Collection
Procedure

Account 30 Days Old

Send the following letter:

Dear Client:

In reviewing our accounts receivable, I note that our invoice number ____ in the amount of ____ is 30 days past due.

Enclosed is a copy of the invoice; I would appreciate your taking action to expedite payment.

Account 45 Days Old

Project manager should call client now to discuss invoice, if not before.

Account 60 Days Old

Send the following letter:

Dear Client:

On _____ I wrote you regarding our invoice number ____ in the amount of _____ (copy enclosed). This invoice is now 60 days old and seriously past due. Please call immediately if there is some problem of which we are unaware. Otherwise we will expect your check by return mail.

Account 75 Days Old

Principal to call and get a date for payment or a schedule of payment terms and date when first payment is due.

Account 90 Days Old

Send the following letter:

Dear Client:

Our invoice number ____ in the amount of _____ (copy enclosed) is 90 days past due, and we must now take action to collect it. This is to notify you that if payment is not received in 10 days, we will turn this account over to our attorney for collection. We must take this action since we can no longer afford to carry past-due accounts.

Account 100 Days Old

Turn account over to attorney.

Note: These samples should be modified to fit individual circumstances. The important point to remember is that if procedures are not established, an account can reach the point where it is 60 days old and no one has taken action to collect it.

for the small amount. By doing this, the invoice enters the agency's billing process and makes it easier for subsequent invoices to be paid on time. It is also important to know the agency's payment cycle. If payment is made on the tenth of the month for all invoices received by the seventh, the firm and its consultants should make sure that invoices are submitted by the cutoff date.

Nonpayment of an invoice is often a signal that the client is not pleased with the work. If that is the case, a principal needs to get involved to resolve the problem. However, there may be a time in the collection process when the client relationship has ended and the firm's only interest is in getting paid. At that point it may be necessary to hire a collection agency or an attorney. A collection letter from the firm's attorney will sometimes trigger payment.

Questions may arise as to when it is appropriate to stop work on an uncompleted project or place a lien on the property. These are questions for an attorney to answer. In some cases if the architect decides to stop work, he or she could be in violation of the contract and be countersued. Whether a lien on the property, or some other action, is appropriate also needs to be discussed with an attorney.



Cash management is one of the most important aspects of sound business management. Effective management of cash cycles can help firms avoid financial disaster during economic downturns and take advantage of financial strength in good times. Cash management includes creating cash flow projections by identifying future revenues and expenses and forecasting billings and collections. It also requires an understanding of the ins and outs of procuring loans or lines of credit to finance cash deficits.

Cash flow is simply the movement of cash into and out of the firm, and cash management provides a systematic procedure for forecasting and controlling these flows. The objectives of cash management are to ensure that there is always adequate cash on hand and to invest any surplus funds wisely.

Cash flow has a direct relationship to the need for credit lines or loans. When cash deficits are expected, the need for borrowing capacity increases. To the extent that cash flow revenue can be improved, the need for borrowing capacity diminishes. However, it is always important for a firm to maintain a credit line in case of unanticipated needs.

Careful cash management is one of the most important aspects of managing a firm. During economic downturns effective cash management can help avoid financial disaster, and in good times it can provide financial strength for growth. Although a firm may be profitable on an accrual-based income statement, it may not have adequate cash to sustain its operations. This situation can occur when the collection period becomes so long that the firm does not have sufficient cash flowing in to meet current obligations.

PROJECTING AND MANAGING CASH FLOW

Cash flow projections can be simple or complex depending on the nature and size of the firm, but their purpose is always the same—to determine when cash receipts can

be expected and when cash disbursements must be made. Projections should also indicate the need for short-term borrowing as well as surpluses available for investment.

Cash flow projections are usually made for time spans of three to six months, although longer periods can be used. Normally, a month is the basic time interval used in these projections. Intervals longer than a month may not disclose potential problems in meeting required disbursements such as biweekly or semimonthly payrolls. An example of a cash flow projection is included in exhibit 11-1. The basic steps in developing a cash flow projection include the following:

- Forecast collections based on estimates of billings and collections.
- Estimate other cash receipts.
- Forecast cash disbursements.
- Subtract the outflows from the inflows to determine the net cash flow.

Forecasting billings and collections

The first step in preparing a cash flow projection—forecasting cash receipts—requires two further estimates: a forecast of billings, and a forecast of the amounts and timing of cash receipts from these billings.

The project manager can best identify the amount and timing of billing for projects. Once the billings have been forecast, the timing of collections can be estimated in three ways: by individual invoice, by percentage distribution of a month's billings, or by average collection period.

The month in which each invoice will be collected can be estimated by knowing when the invoice will be submitted and how long it usually takes for a client to pay. This method can be laborious if a firm has a large number of invoices each month, but it can be useful for larger billings. In the absence of experience with new clients, a best guess is made.

The second method estimates percentages for the month's billings that will be collected in 30, 60, 90, and 120 days. This method, however, does not identify which invoices will be collected. The firm can analyze its collection experience by examining billings from several months and tracking when they were collected. Percentages can be developed from that analysis and used to project collections.

Forecasting by average collection period requires that the collection period ratio be applied to the amount of outstanding invoices each month to arrive at an estimated payment schedule. The ratio is updated periodically based on actual collection experience.

Forecasting other cash receipts

Cash received from sources other than project revenues also needs to be forecast. Sources of nonproject revenues include interest from investments, income from rental properties, and sale of corporate stock.

Exhibit 11-1
Sample Cash Flow
Projections

	Actual	Current Month Forecast	Forecast Month 1	Forecast Month 2	Forecast Month 3
Beginning cash balance	\$ 2,500	\$ 5,000	\$ 2,580	\$ 9,500	\$ 12,500
Operating cash receipts					
Projects	38,180	50,000	64,320	53,000	55,000
Other income	0	1,000	1,000	1,000	1,000
Project advances	0	0	2,500	0	0
Subtotal	40,680	56,000	70,400	63,500	68,500
Operating cash disbursements	43,100	45,000	50,000	51,000	55,000
Net cash flow from operations	(2,420)	11,000	20,400	12,500	13,500
Other cash receipts					
Bank loan	5,000	0	0	35,000	0
Other	0	0	0	0	0
Other cash disbursements					
Bank loan payment	0	0	10,000	0	0
Equipment purchases	0	0	0	35,000	0
Other	0	0	0	0	0
Ending cash balance	2,580	11,000	30,400	82,500	13,500
Bank loan outstanding	30,000	25,000	15,000	50,000	50,000

Forecasting cash disbursements

Cash disbursements include payroll costs, direct costs, indirect costs, reimbursable costs, and capital expenditures. Disbursements for consultants' services may be estimated as a percentage of billings each month because these services are generally proportional to revenues. An analysis of the amount and timing of the larger disbursements for consultants' services will improve the projection process. Indirect costs are estimated based on the timing of these disbursements. For example, the timing of major expenses such as payroll and rent can be built into the projection.

Expenditures for acquiring fixed assets, such as computer equipment, must be built into the cash flow projection as well. These expenditures may be made in full or on an installment plan, in which case the payments can be projected. Another example of a payment that is not an expense includes repurchase of stock from a departing stockholder.

The cash projection can be illustrated by the payment for an insurance policy covering one year. The payment is a cash disbursement in the month paid in the cash projection. However, the value of the insurance is consumed over twelve months and therefore can be expensed on the accrual income statement at the rate of one-twelfth per month. Defining cash disbursements is important in cash projections to determine solvency, while identifying accrual expenses is important in the income statement to determine profitability.

Compiling cash flow projections

After receipts and disbursements have been estimated, the schedules can be combined into the cash flow projection and the net cash gain or loss can be calculated. The monthly gain or loss combined with the beginning cash balance gives the cash position at the end of each month. The ending cash balance of one month is the beginning cash balance for the succeeding month.

Cash flow projections guidelines

The following thoughts should be considered when preparing a cash flow projection:

- It is wise to approach forecasting conservatively.
- Consider including a cash reserve (minimum cash balance). The reserve should be large enough to provide a buffer for unforeseen circumstances; however, a cash reserve that is too large can be an unproductive asset. The proper size of the cash reserve for a particular firm will be determined through experience.
- The first cash flow projection is the most difficult to prepare. Judging the volume and timing of collections is especially difficult because of uncertainty about when clients are expected to pay. Those judgments will become easier, however, after the process is repeated. At first, projections should be simple, and then these will be tested against performance. Subsequent projections can provide more detail as needed. Using computerized spreadsheets can speed up the process.

The proper size of the cash reserve for a particular firm will be determined through experience.

considerably and allow managers to test various assumptions or establish a range of alternatives.

- The projection period is a function of experience. As a minimum, a three-month cash forecast can be made and later extended to six months or a year.
- Projections are guides to planning and controlling. Unlike accrual-based budgets, which should be revised only when there is a significant change in operations, cash flow projections should be revised frequently in light of collections experience, major changes in billings forecasts or capital expenditures, or unexpected disbursements.

IMPROVING CASH MANAGEMENT

Some ways to improve cash management are to monitor billings, sustain backlog, bill promptly, monitor cash receipts and pursue the timely collection of invoices, control disbursements, and prepare cash flow projections on a regular basis.

Monitoring billings

Billings are monitored by comparing actual billings to projected billings. Variances of actual from projected billings should be explained. Reasons may include delays in production, client problems, changes in contract terms, or reduced ability on the part of the firm to provide services. Cash flow projections need to be revised as project schedules change, scopes of services are modified, and new projects are awarded.

All of these affect the estimates of future billings.

Sustaining backlog

Backlog is the value of revenue from work that has been contracted but not yet earned. The level of backlog and variations in backlog from month to month provide good indicators of a firm's ability to sustain business. In calculating backlog, most firms include revenue only on work under contract. As the work is performed and backlog consumed, new contracts are necessary to replenish the backlog. Declining backlog is a sign that principals should step up their marketing efforts, while increasing backlog is an indication the firm may need to hire additional staff.

Billing in a timely manner

Every project should be billed on the basis of costs incurred or percentage complete, depending on the terms of the contract. Agreements should provide for monthly billing whenever possible. Occasionally contracts are written to provide for billing when certain milestones are completed or phases accomplished. These terms should be avoided if possible since they tend to delay billing and increase pressure on a firm's cash flow. Monthly billing is preferable for the following reasons:

- Monthly billing produces regular cash flow, minimizing the need for bank loans to finance receivables.

Agreements should provide for monthly billing whenever possible.

- Monthly billing provides a way to keep the client informed of the progress on projects, although billing is not intended to replace progress reports, meetings, or other methods of keeping the client informed.
- Monthly billing places a value on the professional services rendered.

Controlling disbursements

Careful timing of disbursements can be an effective way to control cash outflow. The firm should analyze cash disbursements that are above or below projections. Vendor invoices should be paid on time, but not earlier, in order to keep a good credit rating. If any vendor offers discounts for prompt payment they should be taken. Generally consultants are paid when the architect is paid. It is important to pay consultants promptly in accordance with the terms of their contracts to keep good relations and receive good service.

FUNDING CASH NEEDS

If cash projections predict short-term deficits of cash, a firm may consider taking these actions:

- Speed up the rate at which work is produced and clients are billed if the contract permits and decrease the time required to produce invoices.
- Reduce the collection period through prompt follow-up on past due accounts.
- Obtain a bank loan secured by accounts receivable.

If cash projections indicate a continuing deficit, longer-term financing may be needed. In that case, the following are considerations involved in obtaining long-term financing:

- Lease rather than buy equipment.
 - Add new capital from the owners.
 - Retain more earnings in the firm by reducing discretionary expenditures.
 - Defer certain capital expenditures.
- This is only a temporary solution as it will require major outlays in the future to catch up with technology.

FINANCING STRATEGIES

One form of short-term financing is a line of credit. This is a standing commitment by a bank to lend funds up to an agreed-upon limit. Having a line of credit with a bank assures a firm these funds will be available when needed. In establishing a line of credit, the bank determines an upper limit based on knowledge of the firm's operations, its management, and its projected financial strength. Quarterly financial statements and cash flow projections are generally required to keep a bank informed about the financial health of a firm and its ability to repay the loans.

To receive a line of credit at a bank, a firm is usually required to maintain a minimum-deposit account there, and the principals are usually required to guarantee the loans personally. This is necessary because a professional firm has fewer assets to pledge than other businesses. For example, there is

Careful timing of disbursements can be an effective way to control cash outflow.

no inventory of raw materials or finished goods that can be sold quickly to repay a loan. Instead, a banker largely depends on the personal attributes of the architect, such as the ability to generate revenues and his or her character in honoring outstanding obligations. For this reason, major changes in personnel, property, or operating conditions may be subject to the approval of the bank during the term of the loan. Banks usually require that a line of credit be paid off entirely for at least a month each year to demonstrate that the loan is for seasonal or temporary needs.

Banks do not generally lend to start-up companies because banks do not perform venture capital services. Venture capital is the business of investing in new companies and untried processes. It is a high-risk business and most venture capitalists take a number of significant losses for every successful business they discover. To protect themselves, venture capitalists often take an equity position in the firms they invest in and eventually hope to take the company public to recover their investment. Professional services firms are not an appropriate investment for venture capitalists because of the personal nature of the services provided and their lack of a public market. For these reasons, an architect starting his or her own firm must rely on personal savings and perhaps loans from family and friends. It is only after an architect can demonstrate staying power that he or she can approach a bank.

It is important to understand the difference between a short-term line of credit and a medium-term loan. Banks will extend a line of credit for a year with options to renew if a satisfactory credit arrangement is maintained. Sometimes the line of credit is extended for a shorter period, such as six months with an option to renew, if the architect is not well known to the bank. A medium-term loan, usually called a term loan, is generally an equipment loan. Long-term loans are usually for real estate.

Short-term lines of credit are used to finance working capital. The line of credit is similar to a revolving charge account. It gives the firm the ability to borrow up to a certain limit, and as the loan is repaid the funds are available for borrowing again. Credit lines are used to finance growth. If a firm is purchasing equipment, a term loan is used. A term loan generally is for five years to coincide with the depreciable life of the equipment.

When negotiating for a loan, it is helpful to understand the banker's point of view. Bankers expect to be paid out of working capital generated, but they are also concerned about the collateral received in case the loan is not repaid on time. In the case of a term loan, the banker is interested in whether the equipment can be used at another firm because the banker has no use for the equipment. That means the banker is more comfortable lending for general purpose equipment that can easily be used

When negotiating for a loan, it is helpful to understand the banker's point of view.

by another company. For example, vehicles are easily transferred so the bank can regain its loan if a firm defaults on payments.

However, in the case of a loan for CADD equipment, bankers first must understand what CADD equipment is, and then why other architecture firms could use it without extensive modifications, before they would be willing to grant a loan.

A line of credit loan is secured by accounts receivable. The problem bankers have with accounts receivable is that architects deal in services rather than goods. If something should happen, how would the banker collect on these receivables? Another firm would have to finish the work, but that means moving it to another location and having new staff become familiar with the project. To a banker, an architect's accounts receivable are worth less than their stated amount. That is why bankers lend primarily on the personal creditworthiness of the principals of a firm rather than on the actual accounts. Bankers depend on the good faith and knowledge of the principals and therefore expect them to pledge their personal assets to guarantee a loan.

Bankers need to understand that what would be considered past due or potentially doubtful accounts in other businesses may still be good accounts to architects. To a banker, any account past 60 days is a potential bad debt because most businesses operate that way. It is important to show a banker that many clients depend on outside financing but eventually they do pay. If an architect is suc-

cessful in helping a banker understand this, it may increase the amount the banker is willing to lend on accounts receivable.

To secure a line of credit it is necessary to understand how a bank operates. The loan officers responsible for business loans are primarily information gatherers. They assemble the information on the loan application and present it to the loan committee of the bank. Senior bank officials on the loan committee make the final decisions on loans. This means an architect must prepare a proposal to the loan committee, similar to making a proposal to a client (see exhibit 11-2). The proposal requires advance preparation with significant detail and will be reviewed in advance by a loan officer to be certain all questions have been answered.

Bankers depend on the good faith and knowledge of the principals and therefore expect them to pledge their personal assets to guarantee a loan.

Exhibit 11-2

Contents of a Good Loan Proposal

Note: Personal financial statements on the principals should be prepared, but not included in the loan package sent to the banker before the meeting. Present these statements during the course of the meeting when requested, and ask the banker to make special note that they are highly confidential and should be kept in his personal files rather than in the general files of the bank.

1. Transmittal letter showing the amount to be borrowed, the purpose, and the expected date of final repayment. Include suggested terms such as a revolving line of credit for six months on which interest will be paid quarterly.
2. Year-end financial statements (balance sheet and income statement) and most recent interim financial statements.
3. Accounts receivable/work-in-progress aging schedule.
4. Cash flow projection showing the effects of borrowing and repaying the bank loan.
5. List of major projects under contract by category of work. Identify projects by description only, i.e., schools, churches, etc., unless the project is very well known. The intent is to show the firm's financial stability without giving so much information that the banker can call your client for a credit reference. Credit references can be given later.
6. List of major proposals outstanding by category. Also identified only by description for the same reason as #5.
7. Firm brochure and résumés of principals.

Exhibit 11-3

Checklist of Dos and Don'ts for Establishing a Credit Line

Do

1. Prepare a thorough loan proposal.
2. Ask for sufficient credit to satisfy your needs for the duration of the credit line.
3. Seek help from your accountant, if necessary, to prepare the loan proposal and assist you in negotiating terms.
4. Discuss your needs in advance with the banker to see whether the bank will be receptive to your loan proposal.
5. Try to negotiate out of your personal guarantee as soon as practical.
6. If you are refused credit, find out why.

Don't

1. Wait until you desperately need a loan to establish a line of credit.
2. Arrange a meeting with a banker unless you can show him a well thought out business plan.
3. Minimize the importance of having a thorough and complete loan proposal prepared in advance.
4. Be unsure of yourself or your operations; negotiate from a position of strength.
5. Have only one credit source. Develop acquaintances with several banks so you have more than one to choose from.

Preparing a proposal for financing

A loan proposal begins with a transmittal letter that lists the basics of the loan request, including the reason for the loan. The letter should include suggested terms for the loan and a suggested interest rate based on the prime rate, or prime plus 1% or 2% over prime, renewable on an annual basis. The prime lending rate is the rate at which banks lend to their largest, most seasoned clients. Smaller or newer firms are likely to pay more than the prime rate. By outlining suggested terms for a loan, an architect shows a banker that he or she knows what is needed and how the loan will be repaid.

A bank is paid for a line of credit through the interest rate on loans as well as through commitment fees. The commitment fees cover a bank's cost in making funds available, even if they are not used. Another method of recouping bank expenses is requiring compensating balances. This means a bank expects a firm to maintain a certain level of balance in its operating account.

Following the transmittal letter are the financial statements. The banker will look with greater favor on reviewed or compiled statements prepared by an outside accountant than on those prepared by the architecture firm itself. If an application is submitted in the middle of the year, it is necessary to include interim financial statements as well.

Loan proposals also need to contain an aging schedule, which is the basis for a credit line. Banks will generally lend on a portion of the accounts receivable, probably up to 60

days, but that is negotiable. The size of the loan versus the receivables pledged is also negotiable, depending on how comfortable the banker is with the quality of the receivables.

After the aging schedule, provide a cash flow report. This shows how the borrowing will take place over the year and how it will be repaid. Next, a loan proposal should include a list of projects by category to give the loan committee an idea of the size and type of projects the firm works on. (This is not a list of references and should not include client names; see following paragraph.)

A loan officer generally gives the financial information supplied by the firm to a credit analyst, who develops ratio analyses to help the loan committee decide whether to grant a loan. If a list of clients is included in the proposal, the credit analyst might call some of them to determine whether the firm is a good credit risk. While this may be acceptable procedure in other types of business, architects generally do not want their clients bothered in this way. Therefore, do not identify any clients by name in the loan application but only generically by type of project. If the bank wants credit references, the architect needs to approach the client for permission for the bank to call.

Bankers will probably ask for personal guarantees, particularly if they are not well-acquainted with a firm. Guarantees should not be volunteered but are part of the negotiation process with the bank. Part of the problem with personal guarantees is that while the loan application is supposed to be confidential, the

The size of the loan versus the receivables pledged is also negotiable, depending on how comfortable the banker is with the quality of the receivables.

papers are filed in the bank's central files along with other applications. This means the architect's loan application is available to other bank personnel. In a small town where most people know each other, this kind of information can spread quickly. One way to overcome this is to ask the loan officer to keep the application in his or her personal files. However, there is still no guarantee the information will be kept confidential.

Submitting the proposal

When a loan proposal is complete, the architect is ready for discussion with the banker. A checklist of items to review is provided in exhibit 11-3. Some architects choose to have their accountants accompany them to help explain the financial statements and lend credibility to the application. After the interview with the loan officer, the proposal and information gathered during the discussion are presented to the loan committee.

If a loan is refused, or if more stringent terms are proposed, it is important to find out why. If a loan is turned down because of weak credit, it is necessary to correct the situation, perhaps with more equity financing. On the other hand, the reason for refusal may have nothing to do with a firm's credit. Bankers must spread their risks and diversify their loan portfolios to protect their stockholders. Particularly in smaller communities, bankers may have filled their quota of professional services loans and will reject a loan because it does not fit the bank's portfolio needs. It may be wise to

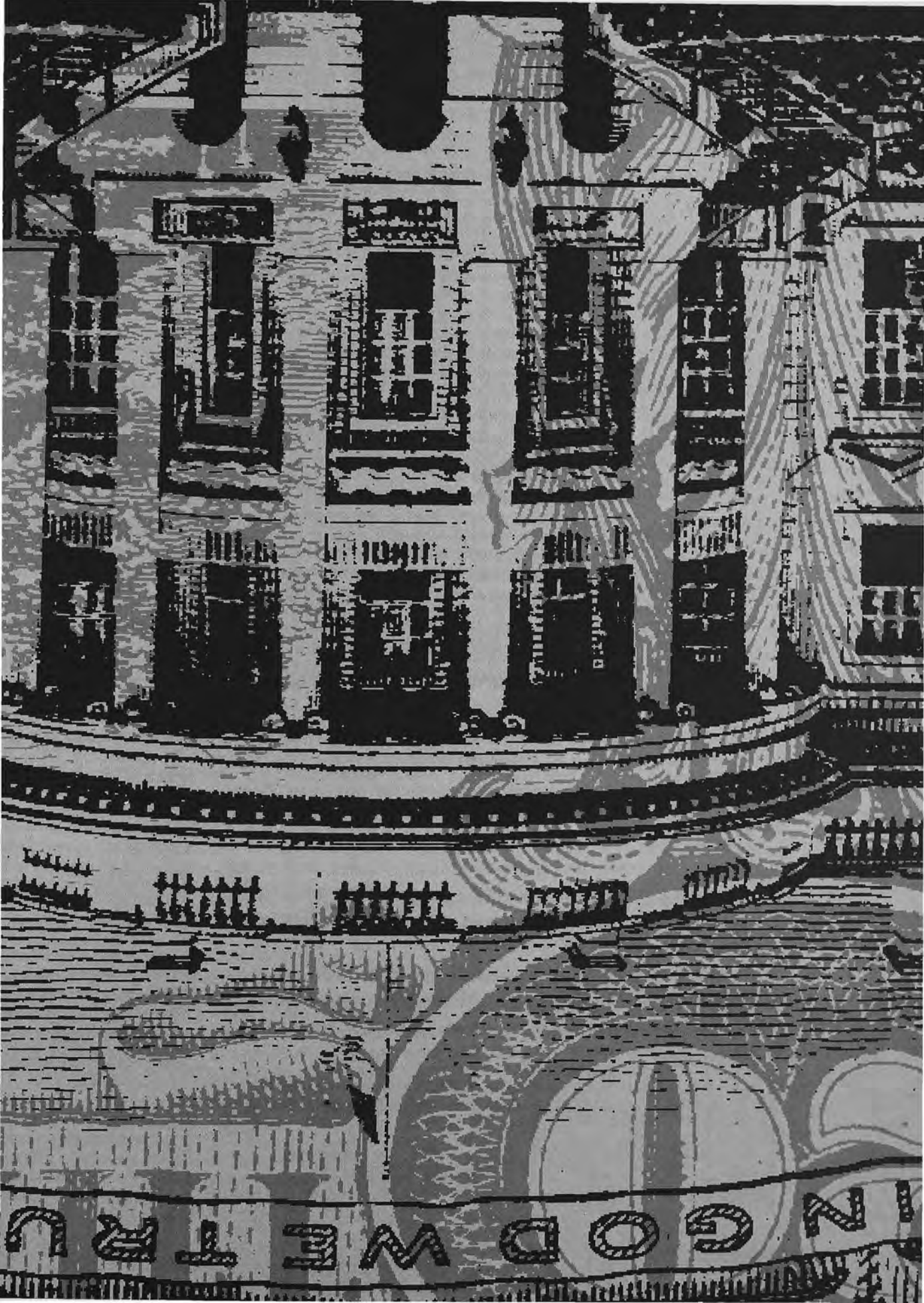
raise this question at the beginning of the negotiating session and, if the bank has enough of this type of loan, the architect can present the loan proposal to another bank.

WORKING WITH BANKS AND BANKERS

When an architecture firm starts a new banking relationship, the banker will probably ask for all of the firm's business, including the principals' personal accounts. Knowing this in advance, the architect may offer it as part of the negotiation.

Bankers are good sources of marketing intelligence as well. Since they are active members of the chamber of commerce, they know what businesses are moving into and out of the area and who has plans for new construction. To take advantage of what bankers can offer, a principal may want to personally deliver the quarterly financial statements to the bank when they are required in connection with a line of credit. These meetings can provide a forum for discussing marketing opportunities as well as the firm's financial situation.

Bankers are good sources of marketing intelligence as well. Since they are active members of the chamber of commerce, they know what businesses are moving into and out of the area and who has plans for new construction.



Computerized accounting systems allow data to be entered, stored, retrieved, and combined in ways that are impractical using manual methods. Computerized accounting systems provide an effective means of profiling a firm's overall profitability and of tracking and reporting the financial status of individual projects. However, all computerized accounting systems are not alike, and each architecture firm has specific accounting needs. For these reasons, it is important that architects carefully evaluate the capabilities and features of each system under consideration before putting one in place.

Computerized accounting systems comprise a series of modules covering all accounting functions, including general ledger, payroll, billing (invoicing), accounts receivable, and accounts payable. A special requirement for an architecture firm is the need for a project-based accounting system, which ties transactions entered through the system to a project where appropriate. This capability allows the firm's financial records to reflect the status of every project as well as the profitability of the firm itself.

CHARACTERISTICS OF A COMPUTERIZED ACCOUNTING SYSTEM

The primary focus of a computerized accounting system is to allow the firm to enter, store, manipulate, and retrieve data in ways not easily accomplished with manual accounting methods. In a computerized system, the data can be reported in many different combinations. This allows managers to more easily understand and analyze the data.

It is best to implement a computerized accounting system specifically designed for architecture firms. Generic accounting systems intended for any kind of business or one that was developed for another type of business and later adapted for architectural practice are not effective. Most generic systems add the project management element as an afterthought, if at all, whereas the project management element is the core of systems designed specifically for architecture firms. Some systems for

architects have been adapted from a lawyer's time and billing system, and others have been adapted from a contractor's system because contractors also work on a project basis.

Problems, however, often occur with these adapted systems because architects are using them to do something they were not designed to do.

Beyond the basic need of being project based, an effective computerized accounting system for an architectural practice has six major characteristics: integration, audit trail capability, overhead handling, reporting method options, revenue recognition, and expense categorization.

Integration

There are two basic types of computerized accounting systems—integrated and interfaced. The capabilities of the integrated system make it the preferable choice. With an integrated system, the user enters the data only once, and the data are automatically linked to all of the installed system modules. For example, keyed-in hourly data from time sheets are automatically available for project control, payroll, and billing activity modules. In addition, the general ledger and project control sides of an integrated system remain reconciled at all times. Interfaced systems, on the other hand, require additional data entry steps before the information is available to accounting functions, such as payroll and billing.

Audit trail capability

The computerized accounting system should be able to trace every transaction to its source document to ensure the integrity of the firm's database. Having an effective audit trail prevents entering erroneous data. Moreover, it places restrictions on what types of changes can be made to already entered transactions. Systems without these controls built in are not a good choice for an architecture firm as they compromise the integrity of the accounting system.

Overhead handling

The system should support the different ways of assigning overhead to projects. For example, overhead can be prorated by allocating actual indirect costs according to a base amount, such as the amount of direct labor spent on the project. Overhead can also be allocated by assigning a specific overhead percentage rate to each project. Besides accommodating these methods, the system should be able to show overhead calculations on invoices. By making this information clear to the client, there is a greater likelihood of avoiding payment delays.

Reporting method options

Most firms operate on an accrual basis but report taxes on a cash basis. If a firm uses both reporting methods, the accounting software system must be capable of producing reports on both an accrual and a cash basis.

Revenue recognition

The system should support the method the firm uses to record revenue on its projects. Some firms use only one method while others may use more than one. For example, for time- and materials-based projects, the hours and expenses are recorded from time sheets and expense reports. On lump sum or percent-of-construction projects, the project manager estimates a percent complete figure for each billing. (Percent complete is the amount of work accomplished, expressed as a percentage, relative to the total budget.) The computerized accounting system should accommodate these recording methods.

Expense categorization

It is essential that the accounting system distinguish among reimbursable, direct, indirect, and consultant expenses. Tracking consultant expenses is important. For example, does the system support a payment method when consultant invoices are paid after the firm has been paid by the client? The system should distinguish among the types of expenses a project can incur, since some firms do not include consultant and reimbursable expenses in their project revenue.

EVALUATING AND CHOOSING A SYSTEM

The number of people involved in evaluating and selecting a computerized accounting system depends on the size of the firm. In a small firm, the principal and perhaps the bookkeeper decide which system to purchase. Larger firms often establish a task force for this purpose. The task force should include representatives of the accounting department, project management group, and at least one principal. Some firms also may include their outside accountant during the evaluation.

When looking for a system, the architecture firm should prepare a list of specifications that includes such information as how many checks are written each month, how many invoices the firm processes, how many people are on the payroll, and the like. These specifications form the basis for evaluating the features and capabilities of various systems, discussing them with several software vendors, and obtaining proposals. After reaching a general consensus, the firm must evaluate vendors and their products with regard to the following:

- How many firms use a particular system, and is the vendor able to provide references of users that are relatively the same size and with similar characteristics? The vendor references need verification. Talking with other firms to gauge their satisfaction with their accounting systems is essential. If possible, a representative should visit another firm to watch its system in action.

■ How long has the vendor been in business? What are its prospects for stability? What happens if the vendor loses interest in the architectural market, lacks staying power, or simply goes out of business? What resources would then be available to maintain the product?

■ Is there an active user community, such as a local user group or a regularly scheduled users' meeting for the system under consideration? These factors will help the firm determine how committed the vendor is to listening to users and making improvements to the system. Going to a users' group meeting also would help the architect understand better the day-to-day operational issues of the system.

■ Since most systems are updated frequently, how often does the vendor update the system? Does the vendor have a formalized method of incorporating existing users' requests into an update? What is the current version of the system and what is the history of the vendor's product releases?

■ Are consultants available through the vendor to help install the system and train the people who will be using it? Are training classes held frequently and are they in convenient locations?

■ What are the hardware requirements of the system and what other systems and uses are supported, such as a marketing system, a human resources databank, networking capabilities, and a security system?

AN IMPLEMENTATION PLAN AND SCHEDULE

Once a firm selects a system and a vendor for the program, it should establish an implementation plan and schedule. For successful implementation, the installation of the new system should take place on time, the training scheduled and conducted, and the system made operational according to the designated date. In this process, it is essential that managers be trained in the use of the system so they can also understand and use it.

The task force should ensure that all stages of installation and implementation are met and that any unforeseen issues are resolved in a timely manner. Some vendors will work closely with a firm in establishing an implementation plan and schedule as a part of their services. Others leave it to the firm. An implementation plan is necessary for firms changing from a manual to a computerized system or transferring from one computerized system to another.

When installing a computerized accounting system, the first step is to start with a work breakdown structure and a chart of accounts. The work breakdown structure consists of project numbers that typically have imbedded in them the year of initiation, task (or subproject) numbers, labor and expense codes, and account numbers. These codes define how the computerized accounting system handles the work elements in terms of departments, phases, services, and staff levels. This work breakdown structure carries throughout the firm's activities. For example, the labor code can tie directly to the billing

function when staff time is billed according to the types of work performed on the project.

Firms with complex requirements may need to consider establishing profit or cost centers, such as studios or departments, disciplines, and branch offices, and decide how to manage the profit center reporting. For example, in addition to the firm, profit centers could produce separate income statements. An integrated system offers a separate numbering and classification system for profit center reporting, which allows the firm to keep track of projects or cost centers as separate entities within the database.

The chart of accounts is a list of all accounts grouped by assets, liabilities, net worth, revenue, expenses, and profit. One of the best systems to use is the one developed in conjunction with the AIA and used in the Harper and Shuman CFMS system, which is discussed later in this chapter. The numbering methodology used in this system consists of five numbers, with the first three serving as the main account number and the last two serving as sub-account numbers. This permits subaccounts to be subtotaled for each main account number. In addition, the system reserves a range of accounts for each balance sheet and income statement category. The table that follows shows a sample breakdown of account classes and the range of account numbers reserved for each class:

Account Class	Range of Account Numbers
Assets	100.00 to 199.99
Liabilities	200.00 to 299.99
Net worth	300.00 to 399.99
Revenue	400.00 to 499.99
Reimbursable expenses	500.00 to 599.99
Direct expenses	600.00 to 699.99
Indirect expenses	700.00 to 799.99
Other revenue and expense	800.00 to 899.99

For example, if a firm has more than one bank account, the accounts could be numbered 101-Cash, 101.01-Bank One, 101.02-Bank Two, and 101.03-Bank Three. Using this numbering system permits a roll up of these subaccounts into a subtotal under the main account, 101-Cash. This same capability carries throughout the entire chart of accounts. A firm may decide to use longer account numbers. This is not a problem as long as the numbers conform to the standard account numbering system with subtotalling capability.

OVERVIEW OF A COMPUTER-BASED FINANCIAL MANAGEMENT SYSTEM

There are several computerized financial management systems designed specifically for architecture firms. They have the capabilities discussed above and are designed to accommodate small to mid-sized firms. Many have the capability of adding other features, such as marketing and human resources modules. The system profiled here is the Computer-based Financial Management System (CFMS), which is the automated version of the financial management system that the accounting firm of Arthur Andersen & Co. established under the auspices of the American Institute of Architects in the late 1960s.

In 1973 Harper and Shuman of Cambridge, Massachusetts, was incorporated to sell, develop, enhance, and support CFMS*, and the AIA continues to endorse the system. The CFMS family of products offers a wide range of project control, accounting, and financial management tools for architecture firms of all sizes. CFMS is modular in design, which makes it possible to begin with basic project reporting and then to implement additional capabilities in a planned and orderly sequence.

Sample reports

The reports from a computerized accounting system serve as the basis for management decisions. This section contains examples of several standard reports that constitute the core of those in CFMS or in any computerized accounting system for architects. The examples are for the fictitious twelve-person architecture and engineering firm named Apple and Bartlett.

To ensure their viability in the ever-changing office environment, reports from computerized systems can be accessed and used in several ways. They can be viewed directly from a computer screen, written to a file on disk, downloaded to another application preferred by the user, or printed in hard copy. Although there are several available format options—with or without detail, sorted by project manager, principal, or project type—the most common versions are the following:

- Project progress report
- Project detail report
- Office earnings report
- Time analysis report
- Aged accounts receivable report

While the above contain basic project-based accounting information, there are many other kinds of reports available, including income statements, balance sheets, accounts receivable ledger, cash journal, general ledger account analysis, overhead allocation report, posting logs, database lists, payroll and

*CFMS is a registered trademark of the Computer-based Financial Management System. Its general technology is jointly owned by Harper and Shuman, Inc., and the American Institute of Architects. For further information about CFMS, contact Harper and Shuman, Inc., 68 Moulton Street, Cambridge, Mass. 02138-1119; phone 617/492-4410

government unemployment reports, and accounts payable reports (including a consultant's payable ledger).

Project progress report

The project progress report serves as a primary management tool to monitor the status and the progress of projects. The reports contain comprehensive cost data, budgetary comparisons, and summary financial data (see exhibit 12-2).

The essence of the project progress report lies in its comparison of actual hours and dollars with budgeted amounts. Its format also presents current and job-to-date figures. Thus, the report can indicate when to take corrective action should variances from budget occur, as explained in chapter 3. Budgeted labor rates are also compared with actual labor rates. Using this information in conjunction with the dollars remaining in the budget, the hours remaining to complete the project can be computed based on both budgeted and effective rates.

Labor costs are presented according to the codes reported on time sheets or by consultants' coded invoicing. Overhead is assigned to projects by either a preset percentage or by an allocation based on the firm's actual current overhead rate. Direct and reimbursable expenses (e.g., travel, long-distance telephone, and reproduction) are added to complete the total expenses for the project. In addition, the project progress report also includes a financial analysis section that shows total compensation, amount

billed, accounts receivable, net multiplier (also called "effective multiplier"), and unbilled amounts. The financial analysis summary facilitates the overall review of each project and its contribution to the firm's financial performance.

The data in this report can be arranged in a variety of ways. They can be summarized by department and phase or broken down by department, phase, service, and staff level. The sequence of the data displayed can also be varied.

Project detail report

The project detail report presents a detailed accumulation of project expenses (see exhibit 12-3). It presents much of the same data on direct salaries and on indirect, direct, reimbursable, and consultant expenses as the project progress report, but with two important differences. First, the individual employees charging time to a given labor code are shown as detail lines along with individual cost rates and extensions. Second, the report does not make budgetary comparisons but a detailed documentation of accumulated project expenses. This serves as an excellent backup to the billing function. Expenses also are presented at the bottom of this report in a format similar to that of the project progress report. If desired, the detailed reference to the original entry (cash journal, accounts payable, or journal entry) can be shown for out-of-pocket expense, allowing for a complete audit trail of expense activity.

The essence of the project progress report lies in its comparison of actual hours and dollars with budgeted amounts.

Both project progress and project detail reports include a line item labeled "Fee" to indicate how large the project is in terms of expected compensation. In addition, figures are given for the amount received to date, the accounts receivable, and unbilled services or the difference between earned revenue and billed amount. The reports include a calculation of the effective multiplier for each project, and the line labeled "Rev Meth" indicates the revenue method used to accrue revenue for the project.

Because individual salary rates are shown on project detail reports, they normally have a more limited circulation than the project progress report.

Office earnings report

The office earnings report provides vital information for all current projects. Data are reported for the current period, year to date, and job to date. This report shows the total billed, revenue amount, spent amount, profit, and profit percentage for each project. (See exhibit 12-4.)

Time analysis report

The time analysis report in exhibit 12-5 shows the utilization of each employee on project assignments as well as several chargeable ratios for each employee. (As explained in chapter 4, a chargeable ratio is a ratio of hours charged to projects as a percent of total hours.) Ratio A shows the overall gross chargeable ratio based on total hours worked. Ratio B shows a chargeable ratio based on the net hours available for direct work (after subtracting the normal fringe benefit hours such as vacation, sick leave, and holidays). Ratio C is the targeted ratio for that employee in the annual plan and can be commensurate with any of the other ratios, depending on a firm's philosophy on time management.

In addition to the chargeable ratios, the time analysis report also shows the number of total indirect hours and how they have been charged to overhead categories (as defined by the firm) on both a current and year-to-date basis. Subtotals are provided by employee class, by department, and for the firm as a whole.

Aged accounts receivable report

The aged accounts receivable report provides a detailed analysis of all accounts receivable on a project-by-project basis (see exhibit 12-6). This report is helpful in the collection process as well as in the overall maintenance of accounts receivable. The aged accounts receivable report shows the balance owed on each project along with how long the balance has been outstanding. The report also lists the

name of the contact person and the phone number for collection activity. This report can be used to:

- Decide when a client is delinquent in paying and take corrective action, such as charging interest on overdue accounts if the contract terms allow for such action.
- Project cash flow and monitor clients' payment patterns.
- Obtain financing by showing how much is owed to the firm. Accounts receivable are generally used as collateral by banks, as discussed in chapter 11.

COMPUTER SECURITY AND INTERNAL FINANCIAL CONTROLS

Computerized accounting systems have built-in security features. For example, passwords can limit access to payroll records and other confidential data. They can also limit the number of employees who have authority to change vendor invoices, payments from clients, and other records. When choosing an accounting system, architects should ask vendors about the levels of security and the kinds of control features that are built into the system.

Financial security, of course, transcends computer security, but the subject is rarely discussed in architecture firms even though it deserves greater attention. Firms of all sizes have suffered financial losses as a result of actions by unscrupulous people in their financial departments. Many of these thefts have gone undetected for years.

When they are discovered, management is embarrassed and sometimes chooses not to prosecute because of the inherent publicity.

While most architecture firms never experience these problems, they are not immune from such occurrences, which can be carried out by individuals in different ways and for different reasons. For example, experienced embezzlers often have help getting hired, usually through accomplices who pose as former employers. Once on the job, these individuals are adept at covering their tracks, and their activities are discovered only by accident or through their own carelessness. In other cases, a long-time employee may be driven to theft by personal circumstances and by the belief that he or she will repay the loan later. These individuals usually are less experienced and thus more easily detected.

To protect itself against these situations, a firm can put policies and procedures in place to ensure that financial transactions are carried out in accordance with management's directives. The following guidelines can help a firm achieve greater internal financial control:

- Do not rely on a year-end visit by an outside accountant to discover financial discrepancies. The primary task of the outside accountant is to determine whether the firm's financial statements have been prepared in accordance with generally accepted accounting principles. Of course, if a discrepancy is discovered, the accountant

When choosing an accounting system, architects should ask vendors about the levels of security and the kinds of control features that are built into the system.

will report it; however, uncovering theft is not the purpose of the visit.

- Obtain fidelity bond insurance on people handling money in the firm. This insurance should be in the amount that is most likely to represent the firm's maximum exposure. Fidelity bond insurance is relatively inexpensive and may be obtained through the firm's insurance broker.

- Look for ways to split the duties of people working in the accounting department. A division of labor requires collusion on the part of two or more people to accomplish a theft. Separating certain accounting duties in a small firm may be difficult when there is only one bookkeeper. In those cases, someone else should reconcile bank statements, even if this is done by a principal or a spouse. Another strategy is to have a senior secretary open the mail and record the checks received on a separate list. The checks are then given to the bookkeeper to prepare the bank deposits. Each month, one of the principals should review the list to verify that all checks received have been recorded in the financial statement. A sample weekly list of cash receipts is shown in exhibit 12-1.

- The best way to promote good internal financial control practices is to have one or more of the principals take an interest in the financial function. Simple actions such as asking questions and observing the activities of the accounting department are very helpful. Is the office organized? Are checks and other records adequately protected? Is the office locked when no one is around? How easy is it for the accounting personnel to research records and answer questions that arise? Even these few procedures will show employees that the principals in the firm take an interest in financial functions.

Exhibit 12-1 **Sample Weekly List** **of Cash Receipts**

Week of 6/20

Check No.	Date	From	Amount
1213	6/20	Smith Medical Associates	\$15,080
2695	6/20	Jones Company, Inc.	22,000
406	6/20	Johnson Associates, Inc.	8,500
Total			\$45,580

Note: In smaller firms
a senior secretary can
maintain this log of incoming
checks as the mail is
opened and sorted.

Exhibit 12-2
Sample Project
Progress Report

Project Progress Report

31-May-96

12:47 PM

Apple and Bartlett, Inc.

For the period 5/1/96 - 5/31/96

		--- Current ---		Project to Date		--- Budget ---		%	%	--- Balance ---	
		Hrs	Cost	Hrs	Cost	Hrs	Cost	Exp	Rpt	Hrs	Cost
Project	94015.00	Balboa Office Park				Rev Meth B		Bud OH Rate 155			
Type	Regular	Status		Active				Fee 306,000			
Principal	Bartlett	Project Manager		Gonzalez							
A	Architectural										
01	Pre-design										
0	General										
	Bartlett, James			15	435						
	Spencer, Wilbur			10	76						
	Stone, Richard			5	80						
	Total General			29	591	36	634	93	100	7	44
02	Site Analysis										
0	General										
	Bartlett, James			14	405						
	Spencer, Wilbur			12	92						
	Stone, Richard			19	287						
	Total General			44	784	36	634	124	100	8-	150-
03	Schematic Design										
0	General										
	Apple, William			54	1,620						
	Bartlett, James			47	1,416						
	Gray, Brenda			87	1,479						
	MacKenzie, Jonathan			30	450						
	Spencer, Wilbur			8	61						
	Stone, Richard			76	1,142						
	Total General			302	6,167	408	6,700	92	100	106	533
04	Design Developmnt										
0	General										
	Apple, William			50	1,500						
	Bartlett, James			41	1,236						
	Gray, Brenda			78	1,326						
	MacKenzie, Jonathan			50	750						
	Smithfield, Joanne			3	33						
	Spencer, Wilbur			19	151						
	Stone, Richard			88	1,323						
	Total General			329	6,319	408	6,700	94	92	79	381
05	Construction Doc										
0	General										
	Bartlett, James			15	450						
	Davisson, Emily			4	30						
	Stone, Richard			6	90						
	Total General			25	570	1,188	16,700	3		1,163	16,130
06	Bid-Negotiate										
0	General										
	Davidson, Emily	2	15	18	135						
	Gray, Barbara	6	145	54	1,301						
	Herz, Ellen	2	45	18	406						
	MacKenzie, Jonathan	2	30	18	270						
	Stone, Richard	3	56	27	500						
	Titony, Roberta	2	30	22	272						
	Total General	17	320	157	2,884	200	3,200	90		43	316
07	Const. Admin										

(continues on next page)

Exhibit 12-2
Sample Project
Progress Report

(continued)

		--- Current ---		Project to Date		--- Budget ---		%	%	--- Balance ---	
		Hrs	Cost	Hrs	Cost	Hrs	Cost	Exp	Rpt	Hrs	Cost
0	General										
	Davidson, Emily	3	23	27	203						
	Gray, Barbara	6	145	54	1,301						
	Herz, Ellen	4	90	36	811						
	MacKenzie, Jonathan	4	60	36	540						
	Stone, Richard	4	74	36	667						
	Titony, Roberta	4	47	33	420						
	Total General	25	438	222	3,942	200	3,200	123		22-	742-
08	Post Construct.										
0	General										
	MacKenzie, Jonathan	3	45	27	405						
	Total General	3	45	27	405	40	640	63		13	235
09	Supplemental										
0	General										
	Total General					96	1,594			96	1,594
	Total Architectural	45	803	1,136	21,662	2,612	40,002	54	35	1,477	18,340
I	Interiors										
03	Schematic Design										
0	General										
	Bartlett, James			15	459						
	Davisson, Emily			3	23						
	Stone, Richard			10	153						
	Total General			29	635	40	660	96	50	12	26
04	Design Developmnt										
0	General										
	Total General					40	660			40	660
05	Construction Doc										
0	General										
	Total General					108	1,900			108	1,900
	Total Interiors			29	635	188	3,220	20	10	160	2,586
	Total Labor	45	803	1,164	22,296	2,800	43,222	52	33	1,636	20,926
	Overhead *		1,165		28,832		66,994	43	33		38,162
Direct Expenses											
615.00	Other Consultants										
	Subtotal 615.00						600				
621.00	Travel and Lodging										
	Subtotal 621.00						450				
621.01	Meals										
	Subtotal 621.01						50				
622.00	Reproductions										
	PR 00007 4/30/96			5	blueprints				Orig: 02 Copies: 002		
	Subtotal 622.00			5		250		2	10		245
623.00	Models/Renderings/Ph										
	Subtotal 623.00						500				
629.00	Misc Direct Expenses										
	CD 01117 4/21/96			46	United Parcel				shipping		
	Subtotal 629.00			46		500		9	30		454
	Total Direct Expenses					51	2,350	2	7		2,299
	Total Lab-OH-Direct Exp	45	1,969	1,164	51,179	2,800	112,566	45	33	1,636	61,387
Reimbursable Expenses											
511.00	Structural Consultant										
	CN 00010 3/15/96			125	Consultants				Atlas Structural Eng		

(continues on next page)

		--- Current ---		Project to Date		--- Budget ---		%	%	--- Balance ---	
		Hrs	Cost	Hrs	Cost	Hrs	Cost	Exp	Rpt	Hrs	Cost
CN	00030 4/15/96			155	Consultants						
CN	00030 4/15/96			310	Consultants						
	Subtotal 511.00			590	4,400	13	100				3,810
512.00	Mechanical Consultant										
CN	00040 4/30/96			210	Consultants						
	Subtotal 512.00			210	2,200	10	100				1,990
513.00	Electrical Consultant										
CN	00030 4/15/96			900	Consultants						
	Subtotal 513.00			900	2,000	45	100				1,100
521.00	Travel and Lodging										
EX	00201 1/29/96			2	Stone, Richard						
EX	00201 1/29/96			7	Stone, Richard						
EX	00201 1/29/96			7	Stone, Richard						
EX	00201 2/19/96			3	Stone, Richard						
EX	00201 2/19/96			21	Stone, Richard						
EX	00201 2/19/96			22	Stone, Richard						
EX	00001 4/10/96			6	Apple, William						
EX	00001 4/10/96			8	Apple, William						
EX	00001 4/10/96			16	Apple, William						
EX	00001 4/10/96			120	Apple, William						
EX	00203 5/15/96	433		433	MacKenzie, Jonathan						
	Subtotal 521.00	433		645	650	99	82				5
521.01	Meals										
EX	00201 2/19/96			12	Stone, Richard						
EX	00201 2/19/96			8	Stone, Richard						
EX	00001 4/10/96			24	Apple, William						
EX	00001 4/10/96			81	Apple, William						
EX	00101 4/21/96			64	Gray, Brenda						
EX	00203 5/15/96	23		23	MacKenzie, Jonathan						
	Subtotal 521.01	23		211	250	85	25				39
522.00	Reproductions										
PR	00002 1/29/96			2	xerox copies						
PR	00003 2/26/96			10	blueprints						
PR	00003 2/26/96			23	blueprints						
PR	00004 2/26/96			5	xerox copies						
PR	00006 3/31/96			3	xerox copies						
PR	00006 3/31/96			2	xerox copies						
PR	00007 4/30/96			38	blueprints						
PR	00008 4/30/96			2	Xerox copies						
PR	02029 5/2/96	10		10	Blueprints						
	Subtotal 522.00	10		93	550	17	100				457
524.00	Long Distance Telepho										
EX	00203 5/15/96	23		23	MacKenzie, Jonathan						
	Subtotal 524.00	23		23	150	15	56				127
525.00	Postage/Shipping/Deliv										
CD	08934 5/15/96	23		23	Federal Express						
	Subtotal 525.00	23		23	100	23	13				77
529.00	Misc Reimbursable Exp										
SB	00301 3/9/96			104	Concrete Sample Test						
SB	00301 3/16/96			200	Concrete Sample Test						
MI	00002 3/31/96			5	misc expenses						
	Subtotal 529.00			309	200	155	100				109
Total Reimbursable Expenses		511		3,004	10,500	29	96				7,496
Project Totals		45	2,480	1,164	54,182	2,800	123,066	44	38	1,636	68,884

Exhibit 12-3
Sample Project
Detail Report

Project Detail Report

31-May-96

12:41 PM

Apple and Bartlett, Inc.

For the period 5/1/96 - 5/31/96

				-----Hours-----			-----Cost Amounts-----		
				Reg	Ovt	Total	Reg	Ovt	Total
Project	94015.00	Balboa Office Park					Rev Meth B	Bud OH Rate	155
Type	Regular		Status	Active					
Principal	Bartlett		Project Manager	Gonzalez				Fee	306,000
Task	Balboa Office Park								
Type	None		Status	Active					
00101	Gray, Barbara	5/96		6.0	6.0		144.60		144.60
00200	Herz, Ellen	5/96		4.0	4.0		90.12		90.12
00200	Herz, Ellen	5/96		2.0	2.0		45.06		45.06
	Subtotal			6.0	6.0		135.18		135.18
00201	Stone, Richard	5/96		4.0	4.0		74.12		74.12
00201	Stone, Richard	5/96		3.0	3.0		55.59		55.59
	Subtotal			7.0	7.0		129.71		129.71
00202	Titony, Roberta	5/96		3.7	3.7		46.62		46.62
00202	Titony, Roberta	5/96		2.4	2.4		30.24		30.24
	Subtotal			6.1	6.1		76.86		76.86
00203	MacKenzie, Jonathan	5/96		4.0	4.0		60.00		60.00
00203	MacKenzie, Jonathan	5/96		3.0	3.0		45.00		45.00
00203	MacKenzie, Jonathan	5/96		2.0	2.0		30.00		30.00
	Subtotal			9.0	9.0		135.00		135.00
00302	Davidson, Emily	5/96		3.0	3.0		22.50		22.50
00302	Davidson, Emily	5/96		2.0	2.0		15.00		15.00
	Subtotal			5.0	5.0		37.50		37.50
	Total Labor			39.1	39.1		658.85		658.85
	Overhead								28,832.03
Reimbursable Expenses									
521.00	Travel and Lodging								
EX	00203	5/15/96	5/96	MacKenzie, Jonathan	Travel/Lodging	05/15			432.55
	Subtotal 521.00								432.55
521.01	Meals								
EX	00203	5/15/96	5/96	MacKenzie, Jonathan	Meals	05/15			22.75
	Subtotal 521.01								22.75
522.00	Reproductions								
PR	02029	5/2/96	5/96	Blueprints	Orig: 01 Copies: 010				10.00
	Subtotal 522.00								10.00
524.00	Long Distance Telepho								
EX	00203	5/15/96	5/96	MacKenzie, Jonathan	Telephone	05/15			22.75
	Subtotal 524.00								22.75
525.00	Postage/Shipping/Deliv								
CD	08934	5/15/96	5/96	Federal Express	Pick Up FEDEX				22.75
	Subtotal 525.00								22.75
	Total Reimbursable Expenses								510.80
Task	Totals			39.1					30,001.68
Project 94015.00 Totals				39.1					30,001.68

Exhibit 12-4
Sample Office
Earnings Report

Office Earnings Report

31-May-96

Apple and Bartlett, Inc.

For the period 5/1/96 - 5/31/96

12:57 PM

Number	Fees Billed	Other Billed	Total Billed	Revenue	Spent	Profit	Profit Pct		
94010.00	Dance Center				Apple	Stone		Fee:	110,000
CUR	2,448	248	2,696	2,696	3,073	-377	-14	Recv:	17,130
YTD	20,983	466	21,449	21,449	11,951	9,497	44	A/R:	21,449
JTD	37,895	684	38,579	38,579	28,935	9,644	25	Unb:	
								Eff Mult:	3.28
								Revenue Meth	B
94013.00	West Glen Elementary School Addition				Bartlett	Stone		Fee:	82,000
CUR	4,050	3,058	7,108		4,698	-4,698		Recv:	20,848
YTD	21,563	9,543	31,106	23,998	12,097	11,901	50	A/R:	31,106
JTD	35,925	16,029	51,954	44,846	26,023	18,823	42	Unb:	-7,108
								Eff Mult:	5.21
								Revenue Meth	B
94015.00	Balboa Office Park				Bartlett	Gonzalez		Fee:	306,000
CUR					2,480	-2,480		Recv:	58,876
YTD	44,224	12,021	56,245	56,245	22,262	33,983	60	A/R:	43,825
JTD	77,471	25,230	102,701	102,701	64,880	37,822	37	Unb:	
								Eff Mult:	3.99
								Revenue Meth	B
Final Totals								Fee:	498,000
CUR	6,498	3,306	9,803	2,696	10,250	-7,555	-280	Recv:	96,854
YTD	86,769	22,030	108,800	101,692	46,310	55,382	54	A/R:	96,380
JTD	151,291	41,943	193,234	186,126	119,838	66,289	36	Unb:	-7,108

Exhibit 12-5

Sample Time

Analysis Report

Explanation of ratios:

A = Total Direct/Total Hours worked

B = Total Direct/(Total Worked - Benefit hours)

C = Target Ratio

Time Analysis Report

31-May-96

11:16 AM

Apple and Bartlett, Inc.

For the period 5/1/96 - 5/31/96

		Hours Worked			Ratios			Indirect Time (Hours)								
	Total	Direct	Indirect	A	B	C	Vac	Sick	Hol	B.Dv	Civc	Mgmt	Actg	P.Dv	Other	
00001	Apple, William															
C	112	44	68	39	42	55			8	16		8		16	20	
Y	1,008	396	612	39	46	55	88	24	40	144	8	160	8	120	20	
00002	Bartlett, James															
C	111	38	74	34	36	65			8	28		8		16	14	
Y	999	338	662	34	40	65	96	16	48	152	24	160	16	140	10	
00003	Cohen, Grace															
C	80	10	70	13	14	65			8			8	40	4	10	
Y	720	90	630	13	14	65	40	8	48	200	16	120	24	120	54	
00101	Gray, Barbara															
C	92	45	47	49	54	85			8	8		8		8	15	
Y	828	405	423	49	55	85	24	16	48	48	8	16	16	80	167	
00200	Herz, Ellen															
C	86	42	44	49	54	80			8			8		8	20	
Y	774	378	396	49	59	80	40	40	48	40	24	24	40	80	60	
00201	Stone, Richard															
C	87	48	39	55	61	90			8			8		8	15	
Y	783	432	351	55	61	90	16	8	48	80	12	48	88	48	3	
00202	Titony, Roberta															
C	91	52	39	57	63	90			8			8		8	15	
Y	822	471	351	57	65	90	40	4	48	96	32	24	16	80	11	
00203	MacKenzie, Jonathan															
C	95	51	44	54	59	95			8			8		8	20	
Y	855	459	396	54	58	95	8	16	40	86	24	40	36	88	58	
00204	Hightower, John															
C						75										
Y						75										
00205	Washington, Thelma															
C						15										
Y						15										
00301	Gonzalez, Luis															
C	90	46	44	51	56	90			8			8		8	20	
Y	808	412	396	51	57	90	36		48	80	36	48	24	96	28	
00302	Davidson, Emily															
C	92	48	44	52	57	25			8			8		8	20	
Y	828	432	396	52	63	25	80	16	48	60	16	32	22	48	74	
Totals																
	936	424	513	45	49	69			80	52		80	40	92	169	
	8,425	3,812	4,613	45	52	69	468	148	464	986	200	672	290	900	485	

Exhibit 12-6**Sample Aged Accounts
Receivable Report****Aged Accounts Receivable**

31-May-96

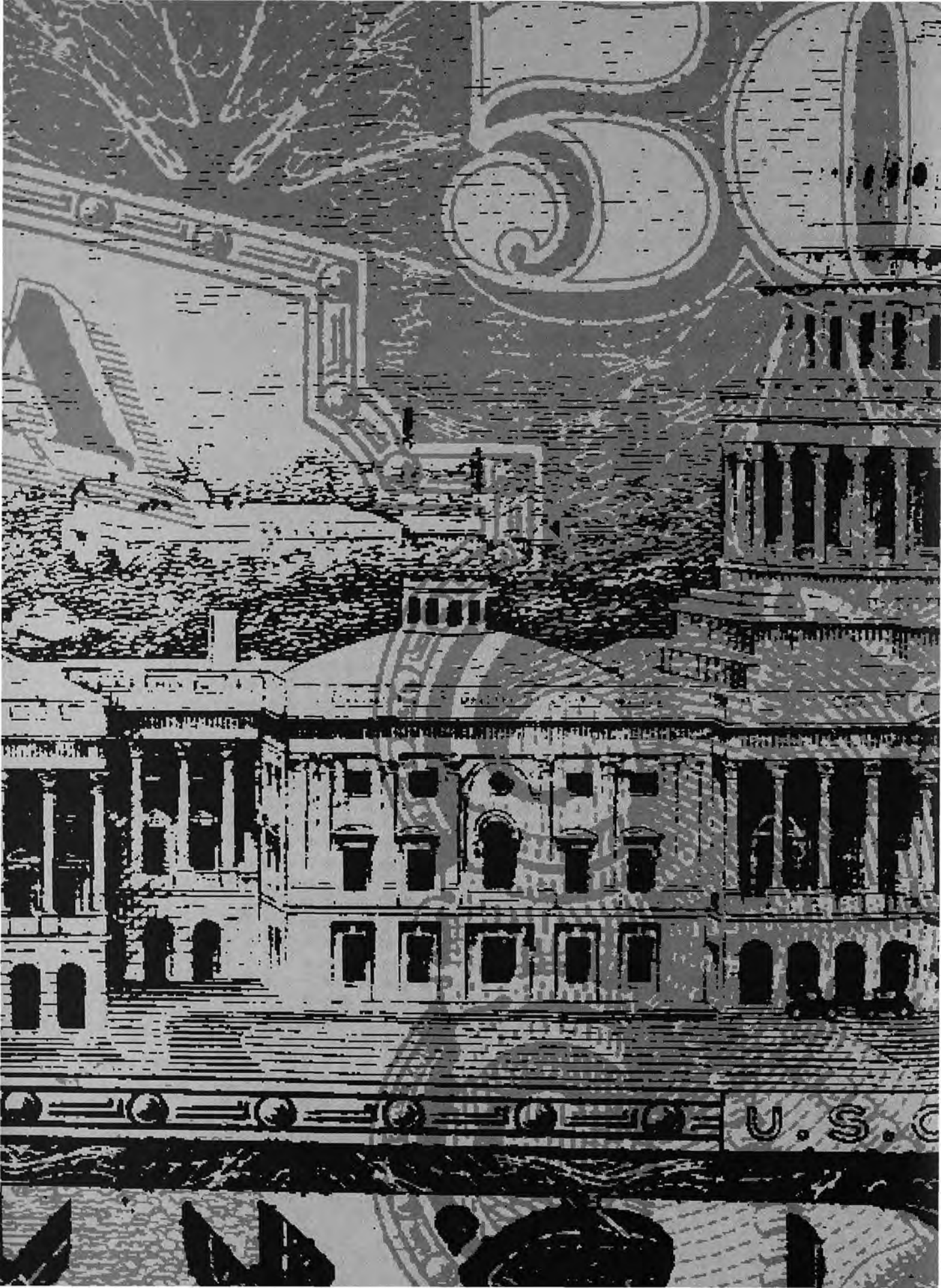
12:36 PM

Apple and Bartlett, Inc.

Project Invoice	Name / Principal / Proj Mgr Date	Total	Current	----- Past Due -----		
				31-60	61-90	Over 90
94015.00	Balboa Office Park / Bartlett / Gonzalez					
00113	2/26/96	6,260.58				6,260.58
00124	3/31/96	8,181.33			8,181.33	
00135	4/30/96	4,645.45		4,645.45		
00144	4/30/96	13,760.81		13,760.81		
00152	2/29/96	7,318.16				7,318.16
00163	3/31/96	3,659.08			3,659.08	
Project Total		43,825.41		18,406.26	11,840.41	13,578.74
Last receipt - 10,000.00 on 5/15/96 for invoice dated 4/30/96						
Final Total		43,825.41		18,406.26	11,840.41	13,578.74
Distribution		100%	0%	42%	27%	31%

** End of Report **





Architects who want to contract with federal, state, or local government agencies need to be aware of considerations and rules that usually are not encountered in private sector work.

Understanding government requirements is important for developing successful proposals to government agencies, conducting effective negotiations, dealing with government accounting regulations, and carrying out contract services with government agencies.

For those firms that obtain work from federal, state, and local governments, the experience can be either quite satisfactory or highly frustrating. The key is knowing and following the rules. Contracting with government agencies requires the architect to operate under rules established for all government contractors. These rules determine the types of costs that are recoverable under the contract. Federal regulations were written for large defense contractors and often are not easily adapted to smaller firms.

Regulations for various state agencies often are more applicable to construction contractors. While state and municipal regulations vary from agency to agency, many adapt federal regulations and add additional stipulations of their own. Therefore, architects who intend to work with these agencies must obtain a copy of the regulations in advance to ensure compliance. Some large architecture firms have people who keep up to date on the latest regulations in government contracting. Most firms, however, cannot afford to have these specialists on their staffs, so they must either rely on the principal in charge of administration or hire knowledgeable outside consultants.

There are some disadvantages in government contracting. For example, profit margins are generally less than for private sector work. This is because the government disallows certain elements of overhead, such as interest expense, enter-

tainment, and donations, and these expenses come out of the architect's profit. Adherence to governmental regulations also requires a firm to maintain its accounting records in prescribed formats. The additional paperwork, negotiating procedures, and other overhead tasks can consume a considerable amount of extra time.

On the benefits side, many government projects are substantial and extend over long periods of time. This can add a degree of stability to a firm that usually relies on a heavy volume of smaller projects. Long-term work will keep a team of people busy and cover overhead expenses while the principals search for new work. However, firms should be cautious of becoming too dependent on government work, which could be disastrous if the work is suddenly withdrawn. All pluses and minuses have to be weighed carefully before a firm decides to enter the field of government contracting.

PREPARING PROPOSALS FOR GOVERNMENT WORK

Preparing proposals for government work can be expensive, so care must be taken to submit only proposals for work that the firm believes it has a good chance of winning. The government must advertise requests for proposals (RFPs) in an online service of the *Commerce Business Daily*. Architects normally file Standard Form 254 (Statement of Qualifications) with the agency seeking the procurement and update it with a Standard Form 255, which lists projects that are directly appropriate to the procurement.

Because of heavy competition for government work, a firm rarely wins a contract merely by responding to an RFP, unless the firm has unusual qualifications. Generally, some familiarity with the project is necessary. Many firms use contacts in Washington or the state capital to alert them to new projects under consideration in various agencies. Those firms have a head start in preparing their responses and can do a better job with their proposals. In any event, a firm should develop a greater familiarity with the project than is gained from merely reading the RFP. A more effective strategy is to have a representative from the firm visit the officials who will be making the award to get, firsthand, the specifics of the project. This can help ensure that the proposal stands out from the others and that its capabilities are well matched with the agency's needs.

Many firms use contacts in Washington or the state capital to alert them to new projects under consideration in various agencies.

NEGOTIATING THE CONTRACT

To help negotiate the contractor's price, government officials have the right to inspect the contractor's cost records to determine whether they have been kept in accordance with the regulations. Regarding contract negotiations with a governmental agency, the following steps should be considered:

- Define the project scope in detail so there is no question what is within the contract terms and what would be considered additional services.
- If you disagree with the government's construction cost estimate, suggest a feasibility study for extra compensation to verify the figures and to ascertain that the actual construction cost estimate is realistic.
- Be certain that the government contract includes a provision whereby changes in the scope during the project automatically change the construction cost estimate. Without this provision, you might design a \$12 million facility but be paid on the basis of the original estimate of \$6 million.
- Be prepared to perform only those services included in the contract. Do not perform extra services without being compensated.
- Prepare for every part of the negotiation by reviewing each aspect of the contract with those who will actually negotiate the contract.

ACCOUNTING REGULATIONS

Government agencies each have different accounting regulations, and it is important to become familiar with those that affect the firm. For example, the defense acquisition regulations govern work for the U. S. Department of Defense, and the federal acquisition regulations affect most civilian agencies. To write a government proposal, a firm will need a copy of these regulations together with the audit guides published by the various agencies. For example, the Defense Contract Audit Agency (DCAA) has auditing responsibility for the Department of Defense, and its audit guide is useful to contractors. State agencies and local governments have their own regulations.

Government work can be contracted in a number of ways, including lump sum, level of effort, and time and materials. However, the method most often favored is cost plus fixed fee with an upset limit. Under this type of contract, the architect is paid only for actual costs incurred plus the fixed fee or profit. The architect is paid no more than the upset limit if the project costs exceed that amount. The architect must therefore be aware of costs as well as the regulations affecting the agency requesting the work.

WHAT IS A GOVERNMENT AUDIT?

Government contracts require special accounting regulations, and a firm seeking government work must agree to an audit as a condition for obtaining the work. An audit consists of a review of the firm's financial records by an agency of the government or an independent contractor hired for that purpose. The auditor determines the reasonableness of the firm's figures in developing its cost proposal and verifies whether the firm is following government accounting procedures.

Audits are common in the business world and should not be viewed as unusual. For example, when a firm seeks to obtain a long-term supply contract with a large retailer, the retailer may conduct an audit to be certain that the supplier can fulfill the contract terms.

GOVERNMENT AUDIT CONSIDERATIONS

The government may conduct an audit before, during, or after a project has been completed. Generally, an audit will be carried out before the project starts, particularly if the firm is new to government contracting and has never been audited. (Note: If the audit is made before the contract is awarded, the government contracting officer has the benefit of knowing the firm's costs while negotiating the contract.)

In preparing for the audit, it is important to segregate allowable from unallowable costs in calculating the overhead rate. Work papers supporting the overhead rate also should be

made available to the auditor. Definitions of allowable/unallowable costs can be found in the acquisition regulations.

Auditors look for discrepancies between how a firm bills the government and its private sector clients for similar services. This means that a firm must treat public and private sector clients in the same manner and on a consistent basis. In addition, the auditor will be looking for instances where reimbursable expenses are mixed with overhead costs and the government is charged twice for the same expense. Transactions between the principals and the firm may be questioned as the auditor searches for potential unallowed costs. For example, if the principals own a building or equipment and lease it to the firm, the burden of proof is on the firm to prove that the transactions are conducted in the same manner as if a third party were involved. Charges of excessive compensation to the principals is another area of contention by auditors.

Audits are common in the business world and should not be viewed as unusual.

SUGGESTIONS FOR A SUCCESSFUL AUDIT

Maintaining good communications is the key to a successful government audit. The firm should hold an opening conference with the auditor to learn about his or her background, the purpose of the audit, and the data to be examined. The firm should provide the auditor with a private office or workplace, give instructions that he or she is to deal with a single contact in the firm for all pertinent information, and make the requested materials available, but nothing more. The audit should be confined to an examination of the accounting records in support of the cost proposal submitted. The auditor should not have the freedom to examine all financial records. The auditor's task is to audit costs, not to examine revenue and profit records.

To review any questions that may arise, the firm's representative should check with the auditor periodically throughout the course of the audit. It is much easier to resolve differences at the field auditor level before they are written into the audit report and reviewed by the audit supervisor. If differences of opinion continue to exist, the representative should request a meeting with the audit supervisor and, if necessary, with the head of the local audit office.

At the conclusion of the audit, the firm should schedule an exit conference to review the auditor's findings and recommendations. These are subject to the auditor's interpretation of the regulations. Furthermore, the auditor's report is only

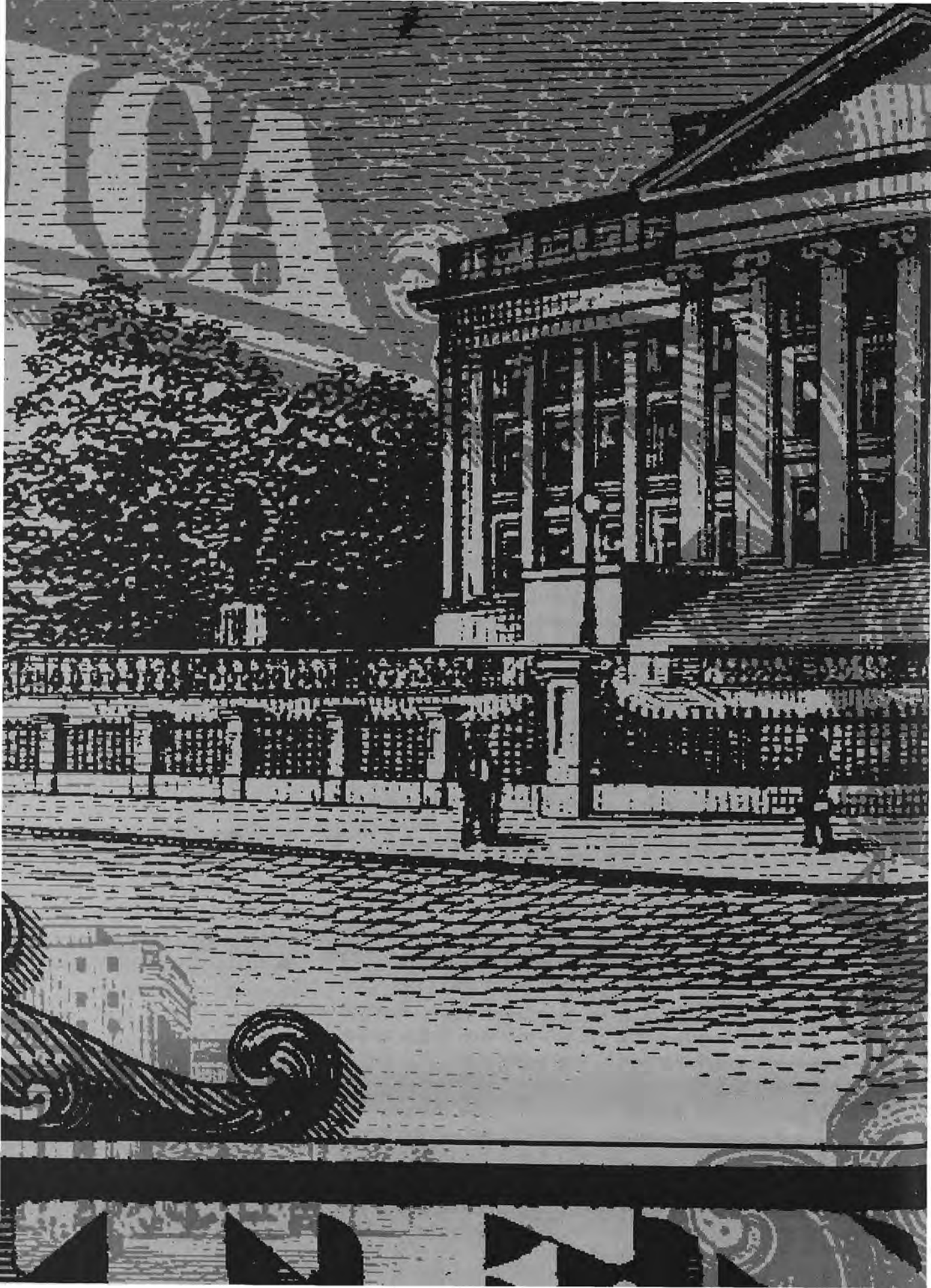
advisory to the contracting officer, who makes the final decision. In practice, however, contracting officers rarely substitute their judgment for the technical opinion of the auditor.

THE NATURE OF GOVERNMENT CONTRACTING

Government contracting is a highly specialized field. Most architecture firms learn from their own trial and error and through the experience of others. Firms that do considerable work in this area become knowledgeable in the techniques of government contracting. Numerous books and some accounting/law services can help keep the firm abreast of the latest regulations. One such service is Government Contracts Reports published by Commerce Clearing House, 4025 West Peters Avenue, Chicago, IL 60646. Principals also can learn through seminars and professional society meetings.

When disagreements arise the architect should refer to and follow the appeals procedure described in the contract. This process provides for various levels of agency review before the dispute goes into the courts. It is important to seek expert assistance from an attorney or accountant who specializes in government contracting and who can help the firm make the proper decisions.

The auditor's task is to audit costs, not to examine revenue and profit records.



An architecture firm can conduct its business as a proprietorship, partnership, or corporation.

To help decide which form of legal entity best suits their needs, the owners must evaluate the opportunities and limitations posed by each type of organization. This evaluation should consider both individual and collective practice goals, compatibility and team issues, legal and liability implications, and monetary and tax considerations.

When an architecture firm is founded, the principals must consider which form of organization is best suited to its purposes. Sometimes, after a firm has existed for a few years, there also may be reasons to consider a different form of organization. In both cases, selecting the form of organization is important to the current owners of the firm, to their heirs, and to the firm's employees.

In selecting the form of organization for the firm, the owners must address the legal, financial, and operational ramifications for each option. Competent advice in each of these areas should be sought from counsel. In this process, the owners must consider:

- Goals for the size of the practice, the range of services, and geographical locations. The owners must agree to share risks and rewards and to engage in one or more specialized areas of practice.
- Compatibility issues such as age differences, ease of working as a team, and sharing complementary talents as opposed to the desire to work independently.
- Financial impact of capital available and the need for future accumulation of earnings, benefits desired, and tax obligations.

The three basic forms of organization are proprietorship, partnership, and corporation. Joint ventures are temporary partnerships of firms that do not affect the basic form of organization of each member firm.

Many states have adopted two newer forms of organization—the limited liability partnership (LLP) and the limited liability corporation (LLC). These organizational arrangements limit the liability of innocent partners and stockholders from the mistakes and wrongdoing of other partners and stockholders in a firm. Architects should obtain legal counsel about the applicability of these forms of organization and whether architects are permitted by state law to practice under these arrangements.

PROPRIETORSHIP

A proprietorship is a firm owned entirely by one person (the proprietor) who maintains involvement in all areas of marketing, project services, and general management. All profits accrue to that individual as personal income. Taxes on the operating results of the business are the proprietor's to report and pay at personal rates. Professional liabilities rest solely on the proprietor. Further, the proprietor is limited in offering incentives to key personnel to stay with the firm—there is no opportunity for ownership, benefits may be limited, and the firm will cease to exist when the proprietor dies or retires. Despite these disadvantages, proprietorships can produce significant returns to the owner.

PARTNERSHIP

There are several types of partnerships, including professional partnerships, general partnerships, and limited partnerships. While all are similar, each has its own unique set of characteristics.

A professional partnership is a business in which two or more people band together to provide professional services. The partners want to work together because of common professional goals and complementary talents and interests. There is no limit to the size of the partnership, which may be as small as two people. A partnership is usually larger than a proprietorship because more than one principal is involved. As a partnership grows, the partners often become specialized in marketing, project management, or production.

A partnership spreads liability among the partners, regardless of which individual's actions may give rise to a claim. However, all partners may not be held equally liable. Each circumstance depends on the variables of the situation.

In a general partnership, the partners share in the ownership of the business, and profits and losses are prorated among the partners according to individual shares or some other agreed-upon basis. Profit is treated as individual income, and each partner's share, whether distributed or not, is taxed at that partner's individual rate. The partnership itself is not a taxable entity.

In a limited partnership, the partners are only liable up to the limits of their capital contributions to the firm. While their losses

are limited, their opportunities for gain are also limited: a general partner's share of partnership earnings is generally much higher than that of a limited partner's.

CORPORATION

A corporation is a legal entity organized under the laws of one state to do business in that state. The corporation then may be licensed by other states to conduct business in those states as a "foreign" corporation. Some states permit only registered professionals to be owners of professional services corporations. Other states permit professionals to organize as regular business corporations, which do not limit ownership to licensed professionals.

Each state specifies the minimum required number of owners of the corporation. Although some states require only one owner, one of the reasons for incorporating is to have group ownership. The life of a corporation is independent of the individuals who own it. Whereas a partnership usually must be dissolved and a new partnership created when one or more partners leave, the corporation continues to exist—regardless of changes in ownership—until it is dissolved.

A corporation's profits are taxable to the firm, not to individuals. The Internal Revenue Service defines what revenues are to be included in tax reporting and what costs are tax deductible as business expenses. There are limits on contributions to charitable organizations and to

profit-sharing plans. Capital gains receive special treatment, and special rules apply to the purchase and sale of real estate by corporations. A corporation needs to seek advice on corporate tax rules and tax return preparation from tax accountants or attorneys, since rules change frequently.

Profit is the owner's return on invested capital. The profits remaining after corporate income taxes are paid may be distributed as dividends to shareholders or may be retained in the firm. Dividends paid to shareholders are treated as personal income to the individual, who must then pay tax on it. Most closely held firms choose not to pay dividends because that practice results in double taxation at both the corporate and the individual level. As long as personal compensation is regarded as "reasonable" by the IRS, the profits can be distributed as bonuses. Retained earnings become part of the owners' equity and provide additional capital for the firm.

Incorporation may provide tax savings to the owners because of certain rules that permit taxes to be deferred and because the cost of certain benefits can be treated as business expenses. Qualified profit-sharing plans permit the firm to put money into a trust for the principals and staff. At the time the funds are invested in the trust, the firm can claim a business expense. The individual does not pay taxes until the funds are paid out of the trust, at which time the individual may be in a lower tax bracket.

The corporation can establish group insurance plans for health, life, accidental death, and disability. When properly structured, the premiums for these plans are business expenses to the corporation. In addition, corporations can establish programs under which the firm reimburses its staff for all or part of medical and dental expenses not covered by insurance. These payments are not regarded as income to the employee but are expenses to the company. Partnerships and proprietorships also may be structured to provide these benefits and, within certain limits, deduct the expenses.

The owner of a professional services firm faces two types of liability—financial and professional. Financial liability is more limited in a corporation than in a proprietorship or partnership. In a proprietorship or partnership, the owner has unlimited personal liability for debt and other financial obligations of the organization. In a corporation, the owners are obligated only to the extent of their invested capital (original investment plus accumulated retained earnings). The corporation's debts, except for certain tax obligations, are met to the extent that the firm's available financial resources permit, and when those resources are exhausted, the owners have no further exposure to financial loss.

On the other hand, liability for professional acts such as errors and omissions is not as clear-cut nor is protection absolute. For this reason, owners of professional services corporations are advised to check the extent to which liability for their profes-

sional acts can extend beyond the corporation and reach their personal assets.

This concern is real in cases of law suits that exceed the firm's liability insurance or when the firm has insufficient assets to meet settlements. The owners should consult with attorneys familiar with professional liability.

Shareholders of any professional services firm, including professional corporations, have responsibilities for the overall conduct of the business. Timely accounting and tax reporting, filing required reports with state and federal agencies, and proper use of assets may all be part of the shareholders' responsibilities in a closely held professional firm.

If the owners wish, management may be centralized in a corporation. The shareholders elect directors, who set goals, establish policy, and approve specific actions proposed by the officers. The officers are responsible for managing the day-to-day business affairs of the firm. In general, the larger the organization, the clearer is the separation of responsibilities between shareholder and director and between director and officer. In a smaller, closely held corporation, these duties might be shared: owners may have selected the corporate form of organization for liability and tax purposes, but they may operate more like a partnership in which all partners have some voice in managing the firm. This practice can reduce the effectiveness of the corporate form of organization.

Financial liability is more limited in a corporation than in a proprietorship or partnership.

S CORPORATIONS

An S corporation, named for the subchapter of the tax code that created it, usually is designed for small to mid-sized firms that do not pay corporate-level federal income tax. Instead, individual shareholders pay an individual federal income tax on the corporate taxable income. S corporations are popular because they eliminate double taxation of dividends at the corporate and shareholder levels. They also shield stockholders from the excess accumulated earnings penalty tax at the shareholder level (see discussion in chapter 3, page 28) since all earnings are taxed once at the shareholder level. In effect, S corporations are treated like partnerships for tax purposes. The advantages as well as disadvantages in electing S corporation status should be discussed with the firm's attorney.

JOINT VENTURES

Two or more firms can form a joint venture when they associate with each other for the purpose of providing services on a single project or group of projects. The joint venture is a legal entity similar to a partnership, and it usually must file tax returns, have a checking account, and carry insurance separate from the participating firms. Financial accounting for the joint venture is separate from that of any of the individual entities involved. Each firm joined in the venture may be organized in any of the three forms of organization discussed above. The limits of the venture are spelled out in an agreement among the parties, and the agreement for services is between the joint venture entity and the client. One drawback to a joint venture is that there is no clear-cut responsibility for the outcome of the project. Many clients therefore are uncomfortable with joint ventures and prefer prime/subcontractor relationships in which the ultimate responsibility is fixed.

Once the purpose for forming the joint venture is concluded, it is dissolved. However, in some instances, firms form permanent joint ventures for the purpose of offering a group of talents to a certain market segment.

S corporations are popular because they eliminate double taxation of dividends at the corporate and shareholder levels.



ON FAIRS

Smooth ownership transition is critical to the continuity of a firm, and effective transitions require careful planning. Successful plans address potential hurdles for making the transition, define steps for the transfer to new owners, and put in place the financial mechanisms needed to make the transition happen

Ownership transition provides for the gradual withdrawal of existing owners, allows a firm to admit qualified employees into ownership, and ensures continuity of operations. One of the first tasks for a firm's current management group is to determine exactly who will be eligible for ownership. Candidates should know that ownership will be offered to those who can think and act like managers. In addition to a high degree of technical competence, managers need skills in areas such as marketing, human resources, project management, and the collection of accounts receivable. Various options for ownership transfer are summarized in exhibit 15-1.

Another question is whether professional registration should be a requirement for ownership. Many states require architecture firms to be managed by licensed professionals but not necessarily owned by them. The current owners need to discuss this requirement with their attorney. Although professional registration may be appropriate for the technical staff, requiring all owners to be registered might eliminate those who may never be registered, such as the financial manager.

Regardless, the owners must clearly explain all requirements for ownership. The staff must understand that the criteria are minimum requirements and that achieving them does not automatically qualify an individual for ownership. After directors of the firm have nominated a staff member, they should explain to those not selected

why they were passed over. In some cases, the individuals passed over may have to wait only a year or two before they are eligible; some staff members might never be selected, but the firm will still want to retain them.

Management tends to offer ownership because it is concerned about the potential loss of a valuable employee, it believes that ownership will provide an incentive for harder work, and it recognizes that ownership is a reward for past performance. Although these reasons are not wrong, they miss the point of ownership transition. Instead, firms should concentrate on developing new owners to ensure continuity of the firm.

KEYS TO A SUCCESSFUL TRANSITION

Most architects recognize that the reputation, staff, and client base they have built up over the years are valuable resources that can be transferred to successors. But first an ownership transition plan must be in place to help potential owners develop their skills and to allow their progress to be monitored through a regular system of performance appraisals. The following are ingredients of a successful transition plan:

- It provides for a smooth, gradual transition from one management group to another. Clients view this favorably; they are more likely to continue working with the firm when they can begin working gradually with new-generation owners rather than face a sudden transition.

- The new principals should assume a greater role in the business management aspects of the firm. This may require formal course instruction as well as on-the-job training.

- As the older principals relinquish control, they should clearly define their future role in the organization and how to protect their interests. They typically want their shares to be bought out over time, and they may want to continue working in some capacity. For example, some principals want to relinquish day-to-day responsibilities and concentrate on areas they enjoy, such as business development. Occasionally an owner may want to retire completely. These options need to be addressed in the plan.

The ownership transition plan can help determine when new owners will be admitted, and it establishes the rate for original owners to divest. For example, one plan might call for a divestiture schedule beginning at age 60, whereby 20 percent of the stock is sold each year for the next five years. Another plan might be geared to the specific needs of certain individuals who want to retire early. Other plans might admit new owners before existing owners begin to divest by selling shares out of the treasury.

Once a preliminary value for the firm is determined (see chapter 16), the transfer plan can be developed on the basis of the number of shares and their value. Assumptions can be made regarding how rapidly the firm will grow over the years and how many new principals will be needed. First, the present

Firms should concentrate on developing new owners to ensure continuity of the firm.

principals are listed and names of those who will be acquiring shares are added. The basis for the plan is then established to show the number of shares and the dollar amount of purchases over time.

The first attempt at developing the divestiture/acquisition schedule might show that the transfer cannot be accomplished as planned. First, there may be too few or too many shares available for transfer in the time period specified, although too few shares is rarely a problem. If too many shares are available for purchase, the plan may have to be extended over a longer period of time, or more people may have to be added to the acquiring group. In any event, the plan needs to be adjusted to fit the resources of the firm as well as the needs of buyers and sellers.

Second, it also may be necessary to declare a stock split to have enough shares to work with, which is not unusual for a closely held firm capitalized with a minimum number of shares. A stock split creates more stock at a lower price per share to enable the shares to be transferred more conveniently. Finally, if two or more owners currently have control, a voting trust may be established. This is an agreement that provides that they vote in unison on all matters coming before the board of directors. This will allow them to remain in control until their combined shares go below 51 percent.

POTENTIAL PROBLEMS

Ownership transition can pose a number of potential hurdles, such as the following:

- *An inability to recognize the need for change.* The existing owners must be committed to a plan of succession and recognize that it is in their best interests to assist with the transition by making it affordable to the new owners. In some instances, the next generation of owners may not have the motivation to take over. Staff members recognize that ownership carries risks as well as rewards, and they may not be interested in accepting the risks. If the internal ownership transition cannot be accomplished in an orderly manner and in a time period expected by the retiring owners, then the alternative is the sale of the firm to outsiders.

- *An inability to identify successors.*

If the next management team is not yet in place, it must be identified and trained.

- *A waiting period that is too long.* If the principals wait until age or disability forces a change, the new principals will not be prepared to take over. At this point, implementing a successful ownership transition may be impossible.

- *Transition financing.* Because of the limited resources of the new principals buying in, the financing options are often limited to using bonuses or bank loans. If the buyout can be accomplished gradually over a period of years, then a program of

If the next management team is not yet in place, it must be identified and trained.

Exhibit 15-1
Ownership
Transition under
Various
Circumstances

What Is My Major Concern?	Options for Ownership Transition	Value Received*
Maximum payout	Sale of firm to outsiders	Generally premium value as determined by negotiations
Consideration for clients and staff	Combination of: ▪ Internal transfer to next generation (majority ownership) ▪ Employee stock ownership plan (ESOP) (minority ownership)	Fair market value
Continuity of firm/maintenance of high standards of service		
Ensure that new principals who are responsible for the firm's success are properly rewarded		
Confidentiality	Sale to limited number of new principals or private investors	Generally between book value and fair market value
Need for liquidation, for example in case of death/disability	▪ Sale of firm to outsiders ▪ Orderly or immediate shutdown, depending on circumstances	Generally between book value and liquidation value
Assurance of stream of income after retirement	▪ Sale of firm to outsiders with deferred payout secured by assets ▪ Internal transfer with deferred compensation agreement secured by a trust (ability to regain control if payment schedule not met) ▪ Sale to private investor with guarantees on deferred income (ability to regain control if payment schedule not met)	Generally between fair market value and premium value
Deferral of tax on capital gain	Sale of 30 percent or more of total shares to ESOP	Fair market value determined by independent appraisal
Immediate cash	Sale of firm to outsiders	Generally premium value as determined by negotiations

*See exhibit 16-1

What Is My Major Concern?	Options for Ownership Transition	Value Received*
Several principals retiring at once	▪ Internal transfer to next generation ▪ ESOP ▪ Sale of firm to outsiders	Fair market value (internal transfer and ESOP) to premium value (outside sale)
Have 10 years or more to plan for next career or retirement	Decide whether an internal or external sale is in the best interests of the firm and proceed	Fair market value to premium value
Need to retire from day-to-day responsibilities in a few years and take a less active role	▪ Internal transfer to next generation ▪ ESOP ▪ Combination of the above ▪ Sale of firm to outsiders	Fair market value
Senior staff members may be considering leaving to join a competitor or start their own firm	If warranted by circumstances, internal transfer to next generation with covenants not to compete; otherwise sale to outsiders	Fair market value
Loss of control before all stock is redeemed	Internal transfer to next generation followed by execution of employment agreement after loss of control. Agreement includes provision that new owners guarantee buyout of remaining stock over a certain time period; otherwise retiring owner resumes control	Fair market value
Lack of sufficient profits or time to accomplish an internal transfer of ownership	Sale of firm to outsiders unless next generation can raise cash from private sources	Generally between book value and liquidation value
Assurance that financial difficulties encountered in buying out the founding stockholder do not occur again in future transitions	Internal transfer to next generation with limits on total number of shares owned by a single individual. Mandatory sales of stock beginning five to seven years before retirement.	Fair market value

direct stock purchases by key employees is generally appropriate. If larger blocks of shares need to be transferred to the new principals immediately, then a series of bank loans may be a better option. In any event, the firm essentially finances its own transition out of profits.

FINANCING OWNERSHIP TRANSFERS

There are a several ways to finance the transfer of ownership. Under a plan of direct stock purchases, the new principals use their bonuses after taxes to buy stock directly from the sellers rather than from the firm. The IRS is more likely to accept sales between stockholders as arm's length transactions than to allow the process of redeeming shares and reselling them to new stockholders.

New stockholders should be entitled to a quarterly review of financial information such as income statements and balance sheets but should not be privy to confidential information such as salaries and bonuses. Management should hold annual meetings to brief stockholders on the firm's progress and its future plans.

Another financing option is purchase through stockholder loans. Under this option, the current principals arrange for a bank to make individual loans to the selected employees buying stock. The stock is used as collateral and the principals should try to negotiate the most favorable terms with their banks. Instead of guaranteeing the loans, the principals should try to negotiate a side agreement to buy back the stock in case of default.

Stockholder loans are a method of getting larger blocks of shares into the hands of the new principals quickly. Since the loans must be repaid out of future bonuses, this method has the limitation of incurring interest expense. To facilitate payback, many firms institute an automatic payroll deduction through which the loan is repaid in regular install-

Stockholder loans are a method of getting larger blocks of shares into the hands of the new principals quickly.

ments during the year or at one time out of a bonus check. These buyers should not be asked to incur additional debt to buy more shares before the first debt is repaid.

Bonuses of stock are not recommended because staff members appreciate cash bonuses more than stock bonuses. The tax treatment is the same. Cash bonuses should be earned, and the employees should be encouraged, but not required, to buy stock. Those who are not interested in buying stock are not likely to be part of the future management team.

Incentive stock options (ISOs) are a tax-favored method of permitting an employee to purchase stock in the future at today's price. For a growing firm whose stock keeps rising each year, this can be an attractive benefit. They are used mainly to attract high-salaried employees who are interested in minimizing their tax liabilities. ISOs are not very useful in an internal ownership transition, since the next generation of owners usually has limited financial resources.

Another drawback is that ISOs may not encourage full commitment as direct stock purchases do. Since most firms do not pay dividends, employees have little incentive to exercise their options and therefore tend to wait to see how the stock performs before taking action. Direct stock purchasers, by contrast, have made an investment in the firm and now are interested in working to increase the stock's value.

Nonqualified stock options permit options to be granted at a price below fair market value. The employee reports as income (compensation) the difference between the option price and the value of the stock at the time the option is exercised. The firm receives a corresponding tax deduction for the amount the employee reports as income. The employee pays capital gains tax on the appreciation from the date the employee sells the stock, provided that the holding period for capital gains treatment is met.

An employee stock ownership plan (ESOP) provides favorable tax treatment for an internal ownership transfer and can be a particularly useful device for closely held firms. An ESOP is a type of stock bonus plan that permits an employer a deduction for contributions made to a trust that invests primarily in the employer's stock. Trustees appointed by the directors administer the trust; directors remain in control of the firm. The trustees receive contributions from the firm and allocate the funds by formula to the accounts of those participating in the plan. The ESOP differs from a profit-sharing plan in that the funds are primarily invested in the firm's stock rather than in outside investments.

The directors determine the amount of annual contributions to the plan based on the level of profits earned each year. This flexibility is important to a professional services firm whose profits may fluctuate from year to year. All employees can be

Bonuses of stock are not recommended because staff members appreciate cash bonuses more than stock bonuses.

members of the ESOP trust, provided that they satisfy the firm's eligibility requirements pertaining to minimum age and/or length of employment (generally, 21 years of age and one year of employment). The distribution of benefits generally favors higher-paid employees by crediting their salary level in the formula. However, to qualify for the deduction, the plan must be approved by the IRS, which will make certain that it does not discriminate in favor of the management group. Once qualified, the trust is exempt from tax on income generated, and participants are subject to taxation only upon receipt of distributions from the plan.

Principals should consider the following points when deciding whether an ESOP is appropriate for the firm:

- **Minority stockholders.** Many owners are reluctant to have their stock widely distributed throughout the firm. They are concerned about disclosing financial information and may perceive minority stockholders as a possible disruptive influence in the firm. However, ESOP participants actually are owners of stock in the trust rather than direct stockholders. Although they have voting rights in certain major decisions, such as the sale of the firm, they do not elect the directors. ESOP stockholders mainly want to be kept informed about the firm's health.

- **Nondiscrimination issues.** Ownership of shares in the ESOP trust is usually based on salary, which means no extra consideration is given for merit. To reward the high performers with extra shares, many firms combine an ESOP with direct stock purchases by key employees.

- **Repurchase liability.** The repurchase liability means that the firm must be profitable enough to generate sufficient cash in the ESOP trust to buy out stockholders as they retire or leave. The agreement may be written so that an employee who owns shares directly can sell them to the trust without leaving the firm, provided the directors approve. (This provision is an added benefit if an employee/stockholder needs cash for personal reasons.)

- **Lack of diversification.** An ESOP trust lacks the protection of the diversified portfolio of investments found in most profit-sharing plans. The trust consists primarily of shares of employer stock and usually a cash reserve to pay off departing stockholders. Investment performance is therefore tied to the performance of the firm. To offer an ESOP, a firm must have good prospects for growth.

An ESOP combines the benefits of employee motivation with tax and financial considerations. An ESOP is certainly not for everyone, but principals in firms contemplating an ownership transition should understand how the plan works to gauge its usefulness and applicability to their own situation.

An ESOP combines the benefits of employee motivation with tax and financial considerations.

COMMUNICATIONS AND CONTROL

Firms must be able to communicate effectively with new stockholders so they understand the benefits as well as the risks of ownership and why it is important for them to own stock in the firm. In most cases, these new stockholders have never owned stock in a privately held firm and they may not understand how this differs from owning stock in publicly traded companies. (To compound the problem, the new stockholder needs to understand the process well enough to be able to explain it to his or her spouse, who usually has other plans for the bonus money besides making an investment in the firm.)

Many potential owners do not have access to professional counselors, and they may not see the advantages of being a minority stockholder in a closely held firm that does not pay dividends. However, these stockholders are acquiring more than economic benefits. Intangibles, such as the stature of being a firm principal and the likelihood of taking over management of the firm in the future, are usually even more important than achieving a return on investment.

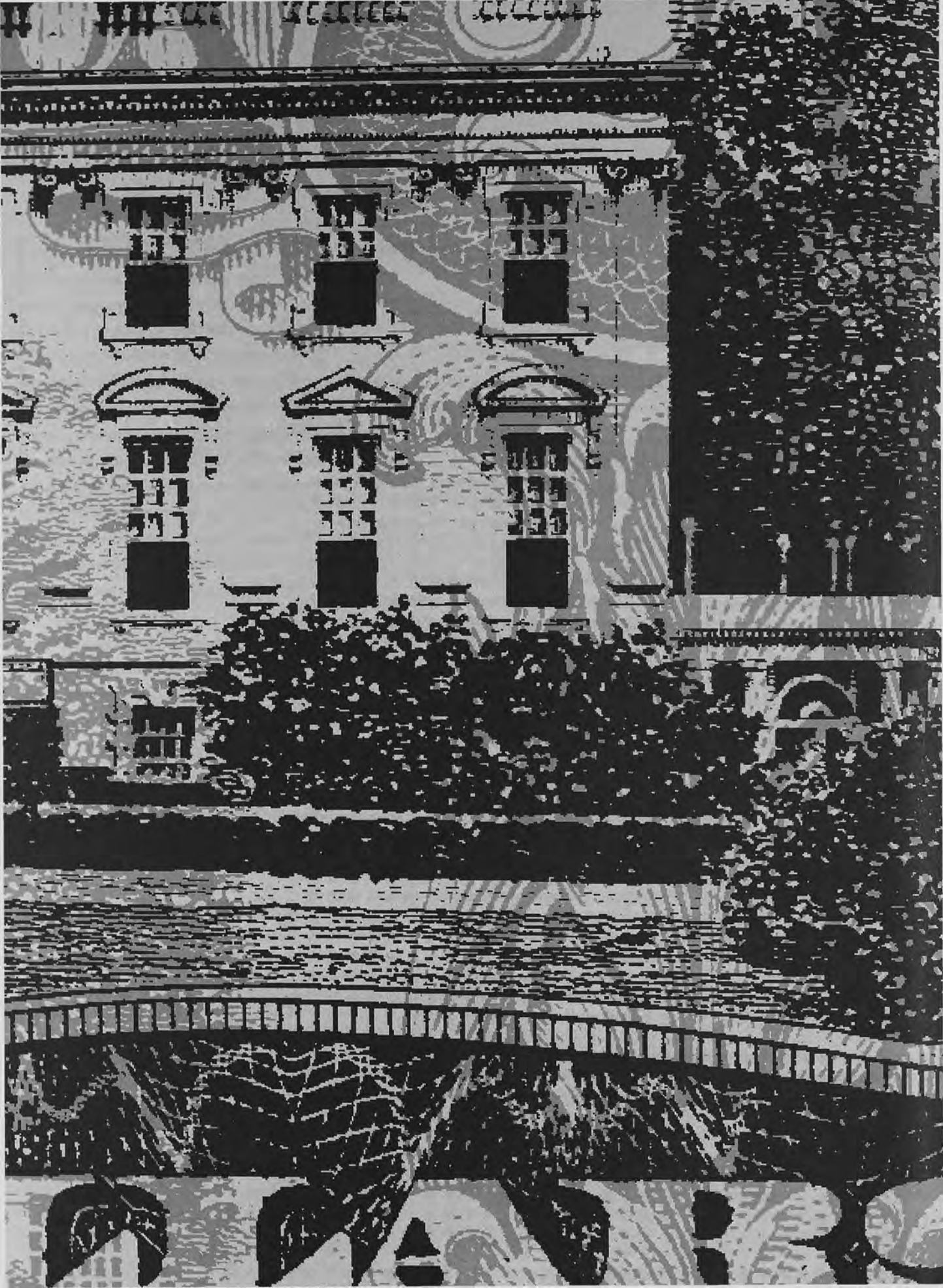
Meanwhile, buyouts of major stockholders should take place over five or more years to preserve cash flow. At some point in the process, the senior principals will lose control. When they reach minority ownership status, they usually sign employment agreements with the firm. Since some principals may want to work only part-time

at this stage, the agreements should establish salary levels and fix the time frame over which the balance of principals' shares will be purchased. In addition, the agreements should have a provision stating that the original owners can resume control of the firm if their shares are not being purchased in accordance with the agreements. This protects the original shareholders in case the new management fails to fulfill its obligations.

Accomplishing the buyout of a major principal can be a formidable task and a strain on a firm's finances. The firm should set an upper limit for the maximum percentage of the firm's shares that future stockholders can own. To protect the senior ownership group, certain covenants should be written into the stockholder agreements. One provision should state that new owners should sign personal guarantees on the line of credit with the bank. Also, if any stockholders leave to join a competitor or to start their own firm, they will not receive the full appreciation of their stock's value. Another provision should be worded to prevent departing stockholders from taking clients or staff with them.

An owner's obligations are vast and complex. Consequently, firms must devote sufficient time and effort to the process of ownership transfer. The continued existence of the firm depends on it.

Accomplishing the buyout of a major principal can be a formidable task and a strain on a firm's finances.



Determining the monetary value of a firm is an important step in the process of ownership transition. The valuation is also a factor in the sale or merger of a firm. The valuation process takes into account many factors—both financial and nonfinancial. Each has its own limitations, advantages, and disadvantages. For this reason, a combination of methods is often used to determine the value of a firm.

To proceed with an ownership transition plan, as presented in chapter 15, a value for the firm needs to be determined. The firm's value is important because it is the basis on which the ownership interests are transferred. If the present owners perceive the value to be too low, they are likely to wait for a more propitious time to sell. If the prospective new owners in the firm believe the price is too high, they are likely to decline the offer and either move to another firm or start their own practices.

OVERVIEW OF VALUATION METHODS

As shown in exhibit 16-1, value is actually a range. Various methods can establish a value for a closely held firm, including net book value, predetermined value, formula, and independent valuation by an outside party. There are advantages and disadvantages to each method.

Book value, or the difference between total assets and total liabilities, is a common method for valuing a firm. Book value must be calculated on the accrual basis to be meaningful because the inclusion of accounts receivable, work in progress, and accounts payable is significant in architecture firms. The advantage of book value is that it is easy to determine because it can be read from the balance sheet. The disadvantage is that book value tends to under-value a firm because assets are included at their depreciated amount and no recognition is given to the "going concern" value of the firm.

A predetermined value that all parties agree to in advance is another way of valuing a closely held firm. Obviously, a predetermined value eliminates all judgment in arriving at value but it does not take into account the changing nature of the organization, which can significantly affect the value at any given time.

A formula method for valuing the stock is another alternative. For example, a formula might consist of the net book value at year-end plus a weighted average that is three times the net profit before taxes and discretionary items. The advantage of a formula is that it is easy to calculate and can be calculated at any time, not just at year-end. This can be important in case of death or disability when the remaining owners want to assume that the departing stockholder or the estate receives the most current value for the stock. The disadvantage of a formula is that it is arbitrary and does not take into consideration the changing circumstances in a firm that might have a significant impact on value. For this reason a formula might be challenged by the executor of a decedent's estate.

An independent valuation—based on informed judgment, supported by facts, and performed by a qualified third party—is the best method for determining value, and if done properly, it will be acceptable to all parties. An independent valuation would rarely be challenged in court or by the IRS unless the opposing party were to hire another valuation expert. The disadvantage of an independent valuation is that it is expensive.

There are a number of well-recognized approaches for valuing a closely held firm. These include a cost approach, a market approach, and an income approach. The following paragraphs profile the major concepts and elements for each of these.

COST APPROACH

The cost approach establishes a replacement value or, in some cases, a liquidation value of a firm. This approach concentrates on the balance sheet, starting with the book value of the firm.

Book value is defined as total assets less total liabilities, or simply the amount represented as the ownership interest in the firm. However, book value tends to undervalue a firm since assets are recorded at their depreciated value rather than at what it would cost to replace them today. Conversely, a firm that might be in trouble might find that the book value is unrealistically high. The largest assets—accounts receivable and unbilled work in process—might be overstated. When projects are interrupted and new staff must become acquainted with them, added costs occur. Book value is easy to calculate since the basic figures can be identified on the balance sheet.

After determining book value, it is then necessary to examine the assets and liabilities of the firm in detail and make any adjustments needed to arrive at the true condition of the accounts. For example, real estate holdings may have to be revalued upward or downward to reflect market conditions. Accounts

An independent valuation...is the best method for determining value, and if done properly, it will be acceptable to all parties.

receivable need to be examined for potential bad debts, and all accounts must be reviewed and adjusted either up or down to reflect fair market value. Liabilities also are examined to be certain that they are fairly stated. When the balance sheet is adjusted, the amount shown as the adjusted stockholders' equity then becomes the value of the firm. Generally, the cost approach is not appropriate for valuing an architecture firm since its most important assets, such as the trained staff, are intangible and more difficult to quantify.

MARKET APPROACH

The market approach relates to the development of values through comparisons with similar publicly traded corporations. In this case, a list of comparable companies is developed and after more detailed study, the list is narrowed to three or four firms that most closely resemble the firm being valued. Price/earnings ratios of the comparable publicly held companies are then used to arrive at value for the privately held firm. The market approach is generally not suitable for most architecture firms because of the lack of comparable publicly traded firms. In addition, differences in accounting methods used by closely held firms can affect the results significantly.

INCOME APPROACH

The income approach is a measure of value relating to the earning power of the firm. It involves the use of a multiplier applied to an estimate of the firm's earning potential. The multiplier is chosen to reflect the cost of money, firm growth potential, and degree of risk. To a potential buyer, the value of a firm represents the future benefits that will accrue from ownership. In effect, the buyer is acquiring a future stream of earnings and must determine the worth of that earnings stream.

In the case of an internal transfer in an architecture firm, the next generation of owners is acquiring more than economic benefits. Intangibles such as the stature of being a firm principal and the likelihood of taking over management of the firm in the future are usually even more important than achieving a return on investment. However, only the economic benefits are considered in arriving at value under the income approach.

Although earnings, cash flow, revenues, and a backlog of projects are basic elements in determining value, the quality of these items as well as their amount is important. The trend of revenues and earnings is as significant as the figures themselves. Do the figures represent real growth and is that growth in expanding markets? Are salaries and bonuses comparable to what other similar firms are paying? Are facilities adequate? Will major expenditures be needed soon for capital equipment, such as

Although earnings, cash flow, revenues, and a backlog of projects are basic elements in determining value, the quality of these items as well as their amount is important.

CADD systems? Is professional liability insurance adequate; what is the status of actual and potential claims? What is the history of bad debts and project overruns? A host of questions that go beyond the figures themselves need to be answered before a value can be determined.

In addition to financial data, nonfinancial factors must also be examined. Does the firm have a history of stable employment? Are the principals recognized in their fields of expertise? Is the firm located in a growing area? What is its reputation among similar firms? Can it compete successfully with other firms and still do quality work? What is its client base? The nonfinancial factors obviously have a major impact on a determination of value.

In a valuation based on the income approach, earnings must be reviewed and sometimes adjusted to reflect what might be considered "true earnings." For example, in most closely held firms, the principals' salaries and bonuses are tied to the earnings of the firm. Tax considerations are a major factor in determining how much bonuses will be. Therefore, the ratio of bonus to the firm's earnings may need to be adjusted to reflect this and any other factors that might tend to distort the earnings picture. For example, a principal may own the building in which the firm is located and may take out additional compensation through higher rent charges.

In addition, the trend of earnings is significant. Earnings typically are examined over a period of several years, usually five, and weighted to give emphasis to the most recent

years. Weighted average earnings are then multiplied by a number, called the multiplier, to arrive at a value for the firm. Obviously, this number is extremely important and is determined only after performing a detailed analysis of the firm's operations.

No standard ranges of multipliers exist for architecture firms. Multipliers are arrived at through an appraiser's experience in valuing many firms over time. The drawback to this method is that historical earnings may not be indicative of future earnings. Moreover, this method depends heavily on the appraiser's skill in selecting the appropriate multiplier.

Other methods, such as discounted future earnings, also may be used under the income approach. Revenues are projected by examining the backlog, reviewing proposals outstanding, and estimating future awards of work. Expense projections then are determined based on the requirements for staff and facilities needed to generate the forecasted revenue. The result is a projection of earnings over the next several years. Future earnings then must be expressed in present values by applying a discount factor to these earnings.

Another income method of deriving a firm's value is to apply a multiplier to revenues. For example, many accounting firms are valued on the basis of one times annual gross revenues with adjustments up or down based on the longevity of the client base and on the likelihood of those clients continuing with the new owners. Revenues are determined easily, and a valuation on this treatment of expenses. However, determining



value based on revenues assumes that a firm generating a certain level of revenue can be expected to earn a certain amount of profit. With most architecture firms, this relationship between revenue and profit does not hold true and is why the multiplier of revenues is not widely used to value architecture firms.

No single valuation approach is right for all cases. That is why a combination of approaches and methods is used in most independent valuations.

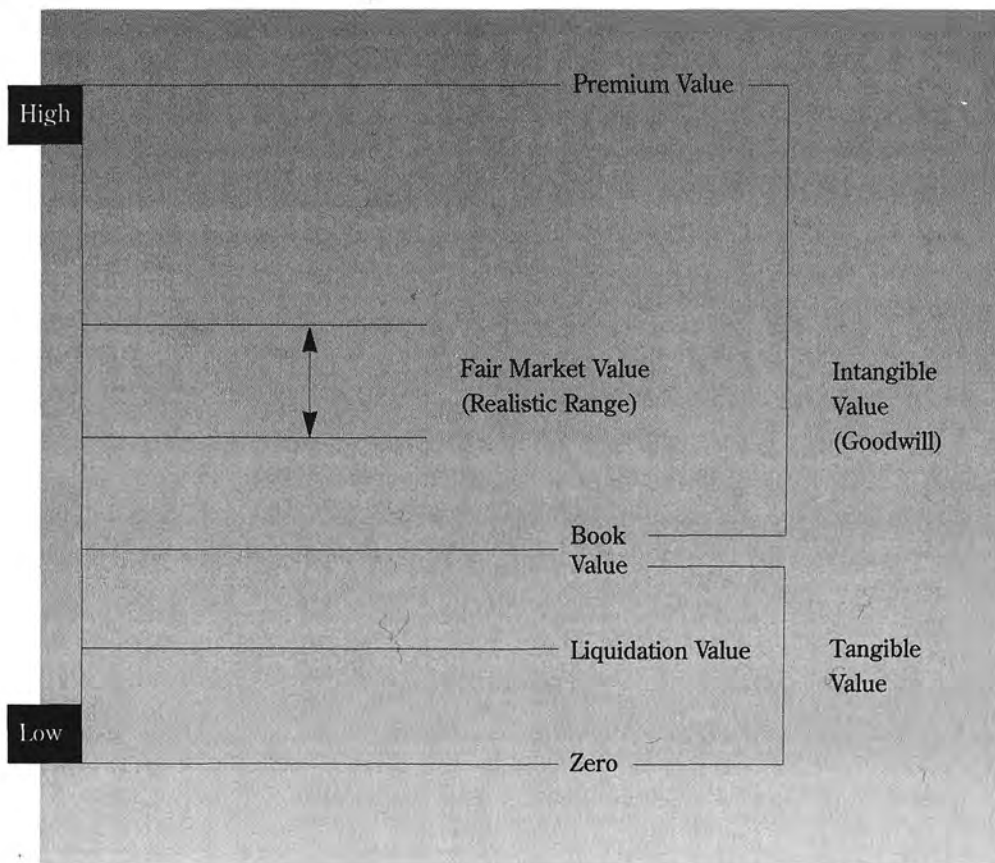
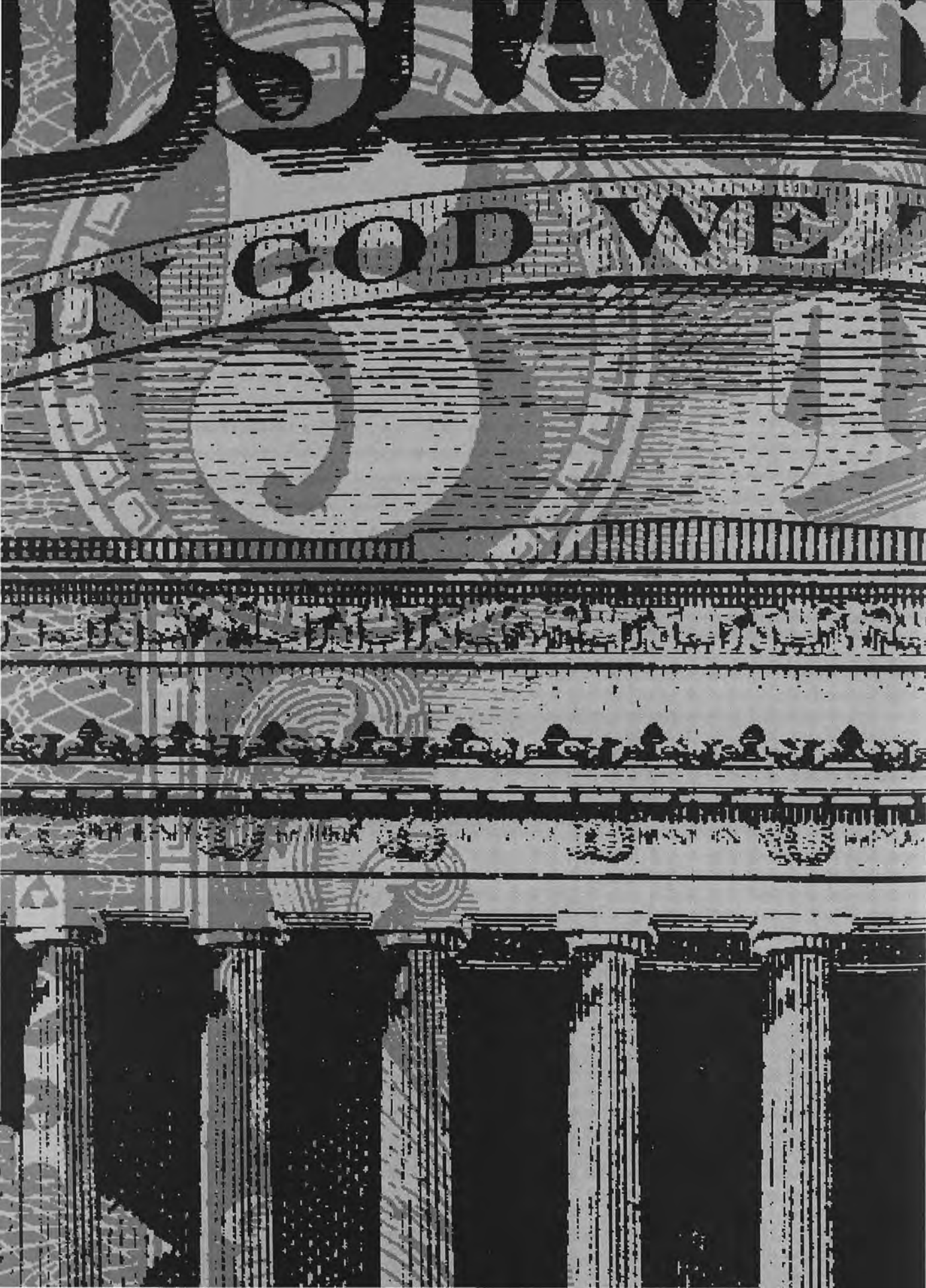


Exhibit 16-1
Range of Values



GLOSSARY

This glossary includes terms used in this book as well as a few other terms frequently used in financial management.

Accounting

Methods used for recording financial transactions and assembling these data into reports for principals and managers.

Accounting period

The time period covered by accounting reports. For example, financial statements usually are prepared at year-end but also can be prepared on a monthly or quarterly basis.

Accounts payable

Amounts owed by the firm to vendors or consultants for merchandise or services on open account or short-term credit. They are evidenced by bills or invoices.

Accounts receivable

Amounts owed by clients to the firm for services rendered or for reimbursement of expenses. They are evidenced by invoices. Accounts receivable are aged until they are collected or become uncollectible, at which time they are written off.

Accrual accounting

A method of keeping accounting records in which revenue is recognized as earned when services are performed and expenses are recognized when incurred, without regard to when cash is received or disbursed.

Activity ratios

Ratios calculated to measure how effectively the firm is using its resources.

Aged accounts receivable

A report showing accounts receivable classified according to the length of time each invoice has been outstanding. This aging analysis highlights which accounts are becoming past due.

Asset

A resource owned by the firm on which a value can be placed.

Audit

A formal method of verifying the presentation of financial statements. The examination should be in sufficient detail to permit the auditor to state that the financial statements are presented in accordance with generally accepted accounting principles. The audit also may suggest improved procedures to increase efficiency, safeguard assets, or improve financial operations.

Audit trail

A systematic method for tracing an accounting transaction to its source documents.

Average collection period

The average number of days on average between issuing an invoice and receiving payment, figured by dividing accounts receivable by an average day's billings.

Backlog

Amount of revenues to be earned from contracted projects. Backlog is reduced by the value of revenue earned and increased by new contract awards.

Bad debt

A debt owed to the firm that is uncollectible. Some firms set aside a reserve for bad debts, which reduces accounts receivable. The reserve can be determined as a percent of accounts receivable or by analysis to determine doubtful accounts.

Balance sheet

A statement of the firm's financial condition as of a specific date. The statement summarizes assets, liabilities, and owners' equity.

Benefits factor

Employee benefits and payroll taxes divided by total payroll (direct plus indirect labor). Direct labor rates are multiplied by this factor to determine direct personnel expense (DPE).

Billable time

Time charged to projects that should be invoiced to clients. Time charged to overrun projects to finish the work is not invoiced to clients and does not result in revenue.

Billing rate

Rate at which an employee's time is billed to clients. Billing rates should reflect the value of the services performed.

Board of directors

A group of individuals elected by shareholders of a corporation to establish policies and plan for the future of the firm. The directives of the board are carried out by the officers of the corporation.

Book value

(1) The amount at which an asset is carried on the balance sheet; a building, for example, would be carried at cost plus improvements minus depreciation. (2) The account represented by owners' equity on the balance sheet.

Breakeven

The point at which there is neither profit nor loss, that is, when revenue equals the total of fixed and variable costs.

Budget

An estimate of the financial condition of the firm for one year in advance, for example, based on projections from known information and estimates of the future. Budgets are also prepared for projects and phases of projects.

Bylaws

Rules adopted by a corporation to regulate its operations. The rules define duties of shareholders, directors, and officers; establish meeting dates for shareholders; and set number and term of directors.

Capital

Amounts invested in the firm on a long-term basis. Equity capital is the amount furnished by owners while borrowed capital is the amount furnished by lenders.

Capital expenditure

An expenditure made for fixed (long-term) assets such as buildings, equipment, or automobiles.

Capital structure

A description of the mix of borrowed and invested capital in the firm; for example, the amount and description of debt and equity.

Cash accounting

A method of keeping accounting records in which revenue is recognized when cash is received and expenses are recognized when cash is disbursed.

Cash cycle

The process by which cash is used to pay for salaries and other expenses in delivering services (work in process); sending an invoice for these services (accounts receivable); and collecting the invoice, which returns the cash to be used again for payment of salaries and expenses.

Cash flow projection

A means of forecasting cash flows in future time periods for several months ahead. Cash balances, and anticipated cash receipts and disbursements are examined to determine the timing and magnitude of cash surpluses and deficits.

Chargeable ratio

Direct labor dollars or hours divided by total direct and indirect labor dollars or hours.

Chart of accounts

A list of accounts (and their numbers) used by the firm to classify assets, liabilities, owners' equity, revenue, and expenses. The level of detail of accounts under each category depends on the needs of the firm.

Common-size reporting

A method of presenting financial statements on a percentage basis in order to examine the relationships between various accounts.

Contribution

The amount remaining after payment of direct labor and expenses for a project that will contribute to the payment of indirect expenses and allow for profit. May be expressed in dollars or as a percent of revenue.

Controller

The individual responsible for a firm's accounting matters including financial statement preparation and interpretation, tax return preparation, and budgeting.

Corporation

A legal entity organized under the laws of a particular state for the purpose of conducting a business. The entity has a legal identity separate from the owners. A corporation is "domestic" to the state of its charter and "foreign" to all other states.

Cost-based methods

A method of pricing projects through a buildup of various elements of costs that will be incurred on the project. Profit and contingency are added to the summary of costs to arrive at the price quoted to the client.

Cost of capital

The average rate paid for bank loans and the desired rate of return on owners' equity.

Current assets

Assets that are readily convertible into cash, usually within one year. Cash, accounts receivable, notes receivable, work in process, and prepaid expenses are examples of current assets.

Current liability

Liabilities that will come due within a year.

Current ratio

Current assets divided by current liabilities. This ratio is often used as a measure of liquidity.

Debt

A financial obligation of one party to another. Debt usually consists of current borrowings and long-term debt (notes and mortgages).

Deferred revenue

The value of revenue that has been invoiced but not yet earned. This revenue is often carried as negative work in process.

Demand profile

Used in staff planning to determine the hours needed for each project over the next several weeks of the planning process.

Depreciation

The reduction in value of a long-term (fixed) asset, which occurs over the useful life of the asset. Assets are usually depreciated down to a salvage value. This reduction in value results from wear and tear or obsolescence.

Direct labor

The direct salaries of all personnel working on a project.

Direct personnel expense (DPE)

Direct labor of all personnel working on a project, and the portion of their payroll burden including employee insurance and payroll taxes.

Dividend

Payments to shareholders out of earnings and profits. Payment is in proportion to the number of shares owned and may be made in cash or stock. Dividends are subject to double taxation, at the company level and at the stockholder level.

Dividend payout ratio

The percentage of net profit paid out as dividends.

Earned revenue

Revenue for which services have been rendered and for which payment has or will be received.

Employee benefits

Expenses such as group health insurance paid by the firm on behalf of employees. For the employees, these benefits are noncash items except for paid time off.

Employee compensation

Includes salaries, bonuses, and benefits paid to employees.

Equity

Amount shown on the balance sheet that represents the difference between assets and liabilities.

Exception reporting

A method of reporting financial data in which unfavorable information is highlighted so that managers will concentrate their efforts on the problem areas.

Expenses

Costs incurred for goods or services.

Facilities plan

A list of office locations, square footage of each, and the date of lease expiration. This report is useful in forecasting future space needs.

Fee

The architect's revenue on a project as in professional fee plus expenses, or it can mean the profit to be earned as in cost plus fixed fee.

Fiscal year

A period used as the basis for reporting financial activity; usually does not coincide with the calendar year.

Fixed assets

Assets of a tangible and permanent nature, such as furniture and equipment, that are used in a business and will not be consumed within one year.

Full time equivalents

A method for determining the number of staff by taking account of the reduced number of hours worked by part-time and temporary staff.

Goodwill

When one firm acquires another firm, goodwill represents the excess of value paid above fair market value. It is recorded on the acquiring firm's balance sheet as an asset. Goodwill also is defined as the added value to the firm that is represented by its reputation, client base, and trained staff.

Gross revenues

All revenues earned on a project including reimbursables and consultants costs; also may include revenues earned from other sources when referring to total revenue.

Human resources plan

A report showing future staff requirements including the types of new hires needed, when they will be needed, and anticipated departures.

Income

Profit is the amount remaining after expenses have been subtracted from revenues. Operating income is the amount remaining after direct and indirect expenses are subtracted; can be expressed as before or after taxes. In the context of this book income and profit are synonymous.

Income statement

The financial statement that shows revenues, expenses, and profit for a specified period.

Independent contractor

A person not considered to be an employee who works for the firm on a part-time basis and with minimum supervision. Independent contractors generally work for several employers.

Indirect expense

Expenses not chargeable to projects. These items are often called overhead.

Internal financial controls

The safeguards in place in a firm to ensure that financial transactions are carried out in accordance with management's directives.

Joint venture

A legal entity formed when two or more firms combine for the purpose of performing a particular activity. A joint venture may be either temporary or permanent.

Liabilities

Obligations of the firm owed to others. Liabilities are usually classified as current (due within one year) and long-term (due beyond one year).

Line of credit

An agreement between a bank and a firm whereby the bank agrees to lend the firm funds up to a maximum amount. The firm may borrow funds as needed and pays interest on the amount borrowed.

Liquidity

The ability to convert an asset into cash quickly and without loss in value. Marketable securities are examples of liquid assets.

Liquidity ratios

Ratios designed to test the firm's ability to meet short-term obligations as they come due.

Merger

The combination of two or more firms into a new legal entity.

Net multiplier

A ratio developed by dividing net revenues by direct labor expense.

Net revenues

Revenues earned on a project through the efforts of the firm's own personnel. Net revenues exclude reimbursables and consultants' costs.

Net worth

Another term for equity.

Nonexempt employees

Those employees who are not exempt from the wage and hours laws and who must be paid time-and-a-half for overtime.

Nonoperating expense

Expenses not related to the primary mission of the firm (i.e., the delivery of architectural services); for example, expenses to maintain rental property owned by the firm.

Nonoperating revenue

Revenue not related to the primary mission of the firm; for example, income from rental property owned by the firm.

Organizational expense

Expenses incurred in organizing a corporation: attorneys' and accountants' fees, incorporation taxes and fees, and costs for printing stock certificates.

Other direct expenses

All costs other than direct labor that can be charged to projects such as printing, travel, and long-distance calls.

Outside services expenses

Expenses incurred by independent contractors or consultants that are not reimbursable.

Outstanding stock

The total shares of a corporation held by shareholders.

Overhead expenses

See indirect expense.

Par value

The value placed on the capital stock when issued by a corporation. The amount is fixed and remains the same regardless of the actual value of the stock. The par value is carried in the capital stock account, and amounts paid for the stock in excess of par are carried in the paid-in capital account.

Partnership

A form of organization in which two or more individuals share in the ownership of a firm. Taxes are paid by the partners at their individual income tax rates on their pro rata portion of the firm's profits.

Payroll burden

Expenses related to payroll, consisting of employee insurance and payroll taxes.

Payroll taxes

Taxes such as social security taxes that are based on payroll.

Pension plan

A plan established by an employer for the benefit of the firm's employees in which contributions are accumulated and invested during employment. Benefits are paid to employees over a period of years after retirement. Funding of a pension plan is determined by actuarial calculations of the amounts needed each year to provide retirement benefits.

Percent complete

A design or technical estimate by the project manager of the status of the project based on the amount of work completed relative to the total amount of work yet to be accomplished, expressed as a percentage. The percent complete figure may be different from the percent expended (see percent expended).

Percent expended

The proportion of dollars or hours spent on a project relative to the amount budgeted, expressed as a percentage.

Principal

Most often refers to an owner of a firm but may include anyone in a leadership role.

Pro forma

Provided in advance in prescribed form. For example, a pro forma income statement is a budgeted income statement showing the effects of planned activity during a period.

Pro rata

In proportion. For example, if three partners owned 30 percent, 30 percent, and 40 percent of a partnership, and profits were distributed pro rata based on ownership, the profits would be distributed according to these percentages.

Productivity ratios

Ratios that measure the degree to which project efforts are able to generate revenues.

Profit

Excess of revenues over expenses during an accounting period; another term for income.

Profit-sharing plan

A plan whereby the firm puts a portion of its profits into a trust for the benefit of employees. Upon termination of employment the employee's account in the trust is distributed according to terms of the plan. The purpose of the plan is to allow employees to share on a tax-deferred basis the profits they helped create.

Profitability ratios

Ratios designed to measure the degree of profitability of the firm.

Project budget

A financial plan showing the dollars and hours allotted to various phases of a project over the time period for accomplishment.

Project manager

An individual in the firm responsible for delivering the project to the client on time and within budget.

Project plan

The plan by which the firm intends to produce the project on time and within budget.

Project revenues

The value received for services rendered. Includes reimbursable revenues that offset reimbursable expenses and may include markups.

Proprietorship

A form of business organization that is owned by one person. All profits or losses are the individual's, as are the legal and financial obligations. There are few formalities to establish a proprietorship but a license is required for professional practice.

Ratio analysis

Relationships calculated from financial statements to aid in determining the profitability, activity, and financial strength of the firm.

Reimbursable expenses

Project-related expenses that, by agreement with the client, will be reimbursed. As defined in AIA owner-architect agreements, they include expenses for travel, long-distance calls, inspection fees, reproduction, and postage and handling.

Retained earnings

The portion of net income after taxes that is accumulated in a corporation and not distributed as dividends.

Solvency

The ability of the firm to meet its financial obligations as they come due.

Staff

All personnel employed by the firm including employees and owners.

Staff leveling

The process by which needs for staff are matched with available resources to minimize unmet demand for services or underutilization of staff.

Stockholders' agreement

The legal document that defines the terms under which closely held stock may be purchased and sold.

Total quality management

A management system that emphasizes minimizing errors in the firm's output.

Venture capital

The business of pooling resources for the purpose of investing in start-up companies and new and untried processes. This is a high risk business that seeks high rewards for its efforts.

Work in process

Work that the firm has performed but has not yet been billed to a client.

Working capital

Defined as current assets less current liabilities. It is a measure of the solvency of the firm.

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ADDITIONAL RESOURCES

The AIA Library has a search capability that can locate current articles on financial management topics with an architectural emphasis. The library can be reached by telephone at 202-626-7492 or 7493 or by e-mail at <library@aiaemail.aia.org>. The service is free to members and available to nonmembers for a nominal charge.

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