ARCHITECTS IN THE DEVELOPMENT PROCESS: EMERGING PROFESSIONAL ROLES

by

WENDY G. KRUM

B.A., Wellesley College
1975

Submitted in Partial Fulfillment
of the requirements for the
Degree of

Master of Architecture
at the

Massachusetts Institute of Technology
June 1981

Signature of Author . . . . . .
Department of Architecture
February 9, 1981

Certified by . . . . . .
Gary Hack, Associate Professor
Thesis Supervisor

Accepted by . . . . . .
Sandra Howell
Chairman, Departmental Committee on Graduate Students

Architects in the Development Process: Emerging Professional Roles

by

Wendy G. Krum

Submitted to the Department of Architecture on February 9, 1981, in partial fulfillment of the requirements for the degree of Master of Architecture.

ABSTRACT

A conservative estimate based on 1975 building construction figures, including residential, office,commercial and factory construction, ascribed two thirds of all building to real estate developers. Yet in their traditional roles as private practitioners, architects have to a great extent been pushed aside or left out of development projects. An inflationary economy has welcomed competition from related businesses such as the "package dealers" who can give guarantees of project cost and delivery time. When involved in development projects, architects have often exercised limited design control, largely due to their late arrival or exclusion from major portions of the decision making process. Recently, many architects have begun to see that to change this pattern, they must broaden the scope of their knowledge, and that by assuming an entrepreneurial role in development projects, they can begin to achieve greater decision making capability and design control within the development process.

This thesis first looks at why new roles are emerging within the architectural profession relating to development work, and then looks at new ways in which architects are working with developers. The traditional way of working, utilizing a standard owner-architect agreement, is compared with recent variations to it, which include providing partial architectural services, taking an equity position in a project, participating in a design/build arrangement, and assuming direct responsibility as developer. Three case studies are presented, representing three of these different architect-developer arrangements, which focus on the issues of design control and design process as a function of the professional relationship which the architect assumed in each project.

A number of factors were found to contribute to the architect's control over the design and the design process, some or all of which may be applied to, or are intrinsic to, each of the various ways of working. The research concludes with a discussion of the implications for future practice, a description of some of the new roles for architects which have emerged as a result of new ways of working with developers, and addresses the role of education in training architects for development work.

Thesis Supervisor: Dr. Gary A Hack
Title: Associate Professor of Urban Design

ACKNOWLEDGEMENTS

There are many people whom I wish to thank for contributing their time, knowledge and advice to help me in completing this thesis.

I am very grateful to all those people whom I interviewed, who were so generous with their time, and without whom this thesis would not have been possible. I especially thank those who contributed their time more than once.

Special thanks go to Gary Hack, my advisor, for his receptivity, guidance and encouragement. Carl Sapers was of great help in initially structuring the research with an objective eye, and Antonio Di Mambro was a source of positive reinforcement and enthusiasm.

In addition, I want to thank Fred Merrill, who not only lent an editorial hand, but also helped to make the production of this thesis possible. I also thank him for his constant support and advice.

Finally, I give thanks to my family, who have always given me their support and understanding throughout my years of education.

TABLE OF CONTENTS

CHAPTER I

AN INTRODUCTION

The real estate developer accounts for a sizeable portion of the building done in the U.S; a conservative estimate based on 1975 building construction figures, including residential, office, commercial and factory construction ascribed two thirds of all building to real estate developers.[1] Yet in their traditional roles as private practitioners, architects have to a great extent been pushed aside or left out of development projects, as architecture has become subservient to the pressure for profit. Inflation has made the cost of both construction and financing exceedingly high, inviting competition from related businesses (such as the "package dealers") willing to commit to time-cost guarantees. When involved in development projects, architects have often exercised limited design control, due in large part to their late arrival or exclusion from major portions of the decision making process. In recent years, many architects have begun to see that to change this pattern, they need to broaden the scope of their knowledge, and that by assuming an entrepreneurial role, they can begin to achieve greater decision making capability and design control within the development process.

The amount of control exerted by an architect on a development project is affected by several factors. The point of entry into the development process and the role assumed by the architect both affect the scope of decisions he is involved with, the control he has over such decisions, and the process by which the project is designed. Early entry into the development process allows for the investigation of design alternatives before the package is "frozen"; if the architect

is involved in the programming and budget decisions, design options may be expanded. In addition, if an architect participates early in the process, there may be more of an opportunity to respond sensitively to a community's conditions, needs and values. Early involvement and collaboration with technical consultants and with the contractor may elicit advanced design concepts and allow more time for the delivery of a desired product. Working with a contractor on cost control from the inception of the design process largely avoids the necessity for hasty revisions which can produce a mediocre product.

The aim of this thesis is to investigate the question of how control over the architectural product (and by implication its design quality) varies depending upon the professional relationship which an architect assumes in a development project. Issues which arise as a consequence of adopting new roles will be explored, including organization for practice, new staff responsibilities, relationships with other members of the development team, skills needed, financial implications (fees, profits and investments), professional liability, and ethics.

In order to compare the effectiveness of various roles with regard to design control, and to survey the relevant issues, eleven interviews were held with a group of Boston area architects who have been working with developers[2] in a variety of ways. Also drawn from this first set of interviews was a list of projects from which a group of three or four projects could be selected for study in greater depth.

A series of questions were formulated as the basis for these

interviews, which expressed the major concerns of this thesis. (See Appendix I.) The architects were asked to describe the types of relationships which their firms have entered into with developers, and to specify at what stage design considerations entered the development process in each type. Questions were then posed regarding the effects of a particular arrangement on the architect's control of the design process and the design product; issues concerning the contractual arrangements, including fees or other compensation and liability, were also addressed. Additional questions concerned the types of participants involved in each type of relationship, and the skills which were required of these participants. Finally, the architects were asked to consider the role of education in training architects for development work, and to comment on new forms of practice which might develop between architect and developer.

Following the initial interviews, three projects were chosen for further study, representing three different types of architect/developer relationships. An effort was made to find projects which were comparable in terms of building type, scale, skills required of the architect, risks and financial intermediaries. They included the following:

(1) An architect worked under a standard agreement for a developer-contractor, and was paid a conventional fee for services.

(2) An architect was an equity partner in the project and also worked under a standard agreement for the development entity, which included a developer-contractor and a lawyer.

(3) An architect worked as a developer, with partners of diverse capabilities; they received the profits from the development as well as their own fees.

In all three cases the development entities syndicated the depreciation of the projects, but remained responsible for the management of the projects.

Representative members from the offices of the architect, the developer and the contractor were interviewed in order to develop an understanding of three points of view with respect to the design and development process. (See Appendix II.) The questions which were posed concerned the roles that each office played in the design and development process; the amount of design control exerted by each party; and the nature of the participants and their organizations, both individually and collectively. For each project, the effort was made to discover the major issues of contention concerning the design, and how they were resolved; an effort was also made to consider how things might have been done differently had the relationship between the parties been different. Finally, each of the individuals was asked to evaluate the results in terms of how well the system worked, and how they regarded the design product, including current problems with the buildings.

The next chapter will focus on why new roles are emerging within the architectural profession relating to development. It will also look briefly at the varying ways in which architects are working with developers as documented in published sources. Chapter Three will

discuss the role of architects under the standard architectural agreement, as compared to recent variations to it, which include providing partial services, taking an equity position, participating in a design/build arrangement, and assuming direct responsibility as developer. The fourth chapter will focus on the projects chosen for closer study, concentrating in each case on design control, design process and the specific issues emerging from each type of situation. Chapter Five will draw conclusions from the research about the various ways of working, discuss the implications for future practice, and describe some of the new roles for architects which have emerged as a result of these new arrangements. Finally, the role of education in preparing architects to participate effectively within the development process will be addressed.

Notes

1 Jonathan Barnett and John Portman, The Architect as Developer (New York: McGraw Hill Book Company, 1976), p. 7.

2 For the purposes of this thesis, the developer will be defined as an entity which has construction management capability, and which does not want to hold on to the project over the long term. A construction firm turned developer is a typical example of this type.

CHAPTER II

EMERGING NEW ROLES FOR ARCHITECTS

Why New Roles are Emerging

The recent state of the economy, characterized by inflation and recession, has resulted in fewer projects for an increasing number of architects. The high costs of both construction and financing have caused periodic declines in building activity, and therefore in work for architects.[1] In addition, it takes longer to develop a project today due to complex governmental regulations and more stringent financial requirements, which results in fewer active projects being available at any one time.[2] At the same time, building clients have been demanding closer control, even guarantees, of project cost and delivery time. Consequently, many clients have taken to working with non-professional, combined design-construction entities who will commit themselves to time and cost guarantees. Design/build teams providing single point responsibility for project delivery have also cut into the traditional architect's work. Many architects have begun to question the limitations of their traditional professional roles, and some have begun to expand into new areas of practice.

A 1971 article in Fortune magazine entitled "The Architects Want a Voice in Redesigning America" made the statement: "The gap between architecture's potential and its performance has created a profound crisis within the profession."[3] The problem had its inception as far back as the late 19th century. The type of architectural training provided by Paris' Ecole des Beaux Arts, which dominated architectural education in America until well into the 20th century, directed architects to look back to classical and romantic styles of the past,

and to appearances rather than to the process of building. At the same time however, industrialization and a new technology began to take hold in the building world. A dichotomy then emerged in professional leadership within the building industry,as engineers took over the new technology while architects became specialists, practising architecture as a "fine art". By the mid 20th century a change in attitude towards industrialization, and consequently a new genre of architecture had emerged with the teachings of men like Walter Gropius, but by that time the architect's sphere of influence had greatly diminished.[4] In general, architects had specialized within their own professional boundaries, refining or expanding design capabilities, instead of expanding their services into other areas which would have allowed them a wider range of influence in the building industry. As a result, the increasing complexity of buildings (calling for the input of many different kinds of specialists), the professional ethical code, and the increasing need for tight economic solutions tended on one hand to limit the range and control of the architect, and at the same time, allow for, and even enhance opportunities for non-architectural organizations such as enginneers, contractors and "package builders" to cut into the architect's domain.[5]

A necessary ingredient for architects to compete successfully in the marketplace is to understand the diverse areas of expertise necessary to address today's building problems. Architects must expand their services or team up with others who have the necessary

expertise. This has been the subject of much discussion within the profession. There is now an emphasis on the team approach to building design, arising partly from the fact of the many actors involved in a project and the need for their expertise during the decision stage, and partly from the economic situation which has made overlapping design and construction a necessity. Complicated financial planning, early coordination between technical specialists to produce solutions which can aid cost control, and tight scheduling throughout the development process all contribute to the need for coordination between the involved parties.[6] Better knowledge of the financing and construction ends is imperative for the architect. One author writes: "To survive, architects must wear many hats: businessman, economist, construction consultant, designer and site planner. Unless he does, concern will never replace competancy, either by man or machine."[7]

All this has led firms in the direction of expanding their services beyond traditional design services. Larger design firms have begun to offer programming, construction management, architectural, structural, mechanical and electrical design, and market and financial analysis. C.W. Griffin believes that for small firms to survive the competition with large firms, the answer is to form alliances with other design firms or become specialist consultants to fellow architects. He also believes that for those firms fearful of compromising their professional status, development work can be the key to survival, even prosperity.[8] A University of Maryland report, which was based on a survey including 110 participants in the Baltimore-Washington-Maryland region stated

that over 90% of the participants believed that architects should offer services beyond traditional services. (The participants in this survey included architects, engineers, developers, contractors, property managers, lenders and public officials of lending institutions and govermnet agencies.) The report also stated that "the role most cited for the architect to play was that of contractor and/or developer."[9] There is a trend toward development work, as evidenced in debates and discussions within and outside of AIA literature, which is clearly becoming a viable and even common way for architects to expand their services.

Opportunities for architects to participate in development projects exist in both public and private work. The expanding role of government in urban development has offered architects the opportunity to render additional services such as master planning, and others beyond the traditional building design services.[10] The Turnkey (II) Housing Program (sponsored by the Department of Housing and Urban Development and carried out with local public housing authorities) encouraged participation by architect-developers when HUD discovered that architects as developers with strong design control produced "better-than-average" housing.[11] In the private sector, where developers are looking for new sources of financing due to the tight market created by inflation, architects have the opportunity to participate as equity partners or as joint venturers. Taking all or part of professional compensation in equity shares of a project, assures an architect participation in the early stages of the development process.[12]

Adaptive reuse is popular among developers, financial institutions and architects. It costs less than new construction, has additional tax benefits, and places the architect at the center of the economic and building process because of his special expertise and innovative design abilities, which can affect cost control.[13] A promising area for small firms is small scale rehabilitation work which normally cannot support the cost of the conventional design/construction division of labor[14]; design/build then becomes a more viable alternative. If an architect acts as a developer, he can create his own projects, and with success, achieve a level of financial security not provided by traditional practice.

Why should architects get involved as developers, equity participants, or at the very least, participate in a developer's early decisions? Jonathan Barnett and John Portman provide one answer: "We believe that many urban and environmental problems will not be solved until an integrated design-development process - seeking lasting values, not quick profits - becomes the normal means of designing and building cities."[15] Architects are now dealing with problems at the neighborhood, the city and regional scale, and as such have great opportunities to influence the environment. The architect is potentially the most qualified member of the development team to design in accord with the needs and values of a community and its environment; his "ability to visualize a project gives him a tremendous advantage in the planning stages of the development process", according to Ronald Senseman, FAIA, an architect-developer.[16] In the normal course of his practice an

architect may accumulate a vast amount of information relevant to the development process; he may gain an understanding of a community's needs, learn about local land values, and become an expert at negotiating zoning changes. He may also have potential equity investors among his professional and business friends.[17]

According to published sources, architects with an entrepreneurial role in projects benefit from increased design control and freedom as a result of being involved in the initial decision making stages of a project. This may give the architect more of an opportunity to impact programming and budgeting decisions, allowing for consideration of alternative solutions and an evaluation of the budget. It also allows the architect more time to consider design alternatives and to be innovative with consultants. Arthur Cotton Moore, a Washington, D.C. architect-developer is quoted as saying: "If the economically knowledgeable architect is part of the development team, he can suggest better revenue-producing uses, and he also may be able to reduce the total mass to be built. And if the architect can work creatively with the economics, he will provide more freedom in the design for himself."[18] If the architect is involved as the developer, he can control the cost tradeoffs; Portman used this to his advantage in the creation of the Hyatt Regency Atlanta hotel by avoiding fancy finishes and saving labor in order to create the big interior space.[19]

According to Kay Dockins Ingle, many architects say thay are better designers because of the understanding and expertise they have gained in related fields.[20] She also suggests that the architect's desire for

greater personal and financial fulfillment may be a major reason for architects turning to entrepreneurial roles. They want more control over their own professional growth and security, and a more equitable share in the profits of their labor.[21]

Who's Working in Development - A Range of Firms and Approaches

A 1971 survey of 100 large and small firms responsible for an estimated $4 billion of construction annually, indicated that about 1/3 of the architectural firms had actually been involved as principals in at least one development project. And another third outlined similar projects for the future.[22] Architects have become involved as entrepreneurs as well as designers in a wide range of projects, from large office/retail complexes to office buildings with 3 or 4 tenants, or even 2 or 3 townhouses. In between these two extremes are a wide variety of project sizes and types, including industrial buildings, motels, highrise office buildings, garden and highrise apartments (both public and private projects), shopping centers, nursing homes, medical centers and even hospitals.[23] The types of firms involved and their approaches to development work vary widely. A brief survey taken from current publications provides some examples.

--- The most well known entrepreneurial architect is John Portman of Atlanta, who has created an unusual combination of organizations to deal with a wide range of professional commitments. They include: John Portman and Associates, the architectural and structural engineering office (which also does construction

management); Portman Properties, the real estate development firm; management companies for the Merchandise Marts which he owns; the Midnight Sun Company which runs the principal restaurants and the dinner theatre in Peachtree Center; and Peachtree Purchasing, a firm that purchases well designed furniture in bulk.[24] His projects include Hyatt Regency Hotels, the Peachtree Center in Atlanta, Embarcadero center in San Francisco, Renaissance Center in Detroit, and the Brussels International Trade Mart overseas.[25]

--- In 1968 Charles Luckman Associates of Los Angeles was acquired by Ogden Corp., a Big Board conglomerate which wanted to expand into real estate development. Luckman agreed to the merger with the understanding that he would be sole arbiter of "high quality projects" in which Ogden Development would engage. Projects include a $77 million complex in downtown Los Angeles, a joint venture with Broadway Hale stores for a shopping mall, a 32 story office tower and a 22 story hotel.

--- Arthur Cotton Moore of Washington, D.C. is an architect who has worked with a combination of development interests, some existing and some created through his own efforts. He does "implementation planning" for the revitalization of downtown areas in big and small cities, which has gained him accessibility to architectural commissions. He often "designs" the coalition of interests so as to attract a developer or developers; he has also participated as an equity investor. Projects include downtown areas in Baltimore,

Maryland; Schenectady, New York; Columbus, Georgia; and Petersburg, Virginia.[27]

--- Deeter, Ritchey, Sippel of Pittsburg took its first step in development by initiating and bringing together a real estate company, a finance company, and a group of small investors to form Mon Plaza, Inc., to develop its Mon Plaza Complex plan for a tract of land along the Mongahela River in Pittsburg. DRS owned 20% of the company and was involved in all negotiations, as well as providing architectural, engineering and construction management services. Plans included 2 office buildings, 3 apartment buildings, a motel, merchandize mart, marina, heliport, warehouse and rapid transit facilities and parking.[28]

--- Earl Swensson Architects of Nashville, Tennessee was the master planner for a new living and working community of 220 acres called the Roosevelt Community in Springfield, Illinois. Its subsidiary, Investment Property Services, Inc., was the joint venturer with a Springfield development company. The architectural team was responsible for the design of several projects and also for the overall coordination of those projects not directly designed by the firm. Two other architectural firms with their own development corporations are building the community's residential area.[29]

--- Miller and Melby Architects, Inc. of Minneapolis developed 4 Turnkey housing projects for the elderly, three in Minnesota and one in Wisconsin. For three of the projects they formed a separate

development company, in which the two partners own 25% and their employees hold the rest. They received the regular architect's fee plus the profit earned on investment.[30]

--- Trossen, Wright and Prokasky of St. Paul formed the Ithaca Corporation with Lovering Construction Company to plan, design and build two $5 million low cost elderly housing projects in South Dakota on a Turnkey basis. TWP maintained a majority interest in the corporation to assure its architectural priorities and kept an architect as arbitrator and executor throughout the project.[31]

--- Metzler, Muirhead, and Wright Inc. started out as designer/builders of residences in Atlanta in 1976. Metzler and Muirhead began by remodeling Metzler's 1910 home in midtown Atlanta (designing and constructing much of it themselves) and then did the same for neighbors. They then began to take equity in their buildings and at this time, they were joined by Wright, who had spent some time at the University of Pennsylvania Wharton School of Business (after architectural training). They did a series of two-townhouse projects, a seven townhouse project, and in the summer of 1980 were working on a plan for 70 to 100 townhouses on an eight acre tract of land. They hoped to gain other equity partners and may hire other architects to work out the details of their plans. They hope to do more mixed urban, rental, and even commercial projects in the future.[32]

--- Harry Wenning, AIA, of Hastings-on -Hudson, N.Y. bought land in his town's small business district for a small office building. Knowing of the shortage of office space there, he built on speculation. He formed a development team consisting of himself as the architect-owner, an attorney and a tax accountant. He arranged for the financing through a local bank and subcontracted construction for the 2 story office building (net 5500 sq. ft. of office space). Wenning and D'Angelo (his firm), a dentist, 2 medical doctors' groups and some university program consultants filled the building.[33]

These examples demonstrate the wide variety of development work that is being done by architects across the nation. To gain further insight into this type of work, interviews were conducted with architects from small and medium size firms in the Boston area to focus on some of the advantages and disadvantages, problems and issues which relate to different ways of working with developers. Situations that were explored in these interviews included: the architect in a standard agreement with a developer, in a partial services position, in an equity position, in a design/build situation, and the architect as developer. The following chapter looks at their responses and the issues, with occasional supplementation provided by published sources.

Notes

1 Roger K. Lewis and Sirkku Fisher, An Assessment of Architectural Practice (College Park, Md.: University of Maryland, School of Architecture, Fall 1977) as cited in AIA Journal, January 1978, p. 32.

2 Ibid, p. 34.

3 Gurney Breckenfeld, "The Architects Want a Voice in Redesigning America", Fortune, November 1971, p. 146.

4 Ibid, p. 147.

5 Kenneth John Olivola, Architects as Advisers: Old Directions in a New Field (Berkeley: University of California, 1974), pp. 5-6, and Breckenfeld, op. cit., p. 147.

6 C. W. Griffen, Development Building: The Team Approach (New York: John Wiley and Sons, Inc., 1972), p. 14-15.

7 Ned Abrams, AIA, "Economics: Solution for Survival", AIA Journal, December 1971, p. 21.

8 Griffen, op. cit., p. 119, 121.

9 Lewis and Fisher, op. cit., p. 36.

10 Griffen, op. cit., p. 121.

11 Paul Farrell, "The Architect in the Business of Developing", Progressive Architecture, May 1970, p. 80.

12 Griffen, op. cit., p. 8.

13 Andrea O. Dean, "Adaptive Reuse: Economic and Other Advantages", AIA Journal, June 1976, p. 27.

14 John F. Hartray, Jr., "Inspecting the Ethical 'Barricades' to Assure That They Leave Room for Response to Changing Conditions", AIA Journal, August 1976, p. 32.

15 Jonathan Barnett and John Portman, The Architect as Developer (New York: McGraw Hill Book Company, 1976), p. 6.

16 Ronald Senseman, as quoted in C. W. Griffen, "The ABC and Why of Development Building", AIA Journal, April 1972, p. 35.

17 Ibid.

Notes (Cont.)

18 "Arthur Cotten Moore/Associates of Washington", AIA Journal, May 1974, p. 59.

19 Barnett and Portman, op. cit., p. 30.

20 Kay Dockins Ingle, "Why Architect Become Entrepreneurs", Venture, August 1980, p. 51.

21 Ibid, p. 48, 50, 52.

22 Paul Farrell, "Ten Rules for Profits in Land Development", Progressive Architecture, March 1971.

23 Griffen, "The ABC and Why of Development Building", p. 33.

24 Barnett and Portman, op. cit., p. 15.

25 Cathy Stanton, "Portraits: John Portman, Architect Plus", AIA Journal, April 1975, p. 61.

26 Breckenfeld, op. cit., p. 203.

27 "The Case for Design Quality in Today's Marketplace", Architectural Record, December 1977, p. 84.

28 Farrell, "The Architect in the Business of Developing", p. 83.

29 Earl Swensson, FAIA, "When an Architect Acts as Co-developer of a New Community, AIA Journal, June 1974, p. 46.

30 Farrell, "The Architect in the Business of Developing", p. 96.

31 Ibid, p. 97.

32 Ingle, op. cit., p. 50-51.

33 Griffen, Development Building: The Team Approach, p. 79-80.

CHAPTER III

THE VARIETY OF ARCHITECT-DEVELOPER RELATIONSHIPS, TRADITIONAL AND OTHERWISE

Most of the firms interviewed [1] have worked with developers on housing projects (mainly government assisted projects and some condominiums) and office buildings, occasionally with retail space. Most of the developers syndicate their projects, retaining a small percentage of ownership, and often have internal management capability. (Management fees generated from these types of projects may be enough to support a company in times of economic recession.) Work with developers on housing and office buildings involves a lot of repitition, both in the design of any project and in the repeated demand for projects of such type. (The factor of repitition within these building types makes for economies in buying material and therefore building these types, which makes them attractive to the developer.)

The firms vary in terms of how much development work they do; some have done no more than 10 projects with developers, while for others development projects constitute the majority of their work. All but two firms have functioned as equity investors or developers, and the remaining two have considered it in the past and are open to future opportunities. Even though most have been successful, almost all say they prefer to practice architecture over development and prefer a variety of work, and therefore pursue other types of projects.

Reasons cited by these architects for getting involved as developers included the difficulty of obtaining reasonable fees due to competition from other firms (a developer will in many cases give the job to the lowest bidder), and low demand due to unfavorable financing conditions cutting out much of the need for architectural services. This has led

many architects to seek a way to cut out the developer and end up with the profits from a building themselves. Simeon Bruner of Gelardin/ Bruner/Cott, Inc., a Cambridge, MA. firm which does their own development work, says that being responsible for the development work allows more control over the design process, the product, and the money. It can be a way to create a commission and furthermore, if a firm does a sizeable amount of its own development work, it can begin to choose the kind of work it wants to do.

The Standard Agreement

The standard owner-architect agreement as embodied in AIA Document B141 (called the Standard Form of Agreement Between Owner and Architect) describes the architect's basic services as consisting of five phases: schematic design, design development, construction documents, assistance to the owner in the bidding or negotiation phase, and administration of the construction contract (commonly called construction supervision). For these services, the architect receives a conventional fee. The standard agreement places the architect in the position of protecting the owner's interests.

The standard agreement situation encompasses all types of projects discussed: offices and housing, both new construction and the rehabilitation of older structures. ADD, Inc. of Cambridge, MA., a firm which has chosen to work mainly for developers in the standard way, started their practice with the premise that developers would provide repeat business if they were satisfied with the work, while institutions or governments were less likely to give two jobs to the same architect.

Most of their work is small office buildings, ranging from 60,000 - 200,000 s. f.; the advantage to office buildings is that front end money is usually obtained earlier from private investors, whereas in housing, government money is not available until later in the process. Office buildings also offer greater profits. However, regardless of the type of work produced, repeat work is frequently a condition of working with developers. If an architect can develop a group of clients with whom he has a rapport, who respect him as an architect, his chances of doing satisfying work are clearly better.

The risk involved in development work has a great influence on the developer's behavior, and consequently on the activities of the architect and the building product. Often, developers have personal money at risk; the fact that the cost of the building is usually larger than the land value results in a highly unbalanced situation for the developer. The margins for success or failure are typically very small. A developer may therefore make decisions in advance or in spite of the architect; he many want to listen to someone else who has been successful, rather than the team he is working with. He may change the direction of a project in midstream: One architect described his entry into a local mixed use project: The project was underbudgeted (the architect was not given a costing function) and the architect disagreed with some of the decisions which had been made with regard to the reuse of an existing building, but the project was in a good location. When the architect joined the job a construction manager had already started demolition on the site. An initial plan had been drawn up by a real

estate economist, although the programmatic requirements had not been stabilized. The architect was able to suggest a change in square footage (zoning allowed for a larger project than had been drawn up), which was adopted. During the course of the project the real estate consultants were changed, bringing a change of ideas, and the construction management team also changed twice. Changes such as these not only cost the developer money, but can affect the quality of the design when the budget has been overspent.

All of the architects interviewed stressed the importance of getting involved in a project in the early stages, often before the land is acquired or when an option has been secured on the property. It is then common to provide such services as feasibility and site studies, master planning, programming and costing, although costing may be performed informally, as a check on the developer. (On jobs where feasibility may be difficult to determine, as in rehabilitation projects, more costing may be required; when necessary, some architects will hire a cost estimator on jobs requiring public bidding.) However, there is always the risk that the developer will then take their work to someone else. For example, one architect had his own site plan come back to him, uncredited, after a series of changes occurred in both the architectural and development staff on a particular project.

Perhaps the biggest hazzard for the architect is not being paid on speculative jobs. From the developer's point of view, an architect's fees and up front expenses have to be paid before financing is obtained or zoning granted, and are not depreciable for tax purposes. They can

represent the bulk of equity capital required on a project at the point of maximum risk. Since a developer's operation depends on the flow of the least amount of cash, the longer he can defer payment, the less his risk and ultimate costs. (If he can defer payment he may save 10% of the fee in financing costs.)[2] Therefore the developer will typically want the architect to speculate his fees or accept a reduced percentage of the fee until closing. If the architect does work under these conditions, he becomes an equity partner without equity, and if the job fails to go ahead, he may lose his fees or be faced with a lawsuit. For the architect working on a small number of projects, non-payment on only one job can in some cases be devastating. The architect may have to go into debt to fund operations, and if a client should continue to defer payment, refuse or contest payment, the firm can run out of credit and be forced out of business. This apparently happened frequently during the economic recession which began in 1974.[3]

Several of the architects indicated that they have received all forms of payment for development work, although work on an hourly basis is unusual. A developer needs to fix costs to estimate financing and operational feasibility,[4] and therefore work on an hourly basis will usually be limited by a not-to-exceed lump sum, including reimbursable expenses and engineering or other consultant's fees. The fee may frequently be determined by a percentage of construction cost. ADD, Inc. usually works for a fixed fee plus expenses, although on complicated projects where the scope is hard to define (such as a rehab), the job may be done on an hourly basis up until the point where the scope is

more clearly defined.

On many development projects, the economic situation demands that the design process be condensed. A developer typically wants to build for the least cost and in the least amount of time; once feasibility studies and a schematic design have been done, a developer may want to start working drawings without sufficient time for design development. For every month that a project remains incomplete, temporary arrangements must be made for tenants; the sooner a developer finishes construction, the sooner he has income coming in, and the less construction interest he has to pay. This may mean going to a fast track process, beginning construction before working drawings are completed. The architect committed to a project without a complete design is taking a risk in terms of cost, and the chances of no trouble are small, according to Merle Westlake of Hugh Stubbins and Associates. Peter Steffian of Steffian Bradley Associates commented that when design development and construction documents have to be combined on a fast track job, developers must understand that they may have to pay later on with change orders. Steffian said that clients come back to his firm because they can produce a project quickly, and taking the positive viewpoint, believes that a time constraint can produce a better situation for the architect, avoiding by necessity some of the perils of bureaucracy and personal opinions. A job can be less political, and enthusiasm may be easier to sustain.

A premise of development work is that a developer sets his budget by figuring what the marketplace will stand in terms of rentals and

and working backwards from there, rather than by assembling a series of costs to build the perfect building.[5] Developers are highly conscious of first cost and never have enough money, so the architect must learn how to give high value for the money available, and economize enough to leave in what is really important to the design. H. Jackson of Sert, Jackson and Associates stressed the importance of building technology and avoidance of the obvious "designer's conceits" (using expensive materials where they won't be appreciated, for instance). Peter Steffian says he tries to avoid schemes which rely on finicky detail; he may try to use simple detailing so that much of the work can be prefabricated off the site. Both Jackson and Steffian stressed the importance of deciding early what is worth fighting for and being willing to fight for it; when working with a developer-contractor, the contractor may often want to take control of the decisions, so the firm must decide early on what is really important to avoid a fight on every issue.

The traditional role of an architect protecting a client and keeping construction at a fixed price makes the contractor an automatic adversary. Traditionally the contractor has been given a set of plans and specifications which he is to interpret and follow, and make a profit. In this situation, there is typically room for misunderstanding; the drawings may not be complete enough or contain conflicting pieces of information. And if a contractor is unclear about the information given him, he will probably submit a higher price. Consequently, for reasons of economy as well as a more buildable and better design product, most of the architects interviewed stressed the importance of

eliminating the adversarial role with the contractor and working with the contractor's input from the early stages of a project, often within a negotiated general contract situation. (This is opposed to a situation where working drawings are completed before a job goes out to bid and the archtiect does not have the benefit of a cost analysis, other than on a strictly materials cost and time basis.) A contractor can give input on major design decisions, such as the choice between concrete or steel for the structural frame and the exterior cladding of a building, due to his knowledge of the status of labor contracts at the particular time of year, his knowledge of the locality, and particular subsoil conditions. A builder who has worked with a project since its initial stages knows its problems and may have good ideas to help solve them. Costs can be monitored throughout the design process. Peter Steffian commented that on housing projects, his firm tends to work within the same group of general contractors and subcontractors; four or five general contractors that Steffian Bradley works with have their favorite subs with whom they continually bid their jobs. Different configurations occur, but a reputable group has been established, which Steffian believes helps to cut down on mistakes.

When Steffian Bradley can not go the way of a negotiated general contract on private jobs, they may work half way through the working drawings and then have three or four contractors do a conceptual bid (which must include suggestions on how to save money) and submit a schedule for construction. They will then interview each contractor as to how their jobs are run, and when a contractor has been selected, they

will work with him through the last part of working drawings. Then they will have the contractor sign a contract for a guaranteed maximum price. On jobs which they have completed for the state, they may use a professional estimator to work with the staff, and then secure competitive bids. In any case, the effort is made to avoid surprises; by involving a contractor as early as possible, and working with him, the architect stands a better chance of finishing the project within the budget and with fewer construction problems.

Design control within the standard agreement is affected by several factors, as indicated by those interviewed. Wilson Pollock of ADD, Inc. remarked that design control varies with the personality of the developer. A contractor may submit shop drawings or materials which vary from the architect's specifications and in some cases be able to gain the approval of the developer in spite of the architect. On issues of key importance, the architect can threaten to walk off a job (ADD has threatened but has never actually quit), or refuse, in writing, to take responsibility for a material; whether the developer changes his mind may then depend on the amount of money involved. ADD, Inc. attempts to prevent potential clashes by checking on a developer's references before agreeing to do work; they will check with architects who have worked with the developer and will check to see what kind of work the developer has done previously. They also avoid speculative projects; most of the developers that the firm works with are owners or in a joint venture with an insurance company. Being able to work with the same group of clients, with whom a rapport and mutual respect has

been created (as between ADD and Spaulding and Slye Corporation of Burlington, MA), also helps the architect to fare better in the standard agreement situation.

On speculative jobs, Merle Westlake commented that a developer will tend to select the materials and determine the cost; he is then more concerned with the short term costs than with future maintenance costs, as he will not be managing the building. In this situation, the architect needs a current knowledge of liability and its legal aspects , according to Westlake. The architect must write tight specifications, be willing to stand by the quality and workmanship which he recommends and be willing to reject items which do not meet his qualifications.

The type of project will also influence the amount of control held by an architect. Tim Anderson of Anderson Notter Finegold, Inc., pointed out that condominium projects, the only currently feasible vehicle for non-governmental sponsored development in housing, offer more opportunity and flexibility for the architect. A higher level of quality is possible because people are willing (and able) to pay more to own a place rather than rent it.

Peter Steffian commented that control of the design process is dependent on how realistic the parameters are, such as the budget and time constraint. He also felt that a good relationship with the contractor is an important factor. According to Steffian, if the contractor makes one mistake in the initial phases of a negotiated general contract situation, it is a given that he will try to make up for it later on. In general however, it is advisable to have the general

contractor on favorable terms with the architect, and for the architect to be sympathetic to his problems. This allows adjustments to be made more easily.

Many of the architects stressed the importance of a team effort as the key to success on projects. Yu Sing Jung of Jung/Brannen Associates (which does the great majority of its work under a standard agreement), feels that control over a project derives from how well all the team members understand the constraints, and how well they can work together; failure stems from a lack of understanding of the development process. Jung believes that because a development team is made up of many different actors, each with his own kind of input and purpose, an architect can not "control" a development project; control exists only within the architect's perogative. From Jung's point of view, the only way for an architect to work with a developer is to understand all of his ideals.

Partial Services

The partial services position occurs when an architect works for a development-construction company, in which the architect is not in the position of protecting the owner, does little construction supervision, and is paid a partial fee. Few of the architects interviewed discussed this situation, and those who did said little; most have avoided this way of working. The consensus was that supervision is a necessity and that without supervision, more substitutions and compromises may be made on the design. Jung of Jung/Brannen felt that architects would only accept a partial services role if they were short on other work; in addition, this situation would not be favored by lenders, who request

a Certificate of Compliance from the architect when construction is complete. One architectural firm that eventually sold a project to another developer (because they lost confidence that it would succeed) agreed to do partial services for the developer, and essentially lost control over the project. They are now unsure they want their name credited with the design.

Wilson Pollock of ADD, Inc. said they had done no jobs on a partial services basis because they felt that a loss of control would result. Supervision is important enough to the firm that they will not do a job if it is not part of the package. However, they have done limited construction documents at a reduced fee for Spaulding and Slye (a firm they work with frequently) who then, as general contractor, fills in the details where necessary. However, supervision is always done by ADD, Inc. Steffian Bradley has performed partial design services for some developer-contractors; one developer who was doing 30 or 40 industrial buildings on one site requested this type of service. Steffian Bradley may do preliminary costing and preliminary plans and elevations, which are then given to subs for further development. The subs then submit shop drawings or fabrication drawings for approval, which are checked and stamped by the architect. These may be the first detailed drawings on the job. Steffian Bradley includes supervision as part of the package.

It is probable that an architect with a standard contract may find himself essentially in a partial services position if the developer-contractor runs out of money in the course of a job. Then the

contractor may effectively override the architect with cost savings input, and assume control of the job. In this situation, design control and design quality are more likely to be sacrificed.

Design/Build

In a design/build situation, the owner is provided with design and construction services simultaneously, from a single entity which joins architect and contractor. The architect's fee is built into the price of the total package and single point responsibility is achieved. A design/build entity consisting of initially separate parties could take a number of forms: an architect could act as a subcontractor to a general contractor or a developer for design, or an architect could act as the prime contractor. In the first situation, the architect functions more nearly in the traditional role, except that the client is the prime contractor and not the owner. In the second situation, the architect is subject to possible legal, liability and ethical constraints. A third type of design/build entity is a joint venture between two firms.[6]

Several of the firms interviewed have engaged in the design/build method of practice. Steffian-Bradley has done industrial and office projects with their preferred group of general contractors (in which the architect and engineer both work for the contractor, who has a contract with the owner), and Sert, Jackson is currently doing on-campus housing work for M.I.T. in a joint venture with a construction company. In both cases, the architect's fee was part of a total package

submitted to the owner. Architectural Endeavor, Inc., with their development arm, has worked as part of a design/build team on HUD's Turnkey housing projects. Although Cambridge Seven Associates has not participated in design/build practice, Terry Rankine commented that he felt the situation for architects in development work is changing permanently, and that the 1978 AIA convention had moved with this change when it made allowable design/build situations. (The problem of professional ethics had previously caused objections to this type of situation because the architect's protection of the owner came into question.)[7]

An AIA questionaire sent out by a task force which had been monitoring design/build contracting since the Institute changed its ethical code, has indicated that design/build is becoming a more common form of practice. Out of 3,682 firms responding to the questionaire in the first year under the new code, 374 or 10.2% of the firms had experience in design/build contracting. Of the remaining firms without experience, 232 believed it "very likely" that they would become involved as principals in design/build firms, and another 464 said they considered future involvement "somewhat likely". A subsequent questionaire involving 93 firms, showed that the 63 firms involved in design/build were most active in housing (75%), and commercial office and retail (73%).[8]

The joint venture combination of a design firm and a construction firm provides one response to competition from the "package builder". As with the package builder, the owner can deal with one entity which provides single point responsibility, as well as benefiting from time

savings and cost guarantees. But an additional advantage of the joint venture form of organization is that the design firm is still identifiable, and its abilities and background clearly defined. As such, the design firm can exert a professional influence on the project and maintain a more direct relationship with the client than could the design arm of a construction company.[9] However in most cases, the architect is no longer the owner's agent and overseer, which is a significant change in the architect's traditional role. The design/build architect may also have to forgo involvement in programming and other predesign decisions [10] which may have been done with the help of a separate "administrative architect".[11]

"Applicability guidelines" for the design/build approach have been offered by an AIA report on project delivery alternatives. First, the owner must be in a position to state all requirements, early and explicitly. As a result, design/build has been most frequently used in situations where needs are fairly straightforward and can be stated in explicit terms. Secondly, the owner must be willing to accept what is proposed, possible relinquishing a major influence on the design. The essence of design/build lies in transferring control and risks from owner to design/build entity early on in the project. Thirdly, the owner must be able to commit funds without final, completed construction documents.[12] In addition, if the owner holds time as his most important priority and, as cautioned by one source, is willing to accept "a modest level of quality", the design/build method may be the right choice.[13]

The design/build process has been ruled out for publicly financed projects in some states because it does not conform to legal requirements calling for a standard design process which ends in competitive bidding. In a design/build/bid process, two competing organizations may follow two different standards of quality in preparing their respective specifications. In the usual competitive bidding situation, plans and specifications are prepared in advance and given out to all parties interested in bidding,[14] which sets a prior standard for quality. On private projects, it presents both advantages and disadvantages for the client as well as for the architect. Advantages for the client include the following:[15]

- Design/build contracting provides a fixed cost for the project, including design fees. By establishing a firm cost very early, a lot of uncertainty is eliminated. The cost may be lower than one established by a traditional approach, but this is not always the case.

- The client has the advantage of the combined expertise of builder and designer, and of the integration of the design and construction processes, which can shorten delivery time for a project.

- In a design/build competition, the client can compare two or more proposals in terms of design concept and cost, and then select the most advantageous balance.

Disadvantages from the client's point of view are as follows:

- The client commits to a price without a fully detailed design and

may have little influence over the continued development of the design after awarding the design/build contract. The client may lose the option to make a choice on issues involving design versus cost; he may never be presented with the choice if there is a clearly less expensive solution. As a result, he may lose control over the quality of the finished product.

- The client must avoid the possibility of an adversarial relationship developing between himself and the architect and contractor.

- Comparitive selection between design/build teams is difficult, as differing tangible and intangible parameters must be compared. The design/build/bid process does not allow for competitive bidding on a precisely defined basis unless the client can issue a professionally written performance specification.

- The client must be technically well informed, perceptive, and able to spend the necessary time to thoroughly assess and compare the various proposals from all points of view, including first cost versus operating and maintenance costs.

Other disadvantages include the fact that in a bidding situation, the least amount of time may be spent on design to minimize the architect's risks and costs[16], which may cause difficulties on the construction end. The design/build/bid process may also cut out the possibility of citizen participation in the design process because it presents too many variables for the bidder.[17]

Among the Boston architects who were interviewed, those architects

who spoke of design/build experiences spoke favorably. In general and in their words, advantages to design/build from the architect's point of view include the following:

- If the architect is assigned the responsibility for total project cost, he can control all the tradeoffs; his options for providing a good environment while staying within a budget are enhanced.[18] H. Jackson of Sert, Jackson Associates commented that in his experience with M.I.T. campus housing, the design/build process allowed tradeoffs to be more freely dealt with, and gave the architect more flexibility in developing the design and deciding what was important. (Sert, Jackson was engaged in a joint venture with a construction company. They had full design responsibility with no function outside of their usual ones, although they did participate in costing and feasibility.) It should be added that they also found M.I.T. very cooperative and "respectful"; M.I.T. wanted what the architect wanted.

- The design/build approach minimizes communication problems between architect and contractor, and allows direct input of construction expertise into the design.[19] Peter Steffian of Steffian-Bradley Associates cited an advantage in the mere fact that architect and builder work together in the early stages of a project; at this time the builder can make suggestions for cost savings based on his knowledge of the marketplace. He may help in putting together the specifications, while the architect may

do special drawings to aid the contractor (such as laying out utilities). The architect may also assist the builder during construction with some of the technical apsects, which would ordinarily be done by a detailer hired by the contractor. The agreement between owner and contractor on Steffian's jobs is usually on a cost plus fee basis with a split of the savings for each party, which tends to make the job go faster. (Steffian-Bradley has received a part of this split only once.) Steffian feels that this type of an arrangement may have a better chance of working on larger projects with a more sophisticated, experienced owner who knows costs, but in any case open discussion among all the members is important.

- The design process is more efficient; the building is designed once rather than redesigned and rebid. Jackson commented that the amount of hours spent in design may not be drastically different on a design/build job versus a conventional job, but they are spent differently. On a conventional job, the architect is involved in design, redesign, rebid and redesign scenarios, whereas in a design/build situation, the costs are known and the design is drawn up once. Problems can be worked out more quickly with the contractor, and fewer mistakes are likely to be made.

- Because the design/build entity has freedom in selecting products, systems and construction approaches, it can readily respond to marketplace conditions, and lends itself to the use of fully

integrated building systems.[20]

- Experience in a joint venture with a contractor broadens the scope of the architect's practice. After the first experience, it should be easier to take on the next job, and thus the architect has increased his potential opportunities for work.[21]

There are disadvantages for the architect however:[22]

- In a competitive situation, bidding is expensive, and architects may not receive compensation unless their design/build bid is accepted.

- In a design/build/bid situation, design decisions may have to be made on less information than is the case in other methods. There may be less leeway for design decisions because the program and criteria have been predetermined, and because decisions must be backed by a firm bid.

- Direct client-architect relations and communication may be lessened or eliminated, and potential conflict of interests is increased because the architect is employed by, or in a partnership with the contractor. The contractor (and possibly the architect) benefits from any economies achieved during construction, which may place the architect in the position of choosing between the best possible alternatives from the owner's point of view versus the profitability of the project to the contractor, and/or himself.

- Where the architect is the prime in a design/build entity, he may not be able to get standard professional liability insurance. Five out of seven large insurance companies providing design professional liability coverage currently will not insure the designer as the prime contractor.[23] If involved in a joint venture, the architect must take out separate professional liability insurance.

These last two points, one refering to the ethics issue which has been under discussion within the profession for the last five years, and the other involving the issue of professional liability, merit further discussion.

The ethics issue was raised by the AIA committee on architecture for commerce and industry in 1975; it was responding to those who felt the increased competition from other entities such as the package dealers, and to a percieved change in client's demands.[24] The AIA ethical standard which came under debate with respect to design/build essentially stated that the architect should avoid any activity which might put his financial or other interest in competition with that of his client (activities during the construction phase being particularly sensitive to such conflicts); he should not engage in building contracting which would allow him compensation from profit on labor or materials furnished in the building process.[25] A revised code brought to the AIA convention in 1977 would have lifted the contracting ban, but the members voted to reject this change (except for architects who were participating owners as well).[26] It was not until 1978 that the AIA

voted to permit their members to engage in design/build and contracting for an experimental three year period, during which time a task force would monitor the effects of the change. The new code permitted the architect's compensation to be affected by profit or loss on labor and materials. It also called for the owner to receive written notice of the existance of the architect's conflict of interest however, and required that the owner be able to review the terms of construction subcontracts, and any proposed changes which would affect cost or have other consequences.[27] The task force which proposed the change in code said the intent was to recognize that the present system of project delivery was not working well, and to see if the strategy of moving towards greater control of the construction process could produce better results.[28] Finally in June of 1980, the entire code was made voluntary, and not subject to institute enforcement, after a 1979 U.S. District Court decision found part of the mandatory code in restraint of trade and a violation of antitrust laws.[29]

The ethical debate centered around the potential conflicts of interest which arise as the architect moves out of the traditional role as the owner's agent, responsible for protecting the owner's interest. On many design/build projects, the incomplete program and criteria allow for many variables in the selection of materials, equipment and building methods; the design/build contractor (and possible the designer) benefits from any economies achieved during construction. In the design/build situation, the designer may be forced to choose between the best possible alternative from the owner's point of view and the

profitability of the project for the contractor-employer, and himself.[30]

Jerome Cooper, AIA, arguing against changing the ethical code, stated that in allowing the interests of the professional to be placed above or in conflict with those of the client or public, the new code would be socially regressive. Interpretation of the code as it existed established a professional framework for involvement as a construction manager, and did allow the architect to participate as part of a design/build team, as long as his fee was not dependent upon the profit or loss on labor or materials furnished. But in allowing the architect to engage in building contracting or other activities which would place his financial interest in conflict with the interest of his client, the new standard would effectively allow the professional relationship to be destroyed, and make the architect and his client adversaries. Effectively, the client could not turn to the architect for objective advice, stated Cooper.[31]

Those arguing in favor of the code change agreed that the opportunities for financial gain at the client's expense and problems related to conflicts of interest already existed within the practice of architecture, and that the change would allow them to arise more frequently. However, it was also realised that architects had begun to expand their roles, and that an important issue for the AIA was whether or not they would become members of the American Institute of Architects. Many felt that the Institute should respond to a changing profession. One architect in favor of the change argued that the architect's desire to protect his "reputation for integrity", closely related to his

opportunities for work, should be one deterrant to taking advantage of the client in a conflict of interests situation. Charles E. Nelson, an architect directly involved in construction in design/build contracts, felt that a new sense of the professional ethic should emerge which strives for efficiency in time, materials, labor and even ideas, a concept devoid of adversaries. He stressed a synthesis of "the vision and the fact of building" as desirable, and even necessary.[32] John F. Hartray, Jr., AIA, admitted that broadened control of the construction process would bring with it added risk, but that it might also provide the opportunity to improve the quality of buildings that architects design, and the public perception of architect's competance. An entrepreneurial interest in construction could also serve to stimulate invention and allow for quality control.[33]

C.W. Griffen has suggested that if the architect participates in a project as a joint venturer with ownership interests rather than the financial interests of a builder-developer, his conflict of interests would disappear; as co-owner he would have the same interest in quality that he has as a designer working for the joint venture.[34] On the other hand, another source stated that the most difficult potential conflict of interest situation is that of ownership by the architect in a design/build situation.[35] The question remains: What level of quality will the architect strive for in this dual role? If the architect is not an owner, several sources in accordance with the AIA ruling agree that he should inform the client of the nature of his relationship with the design/build entity, and of any personal financial

interest in the project (apart from professional compensation). This disclosure aims at resolving conflicts of interest between the architect as professional and the architect as entrepreneur, essentially by revealing the fact that the architect has assumed both roles.[36] The architect establishes that he is not his client's adversary and that his decisions are made in the best interest of the client, free of concern for the architect's own financial interests.[37]

Problems associated with obtaining liability insurance also constitute an important issue within the design/build approach. Some architects find that they can't afford or can't get insurance to cover them in their various responsibilities beyond the traditional design-for-fee role.[38] Historically, physical deficiencies occuring on a project have had to be corrected, with the responsibility for correction depending on whether there has been design or construction negligence. Normally the architect's insurance protects against design error, and the contractor's bond against construction error. But when the relationship between architect and contractor varies such that these lines of responsibility become blurred, the question of liability coverage arises.[39]

According to several sources, the architect may have difficulty obtaining professional liability insurance when he acts as the prime contractor on a project, responsible not only for design but also construction. Joint venture design/build projects were at one time also considered uninsurable.[40] (Currently, Imperial Casualty and Indemnity Co. of Illinois will provide coverage by endorsement only.[41]) When

the traditional adversarial relationship between architect and contractor is eliminated, the architect may become involved in the contractor's errors and thus his vulnerability to liability claims is increased. On the other hand, if the contractor is the prime and subcontracts for the design work, the architect's role is similar to the traditional one (the contractor being the client), and this is normally insurable. In this situation however, the architect must guard against assuming the duties and responsibilities of the contractor with regard to "responsibility for project completion dates and costs, for project site safety, for code and standard compliance in construction, or for any indemnification of the owner through the contract with the general contractor".[42]

In a joint venture arrangement, the architect and contractor are each liable for the actions of the other within the jointly assumed project. The architect is protected by requiring that the contractor bond the joint venture (both parties, in other words), and the contractor is protected by the architect insuring the joint venture against design error.[43]

In design/build approaches, the compensation received by the architect depends on the roles played by the architectural firm in the project, on the number of firms being compensated, and whether or not an administrative architect (as professional adviser) is used.[44] Some of the methods of payment have already been referred to. In a joint venture situation, payment may be made to the architect and contractor for their respective technical efforts, and then a division of profits

or losses distributed to each party; or respective guaranteed upset prices could be paid to each party which would include their profit as well as fees.[45] If the joint venture defers payment by the owner (perhaps into working drawings) until a price can be given or assured, a clear understanding should be established regarding compensation to the joint venture if the owner rejects the price, or the design which conforms to the owner's budgeted price.[46] In this and other types of design/build approaches, the architect should also be assured, in writing and from the start, that he will not bear the major burden of expenses if a project is dropped after he has completed a good part of the drawings and specifications necessary for it to be considered. Although the builder may have expended little effort other than pricing the drawings, he should share in these initial costs.

An Equity Share

Equity participation in a project by an architect may occur in a variety of ways and for a variety of reasons. Several of the architects interviewed had wanted office space and decided to enter into a partnership with other investors so that they might design their own office buildings. Cambridge Seven, Hugh Stubbins and Associates, and Sert, Jackson all initiated the development of their own office buildings; all received a fee as well as holding equity (as limited or equal partners) in the projects. Hugh Stubbins' office also initiated the development of an office building on a site which had been given them in lieu of payment for services rendered on another project; at

the time the firm was not as busy as it wanted to be, so they effectively created a job for themselves. All of these firms worked with develoeprs who were compatible in terms of their taste and the quality of design desired; all were satisfied with the design product and produced successful buildings.

Anderson Notter Finegold has become involved as equity partners in a number of housing projects as a way of sharing in the early decision making process, as well as in the profits from the development. Tim Anderson described his firm's role in development projects before becoming involved as equity partners: after presenting several options to a client, the client would have lunch with his banker and all the decisions would be made. Anderson became knowledgeable in the development process by acting as both developer and architect for the Prince Spaghetti building on Boston's waterfront, and thereafter changed his firm's role permanently. Obtaining partial ownership in subsequent projects (fifteen to date), mostly for HUD (many are Section 8 projects and most are housing rehabilitation projects), put them in a position to know when decisions were being made and how to influence those decisions. They found bankers responsive to their suggestions, and discovered that developers were unwilling to challenge their bankers. Understanding a developer's concerns may also make for less conflict between architect and developer. Anderson has stated that "architects will have to play the developer role and get into the marketplace if they are going to be effective".[47] Today they are doing less than 20% of their own development work as opposed to 50% a few

years ago, as the recessionary economy has considerably tightened the market.

Frequently an architect may be asked to trade in his fees or receive reduced fees for an equity share on a speculative project. Terry Rankine commented that the most likely circumstances for this to occur would be in the normal rental market, either in housing or office building design. In those instances a developer could act independently, as opposed to a shopping center development, where major tenants would be likely to be involved initially. Desirous of keeping his front end costs low in the period of greatest risk, he might ask an architect to defer, reduce, or trade in his fees in return for an equity share in the project. ADD, Inc. began one project on an equity basis in which equity was held by the major tenants as well as the landowner; they were to receive no fee for their contribution as the architect, but would receive an equity share in the building. However when the situation became too complicated and they felt it to be beyond thier control, they backed out. Steffian-Bradley also began a project in which a reduced fee was offered in return for an equity share, but the developer went bankrupt. The firm withdrew from the project, feeling that they were having to work for too little, and that the chances of receiving payment were small.

Traditional practice methods must depend on short term income from fees plus necessary borrowing to finance future projects. The financial advantages to holding an equity share in a project include potential long term capital gain and tax benefits.[48] Usually the principal(s)

of a firm will buy equity shares as individuals rather than through the firm; or a separate organization may be created for development investment. This has the effect of keeping the accounting straight between the architectural and entrepreneurial functions, as well as avoiding the tax problems associated with the deferral of professional compensation.[49] Separating financial interests from professional interests is also the better solution in terms of professional ethics. The two roles can then be distinguished; the architect can function as a design professional in the traditional clear cut client-agent relationship and as a co-owning member of the development team. C.W. Griffen writes: "By officially severing his professional role from his business role, the architect avoids some ambivalent situations that might compromise his professional status if he provided professional services merely as a member of the development team and not as a design professional retained for the service."[50]

In spite of the benefits which an equity investment may provide however, several sources would caution the architect about forgoing his fees in return for an equity share. In this situation the architect runs the risk of having his contribution to the project undervalued by assuming a financial risk disproportionate to the potential return. The "risk factor" at the initial stages of a project is greatest, and should be figured into the architect's equity percentage.[51] (In addition, any additional services beyond the traditional ones, which an architect may contribute in his role as an equity investor, should also be charged to the client.) If the project fails to go ahead, the

architect may lose the opportunity for any compensation. Before agreeing to essentially finance the initial cash flow during the most risky period of a project, the architect should thoroughly investigate the project's financial prospects to ensure that his return is in accordance with the risks.[52] Anderson Notter Finegold will not work on a project unless they have "run through the numbers and they look good". This lessens their risk of losing the time, effort, and money invested in a project; in addition if another developer can't make it happen, Anderson Notter can "pick it up and run with it".[53]

The architect's position with regard to professional liability is particularly complicated when he is involved as a co-owner in a project.[54] There are professional liability insurers who will insure the architect in this situation, but some will not, and others will only provide coverage by endorsement.[55] Owners constitute the largest group of claimants against architects, and so insurance companies have therefore eliminated the possibility of allowing architects (as owners) to sue themselves (as professionals) by excluding them from coverage for lawsuits brought by the owner. The architect is still protected against owner's claims, workmen's claims, or property damage claims by those not part of the development team or construction contract. But if a contractor sues the owner for compensation for extra work, and the owner in turn sues the architect as the ultimately responsible party, the architect-owner is again not covered. An approach taken by one liability insurer (Continental Casualty Company of Chicago, the largest architect-engineer professional liability insurer) partially restored

the architect-owner's coverage against an owner's claim by reducing his protection by his proportionate share of ownership; a 30% equity share in a joint venture project would reduce liability coverage against owner claims by 30%.

On any project in which an architect is an equity sharing joint venturer, he must take out a separate insurance policy specifically for that project. This is also true for large projects in which several independent architectural firms are joint venturing; in this case the insurer wants to isolate the liability coverage because the insured architect may be the only insured member of the team, and insureds tend to draw lawsuits more than non-insureds. In a joint venture with other partners who are not design or construction professionals, such as lawyers or real estate brokers, the architect also becomes a greater target for lawsuits. In general the overlapping lines of responsibility on a joint venture project tend to create problems which do not occur on simpler projects with fewer associated members, and so it makes sense for the insurer to separate the coverage. This is advantageous to the architect as well, because with each joint venture, he starts with a clean slate.

Several of the architects interviewed felt that having an equity interest in a project might adversely affect the architect's performance as a professional. Jung of Jung/Brannen pointed out that for the architect who may be unable to sort out the issues of business versus design, the more profitable of several options might be his choice, as he stands to gain as well (this is the situation which professional

ethics would guard against). Wilson Pollock also felt that it might be more tempting to accept cost cuts,which the architect might otherwise refuse. Miguel Gomez-Ibanez of Architectural Endeavor commented that an architect who might not be taking in any fees to cover expenses in return for an equity share might do less work rather than more work to cut back on his expenses.

On the other hand, in cases where the architect becomes a tenant in the building, the tendency might be to spend more time on the design; this was true in the case of Sert, Jackson's office building. They did put extra work into the project, although the developer put a check on them: for every percent they went over budget, their rent would increase incrementally. Jung commented that if an architect is a tenant in the building, he will demand a better building of the developer as a user; if he is an owner himself however, he may ignore defects.

Opinions were divided on the subject of the architect's design control in a situation of equity ownership. Those involved in their own office buildings brought these projects to the developer(s) and therefore were involved from the beginning; decisions with regard to costs, square footages, and programming were mutually agreed upon. For their own office building (an on their second equity venture), Hugh Stubbins and Associates brought in a contractor very early, so that his knowledge of the locality with respect to labor contracts, available materials, and subsoil conditions could impact the design. Cost estimates were also confirmed with the contractor. Merle Westlake

described the building as well realized from a design standpoint. Cooperation between the parties, especially architect and contractor, brought the building in with a below average cost per square foot ($22-$24/s.f., furnished, in 1969), although all of the interior design was also done by Stubbins and Associates, including some custom designed furniture built by the subcontractor. The building was also completely rented before it was finished, and is still fully rented.

As previously mentioned, Tim Anderson has used an equity interest as a way of participating in the early decision making on a project. (An equity position is not necessary to participate in the early stages of a project however; this can also be accomplished by bringing a project to a developer.) Participation in the decision stage is the advantage which several sources cite as being the key to affecting the decisions which will shape the project's design and quality, including programming and budgeting decisions, as well as overall design guidelines. However it should be realized that an architect may be one of 20 actors involved in bringing a project to completion; governmental regulations and historic agencies in the case of a rehab, also impose their own restrictions. Anderson Notter's Market Mills housing project in Lowell required approval by HUD, the MHFA, four historic preservation agencies, the Park Service, and more. In instances such as these, disagreement can occur among the parties, and those who have the final say in Washington may be the least involved.

Wilson Pollock of ADD, Inc. felt that being a part owner in a

project will not significantly affect the architect's control in a project; whoever owns the majority share will control. Peter Matteson of Graham Gund Associates, a firm which does a substantial amount of their own development work, said they do not like to share the development position with others. Matteson commented that he feels it is harder to speak one's mind in a partnership situation; compromises to both party's positions are inevitable, and that may make the product hard to live with for either party. On a strictly standard ageement basis, if the client doesn't take the architect's advice on an issue, only he has to deal with it over the long term. Consequently when Gund Associates works with other developers, they prefer to take a strictly architectural role.

Several architects commented that their design process depends more on the type of project (i.e., its size, relationship to the community, and type of financing available) than on whether they have an equity investment. Some firms will simply not get involved in projects on which key decisions have already been made, although not all architects can afford this attitude. In the case of Hugh Stubbins' office building, the project was designed by a senior associate, who also did the working drawings and worked with the contractor. He knew what he wanted and was therefore able to make decisions promptly. According to Merle Westlake, there were virtually no conflicts or problems between the partners or with the contractor with regard to the design. The existance of a very experienced field team (20 years) also contributed their knowledge during the construction of the

building; they were able to recognize points where trouble might exist, before it would arise.

On HUD or state housing finance agency projects in which the architect is also part owner, there is one very important factor which can affect the design and the quality of the final product; the architect-owner may not supervise construction. Another architect must be hired for this purpose with the mutual agreement of the agency and the architect. Anderson says this works well perhaps 50% of the time; there are obviously more difficulties when an architect comes into a project in midstream to supervise, than if he has been working on it from its inception. This is especially true on rehab projects where many decisions must be made during the construction process.

Architects as Developers

Common types of projects among the architect-developers interviewed included government assisted housing, condominiums and rehabilitation work. Endeavor got their start in HUD's Turnkey Housing program, which is suited to a firm of their kind because the front end costs are low, and because a large cash flow is not necessary (as is the case with office buildings, for instance). In competition with other architectural firms, they discovered that it was advantageous to act as a developer also, and now the majority of the development work they do is their own. Gelardin/Bruner/Cott also does a lot of government assisted housing projects and less work in office buildings; according to Bruner, the system favors those developers who specialize in office buildings, and are known in the trade. About one-third of Gelardin/

Bruner/Cott's work is on their own projects. The firm specializes in atypical projects, often where they can see opportunities more clearly than another developer could, because of their architectural training.

Small condominium projects or condominium conversions are a way for a firm to get a start in their own development work, as exemplified by Steffian-Bradley's 16-condominium project in Charlestown. Gund Associates has found that they can give people a higher level of quality in condominium projects because people are willing to pay more for ownership as opposed to a rental situation; thus they offer more opportunity and flexibility for the architect-developer. Rehabilitation work offers some of these same advantages; it can offer more space and richer materials than could typically be created in new construction and it often presents opporutnities for unexpected events in a building. Architects tend to be able to see the potential in these buildings more readily because of their training. In addition, the rehabilitation market is large, construction time and cost may be less, and historic projects offer five-year tax writeoffs. Examples of these types of projects include Anderson Notter's Prince Spaghetti building,which has been converted into apartments and offices,and the rennovated New London Railroad Station; Gelardin/Bruner/Cott's Piano Craft Guild, an old piano factory which has been converted into artist's housing; and Graham Gund's office and retail complex in East Cambridge, MA., at the old Bulfinch Courthouse, which is a current project.

Different motivations for becoming involved in their own development work were expressed by the various architects. Simeon Bruner said

he prefers to do the development work as well as the design because he has more control over the design process, the product and the money. In working with their own development team, decisions are made much faster, and mistakes can be corrected more quickly than on projects for another developer. Bruce Scott of Architectural Endeavor commented that there is a trememdous advantage to being able to make all the decisions without having to consult an owner; for one thing, it gives the architect control over issues of taste. Gelardin/Bruner/Cott also manages its own projects, and is therefore not in the position of protecting another owner; consequently the architects are able to innovate and to try new details which they would not do in their work for other developers. The money is better on projects they do for themselves, but they do tend to spend more on amenities, partially because of their experience in management.

Yu Sing Jung presented another motivation for having internal management capability; Jung/Brannen's development team was formed mainly to do projects which would not interest other developers. These are mainly residential projects for certain ethnic groups, which constitute only about 5% of the architectural work which the firm does. The development firm is a small business primarily because the architects who run it would prefer to practice architecture; for the same reason, it does not have an internal building management capability.

There are built-in conflicts and paradoxes for architects engaged in their own development work. These involve the often separate goals of the developer versus those of the architect; the problem of

balancing work on a firm's own projects with work being done for other developers; and the fact that an architectural firm may only be financially able to work on small projects, while opportunities for greater design freedom are more likely to exist on larger projects.

From the developer's (and the lender's) point of view, the factors affecting the viability of a project are the current interest rate, the return on equity invested, and the amount of tax benefits gained. A developer has business concerns, while an architect's concerns are aesthetic, spatial and urban. A developer typically wants to complete a project in the shortest amount of time to minimize the costs of financing, and to obtain an income flow at the earliest possible date. An architect on the other hand, typically wants to spend the time to pin down and perfect every detail to his own aesthetic taste. All of the architect-developers interviewed have reached a middle ground, stating that their goal is not necessarily to be successful developers, but to create projects which are in keeping with their goals as architects. Bruce Scott of Architectural Endeavor, Simeon Bruner of Gelardin/Bruner/Cott, and Peter Matteson of Graham Gund Associates all stated that their firms accept lower profits than the typical developer, and will spend more to include more amenities on their projects.

Initiating and taking responsibility for development projects is one way to create work for an architectural firm. In addition, if a firm does a sizeable amount of its own development work, it can also begin to choose the kind of work it wants to do. One half of the work

that Gund Associates does is their own development work; they use their development capability to do a wide variety of projects rather than placing an emphasis on production. However several architects who have been doing, or are considering doing their own development work, expressed concern that their own development work not be competitive with the work which they do for other developers or clients, either in the type or location of the project, or in terms of time spent away from other projects. Steffian-Bradley has recently begun working on their first in-house development project, but they are careful that work on this project does not take away from their other projects; it frequently "goes on the back burner". Peter Matteson of Gund Associates also made it clear that institutional work is a priority for the firm; because of that fact, their own projects may not have conventional time limits, and therefore their percentage of return may be lower than it could be.

In general, the nature of development work is that it makes substantial financial demands on the initiators, and requires expertise for the sake of economy. These conditions impose limitations on the size and type of project which most architects can afford or expect to pursue. This accounts for the high percentage of work occuring in small condominium projects and government assisted housing, as previously mentioned; Gund Associates is an exception. Endeavor's acquired expertise in housing puts them ahead of the standard architectural firm because they are familiar with the construction cost involved for a particular type of design; because of this expertise,

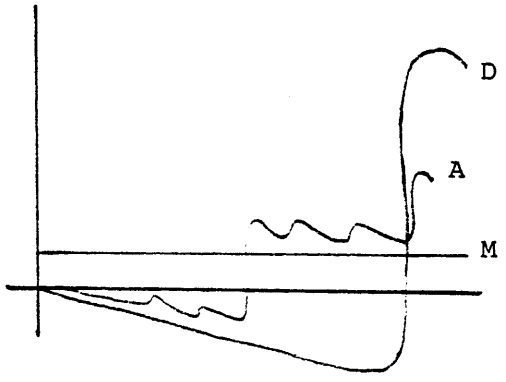
they can spend much less time on design than a less experienced architect, and thus cut their fees substantially. Paradoxically, as Peter Steffian pointed out, the architect acting as developer on larger projects might have more flexibility and be more successful in design terms because there is more money to juggle with and more visibility, but the fact remains that it is difficult for an architect to develop large projects because of the financial limitations.

In terms of a design process, both Simeon Bruner and Peter Matteson stressed the importance of including construction expertise, although they work somewhat differently. As well as being an architect, Bruner had experience as a general contractor before Gelardin/Bruner/Cott was established, so it is therefore his role to combine design, development and construction; he negotiates the construction contracts. Bruner prefers the negotiated construction contract; he knows what the company has to spend, and because he knows costs (within 4-5%), he can direct how a price is determined. On their own jobs, G/B/C will bring in the contractor in the middle of working drawings. Bruner stated that the firm's ability to use materials in an economic way, based partly on construction experience (estimating and detailing), and partly on an expert specifications writer (who worked on the specifications for a new town in the Middle East) gives them an advantage in terms of costs.

Peter Matteson stated that Gund Associates always works with a negotiated general contract in their own development work, and with their private clients. They bring in a contractor in the schematic

stage of a project, and monitor the cost prior to construction documents. There are three or four contractors with whom they work repeatedly, and with whom they have established a relationship of trust. In this way, they can get feedback from their own point of view. Matteson said that contractors work well and repeatedly with them because their drawings are clear and consistent; in many cases an architect may mean something more elaborate than he draws, misleading the contractor or estimator. Gund Associates tries to develop their drawings in accord with their ideas about a building right from the beginning.

In regard to building management, Yu Sing Jung expressed doubt that architects would want this responsibility; his development firm has no internal management capability. He commented that HUD's Turnkey housing has offered a good opportunity for the architect-developer because it is turned over to the government when complete. Gelardin/Bruner/Cott would argue with this point of view however; they like to ensure that their projects "keep going. A management capability affords certain benefits: it allows for some innovation and flexibility on the design end because mistakes or deficiences can be corrected on the management end; it provides feedback for future use to the design team; and in time it provides a steady income. Bruner drew a graph (shown in the accompanying diagram) which describes the monitary returns from



architecture(A), development(D) and management(M). Architecture brings in a return in six months to 2 years, and development requires a 3-5 year wait for returns, while management brings in returns every month. Clearly, management capability can help to balance the costs of development and architecture.

The most common policy among the firms interviewed with regard to the distinct tasks of architecture and development is to form separate corporations for the different capacities. This makes for greater efficiency in the long run, as the costs of each service may be monitored more effectively. Incomes are split accordingly (the architect's fee is treated as an expense to the developer) and these lower incomes are thus taxed at a lower rate than a joint income would be. The two organizations also serve to separate professional interests from business interests.

C.W. Griffen lists three basic forms for the development organization; proprietorship, partnership or corporation.[56] The first form is for architects who operate on a small scale, developing small office buildings, retail stores or houses which they own as individuals. Griffen states that partnership, in several varying forms, is the most common form of development organization, mainly due to tax benefits. All income is taxed only once to individual partners, and benefits such as depreciation tax shelter, and deductions for interest payments may be taken. The joint venture is a partnership created for a single project or a specific series of projects. The partners might decide to sell the project in 10 or 12 years when the depreciation tax shelter

runs out, and then terminate the joint venture. For the duration of the venture, each would own equity shares, which could be sold by one partner to the others, or to an outsider. For continuing work on development projects, a general or a limited partnership is more efficient because its objectives are not limited, as are those of the joint venture. A limited partnership allows for the addition of passive investors (the limited partners) as a source of additional equity capital, without sharing the active management role of the nuclear general partners. The limited partners' financial liability is also limited to their financial investment in the firm, while general partners are each personally liable for the partnership's debts and other legal obligations.

A corporation on the other hand, offers the advantage of limited liability for all of its owners, to the extent of their equity in the corporation. This is a good idea for those firms having a continuing development business. In addition, unless it is limited by charter, a corporation can be used to diversify investment holding in more than one project, again reducing the risks of the stockholders. Its chief disadvantage is that income is taxed twice: first when it is received by the corporate entity and then when it is distributed to shareholders. However double taxation is eliminated when accelerated depreciation shelters the income which can be distributed to shareholders. An additional advantage of incorporation is that employee benefits are paid by the corporation and are also tax deductible for the corporation.[57]

Most of the individuals directly involved in the development process in the various firms have had no formal training for it. Architects at Jung/Brannen pooled their collective knowledge from years of experience on MHFA projects, from the minimum property standards of HUD, in the citizen participation process, and other similar job related experiences. None of the architects at Endeavor were specially trained, but used the experience they had gained from working with other developers. Those coming into their development arm now may not have architectural backgrounds, but Endeavor trains these individuals in the skills they will need. Steffian-Bradley recently hired an M.I.T. graduate with architectural training who was experienced in development to work on their own project (and to train as an architect within the firm); he may eventually hire others. Graham Gund Associates used to work with an outside real estate developer, but now Gund and Matteson do all the development work with the help of attorneys.

Gelardin/Bruner/Cott is somewhat different than these other firms, as they started out with the premise of doing their own development work. The three principals were formally trained in city planning, architecture, and architecture and urban design respectively; they also gained work experience in relocation planning for HUD, general contracting (especially in renovation and preservation), and involvement with public financing agencies, before working together as a team. They also have an associate trained in economics and urban planning who is responsible for all aspects of development, including determining possible projects, analysing cash flow, and gaining commitments

from financial institutions.

In their own development work, usually two of the partners are involved - always Gelardin, who does financing and packaging - and the previously mentioned associate; one person supervises construction management, a job captain supervises design production, which typically involves a production staff of three or four, and one member of the management team takes care of residential management. As a comparison, on jobs for other developers, the work is done by one partner (usually in a lesser capacity), one associate, and a job captain with a staff of architects. (Architectural firms involved in work for other developers described their teams as consisting of a partner or principal in charge with a project architect and his assistants, which might include a job captain.)

The Ideal Arrangement

After consulting with all the firms on the variety of arrangements previously described, an effort was made to have those interviewed describe what they felt was the ideal architect-developer arrangement. They responded in a number of different ways.

Simeon Bruner, Peter Matteson, and Tim Anderson all said they preferred to work in a number of different ways and on a variety of projects. Bruner said he prefers to do design and development, but he enjoys learning from other developers, and being able to concentrate more on architecture alone. He also likes to work on a variety of building types, which is the stated preference of Gund Associates.

Tim Anderson commented that the ideal arrangement for a development project is to have a whole group of people involved with a common goal; adversarial roles need to be eliminated. He also believes that every architect feels the development role is a small one compared to all the orchestrating that an architect does; when the architect is an owner as well, the personal reward is great, and the financial benefit an additional reward. On the other hand, Peter Steffian believes that independent members of a development team are a good attribute. It is essential to eliminate the adversarial role of the contractor, but a separate builder/developer/architect situation may be the healthiest because checks and balances exist between the parties.

Finally, Niles Sutphin, who has worked in a wide variety of ways, listed several relationships which he felt are the most successful in terms of design control and design process. They are: an architect who works in a standard agreement for a developer, knows the entire realm of the development process and participates from the beginning of the process; an architect who works as a developer in a 50-50 joint venture with a developer-contractor; and an architect as developer (only if the architect knows development however). In particular, Sutphin has found the joint venture arrangement to be the most rewarding, and the situation of ultimate control. It is an opportunity for the architect and builder-developer to work with their talents hand-in-hand; the builder brings all his expertise to the project for its own sake. If a mistake is made in a joint venture situation, the

contractor will question it less, and try to find the least costly and best remedy because he stands to gain as well. In addition, mistakes are probably less likely to happen. Sutphin believes that the more intimately an architect is involved in a development project, the better the product; the personal interest gives a better design and greater satisfaction when all the problems have been solved. He also believes that the team approach produces a superior product.

Notes

[1] Eleven firms in the Boston area were interviewed for the purpose of surveying architects' involvement with developers. The majority of this chapter will be based on those interviews, which included the following parties:

1. Bruce Scott and Miguel Gomez-Ibanez, Architectural Endeavor, Inc., Boston, MA., September 15, 1980.
2. Yu Sing Jung, Jung/Brannen Associates, Inc., Boston, MA., September 26, 1980.
3. Peter Matteson, Graham Gund Associates, Inc., Cambridge, MA., October 9, 1980.
4. Peter Steffian, Steffian-Bradley Associates, Inc., Boston, MA., September 24, 1980.
5. Merle Westlake, Hugh Stubbins and Associates, Inc., Cambridge, MA., September 25, 1980.
6. Simeon Bruner, Gelardin/Bruner/Cott, Inc., Cambridge, MA., October 6, 1980.
7. J. Timothy Anderson, Anderson Notter Finegold, Inc., Boston, MA., October 15, 1980.
8. H. Jackson, Sert, Jackson and Associates, Inc., Cambridge, MA., October 3, 1980.
9. Wilson Pollock, ADD, Inc., Cambridge, MA., September 23, 1980.
10. Terry Rankine, Cambridge Seven Associates, Cambridge, MA., September 17, 1980.
11. Niles Sutphin, Sutphin-Morris and Associates, Watertown, MA., October 3, 1980.

[2] Walter S. Sachs, Jr., "Proposing and Pricing Expanded Services", AIA Journal, July 1971, p. 32.

[3] Roger K. Lewis and Sirkku Fisher, An Assessment of Architectural Practice (College Park, MD.: University of Maryland, School of Architecture, Fall 1977) as cited in AIA Journal, January 1978, p. 32.

[4] Sachs, op. cit.,p. 32.

[5] "The Case for Design Quality in Today's Marketplace", Architectural Record, December 1977, p. 81.

[6] Andrea O. Dean, "Pros and Cons of Various Project Delivery Approaches, Traditional and Otherwise", AIA Journal, February 1976,p.51.

[7] In 1978 the AIA approved changes in its code of ethics to allow members to become involved as builders participating in profits and losses related to labor and materials. The architect was only required to disclose his conflict of interest to the owner (which would arise

Notes (Cont.)

over materials substitution, for instance). Cited from Kay Dockins Ingle, "Why Architects Become Entrepreneurs", Venture, August 1980., p. 48.

8 Kay Dockins Ingle, "Why Architects Become Entrepreneurs", Venture, August 1980, p. 48.

9 David Dibner, Joint Ventures for Architects and Engineers (New York: McGraw Hill Book Co, 1972), p. 32.

10 "New Roles - and New Rules? for the Profession", AIA Journal, September 1975, p. 17.

11 Dean, op. cit., p. 50.

12 Ibid, p. 51.

13 Robert Alan Class and Robert E. Koehler, editors, Current Techniques in Architectural Practice (Washington, D.C. and New York: Amercian Institute of Architects, 1976), p. 24.

14 "Design/Build/Bid Probed for West Virginia AIA", AIA Journal, November 1976, p. 19, and
"Design/Build Ruled Out for Indiana Public Schools", AIA Journal, August 1976, p. 13.

15 Information for this section, on advantages and disadvantages from the client's point of view in design/build subcontracting, was taken from three sources:
Carlton R. Richmond Jr., publication coordinator, Client's Guide to Architectural Services (Boston: Boston Society of Architects, a chapter of the American Institute of Architects, 1978), p. 20-21;
Dean, op. cit., p. 50; and
Lewis and Fisher, op. cit., p.36.

16 Lewis and Fisher, op. cit., p. 36.

17 Ewing H. Miller, FAIA, "The Defference that Method Makes", AIA Journal, October 1973, p. 40.

18 Ibid.

19 Dean, op. cit., p. 50.

20 Ibid.

21 Dibner, op. cit., p. 170.

Notes (Cont.)

22 Information for this section was taken from Lewis and Fisher, op. cit., p. 36, and Class and Koehler, op. cit., p. 22.

23 Design Professional Liability Insurance: A Survey (Washington, D.C.: American Institute of Architects, September 1980), p. 21.

24 "New Roles - and New Rules? for the Profession", p. 18.

25 C. W. Griffen, Development Building: The Team Approach (New York: John Wiley and Sons, Inc., 1972), p. 102.

26 "AIA Elects Mitchell, Approves New Ethics Code Except on Contracting", AIA Journal, p. July 1977, p. 8.

27 "Advertising Ban Lifted, Design Build Test Voted", AIA Journal, June 1978, p. 8.

28 "Convention Issues: Advertising, Design/Build, Recertification", AIA Journal, April 1978, p. 33.

29 Ingle, op. cit., p. 48.

30 Class and Koehler, op. cit., p. 22.

31 Jerome Cooper, "In Opposition to Ethics Changes that 'Trade Professionalism for Increased Business Opportunities", AIA Journal, August 1976, p. 34-35.

32 Charles E. Nelson, "In Favor of Involvement of Architects in Construction", AIA Journal, May 1977, p. 64.

33 John F. Hartray, Jr., AIA, "Inspecting the Ethical 'Barricades' to Assure That They Leave Room for Response to Changing Conditions", AIA Journal, August 1976, p. 33-34.

34 Griffen, op. cit., p. 103.

35 Dean, op. cit., p. 51.

36 Griffen, op. cit.,p. 103.

37 Cooper, op. cit.,p. 35.

38 Ingle, op. cit., p. 48.

39 Class and Koehler, op. cit., p. 22.

Notes (Cont.)

40 Ibid., and Griffen, op. cit.. p. 108.

41 Design Professional Liability Insurance, p. 21.

42 Class and Koehler, op. cit., p. 23.

43 Carl M. Sapers, Legal Cases and Materials for the Construction Professional, (Boston, C. 1979), p. 701, 734.

44 Dean, op. cit., p. 51.

45 Sapers, op. cit., p. 700, 701.

46 Ibid ,p. 698.

47 "A Boston Firm That Has Made a Specialty of Adaptive Reuse", AIA Journal , April 1977, Reprint.

48 Robert A. Class, "A Piece of the Action II", AIA Journal, July 1970.

49 Griffen, op. cit., p. 99.

50 Ibid, p. 104

51 Dibner, op. cit., p. 167.

52 Griffen, op. cit., p. 98.

53 Interview with J. Timothy Anderson, Anderson Notter Finegold, Inc. Boston, MA., October 15, 1980.

54 The discussion which follows is based on material from the chapter on "Professional Liability" in Griffen, op. cit., p. 108-111.

55 Design Professional Liability Insurance, p. 21.

56 The following discussion is based on information from the chapter on "Business Aspects", in Griffen, op. cit., p. 95-97.

57 David R. Dibner, "Organizing for Practice: An Array of Options", AIA Journal ,p. 66.

CHAPTER IV

A CLOSER LOOK AT THREE OCCASIONS FOR COLLABORATION

In order to examine more closely the issues of design control, design process, and related issues referred to in the previous chapter, three projects were chosen for further study which are representative of three different architect/developer relationships. These relationships included:

(1) the architect working under a standard agreement for a developer;

(2) the architect working under a standard agreement for a developer, but also with an equity interest in the project; and

(3) the architect working as a developer.

In all three cases the development entities syndicated the depreciation of the projects, but remained responsible for managing the projects.

Working from a list of projects completed by the firms previously interviewed, an effort was made to find three which were comparible in terms of building type, scale, skills required of the architect, risks and financial intermediaries. The projects which were selected all involved the adaptive reuse of a historic building for housing; two of the projects were designed for the elderly (114 units and 76 units), and the third was designed to be both living and working space for artists (174 units). All were financed by a state housing finance agency, and the two elderly projects also utilized federal Section 8 subsidies. The third project, financed by the Massachusetts Housing Finance Agency, and following that agency's requirements, also provides for low and moderate income tenants by means of a state subsidy program modeled on federal subsidies.[2]

The rationale for choosing rehabilitation projects merits an

explanation, partly alluded to in the previous chapter. Many opportunities for rehabilitation exist, particularly in the northeastern United States, and an attitude favoring conservation of resources in a time of rising costs is currently prevalent.[2] In addition, there are advantages, economic and otherwise, for developers and architects to develop these types of projects.

Richard C. Frank, president of Preservation/Urban Design of Ann Arbor Michigan, commented in 1976 that "the market of the past 20 years, reflect[ing] the beliefs that anything new was better by sole virtue of its novelty, that time brings progress, and that all change is for the better", has changed.[3] The 1976 Tax Reform Act included a measure encouraging the preservation of historic landmarks by allowing a five year write off of expenses incurred in the rehabilitation of commercial buildings that are designated as landmarks. Additionally, the act provided that an owner of a historic structure would not be allowed a deduction for the cost of demolishing the building, and that the developer of a new structure on the site of a demolished landmark would no longer be allowed accelerated depreciation for the project.[4] In 1975, the state housing finance agencies were challenged by the federal government to direct more of their energies to inner cities and rural areas as opposed to the suburbs, and to engage more in rehabilitation than in new construction.[5] In 1977, George Notter of Anderson Notter Finegold, a firm specializing in adaptive reuse, commented that state planners had begun to see the economic advantages to this policy, and had therefore begun to

encourage conservation.

Tim Anderson, Notter's partner, mentioned several benefits of rehab projects for developers: the construction time is shorter, which means fewer months of construction loan interest to pay, and income coming in that much sooner.[7] In addition, some developers have claimed that the cost of rennovation can be a quarter to a third less than for new construction, and that the "soft" costs of development (18-20% of the hard costs) can be less than one-third of comparable costs in new construction.[8] In the experience of Anderson Notter Finegold, the initial mortgage and land costs of adaptive reuse projects are roughly comparable to those of new construction, but they have found that recycling generally produces "more for less and faster".[9] A building of "greater amenity" is produced than could be created using new construction, and as such, it has more rentable space. A rehabilitated building may also be rented more quickly as marketing may be done from the existing space.[10] An obvious and significant advantage of building rehabilitation for the developer is the five year tax write off for historic structures.

Adaptive reuse projects also offer benefits to architects. In evaluating, designing and constructing an adaptive reuse project, the architect's role is much more critical than in new construction. An architect may be able to see the potential in an old building more readily because of his training. Herbert McLaughlin, an architect and a developer specializing in the reuse of old buildings, has said that the architect is at the "center of the economic and building process

here more than in any other type of development, because his particular areas of expertise, knowledge of codes and innovative design abilities make an enormous difference in costs".[11] Tim Anderson feels that there are more possibilities than in new construction; there are frequently opportunities for larger, more interesting and varied spaces in rehabilitated projects. In addition, there is often more space available for individual use because existing space is cheap. In new construction Massachusetts requires 454 square feet for an elderly housing unit while in adaptive reuse projects as much as 800 feet may be available for the same type of unit, making for a dramatic difference in liveability. The quality of materials and details also offers a great resource to the architect, and thus added amenities for the users.[12]

The projects selected for study were of varying character and served various purposes. They include the former U.S. Envelope Mill in Vernon, Connecticut; the oldest state prison in Windsor, Vermont; and the old Chickering Piano Factory in Boston's South End. A brief description of the nature of each project, the costs involved, plans of the project, and photographs before and after completion, precede a discussion of the relevant issues in regard to each project. The substance of these discussions was provided by interviews which were held with a representative of the architect, developer, and contractor on each job.[13]

Nature of the Project: The former U. S. Envelope Mill is a "U" shaped building composed of three buildings constructed in the late 19th and early 20th centuries. It was used as an envelope factory from 1886-1975. The Mill was recently placed on the National Register of Historic Places.

It was converted into 114 units of elderly housing in 1979. There are 103 one-bedroom units and 11 two-bedroom units, each with a living room, dining area, fully equipped kitchen and one bath. The main entrance to the building opens into a lobby the width of the building, and there is a community room below the entry lobby from which there is access onto an interior courtyard.[14]

Developer: Barkan Development Corp., Chestnut Hill, MA.

Architect: Steffian-Bradley Associates, Inc.

Contractor: Barkan Construction Co., Inc.

Financing: Connecticut Housing Finance Agency (receives Section 8 subsidies)

Total Duration: Found: April 1977
Option: September 1977
Agency Commitment: April 1978
Closing: October 1978
Construction Period: October 1978 - November 1979, first occupancy
Syndication: December 1979

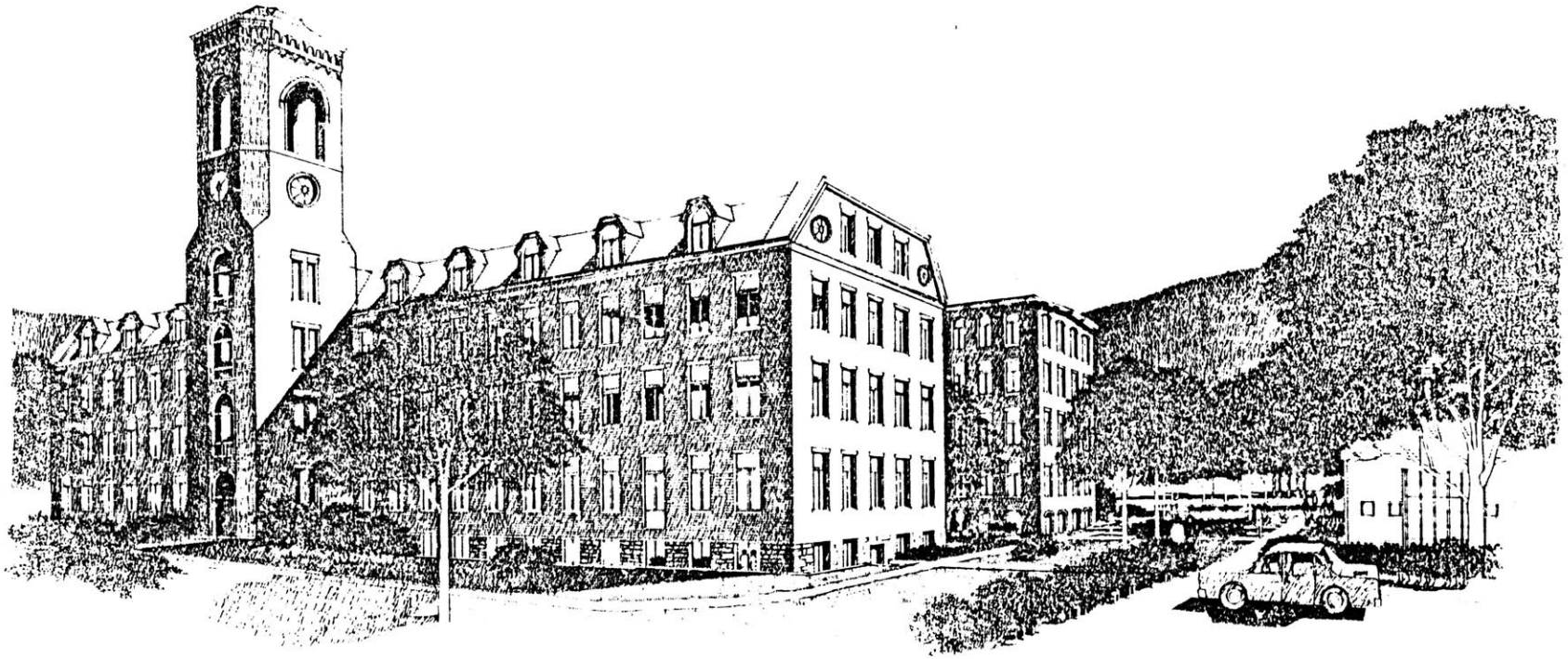
Total Construction Cost: $2,660,447 Cost Per Unit: $23,337

Total Development Cost: $3,770,500 Cost Per Unit: $33,075

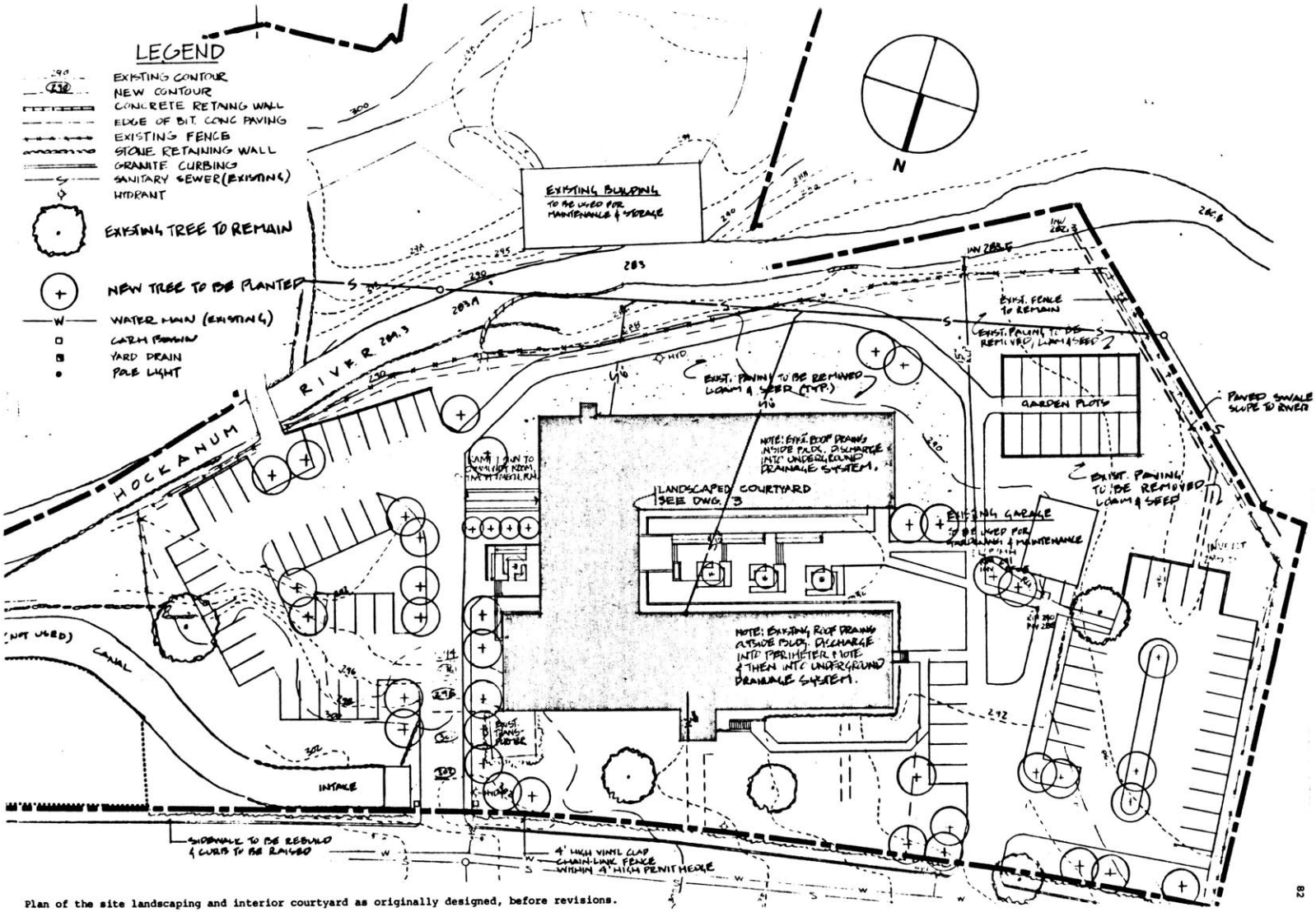
Architectural Fees: $114,000

Minimum SF/unit (Agency): 1-BR, 600 sf
2-BR, 720 sf

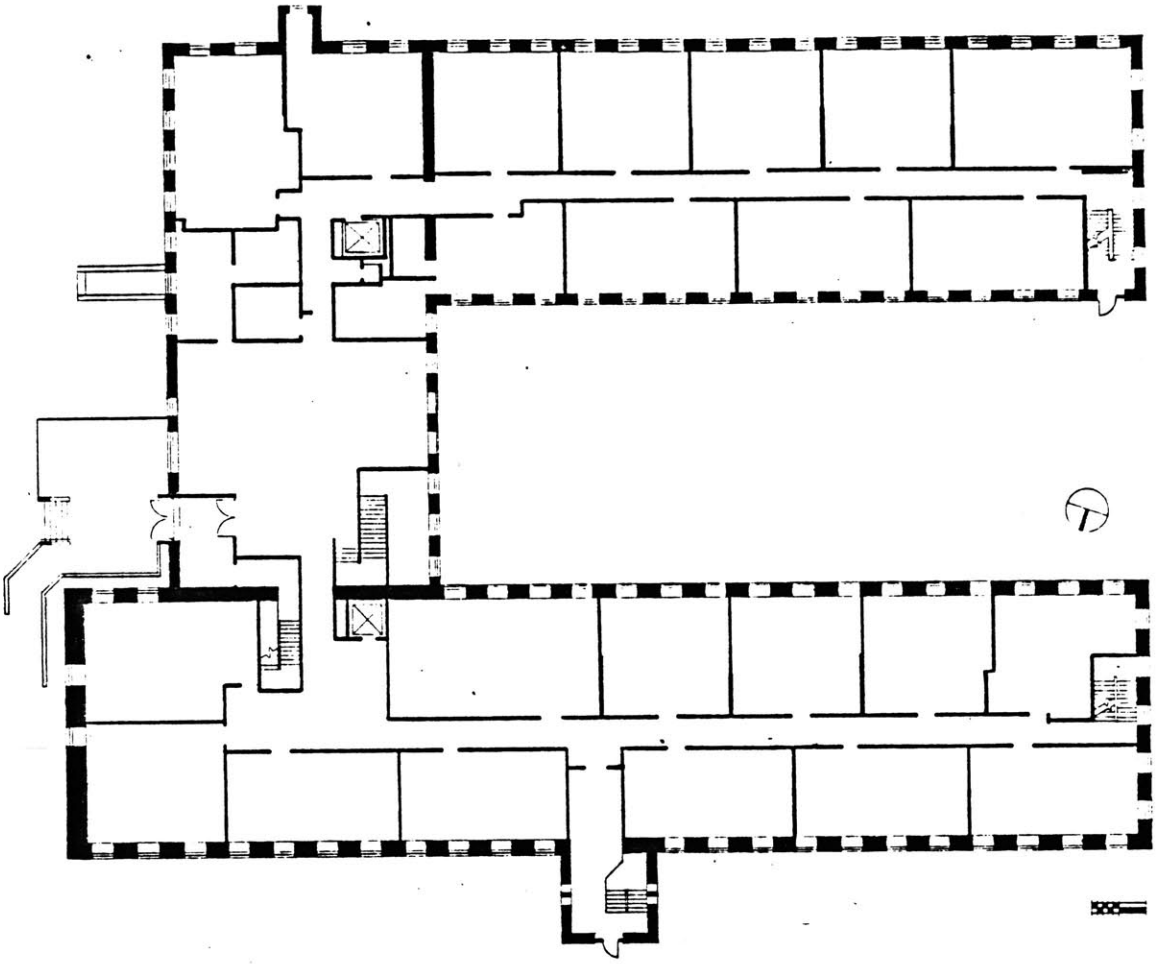
Average SF/unit (Project): 1-BR, 580-600 sf
2-BR, 720-750 sf



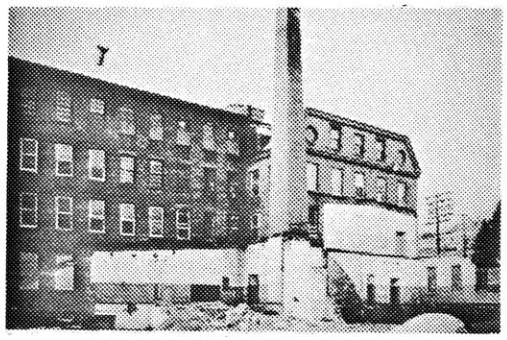
Rendering of the Florence Mill Project as it was originally designed, with slider window unit, and site landscaping.



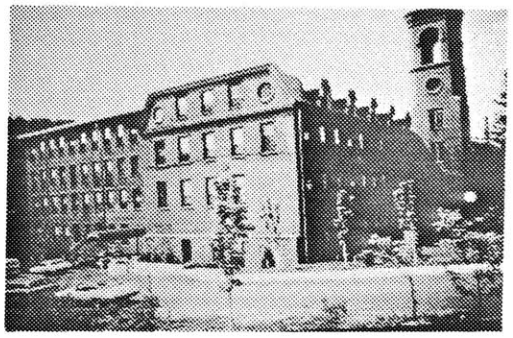
Plan of the site landscaping and interior courtyard as originally designed, before revisions.



Plan of the ground floor and entry, as built. Courtyard grade dropped to basement level.



Entry facade showing cementitious paint after demolition of 2 additions, and chimney stack before demolition.



Entry facade after completion

THE FLORENCE MILL: A STANDARD OWNER-ARCHITECT AGREEMENT

Background

In 1977, Barkan Development Corporation was looking for a site in Connecticut to rehabilitate a building for subsidized housing, which would offer them a five year tax write off of the first $20,000 per unit (as per Article 167K of the U.S Internal Revenue Code). They found the historic U.S. Envelope Mill through a real estate broker in April of 1977. The Florence Mill would be Barkan's third development project and represented growth for the company; they had been in business as a construction company since 1964, but had not expanded into development work until 1975. Barkan Construction had worked with Steffian-Bradley on other jobs, and when the Florence Mill was being considered as a project, the development division was working with them on another adaptive reuse project, also housing, called Oak Park in Lewiston, Maine. Although Barkan Development has worked with several other architects since the completion of the Florence Mill, they are currently working with Steffian-Bradley on two housing projects.

Contractual Agreement

Steffian-Bradley's contract with Barkan was an AIA, B141 Standard Form of Agreement Between Owner and Architect, with some modifications. First, instead of receiving monthly payments for their services, Steffian-Bradley agreed to accept a maximum of one-third of their total fee plus out of pocket expenses until closing, at which time they would receive 75% of their total fee (the balance was to be paid during

the construction period). Steffian stated that this is a typical arrangement in his work for developers; the initial fee ($2500 in this case)[15] for preliminary drawings with a conditional commitment is also kept very low, to minimize the owner's risk.

Secondly, additional services involving the analysis of existing conditions and measured drawings normally calling for additional cost to the owner, were considered part of the basic contract. Steffian stated that additional services are typically not chargeable in subsidized housing projects because the funding agencies want to see a complete basic contract. Unfortunately, at the time when the contract for the Florence Mill was being negotiated, Oak Park nearly experienced a structural failure resulting in substantial additional cost to Barkan, which affected the Florence Mill contract. An additional provision of the contract stipulated that if conditions existed which were not as the architect had assessed them, he would perform all remedial services at no additional cost to the owner.

Participants

Participants from Steffian-Bradley's office included a principal in charge (Steffian), a project architect, a job captain, and a draftsman with additional drafting staff when necessary. Most of the important daily decisions, client contact and presentations were made by the project architect. The working staff had varied experience in design and drawing, as well as some background in construction work. An interesting note is that both the president and the project manager of Barkan had backgrounds which included architectural training.

Program/Design Process

Peter Steffian visited the site before an option on the property was secured, to confirm that the building was suitable for Barkan's purposes, and began work on the project before the option was granted. Barkan had decided that elderly housing was the best use for the project. They did not spend a lot of time on market and feasibility studies because the need for elderly housing was established and prevalent almost everywhere. The configuration of the building also helped to determine its use and type of tenant. The Mill had a 50' grid suitable for housing, lending itself to a double loaded corridor scheme, and the units came close to the footages required by HUD's Minimum Property Standards. The fact that the building was four stories with two elevators made it unsuitable for families. Steffian-Bradley determined the number of units, which approached the maximum number allowable at the minimum footages with the inclusion of community space at the lower level, small sitting rooms at each floor, and the entry lobby. (Additional input came from HUD's Minimum Property Standards, CHFA design requirements, the Building Code and Handicapped code and conventional wisdom on elderly housing.) The local elderly community was also encouraged to provide input through public meetings at the city hall, and specific elderly clubs and groups were sought out for additional user-needs information.

Steffian-Bradley worked directly from the schematic drawings to the working drawing stage, without design development. They made an extra effort to produce a good set of working drawings on this job as

the Oak Park drawings had not been complete enough, which had caused problems in the construction stage.

Peter Steffian refers to this type of job as a design/build because of the nature of the developer-contractor relationship, their prior experience on this type of construction project, and the desire on the part of architect and contractor to resolve cost issues and problems which might occur in the construction phase. However, all of the parties agreed that a lack of input from the contractor until late in the working drawing process caused significant problems with regard to the design as well as the project cost. At the time when the architect's plans were initially ready for review, Barkan had to devote their time to other projects, and consequently Steffian-Bradley drew up a good portion of the plans without input or feedback. Barkan did not begin pricing on the job until the working drawings were 50-80% complete, and then found that the drawings greatly exceeded the budget. Coordination of the drawings with conditions in the buildings was lacking in some areas, and some savings could be made through revisions in various details. Consequently, a lot of redrawing and revisions were necessary, and most of the landscaping, including an elaborate courtyard designed by the architect (with alot of input from Mel Barkan), was omitted.

When Barkan originally submitted their budget to the Connecticut Housing Finance Agency in March of 1978, it was conservative, directed at winning the favor of the CHFA. Unfortunately, due to a CHFA-HUD controversy, the agency did not process anything for a period of about

five months, which caused an effective delay of almost a year, according to Barkan Development. When construction finally started, subcontractors where busy with other work which the CHFA had released, and prices were up. The construction budget was originally $2,321,000 with a contingency of $60,000; the final cost was $2,660,447, coming to $280,000 over budget. (Barkan had received $2,500,000 and $40,000 in change orders because they made savings in other areas). This difficulty largely contributed to the loss of the courtyard and site landscaping, and to difficulties during the construction process.

Construction Supervision

Problems during construction were also attributable to several personnel changes. Steffian-Bradley's job captain in charge of construction supervision left the firm in the course of the job and thereafter came to the site only once a week. In addition, Barkan's superintendent and project manager both left the company during the construction process. Unfortunately, the presence of continuous input is particularily important in rehabilitation projects, especially during the construction phase.

Design Control/Major Issues

In the course of the project, there were several major issues of contention concerning the design. These included the entry location, the design and grade level of the courtyard, the window type, and the ceiling treatment on the top floor. Barkan and Peter Steffian would still argue about the entry location. Barkan wanted to locate the entry at the base of the Mill's tower, while Steffian argued strongly

for its location between the two wings of the building. Steffian's solution considered the two existing elevator shafts to either side of the link, provided the most efficient circulation, preserved the most efficient room layout for the tower wing, and allowed for a community room below the central entry lobby which would not disturb the tenants in their rooms. It also called for the removal of a two story addition adjacent to the entry area, as well as an elaborate entry canopy design and a large terrace with plantings. Although Barkan and several of the architects felt that the entry belonged with the tower, Barkan eventually agreed to the central solution. Unfortunately, demolition problems occurred with the removal of the addition, causing cost over-runs. In addition, a layer of ceme titious paint left on the exposed end wall had to be painted out instead of bricked over, causing appearance problems. Finally, the elaborate entry design had to be redesigned to cut costs. According to Barkan, the location has caused confusion on the part of visitors who look for an entry near the tower.

The courtyard was redesigned following design review by Barkan construction in the later stages of working drawings. By excavating and dropping the grade of the courtyard, a lot of expensive, problem details such as areaways, window wells and the drainage system could be deleted, as well as an additional egress stair. This would allow more light into the basement rooms and the community room could open out into the courtyard directly. However, the courtyard is now not visible from the lobby as was originally intended, is less accessible and not frequently used.

The final decision on a window type was made by Barkan Development and Construction with the historical reviewers, in opposition to the recommendations of Steffian-Bradley. Peter Steffian originally proposed a slider with space left above it for an air conditioning unit, but there was pressure to change to a window more compatible with the historic nature of the building. Barkan found a double hung window which would save $60,000, and was supported by Heritage Conservation in Washington. Steffian objected strongly on the grounds that these windows would be difficult for the elderly to use, that they would probably pose a maintenance problem because of the quality of the unit, and that they would not relate well to the building's aesthetics. However no time remained to reach an alternate solution. With the project well over budget at that point, a $60,000 savings was very attractive. The double hung window went in, but later had a lot of problems in operation (many couldn't be opened all summer) and now must be rebuilt. Barkan has used a reengineered version of the same window on other projects however, with no problems.

The possibility of exposing the roof trusses in the upper level apartments was considered at one point, but was rejected for cost and time savings. Although Barkan Development was in favor of exposing them, Steffian found that the trusses came in strange locations with respect to the plans, that insulation would present a problem, and that overall it was more expensive to leave them exposed. Barkan Development's project manager Peter Kasch felt it could have been done at a comparible cost, although the contractor pointed out that it

would have required careful detailing. From the contractor's point of view, standardization is the key to development building, and odd shaped spaces were to be avoided.

Finally, the quality of details and finishes suffered, due partly to the tight budget and partly to a loss of control over supervision on the part of the contractor. Some of the subcontractors available were less than competant, and many were pushed to do too much work for too little compensation.

Evaluation of the Product

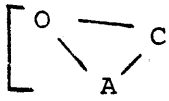
In evaluating the final design product, some amount of disappointment was expressed by all the parties. The representatives from Barkan Development and Construction both expressed dissatisfaction with the location of the entry and the appearance of the adjacent wall; Peter Steffian felt that in the final execution of the entry, the lobby and the inner court, they had all been downgraded from their original conception. However Barkan did put an additional $12,000 into the landscaping after the project was complete in an attempt to please the CHFA, which was also somewhat dissatisfied.

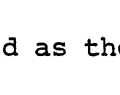
Although Peter Kasch felt that some design opportunities had been missed (Peter Steffian would agree that this is true on every job), he did concede that perhaps both the architecture and construction budgets were too small. The architect, the developer, and the contractor all felt that the quality of workmanship in construction was low and poorly controlled, which was particularly apparent in the hallways between units (although these have since been redone). Some of the problems

which Barkan has experienced in the operation of the building were predicted, as in the case of the windows. Problems with the air conditioning design (just behind and through the windows) have also surfaced, although there had been attempts to prevent this.

In spite of its design difficulties and operational problems however, those interviewed felt that the inhabitants like the building. It should also be added that the building was a great success from a development standpoint; the gross sales of the tax shelter brought a record breaking 34% of the construction price.

Evaluation of the System

Both the developer and the architect initially described the relationship between the parties as a circular one 

, where O = owner, C = contractor and A = architect, but added that on several issues (such as the windows) there were short circuits when the contractor acted as the owner 

. Steffian commented that with an owner-builder, there is not an adversarial situation between the owner and the builder, but the architect may find himself an adversary to the builder. The builder may go to the owner for decisions which may not be agreeable to the architect (which also happens in the traditional relationship, according to Steffian) when a project goes over budget in the working drawing stage and especially during construction. On this job, the contractor often got his way, which was due in large part to the tight budget constraints, caused partially by the delay in processing and partially by a budget which was tight as originally submitted.

According to John Camera, Barkan's project manager for construction, a contractor working for his own account (i.e., the contractor and the developer work as part of the same organization) is the situation of ultimate control for the contractor. The developer creates work for the contractor, and the contractor can then institute all of his cost saving ideas and not have to worry as much about the architect. It is easier to upgrade or downgrade, and less difficult to justify changes. The contractor will try to do his best rather than the minimum, although he may have to work harder and for less on these jobs. (If the project belonged to another owner, it might have a larger budget and in that situation, the contractor would specify his responsibilities very precisely.) However, on the Florence Mill job, Camera felt that the design eventually suffered due to a lack of attention from the contractor. Initially cost control was not handled well, and during construction when many important decisions had to be made in the field, control was lost due to the many changes in personnel.

Changes Instituted

Since the Florence Mill job, Barkan has set up a standard process for working with the architect, and they also use standard products. They may give the architect the specifications from a previous job, as well as a set of standard specifications, although these change with the market. According to Chuck Plaisted of Steffian-Bradley, their design ideas are more fixed and they dictate more than they used to. On Steffian-Bradley's current jobs with Barkan, they avoid

detailing anything, and work very closely with the contractor while working drawings are in progress. There is a lot of back and forth communication between architect and developer; Steffian-Bradley does a lot of short sketches for the developer rather than working for a long time on one product. The back and forth process may take more time, but Plaisted feels that a better building results.

OLD WINDSOR VILLAGE (Windsor, Vermont)

Nature of the Project: Formerly the oldest state prison in the country, the Windsor jail first opened in 1809 and was subsequently enlarged in the early 1880's. The 4.3 acre site contained a series of 2 and 3-story brick structures each with several floors of jail cells, as well as a guard house, dining hall, shop building and a residential-scaled warden's house fronting on the street. The existing structures faced onto the prisoner's exercise courtyard in the center of the site and a high security wall surrounded the property on three sides.

The prison was converted into 76 units of housing in 1978. There are 56 one-bedroom and 18 two-bedroom elderly apartments, and 10 duplexes for families, in a total of six buildings. The complex also contains a community room in the former guardhouse, and has retained one of the cell blocks and a small guard house as historical reminders.[16]

Developer: Windsor Housing Associates (Peabody Construction Co., Braintree; Gerard F. Doherty, Boston; Anderson Notter Investment Associates, Boston)

Architect: Anderson Notter Finegold, Inc., Boston

Contractor: Peabody Construction Company, Inc.

Financing: Vermont Housing Finance Agency (receives Section 8 subsidies)

Total Duration: Found: June 1975
Bought: August 1975, Title April 1976
Agency Commitment: November 1977
Closing: December 1977
Construction Period: October 1977 - November 1978
First Occupancy (phased) Sept '78
Syndication: August 1978

Total Construction Cost: $1,976,581 Cost Per Unit: $26,007

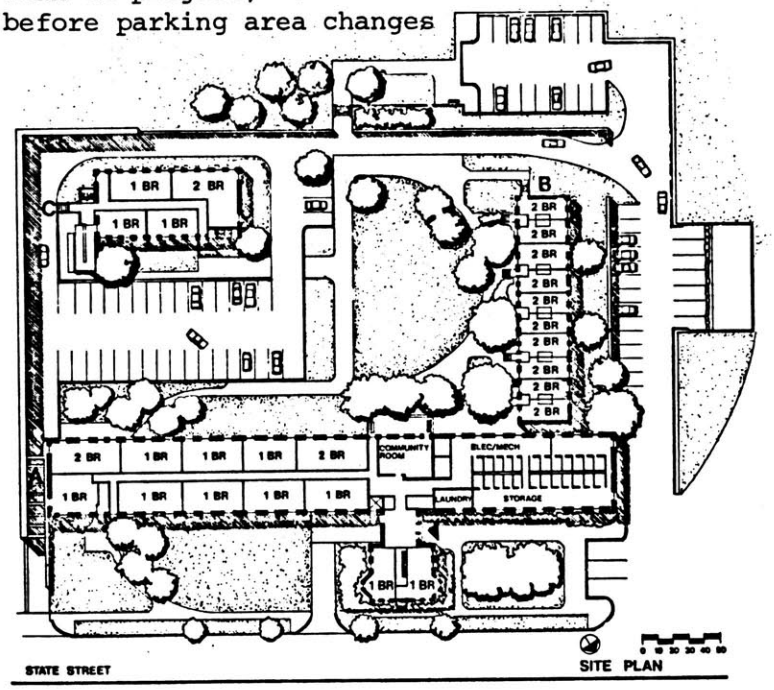
Total Development Cost: $3,095,568 Cost Per Unit: $40,731

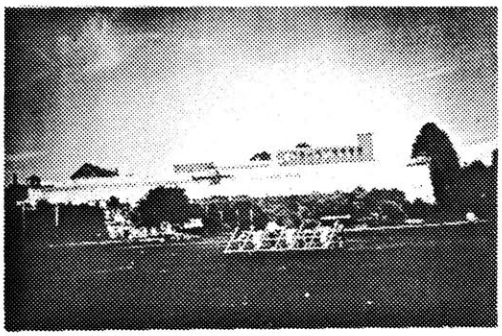
Architectural Fees: $97,814

Minimum SF/unit (Agency): 1-BR, 575 sf 2-BR, 660 sf

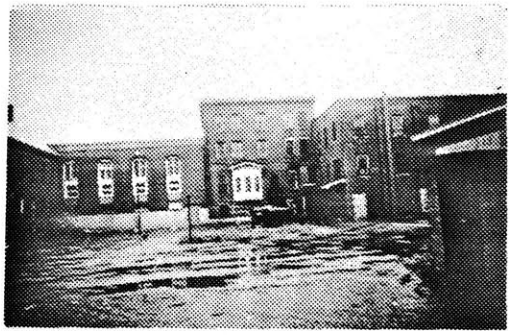
Range (Project): 1-BR, 590-630sf 2-BR, 750-800 sf

Plan of project,
before parking area changes

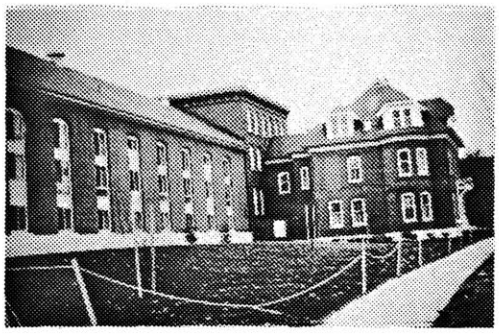




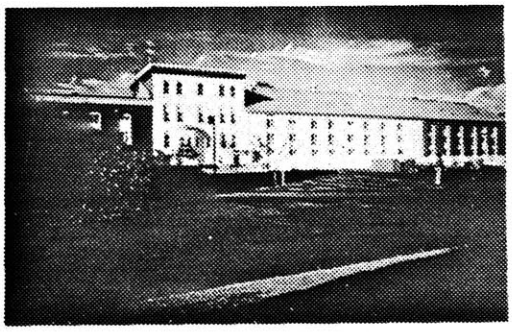
Elevation of south wall,
before demolition



The old hospital wing,
before demolition



Facade fronting on State Street,
and former warden's residence



Finished facade of above
buildings, painted white

OLD WINDSOR VILLAGE: THE ARCHITECT HAS AN EQUITY SHARE

Background

The Windsor jail was found by a high school graduate working in Gerard Doherty's office, who noticed that the project was for sale in the New England Real Estate Journal. On August 15, 1975, Doherty sent him up to Windsor to bid for the project. He bought the project the same day, putting down 5% of the bid price or $1,300. Doherty had casually mentioned the job to Peabody, who took it seriously and agreed to be a partner. Anderson Notter Finegold joined the project shortly thereafter.

Gerard Doherty had worked with Tim Anderson on 14 or 15 adaptive reuse projects prior to the Windsor Jail, and it was Doherty who chose Anderson Notter for this project. All three parties still work together on current projects.

Contractual Agreements

The architectural team participated in the project as two separate corporations. In return for a 10% equity share in the project, to be received by their development arm, Anderson Notter Investment Associates, Anderson Notter Finegold postponed almost all of their architectural fees until the closing of the project. There were therefore two separate agreements made with the other development partners.

Anderson Notter Investment Associates participated on the development team as a limited partner, a common situation in previous projects with Gerard Doherty. This allowed them to receive 10% of

the syndication benefits from the sale of the tax shelter for the project, but also made them liable for construction or cost overruns and other liability to the extent of their percentage of participation. In this particular instance, Anderson Notter sold their share in the project after construction was complete (although they had not known previously that they would sell), because Peabody wanted sole ownership of the project.

Anderson Notter Finegold performed architectural services under a standard AIA contract, with the following modifications. As well as postponing their fee, they also completed measured drawings including existing conditions as part of their normal architectural services, at no additional charge to the developer. (This is a common occurrance on rehabilitation jobs.) As part owners in the project however, Anderson Notter Finegold could not supervise construction. For supervision, the development team made another contract with Martin S. Tierney, an architectural firm from Vermont which was recommended by the Vermont Historical Advisory Board.

Participants

Participants on the architectural design team included Tim Anderson as the partner in charge; James Alexander, an associate, as the project architect; a project manager responsible for contact with the VHFA, working drawings, mechanical and structural coordination; and staff architects as necessary. None of the staff at ANF have had formal training in business or development, but the firm does a large amount of development work and frequently participates as equity

partners. As a result, the architects at ANF have learned the rules that developers operate by, and have learned how to deal with them creatively. Two of the principals and several associates of Anderson Notter Finegold are the general partners and limited partners, respectively, of Anderson Notter Investment Associates. Ownership is divided between them on a percentage basis, typically with 75% going to the general partners and 25% going to the limited partners.

Program/Design Process

A critical part of the early work on the Windsor Jail revolved around gaining community support and feedback on the proposed program for the project. Doherty, Peabody and Anderson Notter Finegold initially made two alternative proposals to the town, and presented a great deal of visual material at public meetings to convince the community that the project was a viable one. They also conducted a market survey, expecially including the local community, as their feelings toward the project were considered critical to its success. The extensive amount of public relations work, although over and above their architectural responsibilities, centered around the architect because they had visual images of the project and were thus able to inspire confidence in the end result. James Alexander felt that they worked well with the development team at this stage; he also commented that they probably would not have been so involved had they only had an architectural role. As part owners, these efforts were to their own advantage as well.

At the programatic stage, Anderson Notter Finegold participated in

decisions regarding the tenant mix, the selection of buildings to be used and those to be demolished, and presented ideas about preserving some of the remnants and areas for historical interest. It was a given factor that the project would be subsidized and that it would probably be elderly because that was the kind of project being funded. Originally Anderson Notter thought the project was best for families because of the architecture of small buildings, similar to townhouses. At first they opposed the developers but then with the developer's support, faced opposition from the Vermont Housing Finance Agency. Eventually the project became part elderly (the flats) and part family (the duplexes). They did preserve some jail cells, turning them into a small museum, and left a guard house above the former entrance gate.

Peabody Construction worked with the architects, giving input on construction issues and costing all through the drawing process on a weekly or biweekly basis. They did a complete review of the drawings and specifications. The contractor gave input on what could be left, what could be rebuilt, and what needed removal, and estimates were made periodically. The continuous discussion of construction issues saved money; without the contractor's input, Alexander felt that they would have had more trouble keeping the project together. Unfortunately however, there were cost overruns when the job was finally bid. Almon Trumble of Peabody Construction commented that this in not uncommon, and attributed the overruns to several factors; first, they were guided by "yesterday's track record"; and second, as a union contractor, they were forced to bring up some subcontractors from

Boston, which cost more with travel and lodging expenses. (They had expected to be able to work with the local labor available.) Trumble also felt that in some areas, details on the drawings were not complete enough. The design was mostly spared from last minute cost cuts, but the landscaping for instance, was cut to a great extent.

Construction Supervision

The supervising architect had responsibilities to two parties on this job; they had a contract with the partnership for construction supervision and a separate contract with Anderson Notter Finegold to do as-built drawings. The system with regard to supervision was set up as follows: weekly job inspection reports were to be sent to ANF; shop drawings were initially reviewed by Martin S. Tierney, but were also subject to approval by ANF before being sent back to Peabody; requisitions for payment were approved by Martin S. Tierney. Whenever design decisions were to be made however, the project manager at Anderson Notter was to be contacted. There were a number of changes made to the design during the construction phase, and some decisions which had been left unresolved by ANF. Unfortunately, the link between Anderson Notter Finegold and the contractor deteriorated when Martin S. Tierney assumed the responsibility for construction supervision, and from that point on the contractor and the other development partners acted together.

Design Control/Major Issues

One major issue involved the choice of a window type. Originally Anderson Notter chose a wooden window, to which there were objections

for several reasons. First, they were not readily available, and there were additional questions regarding installation, maintenance and leakage. Peabody felt that they were therefore economically unfeasible. Unfortunately, the architect did not respond quickly enough with a satisfactory alternative, and for Peabody, which has a reputation for getting projects built on time, delays mean cost overruns. Trumble stated that on subsidized projects, the amount of interest money to be paid (directly related to construction time) is as important as the amount of construction funds. Therefore Peabody made their own decision, with Doherty's consent; as 90% owners, they felt it was their prerogative. The effect of this decision was that windows arrived on the site and were installed, without having had shop drawing approval.

The paint color for a large portion of the facade of one building (where a later addition had been removed) was a decision which had been left unresolved by Anderson Notter. When the supervising architect was unable to get a response from ANF, Peabody Construction suggested that it be painted white. When a decision in this regard was not received, the facade was painted white.

The most disputed issue involved retaining or removing a large portion of the south enclosing wall at the rear of the complex. Anderson Notter Finegold wanted to open up viewing slots in the wall, leaving it at its 18-20 foot height and preserving the old guardhouses that rested on top of it. Peabody Construction wanted to take a good portion of the wall down to chest high, claiming that the wall would

require a substantial amount of repair work and that it was in their way. It also blocked a spectacular view of the Green mountains. Meetings were held on the issue, but no solution agreeable to all the parties was reached. A decision was finally made with the help of a disinterested fourth party who felt that the wall should be taken down, and it was therefore taken down to 4 feet over most of its length. The guardhouses were removed one morning before the supervising architect arrived on the site, and on another occasion when the architect was absent, most of the south wall was demolished. The 90% ownership again controlled, although Gerard Doherty commented that the architect would now say that it was a good decision in terms of the view and the openness provided.

Evaluation of the System

Alexander believes that in general, on a project where the developer is the owner and also the contractor, the architect does not expect the control that he would have on a private job, or a share in the decision making on a par with the combined entity. In regard to this particular combination, several of the participants commented that a difference in style and attitude exists between Anderson Notter Finegold and Peabody, which on this job became more pronounced around issues of cost. As part owner and also the managing owner, Peabody may assume overriding decision making power. An attitude shared by both Peabody and Doherty which works to the architect's advantage however, is that which makes architect and contractor work together from the early conceptual stages of a project. Almon Trumble

said that to minimize the risks on a project, the company works with an architect on the budget from the schematic stage or the initial stages of working drawings (there are no real design development drawings) most of the time. Doherty said that on all of his projects he makes the architect and builder design together, and involves the architect very early for the same reason. Trumble mentioned that another way of working would be to bring the architectural staff in-house and thereby do their own drawings, but by getting different architects to work with them, they get the benefit of new ideas and therefore prefer the present system.

One reason why Peabody and Anderson Notter Finegold continue to work together may be attributable to the influence of Gerard Doherty. Doherty has essentially assumed the role of patron toward Tim Anderson's work. He has great respect for Anderson's creativity, resourcefulness, and his experience, and has found the firm's fee to be competitive with others. Doherty believes that Anderson's success in the development projects which they have worked on together stems from his creative ability rather than from an expertise in development.[17] On this particular job Anderson helped to create a good relationship with the town, which was critical to the project's success. Doherty therefore continues to work with Anderson Notter Finegold, and is likely to support them on issues with other partners.

Doherty does not believe that Anderson Notter's equity share in the project made a difference in terms of their design contribution; he also believes that the developers could have done the project even

if the architect had not postponed his fees. He feels that once Anderson Notter Finegold agrees to go forward on a project they will give it their best, regardless of an equity interest or the lack of one. Their normal response is good, and they have made the same contributions which they made on the Windsor project, on other jobs.

On the other hand, James Alexander felt that as architects with an equity interest, Anderson Notter Finegold contributed some things which they might not have as architects in the traditional role. Ideas advanced at the programatic level such as leaving some historical remnants on the project, retaining the walls around the site (if not totally intact), input on which buildings would remain, and input on what the tenant mix should be were all issues which Alexander feels they might not have had equal success with, had they not been a part of the development team. Alexander feels that it also helps to have a share in the ownership when issues of quality are in question; as owners they may argue against a product which may cost a job money in ten years. They can also argue with the housing finance agencies which often accept lower standards than they might want to accept as owners or architects. Alexander emphasized that they apply the same standards to all of their work regardless of an ownership position, but that having an equity share may allow for more control over the design process. Perhaps the perception of greater control comes with increased opportunities for design contributions and other input; as part of the development team they are in a better position to be heard when the issues are being discussed.

Alexander remarked that if Anderson Notter had held more of an equity interest, they might have had more leverage with the contractor and might have shared more responsibility for the bookkeeping. He conjectured that with a better knowledge of the costs, they could have better understood and/or controlled the tradeoffs. (As limited partners however, they did not make policy.) Alexander also commented that if they had not been owners, they would have been able to supervise the project, but since the contractor was also the owner, things might not have ended very differently.

Supervision by another architect when the design architect is also the owner is potentially problematic, however. Alexander pointed out that if an architect has been steadily working with a contractor on a set of drawings he will see things as the contractor does; if another architect comes in when the drawings have been completed, he will not share the same viewpoint. Doherty commented that problems are likely to occur when the design architect has made a measuring error and the supervising architect has to correct it. If the design architect was also doing the supervision he might be able to solve the problem to his satisfaction, whereas another architect may want to do something different. Responsible to the owner, the supervising architect may get put in the middle; he wants to get paid by the owner. Doherty has been involved in other jobs where the supervising architect has done things not in accord with the design architect's intentions, and stated that for the most part, Anderson is fortunate in these situations because he has the professional respect of other architects. However, he also

said that problems with a separate supervising architect have caused some to argue that not giving the architect equity and keeping him in the role of supervising architect creates fewer debates.

Problems with supervision on the Windsor job seem to have arisen out of a lack of communication between the supervising architect and Anderson Notter Finegold. Alexander felt that both Anderson Notter and Martin S. Tierney should have stayed more closely acquainted with the proceedings of the job. He also felt that the two firms should have established ground rules more clearly when construction began. Melissa Bennett (who did a lot of the supervision for Martin S. Tierney) felt that Anderson Notter wanted to leave a lot of the decisions to the supervising architect; it was often very difficult to get feedback on decisions which needed to be made (which was partly because ANF's project manager was busy on other jobs). Anderson Notter Finegold visited the job very infrequently. In general, more and better communication was needed, and according to Bennett, more background on upcoming issues could have been very helpful in avoiding problems.

Evaluation of the Product

Generally speaking, all of the parties interviewed felt that the project itself had turned out well, and that in terms of taking the oldest prison in Vermont and turning it into housing, they were a great success. No one indicated that they knew of problems with the buildings. The units did turn out to be slightly larger than the minimums required, and according to Doherty, from a design and cost

standpoint, the townhouse duplexes were a success. The developer also received the complements of the planning commission, as well as the local residents, who now consider the complex an asset to the town.

Changes Instituted

Since the Windsor Jail project, Peabody has hired a project coordinator who works with the architect from the early stages of a project on design and construction issues, until a job is estimated. He provides input for Peabody on costs and construction practices, and suggests available materials and products. He also follows through on building systems and ensures that layouts work well. Essentially, he is like an architectural coordinator, although he was trained as a structural engineer. He will visit the architect at least once a week and sometimes on a daily basis during the working drawing process. His job, according to Almon Trumble, is to see that a more economical and better building results.

On jobs where they are not able to do supervision, Anderson Notter Finegold now has someone from their office go to the site once a week, and they stay involved with a project longer. In addition, they now have an experienced field person within the firm. They also try to work with familiar individuals when they have to get an outside supervising architect, and they make sure that these individuals are well versed with respect to Anderson Notter's intentions.

Alexander would like to have determined more exactly the responsibilities of each member of the owner-developer team; he feels that it should be clear from the beginning how the architect will participate,

especially if he has equity in a project. He pointed out that when an architect depends on his work for his livelihood, he should know what the limits of his participation and control are. (Currently, the firm accepts a loose relationship until decisions need to be pinned down, because of the perception that developers like to be free to maneuver.) Alexander also believes that there is a need for very careful accounting with regard to cash flow on projects where they participate as developers. He therefore feels that the firm could use a person to advise them about their own interests as investors, developers and architects.

THE PIANO CRAFT GUILD (South End, Boston, Massachusetts)

Nature of the Project: When the Chickering Piano Factory was constructed in 1853, it was the second largest building in the United States; only the U.S. Capitol was larger. Pianos were manufactured in the building until the mid 1930's when the company moved from Boston, and the factory was subsequently converted to light manufacturing and eventually occupied by a small group of artists. When Gelardin/Bruner/Cott found the building, city real estate taxes had not been paid in five years.

The building has been converted into an artists' community for both living and working. There are 174 apartments including one, two and three bedroom units, 36 of which are duplexes. The project also contains a two story gallery lobby with adjacent commercial space, a separate 20,000 sf wing for work space and community functions, and a 24,000 sf courtyard, designed and landscaped with tenant participation.[18]

Developer: Gelardin/Bruner/Cott, Inc., Cambridge, MA.

Architect: Gelardin/Bruner/Cott, Inc.

Contractor: Noram Construction Company, Boston, MA.

Financing: Massachusetts Housing Finance Agency (Also, as part of the Boston Redevelopment Authority plan for the area, federal funds were made available for relocation of tenants.)[19]

Total Duration: Found: April 1971
Option: October 1971
Agency Commitment: April 1972
Construction Period: Jan.'73 - Feb.'74 (1st occupancy)
Closing: November 1972
Syndication: April 1973

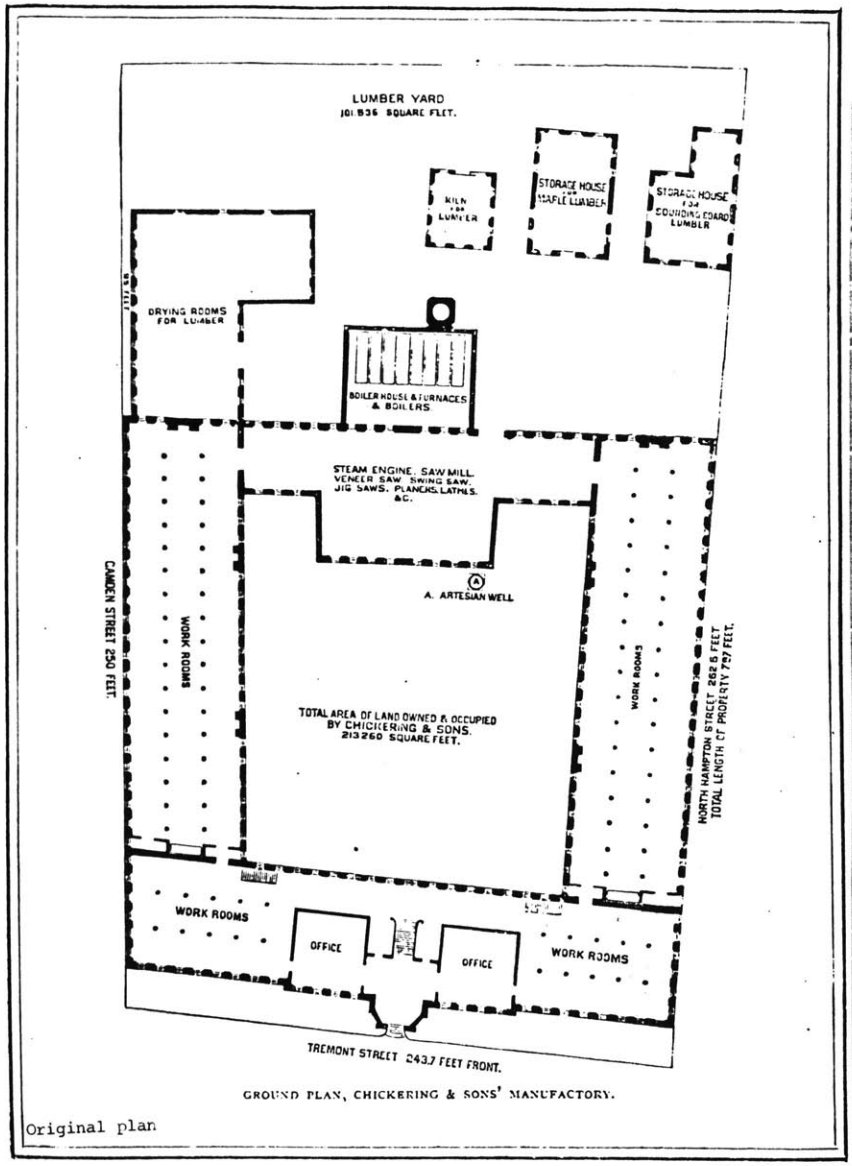
Total Construction Cost: $2,300,000 Cost Per Unit: $13,218

Total Development Cost: $3,500,000 Cost Per Unit: $20,115

Architectural Fees (as per MHFA): Design, $100,054; Inspection, $20,845

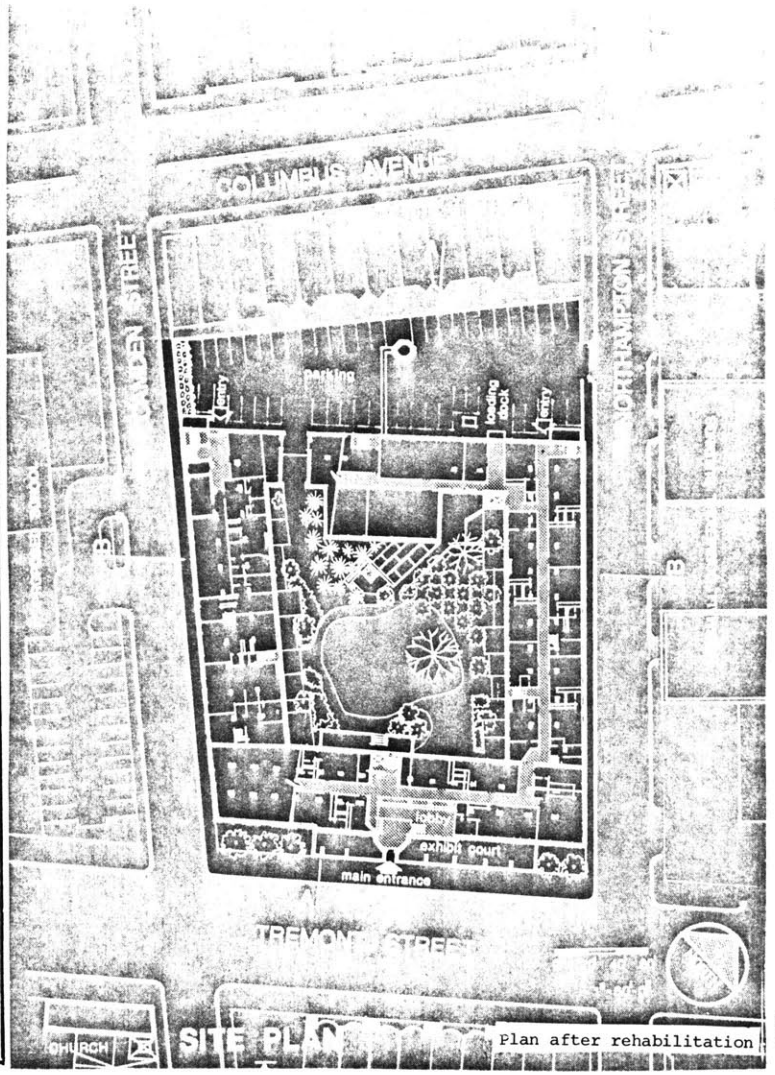
Minimum SF/unit (Agency): 1BR, 550-560 2BR, 750-900 3BR, 1000-1300

Range (Project): 1BR, 500-1500 2BR, 925-1500 3BR, 1525-1740

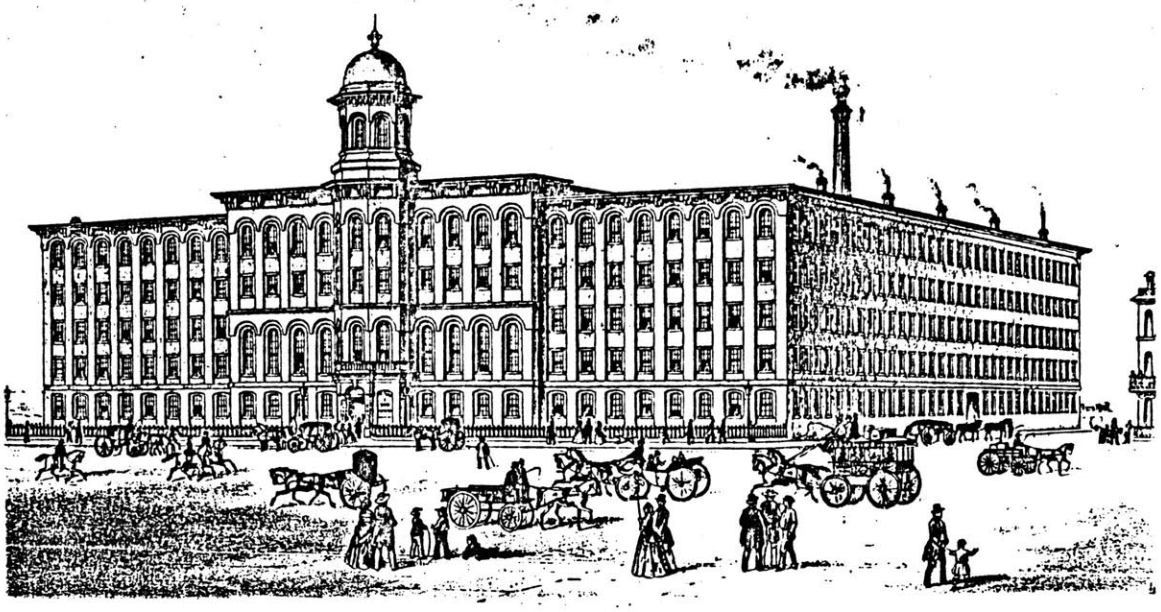


GROUND PLAN, CHICKERING & SONS' MANUFACTORY.

Original plan

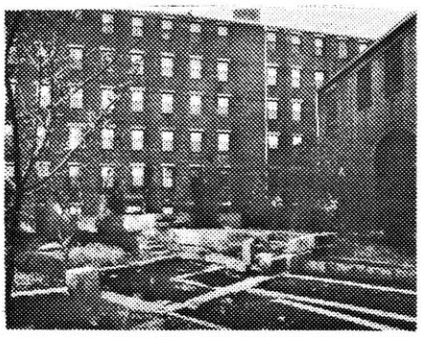


Plan after rehabilitation



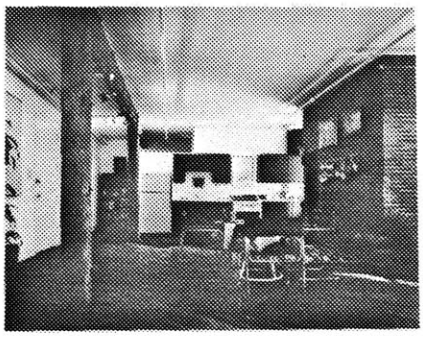
CHICKERING & SONS' PIANO-FORTE MANUFACTORY TREMONT ST. BOSTON MASS. U. S. A.

Interior courtyard, before



Interior courtyard, after

The Factory interior, before



Apartment interior, after

THE PIANO CRAFT GUILD: THE ARCHITECT AS DEVELOPER

Background

The conversion of the old Chickering Piano Factory to artist's housing was the first project which established Gelardin/Bruner/Cott as a working team and a corporation. Bruner and Gelardin (joined later by Cott) had known each other for many years and had already decided to merge their talents when they found the right building in the Piano Factory. Although trained as an architect, Bruner had been working as a general contractor (and had been hired to rennovate a studio in the old factory), and Gelardin had been consulting as a planner, specializing in federal and state programs. They chose the Piano Factory as their start because it was sufficiently large and complex to establish them (monetarily and in terms of the experience gained) as an organization which could work vertically - in a variety of ways, doing all things - rather than horizontally, in the mode of the specialist. They also reasoned that on a small project (i.e., a series of rowhouses) one mistake might erase all their profits, while a large project would allow them more leeway, and paradoxically, more security.

Contractual Agreement

Bruner and Gelardin formed a corporation to complete the project, with only a written agreement between them which stated the amount that each had invested. Gelardin did the financing package, Bruner did the architectural work and both took care of political apsects of the project. Today their architecture and development entities are

separate corporations, and sign contracts between themselves; shadow costs of the architectural entity are billed to the developer. If a project goes ahead, the profits are then distributed accordingly. On this project, all fees were speculated until closing, and then gained quickly in a lump sum.

Bruner estimated that if he had billed the cost of architectural services to an outside client, the fees would have amounted to $150,000 from 1971 to 1974.[20] Although they had technically paid a combined sweat and cash equity of $400,000, the developers would not see very much cash at the closing and therefore decided to sell a 90% interest in the project to a syndicate of limited partners. Gelardin/Bruner/Cott has retained control as the general partners.[21]

Participants

Robert Gelardin dealt with the development concerns of the project, while Bruner, with the help of a draftsman, handled the design and architectural work. Bruner also kept a close watch on construction costs. Leland Cott, an architect and urban designer, came to the project during the construction phase. Tim Anderson of Anderson Notter Finegold was hired to do the construction supervision. Although Bruner and Gelardin had not previously known of Noram Construction Company, Claude Cimini, the company's vice president of design and construction, became an important member of the team during the design and construction phases of the project. Formerly trained as a mechanical and structural engineer, Cimini had experience designing and building factories, and had been working on housing rehabilitation

projects with Noram Construction prior to the Piano Factory job.

Program

Bruner and Gelardin chose their market as artists, believing that artists would be more flexible with regard to their living space than most; at the time (1971), rehabilitated projects were not as popular as they are today. In point of fact, there was a small artists clique living in the building when they found it. The program for the building was largely derived from a market survey which included talking with artists. Much of what they told Bob Gelardin was incorporated into the building. The market study documented artist's need for combined living and working units with large open spaces and natural light, 8' high wide doors, serviceable floors, and heavy duty circuitry. The need for freight elevators and commercial slop sinks was also expressed and incorporated into the program. Following the completion of construction, tenant involvement was sought out in the programming, design review and construction of the interior courtyard.[22]

Gelardin commented that one of the major benefits of working jointly with Bruner was that developer and architect were allowed more time together to discuss and debate the mix of uses for the building. Design and finance worked together on several programming issues. For one thing, artists wanted large studios to work in, but giving away a lot of space inexpensively would have been difficult. Gelardin came up with a strategy of internal skewing; some units would be made very small at 500 s.f. (for poets), and others would be made larger than average (the average as supplied by the financial analysis). Another

joint effort produced gallery space from basement storage space; what was once rentable at 50¢ per square foot became $3-$4 per square foot, which would add revenue to boost and to support the mortgage. A two level space was created which would serve to dramatise the building's main entrance, give the artists a place to display and sell their work, and help to provide a focal point for daily social interaction. Commercial space for art-related tenants on either side of the gallery was also provided for.[23] A third issue concerning the use of the attached building at the rear of the courtyard also combined design and finance in its solution: the building was left in rough form to be used for activities such as pottery, welding, and community space, and thereby produced usable working space at the least possible cost.

Design Process

Much of the design was worked out in detail with the constant input of Claude Cimini from Noram Construction. Before finding Cimini through the MHFA, Simeon Bruner had contacted many of the area's contractors, all of whom had refused the job because it was too big and too complex. Both the demolition and the amount of structural repairs needed were hard to pin down; the job was too much for too litte. But Cimini liked the concept, and thought the building would lend itself well to the notion of an artist's colony. His continuing support and input during the design process helped to solve numerous design problems, and was instrumental in completing the project on budget.

Bruner and Cimini began working together following the completion of schematic drawings and a preliminary budget sufficient for the MHFA

commitment.Cimini spent a lot of time with Bruner after work (not a typical arrangement between architect and contractor), giving input on costs and solving design problems; they met as often as twice a week during construction documents. Bruner would present three or four sketches directed at solving a particular problem, and then the two would sketch together. (Cimini was very familiar with this type of an owner-architect-contractor relationship because he had worked in similar situations for many years,although this was the first time he had worked with an architect who was not a "captive".) One exemplary design solution which enabled the installation of one drain-waste-vent stack to serve two units each per floor (instead of the conventional one-stack-one-unit configuration)saved $400 per unit.[24] Cimini found Bruner to be different than other architects he had worked with, in that he was very aware of costs; he knew the cost implications of everything he designed. His knowledge of construction and cost conscious methods enabled him to avoid reworking unnecessary details or overdesigned solutions. Cimini commented that in working together from the early drawing stages, they avoided overruns which might have come to as much as 15 or 20% of the allowable budget.

Construction Supervision

Although construction supervision was technically assigned to another architect, as required by MHFA regulations, Simeon Bruner was on the jobsite every day and essentially carried out the supervision himself. (Bob Gelardin commented that Bruner's familiarity with construction and inherant interest in construction detailing had been a factor

in Gelardin's confidence that they could do the project; these skills are especially important on rehabilitation projects, frequently complicated by unforseen circumstances during construction.) A non-technical problem which arose out of supervision by an outside architect, in this case a well known architect (Tim Anderson of Anderson Notter Finegold), was a misunderstanding in some publicity for the project as to who was architecturally responsible for it. As their purpose in undertaking the project had been to establish themselves as an organization with creditable experience, recognition for the project was obviously a critical factor for Gelardin/Bruner/Cott.

Design Control/Major Issues.

Acting as both the architect and developer enabled Gelardin/Bruner/Cott to maintain close control of the construction costs, so that they were able to stay within their budget of $10.50 per square foot (about one third the cost of new construction).[25] To stay on budget, they made a conscious decision to retain the building's essential character, rather than try to change it. Apartments would be open and informal with few partitions; ceiling heights would be retained; wood columns would be left exposed; and floors, beams and walls might not always be level, plumb, or new. (Exposed brick, sandblasted columns, and the patchwork floors not only saved money however, but also created spaces with strong market appeal.) Finish work would be plain and attractive without the necessity for time-consuming detail or ornamentation.[26] Michael Robinson, who has made a careful study of the project, cited some of the ways in which construction cost savings were achieved

which include:

- sanding down and patching existing floors (without attempting to match old and new) at a cost of $60,000 instead of replacing them at a cost of $375,000;
- applying electric lines in conduits directly to walls, saving about 15% of conventional wiring costs;
- leaving piping (sprinkler, steam, water, etc.) exposed wherever possible, saving about $200,000;
- rebuilding three existing elevators, including a freight elevator, for $60,000 instead of replacing them for $150,000;
- repainting the exterior facade for $15,000 instead of exposing the brick by sandblasting, pointing and sealing for $85,000.

Another innovative idea involved reusing the factory's old chimney stack with a new heating plant which they installed inside the rehabilitated building. They connected the old stack and the new heating plant with an overhead exhaust line supported by an old girder which they found in the factory. The overhead exhaust line, which was Cimini's idea, saved about $20,000 when compared with the cost of knocking down the old stack and putting up a new steel stack.

An approach not often used by developers, but in this case to the point, involved creating non-standardized apartment layouts, which were arranged around kitchen-bathroom cores placed to avoid columns. The erratic spacing of columns and window openings made a uniform layout impossible, but by avoiding oddly placed columns, the additional cost of working around them was avoided. Interior walls were also kept to a

minimum (saving on finish work and running wiring and piping inside the walls), enclosing only bathrooms and a few bedrooms. Privacy areas can be achieved through the use of huge rolling closets supplied by the developer.

Finally, instead of replacing sagging roof timbers, two thirds of the roof was cut out and replaced by dormers, which effectively made 21 apartments into semi-duplexes. The dormers cost more than new roof timbers, but created a lot more rentable square footage.[27] (Although parts of the roof were still in questionable condition, which was recognized by all parties including the MHFA, it could not be completely repaired within the budget. Consequently it has needed repairs since construction completion.)

Bruner commented that in general, they put money into areas where they couldn't redo work. Where there would be an opportunity to redo, they left things out. As owner-architects and managers of the building they could make these choices, which they couldn't have made as architects protecting another owner's interests. Their management company is now reworking some of those items which were slighted, such as the roof.

Evaluation of the Project

Bruner feels that many opportunities were probably missed in the design of the building, but that a major problem was developing a sense of distance while being so involved with every aspect of the project. In general however, he is happy with the results, and feels that there are a lot of good attributes to the design, such as the front lobby.

The building needs attention in several areas, but in working with a very limited budget there was a conscious effort to limit those areas to places which could later be redone.

Judy Webber of the Shoreline Corporation, G/B/C's management division, commented that it doesn't make sense to compare the Piano Craft Guild project with other residential standards. For the elderly it would be a disaster, but as an industrial building converted for artists it works very well; it is very adaptable to their needs. Tenants are very enthusiastic about the project; because it is restricted to artists or artisans only, an unconventional community has been created which is supportive of the individual artist. In addition, it holds the required MHFA housing mix (calling for 25% low income, 50% moderate, and 25% market rate tenants) without difficulty; there are waiting lists in all categories.

There are problems with the building now, but these should be seen in the light of several factors, Webber feels. The Piano Factory was one of the first large rehabs done; it was also built at very low cost. Under a very tight budget limitation some items could not receive full attention. Problems requiring attention now include: a major portion of the brickwork still needs repointing; the heating system (utilizing oil) is inadequate, relying solely on baseboard heaters, and the rooms are susceptable to drafts due to the condition of the brick walls. There are also operational problems with the windows (a cost saving item); the old elevators are in constant need of repair; and "D" building, which contains community space and studio workshops, needs a

lot of additional work, possibly a new roof. A lot of money goes into repairs on the various items which couldn't be attended to during construction, although Webber pointed out that this is typical of MHFA projects, even in new construction. Webber feels that the building has held up well given that it is a rehabilitated project.

Webber stated that the building loses money every year, largely due to the difficulty in obtaining rent increases. Due to the agency, the rental market, and the fact that the building is an artist's community, the management company has a difficult time collecting the rents it would optimally need. A higher than expected tax burden has also caused problems for the developers, an issue which is currently under litigation with the city. An added complication is that the MHFA has decided to hold additional funds set aside for the project until the tax situation is resolved.

Evaluation of the System

Bruner doesn't feel that this project could have been done under a standard arrangement, because the Factory required a total time commitment and called for continuous and complete collaboration between architect and developer. Bruner believes that his contracting skill was also absolutely necessary to understand the decisions he made in terms of cost. Cimini commented that if three separate entities had worked on the job, and the drawings had gone out for bids, the project would not have been done within the budget. According to Cimini, changes might have come to 15% more than the budget allowed. In working with Bruner through the working drawing stage, Cimini also became

familiar with the building and therefore knew how to better estimate costs. (He explained that there is a "fear factor" in estimating, which is significantly lessened the more one is familiar with a building.) However, all of the parties - Gelardin, Bruner and Cimini - stated that they would not take the same risks again: for the developers the speculation was too great, and there was too much to be done for too small a budget. Yet Gelardin/Bruner/Cott did "establish" themselves, and although Cimini didn't make a large profit, he didn't lose money. A benefit to all has been the substantial amount of favorable publicity which the project has received.

Judy Webber believes that if G/B/C didn't manage the project, its status would probably be the same, but that it wouldn't have been as interesting or as successful a project. Care is taken in renting the apartments, and the project has three rather than two administrators assigned to it." The management staff makes an effort to accomodate the tenants and to generate enthusiasm within the building; they have even sponsored a yearly contest with a $100 prize for the tenant with the most exceptional door. The project is an unusual one with unusual tenants who often pay rent irregularly, and the bookkeeping always takes longer, but with an extra effort from the management end, it continues to be a success.

As can be seen from this project, there are advantages to working as an architect-developer team; there are disadvantages, but they are more subtle. Gelardin, Bruner and Webber discussed both sides of the issue in evaluating their working process. Bruner admits that the

architect in the developer's role will tend to spend more money on a project. Because they also work independently as architects they feel the need to maintain the quality of their architecture in their development work. Consequently they tend to make less as developers than they would if their interest were only development. However, their development capacity does allow them to take on some very interesting architectural projects which might be less feasible if the office capability was solely architecture. In effect, the diversity of their capabilities and sources of income (from development, architecture and management) enables them to work on a wide range of projects not enjoyed by firms engaged solely in architecture. Furthermore, rather than taking on more jobs just to stay solvent and accepting less control as architects, as architects and developers they can take fewer jobs and achieve greater control. In this situation, the architect's extra efforts may put his products in a market which is unique, and thereby bring in higher revenues than other buildings serving the same purpose.

From the development point of view, Bob Gelardin stated one of the disadvantages of working so closely with the architect; a blurring of responsibilities may occur. Gelardin/Bruner/Cott has a strong architecture department, and therefore a lot of responsibilities have been left to the architect. A conflict naturally arises due to the nature of the architect versus the developer; the architect has an occupational concern with all the details, and wants to get a price on each item, while the developer's focus is on when he can open the project. According to Gelardin, no architect can speak as a surrogate

for the developer because he will want to spend more time than the developer would allow. When working within a developer-architect team, Gelardin therefore feels that the importance of scheduling must be strongly emphasized, and time pressure applied. G/B/C also uses an allowance scheme to cut down on time, whereby money is set aside for construction items which can not be pinned down with the contractor before closing. The owner makes a calculated judgement and then assumes the risk of resolving these issues after closing.

Judy Webber stated that the principals are intimately involved in every aspect of their own projects, which is sometimes a problem, but ultimately a better situation. She stated that the design partners are really interested in "how it looks" and "how it works", even though tenants may be just as happy with a standard product. Consequently their buildings are more personalized than most. Webber pointed out that management helps the design end in that it provides feedback for use on future projects; design helps management in that a manager can easily find a person who worked on the building and knows its history. Problems can thus be solved more easily.

Webber also commented that architects as owners will tend to spend more money, but she finds that they are also creative about doing things inexpensively. Because the owners are architects, they tend not to let the contractor go ahead with things which an owner-contractor would. Their budgets are the same, but the architects tend to control the tradeoffs more creatively.

Changes Instituted

Gelardin/Bruner/Cott doesn't take the kind of risks they once took with the Piano Factory; their risks are now minimized somewhat because they don't need to do extensive feasibility studies due to their experience. The developer's association with architects also helps to establish the feasibility of a project because they may have more ideas of what to do than the developer would. When they know a project will work they do background work on the market side only to the extent needed, which saves valuable front money.

On the other end of the process, they have avoided problems with outside supervising architects through several means. Specific contractual arrangements state that any publicity for the architect is subject to approval by G/B/C and any claims by any other architect are restricted. They will hire another supervisor as a backup for the bank, or to mediate in small disputes, but they will not hand out the responsibility for actual construction supervision. On a rehabilitation project they assign an in-house architect(or a clerk of the works, who keeps daily records of construction inventories, personnel, weather, etc.) to be on the job every day, because they feel that the typical once a week (or less) supervision by an architect is not enough. Close supervision is not viewed as an extra expense, but as a necessity. In addition, this may help them somewhat on the front end, as their drawings can then be somewhat less explicit.

Gelardin/Bruner/Cott now has a complete staff of more than 30 individuals engaged in architecture, planning and development. Their

own brochure describes the scope of their work:

> G/B/C has served as architects, urban designers, city planners, cost consultants, and turnkey developers; had experience with both rennovation and new construction; designed private residences, multifamily and elderly housing, and office and commercial space; and planned for institutions ranging from a museum to health clinics to an urban national park for a federal commission. G/B/C's originality in adaptive reuse ("recycling") existing buildings has achieved national recognition.[28]

It is clear that they have come a long way in the few years since the completion of the Piano Factory.

Notes

[1] Jane Silverman, "The States Emerge as Primary Clients for Subsidized Housing", AIA Journal, February 1975, p. 27.

[2] "Arthur Cotton Moore/Associates of Washington", AIA Journal, May 1974, p. 59.

[3] Richard C. Frank as quoted in Andrea O. Dean, "Adaptive Reuse: Economic and Other Advantages", AIA Journal, June 1976, p. 26.

[4] "Taxes and Preservation", AIA Journal, November 1976, p. 10.

[5] Silverman, op.cit., p. 25.

[6] "A Boston Firm That Has Made a Specialty of Adaptive Use", AIA Journal, April 1977, reprint, p. 4.

[7] Interview with J. Timothy Anderson, Anderson Notter Finegold, Inc. Boston, MA, October 15, 1980.

[8] Andrea O. Dean, op. cit., p. 27.

[9] "A Boston Firm That Has Made a Speciality of Adaptive Use". p. 4.

[10] Andrea O. Dean, op. cit., p. 27.

[11] Herbert McLaughlin as quoted in Andrea O. Dean, op.cit.,!. 27.

[12] Interview with J. Timothy Anderson.

[13] Interviews were held with the following parties:

On the Florence Mill:

1. Charles Plaisted, Steffian-Bradley Associates, Inc., Draftsman, November 7, 1980.
2. Peter Kasch, Barkan Development Corp., Project Manager, November 10, 1980.
3. Peter Steffian, Steffian-Bradley Associates, Inc., Principal in Charge, November 12, 1980.
4. John Camera, originally of Barkan Construction Co., Inc., Project Manager (now with Boston Properties), November 25, 1980.

On Old Windsor Village:

1. James Alexander, Anderson Notter Finegold, Inc., Project Architect, November 14, 1980.
2. Melissa Bennett, Martin S. Tierney, Supervising Architect, November 18, 1980.

Notes (Cont.)

3. Almon Trumble, Peabody Construction, Vice President, November 21, 1980.
4. Gerard Doherty, Lawyer/Developer, General Partner, December 2, 1980.

On the Piano Craft Guild:

1. Simeon Bruner, Gelardin/Bruner/Cott, Inc., Architect, November 12, 1980.
2. Claude Cimini, originally of Noram Construction Co., Vice President, November 13, 1980.
3. Robert Gelardin, Gelardin/Bruner/Cott, Inc., Developer, November 17, 1980.
4. Judy Webber, The Shoreline Corporation, Chief Operating Officer, November 20, 1980.

14

Information provided by Publicist, Steffian-Bradley Associates, Inc.; figures provided by Peter Kasch of Barkan Development Corp. and the Connecticut Housing Finance Agency. Rendering, plans and photographs also supplied in original form by Steffian-Bradley.

15

From the initial letter agreement for architectural services between Steffian=Bradley and Barkan Development Corp., dated September 9, 1977.

16

General information provided by Publicist, Anderson Notter Finegold, Inc.; facts and figures also provided by Publicist, Julia Binkerd of ANF, and the Vermont Housing Finance Agency. Plans and photographs were also supplied in original form by Anderson Notter Finegold.

17

Doherty described the choosing of an equity partner in terms of several factors; 1) whether the project can afford it; 2) the amount of other work which the architect is doing at the time; and 3) what competing architects are requesting in terms of fee or equity.

18

Information from Gene Bunnell, Built to Last (The Preservation Press: Washington, D. C., 1977), p. 51 and

Reprint, "Huge old piano factory provides studio-homes for rich mix of artists", The Christian Science Monitor, Boston, Friday, August 16, 1974;

Facts and figures from Gene Bunnell, op. cit., p. 51, and

Michael J. Robinson, "Urban Rehab, $10.50 a Sq. Ft.", House and Home, February 1975, p. 73.

Original plan and etching were supplied by The Bostonian Society

Notes ,(Cont.)

through G/B/C; current plan and photographs were supplied in original form by G/B/C.

19 Gene Bunnell, op. cit., p. 53.

20 Robinson, op. cit., p. 73.

21 Ibid.

22 Brochure of Gelardin/Bruner/Cott, Inc., "Piano Craft Guild - Boston, Ma."

23 Robinson, op. cit., p. 71.

24 Ibid, p. 69.

25 Carleton Knight III, "Adaptive Use, Cont. Apartments from a Factory and a Store", AIA Journal, November 1974, p. 40.

26 Robinson, op. cit., p. 69.

27 List of cost savings and subsequent discussion from Robinson, op.cit., p. 69.

28 Brochure of Gelardin/Bruner/Cott, Inc., Cambridge, Ma.

CHAPTER V

THE CONCLUSIONS

Thus far this thesis has examined how and why architects' roles have been changing relative to the development process. The architect's role under the standard architectural agreement has been compared to recent variations, which include providing partial services, taking an equity position, participating in a design/build arrangement, and assuming direct responsibility as developer. Three case studies have examined more closely issues relating to the architect's design control and design process under several of these arrangements. This chapter will recapitulate and draw conclusions about the various ways of working, discuss the implications for future practice, and describe some of the new roles for architects which are emerging within these new arrangements. Finally, the question of changing demands on architecutral education with respect to the development process will be addressed.

There are a number of factors which contribute to the architect's control over the design and the design process, including:

(1) the ability of the participants, specifically architect, developer and contractor to work as a team, with similar attitudes towards a desired product;

(2) the ability of the architect to participate in the initial stages of the development process, allowing the architect to affect program and budget decision;

(3) the ability of architect and contractor to work together from the early stages of design, allowing the contractor to provide input regarding costs, market factors and construction practices;

(4) the architect's knowledge of construction costs coupled with the ability to control the tradeoffs which are made during the design and construction process;

(5) close monitoring of the construction process through architectural supervision (especially important in rehabilitation projects), enabling control over the finished product.

Each of these factors has been discussed in the course of describing the different arrangements; some or all of these conditions varied in each of the case studies presented.

In the traditional arrangement all of the factors may be present, but none are a consequence of the form of the arrangement, as is the case in several of the new ways of working. Many of the architects interviewed who have worked within a standard owner-architect agreement stressed the importance of each of the factors (except perhaps the fourth - control of the tradeoffs - which is usually in the developer's realm of control). The importance of working with the contractor from the early stages of design was emphasized by most of the architects. Some of the architects will not accept work which does not involve them from the start of the development process, and most would not forgo supervision responsibility.

However the case of the Florence Mill illustrates what can happen in the standard agreement situation. It is clear that a combined development-construction entity has the power to override the architect's control, and to interfere with those factors which would contribute to the architect's control of the design and the design

process. Although the architect came into the project in its early stages (but without participation in budget decisions), the contractor failed to provide input which would have enabled cost control early on. At a later stage of the design process, faced with a very tight budget situation made worse by the delay in closing, the contractor eventually made the tradeoffs which he felt were necessary to complete the project within the budget allowed. The project was to a large extent robbed of a gracious exterior presentation (originally provided for in the architect's design through site landscaping, an interior courtyard, and an elaborage entry design). The developer-contractor effectively ignored the possible physical limitations of the users by installing untested, inexpensive windows which later experienced operational difficulties. Construction finishes were hastily and poorly executed. The team network was short circuited, and the contractor essentially made decisions as the owner, with priority given to cost savings. An adversarial relationship between architect and contractor developed. Finally, due partly to personnel changes which occurred during the construction stage of the project, control through supervision by both the architect and the contractor was lost. The result: a final product which neither architect, developer, nor contractor was entirely pleased with, which suffered from poor workmanship, and which has since experienced problems related to hasty decisions made on the basis of cost. Although many of its problems have since been rectified, the project serves to illustrate what can happen in the traditional owner-architect arrangement. Faced with

cost overruns which would endanger the developer's profits, the tools of control were taken out of the architect's hands and given to the contractor, the party most able (and the most skilled) to effect cost savings.

The partial services arrangement essentially places the architect in a situation similar to that which evolved on the Florence Mill project, i.e., an architect working for a developer-contractor, except that supervision would not be included in the architect's services, and his fee would therefore be reduced. It is easy to see that this situation is potentially worse for the architect in terms of control over the design product, because supervision is automatically eliminated. The architects who were interviewed had worked in a partial services position only for those developer-contractors with whom they had a good rapport. In these situations, they would forgo close coordination with the contractor during the design and drawing stages, leaving room for the contractor to fill in the details according to his practices, but none would willingly forgo supervision. The contractor naturally assumes a more powerful position during the construction process, and it is during the later stages of a project when budget constraints become the most pressing. Understandably, the architect would not want to relinquish control at the time when the final decisions are "cast in place".

The design/build arrangement can take a number of different forms, and therefore may present varying advantages and disadvantages when compared with the standard arrangement. The design/build arrangement

automatically eliminates the adversarial relationship between architect and contractor, and makes the two parties design together; architect and contractor become a team. The decision making power of the architect can vary however, depending on whether the contractor or the architect acts as the prime entity, or if a 50-50 joint venture has been formed. If contractor and architect share the same attitude toward the final product, the structure of the relationship is not so important. In a design/build/bid situation, program and budget decisions may have already been made and fixed before the architect and contractor begin working , leaving less leeway for design decisions. In fact, the arrangement requires a rather clearly specified program. Although this is not necessarily a disadvantage, it may cut out the possibility for community participation in the design process. In a design/build arrangement, especially a 50-50 joint venture, the architect is likely to have a better knowledge of the construction costs and more of an ability to control the tradeoffs; control over the tradeoffs is an advantage of the design/build process. If the builder is the prime contractor however, and has subcontracted the design, the architect may find himself to be more of a captive than a controlling agent. It follows that the type of arrangement would also have an influence on the architect's control during construciton supervision. In a case where the builder is the prime contractor, his decisions may override the architect's during the construction process if costs become a factor; in a 50-50 joint venture situation, supervision would most likely be a joint effort. Overall, design/build offers the

advantage of working with the contractor on a team basis; the joint venture arrangement which places architect and contractor on equal footing is optimal. Communication between architect and client may be lessened however, and the potential for a conflict of interests is increased due to the architect's partnership with the contractor. In addition, professional liability insurance may be difficult to find if the architect is not acting as an employee of the contractor. Finally, a situation to guard against is one which leaves the major burden of expenses to the architect if a project is dropped after a good portion of the drawings have been completed.

An equity share may be offered to the architect in a variety of ways; this is also a situation in which the architect must guard against providing services and then losing out on his fee if the project doesn't go ahead. It does provide the potential for long term gain however, an advantage over the standard arrangement. An equity position allows the architect to be involved from the early stages of a project, participating in decisions affecting program and budget (although this may depend on the amount of the equity share). It also makes the architect a part of the development team, a situation which can be sustained only if the architect and the developer see eye to eye on basic issues. The architect's relationship with the contractor is an independent condition relative to the architect's equity position, but depending on the amount of equity which the architect has invested, he may have an increased ability to control the tradeoffs which are made during the design and construction process. A

disadvantage to partial ownership on projects financed by HUD or state housing finance agencies however, is that the architect is not allowed to supervise construction (although he may opt to monitor the process).

In the case of the Windsor Jail, an equity position allowed the architects to participate in, and to influence the early programming decisions. Their early participation also helped the project to go forward, having gained the acceptance of the local community. In this particular partnership, the architect became a member of the development team at the suggestion of Gerard Doherty; Doherty has high respect for the architect's abilities and point of view. Architect and contractor worked together from the early design stages, largely due to the fact that both of the majority partners believe in this way of working. Overall, this system worked well, although some amenities were eventually cut and changes were made to the design when the budget demanded it. The architect's design control was eventually challenged by the combined development-construction entity, aided by the fact that the architect only held a 10% equity share. Although architect and contractor had worked together in the early stages on cost control, the developer-contractor finally controlled the tradeoffs which had to be make in the latter stages of the project. The fact that the architect was not allowed to supervise construction, combined with his lack of proper attention and reduced responsiveness to the project, also contirbuted to a loss of communication and cooperation between architect and contractor.

Throughout much of the development process the architect was able

to exercise and sustain control of the design process and the design product, although it is difficult to say to what extent this was due to an equity position per se. Doherty's general tendency to involve the architect from the early stages, coupled with his tendency to ally with Anderson on issues with other developers, provided the architect with both of the beneficial factors which an equity position would also provide. The case does demonstrate that is spite of an architect's equity share, the majority share can control.

The architect assuming the role of developer has the same advantages working in his favor as the architect with an equity share, except that he can also exercise control over all of the decisions which are made because he has the most control over the money, the process and the product. He therefore has the added benefit of being able to control the tradeoffs which are made during the design and construction process. The architect-developer may not choose to work with an outside contractor from the early stages of a project, especially if the team already has construction management skills or a knowledge of construction costs and practices. However it is obviously to his advantage to see that construction input of some kind is available in the early stages of the project. As is the situation of partial ownership, the architect-owner can not supervise construction on projects financed by HUD or state housing finance agencies, but as the controlling owner he can choose to monitor the process very carefully, to ensure that his own interests are protected. An architect working as a developer must assume all the risks of a developer,

but he also stands to benefit from long term gains which can sustain other work.

In the case of the Piano Factory, all of the factors which contribute to the architect's control over the design process and design product were present. The development team contained all of the diversified talent necessary to produce the project, including construction expertise, and a constant effort was made to combine these talents to produce the desired product. The developers carefully chose an appropriate market through the program; by carefully controlling the tradeoffs through the coordination of design and finance the developers were able to stay within their budget, without sacrificing design goals. (However they did take the option of leaving some items to the management end; there were some areas which were not given attention, and now require constant maintenance.) The architect's prior knowledge of construction costs, combined with a very cooperative and knowledgeable contractor (in both design and construction) brought in at the early drawing stages, allowed for substantial cost savings. Although the architect was not technically allowed to supervise construction, he was on the jobsite every day; having prior experience in construction and the cooperation of the contractor, he was able to make the final decisions according to his own preference.

In this case, the architect-developer team took advantage of all the criteria which would give them the most control over the process and the design product and from the point of view of design control, they were successful. On the development end they took risks and made

decisions which other developers might not have made, and they now have some operational problems which another developer might have avoided. Although in this instance they were less successful as developers, they have learned from their mistakes, and are now established as an organization which can take control over both the architectural and the development aspects of a project. They are also more able to determine the kind of work they want to do than most architects engaged in development work.

Implications for Future Practice

For those architects who seek to gain better control over the design product in development projects, equity participation, 50-50 joint venture arrangements with a contractor, or assuming the role of developer, offer three promising avenues with varying degrees of potential as well as risk. Whichever approach is used, it is clear that developer, architect and contractor need to join forces and work as a team. In the development world especially, there is no longer room for the individual design architect who wants to maintain autocratic control over the decisions which determine the nature of the design product. To gain control, architects will have to learn the skills of the developer and/or the contractor, or at least have an understanding of their expertise, to achieve a design process which is comprehensive in nature. The developer, the architect and the builder must work simultaneously rather than sequentially; instead of dividing the processes and concerns of development, design and construction, there is a need for constant collaboration to arrive at solutions,

with an emphasis on the constant interchange of ideas.

The implication of this necessity for collaboration is a blurring of the distinctions between the various entities, in terms of skills, services and responsibilities. A large part of Gelardin/Bruner/Cott's success in creating the Piano Craft Guild stemmed from the ability of the participants to cross professional boundaries, and to understand each other's problems. The developer contributed to the design of the building in attempting to make the finances work; the architect looked at his designs in terms of costs and tradeoffs; and the contractor contributed his design ability to complete the project within the allowable budget. All three parties believe that the project could not have been done if they had acted as three separate concerns. By working together, they completed the project at about half the cost of conventional rehabilitation[1], and produced a product which satisfied all three parties. Today, Gelardin/Bruner/Cott practices architecture and continues to do their own development work. Claude Cimini has formed his own company, and often contributes his design and construction expertise from a project's inception. A builder with whom both Doherty and Anderson have collaborated, works in a similar manner. Doherty describes him as a "frustrated architect" who both respects Anderson and has a sensitivity to his weaknesses. Once given a design solution, he will put in the extra effort to make it work; he often takes the plans home and works with a design until he knows it can be built.[2] It is clear that this type of overlapping and simultaneous collaboration can pay off, both in financial terms and in terms of the

design product. Architects who want control over the design process and the final product must develop expertise in dealing with development and construction problems, to be able to participate effectively throughout all phases of the development process.

Within their own organizations, architects have begun to expand their services and capabilities in order to gain a more central position within the design and construction process.[3] Larger firms across the country have begun to offer services including programming, construction management, architectural, structural, mechanical and electrical design, and market and financial analysis.[4] Gelardin/Bruner/Cott, now a firm of medium size, decided from the start to form an organization of diverse talents including development, architecture, construction management and planning. About half of the eleven Boston architects interviewed have established separate development arms, and several more look forward to developing this type of capability. The establishment of an independent development organization, while keeping professional and financial interests separate, allows a small or a medium size architectural organization to broaden its experience and control by teaming up with others as equity partners or joint venturers. It can also enable a level of financial security not provided by traditional practice. Many architects have also begun to develop their own projects, starting at a small scale and gradually working up to larger projects.

New Roles for Practitioners on the Development Team

With the involvement of architects as developers in positions of

either partial or total responsibility, several new individual roles have emerged. These include the in-house development advisor, who is generally a permanent addition to the architectural staff; the administrative architect, who acts an as intermediary and independent advisor to the client in design/build arrangements; and the architect who does construction supervision for another architect-owner, as is the case on projects financed by HUD or state housing finance agencies.

An in-house development advisor has the expertise to guide the architect in developing his own projects; this advisor may or may not have had architectural training. Gelardin/Bruner/Cott started out with Bob Gelardin's development expertise, gained in city planning and related work experience for HUD. They now have an associate trained in economics and urban planning, who is responsible for all of the development aspects of their work. Steffian-Bradley's recently hired development expert is continuing his training as an architect within the firm, as well as handling the development aspects of their own project in Charlestown. A variation on this typs of role is Anderson Notter Finegold's development administrator/manager, who has no architectural training. She currently acts as a coordinator between all the various participants involved in their development projects, including the legal counsel and management staff. Some architects don't feel the need to hire a specialist, having acquired much of the necessary expertise over years of experience, but for architects who are less experienced or for those who frequently participate as developers, it is probably the most expedient solution.

On a design/build project, an adminstrative architect may be hired to provide the owner with an agent throughout the course of the project. According to an AIA report on project delivery approaches, this architect should "assist the owner in making some of the project delivery decisions, in preparing the performance documents, in soliciting and evaluating design/build proposals and in administering the design/build contract for the owner".[5] This new role provides an answer to those architects who fear that design/build arrangements leave the client without a source of objective advice. Architectural Endeavor, an organization which does the majority of their own development work through HUD's Turnkey housing program, has performed in this type of an intermediary role; as architects they have also been hired by HUD to review other architect's housing designs.

When the design architect is also the owner of a project financed by HUD or a state housing finance agency, it is required that construction supervision be performed by another architect, which provides the funding agency with an objective supervisory agent. Unfortunately, this arrangement can be problematic for the design architect for reasons which have been previously described. An architect who comes into a project when the drawings have been completed will not see things in the same way as the architect who has been involved throughout the design process. If alterations to the design need to be made as the result of design or measuring errors, or field conditions (especially in rehab projects), the supervising architect may have a different solution than the design architect would. His position in

a situation where the design architect is merely an equity participant may be particularly difficult; responsible to, and paid by the majority owner, he may side with the owner rather than the design architect. To avoid these problems, owner-architects may keep a representative from their own office on the job on a regular basis, to maintain a line of communication and to ensure that decisions are being made in accordance with their design intentions. (The design architect may also hire a clerk of the works, who may or may not be an architect, to keep a daily record of the job which can be compared with the reports of the supervising architect.) Field architects should be experienced in construction, especially detailing, to be able to pinpoint areas of potential problems. If an outside supervisory architect must be relied upon, he should be well versed with respect to the design architect's intentions and kept informed of the architect's position on upcoming issues. Questions involving credit for the design of a project should be resolved by a contract or by an agreement between the architectural entities before supervision begins.

On the construction end, a new role has emerged to deal with the necessity for overlapping design and construction decisions, particularly important on jobs with time and cost constraints. In this situation, construction expertise is brought in during the planning and design phases of a project in the form of a construction consultant. If this consultant is hired by the owner, his role may terminate before construction begins, or he may continue with the job as the general contractor or construction manager.[6] (A construction manager

might be used on large or specially phased jobs requiring a lot of coordination.) He may also be hired by the architect on jobs which must be competitively bid when construction drawings have been completed. A third possibility is that either the architect or the contractor, already included as part of the development team, has an individual skilled in construction management in-house.

The construction consultant bridges the gap between architect and contractor. From the early stages of a project through construction drawings, he advises the architect on the cost and schedule implications of design decisions. Cost estimates and input on marketplace conditions provided by the construction advisor enable a joint evaluation of various design alternatives and the tradeoffs involved.[7] Peabody's project coordinator, who works with an architect from the schematic stage of design until a job is finally estimated, is an example of this type of a construction intermediary. Simeon Bruner (the architect-developer) and Claude Cimini (the contractor) jointly fulfilled this function in the design of the Piano Craft Guild. In the latter case the collaboration continued throughout the construction process.

Education for Development

Changes in the roles that architects can, and must play to participate effectively within the development process require skills which are frequently not stressed or taught in architectural education. The criticism has been made within published sources that architectural

programs have been reluctant to adjust to, or accept the changing role of the architect, in the areas of both methods and business management. While teamwork and interdisciplinary collaboration have become increasingly important in practice, most design projects in school are still executed by individual students. In addition, many schools have been slow in adknowledging the increasing importance of skills such as management economics, cost analysis, marketing and legal concerns, the non-design aspects of architectural practice.[8] (A notable exception is Harvard University's development-design studio which brings students together on teams to work at the decision and design stages of a project, to jointly establish the budget, program, schematic design and marketing techniques to be used.) Idylic and individualistic attitudes often cultivated in the schools by both curricula and faculty may eventually lead to frustration and disillusionment in practice. Some have estimated that as many as 50% of students educated in architecture end up in other fields.[9] Without a knowledge of the development process and an ability to work within it, the effectiveness of architects who chose to work in traditional ways, or the possibility of working in non-traditional ways, is forfeited. The need exists for educational programs which inform the prospective architect about the realities, and the alternatives which exist within a changing profession.

For architects already within the profession, the American Institute of Architects has recently (within the last 10 years) sponsored a number of conferences dealing with the development process.

Typically, these conferences have brought together experts who might in reality be involved as members of a development team: mortgage bankers, tax and legal counsels, real estate, economic and development consultants, investment builder/developers and architect/developers were among those included as resource people.[10] In several cases, participants were separated into teams to work on problems which would confront the developer on a typical project or projects. A series of conferences sponsored by Architectural Record in the early 1970's on "How the Architect and Engineer Can Profit as a Builder/Developer" discussed topics which included project feasibility studies, land acquisition, project financing techniques, legal and ethical implications and professional liability.[11] Recurring themes at all of these conferences included an emphasis on the team approach, and on architects becoming involved as developers as a means of expanding practice and gaining better design control over their projects.

Some schools have begun to offer programs relevant to the architect's changing role, although these programs tend to be for the post graduate, or programs of continuing education. In 1981, for instance, Columbia University will offer a new one year doctorate program emphasizing the technical and financial aspects of architecture.[12] The tendency (by both the schools and the students) to leave this type of training until after the first professional degree is perhaps the result of an emphasis in the schools on the greater importance of design skills. However it is clear that there is a need for different kinds of architects with skills other than primarily design. It is

also clear that there could be very beneficial consequences gained from educating prospective architects to the methods of development building, as opposed to engendering a distaste for it.

Areas which the student of development should be familiar with include real estate economics and finance, and the constraints on development through municipal and federal controls. Site planning is also a valuable tool. To deal effectively with all aspects of a project, project management skills are also essential. Most of these areas can be studied within current planning programs, but there is still the need for direction, and for students to be made aware of these options.

There are several approaches which might be used to introduce the student to the development process, and to related new opportunities within the profession. One alternative might be an academic program, in which relevant courses would be organized into a subgroup of electives; another alternative would be to set up a work/study program which would give the student insight and work experience in various areas of the development process. This might involve working for a contractor, a construction manager or a developer, as well as for an architect.

At the very least however, academic programs should offer one course which would give students an overview of the development process. This course might introduce all of the various issues which must be considered in the course of a development project, and look at the roles of the various participants which make up a project team.

The various roles which could be played by architects within the process, including the advantages and disadvantages to each, might also be discussed. Another variation on this course might use the case study approach, so that a range of situations could be compared and explored. This type of approach is currently being used by Tim Anderson in a course on Adaptive Reuse at Boston University. All of the actors involved in a particular case are brought in to the class, and the conditions needed to make each project happen are explained.[13] An appropriate way to choose the case studies for such a course might be to select projects which involved architects in varying roles within the development process.

Non-traditional arrangements combining architects with developers and with contractors, have established their presence within architectural practice, confirming the necessity for present and future practitioners to enlarge their skills. Whichever approach is used, it is essential that architects, both prospective and practicing, come to understand the development process, and gain a knowledge of the skills which will allow them to participate effectively within the process. Expertise in development concerns can enhance the architect's control over his designs, and provide the means to expand architectural practice.

Notes

1 Michael Robinson, "Urban Rehab at 10.50 a Sq. Ft.", House and Home, February 1975, p. 69.

2 Interview with Gerard Doherty, Lawyer/Developer, Boston, MA, December 2, 1980.

3 William Dudley Hunt, Jr., Ed., Comprehensive Architectural Services (New York: McGraw Hill Book Company, 1965), p. VIII.

4 C. W. Griffin, Development Building: The Team Approach (New York: John Wiley and Sons, Inc., 1972), p. 119.

5 From an AIA report entitled Project Delivery Approaches, as cited in Andrea O. Dean, "Pros and Cons of Various Project Delivery Approaches, Traditional and Otherwise", AIA Journal, February 1976, p. 50.

6 Ibid., p. 49

7 Ibid.

8 Roger K. Lewis and Sirkku Fisher, An Assessmant of Architectural Practice (College Park, MD.: University of Maryland, School of Architecture, Fall 1977) as cited in AIA Journal, January 1978, p. 59-60.

9 Kay Dockins Ingle, "Why Architects Become Entrepreneurs", Venture, August 1980, p. 52.

10 "Dry Run of the Architect on the Development Team", in AIA Journal, March 1974, p. 4.

11 "Opportunities in Development/Building Discussed at Series of Conferences", AIA Journal, February 1974, p. 4.

12 Ingle, op.cit., p. 52.

13 Interview with J. Timothy Anderson, Anderson Notter Finegold,Inc., Boston, MA., October 15, 1980.

A series of questions was formulated to act as a basis for the first set of interviews with Boston area architects. They included the following:

A. (1) What types of relationships have been entered into in the firm's development work? What has been the most common, and why?

(2) Under what circumstances/type of project might one type of relationship be more suited than others?

B. (1) When do design considerations enter the project given a type of relationship?

(2) What are the issues or difficulties perceived with regard to design control in each type of relationship?

a. What are the contractual arrangements? The economic relationship?
b. What are the liabilities?
c. How is control enabled or prevented?
d. What are some of the tradeoffs involved?

(3) How must the architect modify his/her preferred design process in each situation?

(4) What are the effects of these difficulties on the design, as they perceive them?

C. (1) Who are the participants in each different type of relationship?

(2) What skills do these participants need to have?
What new skills must be acquired?

(3) Which of these new skills could be taught in architectural education? Should they be?

D. (1) What new forms of practice might develop between architect and developer?

The following questions were used as a basis for the second set of interviews, which included representatives from the offices of the architect, the developer and the contractor involved on each project.

(1) How was the architect/developer/contractor chosen for this project? Does your firm often work with the same architect/developer/contractor? Why or why not?

(2) What were the contractual arrangements with regard to:
- fees
- major responsibilities
- liability assumed

(3) How did your firm attempt to minimize the risks involved on this project?

(4) Who were the participants in this project from your office, and what were their roles? and skills required? (A brief outline or organizational chart of your office would be helpful.)
Was this group different from your usual team? Were there any additional skills required than normally?

(4) What were your personal motivations in regard to this project?

(5) How did you perceive your office's role in this project, especially with regard to design control, in each of the stages of the project? (See chart associated with Question #6)
What were your expectations, and your limits?

How did you perceive the roles of others, their expectations and limits?

(6) See attached chart.

(7) What were the major issues in these stages, especially with regard to the design? Conflicts and changes, mistakes and corrections? How were these issues resolved differently than you would have liked?

How would you do things differently the next time around?

How would you have done things differently if your position in the project were different (standard agreement/equity participant/ architect-developer)

(8) In terms of the design product, what were your most important priorities, and contributions? What did you fight for, what did you let go?

(9) Evaluation of results:

- How well did the system work?
- What are your opinions of the product?
- Are you aware of problems with the building now?

(6) What were your office's inputs into the development process and the design process? (write in where appropriate)

What kinds of interactions/contact took place at each stage, and who was involved?

DEVELOPMENT PROCESS (Include your input)

I.	DECISION STAGE
-	Assembly of development team, including owners
-	Economic design (market and feasibility studies)
-	Site selection
-	Development concept, program and budget
-	Construction cost projections
-	Schematic design
-	Land acquisition (option, lease, purchase)
-	Preparation of financing package for lenders
II.	DESIGN STAGE
-	Preliminary design
-	Financing negotiations (for mortgage and construction loans)
-	Final design, working drawings
-	Contract negotiation
III.	DELIVERY STAGE
-	Construction
-	Investment management