

PUBLIC AGENCIES AS MANAGERS
OF HOUSING QUALITY

by

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ABSTRACT

State housing agencies set criteria that determine the quality of publicly assisted housing for elderly persons, but the process by which those criteria is set is rarely explicit. As information on the psychological and sociological needs of elderly persons becomes available it is important that it be incorporated into agencies' criteria for designing environments for the elderly. By observing design review sessions at three state agencies and talking with participants, data was gathered to determine how the agencies have developed and implemented criteria for housing design. Written guidelines are analyzed for their capacity to convey criteria, especially behavioral criteria.

Agencies implement their criteria through the process of design review. In design review meetings, the agency review officer criticizes an architect's proposal, and before the agency will finance the project, the review officer must approve the designs. In the three agencies studied, the review officers took the role of a spokesman for the eventual inhabitants.

Although all three agencies professed to act on behalf of the users, there was considerable variation in the criteria and implementation techniques. To explain the variations in criteria several variables are proposed, including the type of housing program, the agency's financial dependence on political bodies, and the values of key administrators. The implementation techniques used varied in their effectiveness, but included direct design, hiring the architect, the threat of delay, and guidelines. Variables in agency structure appeared to account for much of the variation in success of implementation techniques. For example, the threat of delay is effective only if there is private market pressure on the developer and architect.

Although guidelines can be used for control purposes, their greatest value to agencies lies in communicating information. A catalogue of fourteen formats for guidelines illustrates the range of techniques available. Successful use of guidelines hinges on eight issues: the regulatory context, control, communicating information, the audience addressed, the sequence of decisions, variability, measure-

ment, and cost. The analysis of these issues is used to structure a procedure for selecting which of the types of formats would be appropriate for a given agency.

In an application of the analysis, a set of guidelines for housing for the elderly is outlined. Some preliminary illustrations of the criteria are also included.

PREFACE

The evolution of a thesis is somewhat like the course of a river. It has many sources, its form changes over time (generally to become more serpentine), and at the end it disappears into an expansive sea.

In the headwaters of this thesis there are several important sources. One is the increasing societal concern with how our environments are planned, built, and maintained. A panoply of movements from minority rights to environmental protection have made it necessary to think more openly about the allocation of resources and the distribution of costs and benefits. One of the responses has been to create administrative agencies. This thesis will study three such agencies.

A second primary source is the field of environmental programming. This is the process of setting the requirements for a plan or architectural design. As more interest groups voice their concerns for what should be incorporated in a plan and as the information base for plans becomes more complex, there is increasing need for methods to trade-off the priorities and organize the information. This thesis will analyze some programming techniques which are in use by agencies and some which might be added.

A third important source is the growing recognition of the importance of taking into consideration the living patterns, needs, and wants of the eventual inhabitants of an environment in its planning and design. Social science research and participatory access to the decisions can give these issues their appropriate weight. This thesis will develop case material around the programming and design of housing for the elderly. The elderly are a population group with special environmental needs, and the contribution of social science and participatory planning to the quality of elderly housing is significant.

The confluence of these sources generates a thesis which studies how public agencies set standards for housing for the elderly. According to the early conception of the thesis the focus was to be on guidelines and their effect on architectural design. Early in the course of the research it became apparent that guidelines are first and foremost a manifestation of agency policy. A slight shift of focus in the study has given more emphasis to the administrative context than was originally envisioned. This shift has allowed for a more careful analysis of the control, information, and values which underlie the use of guidelines, and it has also allowed for an investigation of an agency which has avoided publishing any design guidelines.

Into what does the thesis flow? A current problem is the failure of designers to apply the large body of research on people's spatial and environmental needs. The major objective of this study is to point to ways of implementing the research. This work is leading directly into the efforts of one agency to rethink its process of design review and its guidelines for design.

INTRODUCTION

Public Agencies as Managers of Environmental Quality

Design criteria used by housing agencies operationally define environmental quality for thousands of housing units built each year. But the process by which the criteria are established lies amidst the miasma of bureaucratic obscurities. This thesis is an attempt to bring light and air to that process.

Public agencies are responsible for the most active public interventions into the design of environments. They are in a position to specify in great detail the physical design and the social programs for housing, schools, parks, and urban renewal areas. They orchestrate diverse public and private interests. Enabling legislatures leave them with a broad discretionary power, which the courts have generally upheld. Public agencies are also, at least theoretically, responsible for defining and serving the public interest.

Somewhere under the broad rubric of the public interest, research has been accumulating on how well environments accommodate the needs, wants, and behavior patterns of the people living in them¹. Many of the findings have been slow to find implementation. The reasons vary from lack of awareness of the findings to unmarketability of the implications.

Public agencies are in a key position to effect the implementation of this research. One or two persons in top administrative posts is enough to set agency policy, and the ramifications can be far-reaching. Not only do thousands of projects go through public agencies each year, but the standards set by the agencies affect many more projects. The publicity given the standards and the experiences of those who have used them will overcome lack of awareness. Even problems of marketing could be overcome:

While only 38 percent of the 1970 total housing starts are directly related to HUD programs, the HUD standards influence most housing construction, since it is impossible for builders to determine in advance how many of their houses will be sold under FHA or other HUD programs.²

Accommodating the needs and wants of the people who will live in the designed environment is not the underlying principle for most agency standards. The standards are usually an anomalous collection of required measurements. They tend to evolve over the years so that if one asks where a requirement came from, the reply is a shrug of the shoulder and a finger pointing towards the past.

To understand where criteria originate and how they are used, it is necessary to look at the context of the agency and its design review process. Most public agencies exercise controls over the design well beyond any criteria

they might promulgate. If the agency has to approve the financing plan, or if it has to approve the architect, or if it has any other form of leverage over the project, it can usually translate that leverage into design requirements. An agency's criteria may range far afield from its published design guidelines, and it may not even publish any standards at all.

Design review is the process whereby architectural plans are judged by an agency to make sure that they conform to the agency's standards. In charge of review meetings is the design review officer, an administrator who knows about architecture and the implications of architectural decisions for the agency's programs and financing. On the other side of the table is the architect, sometimes accompanied by the developer. Other agency personnel, community residents, social scientists, contractors, or bankers may also come to the meetings. The review itself may be anything from a check for compliance with codes to a wide-ranging discussion in which the agency takes on the role of the client, exercising all the whimsical prerogatives of any architectural client.

If the agency has published guidelines, they may or may not be brought up in the discussion. If they are brought up, it may as likely be by the architect complaining that he has already met the requirements as by the

reviewer complaining that he has not. But if the agencies in this study are representative of others, most of the criticisms do not stem from written requirements.

If the guidelines are never mentioned in a review session, it may be because they are working perfectly. In a well-functioning agency guidelines serve to communicate criteria in a written form so that the reviewer will not have to renegotiate the requirement each time. Guidelines should express what the agency has found consistently necessary to good design.

Guidelines' contribution to good design is frequently contested. They are sometimes seen as a symbol of bureaucratic constipation.

Housing the Elderly

To focus this study, the analysis of agency design reviews and criteria has concentrated on housing for the elderly. The elderly have specialized housing needs that generally go unrecognized in every other form of environmental management. Codes and ordinances rarely make special provisions for housing to be lived in by elderly persons. Another reason for this focus is that public housing agencies often construct a significant amount of housing for the elderly. This has been true even where political resistance has limited the construction of low-cost family housing.

Before generalizing about the housing needs of elderly persons, one should keep in mind the facts that there are thirty years of age between 65 and 95, that this means at least one and a half generation gaps, and that there are as many variations among the lifestyles and needs of elderly people as there are among most population groups. In setting design requirements, an important objective is to create a wide variety of housing styles. In this respect, the problems of devising guidelines for elderly housing are similar to those for family housing.

Beyond the diversity, there are at least three common characteristics of aging which have far-reaching implications for the design of housing.

There are many social and psychological forces that cause elderly persons to withdraw from an active community life. The reasons for this are manifold, but by helping the elderly overcome this problem, other social problems may be eased. Physical design can provide opportunities for the elderly to get back into more active community lives by providing opportunities for informal gathering, by creating a sense of security, and by providing opportunities for vicarious enjoyment through watching other community life.

The second characteristic is a reduction in sensory capacity. Sight, hearing, and sense of touch deteriorate with age. Vision loss is common at the periphery of the

visual field. Perception of detail also deteriorates. Adaptations to changes in lighting level are much slower. Signs may be more difficult to read and glare more debilitating.³ A person may not be able to hear a normal fire alarm. Hot stoves may cause more serious burns because of the loss in heat sensation.

The third characteristic is a reduction in physical strength and coordination. One fourth of the elderly need some ambulatory assistance, such as a wheelchair. Arthritis and other chronic diseases become commonplace. The implications are direct and clear. Door should be wide enough to allow wheelchairs to pass. Doorknobs should be easily turned by arthritic hands. The center of town and public transportation should be close by.

The elderly are a population group that is growing in size. There are currently over 20 million persons above the age of sixty-five, and the percentage of the total population in this age bracket is expected to increase. There is and will continue to be a shortage of housing which meets their needs.⁴

Methodology

To analyze how agencies' criteria for housing for the elderly are developed and used, three state agencies were selected. Two are located in Massachusetts, one in New York. They may well not be typical; they were not selected by a

random procedure. They were chosen for two reasons:

(1) they were doing interesting work, (2) they were accessible. Two out of the three were in the midst of rethinking their written guidelines. The third tries to avoid using any written guidelines. The three probably have a greater than average commitment to quality and seek to achieve it through design reviews; architects frequently considered them to be more enlightened and fairminded than other agencies. The intent in their selection was not to achieve a representative picture, but to get an initial glimpse, to begin to analyze and make visible, the process of setting standards in public agencies. In considering accessibility, the agency had to be amenable to observation; it had to be graspable (not as large as HUD); and it had to physically accessible on a limited budget.

The decision to focus the study on housing for the elderly was made advantageous by other circumstances: A nationwide evaluation of federally supported housing for the elderly was based at M.I.T. under the direction of Dr. Sandra Howell; that project had a need for some information on how criteria are used by agencies and could supply assistance in identifying the critical issues in housing needs.⁵ Also, two of the agencies in the study were actively rethinking their criteria for housing for the elderly.

The most important methodological techniques were the observation of design reviews and interviews with the participants.⁶ Participants interviewed included review officers, other agency personnel, architects, developers, and community organizers. There were also interviews with other persons who have done work related to this issue. Two social scientists and one of the review officers in addition to the thesis advisor were regularly consulted. Background literature was surveyed where relevant.

In parallel with this study, Barry Korobkin, an architecture student at Harvard's Graduate School of Design, has been looking at the information needs of practicing architects.⁷

The Organization of the Thesis

Immediately following this introduction there is a summary of the three agencies, their design review procedures, and their guidelines. The first section of the thesis analyzes the design review process in the three agencies. The first chapter outlines what is involved in design review. The second chapter answers the questions: What criteria do these agencies use to judge proposals, and how does the structure of an agency influence those criteria? The third chapter discusses the different control techniques an agency can use.

The second section focuses on those criteria which are written down as guidelines. Chapter 4 catalogues fourteen different types of formats for guidelines. Chapter 5 asks the questions: What determines the format of guidelines, and how are they used?

The final section is an application of the findings to the problem of guideline-writing. Chapter 6 is general framework for determining which formats are appropriate for an agency. In Chapter 7, the framework is applied to the circumstances at one of the agencies, and some examples of the proposed guidelines are illustrated.

SUMMARY DESCRIPTION OF THE AGENCIES

The three housing agencies chosen for this study are all state agencies. Two are located in Massachusetts:

Massachusetts Housing Finance Agency
Massachusetts Department of Community Affairs

One is in New York:

New York State Urban Development Corporation

This summary outlines the type of housing program, the submission procedures, the responsibilities of departments with the agency, the typical design review sequence, and the guidelines, if any, used by the agency. More detailed discussions of particular issues occur in later chapters.

It is difficult to find common denominators for the comparison. Differences in many details from method of project initiation to bidding procedures harass the interpretation of the real meaning of superficially equal comparisons, such as the time it takes for a project to move through the agency. These summaries should be considered only as an introduction to each agency, not the basis for comparison.

Massachusetts Housing Finance Agency (MHFA)

MHFA is an independent state agency, constructing moderate- and mixed-income housing by the use of state bonds

and federal subsidies. In the first five years of operation (1968-1973), the agency produced over 20,000 units, most of them for families. MHFA cannot develop housing on its own. Projects are initiated by private developers who bring proposals to the agency. MHFA does not identify areas where they want housing and try to encourage development. The closest they may come to this is to disapprove a proposal because it is in an area where they have a lot of projects already or for some other reason they feel they do not want to develop a project there.

The development process has five phases:

- I. Preliminary Submission
- II. Commitment
- III. Closing
- IV. Construction
- V. Rent-up and Occupancy

Design Review is one of four operating divisions; the other three are Mortgage, Management and Relocation, and Technical. The primary responsibility shifts with the staging, but all four follow each project through from the start to finish. For example, Design Review has a primary responsibility for design, programming, and construction cost, but also plays a major role in construction supervision. The Technical section will help out in the cost estimating and in reviewing working drawings, but then takes the primary responsibility for construction supervision.

Ideally a project could reach the commitment stage in three months, after five design review meetings. The five meetings would be (1) site visit, (2) programming, (3) site plan, (4) unit layout, and (5) final review. On average, the process takes closer to five months than three, and it is not uncommon for as many as ten meetings to be necessary. After commitment local approvals are required, the architect must draft the working drawings, the site must be acquired, and the subsidies must be approved. In times when subsidies are available this can be accomplished in three months. At this point in time, it may take ten to twelve months.

The agency does not use any design guidelines. However, an operations handbook does list features that will be sought in a design.⁸ It is possible to treat these as guidelines for what they reveal about the agency's attitudes towards design but they cannot be considered guidelines in the sense of a set of criteria that the agency will expect every architect to apply to his design.

The list consists of fourteen stated requirements for design. They range in scale from "shelves and by-folding doors shall not be made of metal" to "recreation facilities... should be carefully thought out and related to the size of the project and the type of tenants." This comparison indicates the range in specificity as well as the range in scale.

What best characterizes these requirements is their focus on those elements of a housing environment which differentiate market housing from public housing. They deal with a range of amenities that might be cut out of a design in the interests of economy. As specific as most of them are, they convey an impression, "we're not in the business of building your typical public housing project."

Design review proceeds independently of these or others written guidelines. Instead, the requirements come out in the course of the review sessions. The reluctance to use guidelines is an agency-wide policy to avoid the dysfunctional symptoms of bureaucracy.

Massachusetts Department of Community Affairs (DCA)

The Massachusetts Department of Community Affairs (DCA) is a large state agency, one division (Community Development) of which is responsible for the production of state public housing. Reorganizations are currently making it difficult to summarize the agency's structure. The summary provided applies to procedures used in 1973, and a proposed one is outlined in the third section of this thesis. DCA produces about 3000 units of housing for the elderly each year. The number of family units produced is negligible, because of local resistance to low-income family housing. The housing is all sponsored by local housing authorities, which DCA will establish in any community which needs low-income housing.

The LHA selects the site and the architect. Although the local housing authority (LHA) retains titular final approval over project design, in the last few years the central office has taken over most of the review responsibilities.

The stages in project development are the following:

- Application by LHA
- Site Selection by LHA and Approval by DCA
- Selection of Architect by LHA
- Schematic Design
- Financing and Fee Payment
- Working Drawings
- Bidding
- Construction
- Occupancy and Management

Responsibilities are much more segmented than at MHFA, in part because the Community Development division has responsibilities other than housing production. Two departments, Housing assistance and Construction, oversee most of the housing, but Production, Finance, Management, Urban Renewal, and Relocation also have responsibilities. A special section, Design Review, was created in the spring of 1973, although it has not yet been formally recognized.

The number of design review meetings varies but averages around seven per project. The length of time required to move from "selection of architect" through "working drawings" tends to be about one year; the record is about six months.

The agency does have a set of guidelines, which emphasizes small-scale environmental controls which help the elderly get around independently and safely.

A covering memorandum includes some overall programming guidelines which outline some of the basic design about DCA housing. These include unit mix and square-footages, the ratio of parking spaces to apartments, the number of units per site, and a requirement that projects be within walking distance of a commercial and social services.

The guidelines themselves include five parts, the fifth not yet written:

- guidelines for site planning
- guidelines for interior community areas
- guidelines for all apartments
- guidelines for specially designed apartments for persons who use wheel chairs or cumbersome walking aids.
- guidelines for community residences (in preparation)⁹

The individual requirements are presented in the form of questions which might be asked of a set of drawings. Most of the questions incorporate objective tests ("Is entrance door a clear 34" in width?") Others include subjective performance tests that depend on reasonable interpretation ("Is the window hardware durable and does it permit easy operation without binding?") Finally, there are a few which are highly subjective ("Are the sidewalks or route commonly taken when entering the building beautifully designed as well as functional...?")

The design review extends to many points not mentioned in the guidelines. One major issue which is covered much more thoroughly in the review sessions is the creation of opportunities for elderly persons to socialize informally.

New York State Urban Development Corporation (UDC)

UDC, like MHFA, is an independent state agency. Unlike MHFA, it has the authority to determine where its housing should be built; it hires the developer/contractor; and it hires the architect. It also has broad powers to exempt itself from local codes. The authority to intervene autonomously has been used rarely, but the direct hiring of developer and architect has meant a much more complete control over the design. The agency also has a system of regional offices which handle community relations and practical details for all projects.

The design process goes through the following steps:

- Site Selection
- Programming
- Design-Schematics
- Design-Technical
- Construction
- Occupancy
- Evaluation

Architectural review responsibility splits as indicated above. The Chief of Architecture oversees the programming and schematics designs, but the technical department takes

over for the working drawings. The schematic design review period usually requires four meetings with the central office.

UDC's attitude towards guidelines is diametrically opposite that of MHFA. The review officer has experimented with and encouraged the use of several forms of guidelines. At least five discernible types have been developed:

- prototype
- issue statement
- criteria in framework
- elderly project criteria
- technical bulletin

One which has attracted a lot of attention is the prototype.¹⁰ UDC studied some problems in high-rise family housing and developed a low-rise high-density prototyped intended to resolve those problems. In their current study of elderly housing, they are planning to develop a prototype, too. The review officer noted three reasons why he felt the prototype was a good device.

1. It provides organizing clues that save the architect the trouble of re-inventing the wheel.
2. The several weeks of programmatic study meant they were able to work out many relationships that a single architect would not have the resources to invest.
3. They were developing a new form of housing (low-rise high-density) and they needed "proof" that the program could be met.

The issue statements for the low-rise high-density housing are seven basic issues which UDC felt had repeatedly caused problems in family housing but which could be resolved. These have often been given to architects to work with.¹¹

The criteria consisted of activities, criteria, and design aid.¹² They were organized into a comprehensive framework that would place a design problem by context, user group, and scale and by activity and spatial characteristic. The framework was only partially completed. It has not been given to architects as a package, and it was not used as the basis for the current elderly study.

The elderly study is not written up in final form yet, but it differs from the others in that there is a substantial introduction to the needs and life-styles of the elderly, followed by a more traditional list of criteria.¹³

Finally, the technical bulletins are issued by the technical staff for use in preparing the more detailed working drawings.¹⁴ They include specifications for mechanical and electrical as well as architectural drawings.

CHAPTER 1
DESIGN BY REVIEW

The developer and his architect approach the secretary to inform her that they have arrived for their appointment with the review officer. The message gets shuttled to the review officer who is in the midst of rummaging through a stack of papers that are getting stale and wrinkled but not read. It is ten minutes after the agreed upon time to start the meeting, and it will be another five before the meeting actually starts because the telephone has just rung again.

Once the ash trays are passed around and the drawings are unrolled, there are a few moments of silence as the reviewer tries to recall the project. Where is this project? What did it look like when it came in last time? What did I say about it then? What is different now? How much personal attention is this getting from that vociferous local councilman? The architect and developer are hoping.

"Where is the nearest bus stop?," the reviewer says looking at a site plan that does not even show the surrounding land uses let alone the public transportation system.

"No buses come up this street, but it is only three blocks for the center of town," the architect says as the reviewer wonders whether it is worth setting up guidelines that require the architect to show that information.

"Doesn't it seem that there is a rather long uphill walk between that entrance and that parking lot?"

"Yes, but we wanted to create this nice space here where there could be activities, and you know, free of cars. If we were to get..."

"It's not close enough to the unit and the change in elevation is too great." Silence. The developer and the reviewer look at the architect. The architect looks at the drawing.

The reviewer looks at the developer and says, "What is the chance you could get this lot added to your site. You don't have very much street frontage."

"Well, we thought that you could create a nice self-contained small community with the present set-up..."

The design, with its implicit assumptions about environmental quality, is the basis of the negotiations. Typically, questions come from the reviewer, answers from the architect. Then the reviewer suggests that the architect made the wrong trade off. Sometimes points are argued, sometimes criteria are made clear, frequently the reasons are buried several layers below the level of the discussion.

The outcome is a reflection of values, information, and control. Who values what environmental qualities? What information is there to prove that a design satisfies those values? Who has the power to implement the design or enforce requirements? Designs and comments are evaluated on

the basis of their implications for different values and the leverage exercised by the proponents. At some points it may seem that the person with the biggest stick wins without even any lip service to the meaning or implications of the decision. This is the process by which elderly housing, and similar environments, are designed under public auspices. This is the process which is the subject of this study.

Agency design review sessions are analyzed here because the focus of this study is on how a public agency can shape the quality of designs for built environments. But these meetings are only one fraction of the various meetings in which a design is reviewed. The developer also meets with his architect. The architect or developer may meet with community representatives. The architect meets with consultants on special issues. While the study method is intended to elucidate the public agencies' role, it does not attempt to explain the whole process of design.

Different persons come to the agency design review sessions depending on the agency procedures and the issues at hand. At DCA the local housing authority (LHA), whose role is comparable to the private developer, generally does not come to review sessions. This is in part because the LHA's are often run by lay persons holding other jobs. The reviewer's fundamental criticisms of the LHA chosen architects

and their radically divergent concepts of environmental quality have reduced the frequency of the LHA appearances even more in recent years. At one MHFA review session there were an unusual number of important figures discussing apparently minor issues. In a subsequent interview the architect explained that the high-powered meeting had been called because of a major conflict between architect and contractor over the cost of a sitting arrangement, but just a few hours before meeting the architect and contractor had resolved the conflict. The meeting had been essentially unnecessary.

Design review is principally a process of negotiation, at least, in an informal sense. In the case of the unnecessary meeting, the architect and contractor were taking their conflict to the agency which would mediate the discussion. Or, if mediation did not work, the agency could impose a resolution.

In the DCA example above, negotiations essentially broke down when the architect could not mediate the conflicts between the LHA and the agency, at least not in the review meetings. Through the design process it was clear that the role of mediator changed. Some persons, such as Hans Bleiker¹⁵ have suggested that a public agency should play the role of an impartial mediator. My observation of experiences in these three agencies, and in others, indicates that public agencies cannot realistically play this role.

Some of the most significant advances in environmental design have occurred when a public agency adopted an advocacy stance for which there were no outside groups to assume the mantle.* Another problem bearing on the neutrality of public agencies is that most are forbidden from organizing interest or community groups let alone structuring the framework for negotiation.¹⁶

The design review process is obviously the stage for innumerable strategies for achieving one's ends. Most of this happens behind the scenes. It is not uncommon for one party to loan its power for agreed upon purposes. Architects in confrontation with the developer may ask the agency reviewer to insist on a particular design solution.

Another issue that is at the heart of design review is the differences in the languages of the parties. The developer must constantly translate the architect's description of an environmental form into a balance sheet and an income statement. The problem of language becomes especially noticeable when the same terms have different meanings for different parties. The word "community" is an example of a word whose meaning is tortured by the different perspectives on it.

* The Public Facilities Department (PFD) of the City of Boston builds schools for the School Committee. The PFD designed facilities for which there existed neither support from the school committee, nor a vocal advocacy group. The provision of the Community School Facilities resulted in significant new programs, which did not come into existence until the building had been built.

Related to the question of a language is that of the medium. It makes a difference whether the language is in a verbal or written format because one is less flexible and more easily recalled. Whether a written document is a typed manuscript or an expensive printing job on heavy paper matters, since some will respect the information only for its glossy form. It clearly matters whether the information is verbally or graphically presented, though this may imply some content changes as well as format changes.

New information has a very different significance depending on the framework of the information to which it is being added. For example, when an architect is told by a social scientist that elderly persons should have a large front stoop to sit on, it makes a difference whether the architect knows how to ascertain whether that information is valuable to him. Most of the social research has been on low-income elderly in urban areas. If the inhabitants of the site for which the architect is designing are from a suburban or rural area, or if they are predominantly middle-class, does the architect know how to question the applicability of this research to his site? Does the social scientist know enough about the generalizability of the research? What is involved here is a person's ability to set a bit of information into the appropriate context.

The end product of this process of communication and negotiation is a brick-and-mortar testament to a negotiated definition of environmental quality. During the design review process each party pushes to implement its own definition of quality, but by the end many compromises have been made. The definition may be different for each project.

Although the focus of this analysis of design review is on the eventual definition of environmental quality, there are additional questions that must be answered, too. What is the cost of the design review process? How does the design review process affect the accessibility of various architects to jobs with an agency? What bureaucratic mechanisms are essential to effective design review? These questions will be addressed but they will remain of secondary importance.

Agencies' definitions of environmental quality are not immediately identifiable. Nor are they systematic, nor are they unchanging. They are buried beneath bureaucratic obscurities and distorted by the gloss of presentation drawings. It is difficult to identify, let alone measure, the definitions that evolve through protracted negotiations. Nevertheless it is necessary that this be attempted, not merely for the purpose of knowing someone's definition, but because it is a precondition to assessing the significance of the structure of a design review agency and any design standards they might publish.

Achieved environmental quality is a function of three main factors, values, information, and controls. Values establish the relative importance of different types of qualities of a place. The information base allows one to test a proposed solution to see how well it meets ones values. Control is the force which is necessary to implement solutions. All three are interrelated, but may for the purposes of analysis, be separated.

In practice it may be more realistic to look immediately to an analysis of controls. For if all else fails, at least you know who can overpower whom. But since the emphasis here is on environmental quality rather than power, it is more logical to look at information and values first. The two will be grouped together and considered as criteria. The intent is essentially to get at what various parties' definitions of environmental quality would be if they alone were making the decisions.

CHAPTER 2

CRITERIA FOR ENVIRONMENTAL QUALITY

Criteria are the rules which form the basis for making a judgment. A person's criteria for environmental quality dictate his preferences for different types of environments. Although many judgments are made without any reference to the underlying criteria, it is assumed that each of the participants in the design review process has a set of criteria for environmental quality. Without the criteria decisions would be random.

Even if some people's performances for environmental quality approached a random variation, it is reasonable to expect that the public agencies operating design review procedures would have a very carefully structured set of criteria. This chapter will study the criteria used by the three agencies: What are the criteria? Where do they come from? These criteria have a wide-ranging impact, but their source and even their nature are not always made explicit.

The analysis of the agencies' criteria is an analysis of the design review officer's criteria. This is because he is usually their only spokesman. The rules he seeks to enforce, though, are strongly affected by the structure and pressures within the agency.

Mass. Housing Finance Agency (MHFA)

In the three years since the chief review officer has been at the agency he has overseen the design of more than 10,000 units, 5,000 of which have been occupied. This personal experience forms the basis for most of his criticisms. The criticisms are often predictions of what would happen in a space:

In a suburban project serviced by a single road the family units should not be near the entrance so that all the traffic does not drive through the section of the street where kids are playing.

Separate elderly high-rise and family medium-rise by more than an enclosed courtyard because the kids...

1. will drive the elderly persons out
2. will break the windows as they play.

Criticisms did not come directly from the social science literature. (The only observed reference was to point out that there were two contradictory schools of thought on a particular question.)

The level of amenities provided in MHFA housing is high. The projects often have swimming pools, balconies, central air conditioning, and generous landscaping. The agency's design criteria reinforce this image:

An inner-city site should not be land-locked by surrounding house lots. It should have substantial frontage along an existing neighborhood street. "Let it breathe. What is there now says, 'this is public housing'."

A suburban project should have a through road which ties into the existing street system to integrate the project into the neighborhood.

This emphasis on amenities is not simply a bias of the reviewer. The agency builds mixed-income housing that must attract upper-income tenants as well as low-income tenants. A parallel policy exists for site selection: "The most important consideration is whether the site is a place where people from an income group would choose to live."¹⁷

There is emphasis on idiosyncrasy. "No two of our projects look alike" is almost a statement of policy. The reviewer seemed sympathetic to innovations in design, but too elaborate designs are sitting on the shelf awaiting reconciliation with the realities of economical construction. Designs which have become symbolic of banality, such as the mansard roof, are out as a matter of policy.

Purely visual arguments for a design change were rarely observed, but several architects and a developer said that such arguments were not uncommon. The developer stated that purely ornamental beams had been required. One architect suggested that many visual issues were handled indirectly. He felt that the review officer withdrew a requirement that apartments have balconies not because the architect had been able to provide for the behavioral needs in some other way, but rather because he had provided some other visual amenity valued by the reviewer. Some architects have charged that

the review officer's criticism are primarily visual. One in particular mentioned that the reviewer's response to a highly programmed design was to ignore all functional issues and to draw a sketch which was to be the visual shell.

Although such dramatic examples were not observed during the study, there is no question that the reviewer adjusts his criteria from project to project and even changes his mind on requirements for the same project: "But last time you said we had to have a swimming pool!"..."I know, but I have changed my mind." His reasoning is that he tries to treat each project individually, and it is to be expected that as he learns more about each project his criteria might change.

Mass. Dept. of Community Affairs (DCA)

The review officer at DCA has been at the agency for just over a year so that few of the projects for which he was primarily responsible have been occupied. The basis for his criticisms are previous experiences at the Boston Housing Authority and a familiarity with social science research. The agency produces elderly housing almost exclusively and it is all low-income. The population for which he is responsible is much more homogeneous and has been the subject of more research than the MHFA target population.

Examples of the types of criteria he uses are:

If an outdoor activity is to be visible from within an apartment, it must be less than 90' away, since this is the approximate upper limit for visual recognition of individuals.

There should be enough space just inside any door so that a person in a wheelchair can close the door without backing up after he is inside.

In suburban projects the separate community building should not be located in an island surrounded by parked cars, since it is difficult for persons, especially those in wheelchairs, to cross all the curbs and the traffic.

The reviewer's use of such research is set within the context of some fundamental beliefs about the social and environmental needs of elderly persons. There is research indicating that elderly persons tend to become isolated. However, it is unclear from the research how much of this is by choice and how much by force. The reviewer believes that the physical environment should be used to encourage the elderly to lead a more active social life:

Mailboxes, even in suburban developments, should be located centrally so that elderly persons will get out and meet other persons.

Community facilities should be aggregated, centrally located along major paths, and with an orientation to street or outside community life.

Even if research indicated that elderly persons would prefer washers and dryers in their own apartments, he has said that he would insist on shared facilities because it creates

opportunities for elderly persons to meet informally. Informal meeting places, he argues, have proven to be effective in reducing the withdrawal of elderly persons from community life. Maintaining connections with community life is valued above the convenience of washing machines in the apartment.

The reviewer makes few comments about the visual quality of the design. One exception was an attempt to resite townhouse units on a large site so that there would be more "hard" corners, i.e. intersections where townhouse units are set at the corner, giving it a sharp edge. Most comments about the visual quality came under the rubric of reducing the institutional appearance of a project. The architects were encouraged to avoid rigidly symmetrical patterns. In general, the visual issues were left up to the architects.

One architect felt that the reviewer's focus on issues of livability was very valuable, though more the responsibility of the "environmental planner" than the architect. Conflict sometimes arose when the architect felt that the reviewer's nationwide studies should not have overridden his and the local housing authority's (LHA) personal experiences in the locality. Issues which become controversial were the importance of encouraging activity in front of units, the usability of balconies and roof terraces, and the appropriate parking ratio.

The DCA has not always had an active design review procedure. For many years, the local housing authority was all but autonomous. The central office had a few rules-of-thumb which programmed the projects, but there was no detailed review. In a change of personnel at the top of DCA, the present reviewer was hired in a specially created capacity, for which the state bureaucracy still does not have an official title. The change illustrates the impact which a few key administrators can have on an agency's policies.

NYS Urban Development Corporation (UDC)

This agency is larger than the first two and has a much broader range of powers that has led it into projects as large as new communities. Regional offices are located around the state, so that many of the responsibilities are decentralized. Schematic design, however, is tightly controlled by the central office. Most of the housing it has built has been for low- and moderate-income groups, and it builds both family and elderly housing.

In its first years of operation, the agency attracted many famous architects. There was a high priority on stylistic architecture where, for example, more attention was placed on the visual pattern created by the glazing than on what happened inside the units because of the placement of the windows. This was part of an agency policy based on the

premise that what was wrong with subsidized housing was that the best architects had not been hired to design it.

In the years since then, the agency stance has been adjusted so that more attention has been given to issues of livability. The force behind this shift was in part the problems which recurred in the agency's projects in spite of the highly-regarded designers. The agency began to research particular issues which were causing the greatest problems, such as inadequate security, inadequate opportunities for children to play under supervision, and the creation of distinctly "project" housing which was not integrated into communities. Most of the problems were associated with family housing rather than elderly housing.

The research techniques reflected the previous orientation of the agency. A major search was initiated for "cross-cultural" constants in good housing design. European models were brought back and analyzed. One of the most interesting and influential "research techniques" was to require the agency's staff and their families to live in the projects. The live-in experiments resulted across-the-board increases in unit size and other design requirements. Over time there seems to be a trend towards increasing the hard social science input. Recently, a social scientist was hired to evaluate the existing projects. The agency is in the process of compiling some standards for elderly housing, utilizing available social science research.

Design review incorporates many concerns of livability for the elderly:

- Is the community building centrally located and in the main circulation path?
- Are ramps provided at all grade changes?
- Are cars close to unit entrances?
- Is the housing integrated into the neighborhood?
- Is there a tot-lot for grandchildren?
- Is the bathroom readily accessible to all rooms in the apartment?

The stylistic qualities of the design are also a matter for substantial review. In one case the reviewer was upset that the architect and regional office had signed an agreement that specified how the exterior of the building would look -- pitched roof and shuttered windows, a vaguely tudor design. The town apparently had wanted to preclude any contemporary designs. The reviewer explained that the agency was not going to build that type of design, that it would be contemporary, but that it would fit into the neighborhood.

The agency's reviewers mentioned repeatedly that their achievements had been made possible by the commitment made by the agency director to good design. Without such support, they might have lost some design features to the expediencies of economic construction. As an example, construction may be held up so that the chief review officer can be sent out to the site to make sure that the color of the brick is the right tone.

Determinants of an Agency's Criteria

These summaries of the three agencies criteria indicate that there are several aspects of an agency which have a strong influence on the type of criteria that will be established. The first of these is the type of housing that is being built. If the housing is intended for market-rate tenants as well as low-income tenants, the design must meet the needs of both. Since market-rate tenants tend to have a greater range of options and may have a reluctance to live in a "project", their design criteria are likely to become the critical set. If they are satisfied, it is reasonable to expect that the low- and moderate-income tenants will be satisfied. Conversely, if the housing is only for low-income tenants, there may be a belief that almost any housing, as long as it is inexpensive, will do. In an agency building such housing the design review officer is likely to have more difficulty including amenities.

A second determinant of criteria is the agency's dependence on political bodies. This may be closely related to the first, since the agency's housing-type is also determined by the state legislature. If an agency receives an annual appropriation to cover the cost of the mortgages or the interest on the mortgages, the agency is politically and financially more visible. DCA is such an agency. Interest groups are more likely to be able to affect the agency's

criteria by going through the enabling legislature. There is likely to be much more pressure to reduce the cost of design and construction. Although there is unlikely to be a law against contemporary design, the agency may be pressured to bring traditional housing into communities.

If the agency does not need annual appropriations from the state, they will be that much further removed from these pressures. MHFA and UDC both rely on federal funds or reduced-interest loans to finance their projects.*

A third determinant is the criteria held personally by key administrators. Especially at DCA and UDC it is apparent that the criteria exist at the behest of key individuals. Changes in the personnel can be expected to lead to changes in criteria. In combination with the first determinant, one would predict that an agency that built low-income housing would be unlikely to have criteria which stressed amenities or behavioral needs unless the criteria were actively supported by the top management.

* Another factor in political visibility, is the extent to which the agency initiates politically sensitive actions. UDC has planning powers beyond MHFA's which have allowed it to initiate projects that MHFA could not undertake. The agency has built new towns and tried to bring subsidized housing into wealthy conservative suburbs. Such politically controversial stands have drawn considerable scrutiny from legislators. Thus, on a continuum from political dependence to political independence, MHFA is the most independent, UDC next, and the opposite end of the continuum is DCA.

A fourth determinant is the experience of the agency in building housing. At DCA and UDC there have been shifts in agency criteria following feedback that there were problems with the agency's housing. The reviewer at DCA was hired after he voluntarily submitted a detailed criticism of one project. UDC invested a lot of staff time and resources into developing criteria for high-density family housing.

Obtaining feedback is a difficult procedure for most agencies to institute. UDC has been able to allocate an unusually high amount of resources to the evaluation of its housing and its criteria. UDC recently commissioned a social scientist to evaluate a random sample of its projects.* For most agencies feedback is erratic and casual. Complaints may filter back through managers, or the reviewer might go out to look at a project on opening day. But more often it will take a dramatic crisis to shake an agency off its criteria.

Structuring an Agency to Consider Social and Psychological Needs

Given these determinants, it is possible to suggest how an agency should be structured to maximize the likelihood that it will base its design criteria on the sociological and psychological needs of the eventual inhabitants.

* MHFA also recently commissioned an evaluation, but the intent was not to evaluate housing needs. It was an evaluation of tenant satisfaction with the mixed-income projects.

1. The agency should build mixed-income housing. This will alleviate pressures to build for the lowest possible construction cost. This will also reduce the tendency to shunt lower-income groups off into dumping grounds. Building mixed-income housing should also make it possible for the agency to skew rents so that upper-income tenants pick up some of the costs of the lower-income tenants' housing, thereby reducing the need for outright government subsidy.

2. The agency should finance the housing as indirectly as possible to reduce the political visibility. For state agencies, channeling federal funds works well as long as the federal funds continue to flow.

3. Key administrators should be hired on the basis of their personal familiarity with and commitment to this type of criteria.

4. The agency should establish a feedback mechanism that ensures that the criteria are tested in use. This need not be an elaborate research division. Quick and inexpensive techniques can be as effective. If there are nearby graduate schools in the appropriate fields, students can often be hired as interns at low rates.

CHAPTER 3

CONTROL IN THE DESIGN REVIEW PROCESS

An agency's criteria do not alone determine the environmental quality of its housing. There may be wide gaps between what an agency believes is necessary and what other participants in the process of design believe is necessary. Who has control over the design becomes a critical question. The three agencies represented in this study vary a great deal in this respect: DCA is just beginning to assert any control over design, and UDC has almost complete control.

In the subsequent summaries of the control techniques, their relationship to the structure of the agency and to its criteria becomes apparent. If one is trying to establish a set of criteria within an agency, it is necessary to be aware of how the different control techniques can be used.

Mass. Housing Finance Agency (MHFA)

MHFA projects are initiated by a developer who hires an architect. The agency may insist that the developer hire a consulting architect if it does not feel the developer's architect has the necessary qualifications. The agency also may schedule meetings to acquaint the architect with the type of work that it expects. But, for the most part, the agency controls the design by criticizing the architect's

proposals and delaying the project until it is satisfied with the design.

As described in the preceding chapter, the agency does not use any written guidelines; criteria come out in discussions of the project. The agency more often reacts to criteria proposed by the developer rather than actively states its own. The review officer is opposed to the use of guidelines as a control technique because he believes that they in fact end up being used by the developer or architect against the agency: The development teams abide by the specific requirements but otherwise evade the agency's criteria in pursuit of their own. Then at the review sessions they claim that they have complied with the agency's criteria so that the agency should approve the design.

Another control technique used by the agency might be called the delayed-release technique. The agency will wait until the developer has sunk a substantial investment in the project and then impose additional requirements. As an example, one developer said that at the last minute the agency had decided that air conditioner sleeves should be designed to go in the window instead of separately off to the side.

One architect mentioned that he felt that the agency would adjust the amount of money allocated to a project depending on its satisfaction with the design. Although not formally used as an incentive technique, this may be an effective control in some cases.

MHFA's control techniques appear to be very much influenced by the fact that they are dealing with private developers. Because of the costs implied by design criteria, the developer can be expected to go to great lengths to circumvent them. For this reason the agency may well get more out of the developer by forcing him to guess at the criteria. Having to guess will improve the quality only if the developer feels pressure to move the project through the agency as quickly as possible. Because time and uncertainty are equivalent to costs in development, this technique is effective. Delay, or the threat of delay is a powerful control technique for MHFA.

Similarly, the delayed-release technique is an effective one in this context, where it might otherwise be self-defeating. This technique can be used against the agency, too. A developer may avoid telling the agency about site problems in the hope that the agency will have made enough of a commitment to be less stringent. In the one observed instance this happened; however, the agency apparently did not feel the commitment....

Inasmuch as the agency does not issue a set of criteria, it relies on the developer and architect to bring in their own criteria. For the system to operate smoothly, it is necessary that the developer, architect, and agency enter the process with similar sets of criteria. There are few ways to learn the criteria quickly. Implicit is the assumption that

everyone knows what is best; it is really a question of paying for it. As long as the agency emphasizes criteria that characterize the amenities of modern American living, this system is all right, but it is not effective if specialized user's needs are in the criteria. One architect who had worked for both MHFA and DCA said that DCA provided information about the environmental needs of persons in wheelchairs, but MHFA left the architect on his own to incorporate such information as he had available.

Mass. Dept. of Community Affairs (DCA)

DCA operates a different housing production system. The local housing authority (LHA) applies for housing assistance, selects a site and hires the architect. The private market is not directly involved in design process. The agency itself sets the construction cost allowance.

As with the case at MHFA, a third party hires the architect. This means that DCA is not the only party sending criteria to the architect. The LHA's rarely have the same set of criteria as DCA. Sometimes the LHA wants to create a local monument with all the amenities of luxury living; sometimes the LHA wants an ascetic, well-hidden project.

Also like MHFA, the agency's principal control technique is to delay a project pending compliance with its criteria. In this situation, however, the technique is not nearly as

effective. The financial arrangements do not put pressure on the LHA or architect to complete the project quickly. It is DCA that pays for the project and bears the cost of delay.

DCA has issued guidelines to inform the architects of its criteria. This seems advisable in this instance because there are few incentives for the architects to dodge the criteria and because they are so specialized that they must be readily available for reference use during design.

The delays and the guidelines have not been effective in improving the design work of some of the architects who do many projects for the agency.

In a design review session at the agency an architect who had long used stock plan neo-colonials was finally responding to the reviewer's exhortation that he find new solutions for his diverse site needs. He brought in a unit layout with rambling buildings climbing the hill. Although he was satisfied with the flow-through ventilation and the penetration of sunlight into every apartment he regretted the loss of the regular box-like structure. The innovations had created a host of problems which he had not had to consider before. One interesting example was a "sketch" done by an office partner of a possible 45° angle connection between units. Setting aside the half-joking introductory remark by

the architect that his partner had done this one morning when he wasn't feeling well, what was most interesting was that the "sketch" was a hard-line drawing with wall thickness correctly represented. The design had created a small trapezoidal corner which the architect tossed aside saying, "Oh, don't even look at that; of course that wouldn't stay; this is only a first sketch." The reviewer, commenting on this afterwards, said that he had often told architects just to sketch some plans but believed the sketches they brought in were rough tracings from hard-line drawings. In cases such as these, it is not simply that a new set of criteria must be learned but that the architect's basic skills make it difficult for him to learn.

DCA has begun to look for new ways to influence the design. One step the agency has taken has been to hire a consulting architect to deal with problems the original architect had been unable to resolve. In another case the agency has established a competition for a job. The agency is also asking for a more active role in site and architect selection. These techniques are likely to be more effective because they begin to bridge the gap by bringing in architects who have similar criteria.

NYS Urban Development Corporation (UDC)

UDC has eclipsed many of the problems of control experienced by MHFA and DCA because they hire the architect and the developer. There are virtually no other competing sources of criteria. The regional office or local politicians may have some influence in particular cases, but the problem is at a much smaller scale.

Hiring the architect means that the agency can select an architect whose criteria are sympathetic with its own, or at least who will be willing to learn. This has not meant that the design review becomes unnecessary, in part because the agency has encouraged the architects to explore new solutions. One instance was observed in which the architect was responding to criteria other than the agency's. This happened when a developer/contractor came onto the job with his own architect. Because the architect wanted to maintain good working relations with developer/contractor, the review architect had to use more pressure than normal to remind the architect that the agency was his client.

Hiring the developer means that there is not another client, but it also means that delay is not effective leverage. However, the loss is more than made up for by the direct control over the architect.

The fact that the agency has assumed the monetary risks associated with the development also means that criteria need not be evasion-proof.

UDC has also virtually designed some projects in-house. This is another very direct form of control. The prototypes for low-rise housing and a day-care center were carefully overseen. Similar procedures will be followed for the elderly housing prototype. The agency has also done the site planning and schematic designs for some projects, hiring the architect for design development and working drawings.

The Types of Control

For the purposes of implementing its criteria for environmental quality, direct design is the most effective control. The agency must be able to hire the staff or consultant, and mechanic of bureaucratic budgeting make this impossible. Also, in the long run the agency may be able to achieve more innovation and diversity by using outside architects. For those agencies where private developers or even public sponsors take a primary role, these other parties may well want to have the choice of and control over the architect. In-house design is probably most useful for prototypes special projects in which new concepts are developed.

An agency can approximate the control characteristics of in-house design by directly hiring the architect. This means not only that the agency is the primary client but also that the agency can select architects that are sympathetic to the agency's criteria. An agency like DCA can approximate this by insisting that the local housing authority submit a list of architects from which the agency selects one, or by some other mechanism which gives the agency some influence.

Hiring the developer further insulates the agency's control, although there are other considerations in making this decision. The agency must be prepared to do the planning to identify marketable sites, and it must be prepared to take the risks.

Agencies should at the least maintain the option of appointing a consulting architect if the original architect is unable to resolve particular problems.

Delay is the technique that most agencies rely on for compliance with their criteria. This technique is most successful in housing programs where private financial interests provide the time pressure which is necessary to make delay effective. (One architect a DCA said he enjoyed the slower pace of working for the agency.)

The use of guidelines as a control technique is easiest to administer if there are not private market incentives to dodge the requirements. Where the private market is involved, guidelines used for control must be performance-based and pre-tested by a devil's advocate. What types of guidelines are appropriate depends on several factors including the types of criteria the agency is using. The use of guidelines is discussed in more detail in the subsequent chapters.

A final form of leverage that none of the agencies have formally adopted in the use of incentives. Developers could be allowed a higher rate of return (directly or indirectly) on the basis of specific quality measures. This technique has been proposed in the New York State Housing Quality zoning ordinance.¹⁸

All of these techniques can be used to implement different kinds of criteria, but some are more appropriate to specific types. Written guidelines are most appropriate when the objective is to implement specialized criteria which are not common knowledge for most designers and which can be unambiguously stated so that evasion will not be a problem. Probably the most difficult criteria to implement through written guidelines are those which imply a value on diversity or idiosyncrasy. In such cases it is more important to have a broader control.

CHAPTER 4

A CATALOGUE OF GUIDELINE FORMATS

The range of packages in which programming information has been conveyed would impress an advertising agent from Madison Avenue. Even so, few guidelines have explored the potential of presentation techniques. For the most part they are ascetically type-written photocopied documents. Where much thought has gone into the format, two issues seem to be at the base of the organizing principles: making sure that the information is accessible and in a usable form. The first concern has spawned indexing systems,¹⁹ enticing presentation techniques, and sequencing of different types of requirements. For the most part these apply to the overall organization of the guidelines. Making sure that the information is in a usable form applies mostly to the phrasing of the requirement and the choice of medium.

This catalogue will look briefly at fourteen types of formats for guidelines. The selection includes formats used by agencies and formats used by professionals or researchers which might be useful to agencies. They are divided into three categories: conceptual determinants, solutions, and specifications.²⁰

Conceptual determinants are most useful in the early stages of design and at larger scales. They give an initial structure to a problem. "Rules-of-thumb" fit this classifica-

tion because they are available without elaborate research, at little or no cost. Conceptual determinants may also provide a holistic sense of a design problem.

Solutions include all those guideline formats which describe a design solution which must be incorporated into or adapted to any proposed project. They are useful at middle and small scales or whenever a problem occurs frequently enough that a standard solution can be recommended. If there are many contingencies or site-specific variations in the circumstances which change the nature of the problem, the technique will be inappropriate. Patterns, as developed by Christopher Alexander, specify a design solution which is appropriate to solve a given problem in a given situation.²¹ Though Alexander has attempted to apply the concept of patterns to the entire range of programming information, patterns are most successful when applied at a middle-range when the interactions between patterns is not a complicating factor.

Specifications are formats which provide detailed tests of environments. Proposed designs are tested by standards which indicate whether they will supply the desired level of performance. Specifications should be written in terms of the in-use performance desired, but limitations in the availability of unambiguous, inexpensive performance tests have meant that surrogates have been devised. These

surrogates are often called prescriptive tests in that they prescribe a requirement without reference to the underlying measure of performance.

The names of the fourteen types in the three categories:

Conceptual Determinants
 introductory remarks
 slide presentations
 scenarios
 place/attribute matrices
 rules-of-thumb
 impact analysis

Solutions
 prototypes
 acceptable solutions
 diagrams
 patterns

Specifications
 performance specifications
 prescriptive specifications
 performance questions
 performance expectations

Barry Korobkin has begun to develop a similar scheme for breaking down programmatic information into categories. Rather than using scale of design problem as the distinguishing variable, the basis of the distinction is the relationship of the programming information to a hypothesis-test model of the design process:

A simple model for the process of design is: imaging a problem, hypothesizing a solution, testing it, reimaging it, setting forth a revised hypothesis and so on until a solution judged to be adequate is reached. This image-hypothesis-test occurs many times at each

stage of design to address a particular content profile. The conclusion of a given state indicates that an adequate fit has been reached at a particular level of abstraction. This model posits a complementary and inseparable interaction between design and information behavior and includes a range of information types involved in this interaction. These are summarized and illustrated in the chart below.²²

<u>category</u>	<u>types of info</u>	<u>sample techniques</u>
IMAGE:	the nature of the problem issues activities places	"people and places" slides and films scenarios activity/issue matrix prototypes
RESPONSE:	generalized diagramatic physical patterns specific physical solutions	patterns schematic solutions sample solutions
TESTS:	accountability to issues and activities physical performance physical fit	accountability lists required fits performance specs

Although the categories image, response, and test are very similar to conceptual determinant, solution and specification, the two organizing principles are more useful to keep separate. One aspect of Korobkin's model is that particular techniques may fall into different categories depending on how they are used by the architect. Because of this ambiguity, the former system will be used.

Conceptual Determinants

Conceptual determinants are formats which are most useful in the early stages of a design problem, at larger scales, and in formulating hypothetical design solutions.

1. Introductory Remarks. Most guidelines contain this type of information but only in an informal introductory piece. The remarks too often go unnoticed as an architect heads straight for what he expects from the guidelines, hard-edged specifications.

Example:

DCA

In addition to the specification suggested in these guidelines, we recommend that in the future, apartments for the elderly and handicapped be designed with different sizes to house one and two persons. Unless local demand indicates other needs, we suggest that about 65-75 percent of the apartment be planned with about 440 square feet (including a bedroom that will hold a double bed)...

The new construction should both upgrade the architectural character of the area, and also provide the kind of living arrangements that will contribute to the health and happiness of the future residents.

This excerpt is taken from a two-page photocopied letter of introduction to the DCA guidelines.²³

UDC

In a draft edition of guidelines for housing for the elderly there is a longer (fourteen manuscript pages) discussion of the elderly population summarizing characteristics and needs of aging persons. The headings cover:

- withdrawal
- incapacitation
- autonomy
- leisure
- physical strength
- dislocation
- habits
- crises

2. Slide Presentations. Slides are one of the easiest ways to present the experiences of either the user population or other architects who have tried to meet their needs. Lectures and tapes often are used to accompany slides. The major disadvantage of these media is that it is difficult, though not impossible, to make them available to architects to study. They are most useful for creating an impression. The technique can introduce architects (or other parties) to new ways of conceptualizing a problem.

Example:

Boston Public Facilities Department

John Zeisel has developed a slide presentation for the PFD which illustrates common features of school design that have led to substantial amounts of property damage.

Leon Pastalan: Vision Loss

Leon Pastalan has slides demonstrating the effect of deteriorating vision on older people's ability to see details and the peripheral field.²⁴

3. Scenarios. Scenarios are narratives which provide a holistic impression of life in an environment. They offer the opportunity to present personal idiosyncracies that are often lost in the averaging common to most programming techniques. Scenarios might be filmed or videotaped as well

as written. This technique may have the most immediate value when the lifestyles of the designers are very different from that of the users. Designers might develop the scenarios themselves as a check on their understanding of the lifestyles of the users.

Example:

Topper Carew: The Home of Mrs. Levant Graham

This film describes the life of a black family living in Washington, D. C. It was developed to give planners a more immediate sense of the lives of the people for whom they planned.

4. Place/Attribute Matrices. Matrices and other multi-dimensional indexing systems have been developed to place one dimension of information in relation to another. Place/attribute matrices pair information about behavior against information about specific places. This technique is cumbersome, and by definition, lacks a focus. It may be most useful for organizing back-up information.

Example:

NYS Urban Development Corporation

UDC placed its criteria for family housing in the following framework: (1) A "criteria package" is selected according to the context (inner urban, fringe urban, suburban, rural), the user type (large family, small family,

elderly, others), and the scale (dwelling unit, project, neighborhood, city). (2) Then for each "criteria package" there is a place/attribute matrix.²⁵

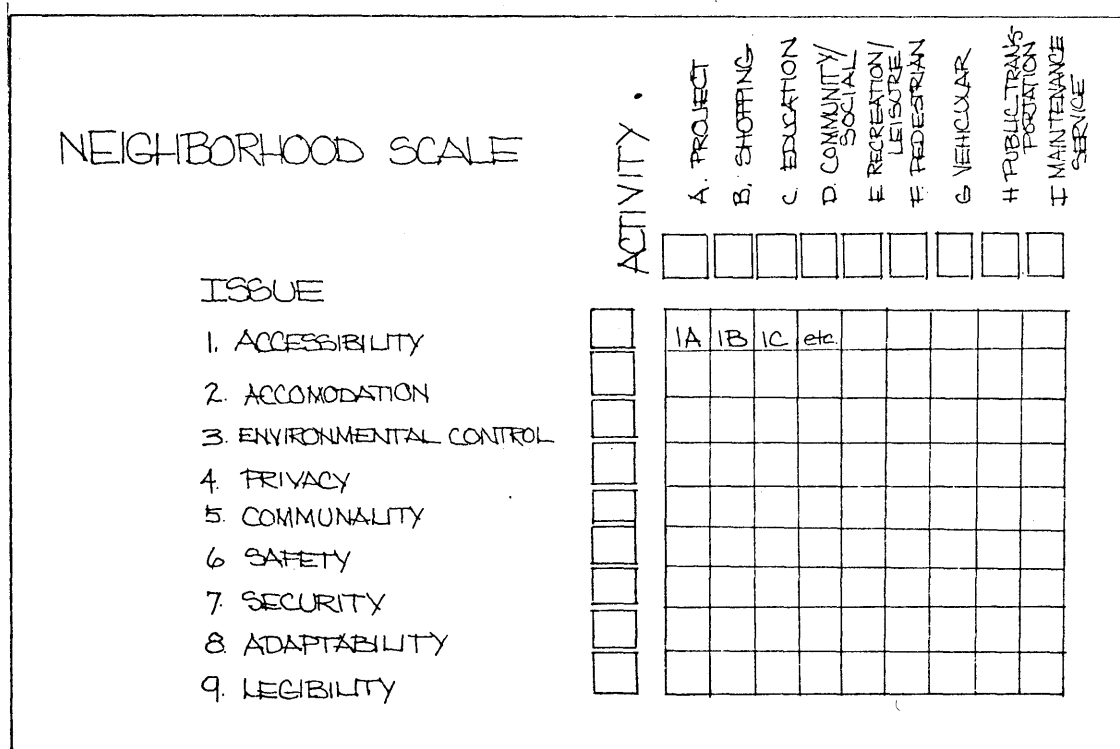


FIGURE 1: UDC CRITERIA PACKAGE

The attributes and places vary with each criteria package. For each cell of interaction, there is then a list of activities, criteria, and design aids. This system is only partially developed and is not given to architects in a systematic way. The recent work in the agency on elderly housing has not continued to use the system.

Performance Specification for Office Buildings²⁶

The matrix in this case is as follows:

		BUILT ELEMENTS OR SUBSYSTEMS							
		1	2	3	4	5	6	7	
ATTRIBUTES	a	STRUCTURE	HVAC	ELECTRICAL DISTRIBUTION	LUMINAIRE'S	FINISHED FLOOR	FINISHED CEILING	SPACE DIVIDERS	
	b	CONDITIONED AIR							
	c	ILLUMINATION							
	d	ACOUSTICS							
	e	STABILITY DURABILITY							
	f	HEALTH & SAFETY							
	g	MAINTENANCE							
	h	PLANNING							
	i								

FIGURE 2: PBS PLACE/ATTRIBUTE MATRIX

5. Rules-of-Thumb. This type of conceptual determinant is a preliminary indication, not to be confused with minimum standards. The applications are widespread. This technique is so common and so often dominant that researchers have spent much of their time trying to overturn them as unnecessary stereotypes. But they serve a valuable purpose and perhaps should receive more sophisticated scrutiny.

Example:

Michigan State Housing Development Authority

The MSHDA "housing for the Elderly Development Process" has tables which indicate what some of the basic preliminary parameters of a project should be.²⁷

TABLE A — OPEN SPACE/DENSITY TABLES

	SMALL TOWN		SUBURBAN		URBAN-SUBURBAN		URBAN	
	4 Stories	8 Stories	4 Stories	8 Stories	4 Stories	8 Stories	4 Stories	8 Stories
100 UNITS								
Site size (acres)	7	7	5.7	5.7	4	4	2	2
Density (units/acre)	14	14	18	18	25	25	50	50
Building coverage	6%	3%	8%	4%	11%	6%	22%	12%
Open space	83%	86%	81%	85%	74%	79%	58%	69%
Parking coverage	11%*	11%*	11% †	11% †	15% †	15% †	20% ††	20% ††
200 UNITS								
Site size (acres)	7	7	5.7	5.7	4	4	3	3
Density (units/acre)	29	29	35	35	50	50	67	67
Building coverage	9%	5%	11%	6%	15%	9%	20%	12%
Open space	68%	72%	68%	73%	55%	61%	53%	61%
Parking coverage	23%*	23%*	21% †	21% †	30% †	30% †	27% ††	27% ††
300 UNITS								
Site size (acres)	7	7	5.7	5.7	4	4	3.5	3.5
Density (units/acre)	43	43	53	53	75	75	86	86
Building coverage	10%	6%	12%	8%	17%	11%	19%	13%
Open space	56%	60%	56%	60%	38%	44%	47%	53%
Parking coverage	34%*	34%*	32% †	32% †	45% †	45% †	34% ††	34% ††

* 1.0 spaces/unit

† .75 spaces/unit

†† .50 spaces/unit

FIGURE 3: MSHDA OPEN SPACE/DENSITY TABLE

Mass. Dept. of Community Affairs

Before the issuance of guidelines in 1973 the DCA allocated and approved projects on the basis of a few simple rules-of-thumb, such as eight units to a building, 4/12 pitch in roofs, and 450 sf/unit.

Mass. Housing Finance Agency

MHFA only printed one page of guidelines (see analysis on page 12) and the requirements ranged all over the field. The intention was clearly to let developers know that some of the traditional earmarks of publicly assisted housing would not be acceptable to the agency.²⁸

6. Impact Analysis. Guidelines can be used to organize a collection of programmatic information. Environmental Impact Statements have set a useful precedent, and the technique could be expanded to ask more specific questions and to feed directly into programming requirements. This would be most useful for issues where there is a lot of variability between sites and projects. This technique is only beginning to be applied.

Example:

UDC Site Reconnaissance²⁹

Part of the site reconnaissance form is as follows:

1. region
2. recon. team
3. town or city
4. area (in square feet or acres)
5. cost
6. ownership
7. current use
8. topography
9. geometry
10. orientation
11. edge conditions

12. distance to:
 - a. transportation
 - b. schools
 - c. playgrounds
 - d. commercial
 - e. C.B.D.

Christoper Alexander: Houses Generated by Patterns

One part of this study is a questionnaire given to a prospective homeowner. With the answers to the questions the contractor organizes the design using a formula and a set of basic patterns.³⁰

Solutions

Solutions are techniques that are useful throughout design, though particularly so during the middle and later stages.

7. Prototypes. Prototypes are designs which are intended for reuse on several sites. They may often carry the design through to working drawings. In some cases a design becomes a prototype because the original design was so succesful that the agency simply reuses the design in other locations. One of the advantages of guidelines in prototype form is that it is possible to get a more accurate estimate of the cost implied by the guidelines than is possible with other forms of guidelines. They require substantial front-end financing.

Example:

NYS Urban Development Corporation

UDC designed a low-rise high-density prototype to demonstrate the viability of a series of restrictive criteria for high-density family housing. Designing the prototype was an important step in establishing the financial as well as conceptual feasibility of the criteria.³¹

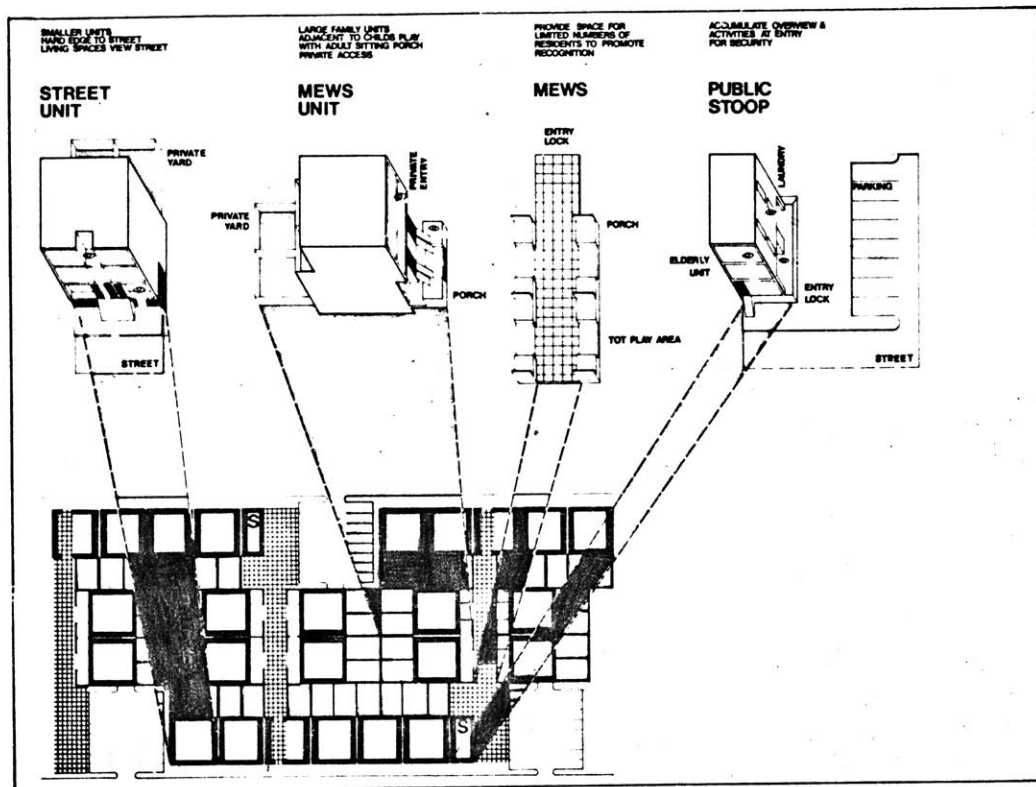


FIGURE 4: UDC LOW-RISE PROTOTYPE

8. Acceptable Solutions. In cases where an agency has many performance-based criteria and the cost of applying them to each proposed design is expensive for both architect and agency, it is possible to set up an inventory of acceptable solutions. An architect has the option of using the solution or designing a new one which must meet the criteria. If the new design is accepted, it becomes part of the inventory.

Example:

New Jersey Housing Finance Agency

In an early stage of this system the NJHFA has a set of unit plans which are acceptable solutions.³²

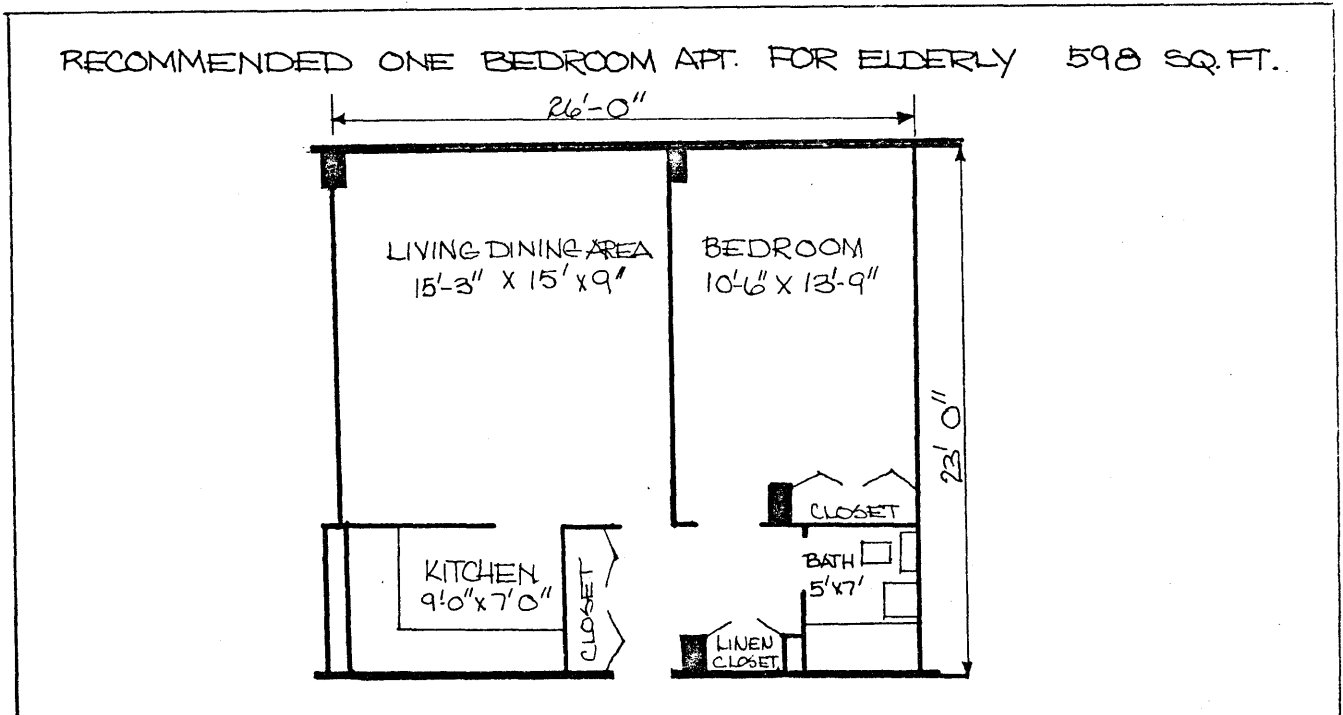


FIGURE 5: NJHFA STANDARD UNIT PLAN

9. Diagrams. Diagrams can be used to illustrate many guideline requirements. One of the difficult questions is how to keep diagrams from becoming unintentionally binding solutions. The Federal Housing Administration has removed all diagrams from its new edition of the Minimum Property Standards because there was too much confusion over whether the diagrams had to be followed exactly. Diagrams can effectively represent relationships between people and spaces.

Example:

Scottish Housing Handbook

This handbook has information in a wide range of formats including a separate section of diagrams. The diagrams illustrate many aspects of behavior in apartments, especially those pertaining to accessibility of spaces and facilities in the unit.³³

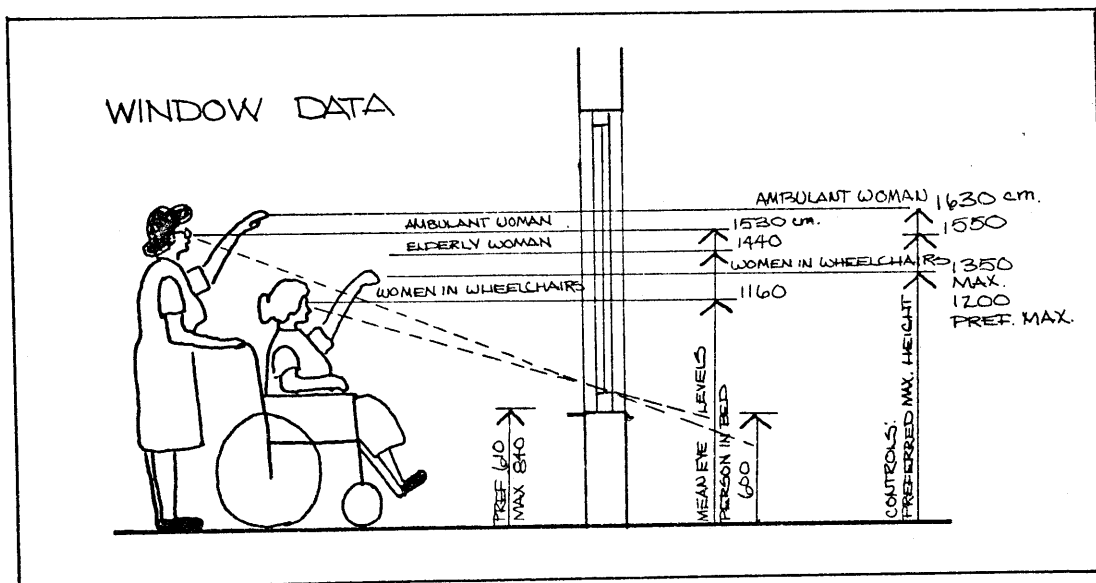


FIGURE 6: SCOTTISH HANDBOOK DIAGRAM

Michigan State Housing Development Authority

The "Townhouse Development Process" includes elaborate diagrams, showing the types of information the agency expects on drawings submitted at each stage of design review.³⁴

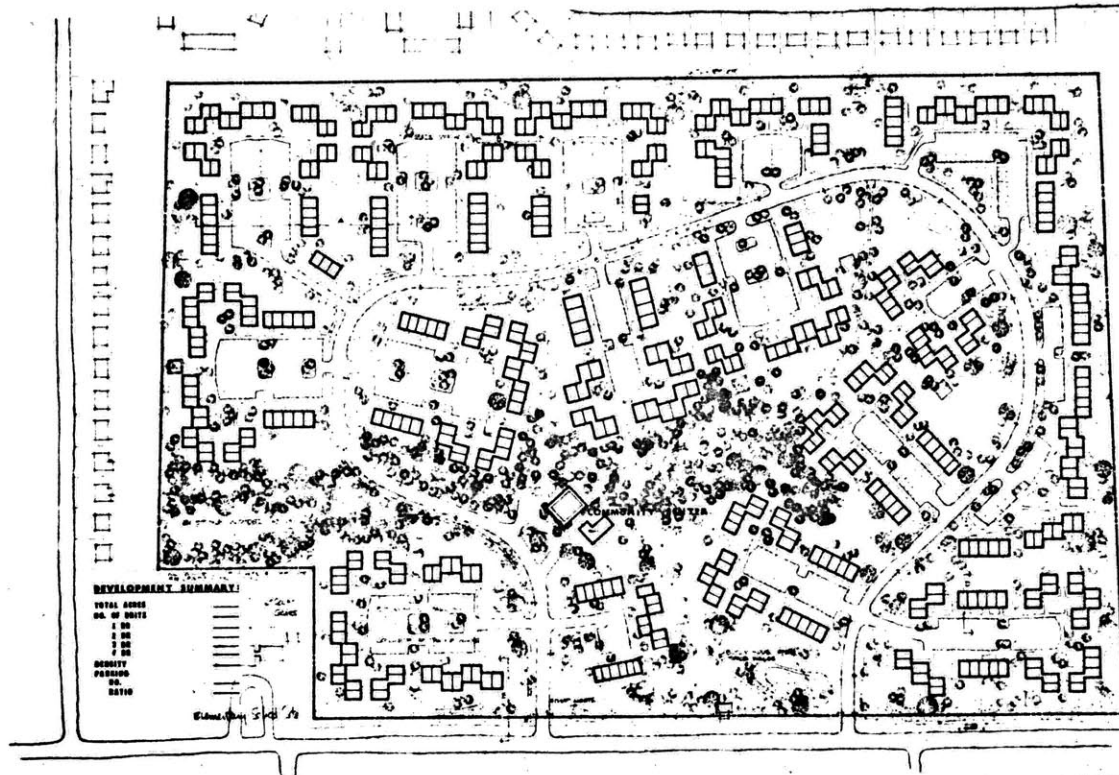


FIGURE 7: MSHDA SCHEMATIC SITE PLAN

10. Patterns. The pattern format is a solution appropriate to resolve a specific problem in a particular context. The technique, developed by Christopher Alexander, was not noticed in any agency guidelines. The closest approximation is UDC's combination of activity - criteria - design aid.³⁵ The activity might correspond to Alexander's "context", criteria to his "problem"; and design aid to his "solution".³⁶

Similar versions have been used by other persons. The technique is more common in academic literature because of the emphasis on being explicit about the justification of criteria.

Example:

NYS Urban Development Corporation

An example taken from the context "Inner Urban-Large Family - Project": (see matrix explanation on page 55).

Activity: Using elderly communal facilities.

Criteria: Indoor and outdoor facilities for the elderly should create a sense of involvement in community affairs without forcing active participation.

Design Aid: These facilities can be located in sheltered spots adjoining and/or overlooking activity.

Specifications

Specifications are most useful at the small scale, late in the design process, but they are useful throughout the design process to test design solutions.

11. Performance Specifications. There is a standardized format for a performance specification. It consists of four parts:

1. Requirement. The requirement should be a brief statement of the goal of the specification.
2. Criterion. The criterion should be an objective statement of the performance required.
3. Test. The test is a highly structured one which allows an exact determination of compliance with the criteria.

4. Comment. If there is a question of interpretation, applicability, or any other type of comment, it can appear here.³⁸

Performance specifications have been developed only in instances where elaborate basic research to establish to tests is possible. Most performance standards have been developed for technical, non-human, requirements.

Example:

Public Buildings Service

The Performance Specification for Office Buildings is one of the few fully developed performance specification systems. A random selection is the following; at the intersection of "finished floor" and "illumination" (see matrix, page 58).

Requirement:	Control gloss
Criteria:	Floor outlets and door stops shall have a specular gloss value of no more than 6.0.
Test:	Subsystem/Physical/60° Specular Gloss/Fed. Test Method Std. No. 141a Method 6101. ³⁹

New York City Urban Design Council

The Urban Design Council has developed a Housing Quality proposal to replace the existing housing zoning laws. It includes about thirty requirements in four major categories: neighborhood impact, recreation, security, and apartment. They have tried to develop performance-based criteria.⁴⁰

NEIGHBORHOOD IMPACT

1. STREET WALL SETBACK

GOAL

To maintain neighborhood scale by matching new and existing setbacks.

PROGRAM

The *street wall setbacks* occurring at the extreme ends of the proposed building should equal the setbacks of the nearest existing buildings. The *intermediate street wall setbacks* of the proposed building should fall within an area determined by the location of the existing buildings.

(To establish the *proposed street wall setback*, the *existing street wall setback* and the *intermediate street wall setback*, see *street wall setbacks* in the "Definitions and Procedures" section.)

The final compliance is the average compliance for all setbacks in a single *street district*. Each *street district* will have at least two *street wall setbacks*. There may be more if the site is intersected by a public street or if the street property line frontage is not contiguous.

COMPLIANCE

$(A/B)100 = \%$: when the proposed setback is more than the existing setback
 $(B/A)100 = \%$: when the proposed setback is less than the existing setback

PREFERRED (A)	PROPOSED (B)	SCALE	
		Built Up	Non Built Up
edge of the existing building nearest the proposed building is set back A feet from the street property line (see <i>street wall setback #1</i>)	edge of proposed building nearest existing building in A is set back B feet from the street property line	*50% = .00 60% = .38 70% = .79 80% = 1.51 90% = 2.40 100% = 4.55	NOT APPLICABLE
		*Minimum permitted	

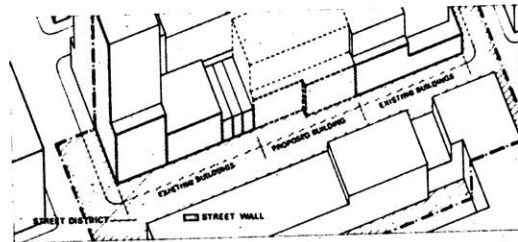


FIGURE 8: HOUSING QUALITY PERFORMANCE SPEC

12. Prescriptive Specification. This term applies to that vast majority of guidelines which specifies characteristics of the final design without recourse to the performance rationale. In some instances the cost of using performance specifications has led to the inclusion of a set of prescriptive specifications in combination with performance specifications.

Example:

Federal Housing Administration

The Minimum Property Standards for Elderly Housing have affected more elderly housing units than any other set of guidelines. Here is a quote:⁴¹

E401-9 Ceiling Heights

E401-9.1 Minimum Heights:

- a. Habitable rooms, 8 feet minimum. The interior portion of a ceiling remote from room window or the perimeter portion of a horizontal ceiling may be reduced to 7'4" in height for not more than 15 percent (sic) of the room area.

Technical Bulletin #4, NYS Urban Development Corporation

These standards are used by the Technical Department which takes over responsibility after schematics are set.⁴²

- c. Bathroom doors shall swing out and be equipped with a door lock which can be released from the outside.
- h. Medicine cabinets shall be recessed with minimum 24" x 24" mirror, ample for large medicine bottles.
- k. Public halls and corridors shall be 6'0" wide minimum and should be carpeted to reduce sound.

13. Performance Questions. Questions are particularly appropriate if the rationale is more important than a specific configuration. The question format does not have the harsh quality of other specifications. The technique can be used in a reminder checklist; even obvious details can be asked in a manner that is not threatening. The technique

is also appropriate if the guidelines are to be used by a third party who may not have a great deal of technical skills but would like to review the drawings.

Mass. Dept. of Community Affairs

This format was intended in part to be used by non-professionals who had a major design review responsibility (the local housing authority officials).⁴³

1. Is the parking space placed so that car headlights and sun glare reflecting from the car do not shine in apartment windows?
2. Is there space for sitting and socializing or waiting for taxis outside the entrance?

Scottish Housing Handbook

This checklist includes some standards that are satisfactory responses to the question and also references to other relevant discussions of the issue.⁴⁴

- 10.6.2.7 Are working surfaces (in kitchens) at a height convenient for old people.

Recommended Standard: preferred range: 815-850 cm

Page Reference: 15 (a more detailed discussion of ideal heights for ambulatory and wheelchair users, with a recommended compromise if both are expected to be using the facilities.)

14. Performance Expectations. An agency could require architects to state the type of use they expected in a given space for particular equipment. This technique has not been developed for guidelines, and the major obstacle is the time

and training necessary to do this in a manner that will be useful. The techniques could be structured or open-ended. It could be a direct extension of the "performance questions" technique above. If this technique could be developed it would be a very valuable tool for performance programming and post-occupancy evaluation.

CHAPTER 5

THE USE OF WRITTEN GUIDELINES

The review officer for MHFA outlined three major reasons why he was reluctant to issue guidelines: First, guidelines end up getting used against you. "This is a dollars and cents business. People are in it for a living, so they are looking for ways to get around any requirements which up the cost of their operations." To write a requirement down as a law is to invite its evasion.

"Second, no two projects we deal with are identical. We have to meet the problems of each project individually. Each ends up different." Pushing this point even further, he said, "sometimes we try to make them different, just for the value of idiosyncrasy."

The third reason is that architects or developers demand guidelines to avoid the responsibility for thinking about what goes on inside a building. "They constantly ask for any standards that will pass. We try to get them thinking about this stuff."

Perhaps because they have succumbed to architects' or developers' demands, most agencies seem to have written down some guidelines. Both DCA and UDC do have guidelines. Both of them swear by their value. Yet only a fraction of their

criteria are published as guidelines. For each agency, there are reasons why particular types of criteria end up in written guidelines.

The following set of issues outlines the critical considerations in deciding whether or not to write criteria out as guidelines:

- The regulatory context
- Control
- Communicating information
- The audience addressed
- The sequence of decisions made
- Variability
- Measurement
- Cost

The guidelines used by the three agencies are described in the Summary, and a typology of guideline formats is presented in Chapter 4. Together they form the basis for this analysis.

The Regulatory Context

One of the reasons why an agency established guidelines is that the enabling legislation requires them. In the case of DCA, state law:

requires that minimum standards be established in the planning and design of state-aided housing so as to alleviate the infirmities characteristic of the elderly.⁴⁵

The political motivation behind such requirements is complex. At a general level, legislative requirements such as these are intended to make administrative agencies accountable

to elected officials. Unfortunately, this has usually been done by setting minimum standards, rather than establishing incentives for quality. Minima, although intended to encourage quality, become maxima which the developer works to avoid.

There are also specific reasons for legislators to require guidelines. These tend to involve legal guarantees that special interests be protected. The earlier quote for the state law can be understood as a reflection of the success of an "elderly lobby".

Another part of the aforementioned state law mandates that the design of community and site facilities accommodate persons confined to wheelchairs.⁴⁶ Thus, one particular group among the elderly receives additional consideration.

For almost every agency, there are many other laws which affect design and construction, including codes and ordinances. Zoning laws have a pervasive influence over the form and siting of buildings.⁴⁷ Codes deal primarily with construction techniques, but have implications as early as in the schematic design phase. The choice of a structural system or the number of egresses per unit are examples of the types of restrictions coming from the codes and strongly influencing early design work. Environmental impact assessment laws are becoming an increasingly significant determinant of planning and design.

How these outside laws are treated by guideline writers varies. The Federal Housing Administration Standards include many aspects of the codes, which become applicable if local codes do not cover the same points.⁴⁸ The Housing Quality proposal includes many points which might well be covered in codes.⁴⁹ Visual privacy is covered in the proposed ordinance, but accoustical privacy is left to the codes.

Some agencies even end up in the business of helping their architects avoid other types of regulation. One review officer explained that their prospective architects were sometimes briefed on the fine points of relevant laws to help them circumvent noisome requirements. An example is the federal regulation prohibiting commercial facilities in residential buildings. UDC sometimes goes into the details of the law to help architects determine which types and amounts can be included in the same building as the residences and which require separate buildings. MHFA has an informal agreement with the FHA whereby the federal government avoids pressing points which the agency has occasionally exempted.

Overlaying all of these sets of regulations are vague political-legal definitions of what aspects of a design can be regulated. Before the turn of the century very few aspects of design and construction could be regulated by the public. It was the redefinition of the housing problem at the turn of the century to include overcrowding and sanitary conditions that gave codes their major impetus.⁵⁰ The domain of the

public responsibility has grown consistently since then. However, some types of concerns have come to acceptance more quickly than others. While sanitary regulations came first, public intervention into the aesthetic or visual aspects of design has come along a more difficult course.

The regulation of visual appearance has been complicated by the complexity of trying to incorporate it under the doctrine of the police power. In most cases where the grounds have been upheld it has been through the argument that aesthetics are an aspect of property values.⁵¹ Other court cases have been stymied over the problem of developing quantifiable measures of visual quality.⁵² The pace at which progress is made on this front is a reflection of an underlying social resistance to the concept of a publicly definable set of visual values.

Many of the findings of social science that argue that the physical environment has direct implications for the behavior and well-being of its inhabitants have slowly come into the sphere of the public domain. The public health standards are beginning to recognize the implications for "mental health" in their standards.

These indicators point towards both an expanding range of concerns for codes, ordinances, and guidelines, but they also suggest that the entanglement of overlapping jurisdictions will become increasingly complex.

Control

As an agency enters the fracas amidst the regulatory context described above, the very survival of its criteria may be at stake. In this dollars and cents world don't criteria have to be legally binding in order to be observed? Anyway, isn't it true that architects won't read anything unless it's a law? In spite of the superficial logic that might encourage agencies to rush to promulgate guidelines, there are reasons to go slowly. Perhaps the fact that developers and some architects are breathing down agencies' necks looking for minimums and standards should be a clue that there might be some uncomfortable side-effects. Many of the same legislative lobbies and a fleet of salespersons will be at the agency's doors, too.

Before deciding whether to issue guidelines and whether to promulgate them, it is vitally important to look at the entire system of implementation. Who has what control? Who has what values, for to be able to satisfy another party's values is to have leverage over that party? How will the introduction of guidelines affect this balance?

If the agency is operating programs in which the private market has a major financial stake in setting and meeting the criteria, there is likely to be more pressure to promulgate guidelines. The private market can then set itself the task of evading those guidelines to save costs or pursue other

objectives. If they did a good job lobbying during the writing stage, they have forced the inclusion of critical loopholes. The Federal Housing Authority is immersed in this routine. The FHA draws up a set of minimum property standards, with the help of builders and developers. The only tests applied to the standards is their acceptability to these people, and by the time the standards are promulgated many of the agencies objectives may be vitiated.

The process of writing legally-binding guidelines that cannot be evaded is an extremely difficult and expensive process. An example of an apparently successful set is the Public Binding Service Performance Specifications for Office Buildings.⁵³ Unless an agency is under extreme pressure to set tightly drawn, legally binding standards, it is unwise to do so.

If an agency does not rely on a private developer to package a project, the question of promulgation is no longer so perilous. Without the large monetary incentives to evade the guidelines, requirements no longer need to be phrased in legally enforceable terms in order to be effective. A requirement as general as "aggregate the communal facilities around the main entrance to encourage the opportunity for informal socializing," becomes meaningful.

For purposes of creating control to implement the agency's definition of environmental quality, guidelines are not the first choice. Three other techniques, authority to delay

projects, control over the hiring and firing of principal parties, and authority to set bonuses for quality of design, are all preferable. Once these are well established, then guidelines can be used to convey information about the agency's criteria for environmental quality. With other sources of control to implement criteria, publishing guidelines limits the agency's freedom to change its criteria or to apply them differentially as particular cases warrant.

Communicating Information

If guidelines turn out to be a weak or self-defeating source of leverage, what good can they perform? Their primary value is in communicating information about the agency's criteria.

Even the review officer for MHFA uses some criteria so automatically that whether or not they are written down is only a matter of format. (No bedroom dimension less than 10'.) The imposition of that standard saves a great deal of time negotiating an important specification that may be highly controversial.

Guidelines conceived of as a communications technique can serve to draw attention to those criteria which the agency considers most important. Rarely does a set of guidelines completely cover all building requirements. An agency will select those issues which are of primary concern. Especially in some smaller agencies, guidelines are lists of rules

based on previous mistakes which the agency does not want to repeat.

Guidelines can also serve as reminders. To the extent most architects had used guidelines and found them helpful, it had been as checklist reminders. This type of guideline should be written as a reference book.

An important possibility is to use guidelines to facilitate a dialogue between agency and architect. Guidelines could ask for information which would then be used to set requirements. The format could range from a questionnaire to conceptual drawings. There is a precedent for this approach in some required environmental impact surveys, but the technique could be extended to lead directly to program requirements and site-specific guidelines. This technique would be useful when requirements tend to vary from site to site depending on local conditions. Types and amounts of community space could be established on this basis.

This process of gathering programmatic information for each project happens informally now and could be easily developed into a reference for evaluating the project in use. The architect's and agency's expectations for use of the project can be recorded and tested.

There are obstacles to the use of such a system. One is that architects could not prepare such information. This may be true, but the premise underlying design review and guidelines

at all three of these agencies was that architects had to learn new skills to design good subsidized housing, and there is no reason why they cannot learn to be explicit about behavioral expectations and to be explicit in the process by which they make programmatic decisions. A second reason is that no one likes to be tested, and to put the expectations down on paper may highlight failures. The third reason is that it would cost too much. Each agency will have to trade off the value of explicitly recording such information. If there is no way that projects will ever be evaluated after they have been built, there may be fewer reasons to use the system. However, where feasible this may be the best performance-based programming and evaluation technique.

The Audience Addressed

The design review process results in trade-offs between competing parties' criteria. Who those parties are may well vary from project to project as well as from agency to agency. One problem which recurs in design guidelines is that they are geared to the administrator's final inspection of the working drawings but disregard everyone else's needs. Also, guidelines are not geared to the competences of the persons who must use them.

What parties might usefully employ guidelines? At DCA the guidelines were written primarily for the use of local housing authority (LHA) officials. The format was a set of

questions which the LHA might ask of the design. This may be a vestige of earlier procedures at the agency when the LHA was responsible for most of the design review. Although LHA's were not thoroughly surveyed, the impression is that the LHA's do not use the guidelines because they represent the central office's criteria, not their own. They expect the central office to oversee its own criteria, and they tend to build up their own catalogue of criteria, drawn from past mistakes that come in as complaints or high maintenance costs.

The writing of guidelines for community groups might lead to a similar format and would probably constitute a similar misfit. In most instances where community groups get involved in project design they interject their own criteria, expecting the agency to take care of its own interests, and addressing them only if there is any conflict.

Community groups as well as LHA's should be consulted for each project. A service agency affiliated with DCA has a questionnaire which it sends to local elderly community groups to get their opinions on the needs for a project.

For private developers, guidelines should be specific on all items on which affect major cost decisions. The earlier such items are determined, the less risk. For contractors, the most useful guidelines might specify materials and techniques so that the costly problems of innovation could be avoided.

Of all the parties, the architects are most sensitive to the kind of information and presentation techniques. They ultimately are responsible for the integration of all criteria into a design. The formats and languages which are most readily usable for architects have not been researched systematically, but some traditional principles might be applied. One is that architects find it easier to use graphic material, perhaps because of the ease of direct application to their tasks.

Even if it is agreed that architects are the target population, there can be wide ranges in the values and information base architects bring to the job. Architects may have completely different orientations and skills. Many of the architects who have worked for DCA are conserving a tradition of neo-colonial design using conservative construction techniques. Other architects may be primarily concerned with stylistic problems in modern architecture. The architects orientation will affect what information he finds new or repetitious, valuable, or useless. How would guidelines be designed if one knew that the architect would bring in stock plans? An architect's familiarity with the local population will affect the kind of information that is useful.

The Sequence of Decisions Made

One question becomes particularly important: What is the sequence of decisions which an architect goes through?

This section will proceed on the basis that the guidelines should be geared to use by architects. If for some reason this is not appropriate for an agency, the sequence of decisions for the new critical party should then be analyzed.

One of the most noticeable aspects of the design review process at both MHFA and DCA is the confusion over the sequence of decisions. Developers try to get changes in the unit mix or site plan after they have been committed. Architects come into DCA with plans that have been crammed on to inadequate sites, site and unit mix already approved by another branch of the agency.

To a certain extent such re-negotiations of early decisions are inevitable and a necessary option. On one MHFA project a tight site forced the architect to design a living-dining area that was so square that it would be difficult to furnish and inhabit as two separable spaces. The agency was able to get the local redevelopment authority to realign the site lines, making it possible to elongate the living-dining area.

The process of architectural design has some widely recognized characteristics. One is that the level of detail becomes increasingly specific. This is a logical process of satisfying the basic organization constraints and then satisfying the more detailed constraints, but at a practical level this procedure is made imperative by the cost of redrawing

the finely detailed working drawings because of changes in the basic plan. Four distinguishable steps are:

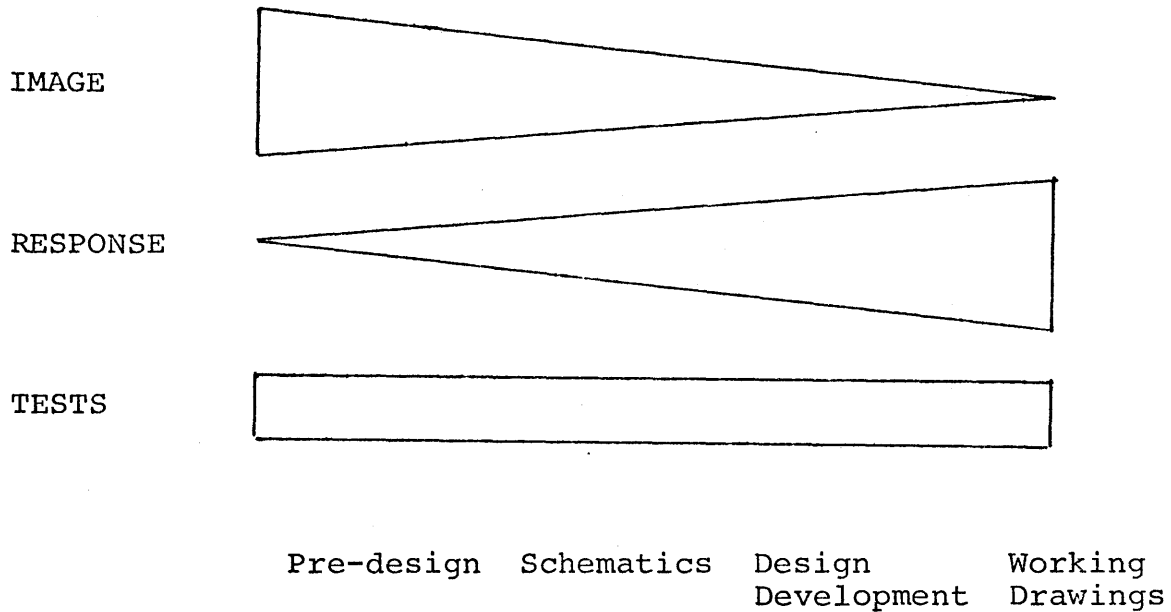
1. Pre-design: initial structuring and imaging of the problem.
2. Schematics: the basic allotment of space in their appropriate relationships to site and each other.
3. Design Development: specifying dimensions, technical systems, and materials.
4. Working Drawings: technical specifications, details, hardware, and fine line drawings.

"Programming" is the provision of information necessary to make the design decisions at each stage. The distinction between types of programming techniques made in Chapter 4 is intended to meet the need for increasingly specific information.

Barry Korobkin's model distinguishes programming techniques on the basis of their contribution to any design problem.⁵⁴ Each design solution is hypothesized to consist of re-iterations of image-response-test, as described in Chapter 4. However, the relative importance of each type again varies depending on the stage of design. Imaging information is most critical early; response information, late.* See Table I.

* One issue in particular remains to be worked out in applying the model to a distinction between types of programming information: Specific programming information may be in different categories for different architects or at different times. For example, an architect might use a prescriptive specification directly in his design, in which case the prescriptive specification would have functioned as a "response" rather than as a "test". Similarly, a prototype might be an "image" or a "response" or even a "test" depending on how it is used.

TABLE I

PROGRAMMING INFORMATION APPROPRIATE TO EACH
STAGE OF DESIGN

As a model this is a generalization intended to assist in the structuring of information for guidelines. Nevertheless, the architectural design process is far from regimented, so the information system should make it easy for the user to shift between stages of information and between types of information.

Variability

Guidelines are in a sense program statements which are applied to a whole class of projects. The programming of each project might be completely individualized. The over-

riding argument against this is the cost-saving in reusing the same program. Though this might mean saving the trouble of reinventing the wheel, it often constitutes a loss in fit with locally specific needs.

The problem really goes deeper than this. Any program statement operates by making generalizations about the type of user-behavior expected. This involves a normalization, a loss in the range of options which the design accommodates. Anthony Ward has posited the dilemma as follows:

If we objectify user populations we establish a system whereby the people we are designing for become objects with no conception of their own freedom. Alternatively, if we do not objectify populations we can never achieve a cumulative improvement in the environment.⁵⁵

This type of problem is commonplace as designers and reviewers almost necessarily work from stereotypes. Is the elderly person independent or dependent? Should all services be brought to the elderly so that even the most infirm can share in the activities, or should they be more distant to encourage the elderly to maintain their mobility? When does the safety device become a symbol of dependency or an invasion of privacy? To the extent such broadly applicable guidelines are used, they should accommodate the range of behavior that might reasonably be expected.

Guidelines implicitly dictate how much time and money should go into programming and programming research. In most cases, the efforts to develop guidelines have been a one-directional effort to reduce the time spent programming. This pattern, and even the perception of it, should be broken. Two types of guidelines are necessary, those which apply broadly and those which distinguish needs which vary from project to project.

Under most current arrangements, the only acknowledgement of the problem of variability in most guidelines is an exception mechanism. This is crucial for the promulgated guidelines, where it is so difficult to adjust a requirement once it is set in law. But this basic mechanism should be supplemented by requiring design teams to research site-specific program requirements.

Measurement Techniques

There are several techniques for judging the adequacy of particular design solutions. These should be fitted to the stages of the design process and the types of guidelines. The problem of measurement is a problem of comparing a proposed design solution to a standard. What this involves depends on the type of standard and the type of solution.

The most common guidelines require a design configuration, a design feature, or some material. If a guideline is to be objective, it must specify a test that any person can

apply to the proposal and obtain a consistent result. A reviewer inspects a proposal to make certain that there is full compliance. Of the categories of programming techniques, these are usually the "specifications".

Very often objectivity is only an objective. There is a trend towards writing specifications in terms of the performance that is desired rather than in prescriptive terms. It is very expensive to develop accurate performance tests, particularly those which can be applied to a proposal. How can you test drawings of community facilities to see how well they will be used? Another type of problem with objective requirements is that they are based upon assumptions of specific sets of circumstances, but often the circumstances are not clearly enough stated to know whether exceptions are warranted. How should criteria for security vary with project size? A related problem with objective requirements occurs when two objective requirements conflict in a given design. Which one should take precedence? These questions make up the body of "interpretations" associated with all objectified requirements. Although most of these problems occur with all standards, their resolution is more cumbersome if the requirements are objective.

Because of the difficulty and expense of establishing effective objective requirements, most agencies use many subjective requirements. "Are there adequate provisions for security?" "Are the community facilities located and designed

to encourage use?" Compliance then becomes a negotiable issue.

But even subjective requirements are not appropriate measures for much useful design information. The use of prototypes, acceptable solutions, and diagrams demands a different approach to review. For the designer it is necessary first to verify the applicability to the specific situation, then appropriate alterations can be made. For the reviewer, the order is likely to be reversed: look for variations and then the explanations. This technique for review is used for the "solution" category of programming information.

Measurement techniques must be usable by both the architect and the agency, as well as other parties. This raises the question of competency and cost. There has been a reaction against the promulgation of performance requirements because it requires highly paid technicians to apply the tests. This has been considered as a discrimination against persons working their way up without the help of post-graduate education.

One accommodating possibility is a format which specifies a performance standard and proven solutions. The designer has the option of using one of the solutions (usually a prescriptive specification) or demonstrating that his own design meets the performance criteria. This technique allows

the flexibility to meet the needs of development teams with varying resources, and over time an elaborate portfolio of alternative solutions can develop. The Federal Housing Administration (FHA) is planning this combination for its new edition of the Minimum Property Standards.

Similarly controversial is the use of incentive systems rather than minimum standards. The Housing Quality proposal is based on this system.⁵⁶ A design accumulates points on the basis of four types of criteria. The point total is then translated into a maximum allowable density. The process of evaluating the point total is complex for the reviewing administrator, but it is almost incomprehensible for the design team, which must reiterate the entire evaluation for each design change. The system has implications for the cost of the design process and the scale advantages to large architectural firms which can afford computerized systems for evaluation. Perhaps a computer system could be available at a central office, accessible to designers and developers.

Both performance specification and incentives constitute major steps forward for guidelines. The fact that many agencies are in a position to use subjective rather than objective techniques for measurements should allow them to take advantage of the good points of these systems earlier than code or zoning officials who must make all requirements legally objective.

Cost

It is necessary to distinguish between two different kinds of costs. The first is the cost imposed by the content of the requirements. This is the cost of constructing housing of the quality demanded by the agency. There are costs implied by almost every requirement, even though the proponents of the Housing Quality proposal say that most of their requirements do not increase the cost of construction.⁵⁷ This set of decisions involves a necessarily political judgment about the value of quality housing versus the costs necessary to obtain it. For example, FHA has decided that it will not increase the mortgage limits for extra bedrooms beyond the fourth. This is clearly a statement of policy that the federal government is not willing to encourage the construction of housing to meet the need of large families.

There is a second type of cost to be considered, and that is the cost of using guidelines in their various forms. This includes the costs of setting up the guidelines and using them. The alternatives must be compared in the best way possible, since many of the costs are intangible. The answers to the question, "which technique" will come only after the different values have been weighed and the relevant information obtained.

All costs should be described in terms of who bears them. Some techniques are expensive for the agency, other techniques are expensive for the architect. Table II summarizes the

general relationship between type of guideline and its cost to the major parties. The cost estimates are all relative because of the lack of data.

TABLE II

EXAMPLES OF THE RELATIONSHIP BETWEEN TYPE OF GUIDELINE AND COST TO THE MAJOR FINANCIAL PARTIES

GUIDELINE	PARTY			
	Architect (use)	Agency (Write)	Agency (use)	Developer (use)
Prescriptive	mod	low	low	low
Performance spec.	high	high	high	high
Prototypes	low	high	low	low

The cost to the agency is separated for writing the guidelines and using the guidelines. For the developer the cost is the risk associated with variations in construction costs. These costs must obviously be balanced against the benefits accruing from the use of the technique.

The category "agency use" is complicated by the fact that the use of guidelines is only one part of the design review process. Calculations of the cost of using guidelines should take into consideration the effect on the total cost of design review. There are some estimates on the cost of design review which can be made on the basis of the cost of the reviewer's time plus overhead.

TABLE III
THE COST OF DESIGN REVIEW

	PER YEAR	
Reviewer workload at capacity:	3000 units	30 projects
Average cost of reviewer, including overhead:	\$30,000	
Cost:	\$10/unit	\$1000/project

If the construction cost of a unit is \$20,000, this is a very small fraction (1/2000). This figure will rise if the reviewer is not working at capacity. But even if the figure is off actual costs by 100% the cost is still less than 1/100th of the construction cost. These figures are very low compared to the return in quality to the projects.

Whether or not the agency uses guidelines seems to have only a minor affect on the cost of design review. The cost of developing guidelines, especially as intensively as UDC does, can be high. To incorporate these costs in the analysis requires more detailed information than is available.

CHAPTER 6

SELECTION OF GUIDELINE FORMATS

This framework should give an agency administrator an indication of the type of guideline formats that would be appropriate, given specific circumstances. There are seven steps, consisting of one or more questions. The answers to the questions dictate the kinds of formats which are appropriate. The types of formats are described in Chapter 4. (Parentheses indicate format number in Chapter 4).

	YES	NO
1. Are guidelines appropriate at all?		
1.1 Does the agency have criteria which feels are consistently applicable to its projects?	—	—
1.2 Does the agency need to save time on design review?	—	—
1.3 Do the architects or developers bring in designs which are deficient in consistent ways?	—	—
1.4 Do particular issues consistently require site-specific information that leads directly to programming decisions?	—	—
1.5 Do laws require the agency to establish guidelines?	—	—
1.6 Are guidelines the only source of control?	—	—

- | | |
|----------------------------|---|
| If the answer is yes to... | Appropriate guideline formats are... |
| None or 1.2 only | No guidelines |
| 1.5 and/or 1.6 only | No guidelines (this job has been approached backwards.) |
| 1.4 | Impact Analysis (#6) |
| 1.1, 1.6 | Rules-of-Thumb (#5)
Acceptable Solutions (#8)
Patterns (#10)
Performance Spec (#11)
Prescriptive Spec (#12) |
| 1.1, 1.2, or 1.3 | Guidelines should have a focus rather than be systematic |
2. To whom are the guidelines oriented?
- | | |
|--------------------------|--|
| If... | Appropriate guideline formats are... |
| 2.1 Architect | Each of the three categories of formats should be represented |
| 2.2 Contractor/developer | Rules-of-Thumb (#5)
Prescriptive Spec (#12)
Acceptable Solutions (#8)
Prototypes (#7) |
3. Do the guidelines have to be legally sufficient unto themselves, i.e., there are no other sources of leverage?
- | | |
|---------|---|
| If... | Appropriate guideline formats are... |
| 3.1 Yes | Guidelines must be objective
Guidelines must be systematic |
| 3.2 No | Guidelines should be objective, but need not be systematic |

4. Does the enabling legislation mandate that guidelines be established?

If yes.

Guidelines should be subjective. This will effectively create leverage

5. What are the financial and technical capabilities of the agencies and the architects? (Some standards require substantial resources to develop and use.)

If...

Appropriate "specification" guideline formats are...

5.1 High

Performance Spec (#11)
Performance Expectations (#14)

5.2 Low

Prescriptive Spec (#12)
Questions (#13)

6. What is the agency's definition of environmental quality?...

Is the agency's primary intention...

Appropriate guideline formats are...

6.1 To provide inexpensive functional shelter

Guidelines should be systematic. Specifications should be prescriptive (#12).

6.2 To provide housing which accommodates physiological, psychological, and sociological needs

Specifications should be:
Performance (#11)
Questions (#13)
Performance Expectations (#14)

6.3 To encourage innovation

Specifications should be:
Performance (#11)
Questions (#13)
Performance Expectations (#14)

7. Should the agency consider using an incentive system?

If the specifications are
objective and not extremely
complex

Weighting the requirements
and using a bonus incentive
system might be appropriate

Note: There may be legal constraints which must be
resolved before an incentive system can be used.

Note

This study has analyzed only centralized design reviews.
If guidelines are necessary to standardize the policies of
decentralized offices, this may complicate the selection pro-
cess beyond the scope of this study.

CHAPTER 7
IMPLEMENTATION OF THE FINDINGS

Administrators at DCA are currently rethinking their design review process and their guidelines for elderly housing. Within the last year several steps have been taken to change the quality of the design to emphasize the behavioral needs of elderly persons. In order to make the change, it has been necessary to take much of the responsibility for design review away from local housing authorities and to place it in a central office. The change is clearly a threat to home-rule principles. Not only are many more design review requirements being imposed at the central office level, but long-established patterns of hiring architects are beginning to change.

Is the change a good one? Basically, yes. The pre-existing system resulted in a lower quality living environment for the elderly persons than could be had for the money. The range of design considerations has been greatly broadened to include the results of much reliably verified social science research on the housing needs of elderly persons. There are costs. The spokesman in local government offices have loss some territorial control, though they retain the final say. But much of that authority is in the process of being relocated in the community, to community organizations or organizations of elderly persons.

In the effort to change the quality of the design to include consideration of behavioral needs, the following steps have already taken place:

1. The central office published a set of guidelines, as required by legislative mandate. These guidelines address behavioral needs almost exclusively. There is a heavy emphasis on meeting the specialized needs of persons confined to wheelchairs.
2. The agency hired a review officer familiar with the behavioral criteria.
3. The architects' fee schedule has been changed so that it no longer is below pay scales for comparable jobs.
4. Steps are being taken to tighten control over site-selection and selection of the architect. In both cases the technique is to require that the LHA submit several alternatives and that the central office approve the selection. In at least one case a consulting architect has been hired to work out designs which the original architect had not been able to resolve to DCA's satisfaction.
5. In at least one town a competition has been established to open the job to a wider range of architects.
6. The involvement of community organizations is beginning to be encouraged. A related service agency, the Office of Elder Affairs, is taking a more active role in eliciting local needs from elderly organizations.

The primary constraint on shifting the design quality is the training and values of some architects who are hired by the LHA's. The new criteria are frequently an unfamiliar perspective on design which they have been slow to pick up. In part this is because they are committed to their old approach and in part it is because it is difficult for them to learn the new information. Some architects have learned fairly quickly, for many it is unlikely that they will continue to make the struggle.

This means that the new guidelines must be addressed to a complex audience. It is clear that the guidelines should be directed to the architects. The architects, however, will not be a homogeneous group. "Impact Analyses" should also be used to reach community groups.

Using the Format Selection Procedure

The procedure for Selection of Guideline Formats (Chapter 6) can be applied to determine the kinds of formats that would be appropriate.

For Step 1, the answer to all questions except 1.6 is yes. The guidelines are not the only source of control for the DCA, but they are an important one. The very high percentage of affirmative responses indicates that guidelines are likely to be a valuable tool in design review. The following types of formats will be useful:

1. Guidelines should be focussed (from 1.2, 1.3)
2. Impact Analysis (#6) (from 1.4)

From Step 2,

3. Each of the three categories of formats (conceptual determinants, solutions, and specifications) should be represented.

As indicated above, the primary audience is architects, but because of its diversity it will be necessary to use vocabulary and presentation techniques that are common denominators to the range of architects.

The answer to Step 3 reinforces the recommendation that guidelines should be focused by not recommending that they be systematic in order to be legally self-sufficient. The fact that there are other sources of control means that design criteria that are not written as guidelines may be enforced, too, if necessary. As indicated in Step 4, there is a possibility of using some broad, subjective requirements (such as "a pleasant living environment") as the basis for the exercise of such control. To date, most of the agency's behavioral criteria have been recognized and accepted. If its criteria becomes more various or arbitrary, it runs the risk of creating a political reaction. For this reason, subjective requirements should remain within the same approach.

The answer to the question in Step 5 is closer to 5.2. The agency and its architects have minimal technical back-up and financing. In accordance with the nature of the criteria

(Step 6), it is clear that:

4. "Specifications" should be in the question format (#13) with some assistance from prescriptive specs (#12)

The Structure of Design Review

There is a need to structure the design review process and to organize the sequence of design decisions. Ambiguity in the structure has resulted in expensive returns to the drawing board for architects. The three techniques, in order of increasing effectiveness, to structure the design review process are (1) to require the architect's presence for the presentation of material, (2) to require the architect's presence for the submission of material, and (3) to make his fee payment contingent on particular submissions. The proposed structure of the DCA design review process is presented in Table IV.*

The Guideline Package: An Information System

The appropriate formats must be fit into the structure of the design review. The information system should make clear what types of information must be presented with each submission. But it is also important that all forms of information be available to the architect from the beginning.

* The formulation of this table was done primarily by Barry Korobkin and Steve Demos.

TABLE IV
DCA INFORMATION SYSTEM PROCEDURES

<u>STEPS</u>	<u>RELEVANT GUIDELINES</u>
I. Local Housing Authority Formed	
II. Site Selection and Approval	
III. Architect Selection and Approval	
IV. Pre-design Conference slide presentation discussion of built projects negotiate program	introduction program determinants impact analysis program statement
V. Schematic Submission and Approval program statement site plan massing model elevations floor plan sections unit plan	schematic diagrams and organizing principles criteria
VI. Hearings	
VII. Commitment of Financial Assistance	
VIII. Design Development Submission and Approval site plan open space plan floor plans community space unit plans wall sections outline specs model	criteria specifications
IX. 75% Working Drawings Review	specifications

TABLE IV (Continued)

- | | | |
|------|---|----------------|
| X. | Contract Documents Submission
and Approval
full architectural and
technical drawings
specifications | specifications |
| XI. | Construction | |
| XII. | Evaluation of Building in Use | |

This is because it is not uncommon for a designer to want to work out particular parts of a schematic design in more detail to make sure that later-stage requirements can be accommodated. The information system should make it possible for the architect to shift between design stages.

The Content of the Guidelines

This thesis has not analyzed the housing needs of elderly persons. As a result, there are no primary research findings to use in the guidelines. The content will be drawn from available research findings and the experience of the review officer at DCA.

Furthermore, time limits have precluded the development of a complete information system. For the purposes of illustration only some examples of the types of formats are presented. Most of the material deals only with site planning and design. The material should be considered only as an illustration of technique. The complete set of guidelines for DCA is still being developed; this set is only a preliminary and partial draft.

The Massachusetts Department of
Community Affairs

HOUSING FOR THE ELDERLY
INFORMATION SYSTEM

Table of Contents

preface
introduction
program determinants
impact analysis
program statement
schematic design principles
design development criteria
working drawing specifications
index

Housing for the Elderly Information System

The guidelines shown on the subsequent pages are a preliminary draft of a set that will eventually be developed for the Massachusetts Department of Community Affairs. The content of the guidelines is only partial. Most of the examples refer to site planning and design. What is of most importance at this stage is the techniques used to convey information and their organization.

PREFACE

This information system provides the architect with information about the housing needs of elderly persons. It does not present the basic principles of housing design but focuses on the physiological, psychological, and sociological needs of elderly persons.

This information system is "systematic" in that it covers a wide range of behavioral information and in that it addresses each step of the design process. There are, however, many aspects of design and construction which are not covered. Compliance with these requirements in no way exempts the design from other applicable codes or ordinances.

This information system is written specifically for the use of architects hired by local housing authorities to design state public housing for the elderly. These guidelines are established by the Department of Community Affairs in accordance with the following General Laws:

(1) Chapter 667 of the Acts of 1954,

that requires that minimum standards be established in the planning and design of state-aided housing so as to alleviate the infirmities of the elderly.

(2) Chapter 584 of the Acts of 1971 amending Section 13a of Chapter 22 that requires that the site and community spaces in state-aided housing be planned and designed for use by persons confined to wheelchairs or those with other physical handicaps.

(3) Chapter 812 of the Acts of 1970 that requires that individual apartments be designed to assist persons with "impairments of long duration" to live independently.

Preface

The preface should describe the enabling authority under which the guidelines are established. It should also make clear the intent of the guidelines to be used in the process of housing production in the agency. This includes a statement to the effect that guidelines are directed at supplying information on the behavioral needs of elderly persons and are not meant to be self-sufficient design aids. They present only one segment of the information on which the design depends. Ordinances, codes, the approval of the LHA, and the standards of professional practice are as integral to the achievement of good design.

INTRODUCTION

As people age their behavioral needs change. In several respects they lose the independence of younger days. This happens because of loss of physical strength but also because their financial resources are increasingly limited. In all, many factors contribute, but some steps can be taken to keep this trend towards dependence to a minimum.

The design of housing and the physical environment can make a difference in the extent to which elderly persons can lead an independent and active life. For example, if doors are too heavy to push open or the numbers on the thermostat too small to read, an elderly person becomes needlessly dependent.

⋮

There are several basic behavioral characteristics of aging which have wide ranging implications for the design of the physical environment.

Reduced Physical Strength and Coordination

As persons age routine actions must be done much more slowly and with much more care. Backing a car out of a driveway onto a busy

street can be a treacherous task. The act of moving a turkey from the kitchen counter into the oven may become a two-person job.

⋮

Withdrawal from Active Social Life

When there is less spending money to make the trip to see relatives and friends are dying, there is a tendency to withdraw in isolation. The physical environment can do many things to encourage people to get out and meet new acquaintances. This can be done by centrally locating all mailboxes, by aggregating community facilities along well-traveled paths, and by a variety of other techniques.

⋮

The guidelines included in this information system apply these needs to the design criteria. They will help to create housing for the elderly which encourages the residents to lead independent and socially active lives. . . .

Introduction

The introduction (technique #1) is a summary of the behavioral principles on which the guidelines are based. These principles will reappear throughout the formats as the rationales behind requirements. The introduction should summarize the physiological, psychological, and sociological characteristics of aging which affect elderly person's use of environments. These should include:

1. The reduction in physical ability and coordination
2. The loss of sensory acuity
3. The withdrawal from active social life
4. The diversity of needs and lifestyles

Introduction (Continued)

The introduction should also state the agency's values, such as encouraging the elderly to lead a more active social life. Also, there should be a summary of the sources of the information in the guidelines and the constraints on the applicability of the guidelines to contexts other than DCA housing for the elderly.

Slide Presentation

Supplementing the written guidelines and in particular the introduction, there should be a slide presentation (technique #2) demonstrating the housing needs of elderly persons and their response to other designed environments.

THE PROGRAM DETERMINANTS

These program determinants are to be used to obtain a preliminary estimate of the project program requirements. As more detailed information becomes available these estimates can be refined.

UNIT MIX

65-75% 1 bedroom
1 occupant
20-30% 1 bedroom
2 occupants
5% handicapped
occupant.

UNIT SIZE

1 bedroom
1 occupant 440 s.f.
1 bedroom
2 occupants 520 s.f.
handicapped
occupant 75 s.f. additional

UNIT SIZE ACRES	7	37	4	3.9
DENSITY (UNITS, ACRES)	49	57	75	86
BUILDING COVERAGE	8%	10%	14%	16%
OPEN SPACE	56%	67%	50%	50%
PARKING COVERAGE	26%	21%	20%	24%
	SMALL TOWN SUBURBAN	SUBURBAN	URBAN SUBURBAN	URBAN

NUMERICAL OPEN SPACE DENSITY
COMPARISON

(FROM MSHDA Elderly Process)

The Program Determinants

This section includes some rules-of-thumb (technique #5) about project design which can be used to obtain a preliminary estimate of the project's characteristics. The rules will vary in their flexibility. Some, like unit sizes, may be highly inflexible. Others, such as building coverage, may vary widely.

The figures taken from these rules will be applied to the Program Statement along with information from the Impact Analysis.

IMPACT ANALYSIS

These questions are intended to elicit information about the site and the neighborhood that will be useful in programming the project.

NEIGHBORHOOD CHARACTER:

What is the average height of the buildings in the vicinity of the site?

What land uses are adjacent to the site? Are these land uses which should mix with or be separate from the project?

Is security a problem in the area?

COMMUNITY FACILITIES:

What community and service facilities are in the neighborhood which the elderly might use in addition to or instead of on-site facilities?

Is it possible that persons in the neighboring community might want to use the project facilities?

TRANSPORTATION:

Is public transportation readily accessible?

Are local shops, recreation, major shopping centers accessible without a car?

What is the parking ratio in similar projects?

CLIMATE:

Are there any unusual weather conditions?

Are parts of the site in shadow of other buildings?

Impact Analysis

Several forms of impact analysis (technique #6) are already required, but most of these are aimed at making sure that the neighborhood will not ruin the project or that the project will not ruin the neighborhood. The emphasis in this case will be to gather site-specific information that will affect the project and to put it into the planning process early. Some of this information that should be requested may be answerable only by community meeting, others may require an informed assessment. Who fills out the form becomes a key question. The agency itself should be responsible or carefully oversee the party in charge to make sure the information is as valid as possible.

Impact Analysis (Continued)

In writing the questions, a trade-off must be made between objectivity and flexibility to pursue special issues. Experience with the system in use will be most valuable in refining the balance.

The answers to the questions should lead right into programming decisions: What building type will fit into the neighborhood? Should the project be integrated into the neighborhood? Or is security the overriding issue? How many parking spaces are necessary?

PROGRAM STATEMENT

SITE AREA (in sf.): _____

TYPE OF LOCATION: (urban, rural, suburban) _____

UNITS:

No.	type	s.f./unit	total s.f.
—	1br, 1occ.	440	_____
—	1br, 2occ.	520	_____
—	1occ., hp.	515	_____
—	2occ., hp.	595	_____

PARKING SPACES:

No.	s.f./space	total s.f.
—	300	_____

SECURITY:

Is security a problem on this site?

yes ————— no
serious ————— not serious

COMMUNITY SPACES:

Indoor

	s.f.
entry lobby	_____
mall	_____
lounge	_____
laundry	_____
service/health	_____
management	_____
maintenance	_____
trash	_____
kitchen	_____
assembly/dining	_____
other	_____

Outdoor

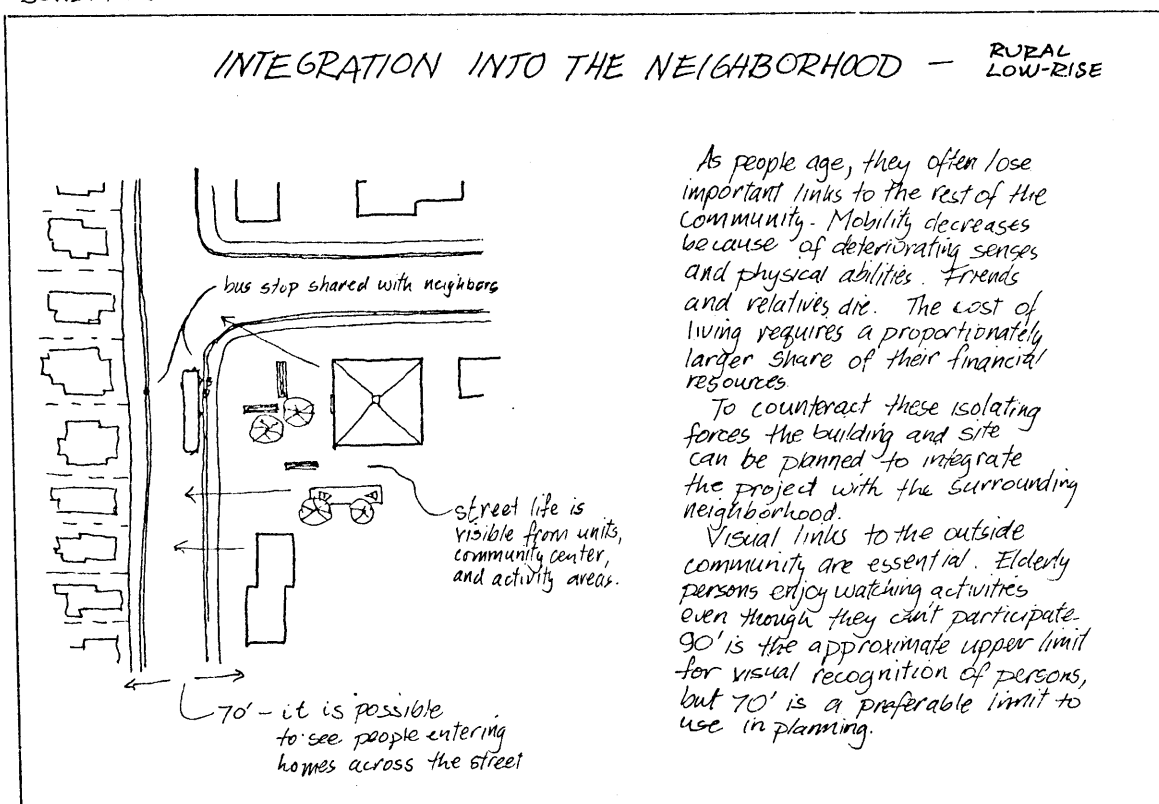
game tables	_____
horseshoes	_____
shuffle board	_____
barbeque pit	_____
gardening	_____
observation	_____

Program Statement

The program statement is a formulation of the major allotments of space for a project. It is prepared on the basis of the program determinants (rules-of-thumb) and the impact analysis. It should be a concise summary, ideally all on one page.

In addition to identifying requirements, the program statement should key the project to any divisions in the later criteria, such as low-rise or high-rise.

SCHEMATIC

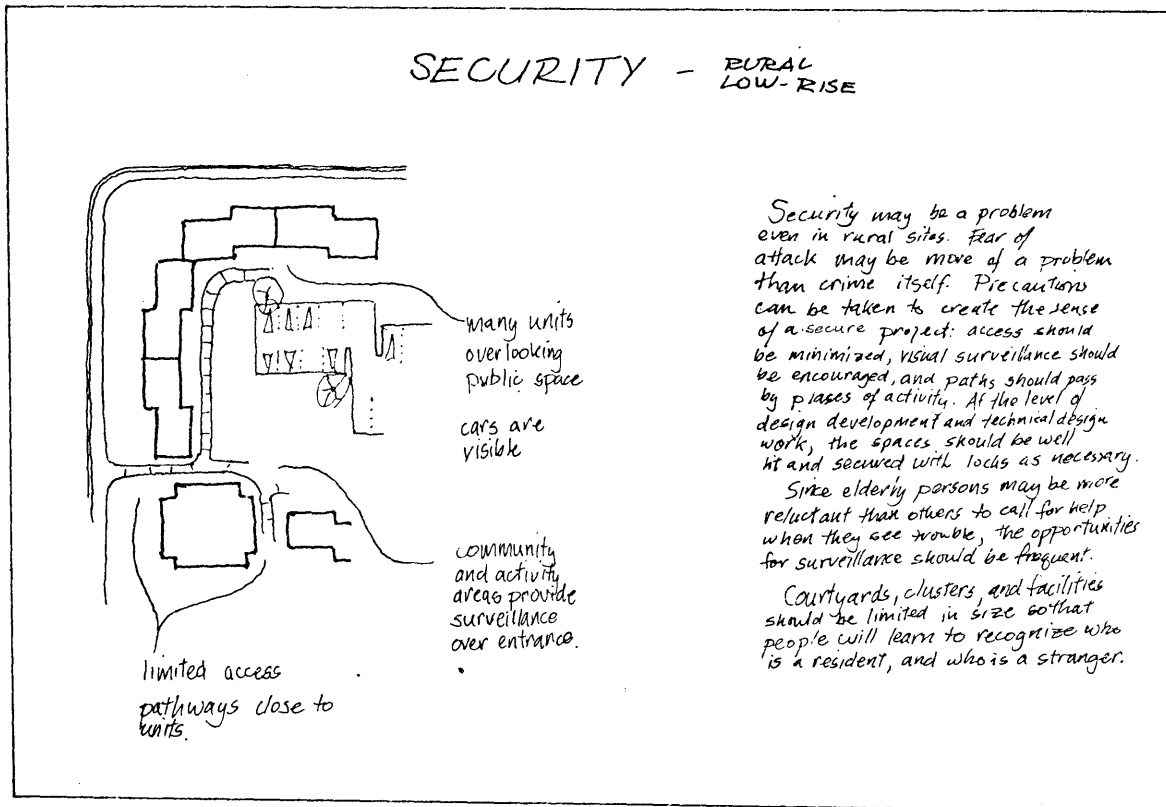


Schematic Design

For the schematic design stage the concern is to organize the spaces on the site plan, in the building, and in the units. The components of the design, as determined in the pre-design conference, must be located in appropriate relationships to each other. Because of this, schematic design guidelines need to provide principles for determining the position of several components simultaneously.

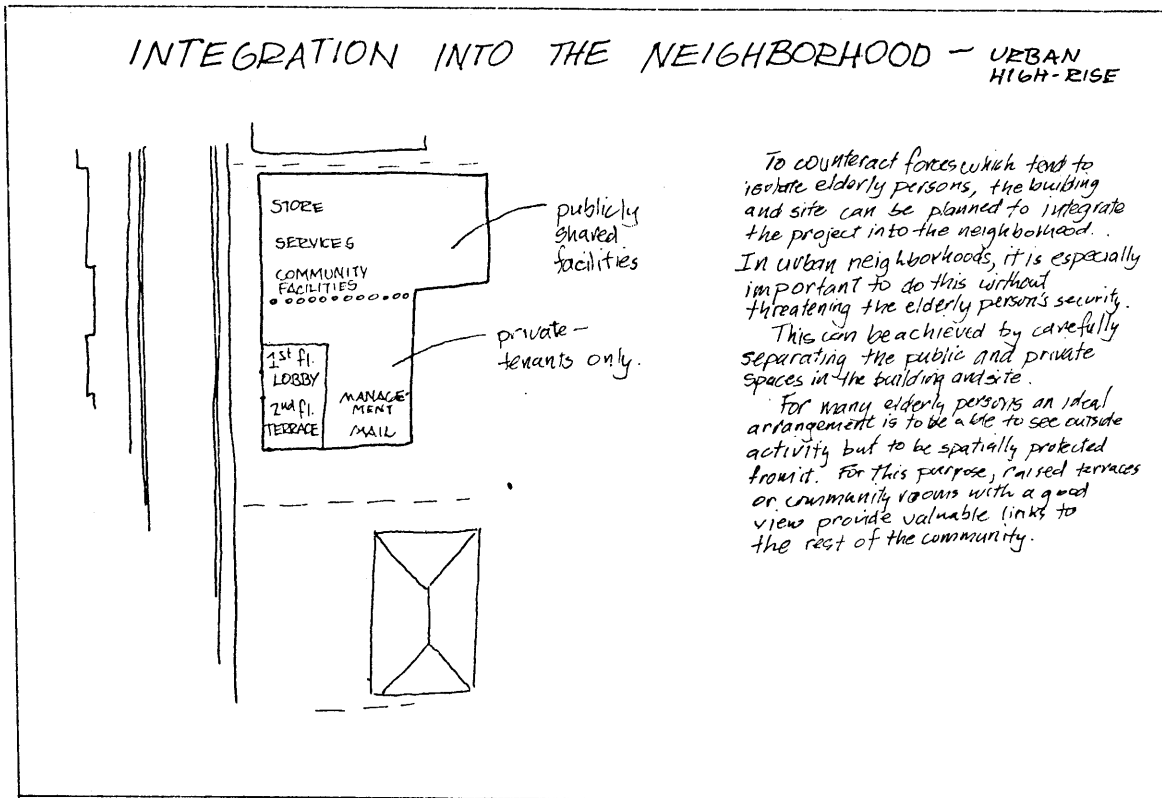
A similar set of organizing principles was developed by UDC for their low-rise high-density (LRHD) prototype. Their seven "organizing issues" (sense of community, child supervision, security, maintenance, livability, responsiveness to context, and flexibility) are the basis of the LRHD prototype and distinguish it from traditional high-density housing.

SCHEMATICS



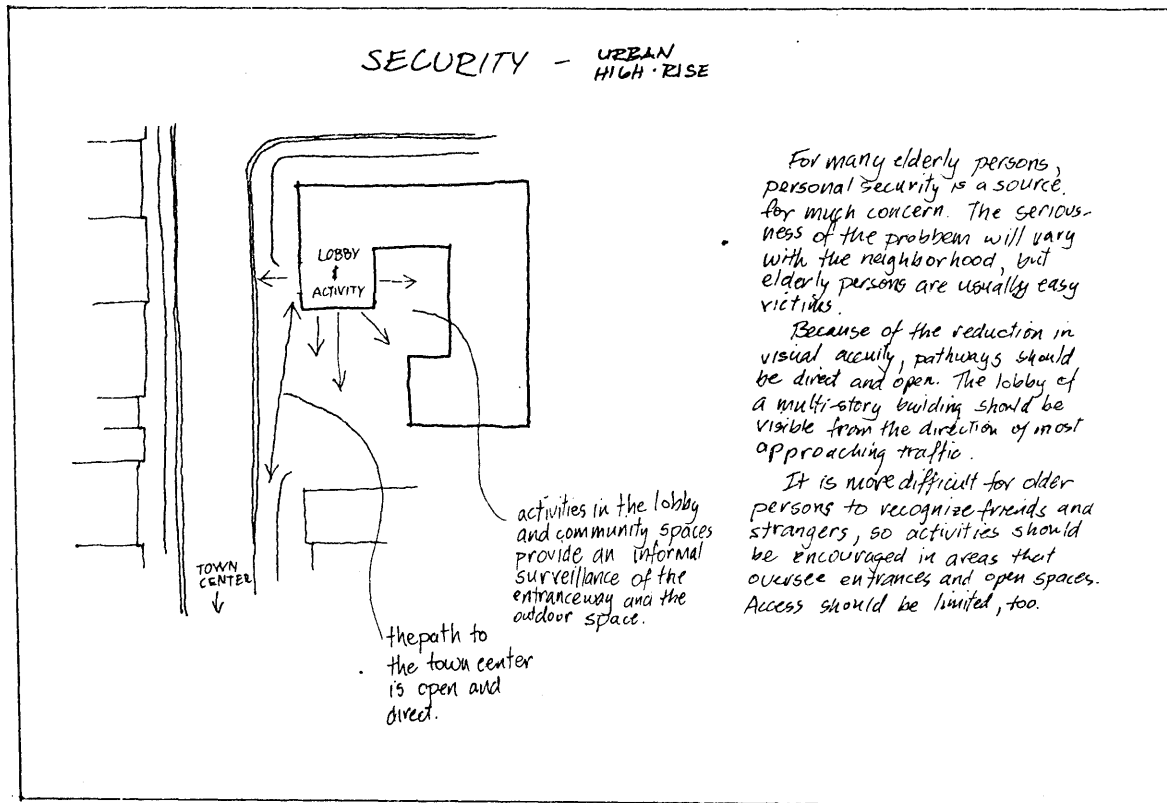
The principles are different from the criteria presented later in the guidelines in that they are broader and draw attention to the fundamental trade-offs that must be made in schematic design. For example, the two principles illustrated above are "integration into the neighborhood" and "security". These principles are broad enough so that they lead to different sets of criteria depending on the location of the project (urban or rural) and the building type (low-rise or high-rise). The two principles are also partially conflicting: a site which is completely integrated into a neighborhood loses some of the security associated with a separated enclave.

SCHEMATIC



It is also important that these principles be presented in a way which helps the architect to image their spatial implications. For this purpose, diagrams (technique #9) are most appropriate. A realistic representation was used rather than a bubble diagram, since it was felt to be more readable by some of the architects working for DCA. But the diagrams were kept loose to slow down any tendency to use the sketch directly. The diagrams are shown as segments of site plans rather than entire site plans. This was done for emphasis, to increase the level of generality, and because it made it possible to slightly exaggerate the principles for purposes of illustration. A single complete site plan would have to indicate the trade-offs between conflicting principles; this should not be done in guidelines but rather left to the architect and the specific circumstances of each project.

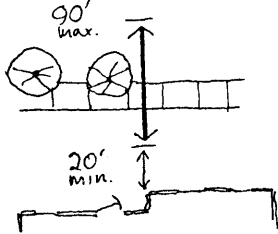

SCHEMATIC



It was believed necessary to illustrate the principles in different contexts because their implications vary so greatly. Only two contexts are illustrated here: rural/low-rise and urban/high-rise. These two may illustrate the widest range, but other distinctions may be necessary, such as large project or small project, low building coverage or high building coverage.

The sketches are accompanied by caption-like comments on criteria appropriate to the context and by a short discussion of the behavioral objectives behind the principles and the criteria.

DESIGN DEVELOPMENT

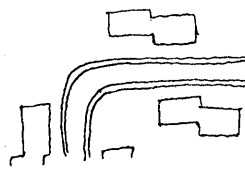
BEHAVIORAL OBJECTIVE	CRITERIA	EXAMPLE
Accidents are much more serious for elderly persons.	Are sidewalks protected from adverse weather?	Deciduous trees are desirable because they provide shade in the summer but let sunlight through in the winter.
Reduced physical strength necessitates more frequent opportunities for rest.	Are there resting places along walks at least every 200'? Are telephones, toilets, and other emergency needs reasonably accessible?	
For persons in apartment, the signs of life and activity are welcome. For persons on the path help is available if needed and there is the opportunity to meet others while passing.	Do paths pass private spaces within the range of visual recognition but far enough away to protect privacy?	
Personal security is important not only for its own sake. Without it there is a further retreat from community life.	Do paths pass close by public and semi-public spaces? Do paths pass close by activity and recreation areas? Do pathways avoid threatening activities? Are paths free from blind corners and hiding places?	Teenage hanging areas are threatening to the elderly.

Design Development Criteria

In this stage in the design, the primary concern is with the characteristics of the spaces and facilities. There are fewer of the broad trade-offs to be made, though there still may be conflicts between the criteria. Because of the inevitable reiteration between schematic (location) decisions and design development (characteristic) decisions, these criteria will often have to be used in close conjunction with the schematic principles and diagrams.

The technique used to present the criteria is similar to that used by Christopher Alexander for his patterns. No statement of context is made, though sometimes criteria are specified which apply only to high-rise buildings or some other context narrower than all elderly housing in Massachusetts.

DESIGN DEVELOPMENT

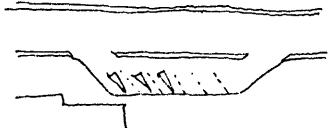
VEHICLE ACCESS		
BEHAVIORAL OBJECTIVE	CRITERIA	EXAMPLE
Deterioration in an older person's vision makes glare particularly annoying.	Are roadways and units designed so that headlights of cars will not shine into the units?	
Security, accessibility, and orientation are important for ease and comfort in mobility.	Are pedestrian paths along roadways?	
Reduced physical mobility makes getting in and out of cars a slower, more difficult process. Wet or icy weather makes movement more dangerous.	<p>FOR HIGH-RISE BUILDINGS:</p> <p>Is the drop-off at the front entrance off the main street?</p> <p>Is the drop-off sheltered from the weather?</p>	
Limited access increases security and the opportunity for informal socialization.	Do people coming on foot, by taxi, and from the parking lot all use the same entrance?	

The behavioral objectives are parallel to Alexander's statements of problem, although the emphasis is to acquaint architects using the criteria with the rationales behind the requirements rather than to reference all the research applicable to the problem. The behavioral objective also helps the architect decide whether a solution he is proposing satisfies the criteria.

The criteria themselves are in the performance question format (technique #13). This reflects the fact that the most important issue is that the behavior need be met, not that the criteria be satisfied. The examples are diagrams to illustrate the requirement or common cases where the criteria should be applied.

DESIGN DEVELOPMENT

PARKING

BEHAVIORAL OBJECTIVE	CRITERIA	EXAMPLE
Being able to see one's car is an aspect of security.	Is it possible to see one's car from one's apartment?	
Reduced coordination and slower reflexes make extra precaution necessary.	Is the process of driving into and backing out of a parking space safe?	
Wheelchairs require extra room for maneuvering	Are parking spaces for handicapped units 12' wide?	
	Are spaces for handicapped units easily accessible to those units by wheelchair?	
Reduced mobility	Is the parking space for a unit within 100' of the front entrance?	
It is desirable to create the chance for making informal acquaintances, also to create activity in front of units.	Does the shortest path from car to unit take one past the doors and windows of other units or the community center?	
Deteriorating eyesight can be hyper-sensitive to glare.	Are parked cars positioned so as not to shine into bedroom windows?	<p>Parking lots to the west of a building are likely to reflect glare into windows on the first few floors.</p>
	Are cars parked so as not to reflect glare from the sun into living areas or recreation areas?	

DESIGN DEVELOPMENT

PARKING

BEHAVIORAL OBJECTIVE

Cars are owned by only a small percentage of the elderly. This makes it possible to reduce the impact of parking lots, both visually and behaviorally. Large, highly visible parking lots, give an unnecessary institutional appearance.

Often when a project first rents up the average age is lower than it will be when the project matures. Because younger tenants are more likely to have cars, the number of cars is highest in the first years of a project.

CRITERIA

- Are parking lots small in scale?
- Are parking spaces avoided at curves in the road?
- Are parking lots landscaped with trees to reduce the visual impact?
- Are parked cars placed so as not to dominate the view from the unit?
- Are some parking lots designed so as to be easily convertible to other uses?

EXAMPLE

DESIGN DEVELOPMENT

BUILDING ENTRANCE

BEHAVIORAL OBJECTIVE	CRITERIA	EXAMPLE
<p>Common accidents, such as slipping on ice, are much more serious for the elderly. Also, it should be possible to sit and wait or socialize at the front entrance.</p>	<p>Is there protection from adverse weather? Are there seats by the entrance?</p>	
<p>Grade elevations are more difficult for older persons to negotiate.</p>	<p>Is the pedestrian access from the street and the parking lot to the building entrance relatively level, free from major changes in elevation? Is it possible for a wheelchair user to travel between the street, the parking lot, and the building entrance?</p>	
<p>The physical design should encourage informal socialization. Limit access and activity at the entrance will create a sense of security.</p>	<p>FOR MULTI-STORY BUILDINGS: Do all people use the same entrance? Is the entranceway designed to encourage passive activity and socialization? Is the entranceway a visually interesting environment?</p>	

WORKING DRAWINGS

EXTERIOR HANDRAILS

PERFORMANCE REQUIREMENT

The handrail must have a large enough diameter that arthritic hands can grasp it. If the diameter is too large persons with small hands will not be able to grip the rail.

The rail must be able to support the weight of persons who might lean on it for rest.

The surface must be comfortable to grip and must not transfer extremes of temperature.

Handrails are a signal to blind persons of a change in level. Also, extra length at the ends is necessary for additional support in using stairs.

PRESCRIPTIVE SPECIFICATION

The diameter of the handrail should be between 1 1/2" and 2".

There must be a space of 3" between a wall and the inside edge of a rail so that it is easy to grip and lean against for support.

The rail must support a static load of 500 pounds.

The surface of rails should be of wood or some other material besides metal.

On exterior stairs the rail must extend the width of one tread or more beyond the top and bottom of the stairs.

On exterior ramps the handrail must extend 12" beyond the top and bottom of the ramp.

Working Drawings

For the details of working drawings a combination of requirements written in performance terms and prescriptive specifications (technique #12) meets the agency's intention of conveying the behavioral reasons behind requirements and the limitations on its and the architects' resources. Architects have the option of using the prescriptive specification or demonstrating that an alternative meets the performance requirement.

WORKING DRAWINGS

SIDEWALKS

PERFORMANCE REQUIREMENT

Adequate drainage is necessary because puddles and ice can lead to serious injuries to older persons.

The surface of the walk should be textured so that it is not slippery.

On main sidewalks there must be enough room for two wheelchairs to pass.

Steep grades must be designed in accordance with the specifications for "RAMPS".

PRESCRIPTIVE SPECIFICATION

The sidewalks must have a gradient of at least .5% for water drainage.

Drains and catchbasins should not be placed near sidewalks or at corners in roads.

Ice melters must be used on a main sidewalk if icing will be problematic otherwise.

Textured asphalt or broom-brushed concrete is recommended.

Main sidewalks must be a minimum of 60" wide.

Back walks may be 36" wide with occasion turn-around or passing points (60" x 60").

If the grade of a sidewalk is greater than 1" in 20" (.5%) specifications for RAMPS must be met.

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To be useful as a reference book during design work, the guidelines should be carefully cross-referenced. It should be possible to know whether page references are for schematic, design development, or working drawing stages. Special attention must also go to cross-referencing different terms applying to the same feature. For example, the term "path" is used at the schematics level, but the term "sidewalk" is used at the working drawing level.

FOOTNOTES

1. The labels for these fields of research include: environmental psychology, man-environment relations, proxemics, architectural sociology, and more combinations of these terms.
2. U. S. Department of Housing and Urban Development. Challenge, July 1971, p. 1.
3. Pastalan, L. (Dr.), Institute of Gerontology, University of Michigan, Ann Arbor, Michigan.
4. Some of the important authors in the field include: Howell, S. C., Kaplan, J., Lawton, M. P., McGuire, M. C., and Pastalan, L. A.
5. "Design Evaluation: Social Use of Elderly Housing", U. S. Department of Health, Education, and Welfare grant SRS PGN 93-P-57584/1-01, under the direction of Howell, S. C.
6. McCall, G. J. and Simmons, J. L., ed., Issues of Participant Observation, Addison-Wesley, Reading, Massachusetts, 1969.
7. Barry Korobkin's work has been supported by an American Institute of Architects Communications Fellowship.
8. "Operations Handbook for Financing of Multi-Dwelling Housing" (Revised 11-1-71), Massachusetts Housing Finance Agency, p. 13.
9. "Guidelines for the Site Plan and Design of Housing for Elderly and Handicapped Persons" (Preliminary Draft for Review), Massachusetts Department of Community Affairs, March 1973.
10. Another Chance for Housing: Low-Rise Alternatives, The Museum of Modern Art, New York, 1973.
11. Ibid., p. 16.

22. Korobkin, B., "Interim Report, Memorandum to Don Conway, 19 April 1974., p. 5.
23. Crampton, L. S. W., Commissioner, Memorandum to Local Housing Authorities, tenant organizations, and interested citizens, Massachusetts Department of Community Affairs, April 1973.
24. Pastalan, L. A.
25. Liebman, T.
26. Performance Specification for Office Buildings (Second edition), Section G., Public Buildings Service, General Services Administration, June 1973.
27. Housing for the Elderly Development Process, Michigan State Housing Development Authority, 1974, p. 16.
28. "Operations Handbook", Massachusetts Housing Finance Agency, p. 13.
29. "Site Reconnaissance" (form), New York State Urban Development Corporation, Office of the Chief of Architecture.
30. Alexander, C., Houses Generated by Patterns, Center for Environmental Structure, 1969.
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32. "Recommended Dwelling Unit Layouts", New Jersey Housing Finance Agency, January 1972.
33. "Housing for Old People" (Bulletin 3), Scottish Development Department, The New Scottish Housing Handbook, 1970, p. 34.
34. Townhouse Development Process, Michigan State Housing Development Authority, October 1970.
35. Liebman, T.
36. Alexander, C., Pattern Language which Generates Multi-Service Centers.

12. Liebman, T., Kirkland, J. M. and Pangaro, A., "Criteria for Housing" (Updated Fall 1972), New York State Urban Development Corporation manuscript. See also Kauffman, A. J., "Criteria for Housing", Unpublished paper for the Internship Program, Harvard Graduate School of Design and New York State Urban Development Corporation, Cambridge, Massachusetts, 1974.
13. Elderly Housing Study (First Draft), New York State Development Corporation, 12 April 1974.
14. "Provisions for Housing for the Elderly" (Technical Bulletin #4), New York State Urban Development Corporation, undated.
15. Bleiker, Hans., "Augmentation and Meta-Process", Unpublished Ph.D. Dissertation, Massachusetts Institute of Technology, Cambridge, Massachusetts, 1972.
16. Other types of agencies may take active organizing roles. For example, the Massachusetts Office of Elder Affairs sponsors Councils on Aging in local communities. Some informal alliances have developed between the OEA and DCA so that DCA has some indirect contact with the local groups.
17. Massachusetts Housing Finance Agency (Fifth Annual Report), September 1973., p. 12.
18. Housing Quality: A Program for Zoning Reform, Urban Design Council of the City of New York, p. 12-14.
19. Kapsch, R. and Wehrli, R., "Existing Architectural Information Indexing Systems" (Draft), Architectural Research Section, Center for Building Technology, National Bureau of Standards, 1 July 1973.
20. This classification is directly derived from one used by Professor Gary Hack, Department of Urban Studies and Planning, Massachusetts Institute of Technology, Cambridge, Massachusetts.
21. Alexander, C., et.al., Pattern which Generates Multi-Service Centers, Center for Environmental Structure, 1968. Alexander has written several books and articles on patterns; this one contains the distinction between context, problem, and solution, which is referred to in this thesis.

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38. Interview with Francis Ventre, National Bureau of Standards, 4 April 1974. See also Public Buildings Service, p. B5.
39. Public Buildings Service, p. G108.
40. Urban Design Council of the City of New York.
41. "Housing for the Elderly", U. S. Department of Housing and Urban Development, Federal Housing Administration, Minimum Property Standards HUD PG 46 (Revised 9-1971), p. 24.
42. "Provisions for Housing for the Elderly", New York State Urban Development Corporation, p. 2.
43. Massachusetts Department of Community Affairs.
44. Scottish Development Department, p. 44.
45. Massachusetts Department of Community Affairs, p. i.
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