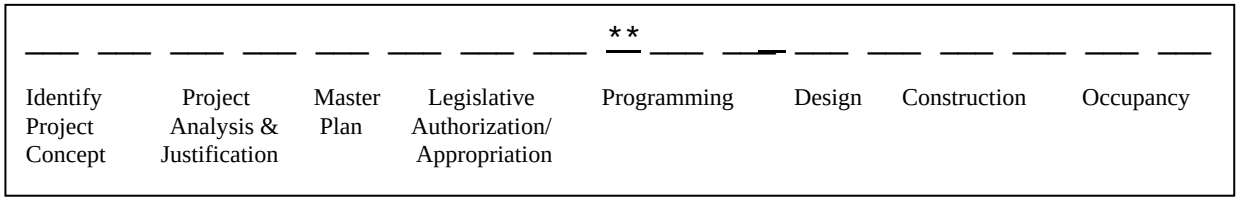
APPENDIX G: FACILITIES PROGRAMMING GUIDELINES

I. Purpose of this Document - A key element of the delivery of capital building projects is the need to prepare a comprehensive Program of Requirements for each project before preparation of preliminary plans.

This document is designed as a tool to direct the development of a Program of Requirements for capital building projects.

Texas Facilities Commission's decision to require a more complete Program of Requirements is an attempt to reduce the amount of changes and cost increases that occur during the life of a project. Other benefits from programming are:

- All interested parties have an early opportunity to provide input and discuss issues.
- Consensus can be obtained and project needs can be converted into actual requirements before design begins.
- Different concepts can be tested and options can be evaluated very inexpensively during programming.
- Before engaging architects and engineers to design a project, the agency can clearly define what it wants.



When reading and applying these guidelines, remember that each project is unique. Use these guidelines as a checklist, not as a substitute for the skills and knowledge needed to prepare a specific facility program at a specific location and agency.

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II. Introduction - Our goal is a well developed facility programming coupled with good design will result in reduced project costs, less project variability in terms of cost, schedule, and operating characteristics, and increased probability of the project meeting desired goals.

A. Why Do Facility Programming?

Programming has a significant impact on the outcome of the construction of a capital building project. Figure ii.1 graphically illustrates this concept. As the diagram indicates, it is much easier to influence a project's outcome during the early stages of a project (when expenditures are relatively minimal) than it is to affect the outcome as the project moves into construction.

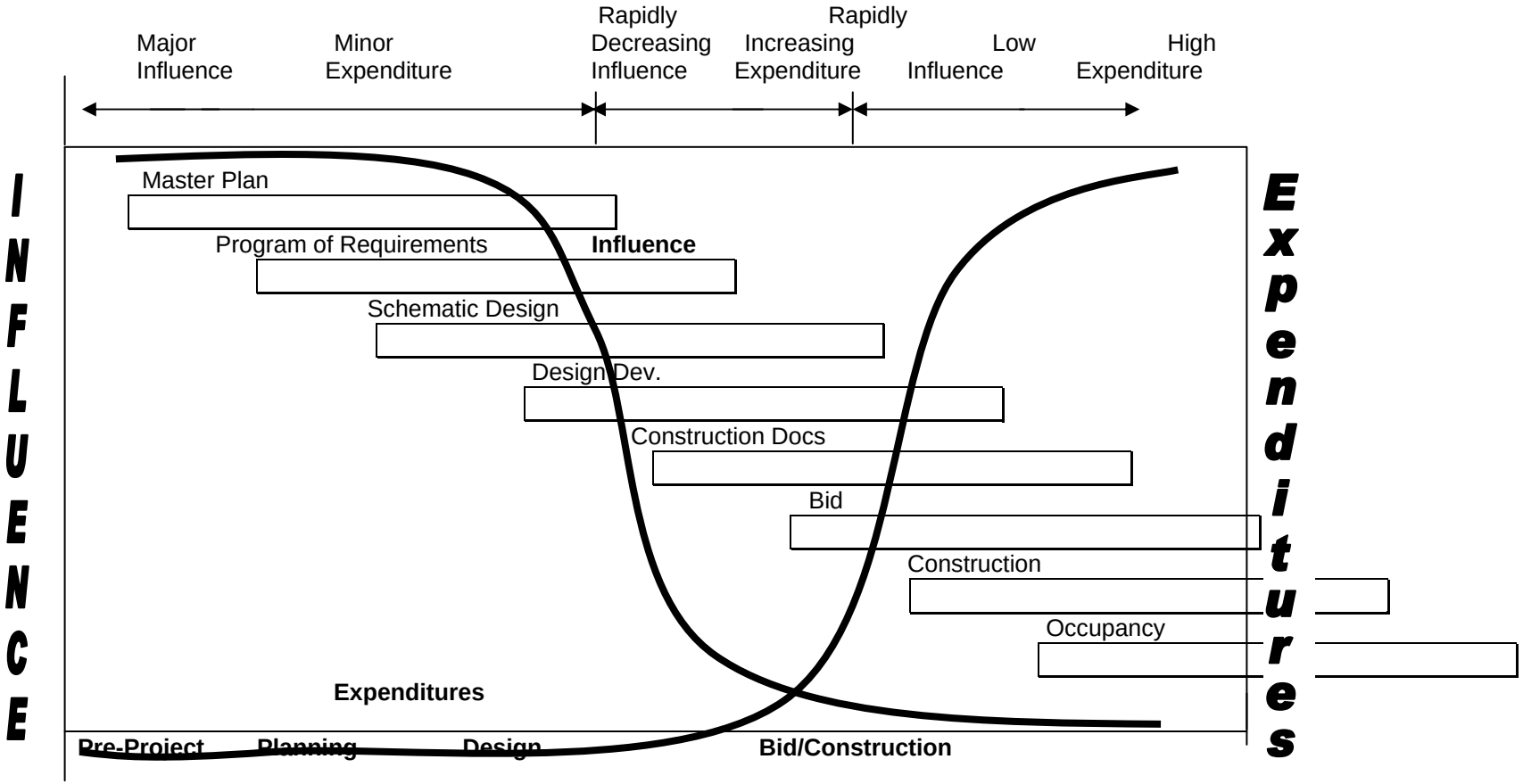

Figure ii.1: The curve labeled "influence" reflects an agency's ability to affect the outcome of a project during the various stages of a project.

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B. The Process

Texas Facilities Commission has outlined a process (Figure ii.2) for capital building projects with the following goals:

- To reduce the probability of changes and delays during design and construction
- To streamline the approval process for capital building projects
- To reduce the length of time required to deliver a capital building project

The process includes the Legislative Appropriations Request (LAR), including identification of an agency's needs for a facility and development of a project analysis to support those needs that is submitted with the LAR to the Legislature for authorization and appropriation. Upon appropriation Texas Facilities Commission selects the project A/E team to perform the Program Requirements and get it approved prior to beginning design. The facility program will be included as a part of the A/E Agreement as an Additional Service.

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Pre-Project Planning			
Legislative Authorization & Appropriation	Appoint A/E	Manage Facility Program	Approve Facility Program of Requirements
Using Agency develops Initial requirements. TFC selects A/E to produce P/A that is incorporated into LAR sent Legislature	Using Agency requests project management services from TFC. TFC FDC & Agency select A/E to Prepare FacilityProgram of Requirements	TFC FDC manages development of Program of Requirements in close association with Using Agency	TFC Executive Director and Using Agency Executive Director review and approve Program of Requirements

Design			
Manage Schematic Plans & Design Development	Approve Design Development	Manage Construction Documents	Approve Construction Documents
TFC/FSCM manages A/E in Preparation of Schematic Plans and Design Development Plans	TFC (new major construction project) or TFC Executive Director (other projects) and Using Agency approve Design Development Plans, Total Project Cost, Project Funding and authorize Construction Documents	TFC manages A/E Preparation of Construction Documents with review by Using Agency	TFC and Using Agency review and approve Construction Documents

Bid		**Construction**	
Advertise And Receive Bids	Award Contract	Manage Construction	Project Occupancy
TFC FDC advertises for Bids and with Using Agency and A/E receives and evaluates Bids, and recommends to TFC for Contract Award	TFC awards Construction Contracts	TFC/FDC and A/E manage Contract through Final Acceptance and administration of Warranties and Guarantees	Using Agency with GS/ FDC makes Project ready for Occupancy

Figure ii.2: Diagram of the Capital Building Program project delivery process

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C. The Buyer Benefit

1. Programming provides a forum to debate what should be included in a project. Issues can be discussed and alternatives considered quickly and inexpensively. (This is not true once design begins.)
2. A facility program can build consensus and cause decisions to be made in a logical sequence.
3. The programming process will separate "needs" from "wants" with respect to space, equipment, and other related issues.
4. The facility program is the road map for the architects and engineers who will design the project. Without a program, designers may deviate from the actual requirements and produce a building that does not meet the Using Agency's needs.

D. What a Program Will Do

When the programming is complete TFC and the Using Agency will have a program document that communicates the following to key members of the project team:

- Strategic and master planning requirements for the project (A facility program should comply with and expand upon the already approved Facilities Master Plan)
- Space and functional relationships
- Site selection
- Determination of the cost and schedule for the project
- Intermediate and final recommendations presented in a clear and succinct manner
- Required expertise for the project team
- Investigation of permit process
- Concerns among all interested parties to the project scope, cost, schedule and plan of execution
- Requirements and concerns in the authorization process

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E. How to Use These Guidelines

This document is a checklist for what should be contained in a project's Program of Requirements. The guidelines are intended to help the Using Agency complete its tasks. The project team can use these guidelines to measure the progress of the team and make assignments to gather missing information.

These guidelines are meant to be generic. There are probably parts that do not apply to a particular project. If this is the case, document this and skip over those items in the guidelines. If this situation occurs, see if other information that is project specific should be substituted. Similarly, some of the terminology used in this manual may be different from what is used at each Using Agency. When this occurs, use the more familiar terms.

Like most guidelines, this document cannot address every possible issue at each Using Agency. Consider them a set of minimum acceptable responses for developing a facility Program of Requirements.

When preparing the Program of Requirements, follow the chapter sequence developed in this document and retain the chapter numbering. It will help keep track of any missing data yet to be gathered. It will also assist TFC Executive Director and Using Agency management review.

If a chapter or section does not apply; state so in the program and then skip over that part, but do not renumber the chapters. A good place to start is by reviewing the List of Programming Tasks in Section IV.

III. Getting Started

There are five critical steps to getting started with the programming process:

1. The Using Agency should appoint a representative to provide data and review conclusions.
2. The Using Agency requests project management services from TFC. TFC selects outside consultants to assist in preparing the program.
3. TFC FDC will prepare a schedule of what will occur during the programming process and review it with the Using Agency. An example of a programming schedule is included later in this chapter.
4. TFC FDC and Using Agency representative will identify all of the participants that should be involved in the programming process within TFC and the Using Agency. Consider involving the participants in a team building process to facilitate team performance.
5. The A/E will document the decision making process. Identify who is responsible for each action and who has the authority to approve information and make each decision.

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A. Skills Required to Prepare a Facility Program

The Using Agency representative, along with TFC FDC, should assemble an Owner's team with skills in each of the following areas. The A/E shall have team members, as well, that can provide the following expertise.

- Space requirements, functional relationships between areas, room sizes, and detailed equipment needs for each room (see Chapter 4).
- Supporting requirements relating to access, site development, parking, etc. (see Chapter 5).
- Evaluation and analysis of existing sites and buildings (see Chapters 6 and 7).
- Technical building standards, engineering requirements, and building design criteria (see Chapter 8).
- Preparing a project budget and schedule (see Chapter 9 and 10).
- Dealing with specialized requirements included in this project.
- Ability to facilitate and draw information out of people, and lead the project team.

B. Professional Assistance

Architects/Engineers (A/E): TFC will select an A/E firm or team with the Using Agency's assistance and input who is skilled in programming as well as design and construction administration. An advantage of selecting an A/E to prepare the program is continuity when the project later moves into design.

- The process includes TFC FDC and the Using Agency undertaking the A/E selection process to select an A/E to prepare the program. The A-E selection process must follow the Chapter 2166, Title D, Texas Government Code. The TFC Executive Director or TFC will approve contracting with the selected A/E. Once the program is complete, the A/E's contract may be extended for design, or a new A/E may be selected.

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C. Programming Schedule

The most difficult step in any project is getting started. The best way to begin developing a facility program is to agree on the following:

- ✓ What tasks need to be done?
- ✓ Who will be doing each task?
- ✓ When will they be doing them?

The answers to these three questions comprise the programming schedule.

The A/E must prepare a schedule of the activities that will occur during programming, including who will be responsible for each activity. A copy of this schedule will be presented to TFC FDC and the Using Agency representative for review and approval.

The programming schedule should include:

- Start of Programming
- Key meetings and workshops
- Periods for gathering data
- Site visits
- Presentations
- Review of the draft document
- Delivery of the final document

The programming schedule differs from the Project Schedule described in Chapter 10 of this Appendix G; it only deals with activities that will occur during programming. A mock-up of a programming schedule is shown in Figure iii.1.

The length of time required to complete a program is a function of the complexity of the project and the availability of participants to provide information and make decisions. Typically a facility program can be developed in 3-6 months. More complex projects will take longer.

Remember that the programming process is not linear. Functions can be occurring concurrently; interaction, feedback, and iteration are inherent within the process.

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Note: The programming schedule should call for at least three project review meetings, but not less than monthly:

at 50% complete;
at 90% complete; and,
at 100% complete.

✓ Develop a staffing and team building plan that outlines the roles and responsibilities of each participant in the project during programming and beyond.

D. Tips for Successful Programming

- Responsibility matrices highlighting the tasks and schedule to accomplish major programming activities help retain control of the process.
- Participants should report the true facts concerning the financial viability of the project. In other words, "don't shoot the messenger" when contradictory information is produced.
- Believing that a project is a "copy-cat" of a previous project can be a hazardous assumption. All projects are different and need some amount of programming.
- Be careful when making assumptions. Bad assumptions can cripple projects very quickly; investigate the assumption for proof that it is true.

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Programming Schedule															
Task	**Assigned to:**					**Timeline**									
	TFC - FDC	**UA - Rep**	**A /E Team**	**Others**	**Others**	**Weeks**									
						1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Pre-programming conference with: • TFC FDC • Using Agency • A/E Team (Facility Programmer) To review the scope of work and develop this schedule of what needs to be done	**X**	**X**		**X**	**X**										
✓ Facility programmer to develop and complete a list of tasks to get to the 1st project review meeting ✓ Submit deliverables required for the 1st project review meeting ✓ 1st project review meeting at 50% completion of the program (usually to approve physical requirements and initial interpretation of the analysis)															
✓ Facility programmer to develop and complete a list of tasks to get to the 2nd project review meeting ✓ Submit deliverables required for the 2nd project review meeting ✓ 2nd project review meeting at 90% completion of the program (usually to review a draft program)															
✓ Facility programmer to develop and complete a list of tasks to get to the 3rd project review meeting ✓ Submit deliverables required for the 3rd project review meeting ✓ 3rd project review meeting at 100% completion of the program (usually to approve a final program)															

Figure iii.1: Mock-up of a programming schedule

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IV. List of Programming Tasks

Below is a list of items that are typically included in a facility program. Obviously every item on this list will not apply equally to each project. Use this list as a checklist for determining which tasks need to be performed during the programming phase. Some items may not be appropriate for all projects. Prior to beginning the programming exercise, TFC FDC and the Using Agency representatives should meet with the A/E and review the following checklist and determine which items need to be included in the facility program.

When determining what items need to be done, it is also wise to assign who will be responsible for completing each item. The chapters listed after each item refer to chapters in this Appendix G: Facilities Programming Guidelines.

Attachment A contains a copy of this list that can be used as an attachment to an Agreement for Programming Services.

A. Programming Schedule (see Section III)

- ✓ A schedule of tasks to be done during the programming phase

B. Project Goals (see Chapter 3 - Many will be listed in Project Analysis)

- ✓ A statement of agreement with the Using Agency's mission and objectives
- ✓ A statement of agreement with the Using Agency's strategic plan
- ✓ A statement that the project follows the Using Agency's and TFC's master plan
- ✓ A description of the programs to be housed in this project
- ✓ A summary of the need for the project
  - A brief description of the intent of the project
  - A discussion of alternative solutions that have been considered
- ✓ The objectives for the outcome of the project
- ✓ A statement that this project follows or deviates from the Project Analysis and why

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C. Space and Adjacency Requirements (see Chapter 4 - Many listed in Project Analysis)

- ✓ A summary space list of all areas in the project
- ✓ At least one overall adjacency diagram
- ✓ At least one stacking diagram (when appropriate)
- ✓ A discussion of future growth and phased development
- ✓ Detailed requirements for each room:
  - Space detail sheet
  - Functional relationship diagram
  - Room data sheet
  - List of furnishings and equipment
  - Description of finishes
  - Description of special access issues

D. Supporting Requirements (see Chapter 5)

- ✓ The requirements for site development
- ✓ A list of any additional requirements applicable to the project
- ✓ A description of the security needs of the project

E. Existing Site Studies (see Chapter 6 - May not apply to interior renovation projects)

- ✓ An analysis of the site or sites under consideration

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F. Existing Facilities Studies (see Chapter 7 - May not apply to new projects on new sites)

- ✓ Make copies of all available drawings for the current building
- ✓ Define the extent of the renovation
- ✓ A list of items that need to be reused after the renovation
- ✓ A list of areas in the building that are known not to comply with current building codes
- ✓ A list of any known hazardous materials in the building
- ✓ Discussion of any temporary or interim facilities that are required

G. Design Parameters (see Chapter 8)

- ✓ A list of all of the applicable codes and standards
- ✓ A list of governmental agencies that have jurisdiction over the project
- ✓ A list of the TFC's technical and design standards that apply to this project
- ✓ A list of the Using Agency's technical and design standards that apply to this project

H. Preliminary Project Cost (see Chapter 9)

- ✓ A preliminary project cost estimate using the CSI format

I. Project Schedule (see Chapter 10)

- ✓ A preliminary schedule for the project using the FDC format

J. Implementation Approach (see Chapter 11)

- ✓ A written plan that outlines how the project will be organized and delivered

K. Information Specific to this Using Agency (see Chapter 12)

- ✓ Any Using Agency requirements that will have an impact on the project

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L. Executive Summary (see Chapter 2)

- ✓ A synopsis of all areas in the program

M. Sign-Offs (see Chapter 1)

- ✓ A sign off page with appropriate approval signatures

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Chapter 1: Sign-Offs

This page contains the needed signatures approving the accompanying facility program and is to be completed when programming is finished.

Project Name
Using Agency Name

RECOMMENDED FOR APPROVAL:

TFC FDC Project Manager	Date
Using Agency Representative	Date
Director, TFC Facilities Design and Construction	Date

APPROVED:

Executive Director, Using Agency	Date
Executive Director Texas Facilities Commission	Date

TFC and Using Agency should also obtain the signatures of other key project participants as appropriate

Figure 1.1: Format for the program sign-off sheet.

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Chapter 2: Executive Summary

The executive summary of the facility program document should be a *one page synopsis* of the major points contained in the program. It should provide the reader with a quick understanding of the project scope, budget, and schedule. Write the executive summary after completing all of the other chapters of the facility program.

A. Project Description and Scope

Give an overview of the proposed project. Address the following (as appropriate):

- Name of the project
- Description (new building, restoration and expansion of the…, etc.)
- Purpose of the project (to replace the…, to house a new..., etc.)
- Primary activities to be housed and the primary users
- Shared facilities included with this project (such as meeting rooms, break rooms, etc.)
- Projected size in usable sq. ft., gross sq. ft. and construction sq. ft.
- Proposed location and why this site was selected

B. Project Budget

- List the preliminary total project cost (TPC) from Chapter 9
- List the preliminary project cost per gross sq. ft. (if appropriate)
- Identify any unusual costs that are included in the TPC (such as land purchase, demolishing existing facilities, expenses for environmental remediation, etc.)

C. Project Schedule

Summarize the milestone dates associated with the project including:

- Commission's approval of Design Development Plans for Major Construction and Executive Director's approval of Design Development Plans for all other projects
- Construction Documents ready for Bidding
- Construction start
- Occupancy

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- Identify any major stages of the project:
- To pre-purchase equipment such as boilers, chillers, cooling towers, etc.
- Or to separately advertise, bid and award multiple construction contracts or stages within the overall project such as site preparation, demolition, infrastructure contracts, etc.

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Chapter 3: Project Goals

This chapter of the facility program establishes the basis for the project. It describes why the project is required and affirms that it is in keeping with the stated direction of the Using Agency.

A. Using Agency's Mission Statement and Objectives

- Briefly explain how this project complies with the stated mission and objectives of the Using Agency.

B. Compliance with the Using Agency's Strategic Plan

- Briefly explain how this project fits into the context of the Using Agency's strategic plan.

C. Compliance with the Using Agency's Master Plan

- Show that this project complies with all aspects of the master plan, or provide rationalization to deviate from the master plan. Use illustrations and text to demonstrate that this project has been properly sited and is otherwise appropriate for the intended site.

D. Functional Programs and Projections

- Interpret how the Using Agency's functional program will be supported by this project. Describe which functional programs will be housed in this.

E. Project Need

This section should include a brief description of the intent of this project. It should summarize the status quo and explain why the project is needed. It should also present the benefits to be gained by this project and the probable impact if it is not built. If it is necessary to include a lengthy discourse to present additional background material, reference it as an appendix.

- List any current facilities that will be vacated (or will change occupancies) as a result of this project. Explain why these facilities are no longer adequate.

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Describe any alternative solutions for providing the needed additional space, (other than the proposed project), that were studied and judged as less acceptable including:

- Sharing other facilities
- Renovating an existing building instead of building new
- Using additional technology to reduce the need for more space
- Other sites

If appropriate, use a map or other graphics to convey information.

F. Project Objectives

Project objectives are different from the Using Agency's objectives listed above. Project objectives state in very concise terms what results the project is intended to achieve. The program should include enough objectives to describe the important, "big-picture" aspects of the project. Each objective should only deal with a single subject. Avoid objectives that state the obvious or reflect "motherhood and apple pie."

- To make this large, new building appear to be a similar scale to its much smaller neighbors
- To make the new building harmonious with the existing buildings by using similar materials, colors, and finishes
- To foster interaction between staff from different departments
- To maintain ongoing facility activities during the renovation
- To minimize vehicular traffic on an already congested part of the complex

The project objectives should be prioritized from most to least important.

G. Compliance with Space Requirements Model

TFC FDC has the statutory authority for review of all spaces for determination of compliance with 153 usable SF per FTE rule. Also, in other parts of the Architectural/Engineering Guidelines, space usage rules are developed which must be used for project Program of Requirements. The facility program should be prepared using these definitions for square footage.

The facility programmer and institution should include a statement in the facility program affirming that the **usable** square footage for the proposed project does not exceed the 153 sq. ft. rule for TFC FDC review. The program must clearly summarize in table form, the number of rooms and usable square footage for each of the rooms.

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Allocation of Usable Sq. Ft. in the Project

Number of Rooms	Room Type	Total USF

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Chapter 4: Space and Adjacency Requirements

This chapter deals with the space requirements and functional relationships portion of the program. It can be considered the "meat and potatoes" of a facility program because this chapter describes a project in physical terms, including:

- A brief description of each room
- The number of occupants of each room
- The quantity and square footage of each room
- Affinity relationships between each room and any other
- Diagrams that locate each area on the desired floors
- Lists of furnishing and equipment for each room, along with any special requirements that need to be accommodated during the design

The space and adjacency requirements chapter will serve as a checklist for the A/E as they design and lay out the interior of the building. It must be clearly organized and easy to understand.

For most projects, the following chapter relies heavily on the functional programming used to justify the project. For example:

- Number of full-time equivalent employees
- Number and frequency of customer visits
- Agency business plan, etc.

If any of this background programming is incomplete or needs to be revised, do so before continuing to prepare a facility program.

Facility programs should include each of the following topics, preferably in the order listed below. Each of these topics will be explained on the following pages.

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A. Related to the Entire Building:

- Summary space list
- Overall adjacency diagrams
- Stacking diagrams
- Growth and phased development

B. Room by Room Requirements:

- Space detail sheets
- Functional relationships diagrams
- Room data sheets including furnishings, equipment and built-ins for work areas and storage, such as laboratory casework

C. Summary Space List

The first component of the space and adjacency requirements chapter of a program is the summary space list. It summarizes on a single page all of the space requirements for the project. For each line item on the summary space list there is at least one space detail sheet that further describes the requirements.

There is not a right or wrong way to present a summary space list. The spreadsheet Figure 4.1 on the next page should be considered a guide. Later in this chapter is an explanation of the space detail sheets that are used to make up each line of the summary space list.

The program should contain requirements for **all** spaces in the building **both usable** and **non-usable sq. ft.** The usable and non-usable spaces are combined to obtain gross square feet.

Identify any specific programming requirements associated with non-usable areas, such as extra wide corridors. List assumptions made during programming with regard to non-usable areas.

It may be difficult to predict the size of certain non-usable areas, such as corridors and wall thickness, during programming. The square footages for these un-definable areas may be calculated as a percentage of the total building area. Do not, however, rely only on a multiplier to convert usable square footage to gross square footage.

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Summary Space List

	Usable Square Feet	Refer to Page No.
Usable Spaces		
Administrative Offices	4,600	69
Conference Center	2,800	23
Offices	119,900	28
Computing Facility	5,000	53
Food Service Cafeteria	2,500	56
Furniture and AV Storage	800	28
Multi-purpose Room	1,600	26
Total Usable Sq. Ft.	**137,000**	
Non-Usable Spaces		
Janitor closets (1 per floor)	400	75
Mechanical rooms (1 per floor)	1,000	76
Maintenance	1,860	74
Communication/Data closets (1 per floor)	400	77
Electrical closets (1 per floor)	400	78
Elevators, passenger (4) + lobbies	3,000	80
Elevators, freight (1) + vestibules	1,000	83
Stairs (3)	3,600	84
Building Lounge/ Break Rooms	1,600	81
Toilet rooms	3,000	82
Loading dock	1,000	85
Corridors and wall thickness	6,000	
Total Non-Usable Sq. Ft.	**23,260**	
Total Gross Sq. Ft.	**160,260**	

This column refers to page numbers in the programming

Figure 4.1: Summary Space List

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D. Overall Adjacency Diagram

As its name implies, an overall adjacency diagram capsules the most important adjacencies for the building as a whole.

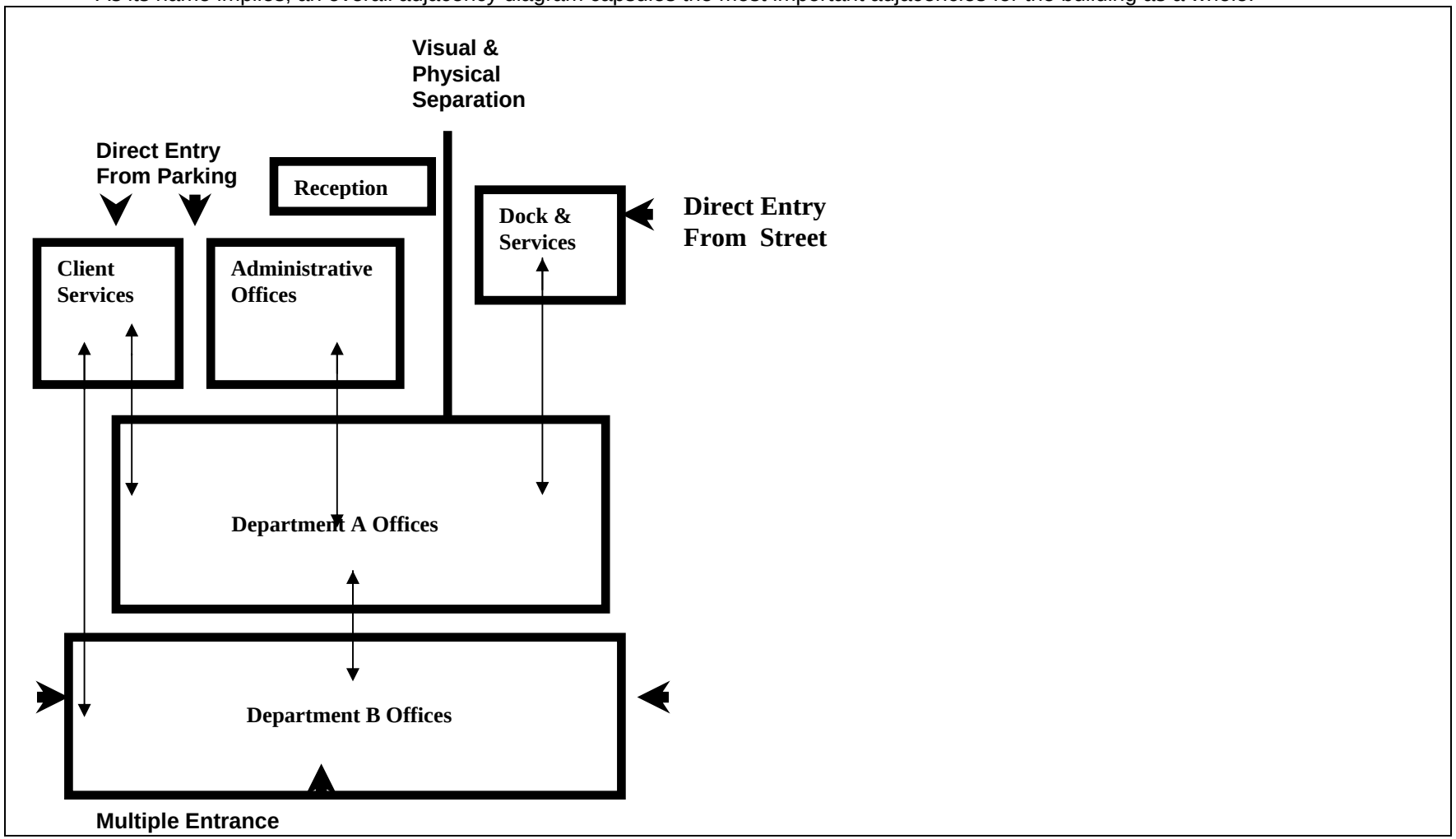

Figure 4.2: Example of an Overall Adjacency Diagram

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The program should contain enough adjacency diagrams to adequately convey the overall relationships between functional areas within the facility.

Each major component of the building is represented using circles or rectangles. If two components should be next to each other, the shapes representing these spaces should be drawn next to each other. Arrows should convey movement between spaces.

E. Stacking Diagram

A stacking diagram is a tool to illustrate conceptually where each department or functional unit is placed, or "stacked," vertically in a multi-story building

If the building is more than one story, the program should contain at least one stacking diagram. If multiple stacking alternatives are acceptable, additional stacking diagrams may be included.

A stacking diagram is drawn to scale, with the length of each rectangle representing the square footage required for that particular component. If it is difficult to predict how the non-usable area will be distributed throughout the building (i.e., how much of the mechanical equipment will be on a single floor?), the stacking diagram may show only usable areas.

The stacking diagram can help to establish key elements of the building design, such as floor size and setbacks on upper floors.

Although a stacking diagram is driven by combining functional adjacencies and space requirements, many times it should also reflect the probable siting of the project and the complex master plan. For example, the functional requirements may call for large floor plates, but contextual studies may suggest a smaller building footprint. (Refer also to Chapters 5, 6 and 7.)

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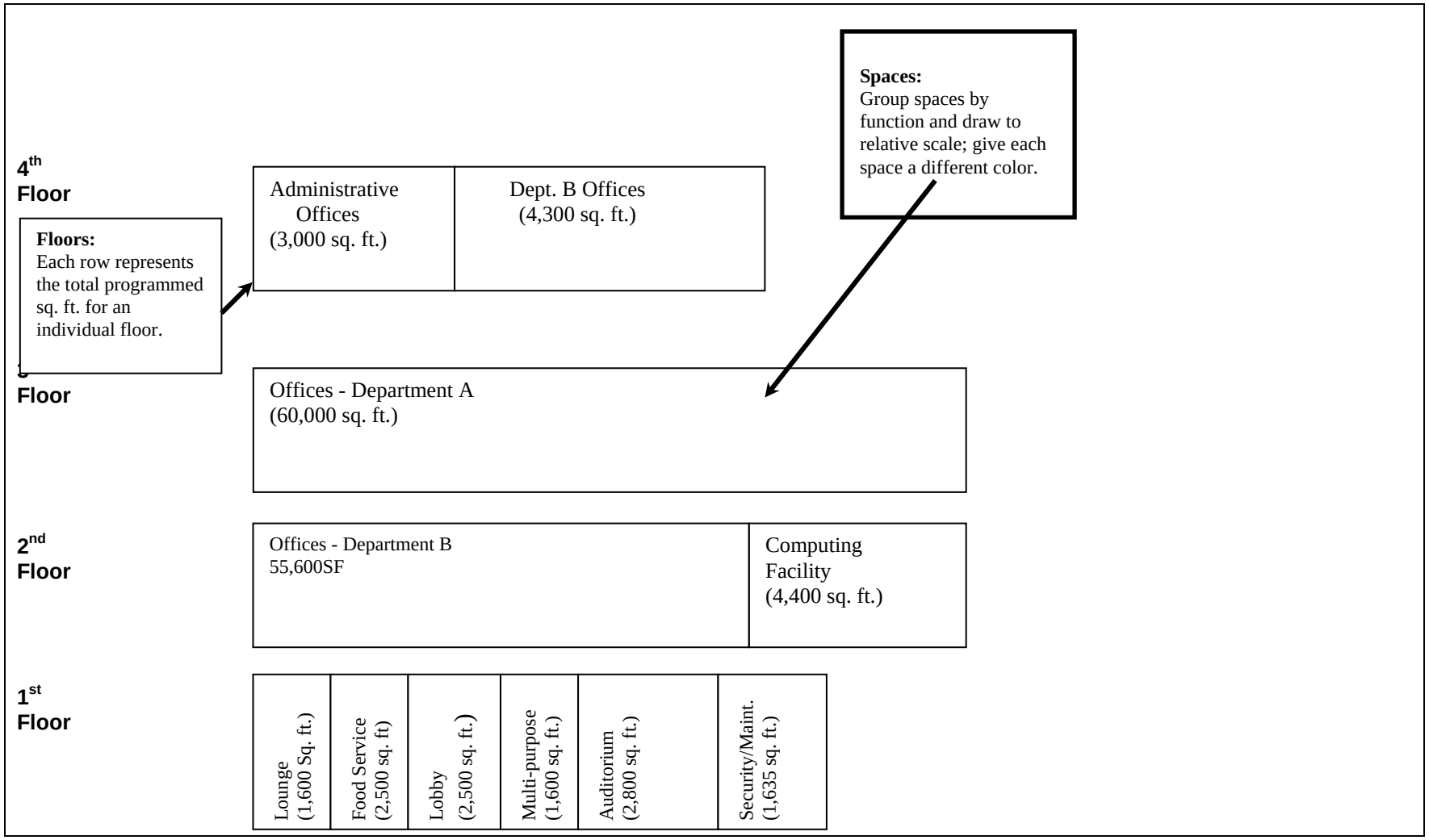

Figure 4.3: Stacking Diagram example

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F. Growth and Phased Development

Many buildings are designed to be expanded during a future phase. The design of the first phase requires an understanding of what will need to be accommodated in later construction.

The program must address the following issues related to phasing:

- Will this building likely be expanded in a future phase?
- If yes, are departments or functional areas intended to "grow in place" during the future phase?
- Compare the additional costs involved with making the building "expandable" versus the probability of the future expansion occurring as envisioned.
- If there will probably not be a future expansion of the building, how will departments or functional areas expand?
- Are any functional areas more likely than others to move out of the building in the future to allow others to expand?

G. Room by Room Requirements

All of the following room by room information should be presented together for each room. After one room is complete, begin on another room.

H. Space Detail Sheet

A space detail sheet contains the supporting information needed to build the summary space list described earlier in this chapter. The space detail sheets will usually contain a secondary spreadsheet describing several different spaces, or a suite of rooms that together make up a line item entry on the summary space list. Space detail sheets are required for usable and non-usable areas.

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Offices: Summary

Description of
Space Requirements

Name of Room	Number Required	Sq. Ft. per Room	Total Area
Offices: Executive Director	1	200	200
Deputy Executive Directors	4	180	720
Division Directors	12	150	1,800
Program Directors	30	120	3,600
Supervisors	159	100	15,900
Sub-total			22,420
Open Office Space			
Administrative Technician	1190	80	95,280
File Rooms	12	400	4,800
Reception	5	120	600
Work Rooms	4	400	1,600
Sub-total			102,280
Total Sq. Ft.			**124,500**

Figure 4.4 Example of a Space Detail Sheet

In Figure 4.4, to support a line item entry on the summary space listed entitled "offices", the space detail sheet contains information about the capacity, quantity, and mix of each different type of office.

Like the summary space list, there is no set format for the space detail sheets, except they should be consistent throughout the program.

There should be at least one space detail sheet (or more) to clarify and define each entry on the summary space list.

If many rooms have the same requirements, it may be easier to note which rooms are similar instead of generating duplicate pages (as long as this shortcut does not become confusing to the reader).

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I. Room-by-Room Functional Relationship Diagram

Functional relationship diagrams, similar in concept to the example showing in Figure 4.5 are a key part of any design program.

A functional relationship diagram illustrates the hierarchy of adjacencies within a department or grouping of rooms. It is much easier to convey these adjacency requirements with a picture than with words. Once the desired adjacencies are diagrammed, it is easy for the architects to convert the diagram into an actual floor plan that maintains all of the relationships.

There should be at least one functional relationship diagram in the program immediately following each space detail sheet.

The graphic appearance of a functional relationship diagram is not important. Sometimes they are drawn using circles or "bubbles," sometimes with squares and rectangles.

Large rooms should be represented with bigger squares or bubbles than small rooms. If two rooms should be next to each other, the squares or bubbles representing those rooms should be drawn next to each other. Movement or a sequence of events can be conveyed with arrows.

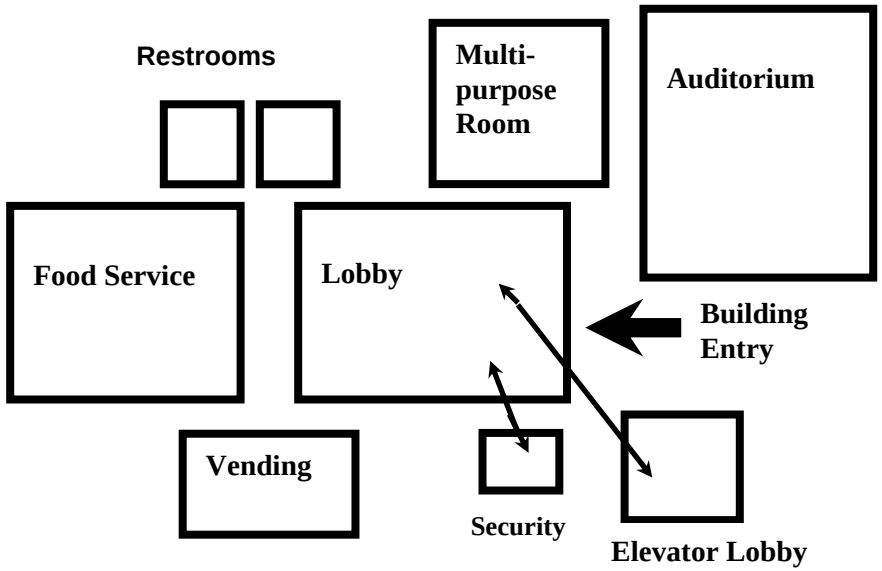

Figure 4.5: Example of a Room-by-Room Functional Relationship Diagram

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J. Room Data Sheets

Room data sheets, similar in concept to the example in Figure 4.6, contain specific requirements for each room, including furnishings and equipment.

There should be a room data sheet for each room listed on the space detail sheet.

Computer Center

Special Technical Requirements:
- Raised computer flooring
- No carpeting
- Sufficient power and cooling for 4 servers/computers
- Controlled access
- 24-hour per day operation
- Step-switched lighting to allow different illumination levels

Special Furnishing Requirements:
- 12 open office stations for staff
- 12 chairs for staff
- Service area for 12 staff

Special Equipment Requirements:
- Four server systems
- High speed laser printer
- 2 workbenches and storage cabinets in work room
- Electrical outlets above workbench for testing and repair

Figure 4.6 Example of a Room Data Sheet

All of the room data sheets should have the same general format, to make it easy for the architects and engineers to find and use the information. Also, by using a consistent format it is easy to identify places where information is missing and still needs to be collected.

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K. Furnishings, Equipment, and Built-ins

The room data sheets should contain all of the moveable furnishings, equipment and built-ins planned for each room. Refer to the applicable codes identified in Chapter 8: Design Parameters, to determine the maximum capacity in a room.

The program must distinguish between items that are new and those that are being moved from another location. Classify each item listed on the room data sheet as one of the following:

New Items:

- Contractor furnished and contractor installed
- Owner furnished and contractor installed
- Owner furnished and owner installed

Existing Items:

- Relocated as is and contractor installed
- Refurbished and installed by contractor
- Relocated as is and owner installed
- Refurbished and installed by owner

Distinguish between equipment that is moveable and equipment that is fixed in place. The quantities of each classification of furnishings and equipment are used to prepare lines 9 and 10 of the Preliminary Project Cost in Chapter 9. Technical requirements for equipment are needed to properly engineer the project's mechanical, electrical and plumbing systems.

For each major piece of existing equipment to be reused include a manufacturer's cut sheet that lists the model number, dimensions, weight and technical specifications (electrical load, plumbing required, heat generated, exhaust required, data or communication cabling, etc.). this information can be obtained by calling the manufacturer. For new equipment provide a generic description, (not sole source unless justifiable), of the item and estimate its technical requirements based on existing equipment. Also identify any new items that have a long delivery time and should be ordered early.

Listing any building modifications that are required to house a piece of equipment, such as strengthening the floor, extra high ceilings or extra wide access doors.

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L. Finishes

Develop several levels of typical room finishes that describe the quality and type of finish that are appropriate for each room. For example:

Type A Finishes (might be the most utilitarian)
Floor: vinyl composition title
Walls: paint

Type B Finishes (might be somewhat upgraded)
Floor: direct glue carpet
Walls: vinyl wall covering

Type C Finishes (might be even more upgraded)
Floor: carpet over pad
Walls: wood paneling

List the level of finish that is appropriate for each room on the room data sheet.

M. Window Coverings

Note if any special window coverings are required for each room. For example:

- Ability to black-out natural light
- Need to reduce glare for windows
- Etc.

N. Special Access

List any special access requirements on the room data sheets.

- This room is open 24 hours
- This room is used by staff during the day and evenings
- This room is used by staff during the day only
- This room is used after normal hours but only by authorized staff
- This room is secured during normal and after hours
- This room is secured when the building is closed
- This room is not secured when the building is closed
- Etc.

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Chapter 5: Supporting Requirements

There are other project requirements that affect the design of a building in addition to the space needs and adjacencies already discussed. This chapter identifies those supporting requirements.

The requirements contained in this chapter are driven by the nature of the project regardless of its ultimate site. Evaluation of the specific characteristics of a given site are documented in Chapter 6.

In this section of the program, provide a descriptive answer for each of the following issues:

A. Site Development & Landscaping Requirements

- ✓ Discuss how the spaces around the outside of the building should be designed. Are there any unusual site requirements that should be dealt with in a particular way?
- ✓ Should the project include any covered loggias or exterior plazas? If so, describe the activities that may occur in them.
- ✓ Describe how pedestrians should access the building.
  - Staff
  - Clients, Customers and the General Public
- ✓ Describe how vehicles should access the building.
  - Staff
  - Clients, Customers and the General Public
  - Service vehicles
  - Delivery trucks
  - Emergency vehicles
- ✓ Is a drop-off area for busses or private cars needed near the building?
- ✓ What are the parking requirements associated with this project?
- ✓ Define any other unique site development issues that are related to this program.

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B. Requirements for Support Services

- ✓ How should trash, special, and/or hazardous waste products be held prior to pick-up? How should they be disposed of or recycled?
  - General building trash
  - Radioactive
  - Infectious
  - Corrosive
  - Etc.
- ✓ Describe any fuel tank storage requirements or specialized materials storage.
- ✓ Estimate this project's need for utilities.
  - Electricity, including emergency power
  - Water
  - Sanitary sewer
  - Storm sewer
  - Natural gas
  - Etc.
- ✓ Will utilities be available when this project requires them?
- ✓ Describe the data and telecommunication links required for this project.

C. Security Requirements

- ✓ Describe the appropriate amount of site and building exterior lighting that should be provided.
- ✓ Describe any special design requirements to protect the building from acts of terrorism.
- ✓ Describe any other security design issues that should be a part of this project.

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Chapter 6: Existing Site Studies

This chapter of the program deals with an analysis of the proposed site (or sites if more than one are being considered) for the project. It should address all of the factors acting upon each site that will somehow affect the design of the building. For example:

- Do the proposed sites comply with the Using Agency's master plan?
- What impact will this project have on the complex?
- Is the project compatible with adjacent land use? Traffic patterns? Wayfinding? Etc.

If several sites are being considered, provide a consistent level of detail and apply uniform evaluation criteria for each site.

This chapter on site studies should address (at least) the topics contained in the following list. In some cases, the detailed information may not be available. When this occurs, note that the specific information is not available, (or not appropriate), and include as much substitute information as possible. (for example, if a topographical survey has not been prepared yet, include a site plan in the program).

- ✓ Study of alternative sites
- ✓ Description of who owns the proposed site(s)
- ✓ Aerial photograph of the proposed site(s)
- ✓ Site boundary and topographical survey
- ✓ Geotechnical survey
- ✓ Description of existing landscaping
- ✓ Extraordinary drainage requirements and a plan to contain storm water runoff
- ✓ Any existing construction or utilities on the site
- ✓ Location of any existing easements and setbacks
- ✓ Description of any known prior uses of the site
- ✓ Description of any known environmental issues that would limit use of the site or necessitate additional project costs such as hazardous

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waste cleanup.

- ✓ Plan to dispose of any contaminated soil
- ✓ Archeology survey

- ✓ Clearances from:
  - State Historical Commission
  - Texas Antiquities Commission

- ✓ Plan to relocate any existing occupants or equipment off of the site

- ✓ Diagram showing the intended expansion during any future phases

- ✓ Other significant site influences on the design

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Chapter 7: Existing Facilities Studies

This chapter deals primarily with projects that involve renovation of existing facilities. However, many aspects of this chapter will also apply if interim space will be used before the new facility is completed.

In this section of the program provide a descriptive answer of each of the following issues.

A. Existing Drawings and Specifications

- ✓ Assemble accurate floor plans and other as-built drawings and specifications of the existing building showing the latest renovations. Make reproducible copies of these drawings for later use.

B. Extent of the Remodeling

- ✓ Include a reduced copy of the floor plans in the program. Outline portions of the building to be remodeled. Note where any addition to the building is most likely to occur.

- ✓ List what furnishings, equipment and other items need to be salvaged for re-use after the renovation. Chapter 4, Space and Adjacency Requirements, contains a suggested format for tracking these items.

C. Code Compliance

- ✓ Identify those parts of the existing building that are known not to comply with current building codes and statutory requirements. Describe what work is needed to bring the current building into compliance. See Chapter 8 for a detailed discussion on this subject.

D. Hazardous Materials

- ✓ Determine if any portions of the building to be remodeled contained any hazardous materials such as asbestos, PCB's and lead. Identify the extent of the hazardous materials.

E. Temporary Facilities

- ✓ Describe any temporary or interim facilities that will be required until the project is completed. These might include:
  - Space for staff
  - Meeting Rooms and Offices
  - Storage space for boxed files, newly ordered equipment, etc.
  - Data and telecommunication links to other locations

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- Parking

✓ If specific interim facilities have been identified, include information about those facilities.

F. Existing Utilities Studies

✓ Is the existing facility served by sufficient utility capacity for:

- Water
- Sanitary sewer
- Storm sewer
- Natural gas
- Electricity, including emergency power
- Thermal energy (chilled water and steam)
- Data
- Communications
- Etc.

✓ Does the proposed project conflict with any existing utility lines?

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Chapter 8: Design Parameters

The design parameters are the standards and constraints that will control the project. This chapter of the program should address each of the following issues:

A. Code and Regulations

The program should include a preliminary code analysis which identifies major provisions of all the codes and regulations that directly influence the design and construction of the proposed facility. Those codes which would have a significant impact on the project scope, cost or schedule should be investigated and explained in detail.

There are three reasons to identify these regulatory and code requirements during programming:

- They may have a considerable effect on the physical characteristics of the project that have been developed in Chapters 4, 5 and 6.
- They may affect the Preliminary Total Project Cost (Chapter 9).
- Regulatory approval processes may affect the project schedule (Chapter 10).

The project owner, either the Using Agency or the Texas Facilities Commission, is the code authority having jurisdiction over capital building projects constructed on land owned by the state. Construction on land not owned by the state is under local jurisdiction. TFC FDC reviews projects for compliance with the current editions of the following codes and standards:

✓ Architectural Design
- Uniform Building Code, or Standard Building Code, as used by the local jurisdiction
- National Fire Protection Association (NFPA) Standards, with emphasis on NFPA 101 and including all referenced standards

✓ Structural Design
- Uniform Building Code
- ACI – 318, building code requirements for reinforced concrete
- AISC, specifications for the Design, Fabrication and Erection of Structural Steel

✓ Mechanical, Plumbing and Electrical Design
- Uniform Mechanical Code, Uniform Plumbing Code
- NFPA Standards
- National Electrical Code

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- ✓ Energy Conservation Design
  - Energy Conservation Design Standards for New State Buildings, including Solar Energy Feasibility

The nature of a project may dictate that other more specific codes, regulations or standards would apply. Compliance with these requirements will be reviewed by TFC FDC. These might include:

- NFPA 45 standard on Fire Protection for Laboratories Using Chemicals.
- National Institutes of Health (NIH) Standards
- Joint Council for the Accreditation of Hospital Organizations (JCAHO) Standards
- ANSI Standards
- ASTM Standards

Many governmental authorities may also have jurisdiction over typical state projects and may regulate the design and construction of the facility. Compliance with these requirements will be reviewed by the authority having jurisdiction, and their review processes need to be investigated and identified. Examples of these include:

- **Environmental Protection Agency,** for compliance with environmental protection requirements (for example, NPDES Storm Water Pollution Prevention Plan)
- **Texas Department of Licensing and Regulation, Elimination of Architectural Barriers Division,** for compliance with state requirements and the Texas Accessibility Standards
- **Texas Natural Resources Conservation Counsel,** for environmental conservation and management (for example, Water Pollution Abatement Plan)
- **Texas Historical Commission,** for historic landmark designation
- **Texas Antiquities Commission,** for archeologically significant sites
- Local land use restrictions
- Community fire protection requirements (State Agencies enjoy fire protection provided by the local jurisdictions and, therefore, must coordinate requirements with the local fire department)
- Local historic districts
- Others

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B. Technical Standards

The technical standards listed below should be reviewed. The impact that these standards and their associated review processes will have on the project scope, cost, and schedule should be incorporated into the program.

✓ Texas Facilities Commission's Architectural/Engineering Guidelines

TFC FDC has developed the following technical standards that apply to the design and construction of TFC managed projects and will provide assistance in interpreting these standards, if requested. These standards are in a document titled A/E Design Guidelines which are included by reference in the A/E Agreement.

- Acoustical Design – Background Noise Design Criteria For Typical Occupancies
- Civil Engineering Criteria
- Construction Criteria
- Electrical Criteria and Guideline Specifications
- Furniture, Furnishings & Accessories Criteria
- Guidelines for Architect-Engineer Services Preparation of Project Manuals
- Constructability Standards
- Sustainable Design Criteria
- Landscape – Site Development Criteria
- Mechanical Criteria and Guideline Specifications
- Structural Criteria

✓ Using Agency Standards

In addition, some Agencies have generated technical standards to suit the unique requirements of their agency. Agency standards that have a significant impact on the design and construction of the facility should be described in the program. These might include:

- Equipment or system specifications or standards
- Existing special purchase arrangements with vendors for certain equipment/systems
- Sole source requirements for equipment or systems (to be compatible with existing systems)

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C. Using Agency Design Standards

Many agencies have aesthetic design standards and processes which can significantly impact the project scope, schedule and budget. Definition of these requirements and the review and approval processes associated with each should be identified in the program. Examples include:

- Building design guidelines (from the Agency's Complex Master Plan)
- Landscape/open space standards
- Color/material standards
- Furnishing standards

The design parameters discussed in this chapter will likely have a significant affect upon the program for the project and in how the project will be accomplished. A strategy for how to manage these parameters is contained in detail in Chapter 11, Implementation Approach.

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Chapter 9: Preliminary Project Cost

This chapter deals with developing a Preliminary Project Cost (PPC) for the project. It should address all of the costs required to complete the project.

The purpose of this chapter is to offer guidance in developing a PPC estimate that is as accurate as possible. It will also serve as a checklist for the elements to be considered in developing the PPC.

A. Types of Cost Estimates

The TFC process requires that project cost estimates be prepared at various stages throughout project development. The scope, budget, and schedule for a project is first identified in the Project Analysis (PA), with additional cost estimates planned at intervals throughout design to ensure that the project can be bid and awarded within the budget.

B. Preparing the PPC

The PPC is a prediction of all costs involved in the project. It includes all of the following:

- Estimates for the construction contract award amount
- Professional fees
- Furnishings
- Any other work outside of the construction contract award amount, whether managed by TFC FDC or the Using Agency
- Miscellaneous expenses
- Administrative costs
- Contingencies
- Cost escalation for all elements of the PPC
- Any other project costs.

The facility programmer should prepare the second project cost estimate (the first estimate was included in the PA) using the following format and include it in the facility program. The format for the PPC sheet is shown in Figure 9.1. A full-size sheet is given in Appendix A.

Notes about preparing the PPC. Refer to Figure 9.1:

- The facility programmer and TFC FDC should work together to develop the PPC
- Include adequate notes in this chapter describing how each line of the PPC was derived

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- Unit costs of comparable work may be used to prepare the cost estimate for new construction
- For renovations to existing construction (which also may be found associated with some new work and additions) the cost estimate is usually the result of estimating the cost of components, systems or even labor and materials for accuracy.

Preliminary Project Cost

Preliminary Project Cost As of: _____

1	Base Bid (maximum 95% of line 3)	_____
2	Additive Alternative Bids (minimum 5% of line 3	_____
3	Sub-total (CCL)	_____
4	Special Cash Allowances	_____
5	Construction Contingency (3% of line 3)	_____
6	Sub-total Contract Award	_____
7	Bid Contingency (minimum 5% of line 3)	_____
8	A/E Fees (____% of line 6)	_____
9	Movable Furnishings, TFC FDC Managed	_____
10	Movable Furnishings, Using Agency Managed	_____
11	Other Work, TFC FDC Managed	_____
12	Other Work, Using Agency Managed	_____
13	Miscellaneous Expenses	_____
14	Project Contingency	_____
15	Sub-total	_____
16	TFC FDC Administration	_____
17	PRELIMINARY PROJECT COST	_____
18	Cost Per Gross Square Feet	
	a. Construction (line 6)	_____
	b. PPC (line 17)	_____
19	PROJECT SCOPE	
	a. New/Addition USF	_____
	b. New/Addition GSF	_____
	c. Renovated USF	_____
	d. Renovated GSF	_____

Figure 9.1: Format for a Preliminary Project Cost Sheet

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- ✓ Line 1, **Base Bid**, (maximum 95% of line 3) is the construction cost estimate based upon the facilities program, such as buildings, fixed equipment, site work, infrastructure, thermal energy and any other items bid with the construction contract.

- ✓ Line 2, **Additive Alternate Bids**, (minimum 5% of line 3) is included for cost control. The sum of lines 3 and 7 provides a minimum of 10% of line 3 for cost control when bids are received

- ✓ Line 3, **Subtotal Construction Cost Limitation (CCL)** is the subtotal for lines 1 and 2. The CCL is normally included in the A-E Agreement and is the project A/E's design budget.

- ✓ Line 4, **Special Cash Allowances**, is the estimate for any known cash allowances to be included in the construction contract, such as fees, permits, allowances and proprietary work (e.g., energy management systems) to be assigned to the construction contract. Include any estimated cost escalation for those items.

- ✓ Line 5, **Construction Contingency**, is that amount included in the construction contract from which changes to the construction contract are deducted. Use 3% of line 3 unless another number is appropriate.

- ✓ Line 6, **Subtotal Contract Award**, is the subtotal for lines 3 through 5. This is the amount expected from the low bidder where bids are received.

- ✓ Line 7, **Bid Contingency**, is that amount included for varying bid conditions. Use a minimum of 5% of line 3.

- ✓ Line 8, **A/E Fees**, is the Project A/E percentage fee for basic services as interpolated from the Texas Facilities Commission Rule 123, Architect/Engineer Fee Schedule. Also include amounts for additional services, reimbursable expenses, record drawings and contingency.

- ✓ Line 9, **Moveable Furnishings, TFC FDC Managed**, is the cost estimate for furnishings to be procured by TFC FDC by separate furnishings contract.

- ✓ Line 10, **Moveable Furnishings, Using Agency Managed**, is the cost estimate for furnishings to be procured by the Using Agency by separate furnishings contract.

- ✓ Line 11, **Other Work, TFC FDC Managed**, is the cost estimate for additional work to be managed by TFC FDC outside of the construction contract, such as materials testing, testing and air-balancing (TAB) for HVAC equipment, real property acquisitions, abatement of hazardous materials, demolition, various systems (e.g., telecommunications, computer, security), special equipment, project commissioning/move-in, other TFC FDC managed contracts and any other related costs.

- ✓ Line 12, **Other Work, Using Agency Managed**, is the cost estimate for additional work to be managed by the Using Agency outside

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of the construction contract, such as real property acquisitions, abatement of hazardous materials, demolition, various systems (e.g., telecommunications, computer, security), special equipment, project commissioning/move-in, other Using Agency managed contracts and any other related costs.

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Chapter 10: Project Schedule

This chapter deals with the factors that affect the time required to complete a project and must be addressed if a project is to be completed in a timely manner. Every facility program includes the preparation of a schedule for design and construction of the project.

A. Preparing the Project Schedule

The facility programmer should develop the project schedule in consultation with TFC FDC and the Using Agency. The schedule will include various milestones, any unusual schedule considerations, and submissions/approvals by the Using Agency, Texas Facilities Commission, Executive Director. Following the Commission's award of the project architect-engineer contract, TFC FDC will work with the Using Agency and the project architect-engineer to refine the schedule in greater detail.

The facility programmer should document the project schedule in the facility program using the format for the Project Schedule shown in Figure 10.1.

The format for the project schedule occasionally has the abbreviation N/A shown in the "Original" column. This indicates these dates are not required for the schedule that is prepared during the programming phase.

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Preliminary Project Schedule

Project Schedule As of: _____	Original
1. APPOINT A-E/ACCEPT A-E OPTION-BASIC SERVICE	_____
2. SCHEMATIC DESIGN & DESIGN DEVELOPMENT PHASES	
a. SD/Owner Authorized A/E Start*	_____
b. SD/A-E Submit for Owner Review	_____
c. SD/Joint Review for Owner Comments	_____
d. APPROVE Schematic Plans	_____
e. DD/Owner Authorized A/E Start	_____
f. DD/A-E Submit for Owner Review	_____
g. DD/Joint Review for Owner Comments	_____
h. APPROVE Design Developments Plans*	_____
3. CONSTRUCTION DOCUMENTS PHASE	_____
a. CD/owner Authorized A/E Start*	_____
b. Submit for THECB First or Single State Approval	_____
c. THECB First/Single Stage Approval	_____
d. Submit for THECB Second Stage Approval	_____
e. THECB Second Stage Approval *	_____
f. CD/A-E Submit ____% CD for Owner Review	_____
g. CD/Joint Review for Owner Comments	_____
h. CD/A-E Submit ____% for Owner Review	_____
i. CD/Joint Review for Owner Comments	_____
j. CD/A-E Submit ____% CD for Owner Review	_____
k. CD/Joint Review for Owner Comments	_____
l. CD/A-E Submit ____% FINAL for Owner Review	_____
m. CD/Joint Review for FINAL Owner Comments	_____
n. APPROVE Construction Documents *	_____
4. BIDDING PHASE	
a. Advertise for Bids *	_____
b. HUB Semimar	_____
c. Pre-bid Conference	_____
d. Receive/Open Bids *	_____
e. Contract Award */Issue Notice to Proceed	_____
5. CONSTRUCTION PHASE	
a. Notice to Proceed – Start Contract Time	_____
b. Final Completion – Stop Contract Time	_____
c. Start Using Agency Make Ready For Use	_____
d. Project Ready for Use	_____
* Action as required for Major Project	

Figure 10.1: Format for the Preliminary Project Schedule

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- ✓ Line 1 is the date of contract for the project architect-engineer to continue into Basic Services.
- ✓ Line 2 is the date for Notice to Proceed to authorize the project architect-engineer to start preparing Schematic Design Plans (may be the same date as line 1).
- ✓ Between lines 2.a-b is the time for the A-E to prepare the schematic design documents.
- ✓ Between lines 2.b-c typically allows 1 week for Schematic Design submittals for owner review to the joint review and 2.f-g. typically allows 2 week for Design Development submittals for owner review to the joint review
- ✓ Between lines 2.e-f is the time for the A-E to prepare the design development documents.
- ✓ Line 2.h is the date for either Texas Facilities Commissions' or the TFC Executive Director's approval of Design Development Plans. (The Commission all major projects and the Executive Director approves all other projects.)
- ✓ The Commission meets monthly around the last Tuesday of each month. The deadline to request a Commission Open Meeting agenda item is approximately four weeks prior to the meeting.
- ✓ Line 3.a is the date TFC FDC authorizes the project architect-engineer to start preparing Construction Documents.
- ✓ Between lines 3.a-h is the time for the A-E to prepare the Construction Documents.
- ✓ Between lines 3.b-m typically allow 2 weeks from submittals for owner review to the joint review. Preliminary reviews, 30% and 60% will typically be performed concurrent with proceeding with work.
- ✓ Between lines 3.i-j typically allow two weeks for the A/E to complete final corrections and coordination to the construction documents after the final review. The A/E should be ready to issue bid documents to prospective bidders when the project is advertised.
- ✓ Line 3.j is the date for TFC FDC and Using Agency to approve Construction Documents.
- ✓ Line 4.a is the date for TFC FDC to approve the advertisement for bids.
- ✓ Between lines 4.a-d typically allow 30 weeks from the date for advertisement for bids to the date for receipt of bids.
- ✓ Line 4.e is the date for the contract to be awarded and TFC FDC to issue the Notice to Proceed (typically allow 45 days between lines 4.d and 4.e).

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- ✓ Line 5.a is the date for the start of contract time. (Typically allow 15 days from line 4.e to 5.a.) Between lines 5.b-c is the time for construction of the project.

- ✓ Between lines 5.c-d allow time for TFC FDC and the Using Agency to make-ready, move-in, occupy and start using the facility. Make-ready includes a substantial period of time to install moveable furniture and equipment.

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Chapter 11: Implementation Approach

The implementation approach should address every key element relative to how the project will be executed, as well as the procedures, methods, and resources that will be required to accomplish this execution. The implementation approach will vary depending upon the needs of the Using Agency and the project, and should be a written section in the program that represents the consensus of the project team. It will form the basis for a more detailed project implementation approach developed later.

A formal implementation approach, often called execution plan or project execution strategy, is required to ensure that all tasks are identified and carried out in a timely manner, even early in project development. The implementations approach "sets the stage" for further work on the project. It provides overall direction for the project team, which must make numerous decisions throughout the course of a project. The implementation approach serves as organizer for that decision making process. It should be as detailed as possible, and should include specific roles and responsibilities.

The level of detail contained in the implementation approach should be consistent with the accuracy of the estimate, size and complexity of the project and of the project scope. The implementation approach must be flexible, because plans, assumptions and design concepts developed during the pre-project activities will undergo review and possible change during subsequent phases.

The program should address each of the following subjects normally found in a typical implementation approach.

A. Comprehensive Project Schedule

In addition to the Project Schedule developed in chapter 10, this section should address how the Using Agency plans to manage:

- ✓ Selection, procurement and installation of Owner furnished equipment (especially for long lead-time items).
- ✓ Design of interior spaces, including furniture, furnishing and accessory selection, procurement and installation.
- ✓ Multiple stages of the project, i.e., furniture procurement may be handled differently form general construction.

B. Design Plan

This section defines the resources and methods to be used to provide cost effective design for the project. It also includes plans for utilizing both internal and external resources. It should include:

- ✓ Recommendation for the qualifications of the project A/E and its consultants.
- ✓ Suggestions for special consultants as may be required due to the nature of the project.
- ✓ Need for comprehensive site investigations.
- ✓ Unusual design documentation required, emphasizing any special requirements including computer aided design and drafting (CADD), physical models, etc.

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C. Contracting Plan

- ✓ State law dictates that construction contracts for state projects be publicly bid and awarded to the lowest, responsible bidder. If the Using Agency intends, and is able to complete any part of the project using an alternative contracting approach, this should be clarified in this section.
- ✓ Identify any major stages of the project to pre-purchase equipment (such as boiler, chillers, cooling tower, etc.) or to separately advertise, bid and award multiple construction contracts within the overall project (such as site preparation, demolition, infrastructure contracts, etc.)

D. Permitting and Regulatory Compliance

This section includes a work plan to prepare, submit and track any unique approval or permit requirements identified in Chapter 8. Definition of responsibilities and coordination with TFC FDC, Using Agency and outside agencies should be discussed.

E. Safety Process

- ✓ The Uniform General Conditions for State of Texas Construction Contracts and TFC FDC Supplementary General Conditions of the Construction Contract make safety during construction the responsibility of the General Contractor. If there are other safety procedures and review processes to be followed by the project for which the Owner is responsible this section should address them, including:
  - Hazardous material handling
  - Safety information for specialized processes and hazards

F. Cost and Schedule Controls

- ✓ This section contains the overall project cost and schedule philosophy including:
  - How project schedules and cost will be controlled
  - Frequency, form, and level of detail of reporting requirements

G. Using Agency's Staffing and Team Building Plan

- ✓ Update organization structure for the project during design and construction.
- ✓ Roles and responsibilities within the Using Agency's organizational structure, including designation of a single representative for the remainder of the project.

APPENDIX G: FACILITIES PROGRAMMING GUIDELINES

Chapter 12: Information Specific to this Facility

Use this chapter to include any pertinent information that applies specifically to this Using Agency, such as design or technical standards, local preferences or other special information.

This chapter is also an appropriate place to include any supporting information used to generate the space requirements, such as activity projections.

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Attachment A: List of Programming Tasks

The following list is intended to be an attachment to an Agreement for Programming Services. It identifies which tasks are to be completed by the Programmer and which tasks are the responsibility of the Owner (including the Using Agency, TFC, and other parties.) The chapter listed after each item refers to chapters of this Appendix G: Facilities Programming Guidelines.

Programming Schedule (see Section iii)

☐ ☐ A schedule of tasks to be done during the programming phase

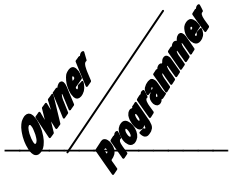
Project Goals (see Chapter 3)

☐ ☐ A statement of agreement with the Using Agency's mission and objectives
☐ ☐ A statement of agreement with the Using Agency's strategic plan
☐ ☐ A statement that the project follows the Using Agency's master plan
☐ ☐ A description of the programs to be housed in this project
☐ ☐ A summary of the need for the project
☐ ☐ A brief description of the intent of the project
☐ ☐ A discussion of alternative solutions that have been considered
☐ ☐ The objectives for the outcome of the project

Space and Adjacency Requirements (see Chapter 4)

☐ ☐ A summary space list of all areas in the project
☐ ☐ At least one overall adjacency diagram
☐ ☐ At least one stacking diagram (when appropriate)
☐ ☐ A discussion of future growth and phased development
☐ ☐ Detailed requirements for each room:
- Space detail sheet
- Functional relationship diagram
- Room data sheet
- List of furnishings and equipment
- Description of finishes
- Description of special access issues

APPENDIX G: FACILITIES PROGRAMMING GUIDELINES



Supporting Requirements (see Chapter 5)

- ☐ ☐ The requirements for site development
- ☐ ☐ A list of any additional requirements applicable to the project
- ☐ ☐ A description of the security needs of the project

Existing Site Studies (see Chapter 6)

(May not apply to interior renovation projects)

- ☐ ☐ An analysis of the site or sites under consideration

Existing Facilities Studies (see Chapter 7)

(May not apply to new projects on new sites)

- ☐ ☐ Make copies of all available drawings for the current building
- ☐ ☐ Define the extent of the renovation
- ☐ ☐ A list of items that need to be reused after the renovation
- ☐ ☐ A list of areas in the building that are known not to comply with current building codes
- ☐ ☐ A list of any known hazardous materials in the building
- ☐ ☐ Discussion of any temporary or interim facilities that are required

Design Parameters (see Chapter 8)

- ☐ ☐ A list of all the applicable codes and standards
- ☐ ☐ A list of governmental agencies that have jurisdiction over the project
- ☐ ☐ A list of the TFC FDC's technical and design standards that apply to this project
- ☐ ☐ A list of the Using Agency's technical and design standards that apply to this project

Preliminary Project Cost (see Chapter 9)

- ☐ ☐ A preliminary project cost estimate using the supplied format

Project Schedule (see Chapter 10)

- ☐ ☐ A preliminary schedule for the project using the supplied format

Implementation Approach (see Chapter 11)

- ☐ ☐ A written plan that outlines how the project will be organized and delivered

APPENDIX G: FACILITIES PROGRAMMING GUIDELINES

Owner

☐ ☐ **Information Specific to this Using Agency** (see Chapter 12)
Any Using Agency requirements that will have an impact on the project

☐ ☐ **Executive Summary** (see Chapter 2)
A synopsis of all areas of the program

☐ ☐ **Sign-Offs** (see Chapter 1)
A sign-off page with appropriate approval signature