

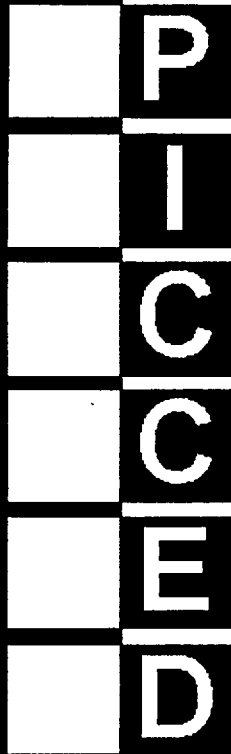
Excerpts from “Managing the Development Process”

“Managing the Development Process” is a training program developed by the Pratt Institute Center for Community and Environmental Development and targeted at Community Housing Development Organizations.

The sections excerpted here present an overview of the development process – key players and their roles – and a special discussion on where and how design fits in. The discussion provides a community design center’s perspective on how the process unfolds and what some of the key design issues are.

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THE PRATT INSTITUTE CENTER FOR COMMUNITY
AND ENVIRONMENTAL DEVELOPMENT (PICCED)

Training Opportunities for
Community Housing
Development Organizations
(CHDO's) and Potential CHDO's

MANAGING THE DEVELOPMENT PROCESS

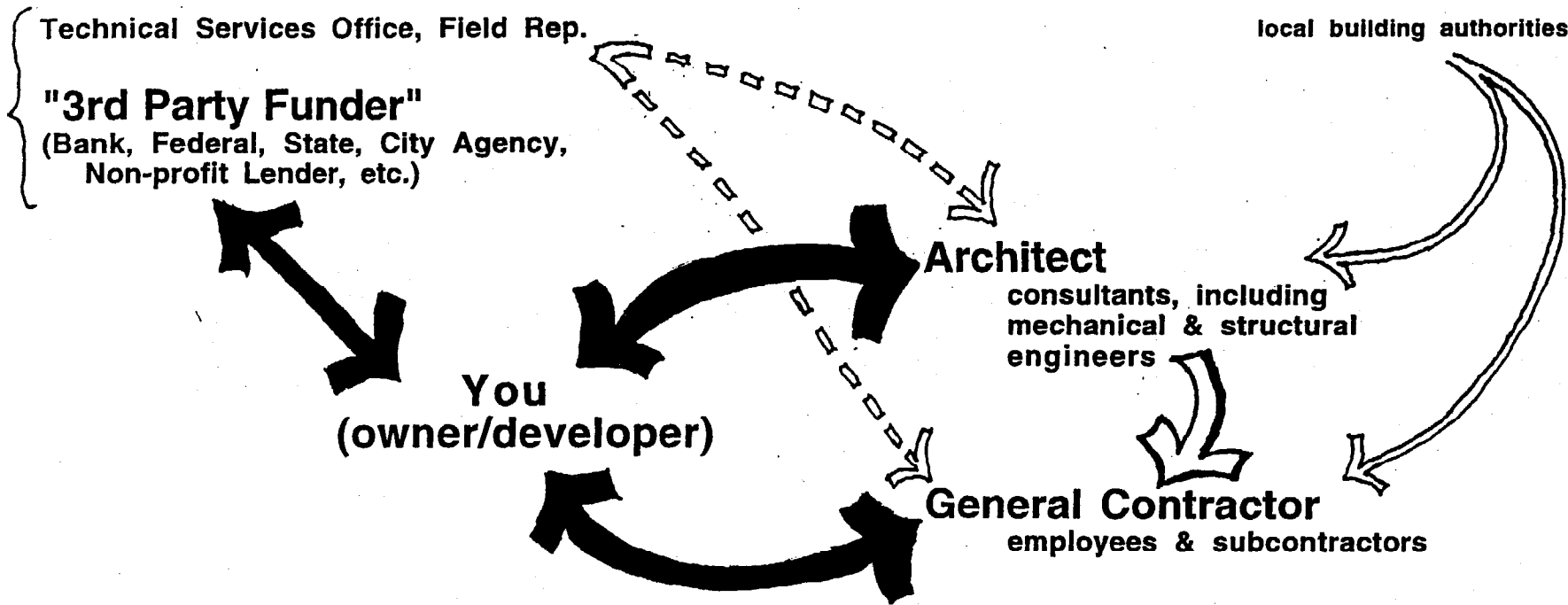
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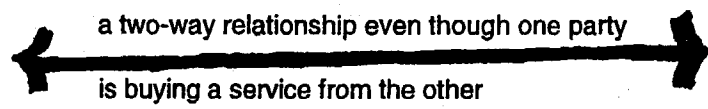
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DEVELOPMENT PARTICIPANTS

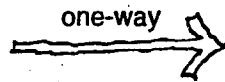
the players and their roles: other participants may include additional development funders or sources of operating income who may in turn have their own technical representatives to review architectural work and/or inspect construction.



contractual relationships - mutual responsibilities:



authority or direction, but no contract:



A lot of parties have their own stake or agenda in the project. Nobody owns it but you.

THE DEVELOPMENT PROCESS & PARTICIPANTS

Development is an exciting and potentially very fulfilling endeavor. The endless phone calls, meetings, RFP's & amortization tables of the Pre-development and Fund-raising Phase of a project give way to the endless phone calls, meetings, and rolls of drawings of the Design Phase. Now some of the problems are less abstract and the goal of all the previous work is slowly coming into focus. But, the design process is also a complex and inherently frustrating process. Why? Because it involves so many players, each with their own particular goals and interests in the project, all trying to achieve them through the physical & financial funnel of a third party-funded building. Following is an overview of these players, their roles, what their primary interests are, and where they may conflict, creating risks.

1. Third Party Funder - the Bank

- Main interests:
- utilization of a Fiscal Year's budget for a certain type of housing
 - compliance of design & construction with applicable codes & standards
 - no cost overruns
- Constraints:
- Fulfill obligations w/ Owner/Developer to produce building within a time frame and budget.
- Wants to avoid:
- tying up funds in projects that bog down, go over budget.

2. You, the Owner/Developer - the motor of the process

- Main interest:
- meet obligations to 3rd party funder on time and under budget with a quality product
 - meet the needs of your constituents and target population
 - establish a good track record to attract future development grants and operating funds.
- Constraints:
- third party funder conditions and guidelines
 - Owner/Contractor Contract
 - Owner/Architect Contract
 - Community representatives on the Board of Directors
- Wants to avoid:
- project collapsing, not going through
 - delays caused by conflicts
 - long-term maintenance problems caused by faulty construction

3. General Contractor: the builder

- Main Interest:
- make a profit and a living building buildings
 - complete the job as soon as possible, at min. on time, on budget
 - produce a quality product which will invite repeat clients and referrals
- Constraints:
- Contract with Owner
 - Contracts w/ sub-contractors, tying them into same plans, specs, general conditions as the contract with the Owner
- Wants to avoid:
- under bidding
 - doing extra work without being paid (Change Orders)
 - doing work over
 - delays which cause overhead (cost of borrowing construction capital, cost of site security, staff salaries, insurance, etc.) to accrue faster than completed work

4. Architect: the designer, project coordinator

- Main Interest:** -produce a quality building on time and/or under budget.
-produce a product that will surpass the Owner's expectations.
- Constraints:** -Contract with the Owner (i.e. amount of time and resources available according to the fee included in the Arch/Owner contract).
-Applicable codes.
- Wants to Avoid:** -suspension of project between completion of Construction Documents and Closing due to high bids or underqualified Contractor
-poor quality building
-gross errors and omissions on documents or during Contract Administration phase

5. Construction Manager: the administrator of the construction process

- Main Interest:** -deliver a product built to plans & specs on time and under budget
- Constraints:** -Contract with Owner, paid according to contractors' progress payments
-indirect control over prime contractors contracted to Owner, not the C.M.
- Wants to avoid:** -conflicts between prime contractors which cause delays (and consequently decrease payments to the C.M.)
-errors requiring repeat work

6. Regulatory Agencies: Local Building & Planning Depts., EPA, Dept. of Labor, IRS, Utility Companies

- Main Interest:** -compliance with regulations
-collection of fees
- Constraints:** -legal ordinances
-agency regulations
- Wants to avoid:** -irrelevance (being ignored)
-overridden by another agency

With so many players and different priorities, there is ample opportunity for conflict and for the process to break down, where the players' places at meetings are taken by their lawyers. How to deal with the risks involved will be covered in another section. Nevertheless, there is a common, unifying incentive which leads these players to swallow injured pride, forget about real or imagined advantages taken of them, and to muddle through to final completion: track record.

Bank:-completions induce budget replenishing

Owner: -establish themselves as a successful "player"

Contractor: -establish themselves as quality builders
Constr. Mgr.:

Architect: - add to reputation for quality, useful, aesthetically pleasing buildings

Regulatory Agencies: -more to regulate

Stages of Development Process

Conceptualization	Pre-Development	Development	Construction	Operation
<p>Development Opportunities Ideas</p> <p>What the product is</p> <p>Who the market is: buyer/user</p> <p>Where to be located</p> <p>How it might be financed</p> <p>How it might be managed</p> <p>How it fits with the mission & goals</p> <p>Why the organization should do it</p> <p><i>Product:</i> Concept Paper 1-2 pages <i>Go/No Go Decision:</i> Commitment to explore it further.</p>	<p>Feasibility & Market Analysis</p> <p>Assemble Team Site Availability & Costs</p> <p>Product—Definition, Costs</p> <p>Market—Need/Demand/Trends</p> <p>Competition-Penetration & Capture Rates</p> <p>Id Sources of Required Resources</p> <p>Financing Constraints</p> <p>Management Characteristics</p> <p>Returns—Benefits</p> <p>Test Assumptions</p> <p><i>Product:</i> Market &/or Feasibility Study <i>Go/No Go Decision:</i> Yes, it fits, we can make it work & we are willing to take the risks</p>	<p>Deal-Making & Negotiating</p> <p>Resource Identification Business & Financial Packaging</p> <p>SHPO/SEQR</p> <p>Pre-Leasing & Program</p> <p>Acquire Property</p> <p>Secure Permanent Finance</p> <p>Secure Construction Finance</p> <p>Secure Operations Contracts</p> <p>Secure Contractor-bidding & reference checks</p> <p>Secure Cooperative Agreements</p> <p><i>Product:</i> Applications, Designs, Contracts <i>Go/No Go Decision:</i> To sign the agreements, mortgages & contracts</p>	<p>Construction & Start-Up</p> <p>Contracting</p> <p>Construction Monitoring</p> <p>Affirmative Action Monitoring</p> <p>Marketing & Pre-Leasing</p> <p>Complete Management Plan</p> <p>Staffing Up</p> <p>Orientation</p> <p>Furnishing</p> <p>Accepting Site Control</p> <p><i>Product:</i> <i>Go/No Go Decision:</i></p>	<p>Managing or Resale</p> <p>Staff Up</p> <p>Orient</p> <p>Rent-up</p> <p>Provide Services</p> <p>Operate</p> <p><i>Product:</i> <i>Go/No Go Decision:</i></p>

ROLES AND RESPONSIBILITIES

FUNCTIONS	BOARD					STAFF					JOINT					COMMITTEES				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Vision																				
Propose Organizational Vision																				
Review and Revise																				
Mission																				
Adopt Mission																				
Review and Revise																				
Transmit																				
Planning																				
Propose CD Goals																				
Adopt CD Goals																				
Identify Opportunities																				
Select Development Opportunities																				
Establish Selection Venture Criteria																				
Conceptualization																				
Idea/Opportunity Identification																				
Idea Testing																				
Concept Paper Development																				
Choose Opportunity																				
Pre-Development																				
Assess Market Potential																				
Site Identification																				
Prepare Cost Estimates																				
Identify Development Team																				
Contract Professionals																				
Retain Development Team																				
Financial Package Preparation																				
Acquire Site Control																				
Identify Management Team																				

ROLES AND RESPONSIBILITIES

FUNCTIONS	BOARD					STAFF					JOINT					COMMITTEES				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Development																				
Apply for Government Reviews																				
Prepare Financial Applications																				
Approve Architecture and Engineering Plans																				
Identify Financial Sources																				
Contact Financial Sources																				
Negotiate Financing																				
Prepare Bidding Strategy																				
Establish Contractor Selection Criteria																				
Let Bids																				
Bid Construction																				
Draft Management Plan																				
Construction																				
Assess Contractors																				
Select Contractor																				
Let Contractor																				
Monitor Construction																				
Engage Leasing Agent																				
Develop Marketing Strategy																				
Monitor Affirmative Action Agreement																				
Approve Change Orders																				
Sign Off on Construction																				
Engage New Staff																				
Orient and Train New Staff																				
Adopt Management Plan																				
Operation																				
Rent Up/Lease Up																				
Close Permanent Financing																				

LEVELS OF AUTHORITY

1 = complete Authority 2 = Act Then Report 3 = Consult Then Act 4 = Act After Approval 5 = Recommend

SELECTING & WORKING WITH AN ARCHITECT

Process

Referrals, interviews with architect (including key staff who will work on your project), visits to other projects- ones completed by the architect, and ones by others which are comparable to the project you have in mind. It doesn't make sense to "bid" or compare fees unless you know you are comparing firms with similar qualifications who will deliver a comparable service.

Criteria

Experience with similar projects; record on projects completed and in progress. Do you like the end product? Were the other clients satisfied with the process?

Understanding of & willingness to work within funding constraints (budget and process, including review and approvals).

Capacity of office to produce the project within your timeframes (number & experience of principals & staff, and their availability for your project).

Understanding of local zoning, codes, other regulatory issues and approval process.

Licensing: even if your funding source doesn't specifically require that you use a licensed architect, local authorities usually require that a registered architect or licensed engineer file plans. Some types of projects (prefab, or repetitive single-family new construction) may not involve an architect as a critical member of the development team. When a builder provides project design as well as construction services, consider how project quality standards will be established and maintained.

Insurance: does the firm carry professional liability insurance (errors and omissions)? Do you care? Does your funding source require it?

Issues in selecting an architect

Your in-house **expertise** vs. need for the architect to provide some leadership within the development team, during design and construction phases. A group with little development experience may require the architect to take a more active role. The architect's ability to do this is less critical to a more experienced developer.

Your goals and priorities at each stage of the project. At different phases in the development, you may need to **conceptualize and define** the project, fully exploring all possibilities for its location, size, nature, and scope; to accurately **project and manage** project costs and schedule, so that the project can be developed on time and within budget; to **visualize and present** the project and "sell" it to various constituencies; to **think strategically** about the development process to minimize obstacles and delays; to **control risks** during design and construction. These needs require very disparate sets of skills; sometimes a joint venture between architectural firms with different strengths (e.g. design & project management) is the best way to bring all the necessary talent to your project.

Architect's **ability to work well with you**; ability to hear & understand your requirements & communicate clearly with you. Architects often must make a conscious effort to overcome the cultural and educational biases common within the profession. Architects are trained to serve a wealthy and powerful elite; our education reinforces materialistic values. Even architects who "mean well" may need to check out their beliefs about : race, poverty, sex roles and family life, physical and mental health and disability, etc.

If your project will involve community & user participation in the design process, the architect must be able to facilitate this type of discussion and learn from it.

ARCHITECTURAL CONTRACTS AND FEES

Architectural fees for housing projects average from 5 to 10% of construction costs. Fees are lower for : new construction; larger projects; repetitive unit types. Fees are higher for rehabilitation; small projects; projects with more complex program requirements or many different unit types. Fees for housing work tend to be slightly lower than fees for commercial or community facility projects; education and health care project fees would be slightly higher because additional regulations and review are involved. Payment of fees is divided over the phases of work described above. Specific benchmarks like building department or funding agency approval can be established for completion of phases. A typical breakdown of fees by phase is:

Schematic Design	10%
Design Development	20%
Construction Documents	40%
Bidding	5%
Construction	25%*

*This breakdown is typical in undervaluing construction phase services; providing adequate services in monitoring contractor performance is labor-intensive and requires highly qualified staff. Securing and paying for additional services during construction (See Article 3.2 in the Owner-Architect Agreement) is often desirable. These services should be paid for as construction progresses.

Architects with little experience in funded projects often underestimate the time and effort needed to produce working drawings and specifications which are complete enough for competitive bidding and satisfactory to funding agencies. Limiting the amount of fee paid for schematic design and design development helps to establish priorities; it is important to emphasize to an architect before beginning work that competitive bidding will be required, and that final documents are subject to review.

Be as clear as possible about project **schedule** requirements; deadlines for delivery of specific items should be explicit. So should "non-work" periods and points where the project may be held up or discontinued based on funding decisions, etc.

Contracts - The Owner-Architect Agreement

AIA B141 is the "all-purpose" agreement, written to cover everything from convenience stores to nuclear power plants. It has a slight new construction bias but can be used for rehab as well. Riders should be added to cover your specific requirements (submittals/negotiations with funding agencies, survey or evaluation of existing buildings, etc.) Most projects require detailed cost estimates at one or more stages of pre-development; be sure this is specified. B141 is very explicit about services not included in the base contract (See Article 3).

AIA B151 (not included in handout) is a very short version of the basic agreement ("for projects of limited scope"). It simplifies design and construction services and omits some significant items (like the architect's responsibilities during bidding and negotiation) and should only be used on very small projects where formalities are minimal.

AIA B181 (Owner-Architect Agreement for Housing Services) is simpler than B141 but deals with many of the issues encountered in government-funded housing work. The agreement as written assumes that the Owner is a developer of moderate sophistication, able to manage the project (especially its costs) with minimal assistance from the architect. Most nonprofits should add provisions requiring that the architect provide preliminary and final cost estimates.

Riders

Here are some examples of services and terms often added to the basic AIA agreement for housing & other community development projects:

Research, survey, and measurement of existing conditions for rehabilitation projects.

Preparation of preliminary & final cost estimates.

Filing plans with local authorities (architectural plans? who will file required applications for septic systems, sewer & water connections, historic preservation approvals, sidewalk/curb cut, and parking, etc.) If the contractor is responsible for obtaining a certificate of occupancy, be sure both the architect & contractor agreements reflect this.

Submission of plans to and meetings with funding or licensing agencies. Generally, completion of design phases should be contingent on approval by key funders.

Frequency & duration of construction inspections by the architect included as basic services. Costs of additional construction inspection or reporting (Clerk of the Works) if requested as an additional service.

Provision that continuation of the project is contingent on funding. The architect should not proceed with any phase unless authorized in writing by the owner. Arrangements for payment of fees if the project is discontinued or postponed should be clear.

UPFRONT COSTS: the developer's dilemma

All development, including community development, requires investment in design work long before any return is realized, and even before financing of the project is committed. Some funders provide some money for predevelopment costs; most make your ability to obtain architectural services an implicit part of their screening process. If you don't have access to enough predevelopment \$ to pay all design costs upfront, here are some options:

Getting the work done for free - as a profession, architects have a poor attitude about pro-bono work. While many architects will provide extensive services as a "business development" expense to clients we perceive as having money, we tend to be cautious in taking the same risk for "poor" clients. Architects' naivete about economics manifests itself both in our general incomprehension of the dynamics of poverty in the US, and in our unprofitable relationship to the rest of the construction industry. You can quote me on this - JB.

If the architect is willing to do this upfront work at no charge, be clear what the commitment is. Are you agreeing to hire the firm if the project is funded? Does this mean you are stuck working with someone not truly qualified to do the project? Do they intend to bill you for this work later?

Feasibility or proposal-level architectural work (Preliminary plans, scope of work, and cost estimate) can usually be developed for a nominal amount -- \$500 to \$2000 for a \$200,000 to \$5,000,000 housing project, especially for a project type that the architect is familiar with.

Under capitalism, paying for services rendered makes for a more responsive architect-client relationship, especially where deadlines are involved...

If you need to complete all pre-construction services (including construction documents and bidding) before you have access to funding, or if payment of fees is contingent on getting funding, be sure terms are agreed in writing. Few architects have the capacity to carry staff and out-of-pocket costs for this level of work (since they may amount to 5 - 10% of hard costs); owners often have difficulty getting timely services from professionals who are not being paid.

THE DESIGN PROCESS: ISSUES FOR OWNERS

The design process is a phased series of decisions where the owner's various objectives are defined and solutions are developed to achieve them as fully as possible. Decisions are made during each phase in the design of a project which define and limit options during future phases. Large issues - the project's general nature, location, and scope - are decided very early in design; subsequent phases refine the concept and become progressively more technical and detailed. Sometimes information developed later in the project makes it necessary to backtrack and revise earlier decisions. The owner's and architect's skill and experience plus good communication among the team can minimize delays and costs for redesign.

Here is an outline of the design process highlighting issues resolved and work produced in each phase, with examples of questions owners need to ask themselves (and their architects) at each phase. The questions are not a complete list, but serve as examples to illustrate the level of detail being managed at each phase of the process. Not all architects make a point of presenting owners with all of their options at each phase; not all owners know what to ask.

SITE EVALUATION: architectural input is useful even as potential sites are being evaluated. Information about zoning (permitted uses and densities), environmental issues (soil & water issues, availability of services), and existing building conditions (construction costs, code requirements) is critical to the project's feasibility and should be in hand before you commit to a given site.

SITE EVALUATION - QUESTIONS FOR OWNERS:

Is my use permitted on this site by local zoning?

What approvals and permits are needed to build this type of project here? How long do they take?

What environmental issues does this site raise (groundwater, preservation of natural areas, presence of asbestos or other contaminants)?

What site improvements besides the building will be required for this site (parking, storm drainage, etc.)

Are any waivers or special permits needed? Do these create an opportunity for political obstruction of the project, or a chance for me to test and build community support?

Does this site offer access to economic opportunity, support systems, services, transportation, amenities, etc. needed for my project?

What are current and potential uses of adjacent and nearby sites? Do these support or hurt my project?

What infrastructure is in place/required for my project (water supply, sewage, electricity, fuel, telephone systems)?

For rehabilitation projects: what level of rehabilitation will be needed to implement my program in this building? What code compliance issues are involved?

Will my proposed project fit into the existing building? Will the building accommodate the types of mechanical systems, energy improvements, and safety features I require?

SITE EVALUATION WORK PRODUCTS

Zoning and code analysis; site plans; environmental analysis or hazards report. Surveys and tests may also be required.

SCHEMATIC DESIGN - Exploration of design alternatives and establishment of basic project requirements. Basic functional and quantitative information is developed here; what types of spaces will be provided and what are the key relationships between them? What is the mix of retail/office/program space? What type of housing will be developed, with how many dwelling units, rooms, or beds? What supporting services and amenities are to be provided?

SCHEMATIC DESIGN PHASE - QUESTIONS FOR OWNERS:

How does the project as a whole relate to its environment- to the street, to other buildings, to pedestrian and vehicle traffic, etc. How will outdoor space be developed (paving, planting, amenities, provision for deliveries and removals)?

Does the plan provide space for all your proposed activities (including support/ maintenance/ storage needs!) Imagine a typical day (and night) in the operation of the project: are all necessary activities, people, equipment, etc. accommodated without conflict?

Are spaces designed and located consistent with your projections for rental uses and income?

Are the spaces the right size? Compare dimensions from the plans to actual spaces; use furniture, markings on the floor, etc. to create mock-ups if needed.

Do the relationships between spaces reflect your needs? What functions need to be adjacent/close to/far from each other? What uses can/can't share space?

Does the entrance/circulation system provide adequate security, privacy, and convenience for users of the project?

For housing projects: what is the mix of apartment types & sizes? What types of units are located in what parts of the building? What is the relationship of the different units to the outdoors? What common spaces are provided?

Does the plan anticipate and resolve major code issues: light & ventilation, fire safety, and egress?

SCHEMATIC DESIGN PHASE WORK PRODUCTS: Drawings at this point show preliminary layout (plus some exterior elevations and cross sections for new buildings). A preliminary construction scope identifying the major construction methods to be used, and budget estimate based on building square footage are developed at the same time.

DESIGN DEVELOPMENT - Detailed development of schematic design information; exploration and resolution of technical issues- determination of structural and mechanical systems (heating, ventilation, A/C, plumbing, electrical), exterior and interior configuration and materials.

DESIGN DEVELOPMENT PHASE - QUESTIONS FOR OWNERS

What are the building's basic structure and envelope systems? What type of foundation, exterior walls, roof, windows, are planned? How do these effect the building's appearance, maintainability, and cost (first & life-cycle).

What energy costs are built into the building? How will they change as fuel prices vary?

For all mechanical systems: who is responsible for/pays for fuel, power, and maintenance for basic systems? How do you value efficiency vs. comfort vs. simplicity vs. reliability vs. durability, etc?

How will the building be heated? What are the trade-offs between initial and life-cycle cost for various features? What type of central plant and distribution; fuel options; type of controls? How much space does the heating system take up? How does it interfere with usable space/walls/floors/ceilings? How is domestic hot water supplied?

Will the building be air conditioned? Same questions as for heating.

What are present and future requirements for electric power? Is the building fully or partly unusable if power is interrupted?

What kind of lighting is planned? How is it controlled?

Are any special systems needed: sprinkler, fire alarm, security system, special ventilation (e.g. for commercial kitchens)? How do these impact the project's usability and costs?

Are pipes, ducts, etc. concealed or exposed? How does this affect the building's appearance and maintenance?

What interior finishes are planned? How do they support your concept of the project - appearance, cost, maintainability, adaptability for individual preferences & expression?

What fixtures and equipment are planned? Are they coordinated with the building's design and construction (even if they are not budgeted as construction items)?

DESIGN DEVELOPMENT WORK PRODUCTS: more detailed plans plus elevations and sections of all exteriors plus important interior areas; mechanical and structural plans should be in progress. Plans should be filed for approval by local building authorities in time to allow for review and possible revision without delaying bidding and construction. Cost estimates should now reflect costs based on systems to be used; costs of some major components may need to be compared and relative benefits analyzed.

CONSTRUCTION DOCUMENTS - Preparation of working drawings and specifications; these are the detailed documents from which contractors will bid and build the project. Most of the owner's decisions at this point are about materials and details, mostly based on quality vs. cost issues.

CONSTRUCTION DOCUMENTS PHASE - QUESTIONS FOR OWNERS

What are the finishes for each surface in each space - walls, ceilings, and floors?

What types of windows, doors, hardware, and trim will be used? What hardware functions and finishes are specified?

Are all needed accessory items provided - bathroom grab bars and fittings, mailboxes, window treatments, etc.?

What types of plumbing and electrical fixtures, appliances, and equipment are specified?

Where are shutoffs, controls, access panels, circuit breakers, etc. located?

What items remain to be selected for color, pattern, etc.? Why not select them now, before the job is bid?

CONSTRUCTION DOCUMENTS PHASE WORK PRODUCTS: Plans and specifications should include all information needed to obtain comparable bids from different contractors. Plans show all work to be done; specifications define the types of materials and establish quality standards. Plans should clearly show all site, structural, construction, mechanical, and electrical work (usually with separate drawings for each discipline); keying and cross-references should be understandable; linework and lettering should be clear enough to withstand repeated printings and abuse in the field. A typical set of drawings for a \$1 million dollar project can be 20 to 30 large sheets. Specifications are often standardized for use on various projects, but they should be carefully edited for each project; all relevant sections should be included; obsolete or irrelevant sections should be deleted. They should be clearly printed and organized according industry standards (CSI numbering system or equal).

General Conditions and General Requirements - the "front of the book" parts of the specifications: the General Requirements (Specification Division 1) deal with project logistics and construction operations. They specify requirements for project administration and supervision by the contractor; site maintenance including security, extermination, temporary facilities, heat, and utilities, etc. The Architect should prepare a general requirements section appropriate for the project. The General Conditions specify contractual relationships, rights, and duties for all the parties and clarify definitions of contract cost, time, changes, default by either party, remedies, etc. Many projects use the AIA standard general conditions as a base document modified by riders. Many funding sources require use of their own document or riders establishing their own role and rights in the project. Owners (and/or their lawyers) should carefully review all General Conditions, Supplements, and riders before the project goes out to bid.

COMPLETION OF THE DESIGN PROCESS

The owner's concerns during the bidding and construction phases of the project are described in the Construction section of this session. It is important to realize that all decisions about project design and quality should be made before the project is bid. Changes made after this point must be negotiated for price and can be disruptive of both budget and schedule.

Bidding - Invitation or advertisement of project for bid, opening and review of bids, review of contractor qualifications, selection of and negotiation with contractor. At this point, the project design is essentially fixed. Your concern now is to find a qualified contractor who can do the work within your budget. Remember that **you** as the owner will be entering into a contract with the Contractor to build the project. Owner's should be actively involved in the prequalification process to identify potential bidders.

Construction - Inspection of work in progress, review of contractor requests for payment, interpreting documents and resolving changes. During construction, the owner & architect must work closely together to monitor the contractor's progress. The Architect is primarily responsible for inspecting work and reviewing progress payments to the contractor; this is your principal means of assuring that the work performed conforms to the plans and specifications and is completed within the budget and schedule established by the contract.

The development process

every development project requires a series of decisions that build on previous decisions

how much you can change about the project (without backtracking)

who? what? where? ownership? size? the team? funding? the team? ownership? size? space & functional relationships (layout) structure & envelope systems heating light cooling ventilation materials fixtures hardware control of systems communication security colors?

how much you know about the project

concept 0 design 3 6 9 12 construction 24
 time (months)
 and your investment in the project (staff time, credibility, political capital)

This chart shows a typical sequence of PHYSICAL DESIGN decisions made during the development process. Additional milestones - financing commitments, regulatory approvals, programming & staffing - occur along this same timeline. These coordinate with (and may even determine) the project's physical design.

Quality and Cost Trade-offs in Housing Construction

And what's "quality" anyway?

List your top ten (fifteen?) features, products or details in ~~planning~~ housing (new & rehab). These should be items you have used or seen in use that you have an opinion about concerning their cost vs. their functionality, durability, ease of use, and yes, even their appearance.

"Best" items are ones that add value to the project out of proportion to their cost. "Worst" are items that cost too much, break too soon, don't work as advertised, or that you wouldn't use again if you got them for free.

Items may be generic or proprietary products, or design/layout features, or construction details.

Category	best	worst
Building design features		
Unit design features		
Landscaping & sitework		
Roofing		
Windows		
Door hardware		
Floor finishes		
Other finishes		
Kitchen appliances		
Kitchen cabinets		
Heating Systems type of plant & distribution radiators or convectors control setup		
Plumbing Fixtures		
Electrical		
Intercom/door release or other security feature		
other		