Project Book

A Design-focused Workbook
to Accompany the
AFFORDABLE HOUSING DESIGN ADVISOR

Project Name:

_____

A new tool

to bring

the power

of design to

affordable

housing

Foreword

Decent, affordable housing is critical to the social and economic well-being of this country. Need for such housing continues to far outstrip demand, and those projects that do get built suffer from severe cost constraints. Quality design – too often considered an expensive amenity, rather than a cost-effective necessity – is usually one of the first components to be cut from a project in the name of cost containment.   The result is a country dotted with projects that meet minimal shelter requirements but fall far short of the well-planned, well-designed and well-landscaped environments that we usually associate with quality housing.

There is a clear need within the affordable housing community for straightforward, easy to use guidance on how to achieve cost-effective design excellence. HUD recognized this need and has created the Affordable Housing Design Advisor in response.

The Affordable Housing Design Advisor is a new, CD-ROM based tool designed to help the developers, sponsors and users of affordable housing understand what constitutes quality design, why it is worth striving for, and how to achieve it in their own projects. HUD's objective is to dramatically increase the "design literacy" of the many non-designers whose activities are central to affordable housing production.

The Design Advisor is organized into three core content areas:

1. What is Good Design?
2. Why is Design Important?
3. How Can I Get A Well Designed Project?

Each area provides plain English, action-oriented guidance complemented by case study examples of successful projects and strategies. Of particular note are the "20 Steps to Design Quality" which provide clear direction on how the process of delivering an affordable housing project unfolds and where design considerations can and must fit in. This step-by-step guidance also forms the basis of the "Project Book," a 100 page, design-focused workbook which accompanies the Design Advisor CD-ROM.

HUD strongly believes that better design can make a difference in affordable housing and that quality design will: increase the economic viability of developments, improve the quality of life for residents, and enhance the vitality of communities. The Affordable Housing Design Advisor is a valuable new tool that will help the many non-designers who produce and deliver affordable housing in the United States achieve these objectives.

Susan M. Wachter
Assistant Secretary for Policy Development and Research

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Introducing the Project Book

The Project Book is a design-focused workbook that has been developed to help guide decision-making over the course of an affordable housing development project. It is intended to be used as a field manual to help structure and record key design decisions as they are made.

The Project Book is unique in that it is designed to be used interactively with the Affordable Housing Design Advisor, an electronic tool containing a wealth of detailed resources, links, illustrations and case studies which complement and expand on the information contained in the printed workbook.

Using the Project Book

The Project Book contains 20 individual chapters, each of which focuses on a specific set of actions that will help bring better design to an affordable housing development project. These sets of actions or "steps" are designed to be undertaken in sequence, beginning as early as possible in the Concept phase of development. (For a matrix indicating precisely when each step should be undertaken over the course of the development process, see Step 3.)

Most of the steps are accompanied by individual forms or checklists to help guide the actions called for in that particular step. The steps and their accompanying forms can be printed out individually, in groups or all at once. (See the Design Advisor, Step 1, for further information.)

As each form or checklist is completed, you can record the date of completion on the Master Checklist at the front of the Project Book. This will let you know where you are in the process and what comes next.

At every step it will be useful to consult the Affordable Housing Design Advisor for additional information. In particular, the Gallery and the Design Considerations Checklist should be visited and revisited for ideas and inspiration. Likewise the various tools and resources in the Advisor, including links to outside organizations and web sites, should be reviewed and used to help complete each step.

Systematic use of the Project Book, coupled with frequent consultation of the Design Advisor, will help ensure that your affordable housing development strives for and achieves the highest levels of design quality.

Master Design Checklist

STEP	ACTION	DATE COMPLETED
1. Start Project Book	Manual Printed Out and Inserted in Notebook	
2. Review Advisor Resources	Design Advisor Steps, Gallery, and Design Considerations Checklist Reviewed	
3. Understand Design Timeline	Design Development Matrix Reviewed	
	Design Phase Definitions Reviewed	
4. Obtain Professional Design Assistance	Community Design Center Contacted	
	Professional Design Assistance Obtained	
5. Establish Design Goals for Occupants	Comparable Projects Analyzed	
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	at completion of early schematic design	
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	Architect Selected and Design Team Assembled	

STEP	ACTION	DATE COMPLETED
10. Develop 3 Site Plans	3 Alternative Site Plans Developed and Reviewed	
	Final Site Plan Selected	
11. Use Design Checklist	Design Considerations Checklist Consulted During Early Schematics	
	Design Considerations Checklist Consulted During Late Schematics	
12. Use O&M Checklist	O&M Checklist Reviewed and Filled Out:	
	at completion of schematic design	
	at completion of design development	
	at completion of contract documents	
	during early phase of construction	
	when construction is 85% complete	
13. Prioritize Design Components	Prioritized List of Key Design Components Completed	
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15. Prioritize Construction Systems	Prioritized List of Key Construction Materials and Systems Completed	
16. Prioritize Finishes and Hardware	Prioritized List of Key Finishes and Hardware Completed	
17. Monitor Bids	List of Key Bid Substitutions and their Impacts on Design Quality Completed	
18. Monitor Construction	List of Key Construction Substitutions and their Impacts on Design Quality Completed	
19. Create O&M Manual	O&M Manual Completed	
20. Complete Project Book	Project Manual Completed	

Step 1. Start a Design-focused Workbook for the Project

Why is this important?

Over the course of the development process a series of key decisions are made which strongly impact the overall design quality of a finished project. The Design Advisor has identified twenty of the most important decision points and organized them into a series of 20 Steps to Design Quality.

A design-focused Project Book, created at the very beginning of the development process, will help ensure that these Steps to Design Quality are actually taken and that the results are collected and used.

Such a Project Book will:
- help guide the design decision-making process;
- provide a structure for formally recognizing each key decision as it occurs and for recording the results;
- create a record of the design process – what worked and what didn't – to help guide future development activities.

When should this be done?

As early as possible in the Concept phase of development.

Who should do this?

The owner/developer.

What should be done?
- Obtain a loose leaf notebook with at least 20 section tabs.
- Print out the **Cover, Title Page, and Master Checklist** sheets and insert them in the notebook.
- Print out the rest of the Project Book in one of three ways:
    1. Print the entire **Project Book** (a PDF file of over 100 pages)
    2. Print the entire Project Book, but in 4 shorter segments to make printing easier:

        > **Steps 1 – 5**
        > **Steps 6 – 10**
        > **Steps 11 – 15**
        > **Steps 16 – 20**

    3. Print each step and its accompanying forms or checklists as you encounter it on the web site.
- Insert printed steps (all, some or one at a time) along with their accompanying forms and checklists in the notebook at the appropriate tabs.
- As you complete each step, fill out the forms and checklists required and record the completion date on the Master Checklist at the front of the Project Book.

- The Project Book is intended primarily as a field manual to help structure and record decisions as they are made. It is designed to be used interactively with the Design Advisor web site which contains a wealth of detailed resources, illustrations and case studies that will help explain and reinforce the information provided in the steps.

How can doing this help move my project forward?
- Maintaining a detailed, well organized workbook focused on design issues will help clarify design decision-making throughout the project.
- It will also add credibility to your development – among neighbors, funding agencies and regulatory bodies – as one that is seriously and systematically pursuing design excellence.
- Finally, the completed Project Book will provide a comprehensive record of design decision-making that will help guide your next project and, in the process, enhance your reputation as a development organization committed to design quality.

Step 2.   Review Design Advisor Resources

Why is this important?

The Affordable Housing Design Advisor has been created to help those involved in the production of affordable housing better understand what quality design is, why it is worth striving for and how to achieve it in their own projects.

Understanding the full range of resources which the Design Advisor provides – and how they are organized – will help you access these resources quickly and effectively for use in your own projects.

Equally important, a review of these resources, especially the case study examples, will provide inspiration and "real world" guidance on the level of design quality that is achievable in affordable housing developments.

When should this be done?

As early as possible in the Concept phase of development.

Who should do this?

The owner/developer.

What should be done?

- Review the entire Design Advisor site, beginning with the home page.
- Pay special attention to – and take time to enjoy - the Design Considerations Checklist and the Gallery of High Quality Affordable Housing.
- Bookmark the site for quick future reference.

How can doing this help move my project forward?

- Understanding how to navigate the Design Advisor will allow you to use it more effectively in order to create a well designed development.
- Familiarity with the Design Considerations Checklist and the Gallery will provide you with a wealth of examples that you can use:
    1.) to inspire and guide your early thinking about the design of your own project; and
    2.) to demonstrate to others – neighbors, funding agencies, regulatory bodies – the level of design quality that you are striving for.

Step 3. Understand where design fits in the development timeline

Why is this step important?

Timing is everything. As a developer you are responsible for every aspect of an affordable housing project, from financing and regulatory approval to construction and occupancy. Design quality is only one of your concerns - an important one, but one that is often overwhelmed by more pressing issues. To make sure that design quality is not lost over the course of a project, it is necessary to understand:

- how the design process unfolds,
- where specific design phases fit in the overall development timeline, and
- when specific steps should be taken to ensure that design quality is "built in" to the project.

When should this be done?

During the Concept phase of development. (See the **Design Development Matrix**.)

Who should do this?

The owner/developer.

What should be done?

- Review the **Design/Development Matrix** for a summary of how the basic phases of affordable housing development relate to the basic phases of architectural design.
- Pay special attention to the specific steps that are recommended at each phase and when they should occur to have the most impact on design quality.
- Review the definitions used for the various design and development phases listed on the matrix. (See **Design Phase Definitions**.)
- Refer back to the individual descriptions of the **20 Steps to Design Quality** listed on the Matrix.
- Recognize that the development process will vary from project to project and the sequence of design and development activities may also vary. However, the basic ideas and terminology you find here will most likely be the same. The matrix is a typical example of the process, based on standard architectural language and experiences from a wide range of developments.

How can doing this help me move a project forward?

- A clear understanding of the phases and the "language" of design will foster better communication between all members of the design and development team.
- An understanding of how the phases of design relate to the overall development timeline will help optimize overall project scheduling and avoid duplication and overlap.

- Finally, an understanding of when the Design Advisor's 20 Steps to Design Quality should occur will ensure that these steps are indeed taken and not overlooked as the design/development process proceeds.

Additional resources available from the Affordable Housing Design Advisor CD-ROM.

Excerpts from the Architect's Handbook of Professional Practice, produced by the American Institute of Architects, presents a detailed discussion of the design process, primarily from the architect's point of view.

You and Your Architect, also produced by the American Institute of Architects, provides an overview of the owner/architect relationship.

Excerpts from Managing the Development Process, produced by the Pratt Institute Center for Community and Environmental Development, provides an overview of the design/development process from the standpoint of community housing development organizations.

Design Development Matrix

Development	Design	20 Steps to Design Quality
CONCEPT PHASE		
What goes on in the development process	*What goes on in the design process*	*What to do to ensure a well designed project*

• Establish organizational goals for the project.
• Determine type of project, Potential location and target occupants.
• Consider sources of financing and how the project might be managed.
• Develop an understanding of community and local government support/opposition, concerns/needs.
• Evaluate site: cost and availability, technical and environmental issues.
• Visit and evaluate similar projects.
• Develop project vision and concept.
• Decide whether to explore the concept further.
➢ Outcome: specific use of a designated site for an identified market by a specific development team with a defined financial program.
	• Pre-Design Phase - Activities May Include:
	  ➢ Programming
	  ➢ Space Schematics/Flow Diagrams
	• Site Analysis Phase – Activities May Include:
	  ➢ Site analysis and selection
		1. Start Project Book
		2. Review the Design Considerations Checklist and continue to refer to it throughout the development process.
		3. Understand where design fits in the development timeline
		4. Obtain Professional Design Assistance at the Very Beginning
		5. Analyze target occupants and establish resident-related design goals for the project
		6. Analyze neighborhood context and establish community-related design goals for the project
		7. Analyze the site to make sure it can physically accommodate the proposed project and provide easy access to the amenities and services its residents will need.
		8. Begin Cost Analyses
		- Continue to Conduct Them Early and Often

Development	Design	20 Steps to Design Quality
PREDEVELOPMENT PHASE		
What goes on in the development process	*What goes on in the design process*	*What to do to ensure a well designed project*
- Apply for predevelopment funds. - Conduct market study. - Identify governmental/regulatory requirements. - Select project team and define scope of work for each member. - Review development concept with potential occupants, community groups, maintenance personnel, and other stakeholders and modify as appropriate. - Identify sources of financing. - Negotiate tentative or conditional financing commitments. - Test cost assumptions. - Obtain site control. - Develop feasibility study. - Outcome: analysis of all assumptions regarding market, site, operation pro forma, development pro forma, financial requirements, financing, team and roles, including suggested modifications for the concept to be feasible.	- Pre-Design Phase - Activities May Include: - Existing Facilities Surveys - Site Analysis Phase - Activities May Include: - Site Development Planning - Detailed Site Utilization Studies - On-Site Utility Studies - Zoning Processing Assistance - Early Schematic Design Phase - Activities May Include - Architectural Design - Landscape Design	9. Assemble the right project design team 10. Develop a minimum of 3 alternative site plan concepts for the project. 11. Use the Design Considerations Checklist to guide the design process. 12. Use the Operations & Maintenance Considerations Checklist to reality check the design process.

Development	Design	20 Steps to Design Quality
DEVELOPMENT PHASE		
What goes on in the development process	***What goes on in the design process***	*What to do to ensure a well designed project*

• Ongoing consultation between project team and the community.
• Prepare and submit financing/loan application.
• Secure permanent financing.
• Acquire property.
• Secure construction financing.
• Solicit and review construction bids.
• Obtain planning approvals, environmental approvals, if required.
• Obtain building and other permits as required.
   ➢ Outcome: all elements of project made definite. Letters of commitment, contracts and loan documents binding all participants to the specific elements of the deal are put in place.
	• Later Schematic Design Phase - Activities May Include:
	   ➢ Architectural Design
	   ➢ Structural Design
	   ➢ Mechanical Design
	   ➢ Electrical Design
	   ➢ Civil Design
	   ➢ Landscape Design
	   ➢ Interior Design
	   ➢ Materials Research
	• Design Development Phase – Activities May Include
	   ➢ Architectural Design
	   ➢ Structural Design
	   ➢ Mechanical Design
	   ➢ Electrical Design
	   ➢ Civil Design
	   ➢ Landscape Design
	   ➢ Interior Design
	   ➢ Materials Research
	• Contract Documents Phase - Activities May Include
	   ➢ Architectural Design
	   ➢ Structural Design
	   ➢ Mechanical Design
	   ➢ Electrical Design
	   ➢ Civil Design
	   ➢ Landscape Design
	   ➢ Interior Design
	   ➢ Materials Research
	• Bidding or Negotiations Phase - Activities May Include
	   ➢ Bidding Materials
	   ➢ Bidding/Negotiation
	   ➢ Analysis of Alternates/Substitutions
	   ➢ Bid Evaluation
	   ➢ Contract Award
		13. Identify and prioritize the key design components of the project - those that will do the most to meet user needs, respond to the context and enhance the neighborhood.
		
		14. Stress the project's design quality in all funding applications.
		
		15. Identify and prioritize the key construction materials and systems for the project – those which are most critical to making the project "built to last."
		
		16. Identify and prioritize the key finishes and hardware for the project - those which are most critical to making the project "built to last."
		
		17. Monitor bids and review any material, system, finish or hardware substitutions to ensure that design objectives, especially the "built to last" goal, are not compromised.

Development	Design	20 Steps to Design Quality
CONSTRUCTION PHASE		
What goes on in the development process	***What goes on in the design process***	*What to do to ensure a well designed project*
- Award construction contract(s). - Initiate construction. - Manage change orders. - Negotiate certificate of substantial completion. - Initiate marketing and lease-up, including outreach within the community. - Manage construction close out. - Conduct open house for community participants, press, etc.. ➢ Outcome: completely built, leased/sold building, passing all inspections.	- Contract administration Phase ➢ Submittal services ➢ Observation services ➢ Project Representation ➢ Testing and Inspection ➢ Administration ➢ Supplemental ➢ Documentation ➢ Quotation ➢ Requests/Change Orders ➢ Contract Cost Accounting ➢ Project Closeout	18. Monitor construction to ensure that all key design, construction and finish goals are being met.

Development	Design	20 Steps to Design Quality
OPERATION PHASE		
What goes on in the development process	*What goes on in the design process*	*What to do to ensure a well designed project*

• Staff up.
• Occupy.
• Provide services.
• Operate.
• Continue communication with community.
➢ Outcome: effectively rented/sold project meeting financial and other project goals.
	• Post Contract Phase - Activities May Include
	  ➢ Maintenance and operational programming
	  ➢ Start-up assistance
	  ➢ Record drawing
	  ➢ Warranty review
	  ➢ Post occupancy evaluation
		19. Create an operation and maintenance manual for the project.
		
		20. Complete Project Book

Step 4.   Obtain Professional Design Assistance as Early as Possible

Why is this important?

Many of the critical decisions that affect the long term quality and even viability of a development project – goal setting, site selection and evaluation, concept development, ballpark cost estimates – often occur well before the project design team has been selected and put under contract.

These decisions often "lock in" specific aspects of a project in such a way that it can be difficult – and sometimes impossible – to "work around" them in order to achieve design quality.

Obtaining professional design assistance – from a qualified architect, engineer, or community design center – at the very beginning of the development process (i.e. well before the project design team is assembled) can help ensure that these critical decisions are made in a way that enhances, rather than inhibits, the overall design quality of a project.

When should this be done?

As early as possible in the Concept phase of development.

Who should do this?

The owner/developer.

What should be done?

- Enlist one or more design professionals – architect, engineer or, preferably, both – who are knowledgeable about affordable residential design and construction in your market to assist your organization throughout the Concept phase of the development process.
- If at all possible, hire these professionals on a fee for service basis. (Local funding organizations, foundations, etc. may have modest amounts of money available for such purposes. Technical assistance may also be available from HUD or a local intermediary.)
- If funding is not available – internally or externally – try to obtain assistance on a "pro bono" basis; perhaps from a board member or from a friend(s) of your organization.
- If there is a **<u>Community Design Center</u>** in your region, contact it as early as possible in the development process. Many of these organizations are specifically set up to provide professional assistance in the early phases of affordable housing decision-making.
- At the conclusion of the Concept phase, transfer design decision responsibility to your project design team, which may or may not include the professional(s) hired for early stage assistance.

How can doing this help move my project forward?
- Professional design assistance will help ensure that design considerations are part of all the critical "go-no go" decisions made early in the development process.
- Having professional designers on the early decision-making "team" should also reassure potential funding sources, regulatory agencies and neighbors that your development takes design seriously and is doing everything it can to achieve design excellence.

Step 5.   Analyze target occupants and establish resident-related design goals for the project

Why is this important?

Exactly who the anticipated occupants or "users" of a development are has many important implications for the success (or failure) of the design. For example, the needs of young families are very different from the needs of elderly single people.

Defining the needs of future occupants in very specific, physical terms at the earliest stages of the project helps ensure that the development, both inside and out, will effectively meet those needs. In addition, the very activity of establishing design goals based on the users' needs helps make sure all participants are making the same assumptions about the physical design of the project from its earliest stages. As an added benefit, a clear description of the development's target group helps the surrounding community understand and value the aims your project is trying to serve.

When should this be done?

During the Concept phase of development. See the **Design/Development Matrix**.

Who should do this?

The owner/developer with input from user group(s) and the community. Professional design assistance would be very helpful at this stage.

What should be done?

- Drawing on your own experience and on information gathered from other sources such as those mentioned below, fill out the **User Activity Checklist** to analyze and understand the specific needs of your future residents and to understand how these needs will impact the project's physical design.
- Analyze the completed Checklist and develop a short (no more than a few paragraphs) **statement** listing the main, resident-related design goals for the project.
- Research existing facilities in your area that serve the same target population.
- Contact **regional HUD office** for a list of recent projects funded.
- Contact local/regional Housing and Community Development office for a list of recent projects funded in your area.
- Contact local/regional **community design centers** or affordable housing coalitions for lists of recent projects.
- Visit relevant projects, if possible, or contact the owner or property manager to discuss how residents use the facilities and grounds.
- Contact possible funding sources for your project/user type and determine if they have any guidelines on user needs or activity patterns.

- Contact organizations who support the target user population and determine if they have any guidelines on user needs or activity patterns.

How can this step help move the project forward?
- A clear understanding of resident-related design goals for the project will simplify and clarify critical go/no go decisions early in the development process.
- In particular, the **User Activity Checklist** helps streamline the **"programming"** phase of the design process and clarifies what the owner/developer needs from the design team.
- A user needs analysis also provides useful input to the feasibility study normally developed for project funding.

Additional resources available from the Affordable Housing Design Advisor CD-ROM.
- An example of a **community input package** used in Richmond, VA to gauge potential occupants' design and amenity preferences.

User Activity Checklist
Introduction

Printing Instructions: Review and then print out this entire file, consisting of introductory paragraphs (1 page); a blank User Activity Checklist (5 pages); a blank Statement of Resident-related Design Goals (1 page); an example filled-in User Activity Checklist (5 pages); an example filled-in Statement of Resident-related Design Goals; plus 2 additional typed in Checklists – one for a family development, one for the elderly(2 pages).

Review the User Activity Checklist and fill in all categories that apply with short (a few words) descriptions of how your proposed occupants might undertake the specific activity listed and how this activity pattern might affect the design of the building, open space and/or parking for your project. Use the two filled-in examples as guides, and add new activity categories as appropriate.

The checklist can be filled in by individuals and then compared, or in a group setting. The goal is to begin to understand what potential occupants might need from the housing you hope to provide. Ultimately, this new knowledge will help you create a project that better meets these needs through good design.

Once the Checklist is complete, use it to develop a short (no more than a few paragraphs) statement describing the main, resident-related design goals for the project.

Add the completed Checklist and the Statement of Resident-related Design Goals to the Project Book.

User Activity Checklist

User Type: **Date:**

Activity Category	User Activity Pattern	Implication for Building	Open Space/Parking
Cooking & eating			
Bathing & toiletting			
Sleeping			

Activity Category	User Activity Pattern	Implication for Building	Open Space/Parking
Working & studying			
Socializing & community activities			
Entertaining & watching TV			

Activity Category	User Activity Pattern	Implication for Building	Open Space/Parking
Inside play/outside play			
Inside circulation			
Storing			

Activity Category	User Activity Pattern	Implication for Building	Open Space/Parking
Housekeeping/chores/ laundry			
Arriving/leaving On foot			
By car			
By public transport			
Parking			

Activity Category	User Activity Pattern	Implication for Building	Open Space/Parking
Other			

Statement of Resident-related Design Goals

Based on an analysis of the completed User Activity Checklist list the key design goals that will help your project best meet the activity needs of its residents.

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Example
User Activity Checklist

User Type: HOMELESS DISABLED ADULTS   **Date:**

Activity Category	User Activity Pattern	Implication for Building	Open Space/Parking
Cooking & eating	SOME USERS LOOK FORWARD TO DINNER PARTIES, OTHERS HAVE NEVER COOKED. MANY RESIDENTS HAVE LIMITED STRENGTH & STAMINA.	MAKE KITCHENS ADAPTABLE FOR VARIOUS USERS. PROVIDE A D.W. & MICROWAVE	PROVIDE BBQ AREA.
Bathing & toiletting	SPACE IS REQUIRED FOR LATERAL TRANSFER.	ALL BATHS MEET ANSI STANDARDS	N.A.
Sleeping	AT TIMES RESIDENTS WILL BE CONFINED TO BED	PROVIDE SPACE IN BEDROOM FOR VISITORS & MED. EQUIPMENT	LOCATE ACTIVE AREAS AWAY FROM BEDROOMS

Example (con't)

Activity Category	User Activity Pattern	Implication for Building	Open Space/Parking
Working & studying	DUE TO PHYSICAL REQUIREMENTS MANY RESIDENTS WILL WORK FROM HOME.	PROVIDE SPACE FOR A DESK IN EACH UNIT. PROVIDE MEETING SPACE.	SERVICE PROVIDERS REQUIRE PARKING
Socializing & community activities	THE SPONSORS WILL FACILITATE COMMUNITY WITHIN THIS BUILDING, WI. OTHER PROJECTS & IN THE NEIGHBORHOOD.	PROVIDE ACCESS PATHS WHICH PROVIDE OPTIONS FOR SOCIALIZATION. PROVIDE A COMMUNITY RM. & WORK SPACE FOR PROVIDERS. PROVIDE COMMUNITY GARDEN SPACE.	PROVIDE PARKING FOR RESIDENTS & VISITORS. PROVIDE STOOPS FOR COMMUNITY.
Entertaining & watching TV	PROVIDE LIVING SPACE WHICH ALLOWS VISITING AND/OR TV WATCHING.	PROVIDE WALL SPACE FOR TV & AREA TO LOCATE SEATING. ALLOW TABLE SPACE TO EXPAND FOR LARGE GATHERINGS. HALL SPACE TO ACCOMODATE FUNDRAISERS & NEIGHBORHOOD EVENTS.	PROVIDE OUTSIDE SPACE FOR BB, GARDEN & VISITING

Example (con't)

Activity Category	User Activity Pattern	Implication for Building	Open Space/Parking
Inside play/outside play	TENANTS WILL BE ADULTS MANY FAMILY VISITORS ARE EXPECTED. MOST RESIDENTS HAVE EXERCISE PROGRAMS.	PROVIDE AN AREA FOR EXERCISE EQUIPMENT.	LAYOUT PARKING TO ALLOW USE FOR BB ALSO. PROVIDE AN AREA FOR GARDENING INCLUDING RAISED BEDS.
Inside circulation	MANY TENANTS WILL HAVE MOBILITY RESTRICTIONS.	PROVIDE AN ELEVATOR & WHEELCHAIR ACCESS TO ALL SPACES.	PROVIDE TWO H.C. SPACES.
Storing	MANY USERS HAVE SEVERE HEALTH PROBLEMS.	PROVIDE EXTRA STORAGE IN BATH & BEDROOM TO ELIMINATE INSTITUTIONAL FEEL. PROVIDE STOR. FOR MAINT. FUNCTIONS.	PROVIDE STORAGE FOR LAWN & GARDEN EQUIP.

Example (con't)

Activity Category	User Activity Pattern	Implication for Building	Open Space/Parking
Housekeeping/chores/laundry	HEALTH PROBLEMS REQUIRE FREQUENT LAUNDRING OF SOILED ITEMS. STRENGTH OF MANY USERS IS LIMITED.	PROVIDE WASHER/ DRYER, DISH- WASHER & MICRO- WAVE IN EACH UNIT.	KEEP MAINTENANCE REQUIREMENTS TO A MINIMUM.
Arriving/leaving On foot /wheel	THIS WILL BE THE PRIMARY ACCESS.	CLEAR ENTRY PATH FROM SIDEWALK.	
By car	USE WILL VARY.	PROVIDE ACCESSIBLE ROUTE TO PARKING.	
By public transport	WIDELY USED.	ALLOW FOR WAITING AT ENTRY FOR CABS.	
Parking	MOST USERS UTILIZE PUBLIC TRANSPORTATION. PARKING IS REQUIRED FOR GUESTS & PROGRAM STAFF.	ONE SPACE PER UNIT SHOULD BE ENOUGH.	NEIGHBORS WANT TO SEE GREEN NOT ASPHALT.

Activity Category	User Activity Pattern	Implication for Building	Open Space/Parking
Other	SOME RESIDENTS MAY BE HOMEBOUND FOR PERIODS OF TIME.	IT IS IMPORTANT TO PROVIDE LIGHT SPACE W. GOOD — LONG VIEWS.	
	MANY RESIDENTS USE HEALTH AIDS & OTHER PUBLIC HEALTH SERVICES.	IN UNIT LAUNDRY FACILITATES ASSISTANCE. PROVIDE SPACE FOR GROUP MTGS. & PRIVATE COUNSELING.	PROVIDE PARKING FOR SERVICE PROVIDERS.
	BUILDING WILL PROVIDE CENTRAL SERVICES TO OTHER RESIDENTIAL UNITS.	PROVIDE OFFICE & COMMUNITY SPACE.	
	FORMERLY HOMELESS RESIDENTS USUALLY HAVE FEW POSSESIONS	FURNISH UNITS	
	MANY USERS ARE LIGHT SENSITIVE.	NON-GLARE SURFACES & FIXTURES - BLINDS.	

Example
Statement of Resident-related Design Goals

Based on an analysis of the completed User Activity Checklist list the key design goals that will help your project best meet the activity needs of its residents.

USERS HAVE EPISODIC ILLNESS WHICH
MAY REQUIRE AN ONSITE CAREGIVER,
MEDICINE & MEDICAL EQUIPMENT
STORAGE, IN UNIT LAUNDRY & SPACE
IN BEDROOMS FOR VISITORS.
PROVIDE NON GLARE SURFACES & LIGHT
FIXTURES. PROVIDE LIGHT CONTROL -
SHADES AT WINDOWS.
PROVIDE OPTIONS FOR COMMUNITY OR
PRIVACY.
ALLOW FOR STRENGTH & MOBILITY
RESTRICTIONS.
PROVIDE ON SITE EXERCISE EQUIP.

User Activity Checklist

User Type: **Low-income Seniors, Assisted Living**

Activity Category	User Activity Pattern	Implication for Building	Open Space	Parking
Cooking	Popular, varied patterns	Consider kitchen location & visual connections	Connect to back patio	
Eating	May need supervision of nutrition	Provide dining facility	Prefer outdoor dining area	NA
Bathing	Physical frailty	Provide 24-hour emergency cord, shower preferred	NA	NA
Toiletting	Physical frailty	Provide grab bars and space per ADA	NA	NA
Sleeping	Physical frailty	Soundproof as much as feasible, allow room around bed	NA NA	NA NA
Studying	Minimal, but some preferred	Provide desk area in unit	NA	NA
Working	Minimal, but some preferred	Provide desk area in unit; prefer craft room	NA	NA
Entertaining	Minimal, but some preferred	Ensure living/dining furniture fits	NA	NA
Socializing	Popular	Consider clustering units; provide seating in sunny places & meeting places such as mail boxes	Provide shady & sunny areas for sitting and walking	NA NA
Watching TV	Popular	Provide TV room, comfortable furniture	NA	NA
Community Activities	Local trips, visiting professionals	Provide flexible common room(s)	Prefer garden with patio	Van parking
Exercising	Light conditioning preferred	Provide flexible common room(s)	Prefer garden with patio	Guest parking
Inside Play	Card games, art classes, etc	Provide flexible common room(s)	NA	NA
Outside Play	Gardening, tai chi, etc	Connect outdoor space with common room	Prefer garden with patio Provide shady & sunny areas	NA
Inside circulation	Physical frailty	Mimize long corridors, provide periodic seating, handrails, elevators close to entry and dining.	NA NA	NA NA
Storing	Much needed	Maximize storage in units, provide central lockers Prefer storage for equipment (eg wheelchair) in unit	NA	NA
Housekeeping	Minimal, but some preferred	Ensure unit is efficient and easy to maintain.	NA	NA
Doing Chores	Minimal, but some preferred	Ensure unit is efficient and easy to maintain.	NA	NA
Doing Laundry	Important	Provide comfortable, accessible laundry room	Prefer link to outdoor space	NA
Arriving/Leaving				
On Foot	Minimal, but some preferred	Provide safe, clear, sheltered entry. Consider access to crosswalk and bus stop	Provide ramps and rails as required	NA NA
By Car	Minimal, but some preferred	Ensure good visibility at auto entry, warning signal	Provide safe path from parking area	NA Guest parking
By Public Transport	Minimall, but some preferred	Provide safe, clear, sheltered entry.	Provide ramps and rails	NA
Parking	Minimal, but some preferred	Locate safe, well-lit parking area near entry	NA	Provide adequate HC stalls

User Activity Checklist

User Type: **Low-income Families, mixed-ethnicity**

Activity Category	User Activity Pattern	Implication for Building	Open Space	Parking
Cooking	Popular, varied patterns	Consider kitchen location & visual connections	Connect to back patio	NA
Eating	Popular, varied patterns	Consider dining location & visual connections		NA
Bathing	Popular	Provide bathtub for child bathing	NA	NA
Toiletting	Popular	Consider separate sink and WC for bathtime rush	NA	NA
Sleeping	Varied patterns	Soundproof as much as feasible, separate noise sources from sleep walls	NA NA	NA NA
Studying	Important, varied patterns	Provide desk area in bedrooms and common area	NA	NA
Working	Important, varied patterns	Consider flexible unit design to allow at-home work	NA	NA
Entertaining	Important, varied patterns	Ensure living/dining furniture fits; allow flow to patio	Connect LR through to a yard	Guest parking
Socializing	Popular		NA NA	NA NA
Watching TV	Popular	Provide wall for entertainment center, ensure furniture works	NA	NA
Community Activities	Important, varied patterns	Provide flexible common room(s)	Prefer garden with patio	Guest parking
Exercising	Important, varied patterns	Usually off-site	Usually off-site	
Inside Play	Important, varied patterns	Provide flexible common room(s)	NA	NA
Outside Play	Important, varied patterns	Connect outdoor space with common room Supervise tot-lot from common rooms, separate b-ball from units	Provide play equipment for toddlers and preschool kids; consider half-court B-ball	NA
Inside circulation	Daily use	Minimize long corridors, consider daylighting consider security issues	NA	NA
Storing	Much needed	Maximize storage in units, provide central lockers	NA	NA
Housekeeping	Important, varied patterns	Ensure unit is efficient and easy to maintain.	NA	NA
Doing Chores	Important, varied patterns	Ensure unit is efficient and easy to maintain.	NA	NA
Doing Laundry	Important	Provide comfortable, accessible laundry room Consider W/D hookups in unit	Prefer link to outdoor space	NA
Arriving/Leaving				
On Foot	Daily use	Provide safe, clear, sheltered entry. Consider access to crosswalk and bus stop	Consider transition court	NA NA
By Car	Daily use	Ensure good visibility at auto entry, warning signal	Provide safe path from parking area	NA
By Publis Transport	Intermittent Use	Provide safe, clear, sheltered entry.	Provide safe path	NA
Parking	Important	Locate safe, well-lit parking area near entry Prefer supervision of car from unit	NA	NA

Step 6.   Analyze the surrounding neighborhood and establish community-related design goals for the project.

Why is this important?

An affordable housing development which understands and responds well to its context has a much better chance of avoiding community resistance and winning acceptance.

The better you understand the physical characteristics of the community in which you are building, the easier it will be to define design goals that will help your development fit in to its context and enhance its neighborhood.

Of course, political, socioeconomic, legal and regulatory contexts are also important for any development. But none of them ensure good d*esign.* Analyzing and understanding the project's *physical* context – the surrounding buildings, streets, parks, etc. – does.

Undertaking this analysis of physical context can be an extremely useful part of the participatory planning effort, building support for the development not only among the project team members, but also in the immediate neighborhood, and beyond to the surrounding community as a whole.

When should this be done?

During Predevelopment; preferably at the same time as the market analysis is being undertaken. See the **Design/Development Matrix**.

Who should do this?

The owner/developer with professional design assistance (see **Step 4**).
If there is a **Community Design Center** in your area, it could be very helpful at this stage.
This step may also be part of a larger participatory planning/community design process.

What should I do?

- Review the **Design Considerations Checklist** in preparation for a walking tour(s) of the neighborhood where your development is located. Take the print version of the Checklist with you on the tour(s).
- Go out – individually or as a group – to identify and catalogue key characteristics of the buildings in the neighborhood surrounding the site:
  occupancy (who lives there), typical heights, numbers of floors, façade materials, color, types of roofs/windows/doors, relation to sidewalk, relation to street, etc.

- Use notes, sketches, photographs, or videotape as appropriate to document what you see.
- Analyze, preferably in a group setting, the key characteristics you have observed and determine how they might impact the design of your project:
    - should some of these characteristics be included?
    - if so, which ones and why; if not, why not?
- Use the **Neighborhood Context Analysis Worksheet** to help guide the context analysis process.

How can doing this help me move my project forward?

A rigorous, well documented context analysis can help convince lenders, funding agencies and regulators that this is a project that is committed to enhancing the neighborhood where it will be built and is taking the necessary steps to ensure that it does so.

Additional resources available from the Affordable Housing Design Advisor DC-ROM.

- An example of a **community input package** used in Richmond, VA to gauge potential occupants' design and amenity preferences.

Neighborhood Context Analysis Worksheet

Introduction

Use this worksheet to help guide your neighborhood context analysis. Through a combination of walking and "windshield" tours, look closely at the buildings (especially housing), streets, parks and other open spaces in the neighborhood immediately surrounding your development. Note what you like and what you don't like. Talk to neighbors and note what they like and don't like. Concentrate on the physical characteristics of the neighborhood, using the categories below as a guide.

It may also be useful to look at other housing developments in your community, but not in the immediate neighborhood, for additional ideas as to what to strive for—and what to avoid—in your own project. Use the worksheet to guide these analyses as well.

Document your efforts, using notes, sketches, photos or video—anything that will help you remember what you saw and what you thought about what you saw.

Analyze the results, preferably in a group setting. Decide which features, from the surrounding neighborhood and/or from other housing developments in your community, you would most like to see in your own project. Pay special attention to features that will help your project enhance the neighborhood where it will be built.

Use this list of desired features to create a Statement of Community-related Design Goals for the project.

Neighborhood Context Analysis Worksheet

Project Name   _____
Location   _____
Date   _____

BUILDING TYPES
What are the building types, especially the housing, in the surrounding neighborhood (e.g. single family detached, duplex, rowhouse, courtyard, etc.)? What do you like/dislike about them?

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

PARKING
How is parking typically handled in the surrounding neighborhood (e.g. on-street, driveway, garage on street, garage behind, parking lot, etc.). What do you like/dislike about parking in the neighborhood?

_____

_____

_____

_____

_____

_____

_____

_____

_____

Neighborhood Context Analysis Worksheet

PUBLIC OPEN SPACE

What types of public open space (parks, playgrounds, etc) exist in the surrounding neighborhood? Will your residents be able to use it? What types of open space exist in the housing developments in the neighborhood (e.g. yards, courtyards, etc.)? What do you like/dislike about these spaces?

_____

_____

_____

_____

_____

_____

_____

_____

_____

PRIVATE OPEN SPACE

What types of private open space does the housing in the neighborhood have (e.g. yards, patios, decks, balconies, etc.)? What do you like/dislike about these spaces?

_____

_____

_____

_____

_____

_____

_____

_____

_____

Neighborhood Context Analysis Worksheet

LANDSCAPING

How is the housing in the neighborhood landscaped? What types of plants, trees and grass are typically used? What are the paved areas and outdoor furniture like? What do you like/dislike about the landscaping in the neighborhood?

_____

_____

_____

_____

_____

_____

_____

_____

BUILDING LOCATION

How are homes in the neighborhood typically located on their lots? Are they right on the street or setback? How are they typically entered? How do cars come and go? What do you like/dislike about these building location strategies?

_____

_____

_____

_____

_____

_____

_____

_____

Neighborhood Context Analysis Worksheet

BUILDING SHAPE
What are the basic shapes of the houses in the surrounding neighborhood? How high are they? What is their basic scale (e.g. short and wide, tall and thin, etc.)? What is their basic form (e.g. one big block, several smaller blocks, etc.)? What do you like/dislike about the building shapes in your neighborhood?

_____

_____

_____

_____

_____

_____

_____

_____

_____

BUILDING APPEARANCE
What do the buildings, especially the houses, in your neighborhood look like? Are they visually simple or complex? What are the basic roof shapes? What do the doors and windows look like? Are their special elements—porches, dormers, overhangs –that stand out? What are the typical materials and colors? Are there patterns to size and rhythm of the openings in the facades? What do you like/dislike about the appearance of the buildings in your neighborhood?

_____

_____

_____

_____

_____

_____

_____

_____

Neighborhood Context Analysis Worksheet

LIST OF COMMUNITY-RELATED DESIGN GOALS

Based on the results of your neighborhood context analysis, especially your likes and dislikes, develop a list of the key features you would most like to see in your own project. Pay special attention to features that will help your project enhance the neighborhood where it will be built.

Transform this list into a series of community-related design goals for your project—goals which, if achieved, will help your development creatively respond to and enhance the neighborhood in which it is built.

Write down the list of goals here and refer to it throughout the design/development process, both as a guide to decision-making and as a tool for explaining the project winning acceptance for it.

Example
Neighborhood Context Analysis Worksheet

Project Name DOVE STREET

Location ALBANY, N.Y.

Date

BUILDING TYPES
What are the building types, especially the housing, in the surrounding neighborhood (e.g. single family detached, duplex, rowhouse, courtyard, etc.)? What do you like/dislike about them?

MOSTLY HISTORIC ROWHOUSES - THERE ARE SCATTERED INDUSTRIAL BUILDINGS, CARRIAGE HOUSES SCHOOLS & APARTMENT BUILDINGS.
THE STRUCTURES FORM A PLEASANT STREETSCAPE. ACCESS IS RESTRICTED FOR PEOPLE WI. PHYSICAL CHALLENGES DUE TO STOOPS & SMALL MULTI STORY BUILDINGS. PARKING IS LIMITED BY CONTEMPORARY STANDARDS.

PARKING
How is parking typically handled in the surrounding neighborhood (e.g. on-street, driveway, garage on street, garage behind, parking lot, etc.). What do you like/dislike about parking in the neighborhood?

MOST PARKING IS ON STREET.
THERE'S NOT ENOUGH PARKING ESP. DURING THE WORKDAY WHEN STATE OFFICE WORKERS USE THE AREA. OFF STREET LOTS ARE NOT WELL LANDSCAPED.

Example
Neighborhood Context Analysis Worksheet

PUBLIC OPEN SPACE

What types of public open space (parks, playgrounds, etc) exist in the surrounding neighborhood? Will your residents be able to use it? What types of open space exist in the housing developments in the neighborhood (e.g. yards, courtyards, etc.)? What do you like/dislike about these spaces?

THERE ARE TWO PARKS WI. AMPLE
PASSIVE & ACTIVE SPACES NEAR
THE SITE
MOST ROWHOUSES HAVE SMALL REAR
YARDS
STOOPS ARE USED FOR SOCIALIZING
MORE GREENRY VISABLE FROM THE
STREET WOULD BE NICE

PRIVATE OPEN SPACE

What types of private open space does the housing in the neighborhood have (e.g. yards, patios, decks, balconies, etc.)? What do you like/dislike about these spaces?

REAR YARDS USUALLY HAVE PATIO
& GARDEN SPACE
SOME BUILDINGS HAVE REAR DECKS
ACCESS FROM UPPER UNITS TO YARDS
IS OFTEN DIFFICULT
DECKS OFTEN BLOCK LIGHT
ACCESS IS USUALLY IMPOSSIBLE
FOR PHYSICALLY CHALLENGED
RESIDENTS

Example
Neighborhood Context Analysis Worksheet

LANDSCAPING

How is the housing in the neighborhood landscaped? What types of plants, trees and grass are typically used? What are the paved areas and outdoor furniture like? What do you like/dislike about the landscaping in the neighborhood?

MOST STREET TREES ARE LOCUSTS

PLANTING AREAS AT TREE BASES ARE OFTEN OVERGROWN — GRASS & WEEDS GROW BETWEEN BRICK PAVING — WHEN IT IS NOT PROPERLY PREPARED

WINDOW BOXES ARE A HIGHLIGHT IN MANY AREAS

HOSTA, DAYLILIES, PANSIES, ROSES, DAISIES, VIOLETS, TULIPS, DAFFODILS & OTHER PLANTS THRIVE

BUILDING LOCATION

How are homes in the neighborhood typically located on their lots? Are they right on the street or setback? How are they typically entered? How do cars come and go? What do you like/dislike about these building location strategies?

ROW HOMES HUG THE PROPERTY LINE WI. A PROJECTING STOOP

STREET APPEARANCE IS EXCELLENT

STOOPS ARE TOO STEEP FOR CURRENT CODES. PRIVACY CAN BE COMPROMISED BY SIDEWALKS NEXT TO WINDOWS. ACCESS IS LIMITED FOR PHYSICALLY CHALLENGED INDIVIDUALS.

Example
Neighborhood Context Analysis Worksheet

BUILDING SHAPE

What are the basic shapes of the houses in the surrounding neighborhood? How high are they? What is their basic scale (e.g. short and wide, tall and thin, etc.)? What is their basic form (e.g. one big block, several smaller blocks, etc.)? What do you like/dislike about the building shapes in your neighborhood?

BUILDINGS ARE TALL (2½ – 3½ STORY) & NARROW (16' – 28') W/ FLAT ROOVES.

VARIETY IS PROVIDED BY CORNICES, BAY & ORIEL WINDOWS

ARCHITECTURAL QUALITY IS EXCELLENT. FLAT ROOVES & UNCOVERED STEPS ARE A CHALLENGE IN A SNOWY CLIMATE

BUILDING APPEARANCE

What do the buildings, especially the houses, in your neighborhood look like? Are they visually simple or complex? What are the basic roof shapes? What do the doors and windows look like? Are their special elements—porches, dormers, overhangs –that stand out? What are the typical materials and colors? Are there patterns to size and rhythm of the openings in the facades? What do you like/dislike about the appearance of the buildings in your neighborhood?

DOOR & WINDOW OPENINGS ARE VERTICAL – USUALLY DOUBLE HUNG

CORNICES ARE A COMMON ELEMENT

TRIM RANGES FROM SIMPLE TO ORNATE

MATERIALS INCLUDE CLAPBOARD SIDING, FACE BRICK, PAINTED COMMON BRICK & BROWNSTONE

OPENINGS, BUILDINGS, & FEATURES FORM STRONG RHYTHMS

IT IS A DELIGHTFUL CONTEXT

Example
Neighborhood Context Analysis Worksheet

LIST OF COMMUNITY-RELATED DESIGN GOALS

Based on the results of your neighborhood context analysis, especially your likes and dislikes, develop a list of the key features you would most like to see in your own project. Pay special attention to features that will help your project enhance the neighborhood where it will be built.

Transform this list into a series of community-related design goals for your project—goals which, if achieved, will help your development creatively respond to and enhance the neighborhood in which it is built.

Write down the list of goals here and refer to it throughout the design/development process, both as a guide to decision-making and as a tool for explaining the project winning acceptance for it.

GREEN SPACE & PLANTING IS IMPORTANT TO THE NEIGHBORS
MATERIALS SHOULD BE EASILY MAINTAINED AND AGE WELL.
THE DESIGN SHOULD COMPLEMENT AND BLEND W. THE SITE.

Step 7. Analyze potential sites to make sure they can physically accommodate a proposed project and provide easy access to the amenities and services its occupants will need.

Why is this important?
> In most cases, getting the right site is the single most important step in the affordable housing development process.   Sometimes an available site simply won't work for the project the developers have in mind, but would be well-suited to an entirely different purpose or user group. Sometimes the site is difficult, but good design can make it work. And sometimes the site will not be suitable for a development at all, and enormous amounts of effort and resources can be saved and devoted elsewhere. See below for more about the **Importance of Site Analysis**.

When should this be done?
> During site selection or very early in the site evaluation phase of Predevelopment. (See the **Design/Development Matrix**.)

Who should do this?
> The owner/developer with assistance from an architect or other experienced development professional.

What should be done?
> - Gather basic information on the physical characteristics of the site (size, shape, surrounding roads and services), the condition of the neighborhood and the types of occupancies that exist there. (Much of this data may also be collected during **Step 6**, "Establish Design Goals for Community.")
> - Review the **Dwelling Types Overview** to get an idea of the variety of different types of housing that can be developed.
> - Use this information to fill out the **Access to Services Checklist** and to complete the **Site Suitability Test.**
> - *Add the completed Access to Services Checklist and Site Suitability Test to the Project Book.*

How can doing this help move my project forward?
> - Being sure that the project fits its site – physically and contextually – helps avoid downstream problems that could force a complete rethinking of project after considerable upfront development resources have already been expended.
> - A clear demonstration that the project will work on the proposed site will improve the credibility of the project during the early stages of development.
> - The unit count/mix developed during the **Site Suitability Test** can feed directly into the feasibility study for the project.

Additional resources

For additional information on basic site analysis, consult:

Architectural Graphic Standards published by John Wiley & Sons, or

Time-Saver Standards for Housing and Residential Development, published by McGraw-Hill.

Contact points: www.wiley.com
                                      www.mcgraw-hill.com

Importance of Site Analysis – Expanded Narrative

A site which cannot physically handle its projected density and use, or one which will be intrinsically costly to develop, will fail to "pencil out" financially, requiring either a radical rethinking of the project or abandoning the site. Likewise a site hampered by regulatory constraints may prove unfeasible. It is critical to identify such limitations as early as possible in the development process, before valuable time and resources have been spent on a site that may not be appropriate.

Too often the sites available for affordable housing are marginal, "leftover" sites that are, for various reasons, unattractive to for-profit developers.   This means that the sites may be inherently difficult to develop. All the more reason for the type and amount of housing proposed to closely match the physical capabilities of the site.

In addition, even if a site "works" physically it must also be located so as to provide easy access to the amenities and services its occupants will require. If the project seeks to house working families, then access to transportation, jobs, schools and shopping is critical. If it is a project for the elderly, access to jobs and schools may be much less important than being located near a park that is perceived to be safe and secure. If such user-specific amenities and services are lacking – or are too far away to be accessible – the project will encounter problems attracting and retaining tenants or buyers.

Finally, even if a site can physically accommodate the uses and density proposed for it – and provide adequate access to the services its occupants will need – the development itself must also "fit" with the neighborhood into which it is being placed. For example, locating an elderly housing project on an isolated site near a light commercial district would be a mistake, even if the land were free. Inappropriate uses and/or densities can generate political opposition to the project, and the wrong project in the wrong location may never succeed financially. Both good reasons to ensure – as early in the process as possible – that proposed use and density "fit" the site's neighborhood.

Access to Services Checklist

Name of Project: _____

Address of Potential Site: _____

Date: _____

Service	**Proximity** ("walking distance," "5 minutes by car," "30 minutes by bus," etc.)	**Impact on Residents** (negative, neutral, or positive and why)
1. Adult Day Care		
2. Bank		
3. Bus Line/Subway		
4. Child Care		
5. Clinic		
6. Community Center		
7. Convenience Store		
8. Department Store		
9. Drug Store		
10. Employment		

Service	Proximity ("walking distance," "5 minutes by car," "30 minutes by bus," etc.)	Impact on Residents (negative, neutral, or positive and why)
11. Government Services		
12. Health Center		
13. Hospital		
14. Laundromat		
15. Library		
16. Local Retail		
17. Medical Office		
18. Movie Theater		
19. Park		
20. Place(s) of Worship		
21. Playground		
22. Restaurant		
23. School		

Service	Proximity ("walking distance," "5 minutes by car," "30 minutes by bus," etc.)	Impact on Residents (negative, neutral, or positive and why)
24. Shopping Center		
25. Super Market		
26.		
27.		
28.		
29.		
30.		

Analysis (overall, does the proposed site provide good access to the services its occupants will need; will the site "work" for its target residents?)

Example
Access to Services Checklist

Name of Project: _____

Address of Potential Site: DOVE STREET

Date: _____

Service	Proximity ("walking distance," "5 minutes by car," "30 minutes by bus," etc.)	Impact on Residents (negative, neutral, or positive and why)
1. Adult Day Care	Senior Center 100 yards from site.	Not a priority for this user group. Services provided on site by AIDS Coalition and VISITING NURSES.
2. Bank	KEY BANK – 1/2 Mile on bus line	PLEASANT WALK
3. Bus Line/Subway	BUS STOP ON DELAWARE AVE and Madison AVE near site	EXCELLENT SERVICE NEAREST
4. Child Care	DAYCARE at several churches within 1/2 Mi.	NOT A priority for this user group
5. Clinic	Clinics 1/4 - 1/2 Mile away	Excellent
6. Community Center	Boys club 1/4 Mi. away. YMCA 2 Mi. by bus.	Good
7. Convenience Store	24 hour Price Chopper adjacent to site.	Excellent
8. Department Store	Dept. stores 5-10 Mi away by bus	Slight constraint on residents
9. Drug Store	Pharmacies at nearby hospitals.	Good
10. Employment	Empire State Plaza and CBO nearby.	Excellent employment opptys. near site

Example (con't)

Service	Proximity ("walking distance," "5 minutes by car," "30 minutes by bus," etc.)	Impact on Residents (negative, neutral, or positive and why)
11. Government Services	City Hall & county offices 2 Mi. away by bus	Good
12. Health Center	VA Hospital, Albany Medical Center 1/4-1/2 Mi away	Excellent
13. Hospital	"	" Excellent
14. Laundromat	Laundry and dry cleaner 1/4 Mi. away	Excellent
15. Library	Main branch of public library 1/2 mile away	Good
16. Local Retail	Specialty shops within walking distance.	Excellent
17. Medical Office	VA Hospital, Albany Medical Center 1/4-1/2 Mi away	Excellent
18. Movie Theater	2 Theaters within 1 1/2 miles	Good
19. Park	2 large parks within 1/4 Mi.	Excellent
20. Place(s) of Worship	4 churches in immediate neighborhood, 3 synagogues within 1 mile, 6 Mosques within 1 1/2 miles	Good
21. Playground	Playgrounds in both parks	Excellent
22. Restaurant	Variety of restaurants within walking distance	Excellent
23. School	Elementary and middle school – 1/8 Mile away High school – 2 1/2 miles away	Good – not a priority for this user group

Example (con't)

Service	Proximity ("walking distance," "5 minutes by car," "30 minutes by bus," etc.)	Impact on Residents (negative, neutral, or positive and why)
24. Shopping Center	Dept. stores 5-10 miles away, accessible by bus	Slight constraint on residents
25. Super Market	Price Chopper, 24 hr. grocery adjacent to site	Excellent
26.		
27.		
28.		
29.		
30.		

Analysis (overall, does the proposed site provide good access to the services its occupants will need; will the site "work" for its target residents?)

In terms of access to services, this site is practically ideal for the target residents.

Site Suitability Test

This exercise will help ensure that your site can legally and physically accommodate the type and size of project you envision. In addition you will be able to use all the documentation collected, the square footages calculated, and the drawings developed in future phases of your project, should you decide to move forward on the site.

Collect Basic Site Information

A. Analyze zoning and other development regulations:
> Determine that proposed use is permitted (make sure you can build the type of project you want)
> Determine required setbacks.
> Identify height, bulk, floor-area ratio, or footprint restrictions.
> Determine parking and driveway requirements—number of spaces and size.
> Determine required open space minimums (public and private) and other on-site recreation or environmental requirements.
> Determine if any special permits, regulations, planning procedures (variances, design review, public hearings, environmental tests/data) are required.

B. Identify key site elements:
> Those you want to keep (trees, plants, ponds, views, etc.)
> Those you can't touch (wetlands, utility structures, etc.).

C. Identify any "hidden" constraints to the physical development of the site:
> Legal easements across the property
> Buried cable, piping, etc.
> Rights of way across the property
> Drainage, flood elevation requirements, geotechnical issues, etc.

D. Obtain site documentation
> Topographical map
> Parcel map showing legal boundaries and adjacent parcels
> Sanborn map, aerial photos and/or other documents showing configuration of adjacent properties to scale, if possible.

Calculate Gross Sizes

E. Determine how much gross parking you need

   Analyze zoning and/or other local ordinances concerning parking requirements
   Determine number of parking spaces you will need or be required to provide—usually based on number of units or number of bedrooms.
   Multiply by 350 square feet per car (or the actual square footage your jurisdiction requires).

F. Determine how much gross area your building will need.

   Determine the maximum number and general mix of units you intend to provide.
   Using the unit size rules below:

      Multiply the number of units of each type by their average area.
      Add all the areas together.
      Add 15-30% for circulation and other uses such as community rooms, etc.

   The total equals the gross building area you will need to achieve your desired unit mix.

   Typical Affordable Housing Unit Sizes

   First, check with HUD and your local building department regarding any required minimum room sizes and dimensions. Then review the dimensions and sizes of successful developments of similar type in your area. Unit size will vary depending on user profile, income level, and budget issues. The following are general ranges and exclude garages, porches, exterior storage, etc. Add 10% for fully accessible units.

Unit Type	Size range
Studio—	300-400sf
1BR flat—	500-600sf
2BR flat—	780-900sf
3BR flat—	950-1150sf
4BR flat —	1100-1300sf
2BR TH—	850-950sf
3BR TH—	1000-1200sf
4BR TH—	1200-1350sf

Develop Feasibility Sketch

G. Draw base sketch of site.
>   Based on the documentation assembled in Step D, draw a sketch of the site and
>   surrounding building footprints, streets, and sidewalks.
>   Use a scale between 1:20 ands 1:40, depending on the size of the site.

H. Delineate usable area.
>   Draw setback lines.
>   Locate and sketch in key site elements identified earlier.
>   Locate and sketch in any site constraints.
>   Make copies of the drawing.

I. Draw parking.
>   Using the gross square footage for parking calculated in Step E, draw a
>   rectangle—at the same scale as the site sketch—with one dimension 60 feet wide
>   and as long as is required to fit all parking spaces needed. This will give you a
>   general idea of how much space your parking will consume.
>   Make sure the parking is accessible to a street.

J. Determine the basic building type(s) you want.
>   Considering your population, local building types, budget, zoning, and site
>   constraints, choose a basic building type and height. eg 4 story elevator-served
>   stacked flats over an on-grade parking garage; two story townhouses over flats
>   with surface parking; attached single family duplexes with surface parking; etc.
>   You may want more than one building type on the site.
>   For more information on building type consult the **Dwelling Types Overview** in
>   the Tools section of the Design Advisor.

K. Draw the building footprint.
>   Using the gross square footage for your building calculated in Step F, draw a
>   rectangle or group of rectangles—at the same scale as the site sketch—that will
>   accommodate the total area needed for the building.
>   The size and shape of the rectangle(s) will depend on the building type or types
>   that you have chosen.
>> For example, if you are planning a 4 story apartment building with
>> corridors, the building might be 50-60 feet wide and 100 feet or more long.
>> If you are planning triplexes of two townhouses over a flat each footprint
>> might be about 30 feet x 40 feet, and you'll need to calculate how many of
>> these footprints you'll need to handle all your units.
>   This gets complicated quickly, so it is adequate to get a rough idea of the gross
>   area and see if it fits. Consult a local architect or other building professional for
>   typical sizes and shapes for common building types.

L. Layout your parking and building footprint on your site sketch.

Make sure everything "fits" in a way that is straightforward and reasonable, not overly complicated or intricate.

Make sure all site constraints are respected and all key site elements are preserved.

Make sure that parking has access to a street.

Make sure that the minimum required open space is accounted for and that it can actually be used by the occupants.

Finally, make sure that the building footprint, parking and required open space don't take up every last inch of the site. Roughly 10% of the site should be "left over" to allow flexibility when actual development begins.

Analyze Results

If the building footprint, parking and open space fit cleanly on the site—with a minimum 10% of "left over" area—there is a good chance that the site will physically accommodate your project. If the site is also accessible to the amenities and services your occupants will need (see **Access to Services Checklist**) then it will probably be a good place to locate your project.

Example
Site Suitability Test

Name of Project   INDEPENDENT HOUSING
Address of Potential Site   DOVE STREET
Date

Basic Site Information

A. Zoning and other regulations

5 - LOTS ARE ZONED FOR 2 FAMILY OCCUPANCY - A SPECIAL PERMIT WOULD BE REQUIRED TO COMBINE SITES & MULTI-FAMILY OCCUPANCY

B. Key site elements

TRANSFORMER FOR ADJACENT GROCERY. OVERHEAD ELECTRIC LINES.

C. Hidden constraints

SHALLOW FOOTING ON ADJACENT ROWHOUSE
EASEMENT

D. Site documentation

ATTACHED SURVEY & SANBORN

Example (con't)

Gross Sizes

E. Parking

THE ZONING ORDINANCE DOES NOT PROVIDE
SPECIFIC PARKING REQUIREMENTS IN THIS
DISTRICT – MOST PARKING IS ON THE STREET.
THE OWNERS WOULD LIKE 8-10 SPACES.

A SINGLE LOADED PARKING AREA WOULD BE
43' WIDE (25' FOR ROAD PLUS 18' FOR THE
PARKING SPACE) AND 84' LONG (6 SPACES
OF 10' IN WIDTH PLUS TWO 12' WIDE SPACES
FOR ACCESSIBLE PARKING)

F. Building

THE ZONING ORDINANCE FOR THIS SITE
REQUIRES THAT NEW CONSTRUCTION BE
COMPATIBLE WITH THE EXISTING CONTEXT.
ONE OF THE REQUIREMENTS IS THAT THE
HEIGHT OF THE BUILDING MUST BE
BETWEEN THAT OF THE ADJOINING
STRUCTURES.

Feasibility Sketch

G. Base sketch of site.

H. Usable area.

I. Parking.

APPROX. AREA REQ. for PARKING 8 SPACES 2 HC.
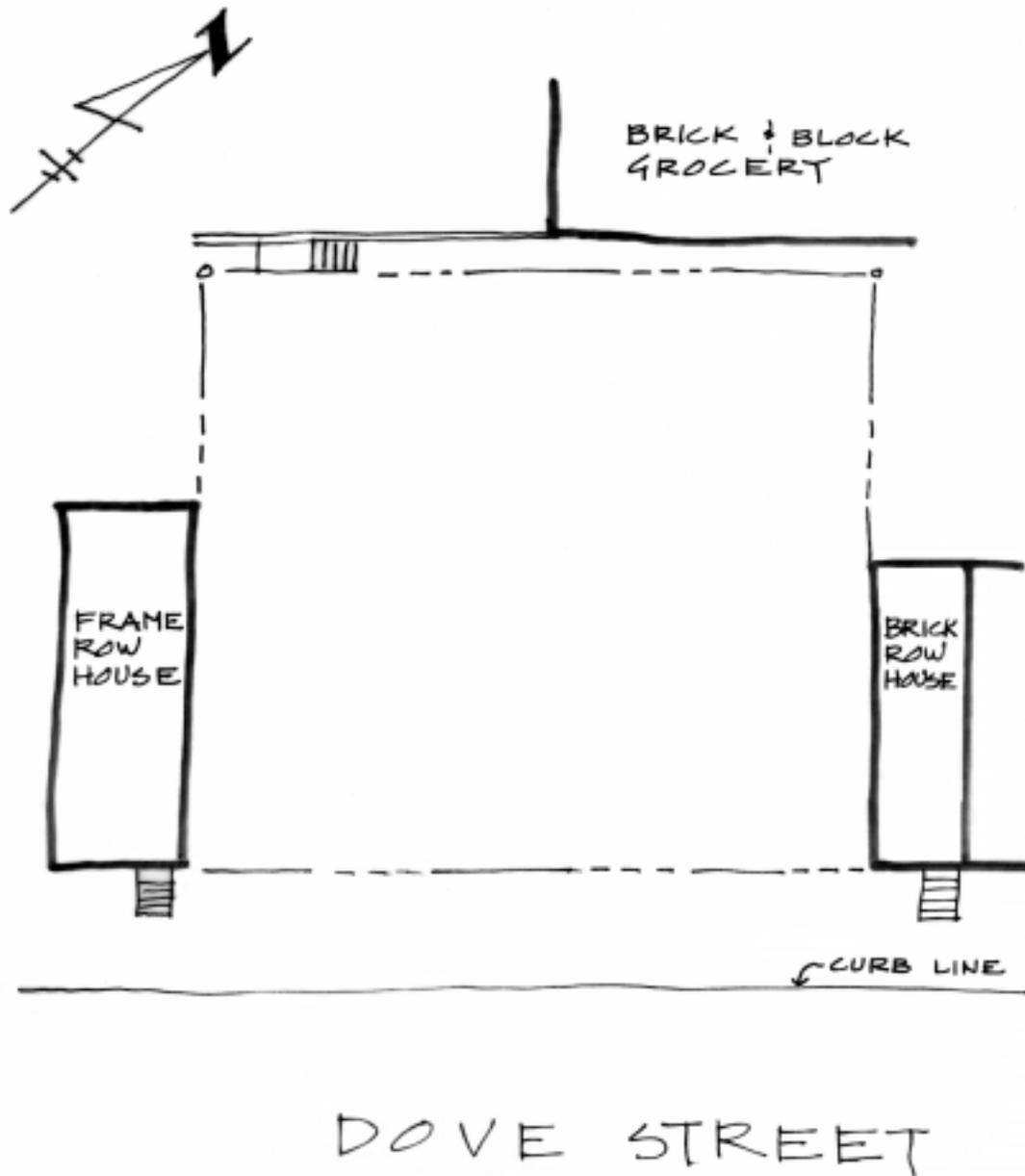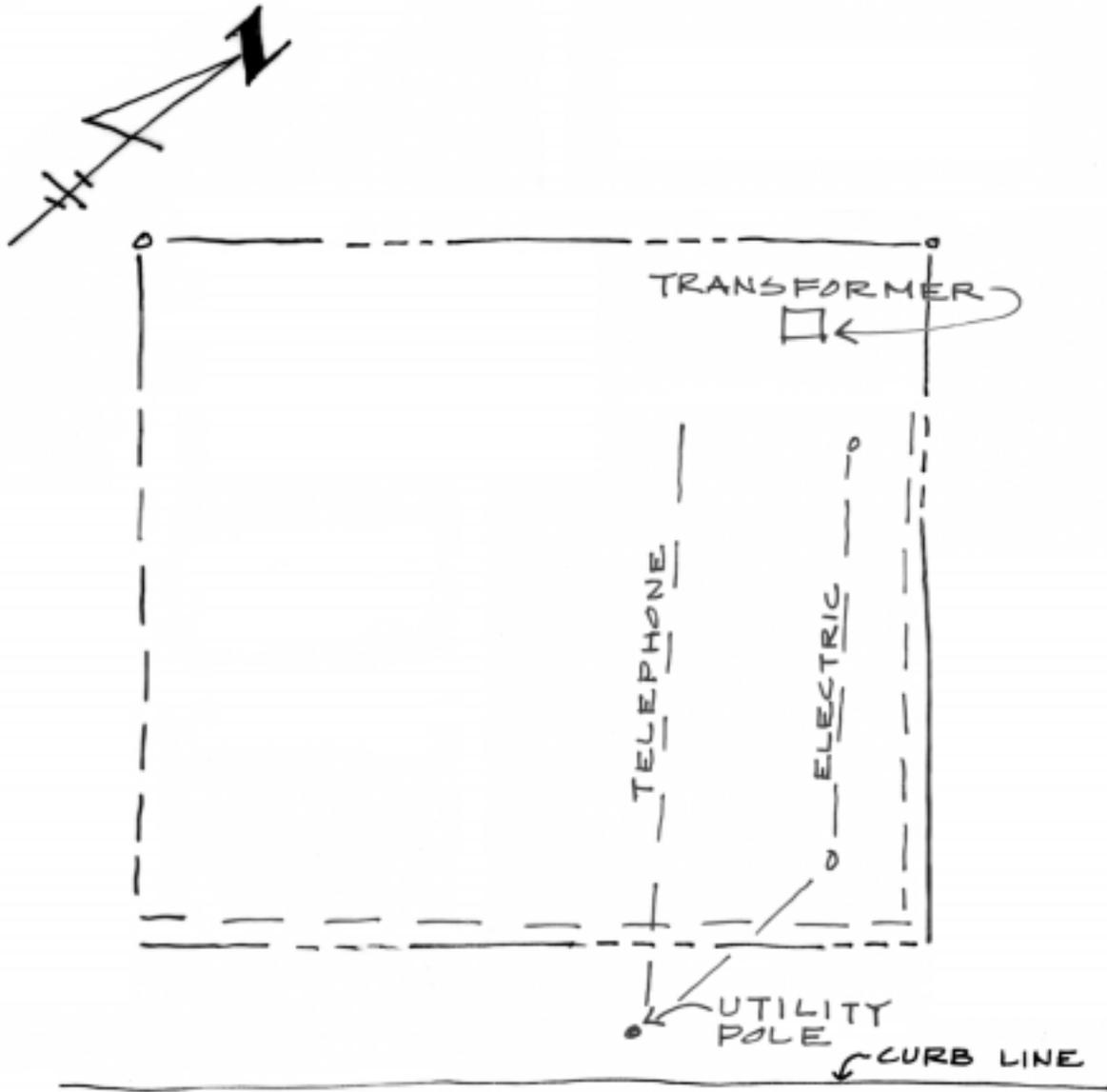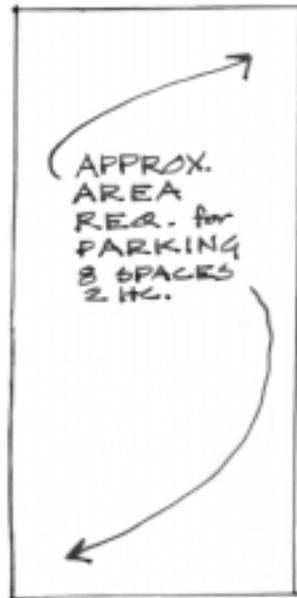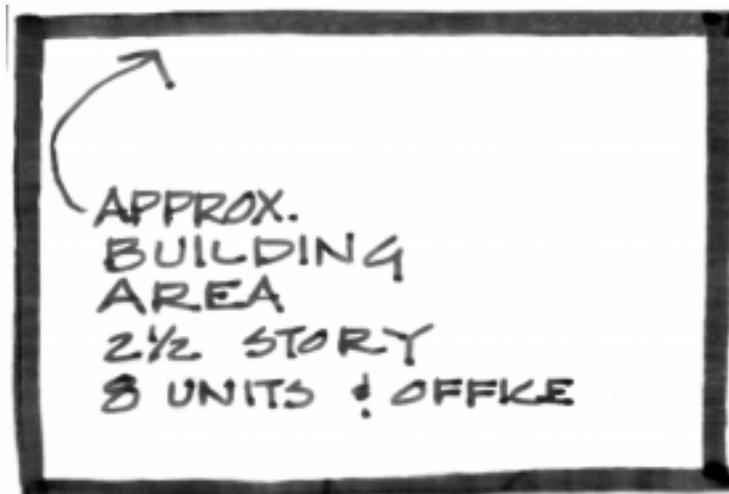
J. Basic building type(s)
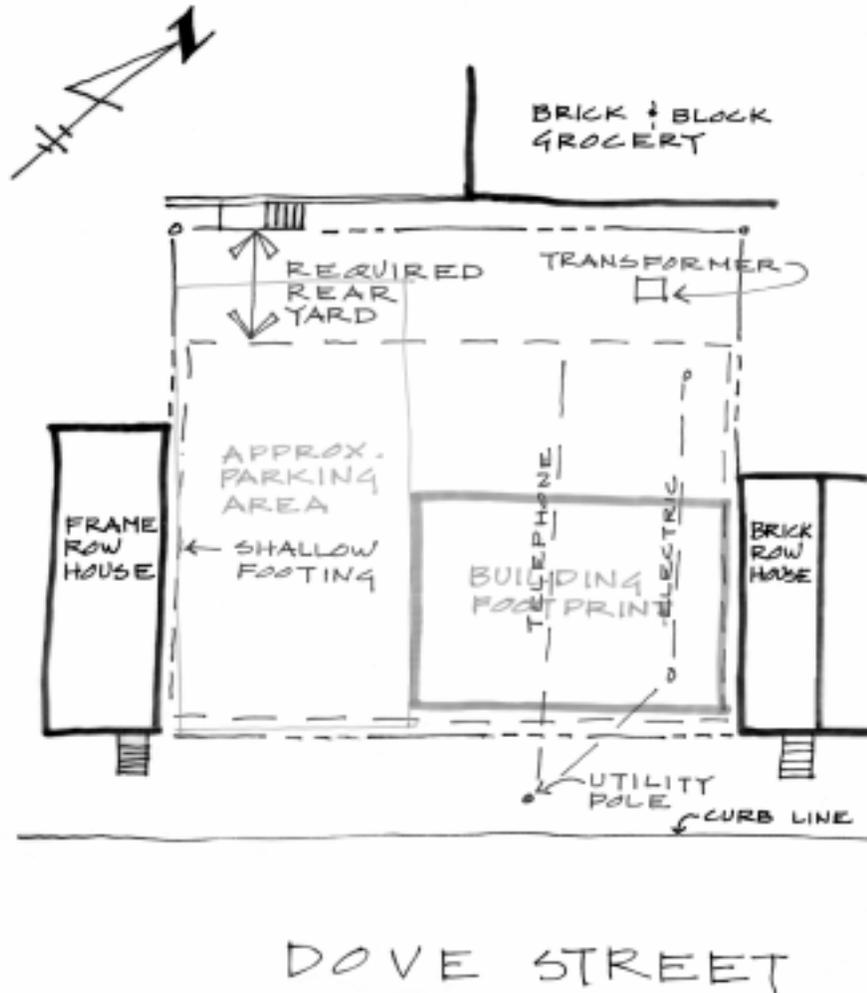
THREE STORY APARTMENT BLOCK WI.
ELEVATOR TO INCLUDE PROPORTIONS
FROM AREA ROW HOMES.

K. Building footprint.

APPROX.
BUILDING
AREA
2½ STORY
8 UNITS & OFFICE

Example (con't)

L. Layout parking and building footprint on your site sketch.

DOVE STREET

Analysis

Discuss whether/how the site "works" and how you know. Is there 10% left over and how could you tell? What about this process made you confident that you could proceed with next phase?

SITE WORKS WELL. IT COULD ACCOMODATE MORE PARKING OR UNITS IF REQUIRED.

Step 8.   Conduct cost analyses early and often

Why is this important?

Development is a constant back and forth process between the aspirations and goals for a project and the realities of the available budget. Too often critical design components – components that may impact the long term viability of a project – are eliminated to save money. To make the problem worse, this "trade-off" often occurs at a point when the design is fairly far advanced; i.e., when it's too late to adjust the design and the only option is to eliminate specific components.

Close attention to cost from the earliest stages of the project will help ensure that the evolving design *can be built for the available budget*. Some tradeoffs will be inevitable as the process unfolds, but if costs are analyzed and controlled on an ongoing basis, these tradeoffs can be minimized so as not to affect critical design components.

When should this be done?

The Design Advisor recommends that cost analyses be conducted at a minimum of seven separate times during the development process (see the **Design/Development Matrix**):

Concept Phase
> Upon completion of the site evaluation

Predevelopment Phase
> Upon completion of early Schematic Design.

Development Phase
> Upon completion of late Schematic Design.
> Upon completion of late Schematic redesign, as required (for example, by funding agencies).
> Upon completion of Design Development.
> Upon completion of the Contract Documents.
> During the Bidding process.

Who should do this?

The owner/developer and the design team, with input from a property manager and a contractor, if at all possible. Consider using a cost estimator to provide an independent professional opinion.
(Note: The Design Advisor strongly recommends obtaining professional design assistance as early as possible in the development process; i.e. prior to formally assembling the project design team (see **Step 4.**). Developers should look to these professionals for help in early stage cost estimating as well.)

What should be done?
- Develop cost analyses that build on each other over the various phases of development.
- Print the **Cost Analyses Checklist** and add it to the Project Book. Use it to make sure that a continuous series of cost analyses – at ever increasing levels of detail and accuracy – are conducted over the course of your development process. Add photocopies of the analyses to the Project Book as they are completed.

How can doing this move my project forward?
- Accurate cost estimates add credibility and reality to each phase of the development process.
- They also substantially reduce the need for cost cuts during later phases of the development, ensuring that original design concepts and components make it into the built project.
- Accurate estimates are also critical for ensuring the reliability of the project Feasibility Study and the credibility of the financial package/loan application.
- Finally, accurate estimates at all phases of the development help reduce or eliminate surprises during the bidding process.

Additional resources

A number of tools are available to help developers conduct cost analyses. For square foot estimates, data collected by three national companies – R.S. Means, Craftsman and Marshall & Swift – can be used. Craftsman Book Company has a resource available on line at no cost at *www.building-cost.net*. R.S. Means also provides some information gratis at their website *www.rsmeans.com*. Marshall & Swift's site is *www.marshallswift.com*.

For analyses based on material and quantity "take-offs," software tools are available from these companies and from the Enterprise Foundation. Craftsman can be reached at 1-800-829-8123 or www.craftsman-book.com. R.S. Means is at 800-448-8182 or www.*rsmeans.com*. Marshall & Swift is at 800-452-2367 or *www.marshallswift.com*. The Enterprise Foundation is at 410-964-1230 or *www.enterprisefoundation.org*

THE COST ANALYSES CHECKLIST
INTRODUCTION

The Cost Analysis Process

Cost analyses should become increasingly detailed and accurate as the development process moves forward. In the early phases (Concept and Predevelopment) estimates based on square foot costs, modified by costs associated with special site conditions, will be sufficient.

However, as the design becomes more detailed (during the Development phase), so will the cost estimates, moving away from square foot methods to more accurate analyses based on the costs of individual materials and products. Instead of a rough estimate based on the overall size and complexity of the project, the developer will have a far more accurate estimate based on the amount of brick, the number and type of windows, the total linear feet of countertop, etc. to be included in the project.

These later estimates are based on "take offs," in which accurate quantities of individual materials or products are extracted from (i.e."taken off") the design drawings.

Cost Analysis Tools

A number of tools are available to help developers conduct these cost analyses. For square foot estimates, data collected by three national companies—R.S. Means, Craftsman and Marshall & Swift—can be used. Craftsman Book Company has a resource available on line at no cost at *www.building-cost.net*. R.S. Means also provides some information gratis at their website *www.rsmeans.com*. Marshall & Swift's site is *www.marshallswift.com*.

For analyses based on material and quantity "take-offs," software tools are available from these companies and from the Enterprise Foundation. Craftsman can be reached at 1-800-829-8123 or www.craftsman-book.com. R.S. Means is at 800-448-8182 or www.rsmeans.com. Marshall & Swift is at 800-451-2367 or *www.marshallswift.com*. The Enterprise Foundation is at 410 964 1230 or *www.enterprisefoundation.org*.

At all stages, cost estimators, contractors and/or architects with knowledge of local cost conditions can provide invaluable advice and input. They should be an integral part of any cost estimating team.

Using The Cost Analyses Checklist

The Design Advisor recommends that cost analyses be conducted a minimum of seven times over the course of a development project. The Cost Analyses Checklist is a simple method for ensuring that these analyses are conducted and completed. It provides a

timeline indicating when each analysis should be undertaken, together with brief descriptions of what type and level of analysis should be conducted at each point during the timeline. Completing all the analyses called for on the Checklist will go a long way toward ensuring that the design goals for a project are realistic and achievable.

THE COST ANALYSES CHECKLIST

Analysis #1   **Date Completed** _____

When: Upon Completion of the Site Evaluation

What: A square foot-based analysis, using the estimated gross square footage of the building.

Plus a "best judgement" estimate of costs for site development, including parking and treatment of any special site conditions (special soils, potential problems with construction access, need for retaining walls, utility access, environmental remediation, etc.).

Plus a contingency of 15-20% to account for possible inaccuracies, inflation, change orders, unknowns, etc.

Analysis #2   **Date Completed** _____

When: Upon Completion of Early Schematic Design

What: A square foot-based analysis, using the actual gross square footage of the building.

Plus a "best judgement" estimate of costs for site development, including parking and treatment of any special site conditions (special soils, potential problems with construction access, need for retaining walls, utility access, environmental remediation, etc.).

Plus a "best judgement" estimate of additional costs to account for special design considerations (e.g. artwork, special types of construction, balconies, etc.).

Plus a contingency of 15-20%.

Analysis #3   **Date Completed** _____

When: Upon Completion of Late Schematic Design

What: A quantities-based analysis, using preliminary take-offs of the primary systems and materials in the project.

Plus a detailed estimate of costs for site development, including parking and treatment of any special site conditions (special soils, potential problems with construction access, need for retaining walls, utility access, environmental remediation, etc.).

Plus a series of "allowances"—bulk costs for standard components (e.g. kitchens, bathrooms, heating systems, etc.) based on experience and local knowledge.

Plus a contingency of 12-20%.

Analysis #4 (if required)   **Date Completed** _____

When: Upon Completion of Late Schematic Redesign
(if required during the funding application process)

What: A quantities-based analysis, using preliminary take-offs of the primary systems and materials in the project.

Plus a detailed estimate of costs for site development, including parking and treatment of any special site conditions (special soils, potential problems with construction access, need for retaining walls, utility access, environmental remediation, etc.).

Plus a series of "allowances"—bulk costs for standard components (e.g. kitchens, bathrooms, heating systems, etc.) based on experience and local knowledge.

Plus a contingency of 12-18%.

Analysis #5   **Date Completed** _____

When: Upon Completion of Design Development Drawings

What: A quantities-based analysis, using more detailed take-offs of both primary and secondary systems and materials in the project.

Plus a detailed estimate of costs for site development, including parking and treatment of any special site conditions (special soils, potential problems with construction access, need for retaining walls, utility access, environmental remediation, etc.).

Plus a series of more detailed "allowances," if required.

Plus a contingency of 10-15%.

Analysis #6   **Date Completed** _____

When: Upon Completion of the Contract Documents

What: A quantities-based analysis, using detailed take-offs of all systems and materials in the project.

Plus a contingency of 10-15%.

Analysis #7   **Date Completed** _____

When: During the bidding/negotiating process.

What: As bids are negotiated and accepted, maintain a 5-10% budget reserve above the negotiated bid to cover potential change orders over the course of construction.

Step 9.　　Assemble the Right Project Design Team

Why is this important?

Providing affordable housing is different from most other forms of real estate development.   The process typically involves community and resident participation in ways that for-profit developments do not. It can also be highly politicized, especially if NIMBY ("not in my back yard") attitudes are present   Sites can also be problematic.   Regulations can be tortuous. And budgets are always too low.

To deal with all these factors and still hold on to and deliver design quality requires a special type of design team:
- one that understands the peculiar constraints of affordable housing development;
- one that has proven that it can work well within these constraints and still deliver design quality;
- one that can work well with, and accept input from, people in the community where the project will be built;
- and, perhaps most important, one that understands costs and how to create quality projects within tight budgets.

Assembling a team with substantial experience in – and a strong commitment to - delivering high quality affordable housing will take a great deal of pressure off the developer, making the entire development process easier and more successful. Not doing so – i.e. assembling a team without adequate experience – can have the opposite effect, putting extra burdens on the developer and potentially jeopardizing both the design and the long term viability of a project.

When should I do this?

As early in the process as possible, budget permitting, but no later than the first stages of Predevelopment. (See the **Design/Development Matrix**.)

Special Note: The Design Advisor strongly recommends that any developer obtain professional design assistance as early as possible in the development process (see **Step 4**). This early assistance is distinct and separate from the services that will be rendered by the project design team. The project team is usually selected later in the development process, may or may not include the same individuals or firms providing early assistance, and is subject to different contracting procedures. Step 9 is focused solely on how to assemble the right project design team. For information on obtaining early professional design assistance see **Step 4**.

Who should do this?

The owner/developer with input from the "design committee," if one has been established.

What should be done?

- Select the right architect.
  - The design team for a project may include a variety of professionals, including: an architect, a landscape architect, civil and structural, electrical and mechanical engineers.
  - In most instances the architect will be the leader, coordinating the activities of the other members of the team and acting as the owner's point of contact.
  - Selecting the right architect or architecture firm is therefore the critical step to assembling the right team.

- Print the **How to Select the Right Project Architect Guidelines** and add them to the Project Book. Use the guidelines, and the accompanying **Example Criteria for Selecting an Architect** to help guide your selection process*.*

- Make sure a property manager is part of the design team from the beginning.
  - A common problem in affordable housing projects is that key components that impact how the project is operated and maintained are poorly designed or left out altogether.
  - Exterior hose bibs are a good, basic example: if you have them, its easy to clean exterior surfaces of the property and water any plantings; if you don't – and they're easy to overlook - it's almost impossible to do these simple tasks. You must either make some other arrangement or, more likely, add them back into the project after the design is substantially complete, creating additional delay and expense.
  - Such problems can be avoided if the people ultimately responsible for operating the project – usually the property managers – are brought into the process early as advisors to the design team. In this capacity they can provide periodic reviews of the design to ensure that essential operation and maintenance components are considered and "designed in" from the beginning.

How can doing this help me move my project forward?

- Hiring the right design team, with a proven track record in the type of project you are trying to develop, will make all future stages of the development process easier. In addition, the right design team will add immediate credibility to the project.
- Making the property manager part of the team also adds credibility, indicating that the developer understands the value of creating a project that is easy to operate and maintain.

Additional resources

- The American Institute of Architects – *www.aiaonline.com*
  - especially the Center for Livable Communities, the Housing Professional Interest Area, and the directory of local AIA chapters
- The Association for Community Design – *www.communitydesign.org*

HOW TO SELECT THE RIGHT PROJECT ARCHITECT

Selecting the right project architect is a multi-step process which begins with establishing evaluation criteria, proceeds through interviews and proposals, and ends with a contract. The basic phases are described here.

Using the descriptions as a base, you can develop a set of steps that follows this general outline but responds more precisely to your specific circumstances and needs. The important thing is to formalize the process in some way so that it proceeds systematically and remains focused on selecting the best architect or architecture firm possible for your project.

Step 1. Establish Evaluation Criteria
- These will be the criteria you will use to evaluate both general information on an architect's background and experience, as well as the specific proposal developed for your project.
- The basic criteria should be established before prospective architects are contacted, but they can, and probably will, be modified as the selection process proceeds.

   Example evaluation criteria are provided below.

Step 2. Identify Prospective Architects
- Sources
   Similar projects in the area.
   Other affordable housing providers/developers.
   Local community design assistance centers.
   The local chapter of the American Institute of Architects.

Step 3. Contact Architects, Obtain Qualifications Information, Set Up Interviews
- Make evaluation criteria available so architects can send in appropriate background materials on experience and expertise.

Step 4. Review qualifications material and develop short list (3-5 firms).

Step 4. Conduct Interviews
- Use evaluation criteria to guide process and develop preliminary ratings.
- Be sure to interview the person(s) from the firm that you will actually be working with.

Step 5. Request Written Proposals

Step 6. Evaluate Proposals and Make Qualifications Based Selection
- Use evaluation criteria

Step 7. Negotiate Contract
- Begin negotiations with the highest ranked firm based on qualifications. If negotiations fail, go on to the next highest ranked firm.
  (See the *AIA Documents Overview* in the Design Advisor "Tools" section for a review of basic owner/architect contract agreements.)

Step 8. Consider a Mentor
- It may turn out that the architects in your area simply can't satisfy all the evaluation criteria you develop. Affordable housing is a specialized field of design and experience is critical. Such experience is not often easy to come by.
- You may, for example, find several firms with knowledge of your local construction and regulatory situation, but with only limited project experience—one rowhouse project for families when you're developing a courtyard project for the elderly.
- Alternatively, it may turn out that the most enthusiastic architects willing to take on your project are inexperienced—their hearts are in the right place, but they lack the management experience to bring a complicated project in on time and within budget.
- In these cases, it may make sense to consider hiring an individual or firm with a great deal of experience to act as a mentor to the architect you choose. There are relatively few such firms in the U.S., so the odds are the one you select will not be local. The expense will therefore include travel to your location plus a few day's of the architect's time—on site and via phone and fax.
- While these expenses are "extra" to the project, they will pay themselves back many times over in better design and project management.
- To find appropriate mentors you can contact the architects for the projects mentioned in the Design Advisor. You can also contact your local chapter of the American Institute of Architects or the Center for Livable Communities at the AIA's national headquarters (www.aiaonline.com). The Association for Community Design (www.communitydesign.org/Designc.htm) is another resource.

Example Criteria for Selecting an Architect

Experience with similar projects
- Your architect should have created well-designed housing (at least 3 projects) of similar type, size, level of complexity and occupancy as the project you are developing.
- These "comparable" projects should have been brought in on time and on budget.
- You should be able to see pictures of these projects and to contact the owners.
- Ideally, you should be able to visit one or more of the projects.
- It can be especially useful to visit projects that have been occupied for more than two years.

Design quality of comparable projects.
- The architect's comparable projects should clearly demonstrate that they:
  - Meet User Needs, Enhance their Neighborhoods, Understand and Respond to their Contexts, and are Built to Last

Accuracy of Cost Estimates on Comparable Projects
- The architect's cost estimates on his/her comparable projects should have been accurate.
- Project owners should be contacted to confirm this and review the entire cost/budget process for that project to ensure that it went smoothly

Ability to work well with the community
- Affordable housing is unique in that it routinely involves the community—surrounding neighbors and future residents—in the design/development process.
- Prospective architects should have demonstrated experience in this area and should indicate how they involve the community in the process of making design decisions.

Ability to work well with you
- You should feel comfortable with your architect and confident that he/she can hear and understand your needs and communicate clearly back to you.

Appreciation of the demands imposed during the affordable housing development process
- Prospective architects must understand how the development process works in affordable housing.
- More importantly, they must understand that this complex and difficult process may put extra demands upon them—demands not normally encountered in other types of development.
- Prospective architects must be willing to meet these demands as part of their commitment to providing high quality affordable housing.

Experience with applicable funding programs
- Prospective architects should understand the structure, requirements, time tables and compliance procedures of the funding programs that will be used to finance the project.

Experience in the local construction and regulatory environment
- Because time and budgets are often very tight on affordable housing projects, the ability to effectively navigate through local regulations and to get accurate cost estimates within the local construction market becomes critical.
- Prospective architects—or members of their proposed team—should have demonstrated experience and expertise in these areas.
- Experience with local contractors is also desirable.

Technical knowledge of construction
- Because costs are typically so tight on affordable housing projects, the architect must have a firm understanding of construction, not only to create accurate estimates during design, but also to help control costs and quality during bidding and, particularly, during construction.
- Prospective architects—or members of their proposed team—should have demonstrated expertise in construction cost estimating and construction administration.
- Performance on comparable projects should be examined by contacting the owners.

References
- References should be from previous projects which are comparable to the one under development.

Enthusiasm
- Prospective architects should be excited and enthusiastic about your project and committed to working with you, the occupants and the community to make it an example of the highest design quality.

Step 10.   Develop a minimum of 3 alternative site plan concepts for the project.

Why is this important?

The cost constraints associated with affordable housing development often put pressure on the design team to come up with concepts quickly and move on, rather than testing a variety of ideas and picking the best one before proceeding to the next phase of the process.

This type of quick decision-making can be problematic at any stage in the design process, but is especially so during initial site planning and conceptual design.

Accepting the first basic plan that fits – i.e. that accommodates the required building, parking and open space on the site – can result in a project that is far less successful than it might otherwise have been. It can also "lock in" constraints that will require serious design compromises downstream in the process.

It is therefore critical that the basic conceptual plan for the project be the best possible. One way to help ensure this is to test a minimum of three distinct alternative plans before deciding on one.

When should this be done?

During the Site Analysis phase of Predevelopment. (See the **Design/Development Matrix**.)

Who should do this?

The owner/developer and the design team.
If there is a nonprofit **Community Design Center** in your area, it could also helpful at this stage.
This step may also be part of a larger participatory planning/community design process.

What should I do?

- Have your design team develop a minimum of three distinct alternative site concept plans for the project.
- There's no need for the plans to be elaborate, but each plan should indicate the type of building(s) envisioned and their location, together with the location of parking area(s) and open space.
- Make sure that the concepts are truly different. Consider alternative building types (see **Dwelling Types Overview** for examples), alternative locations for parking and open space, and alternative relationships between all three.
- Visit the CD-ROM, Step 10, to view a simplified example of three alternative site plans.
- Do not accept plans which are basically the same, with only minor variations.

- Review each concept in terms of the following criteria:
    Occupants
      How well does the plan meet the resident-related design goals established in **Step 5**?
    Neighborhood
      How well does the plan meet the community-related design goals established in **Step 6**?
    Cost
      Does the plan appear realistic from a cost perspective? Does it seem reasonable in terms of recent comparable projects in the area? Does it contain special elements (a parking structure, large retaining walls, etc.) that are likely to drive costs up? If it looks costly but is also a great plan, are there ways to reduce costs and still maintain the basic concept?
- Based on the analysis, select one of the alternatives as the conceptual site plan for the project.
- Photocopy the alternative site plans and add them to the Project Book.

How can doing this help me move my project forward?
- A rigorous, well documented planning process will help ensure that the conceptual site plan for a development is appropriate for its users and community and feasible from a cost perspective.
- It can also can help convince lenders, funding agencies and regulators that you are committed to creating an exemplary project.

Step 11.   Use the Design Considerations Checklist to guide the design process.

Why is this important?

The **Design Considerations Checklist** was created to ensure that key issues with the most direct impact on overall design quality are addressed at the earliest stages of the development process. The design components discussed in the Checklist are essential to a project that meets its users' needs, enhances its neighborhood, and is built to last. Based on real-world projects and the experience of some of the foremost designers and providers of affordable housing in the country, the Checklist provides a systematic way to take advantage of as many major design opportunities as possible, and to make sure that the most important design components are built into a development project from the very beginning.

When should this be done?

The Checklist can be reviewed as early as the Concept phase for the project. It should be actively used as a tool during the **Schematic Design** phase of Predevelopment.

Who should do this?

The owner/developer together with the architect and other members of the design team. The Checklist can also be used to help focus community participation in the design process.

What should I do?

- Go through the checklist once very early in the Predevelopment process.
- Go through it again at least twice over the course of Schematic Design.
- Consult it on an as-needed basis when specific issues or design components are being analyzed and designed.
- Use the Checklist to help guide the schematic design process, facilitate participant input to the process, and focus design reviews.
- Throughout the process, make sure that accessibility issues are actively considered.
- Print out the **Design Considerations Checklist** and add it to the Project Book.

How can doing this help move my project forward?

- By carefully and consistently considering key design issues during the early phases of project development you will ensure that these issues are dealt with systematically and, most important, not overlooked as the project moves forward.
- Using the Checklist will also help guide and streamline decision-making during the critical early phases of the design process.
- Finally, using the Design Considerations Checklist can and should improve the credibility of your development - with occupants, neighbors, funding agencies and regulatory bodies – as a project committed to design excellence.

DESIGN CONSIDERATIONS CHECKLIST

- **PARKING—***Don't let parking dominate the site, the building or the street.*

Overall Impact
Avoid letting garages, driveways and parking lots dominate the streetscape. Consider placing them at the rear or side of the site to allow a majority of dwelling units to "front on" the street. Consider planting trees and shrubs to soften the overall impact of parking areas and to provide shade and noise reduction. At buildings with parking garages, avoid large areas of blank wall facing the street. Consider incorporating decorative elements above the garage door to soften its visual impact. Consider improving unavoidable blank walls with decorative artwork, display cases, vines, and good quality durable materials to minimize graffiti and deterioration.

Access and Surveillance
Provide locations for parking that minimize walking distance between dwelling units and cars and that allow for casual surveillance of cars from a number of different units. Avoid remote parking. Avoid large lots. Consider breaking them into multiple, smaller lots to enhance safety and accessibility and minimize the aesthetic impact of large, unbroken rows of cars. Locate handicapped and elderly parking with immediate access to their respective units. Locate visitor drop off and parking near main entrances and clearly mark all visitor parking spaces.

Vehicle/Pedestrian Interaction
Design to minimize conflicts between vehicles and pedestrians. Consider separating bicycle and pedestrian paths from vehicular traffic. Consider linking open spaces so that they form an uninterrupted network of vehicle-free areas. Avoid parking layouts that erode a project's open space until only "leftover" areas are available for pedestrian use. Consider traffic calming strategies to slow down cars within the project.

Car Maintenance
Recognize that parking areas will be used for car repair and maintenance. Consider providing a space, with access to water and electricity and with adequate drainage, for this purpose.

Security
In underground or multi-story parking structures, provide a limited number of secure entry points. Ensure that all parking areas are well-lighted, but avoid lighting strategies that cause glare or otherwise negatively impact surrounding buildings. Consider locating parking in areas that can be informally observed by passersby.

Parking Podiums
On parking podiums provide adequate landscaping and site furniture. Landscaping should try to include naturalistic features to mask the artificial character of the podium, if permitted by budget. Consider integrating planters, lighting, trellises, benches and other site furniture with unit and building entries into a coherent open space plan. Make planters at least 30" high to protect plants.

- **PUBLIC OPEN SPACE—***Public open areas must be designed to the same level of quality as any other "space" in a development*.

Outdoor Rooms
Think of public open space—shared outdoor areas intended for use by all residents—as "outdoor rooms," and design them as carefully as any other rooms in the project. Avoid undifferentiated, empty spaces. Consider the types of activities that will occur in the "rooms," including cultural or social activities unique to specific user groups, and design the shared open space accommodate these activities.

Access
Provide direct access to open space from the dwelling units that the open space is intended to serve. At the same time consider designing in ways to control nonresident access to these spaces. When terraces or balconies are used as shared open space, consider locating so they serve as extensions of indoor common areas.

Boundaries
Provide clear boundaries between publicly controlled spaces (streets), community controlled spaces (shared open space) and privately controlled spaces (dwellings and private open space). Consider enclosing or partially enclosing open space with project building(s) to provide clear boundaries.

Surveillance
Provide visual access to shared open spaces from individual units, preferably from the kitchen, living room or dining room.

Play Areas
Consider play—and play areas—as critical to the successful functioning of any family housing project. Avoid placing a low priority on these spaces and leaving their design until the end of a project. In particular, consider how play areas will be used by different age children (2-5 years, 5-12 years, and teenagers) and design these areas accordingly. Avoid "one space fits all" solutions. Locate play areas for small children so that they allow for adult supervision from dwelling units and/or from a central facility such as a laundry. Design play areas so that adults can also congregate and provide supervision.

Nighttime Lighting
Consider a lighting plan for shared open spaces that provides light from a variety of sources. Match lighting intensity and quality to the use for which it is intended; i.e. the lighting required for a pedestrian path is substantially different from that required to illuminate a parking garage. Avoid lighting which shines directly into dwelling units or is overly intense and bright. Consider energy efficient lighting whenever possible

- **PRIVATE OPEN SPACE—*Every home should have its own private outdoor space.***

Private Outdoor Space for All Dwelling Units
Provide each household in the project with some form of private open space: patio, porch, deck, balcony, or yard. In certain instances, consider shared entry porches and/or shared balconies. Avoid building layouts where front yards face back yards.

Access
Ensure that private open space is easily accessible—physically and visually—from individual units.

Adequate Size
Ensure that private open space is large enough so that it can actually be used. Avoid spaces, particularly balconies, decks and porches, that are too narrow to accommodate furniture.

Balconies
Attempt to locate balconies adjacent to living rooms. Avoid screening balconies with solid walls. Instead, consider screening materials that provide privacy but also allow residents, particularly small children, to look out. Avoid horizontal railings and other designs which enable children to climb up. Carefully consider how and where balconies will drain.

Fencing
Consider providing fencing around all yards and patios to provide privacy and to help define boundaries between public and private open space.

Storage
Provide outdoor storage for outdoor tools, equipment and furniture.

- **LANDSCAPING—*Landscaping can make or break a development*.**

Landscaping is not a Secondary Consideration

Good landscaping is critical to the quality of any project. Consider how landscaping and planting will be handled from the very beginning of the design process. Avoid considering landscaping as an "extra" that can be added in at the end of the project or, worse, eliminated in the name of cost control.

Plantings

Provide as rich a variety of plantings—trees, shrubs, groundcover, and grass areas—as possible. Anticipate mature sizes and avoid crowding trees, shrubs and buildings. Use hardy, native species of trees and plants that are well suited to the project location and are easy to water and maintain.

Appropriate Plantings

Consider how the landscape will be used by project occupants and specify appropriate plantings. In general, assume heavy use in all landscaped areas. Avoid delicate plants and shrubs in heavily trafficked areas, especially in locations where they can be trampled by children. Instead, consider such plantings in areas that are out of the main traffic flow (e.g., as privacy planting next to buildings). Avoid providing only grass areas for children to play in. Consider a mix of grass and paved areas instead. Also, consider raising or otherwise protecting grass areas that are not meant for play.

Paved Areas

Recognize that some paved area will be necessary in family housing to facilitate children's play. However, large, empty paved areas should be avoided. Consider using alternative landscape approaches—plantings and grass—to break these areas up into smaller functional units.

Edges

Where planted areas, other than lawns, meet hard surfaces include some form of raised edge to contain the soil and discourage cutting across the bed. Consider designing the edges so they can also serve as outdoor seating areas.

Outdoor Seating

Outdoor seating should be an integral part of any landscape plan and should be thoughtfully designed and located. Avoid simply scattering seats at random through the site. Consider what the seating looks at and what looks at it. Consider how the seating is oriented with respect to the sun and breezes and whether it needs protection from rain or wind. Avoid "one type fits all" solutions, particularly in larger projects. Consider providing different seating for different users.

Paths
Pedestrian paths and walkways are critical to the smooth functioning of any affordable housing project, particularly larger, multi-unit developments. Consider the wide range of uses that any path must accommodate—children, adults, bicycles, skate boards, shopping carts, walkers, pets, furniture moving, etc.—and design with this range of uses in mind. Avoid paths that are too narrow to accommodate multiple users at the same time. Consider rounded corners at all intersections and direction changes, especially in projects with children. Ensure that paths are well lighted so that users can see where they are going and be seen by other people. Consider designing path edges so that they encourage users to stay on the path and not trample on adjacent plantings (e.g. through changes in slope or materials or by providing raised edges). Remember that the shortest route from point A to point B is usually a straight line. Avoid forcing people to follow circuitous routes to their destinations or be prepared for the new, unplanned paths that will inevitably appear to accommodate occupant use patterns.

Storage
Provide adequate space to store landscape maintenance equipment and materials.

- **BUILDING LOCATION**—*A building should respect its street, enhance its site and respond to its climate.*

Site Entry and Circulation
The entry to the site is critical to the public image of the development. Emphasize the main entrance and place central and shared facilities there if possible. Respect the street and locate buildings on the site so that they reinforce street frontages.

Setbacks
To the extent possible, maintain the existing setback patterns within the immediate vicinity of the building. Avoid locating a building far in front of or far behind the average setback lines of the four to five properties located on either side of the proposed project. Respect the prevalent side yard and rear yard setback lines prevalent in the area.

Climate Considerations
Consider placing buildings on the site so as to maximize solar access during cooler months and to control it during warmer months. Also consider maximizing natural ventilation and access to views from within the site. Avoid a layout in which adjacent buildings obstruct one another. Design the building so that sun directly enters each dwelling unit during some part of the day year round.

- **BUILDING SHAPE—*A building should reinforce the physical "fabric" of the surrounding neighborhood.***

Building Height
Relate the overall height of the new structure to that of adjacent structures and those of the immediate neighborhood. Avoid new construction that varies greatly in height from other buildings in the area, except where the local plan calls for redeveloping the whole area at much greater height and density. To the extent feasible, relate individual floor-to-floor heights to those of neighboring buildings. In particular, consider how the first floor level relates to the street and whether this is consistent with the first floors in neighboring buildings.

Building Scale and Massing
Relate the size and bulk of the new structure to the prevalent scale in other buildings in the immediate neighborhood.

Building Form
Consider utilizing a variety of building forms and roof shapes rather than box-like forms with large, unvaried roofs. Consider how the building can be efficiently manipulated to create clusters of units, and variations in height, setback and roof shape.

- **BUILDING APPEARANCE—*A building should look good to residents and neighbors.***

Image
Avoid creating a building that look strange or out of place in its neighborhood. Consider a building image that that fits in with the image of middle income housing in the community where the project is located.

Visual Complexity
Consider providing visual and architectural complexity as possible to the building's appearance. Consider breaking a large building into smaller units or clusters. Consider variations in height, color, setback, materials, texture, trim, and roof shape. Consider variations in the shape and placement of windows, balconies and other façade elements. Consider using landscape elements to add variety and differentiate units from each other.

Windows
Maximize window number and size (within budget constraints) to enhance views and make spaces feel larger. Use minimum number of different size windows, but consider varying where and how they are used. Consider ways to screen and physically separate ground floor windows from walkways—through screens or plantings—to provide privacy.

Front Doors
Pay careful attention to the design and detailing of front doors. Consider what the front doors convey about the quality of the project and its residents. To the extent possible, respect the placement and detailing of good quality front doors in neighboring homes.

Facade
Relate the character of the new building façade to the façades of similar, good quality buildings in the surrounding neighborhood or region. Horizontal buildings can be made to relate to more vertical adjacent structures by breaking the façade into smaller components that individually appear more vertical. Avoid strongly horizontal or vertical façade expression unless compatible with the character of the majority of the structures in the immediate area.

Roof Shape
Consider relating the roof forms of the new building to those found in similar, good quality buildings in the neighborhood or region. Avoid introducing roof shapes, pitches or materials not found in the neighborhood or region.

Size and Rhythm of Openings
Respect the rhythm, size and proportion of openings—particularly on the street facades— of similar, good quality buildings in the neighborhood or surrounding area. Avoid introducing drastically new window patterns and door openings inconsistent with similar, good quality buildings in the neighborhood or surrounding area.

Trim and Details
Trim and details can provide warmth and character to a building's appearance, particularly on street facades. Carefully consider the design of porch and stair railings, fascia boards, corners, and areas where vertical and horizontal surfaces meet—for example where a wall meets the roof. Generally put trim around windows. Consider adding simple pieces of trim to the top and bottom of porch columns.

Materials and Color
Use materials and colors for the façade (including foundation walls) and roofing that are compatible with those in similar, good quality buildings in the surrounding neighborhood or region. Avoid introducing drastically different colors and materials than those of the surrounding area. Consider using materials that do not require repeated or expensive maintenance, especially those that residents can easily maintain themselves. Consider using materials with high levels of recycled content where possible.

Individual Identity
To the extent possible, provide individual identities and addresses for each dwelling unit. Consider ways to break large, repetitive structures into smaller, individually identifiable clusters. Ensure that all dwelling units have clear, individual addresses. Consider design strategies that allow residents to enhance and individualize the exterior appearance of their own units.

- **BUILDING LAYOUT—***A building should "work" for residents, staff and visitors.*

Entries
Provide as many private, ground level entries to individual units as possible. Ensure that all building entries are prominent and visible and create a sense that the user is transitioning from a public to a semi-private area. Avoid side entries and those that are not visually defined. At all entries consider issues of shelter, security, lighting, durability, and identity. For apartment buildings, allow visual access from managers office and/or 24 hour desk. Allow visual access to stairs and elevators from the lobby. For buildings with clustered and individual unit entries, consider providing small "porch" areas that residents can personalize with plants, etc. Limit "shared entries" to less than eight households. Consider providing some form of storage—for strollers, bikes, shopping carts, etc.—at or close to all main entries.

Central Facilities and Common Rooms
Consider locating central facilities—such as community rooms and laundries—in a central part of the development or building. Common rooms should be linked to common outdoor space. Ensure that community rooms are comfortable, accessible, durable, and, most important, flexible places. Community room should have access to toilet rooms, a kitchenette, and should have good storage. Consider whether or not a childcare program will be provided and whether the community room will accommodate it. Provide access to daylight and natural ventilation in all common rooms.

Support and Service Areas
Carefully consider the design and location of key support/service areas such as the managers office, maintenance rooms, janitor's facilities, mechanical equipment rooms and trash collection areas. Provide access to bathrooms and kitchens, and adequate space, furniture and storage for each of these uses, together with access to bathrooms and kitchens as appropriate. The manager's office should supervise the main entrance and should be located centrally, next to community and maintenance rooms. Provide screened trash collection areas that are convenient and easy to access from all of the units. Consider the path of travel of trash from source to removal area.

Stairs
Ensure stairs are durable, attractive and safe. Avoid treating stairs as an afterthought. Instead, consider them, particularly entry stairs, as major design elements. Consider how they relate to the street and neighborhood, how they accommodate users and visitors, and what they "say" about the project and its occupants. Consider how the area under the stairs will look and be used. Ensure that all stairs can accommodate moving furniture without damage to finishes.

Elevators
Locate elevators in sight of managers office if possible. Design adequate space in front of elevator to allow waiting and passage.

Access Corridors
Avoid corridors of excessive length; i.e. greater than 100 feet unbroken length. Break up long corridors with lobbies, lighting, benches, materials and color changes, offsets, artwork. To the extent possible, provide corridors with access to natural daylight and ventilation. Ensure that all corridors can accommodate moving furniture without damage to finishes.

Security
Consider ease of visual and physical surveillance by the residents of areas such as the street, the main entrances to the site and the building, children's play areas, public open space and parking areas. Consider locating windows from actively used rooms such as kitchens and living rooms so that they look onto key areas. Also consider containing open spaces within the building layout and using the selection and layout of plant materials to enhance, rather than hinder, surveillance and security. Consider specific design strategies to maximize the security of the building, including adequate lighting, lockable gates and doors at all entrances to the site and the buildings, and video cameras and monitors.

- **UNIT LAYOUT**—*A home should "work" for its residents.*

Entry
Consider recessing or otherwise articulating unit entries so as to provide individual identities for each unit and to allow residents to personalize their entry areas.

Room Relationships
Unit layout and room organization will be partly determined by the building type, orientation, location on the site and user profile. Consider activities and behaviors in each space to allow adequate room and durable materials for these activities. Create a clear separation of the private sleeping areas from the less private living areas. Avoid excessive circulation space. To the extent possible in multi-unit buildings, locate similar rooms adjacent to each other; for example, place the bedrooms of one unit adjacent to the bedrooms of the neighboring unit. Try to stack "wet" rooms so that plumbing runs are efficient.

Room Design
Consider how individual rooms will be used. Test furniture arrangements, outlet, telephone and cable jack, and light fixture locations to ensure that all rooms can be reasonably furnished. Consider partly enclosing kitchen to allow flexibility in dining/living room use. The master bedroom may have a private bath; other bedrooms will share bathrooms. Consider how rooms can be arranged to accommodate working at home. Avoid through traffic in living rooms.

Unit Mix
Unless local requirements dictate otherwise, consider providing a variety of unit types— studios, one-, two-, three- and four-bedrooms. The proportion of each type should take into account the population being served and the prevalent mix of units in the area surrounding the project. In multi-story buildings, try to locate larger family units on the ground floor to allow easy access and surveillance of children.

Dining Rooms
Provide enough space to accommodate a large table and enough chairs for occupants and guests. Consider how the space might be used for other activities such as homework.

Bathrooms
Provide visual screening of bathrooms from the entry and from the living and dining areas. When more than one bedroom shares a bathroom, consider separating the lavatory from the toilet/tub area to allow use by more than one person at a time.

Daylight and Ventilation
Access to natural light in all bedrooms and the living room is essential and cross ventilation throughout the unit is encouraged. Consider layouts that allow natural light to the kitchen and allow the natural ventilation and lighting of bathrooms.

Storage Space
Provide as much storage space as possible. At a minimum provide an amount of bulk storage commensurate with the size of the unit and the number and ages of residents it is expected to accommodate, including: coat closets in the entry area, large closets in the bedrooms, linen closets, pantry spaces, and storage rooms adjacent to exterior balconies or patios. Assume two occupants per bedroom for storage purposes.

Window Views
Consider what residents will see when they look out the window. To the extent possible orient the most used rooms to the best views.

Materials
Avoid materials that require frequent maintenance, especially by specialists. Consider materials that residents can maintain themselves. Provide floor coverings appropriate to use in room—generally use resilient flooring in kitchens, bathroom, laundries, dining rooms and entries. Consider "healthy" building materials for interior finishes and materials, such as: carpet, resilient flooring, paint, glues, cabinets. Evaluate selection of materials in terms of lifecycle cost.

Appliances and Mechanical Systems
Avoid appliances that require frequent care at short intervals by specialists. Provide heavy-duty, energy-efficient appliances and fixtures. Consider providing washer/dryer hookups, especially for families and disabled households. Provide adequate duct/chase space for both vertical and horizontal duct runs, especially for ranges and bathroom fan.

Step 12. Use the Operation and Maintenance Considerations Checklist to reality check the design process.

Why is this important?
Design and construction are complex processes subject to intense time and financial pressures. Specific design elements can easily be overlooked or overwhelmed, particularly "small" items that simply get lost in the rush to complete the project on time and on budget. But very often these "small" elements have a big impact on the operation and/or maintenance of the buildings in the development. Sometimes they must even be retroactively added back into the project so that it can function as intended – a process that *adds* cost and time to the process.

The **Operation and Maintenance Considerations Checklist** was created to help a developer avoid these costly oversights. Effective use of the Checklist ensures that key design elements contributing to a development's operation and maintenance are not overlooked and are, in fact, "built in" to the project.

When should this be done?
The Checklist should be reviewed at the end of the **Schematic Design**, **Design Development**, and **Contract Documents** phases of design and at least twice during construction.

Who should do this?
The owner/developer together with the architect and the contractor

What should be done?
- Go through the O&M Considerations Checklist with the design/contractor team once at the end of Schematic Design, once at the end of Design Development and once at the end of the Contract Documents phase.
- Go through the checklist at least twice during construction, once early in the process and once when construction is roughly 85% complete.
- Print the **Operation and Maintenance Considerations Checklist** and add it to the Project Book. Go through the Checklist at least five times (see above) over the course of the project.

How can doing this help move my project forward?
- *Design doesn't exist in a vacuum. The finished product will have to be cost-effectively operated and maintained. The Checklist provides a good basic framework for reality-checking design.*
- Using the Checklist will help avoid time consuming and costly "retrofits" of key design components.
- The Checklist is one of the important tools that help control construction costs and speed the overall construction process.

The Operation and Maintenance Considerations Checklist

Review the blank Checklist with your design team and property manager, if possible. Add in any additional elements that the team feels should also be included. Review the checklist three times during design: at the conclusion of the Schematic Design, Design Development and Contract Documents phases.

Put a check mark in the appropriate column next to each specific design element to indicate that it has been considered and is included in the drawings or specifications. Review the checklist twice over the course of construction—once when the basic structure is complete and once at the 85% complete stage.

Put a check mark in the appropriate column next to each specific design element to indicate that it has been considered and/or actually constructed.

Step 12: Operations and Maintenance Considerations Checklist

Check off each design component at each phase to confirm all components have been included.

Design Component	Schematic Development	Design Development	Contract Documents	Construction Phase 1	Construction Phase 2
Alarmed Doors					
Alarms					
Appliances					
Balcony Drainage					
Balcony Light Fixtures					
Balcony Waterproofing					
Cabinets					
Countertops					
Emergency Lighting					
Exterior Light Fixtures Fire Alarms					
Exterior Storage					
Fencing					
Fire Extinguishers					
Fire Sprinklers					
Flooring					
Hose Bibs					
HVAC Equipment (heating units, air conditioning units)					
Interior Storage					
Janitor's Closets					
Janitor's Sinks					
Landscape Irrigation					
Landscape Lighting					
Laundry Room					
Mail Delivery					
Manager's Office					
Paint					
Planters					
Planter Drainage					
Play Equipment					
Plumbing Fixtures (toilets, tubs, showers, faucets, kitchen sinks)					
Reception Desk					
Recycling					
Signage					
Smoke Detectors					

Design Component	Schematic Development	Design Development	Contract Documents	Construction Phase 1	Construction Phase 2
Telephones (in units, office, pay phones)					
Trash Collection (vented closets, chutes)					
Utility Meters (gas, electric, water)					
Water Heaters (individual, central, laundry room, office)					
Window Coverings (shutters, screens, bars)					
Additional Components………..					

Step 13.   Identify and prioritize the key design components of the project – those that will do the most to meet user needs, respond to the context and enhance the neighborhood.

Why is this important?
Once you have established clear design goals for the development, related both to the occupants and to the community, you can identify and prioritize the specific components of the design that contribute the most to those goals.

For example, one development organization may decide that a front porch and a large living/dining area with a bay window are critical to fitting in with the surrounding neighborhood and to meeting the needs of future residents. Another group may feel that a large back patio, separate living and dining areas, and a dormer window are more important. Whatever the final result, it is important to clearly identify the design components that are important to you as early as possible in the design process.

During the often lengthy process of development, pressures and trade-offs are inevitable. With your key components clearly prioritized, you can make sure that the most important elements are saved, and when a trade-off is necessary, you have the information to make wise and rapid decisions that will maintain schedule and budget without compromising or eliminating

When should this be done?
During the **Schematic Design** phase of Predevelopment.

Who should do this?
The owner/developer and the design team with input from residents and the community.

What should be done?
- Over the course of Schematic Design conduct periodic reviews and, with input from users, the design team and the community, identify the key components that you consider critical to meeting user needs, responding to the surrounding context and enhancing the overall neighborhood.
- Use the **Design Considerations Checklist** to help inform this process.
- Prioritize the key components based on how critical they are to the design success of the project. These will be the design elements that you will fight hardest to preserve.
- Print the **Prioritized List of Key Design Components Form**, fill it out, and add it to the Project Book.
  (The list should also accompany the completed Schematic Design drawings.)

How can doing this help move my project forward?

- By identifying and understanding the key design components in your schematic designs you are much better equipped to make the case for your project's value – to its occupants and to the community – throughout the development process.
- Knowing which components you value the most will help guide decision-making when and if costs must be cut to meet the budget.

Prioritized List of Key Design Components

Project Name _____

Date   _____

Key Design Components

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Affordable Housing Design Advisor

Example
Prioritized List of Key Design Components

Project Name DOVE STREET
Date

Key Design Components

STOOPS
MICROWAVES IN UNITS
D.W.s IN UNITS
LAUNDRY IN UNITS
SPECIALTY WINDOWS
BRICK CIRCLES
IRON WORK DETAILS
AWNING AT DOORS
RAISED GARDEN BEDS
REAR DECK / PATIOS
OPEN INTERIOR STAIR
SEPARATE DINING AREAS
ADA ACCESS STANDARDS
CORNICE

Step 14.   Stress the project's design quality in all funding applications

Why is this important?
Applying for funding is one of the most important phases in the development process. You need to convince your funders that your project makes sense – socially and financially – and that it is worthy of funding at the level you are requesting. Good design can help.

A quality project – one that meets user needs, enhances its neighborhood and is built to last – will be perceived as a long term asset to the community rather than a liability. Such a project reduces, rather than increases, a lender's risk and is far more likely to receive favorable consideration than a run-of-the-mill effort that meets the code and nothing more.

Clearly indicating how your project has been designed to the highest quality standards and how this is beneficial to the lender will substantially increase the credibility of your loan package and help speed the loan approval process. The same approach will also be useful in applications for regulatory approval.

When should this be done?
During the preparation of funding applications.

Who should do this?
The owner/developer with input from the design team.

What should be done?
- Make sure that the application and its presentation clearly convey that this is a high quality design project.
- Use architectural renderings and other drawings to reinforce the message.
- Describe your development process and how it is deliberately structured to ensure design quality.
- If you have followed the steps presented in the Design Advisor, say so and use material from the Project Book as evidence.
- Emphasize the extent and outcome of community participation in the design/development process.
- Explain the benefits design quality brings to a project and why these benefits are good for the lender.
- Explain how this process also results in accurate and realistic cost estimates, as indicated in the loan application.
- Use examples from the Design Advisor, or other sources, to strengthen your presentation.

- Photocopy the sections of your application(s) that make the argument for design quality –text, drawings, photographs, etc. – and add the photocopies to the Project Book.

How can doing this move my project forward?
- Banks, funding organizations, and equity partners are constantly reviewing development proposals.
- Emphasizing design quality - and its role in creating long term community assets rather than short term shelter - should significantly increase their interest in and comfort level with your project.
- The result will be a faster and easier funding approval process.

Additional resources
Further information on funding applications and approvals can be found at:
The Enterprise Foundation   *www.enterprisefoundation.org*
The Development Training Institute *www.dtinational.org*
The Local Initiatives Support Corporation   *www.liscnet.org*
The Neighborhood Reinvestment Corporation   *www.nw.org/nrc*

Sections of Funding Application(s) Stressing Design

Insert photocopies of the sections of your funding application(s) which stress and illustrate the design quality of your development.

Step 15. Identify and prioritize the key construction materials and systems for the project – those which are most critical to creating a project which is "built to last."

Why is this important?

Up to this stage we have concentrated on steps that focus on meeting user needs and enhancing the neighborhood. This step adds the final crucial element in a truly well designed project: making sure that it is built to last.

Just as adjustments to the *design* of the development are usually necessary as the project progresses, trade-offs and adjustments to the building *materials and systems* (structure, envelope, HVAC, etc.) are also often necessary. For example, you may wish to use brick veneer for all your exterior walls but find that it is too expensive; so you compromise and do only the front and sides in masonry and the rear walls in vinyl siding. Alternatively, you may find that the extra insulation you wish to add for energy conservation reasons, even though it costs extra, allows you to reduce the size of your heating system – overall costs remain the same and you've built in lower energy costs for your residents.

To manage these trade-offs and adjustments effectively and ensure that design quality is not compromised you need to determine – just as you did with key design components in **Step 13** - which construction components are critical to the overall design quality of the project.

These are the components worth fighting hardest for as the inevitable process of adjustment and compromise plays itself out.

When should this be done?

During the **Design Development** phase of Predevelopment, when the building's basic structure, envelope (exterior walls, roof, windows), and mechanical systems (heating, ventilating and air conditioning) are being designed.

Who should do this?

The owner/developer and the design team, with input from a contractor if possible.

What should be done?

- As the design develops, a list of the project's major building materials and systems – its structure, envelope and heating/ventilating/air conditioning components - will emerge. The list will form the basis of the cost estimates made during design development.
- Analyze this list and determine which materials or systems are the most critical to ensure that the project is "built to last."

- As you refine and redesign the project to make your cost estimates fit your budget, make sure that your top priority materials and systems are not compromised.
- Consider favoring "public" elements especially those which enhance the neighborhood where the project is located (for example, entry stairs) over more "private" components, especially those which the occupants can maintain, repair or replace themselves (for example, interior stairs).
- Print the **Prioritized List of Key Construction Materials and Systems Form**, fill it out and add it to the Project Book.
  (The list should also accompany the completed Design Development drawings.)

How can doing this help move my project forward?
- Clear priorities will help speed up and rationalize decision-making during cost driven redesign.
- The fact that these decisions are driven by concerns for the project's overall design quality and, in particular, for its long term "lastability," will give added credibility to the project in the loan application and other approval phases.

Additional resources available from the Affordable Housing Design Advisor CD-ROM.

The Materials Handbook, a review of building materials and products for high density affordable housing developed by Asian Neighborhood Design of San Francisco.

Prioritized List of Key Construction Materials and Systems

Project Name _____

Date _____

Key Construction Materials and Systems

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Example
Prioritized List of Key Construction Materials and Systems

Project Name **DOVE STREET**
Date _____

Key Construction Materials and Systems

MASONRY WALLS

CONCRETE STOOP

LOW E DOUBLE PANE WINDOWS

3/4" SUBFLOOR

PLYWOOD SHEATHING

HOT WATER GAS BOILER

A-C CENTRAL

VINYL ROOF

WOOD WINDOWS

SOLID WOOD DOORS ON CABINETS

Step 16.   Identify and prioritize the key finishes and hardware for the project – those which are most critical to creating a project that is "built to last."

Why is this important?

As a project proceeds through the contract documents phase, the proposed finishes and hardware for the development are often the first things to be adjusted or cut to the minimum to meet the budget. But sometimes these components make huge contributions to the quality and durability of a project.

For instance, solid kitchen cabinet doors wear better and last longer than simple veneer doors. They may be more expensive, but this extra expense can be justified, for example, in kitchens that experience a lot of traffic, resulting in a lot of wear and tear on the cabinets.   Substituting veneer for solid cabinet doors may save money in the short term but could cost the project more in repair and replacement costs over time.

A clear understanding of which finishes and hardware are the most important will help you more effectively manage cost-driven substitutions and/or eliminations and ensure that design quality is not compromised.

Your highest priority components will be the ones worth fighting hardest for as the inevitable process of adjustment and compromise plays itself out.

When should this be done?

During the **Contract Documents** phase when the project's finishes, hardware, trim and fixtures are being specified.

Who should do this?

The owner/developer and the design team with input from a contractor, if possible, and from the property manager.

What should be done?

- As the contract documents are being developed, a list of the project's finishes and hardware will emerge as part of the "specifications" which accompany the working drawings.
- Analyze this list and determine which materials or systems are the most critical to ensure that the project is "built to last."
- As you refine and rework the "specs" for the project to make your cost estimates fit your budget, make sure that your top priority finishes and hardware are not compromised.

- Consider favoring "public" elements, especially those which enhance the neighborhood where the project is located (for example, entry doors), over more "private" components, especially those which the occupants can maintain, repair or replace themselves (for example, closet doors).
- Print the **Prioritized List of Key Finishes and Hardware Form**, fill it out and add it to the Project Book.
  (This list should also accompany the Contract Documents and Specifications.)

How will doing this help move my project forward?
- *A clear list will help speed decision-making as final project specifications are developed.*
- *The final specifications that result will be strongly focused on creating a project that is "built to last."*

Additional Resources
    The Materials Handbook, a review of building materials and products for high density affordable housing developed by Asian Neighborhood Design of San Francisco.

Prioritized List of Key Finishes and Hardware

Project Name _____

Date _____

Key Finishes and Hardware

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Example
Prioritized List of Key Finishes and Hardware

Project Name ___DOVE STREET___

Date _____

Key Finishes and Hardware

HARDWOOD FLOORS IN UNITS

SLATE FLOORS IN COMMON HALLS

GRAB BARS IN BATH

GRAB BARS IN HALLS

BLINDS

LEVER DOOR HANDLES

LEVERS ON PLUMBING FIXTURES

INDIRECT LIGHTING

GLASS LIGHT FIXTURES

DEAD BOLT LOCKS

Step 17. Monitor bids and review any material, system, finish or hardware substitutions to ensure that design objectives, especially the "built to last" goal, are not compromised.

Why is this important?

During the bid process contractors may propose substitutions to the systems and materials listed on the working drawings and in the specifications. If the cost estimates up to and during the contract documents phase are accurate, such substitutions should not be significant or numerous. Nonetheless, some substitutions can be expected over the course of bidding.

It is important to closely evaluate these substitutions to ensure that key components of the project – the components that you have already identified as critical to design quality – are not compromised. This will help ensure that the project is built "as designed" and that the quality fought for so hard over the course of development is achieved.

When should this be done?

During the Bidding phase.

Who should do this?

The owner/developer and the design team, with input from the property manager.

What should be done?

- Review all bids received and note all proposed substitutions.
- Cross reference the substitutions with the prioritized lists of design components, materials and systems, and finishes and hardware that have been developed in Step 13, Step 15 and Step 16.
- Determine whether the proposed substitutions compromise any of the prioritized components and, if so, develop strategies for either accommodating these compromises or reinstating the component as originally designed or specified.
- Print **Key Bid Substitutions Form** and list the key proposed substitutions in the final bid – those that impact your prioritized design, construction and finish components – together with a description of how the substitutions meet the design intent of the project or, if they do not, why this is acceptable. Add the completed form to the Project Book.

How will doing this help move my project forward

- Using previously developed lists of prioritized items - design components, materials and systems, finishes and hardware - will make the decision-making process concerning substitutions simpler and more systematic. The result will be a clearer and speedier bid process.

Key Bid Substitutions

Project Name _____

Date _____

Prioritized Component	Proposed Substitution	Impact on Project Quality

Example
Key Bid Substitutions

Project Name DOVE STREET

Date _____

Prioritized Component	Proposed Substitution	Impact on Project Quality
IRON WORK DETAILS	ELIMINATE CIRCLES	NOT DONE PROPOSED SAVINGS OF $900 NOT WORTH CHG.
AC CENTRAL	PACKAGE UNIT IN COMMON SPACE. SLEEVES IN UNITS	OK — MEETS USER NEEDS
SLATE FLOORS IN COMMON HALLS	VINYL TILE	OK — VINYL TILE OF ACCEPTABLE APPEARANCE LOCATED. SLATE RETAINED IN VESTIBULE WI. HEAVIEST WEAR
HARDWOOD FLOORS IN UNITS	CARPET	RELUCTANTLY ACCEPTED DOES NOT IMPACT PUBLIC FACE — INCREASES MAINTENANCE

Step 18.   Monitor construction to ensure the all key design, construction and finish goals are being met.

Why is this important?

Even during the course of construction contractors may propose substitutions to the systems, materials, hardware and finishes listed on the working drawings and in the specifications.

If you've gone through all the previous Steps, then the contractor's bids should be pretty accurate and such substitutions should be minimal. Nonetheless, some substitutions – and even elimination of specific components - may occur due to the unavailability of specific products, unanticipated price increases, unforeseen delays or other problems with the project.

It is important to closely evaluate any substitutions/eliminations to ensure that key components of the project – the components that you have already identified as critical to design quality – are not compromised. The clearer your priorities are, the more effectively you can look for workable alternatives and still maintain the quality fought for so hard over the course of design and development.

When should this be done?

During the Construction phase.

Who should do this?

The owner/developer and the design team with the contractor, and with input from the property manager.

What should be done?

- Work closely with the design team and the contractor to monitor construction as it proceeds.
- Carefully note all proposed substitutions and/or eliminations.
- Cross reference these with the prioritized lists of design components, construction materials and systems, and finishes and hardware that have been developed over the course of the project (Step 13, Step15, and Step 16).
- Determine whether the proposed substitutions or eliminations compromise any of the prioritized components and, if so, develop strategies for either accommodating these compromises or reinstating the component as originally designed or specified.
- If compromise is inevitable, consider favoring the public realm over the private. In other words, consider trade-offs that help the more permanent, "public" face of the development truly enhance its neighborhood, even at the expense of interior items which are less visible and more easily replaced or modified.

- Print **Key Construction Substitutions Form** and list key substitution/ eliminations that are proposed during construction – those that impact your prioritized design, construction and finish components – together with a description of how the substitutions/eliminations meet the design intent of the project or, if they do not, why this is acceptable. Add the completed form to the Project Book.

How will doing this help move my project forward?
- Using previously developed lists of prioritized items - design components, materials and systems, finishes and hardware - will make the decision-making process concerning substitutions and eliminations simpler and more systematic. This will put you in a stronger position in discussions with your contractor, and will allow the construction process to proceed more smoothly.

Key Construction Substitutions

Project Name _____

Date _____

Prioritized Component (Design/Construction/Finish)	Proposed Substitution	Impact on Project Quality

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Example
Prioritized List of Key Design Components

Project Name DOVE STREET

Date

Key Design Components

STOOPS

MICROWAVES IN UNITS

DWS IN UNITS

LAUNDRY IN UNITS

SPECIALTY WINDOWS

BRICK CIRCLES

IRON WORK DETAILS

AWNING AT DOORS

RAISED GARDEN BEDS

REAR DECK / PATIOS

OPEN INTERIOR STAIR

SEPARATE DINING AREAS

ADA ACCESS STANDARDS

CORNICE

Step 19. Create an operation and maintenance manual for project.

Why is this important?

You have worked hard to create a well designed development – one that meets user needs, enhances its neighborhood and is built to last. It's very likely that this project will become a long term asset to the community and to everyone who lives there. A manual that describes key components and systems within the building(s) and explains how they should be operated and maintained will help ensure that the project fulfills its promise to its occupants and to its community.

The team that designs and develops the building, especially if the team includes the property manager, is in the best position to describe its efficient operation and maintenance, and to create the manual over the course of the entire development process.

When should this be done?

After construction is complete but before the project is occupied.

Who should do this?

The owner/developer, the design team, the contractor and the property manager.

What should be done?

- Identify key design elements, systems and materials that are critical to long term quality and performance of your project: e.g. exterior wall and roof materials, windows, exterior doors, landscaping, key mechanical equipment.
- Develop or collect any available operation and maintenance information/manuals on each of these components. (Much of this information will already exist and simply needs to be assembled.)
- Ensure that all materials – as-built drawings, final finish schedules and plans, and all warranties, guarantees and certifications – that are contractually owed to you are collected from your design team and your contractor before final payments are made.
- Aggregate this information into a single resource that can be used by residents and management personnel to guide overall O&M activities.
- If possible, create one or more "to do" checklists that synthesize key recommendations in the collected material; i.e. what to do and when.
- Print out the **Operation and Maintenance Manual Checklist Form** and list all the O&M materials and manuals that you have collected. Add the list to the Project Book and include it in the O&M manual.
- If a "to do" list has been developed, add it to the Project Book and the O&M Manual as well.

How will doing this help move my project forward?

- Effective operation and ongoing maintenance are critical to the long term viability of any project.
- By making these activities easier to understand - especially by outlining what to do when - an operations manual can help ensure that your project is efficiently operated and well maintained long into the future.

Operation and Maintenance Manual Checklist

Project Name _____

Date   _____

Location of Manual _____

Building Component	Type of Information Collected
(Material/System/Product/Equipment)	(Warranty, Operations Manual, Model No. etc.)

Sample
Operation and Maintenance Manual Checklist

The following checklist was developed by the Local Initiatives Support Corporation as a template for creating an O&M manual for affordable housing projects. Use it as a guide for collecting O&M information and for filling out the Operation and Maintenance Manual Checklist for your own development.

Plumbing and Heating
- Locations of water and gas shut off valves both in the units, for the risers, and for the building.
- Location of gas and water connections from building to main lines (street.)
- Location of all sprinkler heads with shut off information
- System Flushing/draining information
- Standpipe locations
- Riser drawings
- Make, model, type information for all fixtures, including pumps, toilets, water heaters, faucet, shower nozzles
- Warranty information for all fixtures
- Maintenance information for all fixtures
- Chimney/stack cleaning information
- Boiler/furnace cleaning and maintenance schedule
- Boiler/furnace shutoffs
- Thermostat locations

Structure, Roof and Façade
- Color, style, replacement and repair information for façade, roof, windows, gutters,doors
- Instructions for assembly/replacement of window parts
- Preventative maintenance information
- Color chips for façade
- Location of lead bearing walls
- Weatherproofing materials and guidelines

Grounds
- Make, Model, maintenance and repair information for playground equipment
- Landscape map

Electrical
- Location map for all circuits or fuses
- Location of service cables to street
- Location map for all fixtures (light, security), listing bulb requirements
- Warranty, repair and replacement information for all fixtures
- Smoke detector location map, battery information

Locks
- ❑ Key and cylinder codes for all locks
- ❑ Map marking all lock types
- ❑ Map coordinating to key system

Interiors
- ❑ Paint chips with name and brand
- ❑ Wall cleaning information
- ❑ Carpet/floor covering swatches with name and brand
- ❑ Carpet/floor covering cleaning information
- ❑ Make model of all appliances with warranty and repair information

Step 20. Complete the Design-focused Workbook for the Project

Why is this important?

Successfully completing an affordable housing development project is a major accomplishment.   If all has gone well, you have created a high quality asset for your community – one that pleases its residents, enhances its neighborhood, and is built to last for decades to come.

If you have been using the Design Advisor to help in the process, you have also created an important document – the Project Book – that will be a valuable asset to your organization both now and in the future.

Formally completing the Project Book and systematically reviewing its contents will provide valuable insights into what worked – and what didn't – over the course of your development. These insights can help your organization continue to achieve the highest levels of design quality on future affordable housing development projects.

When should this be done?

Once the development is occupied and in full operation.

Who should do this?

The owner/developer.

What should be done?

- Ensure that all completed forms, checklists and other documentation have been inserted in the Project Book.
- Review, preferably in a group setting, the entire Project Book from start to finish and discuss key findings – goals achieved, obstacles encountered, compromises made, final results.
- Make a short list of the findings and key points raised during the discussion and add them to the Project Book.
- Use the Project Book to help guide future development efforts by your organization.

How can doing this help move my <u>next</u> project forward?

- A detailed, well organized workbook documenting design decisions in a completed project will help clarify design decision-making in any future development efforts.
- It will also add credibility to your organization – with funding agencies, regulatory bodies, and your peers – as one that is seriously and systematically pursuing design excellence.

Final Notes and Observations on the Design Process for this Development

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