Facilities Programming Guidelines

The University of Texas System

Office of Facilities Planning and Construction

F Foreword

The *Facilities Programming Guidelines* is a tool designed to help the Component Institutions of The University of Texas System program their capital improvement projects (CIP).

These guidelines are generic in nature and are intended to be used for both academic and health affairs projects, including projects of primarily an engineering nature. This document is a checklist of possible deliverables that may be found in a completed facility program, and contains definitions for programming deliverables that may be required in a professional agreement for programming services.

The *Guidelines* have been designed so they may be referenced in an agreement for programming services, but such an agreement should specifically identify the programming deliverables to be provided under the agreement. Appendix D provides such a checklist.

Table of Contents

i Purpose of this Document

In December 1994, The Board of Regents of The University of Texas System implemented a new process for the delivery of capital improvement projects. A key element of this process is the need for the institutions to prepare a comprehensive program of requirements for each project before the Chancellor appoints the project architect/engineer, or additional services are requested.

This document is designed as a tool to help the institutions program the requirements for their capital improvement projects. The Board of Regents' decision to require more complete facility programming 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 hard 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 institution can clearly define what it wants.
- All of the necessary information is collected at the beginning of a project and is resident in the program and its supporting appendices, and is available for everyone involved with the project to use.

Definition of Facility Programming

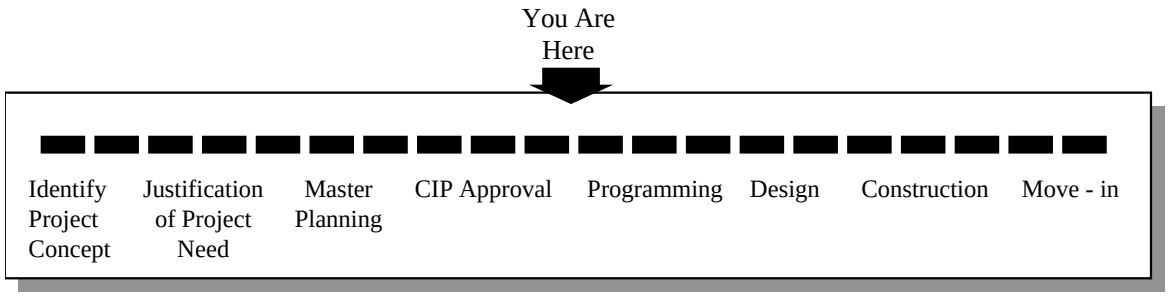
Facility programming is the process of collecting, analyzing, synthesizing and documenting all (or most) of the requirements for a capital improvement project prior to beginning design.

A facility program contains the information needed to design a project. Facility programs generally do not contain information that defines the need for the project (such as academic requirements), unless this information is needed by the architects and engineers to design the project.

By following the steps outlined in these guidelines, the institution will be able to develop a complete facility program ready to be submitted to the Office of Facilities Planning and Construction (OFPC) and then to the Chancellor for selection of the project architect-engineer.

You Are Here

These guidelines are a tool to prepare a facility program for projects that have already been approved by the Board of Regents. This document does not address **"pre-CIP issues"** such as project justification, academic programming, master planning or CIP approval. These and other pre-CIP issues should already be in place and approved before beginning a facility program.



The Board of Regents recognizes that the institutions may hire outside consultants to assist them in preparing facility programs. Also, OFPC is available to assist the institutions through every step of a project.

When reading and applying these guidelines, remember that each project and each institution is unique, and this manual cannot apply equally to every project. 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 institution.

ii Introduction

Research conducted by the Construction Industry Institute (CII) indicates that well developed facility programming coupled with good schematic design and design development may result in:

- Reduced project costs by an average of twenty percent
- Less project variability in terms of cost, schedule, and operating characteristics
- Increased probability of the project meeting desired goals

The results also indicate a direct relationship between project success and the level of early project planning. Therefore, it is important that institutions understand the underlying programming process and act quickly to effectively embrace its use.

Why Do Facility Programming?

Programming has a significant impact on the outcome of the construction of a capital improvement project (CIP). *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 forward.

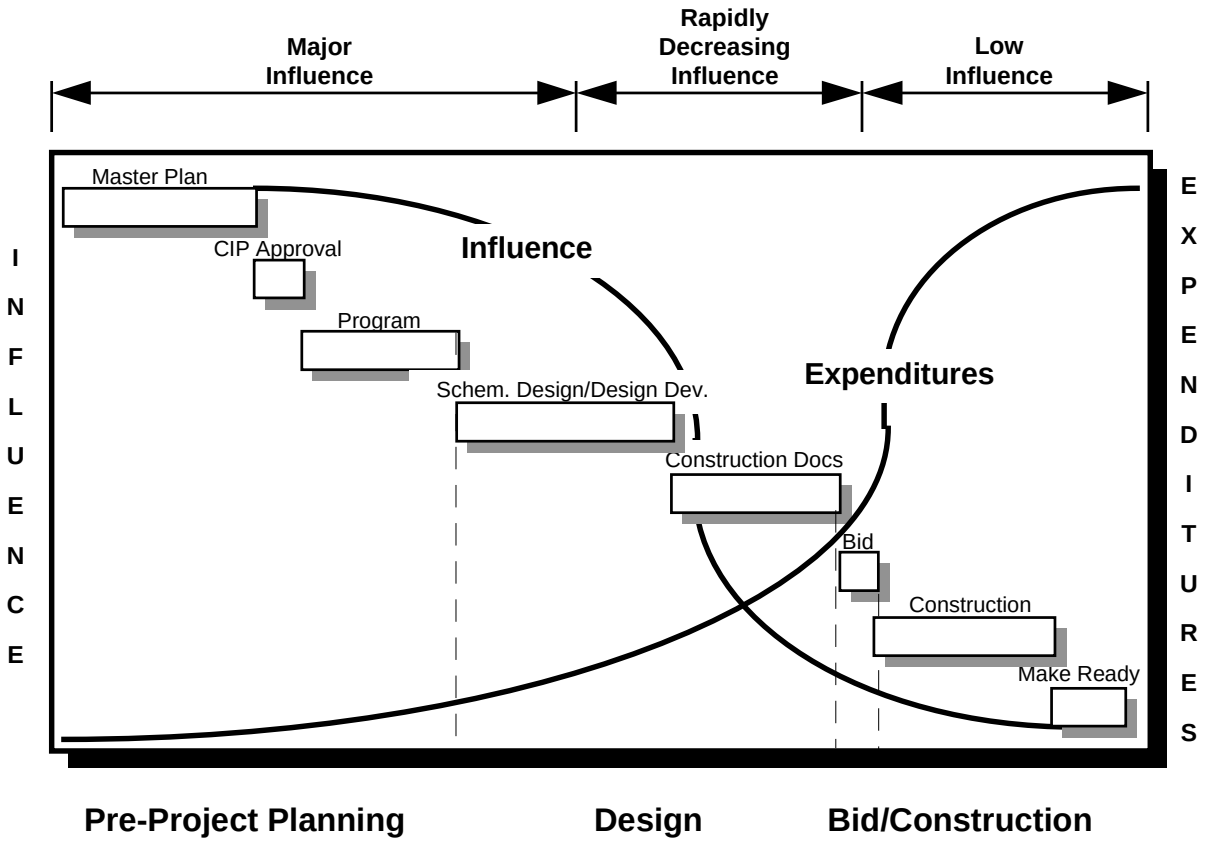


Figure ii.1: The curve labeled "influence" reflects an institution's ability to affect the outcome of a project during the various stages of a project.

An analysis of projects completed during the three-year period, FY93, FY94 & FY95, by The University of Texas System indicates there is room for improvement. Construction change orders totaled approximately $33 million; these occurred over $425 million of projects constructed. Scope changes, which typically are a result of incomplete planning, have led to cost increases on 26 percent of the construction contracts and 64 percent of design contracts during the same period. Scope changes have also led to schedule increases on approximately 20 percent of construction and design projects during that time interval.

The Process

The Board of Regents has adopted a process for capital projects. This process has the following goals:

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

The process is diagrammed in *Figure ii.2*.

The CIP process requires each institution to submit a facility program to the Chancellor, via the appropriate executive vice chancellor, for approval before the project architect-engineer may be selected. The Chancellor will then appoint the project architect-engineer after selection following the Professional Services Procurement Act, Texas Government Code. (The facility program will be included as a part of the A-E Agreement.)

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.

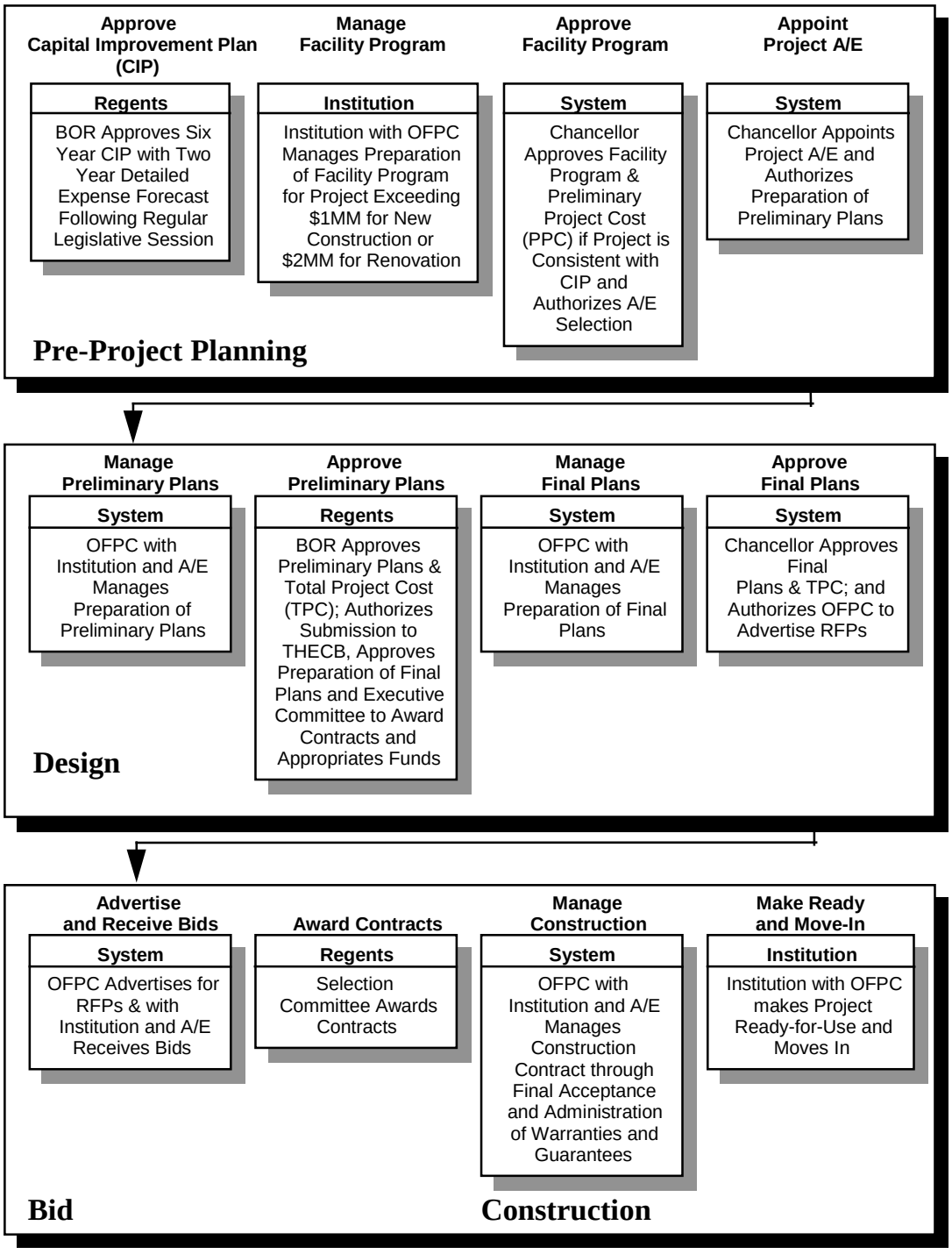


Figure ii.2: Diagram of the Capital Improvement Program project delivery process

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 institution's needs.

What a Program Will Do

When the programming is complete, the institution 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 campus 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, risks and plan of execution
- The Chancellor's requirements and concerns in the authorization process

How to Use These Guidelines

This document is a checklist for what should be contained in a typical building program. By addressing all of the applicable parts of these guidelines, the institution will have a facility program ready to submit to the Office of the Chancellor.

The guidelines are intended to help the A*d Hoc* Building Committee complete its task. The committee chair can use these guidelines to measure the progress of the committee and make assignments to gather missing information.

The business environment at each institution is different, and every project differs in terms of size, complexity and cost. **Each institution must adapt these guidelines to meet its own needs.**

These guidelines are generic. There are probably parts that do not apply to a particular project. If this is the case, *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 institution. When this occurs, use the more familiar terms.

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

When preparing the program, 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 help The U.T. System Administration review all of the program submittals from each institution (and approve them to move into design).

If a chapter or section does not apply; state so in the program and then skip over that part, but do not re-number the chapters.

A good place to start is by reviewing the List of Programming Tasks in Chapter *iv*.

OFPC is Ready to Help

The Office of Facilities Planning and Construction is responsible for reviewing each program before it is forwarded to the Chancellor for approval. As the institution is preparing the program, OFPC is available to answer questions about these guidelines, provide technical support, and otherwise help the institution develop a complete program.

iii Getting Started

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

1. The President of the institution should appoint a team to provide data and review conclusions.
2. When appropriate, select outside consultants to assist in preparing the program. (Unless the institution has experienced staff available to devote time to the task, outside consultants are required for most programming assignments.)
3. Prepare a schedule of what will occur during the programming process and review it with OFPC. This will allow OFPC to participate at appropriate times during programming. An example of a programming schedule is included later in this chapter.
4. Identify all of the participants that should be involved in the programming process within the institution and OFPC. Typical institution participants might include representatives from user groups, Physical Plant, Business Affairs, EH&S, Capital Projects, etc. Consider involving the participants in a team building process to facilitate team performance.
5. Document the decision making process. Identify who is responsible for each action and who has the authority to approve information and make each decision.

Skills Required to Prepare a Facility Program

Whether the facility program is prepared internally or with the assistance of outside consultants, be prepared to assemble a team with skills in each of the following areas:

- 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 & 7)*
- Technical building standards, engineering requirements, and building design criteria *(see chapter 8)*
- Preparing a project budget and schedule *(see chapters 9 & 10)*
- Dealing with specialized requirements included in this project
- Ability to facilitate and draw information out of people, and lead the project team

Although consultants and other experts may be significantly involved in this process, the owner must assure that it is being performed properly and follows the particular needs of the institution.

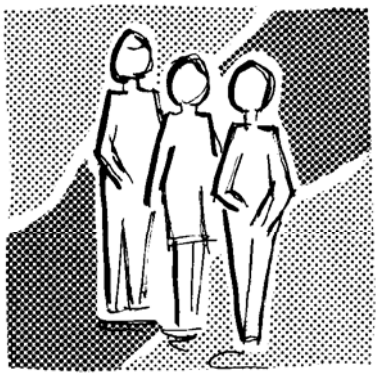
Professional Assistance

If an institution does not have qualified in-house staff who are skilled in providing the information asked for in these guidelines, outside consultants should be retained. These consultants are called "facility programmers." They are the individuals who will expand the project outline into a fully defined set of requirements for use by the project architect-engineer in design of the project. Ideally, the programmer should also be skilled at building and leading teams. There are two types of facility programmers:

1. Programming Consultants:

Although usually trained as architects, facility programming consultants do not design buildings. They specialize in defining and organizing the project's requirements. The advantage to using a separate programming consultant is their *expertise and focus on programming*. The programming consultant can also serve as a check and balance after the design architect-engineer is selected to assure the requirements contained in the program are being incorporated in the design.

2. Architects/Engineers:



Many architects and engineers are also trained in programming. An advantage of selecting an architect-engineer to prepare the program is continuity when the project later moves into design. A disadvantage of using an architect is a tendency to begin designing the project before the program is complete. In other words, the architect may try to find a design solution before fully understanding the needs of the project.

OFPC can provide guidance and help an institution select the right consultants for each project.

The most common scenarios for preparing a program are:

- The program is prepared in-house or a specialized programming consultant is engaged by the institution to help prepare the program. Once the program is complete, and is approved by the Chancellor, OFPC and the institution may undertake the A/E selection process. The Chancellor will then appoint the selected A/E.

-or-

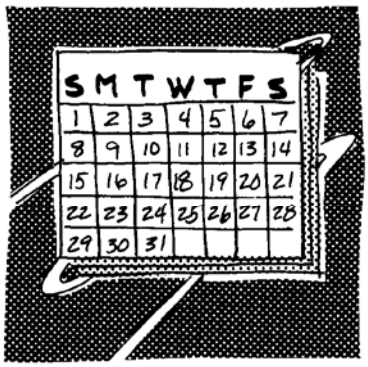
- OFPC and the institution may undertake the A/E selection process to select an A/E to prepare the program. The Chancellor will then appoint the selected A/E. Once the program is complete, the A/E's contract may be extended for design, or a new A/E may be selected.

-or-

- OFPC and the institution may undertake the A/E selection process with the A/E using a specialized programming consultant as a sub-contractor to prepare the program. Once the program is complete, the A/E's contract may be extended for design, or a new A/E may be selected.

Note: The A/E selection process must follow the Professional Services Procurement Act, Texas Government Code.

The 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 institution must prepare a schedule of the activities that will occur during programming, including who will be responsible for each activity. Please send a copy of this schedule to OFPC so they can participate at key dates. OFPC wants to help the institution.

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 manual. The programming schedule deals only 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; complex projects will take longer.

Programming Schedule

Task	Assigned to:					Timeline								
						Weeks								
	Chair	Committee	Subcommittee	Consultant	OFPC	1	2	3	4	5	6	7	8	9
Pre-programming conference with: • OFPC • Institution • Facility Programmer To review the scope of work and develop this schedule of what needs to be done														
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														

Figure iii.1 Mock-up of a programming schedule

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

Note: The programming schedule should call for at least three project review meetings:

at 50% complete
at 90% complete
at 100% complete

Progress review meetings should occur at least once each month during programming. If the programming takes longer than three months, increase the number of meetings accordingly.

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

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 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.

The Rest of this Manual

The Introductory Materials chapter has been written to introduce the concept of programming to the institution. Each of the following chapters in this document are mock-ups of what needs to be submitted in a facility program. From this point forward, this manual becomes a storyboard of the work to be done.

Text Notation Marks

There are three types of graphic "bullets" used in this manual. The bullets are adjacent to the text to inform the user of important information that needs to be noted. The following is an example of each type of bullet and a description of what it means:

Tells the reader that a page (or pages) needs to be included in the submitted program.

Identifies specific information the submitted program should contain.

- Further defines a preceding concept.

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, the institution and OFPC should meet 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 chapter listed after each item refers to chapter in these *Facilities Programming Guidelines.*

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

Programming Schedule *(chapter iii)*

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

Project Goals *(chapter 3)*

- ❑ A statement of agreement with the institution's mission and objective.

- ❑ A statement of agreement with the institution's strategic plan.
- ❑ A statement that the project follows the institution's master plan
- ❑ A description of the programs and curricula 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 Coordinating Board's space model for this institution

Space and Adjacency Requirements *(chapter 4)*

- ❑ A summary space list of all areas in the project
- ❑ At least one overall adjacency diagram
- ❑ At least one stacking diagram (if 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

Supporting Requirements *(chapter 5)*

- ❑ A list of any additional EHS requirements applicable to the project
- ❑ 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 *(chapter 6)*

(May not apply to interior renovation projects)

- ❑ An analysis of the site or sites under consideration
- ❑ An analysis of site- or institution-specific environmental or safety considerations

Existing Facilities Studies *(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 *(chapter 8)*

- ❑ List of all of the applicable codes and standards
- ❑ List of governmental agencies that have jurisdiction over the project
- ❑ List of the U.T. System's technical and design standards that apply to this project
- ❑ List of the institution's technical and design standards that apply to this project

Preliminary Project Cost *(chapter 9)*

- ❑ A preliminary project cost estimate using the OFPC format

Project Schedule *(chapter 10)*

- ❑ A preliminary schedule for the project using the OFPC format

Implementation Approach *(chapter 11)*

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

Information Specific to this Institution *(chapter 12)*

- ❑ Any institution requirements that will have an impact on the project

Selecting a Project Delivery Method *(chapter 13)*

- ❑ Any institution requirements that will have an impact on the project

Executive Summary *(chapter 2)*

- ❑ A synopsis of all areas in the program

Sign-Offs *(chapter 1)*

❑ A sign off page with appropriate approval signatures.

1 Sign-Offs

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

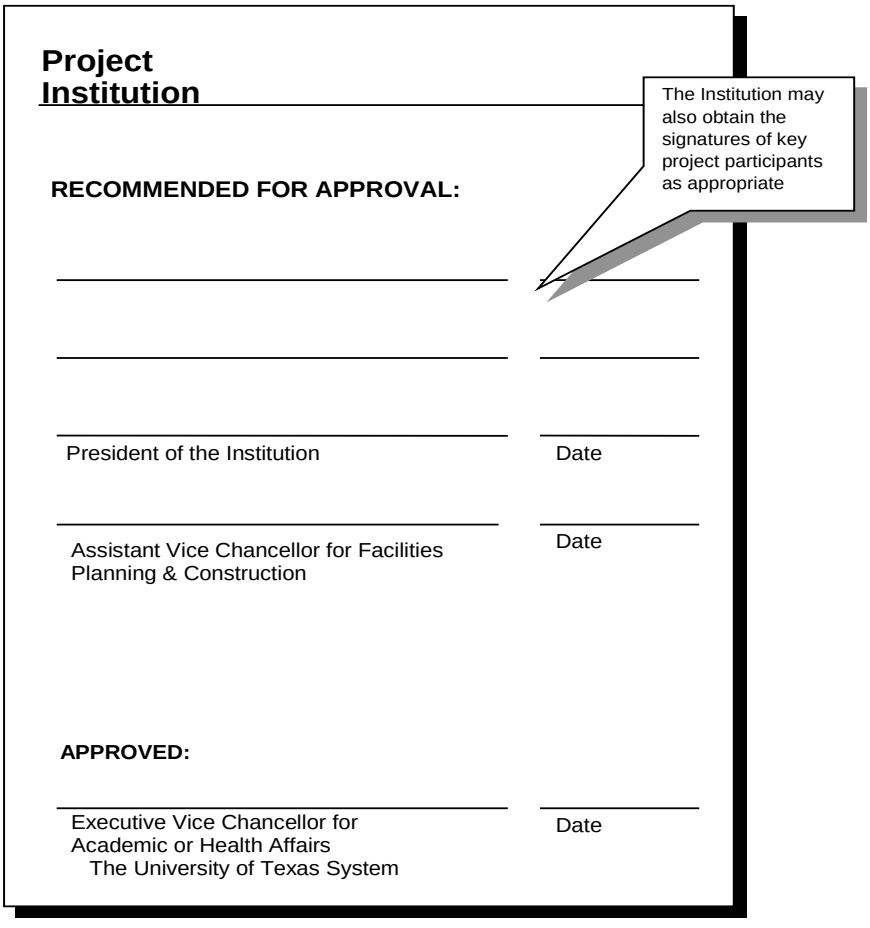
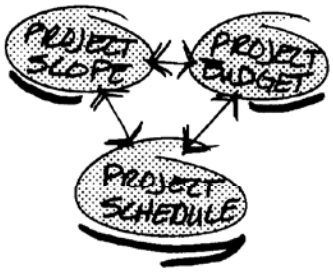


Figure 1.1 Format for the program sign-off sheet.

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.



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 classrooms, labs, meeting rooms, etc.)
- ❑ Projected size in assignable and gross sq.ft.

❑ Proposed location and why this site was selected

Project Budget

❑ List the preliminary project cost (PPC) from Chapter 9

❑ List the preliminary project cost per gross sq. ft. (if appropriate)

❑ Identify any unusual costs that are included in the PPC (such as land purchase, demolishing existing facilities, expenses for environmental remediation, etc.)

Project Schedule

❑ Summarize the milestone dates associated with the project including:

- Chancellor's appointment of the project Architect/Engineer to prepare preliminary plans
- FPCC Approval
- Board of Regents' approval of preliminary plans and authorization to begin final plans
- THECB Approval
- Construction Notice To Proceed
- Construction Substantial Completion
- Owner Operational Occupancy/Move-in

❑ Identify any major stages of the project:

- To pre-purchase equipment such as boilers, chillers, cooling towers, etc.
- Advertise for Request For Qualifications and/or Request For Proposals, and award within the overall project such as site

- preparation, demolition, infrastructure contracts, etc.

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 institution. This chapter should also address the requirements of the Texas Higher Education Coordinating Board.

Institution's Mission Statement and Objectives

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

Compliance with the Institution's Strategic Plan

- Briefly explain how this project fits into the context of the institution's strategic plan. Note how it will support the academic direction of the institution, and how this project is rationalized in terms of overall need for at least the next five years.

Compliance with the Institution'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.

Functional Programs Curricula Descriptions and Projections

❑ Interpret how the institution's academic program will be supported by this project. Describe which functional programs will be housed in this project, the courses to be taught, and the numbers of students projected.

Project Need

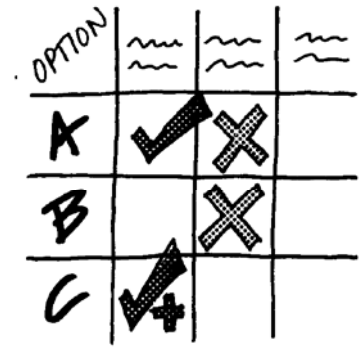
❑ This section should include a ***brief*** description of the intent of this project. It should summarize the *status quo* and explain why the project is needed. It should also present the benefits to be gained by this project and the probable impact if it is not built. If it is necessary to include a lengthy discourse to present additional background material, move it to chapter 12 of the program or to an appendix.

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

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

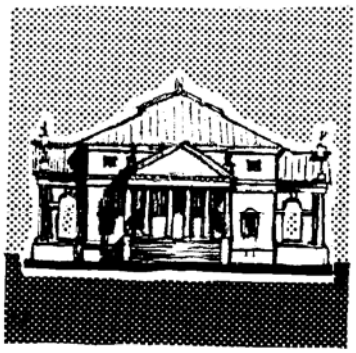
- Sharing other facilities
- Renovating an existing building instead of building new
- Using additional technology to reduce the need for more space
- Other sites

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



Project Objectives

Project objectives are different from the institution'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."



Project objectives can be either **outcome** objectives *(what the project accomplishes)* or **process** objectives *(how the project is accomplished)* or both. Examples of written objectives include:

- 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 campus by using similar materials, colors, and finishes
- To foster interaction between faculty from different departments
- To maintain ongoing facility activities during the renovation
- To minimize vehicular traffic on an already congested part of the campus

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

Compliance with THECB Space Model

The Texas Higher Education Coordinating Board (THECB) has the statutory authority to approve or disapprove new construction, renovations, and property acquisitions funded with state money at public institutions of higher education.

The *Space Projection Model for Higher Education Institutions in Texas* guides the Coordinating Board in its approval or disapproval of new construction and renovation projects at academic and health-related institutions.

- The facility programmer and institution should include a statement in the facility program affirming that the **assignable** square footage for the proposed project does not cause the institution's actual **assignable** square footage to exceed the predicted **assignable** square footage in the Model, (or if an excess of space for one factor can be justified by looking at the totals for the entire campus).

- The facility program should be prepared using the Coordinating Board's definitions for square footage given in Appendix C.

- The program must clearly summarize in table form, the number of rooms and assignable square footages for each of the rooms. The room types and CIP codes should be taken from *The Texas Higher Education Facilities Inventory Proceedures Manual*.

Allocation of Assignable Sq.Ft. in the Project

Number of Rooms	Room Type	CIP Code	Total ASF

- The facility programmer should work with the institution's office of institutional research (or studies) to determine the room type and CIP code for the rooms in the proposed project. They are familiar with the Coordinating Board's policies and procedures and maintain the institution's facilities inventory.

4 Space & 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 architects 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 academic or functional programming used to justify the project. For example:

- Number of full-time equivalent students
- Class size and courses offered
- Number and frequency of medical procedures
- Business plan, etc.

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

Facility programs for The University of Texas System projects should include each of the following topics, preferably in the order listed below. Each of these topics will be explained on the following pages.

Related to the Entire Building:

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

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

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 assignable and non-assignable*** (refer to Appendix C for definitions). The assignable and non-assignable spaces are combined to obtain gross square feet.

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

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

Remember, in most cases, according to a Coordinating Board goal, gross square feet should be less than or equal to assignable square feet multiplied by 1.67.

Summary Space List

Space	Assignable Square Feet	Refer to Page No.
Assignable Spaces		
Administrative Offices	4,600	69
Auditorium	2,800	23
Building Lounge	1,600	21
Center for Urban Research	1,240	43
Classrooms	19,900	28
Commons	1,800	58
Computing Facility	5,000	53
Faculty Offices	6,000	45
Food Service Cafeteria	2,500	56
Furniture and AV Storage	800	28
Library	5,000	49
Maintenance	1,860	74
Multi-purpose Room	1,600	26
Office of Extended Education	400	72
Student Services & Bursar's Office	3,000	65
Study Alcoves	1,600	68
Vending Alcoves	400	62
Total Assignable Sq.Ft.	**60,100**	
Non-assignable Spaces		
Janitor closets (1 per floor)	400	75
Mechanical rooms (1 per floor)	1,000	76
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
Toilet rooms	3,000	
Loading dock	1,000	
Corridors and wall thicknesses	22,000	
Total Non-assignable Sq.Ft.	**35,800**	
Total Gross Sq.Ft.	**95,900**	

This column refers to page numbers in the programming document

Figure 4.1 Example of a typical Summary Space List Spreadsheet

Overall Adjacency Diagram

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

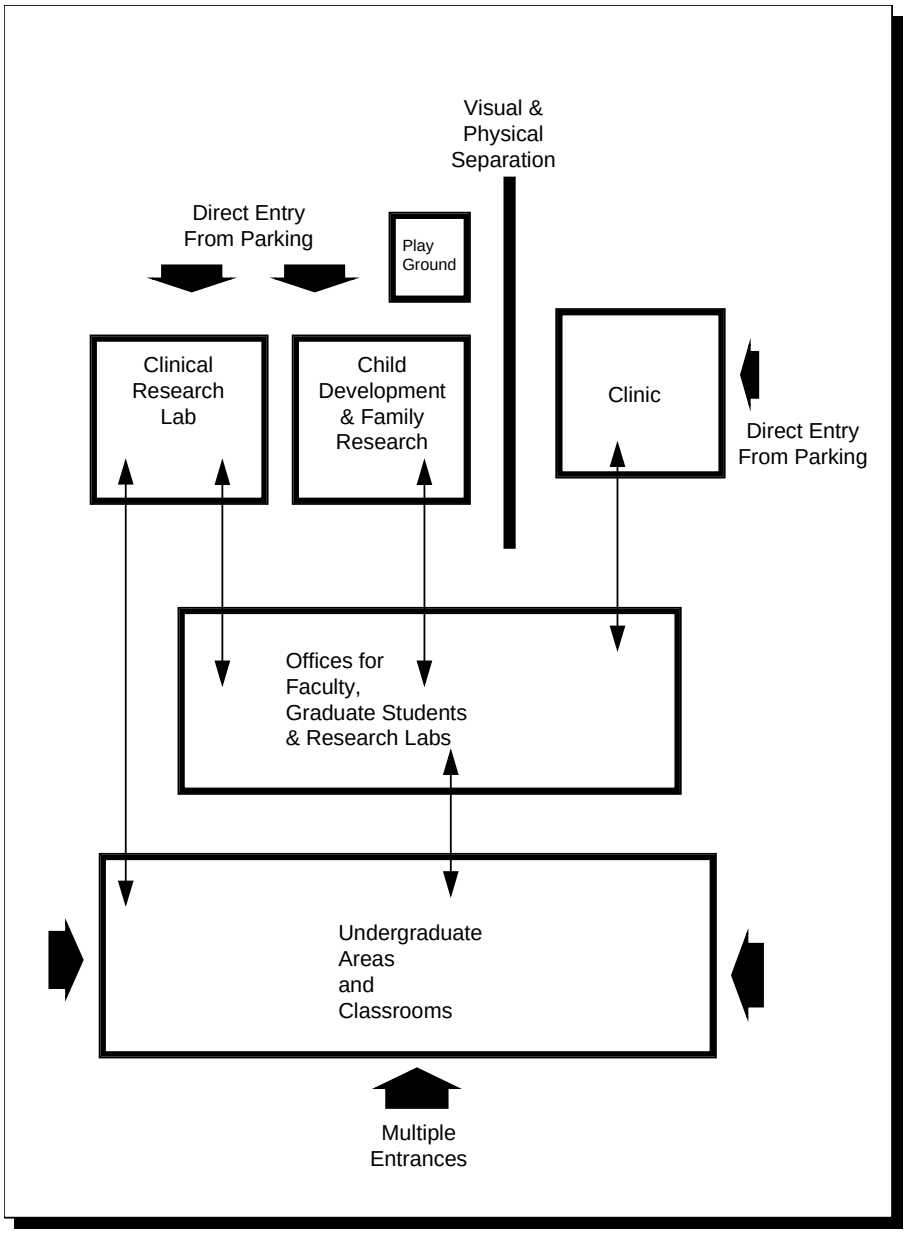


Figure 4.2 Example of an Overall Adjacency Diagram

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 those rooms should be drawn next to each other. Movement, or a sequence of events, can be conveyed with arrows.

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-assignable area will be distributed throughout the building. (Example: how much of the mechanical equipment will be on a single floor?), the stacking diagram may show only non-assignable areas.

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

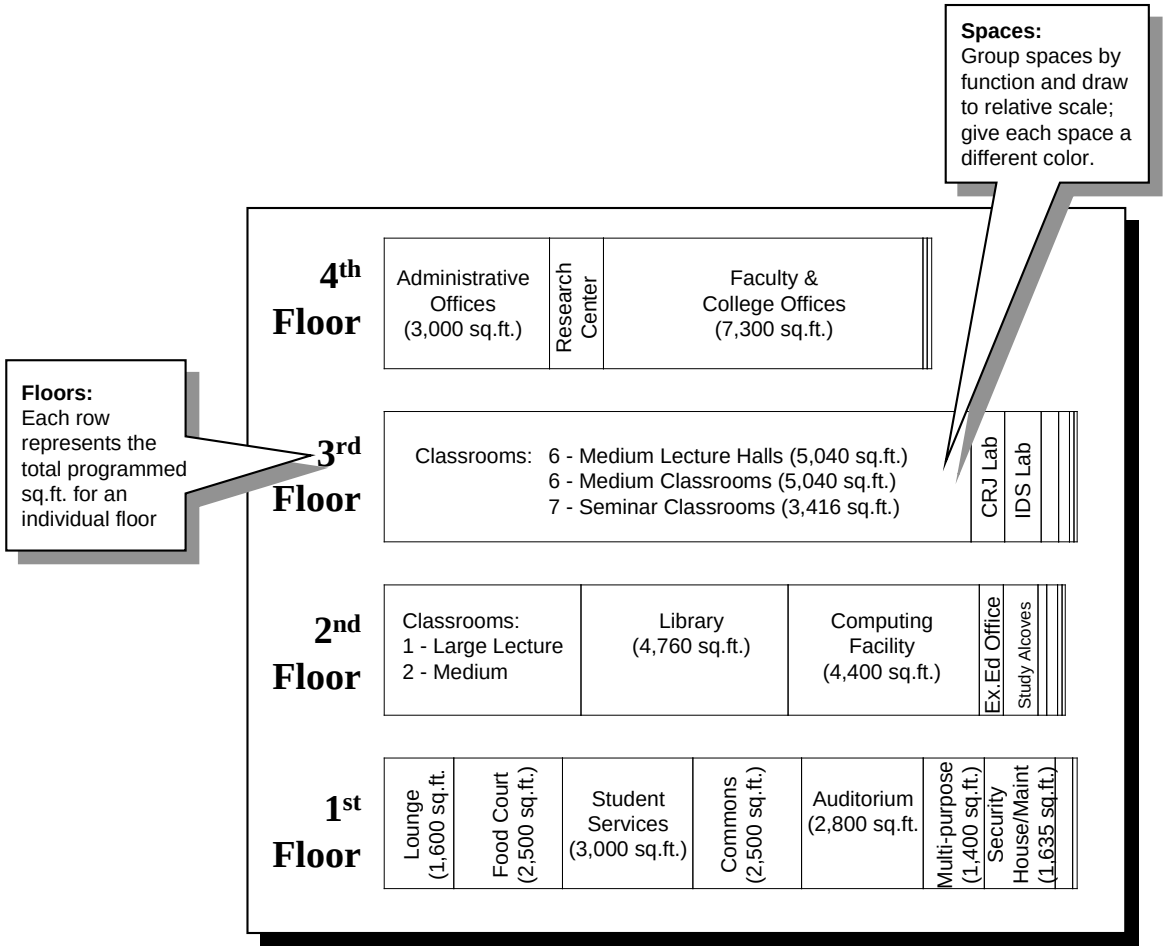
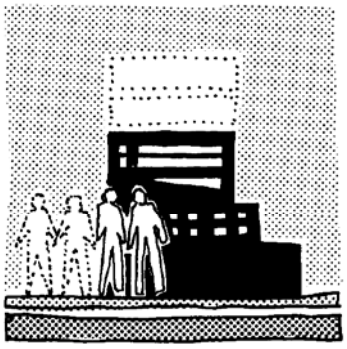

Spaces:
Group spaces by function and draw to relative scale; give each space a different color.
Floors:
Each row represents the total programmed sq.ft. for an individual floor
4th Floor
Administrative Offices (3,000 sq.ft.)
Research Center
Faculty & College Offices (7,300 sq.ft.)
3rd Floor
Classrooms: 6 - Medium Lecture Halls (5,040 sq.ft.)
6 - Medium Classrooms (5,040 sq.ft.)
7 - Seminar Classrooms (3,416 sq.ft.)
CRJ Lab
IDS Lab
2nd Floor
Classrooms:
1 - Large Lecture
2 - Medium
Library (4,760 sq.ft.)
Computing Facility (4,400 sq.ft.)
Ex.Ed Office
Study Alcoves
1st Floor
Lounge (1,600 sq.ft.
Food Court (2,500 sq.ft.)
Student Services (3,000 sq.ft.)
Commons (2,500 sq.ft.)
Auditorium (2,800 sq.ft.
Multi-purpose (1,400 sq.ft.)
Security House/Maint (1,635 sq.ft.)

Figure 4.3 Example of a Stacking Diagram

Although combining functional adjacencies and space requirements drives a stacking diagram, many times it should also reflect the probable site of the project and the campus 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 & 7.)

Growth and Phased Development

Many buildings are designed for expansion 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 occuring 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?

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.

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 assignable and non-assignable areas.**

Classrooms: Summary

Description of Space Requirements

		Name of Room	Seating Capacity	Sq.Ft. per Room	Total Area
Classrooms:	1	Large Lecture Hall	120	1,928	1,928
	2	Medium-large Lecture Halls	65	1,300	2,600
	6	Medium Lecture Halls	42	540	5,040
	6	Medium Classrooms	42	540	5,040
	7	Seminar Classrooms	25	488	3,416
				Sub-total	18,824
Specialized Classrooms:	1	Forensics Instructional Lab	40	776	776
	1	Technology/Science Laboratory	32	840	840
				Sub-total	1,616
				Total Sq.Ft.	**19,630**

Group by function: Multiple spaces of different types, but of similar function can be grouped together on the same Space Detail Sheet

Figure 4.4 Example of a Space Detail Sheet

In *Figure 4.4*, to support a line item entry on the summary space list entitled ***"classrooms,"*** the space detail sheet contains information about the capacity, quantity, and mix of each different type of classroom, plus a description of the size and desired configuration of each of the classrooms.

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).

Room-by-Room Functional Relationship Diagram

Functional relationship diagrams, similar in concept to the example shown 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.

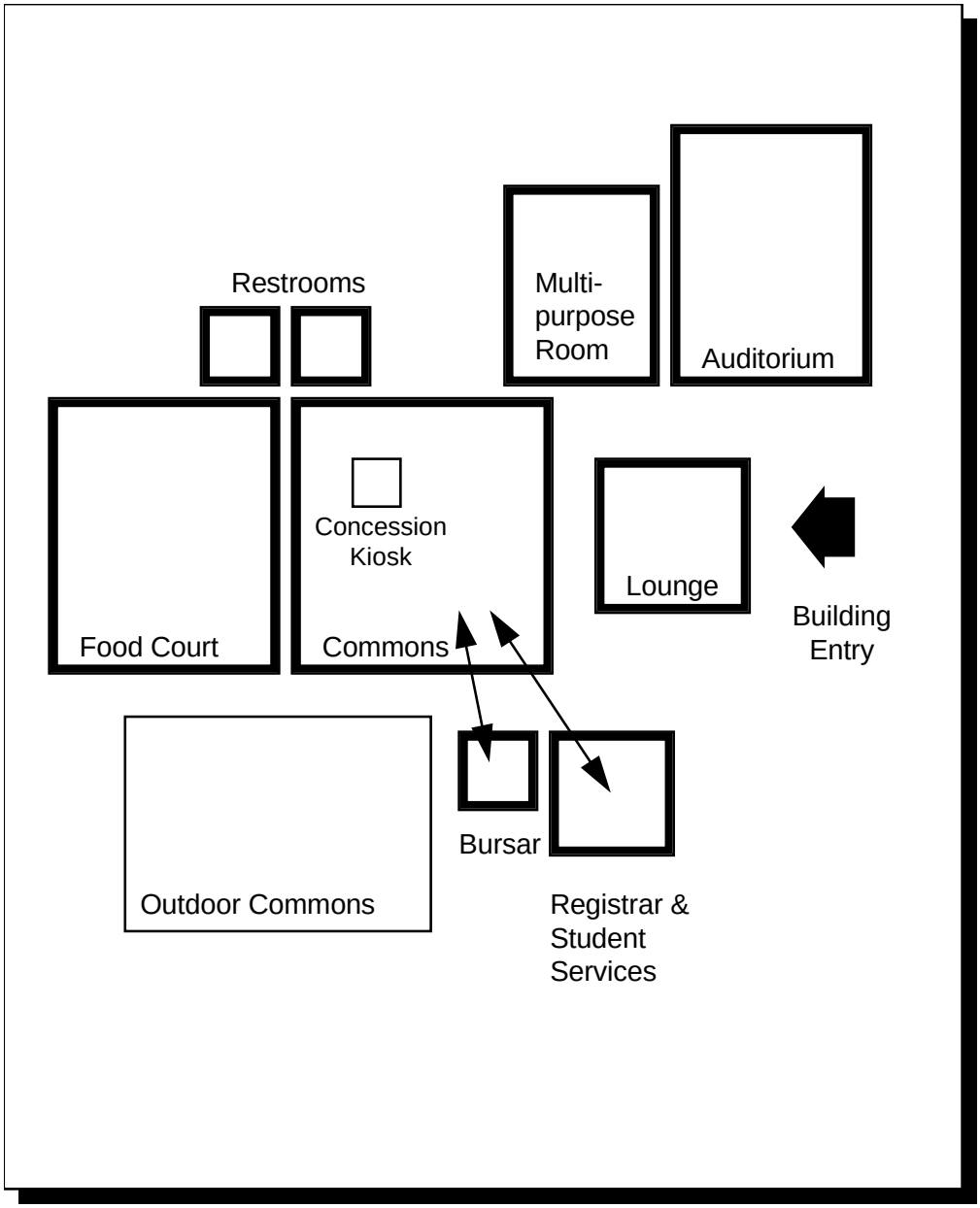


Figure 4.5 Example of a Room-by-Room Functional Relationship Diagram

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 Classroom

Special Technical Requirements:

- Raised computer flooring
- No carpeting
- Sufficient power and cooling for 120 computers
- Controlled access
- 24-hour per day operation
- Step-switched lighting to allow different illumination levels

Special Furnishing Requirements:

- 120 desks for student stations
- 120 chairs for student stations
- Service area for 3 staff

Special Equipment Requirements:

- 120 student personal computers
- one or two server systems
- High speed laser printer
- Approx. 20 lower speed printers
- 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.

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.

List 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.

Also, identify any new items that have a long delivery time and should be ordered early.

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 tile
- Walls: painted

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.

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.

Special Access

List any special access requirements on the room data sheets. Examples might include:

- This room is open 24 hours
- This room is used by students during the evenings
- This room is used after normal hours but only by authorized graduate students or faculty
- This room is secured when the building is closed
- This room can only be used by students if a faculty member is present
- Etc.

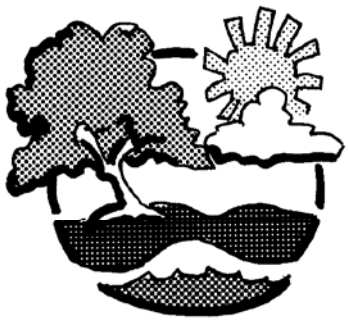
5 Supporting Requirements

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 specific characteristics of a given site is documented in *Chapter 6*.

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

EHS Requirements



With input from the Institution's EHS group, describe this project's needs in the following areas as they apply to this project:

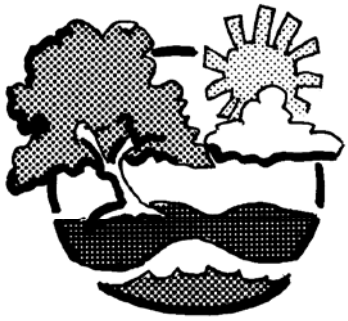
- Air
  - New Construction – New Source Review
  - Operating Permits
  - State Air Quality Codes
- Water
  - No unauthorized discharges
  - TPDES MS4 & Construction
  - Indirect discharge permits
- Waste
  - Storage and Disposal
- Endangered species, historical, archaeological
  - Survey, findings & mitigation

- Special BSL3 & BSL4 Lab
  - Design issues and security controls
- Asbestos and Lead
  - Survey and abaitment
- Emergency Response
  - Who to Contact
  - What to do

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.

- Students and faculty
- The general public

❑ Describe how vehicles should access the building;

- VIPs
- The general public
- Service vehicles
- Delivery trucks
- Emergency vehicles

❑ Is a drop-off area for busses or private cars needed near the building?

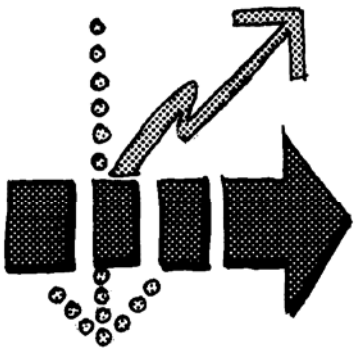
❑ What are the parking requirements associated with this project?

❑ Define any other unique site development issues that are related to this program.

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. In order to provide adequate utility service to the project from campus infrastructure, the programming

team should identify and communicate to the Owner an order of magnitude anticipated utility demand (volumes, rates and pressures) for the project for the following utility systems:

- Thermal energy (chilled water & steam)
- Electricity
- Water (potable, fire and irrigation)
- Sanitary sewer
- Storm sewer and detention
- Natural gas
- Etc.

❑ Will utilities be available when this project requires them?

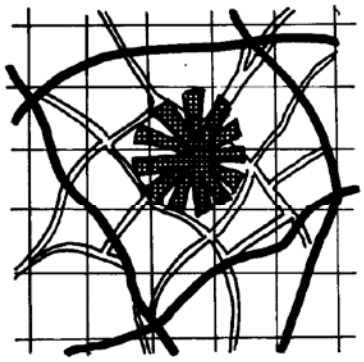
❑ Describe the audio-visual, data and telecommunication links required for this project.

Security Requirements

❑ Refer to the U. T. System OFPC Security Planning and Design Guidelines (latest edition). Complete the Chapter 1 – Security Assessment process in the guidelines and record the findings in this chapter of the program. Review Chapter 2 – Security Planning and where possible determine the preliminary security mitigation measures and record those recommendations in this chapter of the program. Estimate the anticipated cost for these measures and include in the Preliminary Project Cost (PPC) budget in program Chapter 9.

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 institution's master plan?
- What impact will this project have on the campus?
- Is the project compatible with adjacent land use? Traffic patterns? Way-finding? 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)

- ❑ A comprehensive Category 1A Land Title Survey, showing vesting deed(s) information, all easements, including visible and apparent, other matters of records, site boundaries, and applicable setbacks, if any. This may require a title commitment or other title investigation. Please call The University of Texas System's Real Estate office if you have questions or need help. The Real Estate office may have access to deeds or other title information.
- ❑ Topographical survey
- ❑ Geotechnical survey
- ❑ Description of existing landscaping
- ❑ Extrordinary drainage requirements and a plan to contain storm water runoff
- ❑ Any existing construction or utilities on the site
- ❑ Description of any known prior uses of the site
- ❑ Description of any known environmental issues that would limit use of the site, necessitate additional project costs such as hazardous waste cleanup, or require development of special operating protocols
- ❑ 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

Figure 6.1 shows an example of a site analysis diagram illustrating pedestrian flow.

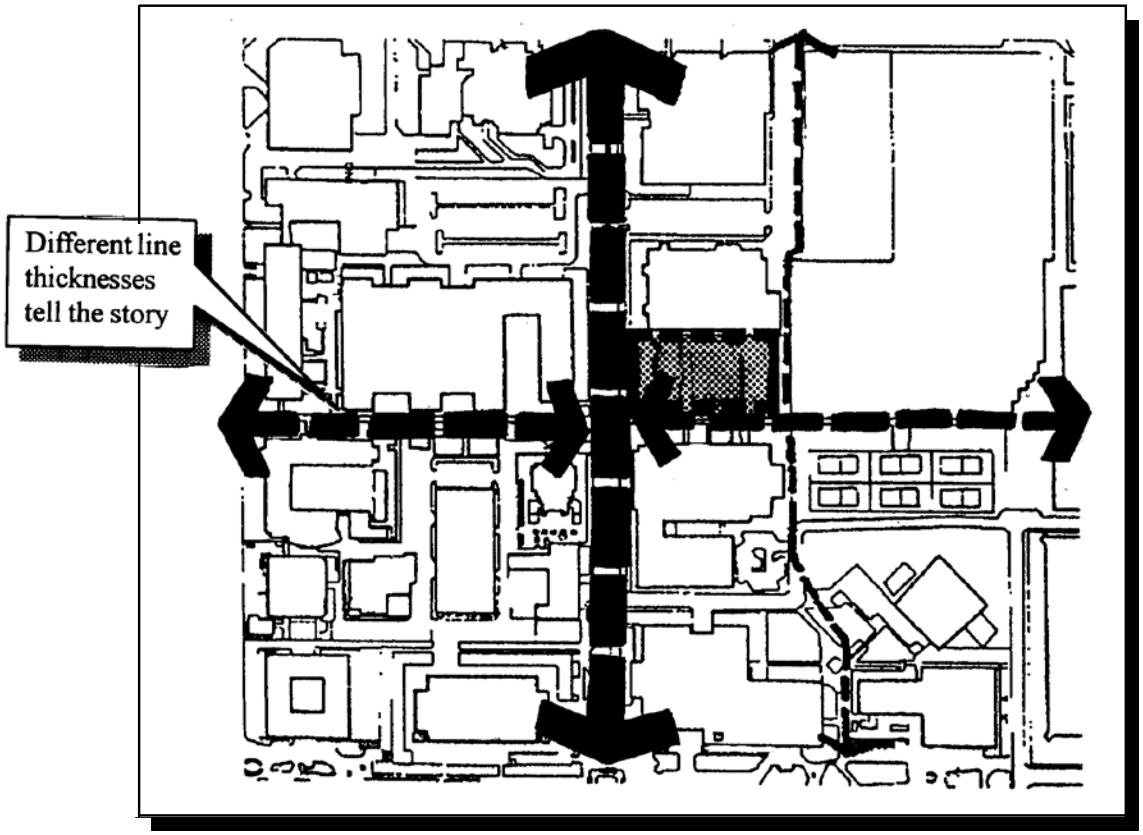


Figure 6.1 Example of a Site Analysis Diagram for Pedestrian Flow.

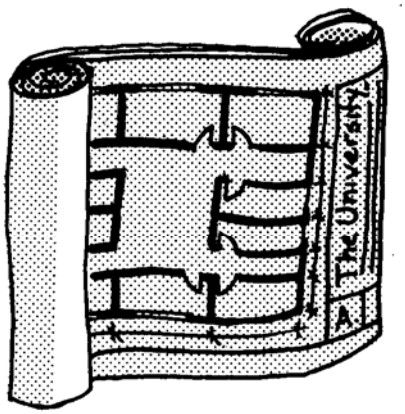
7 Existing Facilities Studies

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 for each of the following issues:

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.



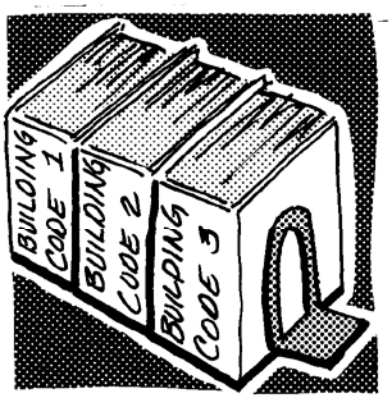
Extent of the Remodeling

- ❑ 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.

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.



Hazardous Materials

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

Temporary Facilities

❑ Describe any temporary or interim facilities that will be required until the project is completed. These might include:

- Space for faculty and staff
- Classrooms and labs
- Storage space for boxed files, newly ordered equipment, etc.
- Data and telecommunication links to other locations
- Parking

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

Existing Utilities Studies

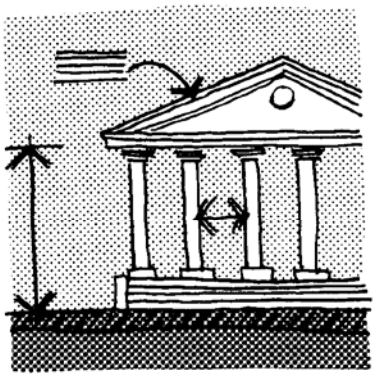
❑ Is the existing facility served by sufficient utility capacity for:

- water
- sanitary sewer
- storm sewer or detention
- natural gas
- electricity
- thermal energy
- (chilled water and steam)
- data
- communications
- etc.

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

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:



Codes 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 & 6
- They may affect the Preliminary Project Cost (chapter 9)
- Regulatory approval processes may affect the project schedule (chapter 10)

The State Fire Marshall is the code authority having jurisdiction (AHJ) for all issues pertaining to NFPA 101 Life Safety Codes. The U.T. System Office of Facilities Planning and Construction is the code authority having jurisdiction (AHJ) for U.T. System construction projects constructed on land owned by the state for all codes other than NFPA 101 Life Safety Codes. OFPC is

responsible for facilitating resolution of conflicts and interpretations for these non-NFPA 101 codes after a thorough and joint discussion with the Institution. Construction on land not owned by the state is under local jurisdiction. OFPC reviews projects for compliance with the current OFPC approved editions of the following codes and standards. Refer to the Owner's Design Guidelines Appendix C for a current codes and standards list:

- National Fire Protection Association (NFPA) Standards, with emphasis on NFPA 101 Life Safety, including all referenced standards
- International Building Code
- International Mechanical Code
- International Plumbing Code
- National Electric Code
- Texas Department of Licensing and Regulation, Elimination of Architectural Barriers Act
- Americans with Disabilities Act, 28 CFT Part 35
- ACI - 318, building code requirements for reinforced concrete
- AISC, specifications for the Design, Fabrication and Erection of Structural Steel
- FEMA 100 year flood
- Energy Conservation Design Standards for New State Buildings, State Comptroller's Office, State Energy Conservation Office.

The nature of a project may dictate that other more specific codes, regulations or standards would apply. Compliance with these requirements would also be reviewed by OFPC. 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 also have jurisdiction over typical U.T. projects and may regulate the design and construction of the facility. The authority having jurisdiction will review compliance with these requirements, and their review processes shall be investigated and identified. OFPC will provide assistance to the institution in achieving compliance, if requested. Examples of these include:

- **Environmental Protection Agency**, for compliance with environmental protection requirements
- **Texas Department of Licensing and Regulation, Elimination of Architectural Barriers Division**, for compliance with state requirements and the Americans with Disabilities Act
- **Texas Commission on Environmental Quality**, for environmental conservation and management (i.e.: TPDES Storm Water, Air Permit, Water Pollution Abatement Plan & FEMA Flood Plain Management Standards)
- **Texas Historical Commission**, for historic landmark designation
- **Texas Antiquities Commission**, for archeologically significant sites
- **Texas Department of Health,** asbestos or lead paint abatement
- **U.S. Fish and Wildlife Service,** threatened & endangered species
- Local land use restrictions (for example, Texas Medical Center deed restrictions)
- Community fire protection requirements (U.T. System component institutions enjoy fire protection provided by the local jurisdictions and therefore must coordinate requirements with the local fire department)
- Local historic districts
- Others

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.

❑ U.T. System Standards

OFPC has developed the following technical standards that apply to the design and construction of U.T. System projects and will provide assistance in interpreting these standards, if requested. OFPC maintains these standards 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

❑ Institution Standards

In addition, each component institution has locally generated technical standards or adaptations of the OFPC standards to suit the unique requirements of their campus and/or

climate, which are typically maintained by the institution's Physical Plant. Institutional 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)

Institutional Design Standards

Many institutions 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 institution's Campus Master Plan)
- Landscape/open space standards
- Color/material standards
- Furnishing standards
- Donor or benefactor requirements

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.

9 Preliminary Project Cost (PPC)

This Chapter deals with developing a preliminary project cost 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 preliminary project cost estimate that is as accurate as possible. It will also serve as a checklist for the elements to be considered in developing the Preliminary Project Cost.

Types of Cost Estimates

The U. T. System Capital Improvement Program 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 Capital Improvement Plan (CIP), with additional cost estimates planned at intervals throughout design to ensure that the project can be completed within the budget.

Preparing the Preliminary Project Cost

The Preliminary Project Cost (PPC) is a prediction of all costs involved in the project. It includes all of the following:

- Estimates for the construction contract award amount, including escalation and contingencies
- Professional fees
- OFPC or Institution managed furnishings
- Other work, outside of the construction contract award amount, managed by OFPC or the Institution
- Miscellaneous expenses
- Contingencies
- Administrative costs

The facility programmer should prepare the second project cost estimate (the first estimate was included in the CIP) using the OFPC format and include it in the facility program. The format for the Preliminary Project Cost sheet is shown in *Figure 9.1 and a full-size sheet is given in Appendix D.*

Notes for preparing the Preliminary Project Cost: Refer to the OFPC format:

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

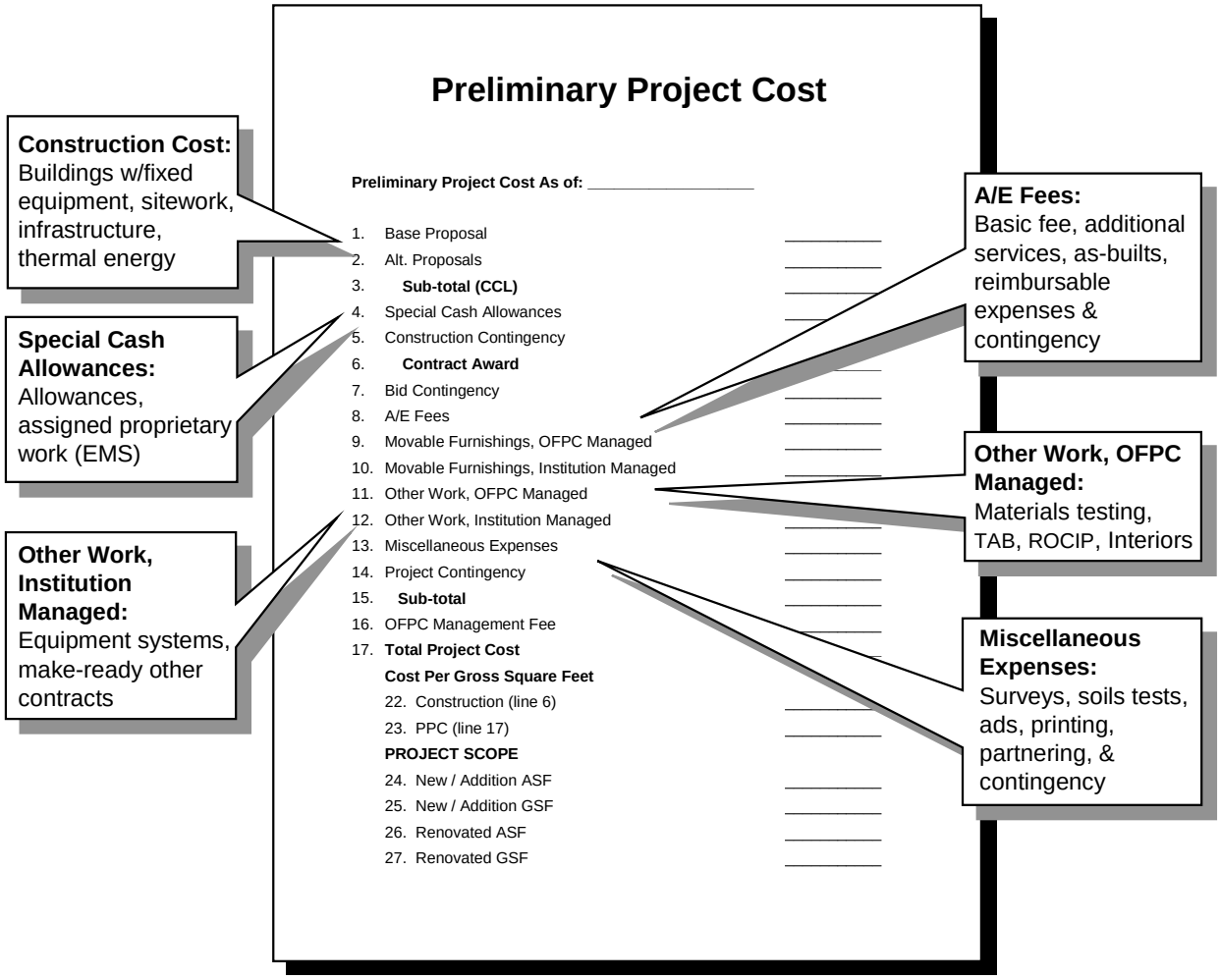


Figure 9.1 Format for a Preliminary Project Cost Project Information Form (PIF).

** If the Preliminary Project Cost exceeds the approved PPC, the Program shall identify areas of scope that may be reduced.

- Line 1, **Base Proposal**, is the estimated costs incurred to perform the Work in compliance with the Contract Documents, less Owner's Special Cash Allowances and Construction Contingency.

- Line 2, **Alternate Proposals**, is the estimated cost of alternates identified by the Owner prior to issuing a Request For Proposals, or the total of the alternates accepted by the Owner after receipt of CSPs.

- Line 3, **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 Architect/Engineer's design budget.

- Line 4, **Special Cash Allowances**, is the allowance for specific work identified by the PM that may not be fully scoped by the User at bid time, or may be part of a larger system that requires a proprietary product or system.

- Line 5, **Construction Contingency**, is an OFPC controlled contingency for unforeseen conditions and error/omission change orders that occur during construction.

- Line 6, **Subtotal (Contract)**, is the subtotal for lines 3 through 5. This is the amount expected from the Contrator, Construction Manager or Design-Build Contractor.

- Line 7, **Bid Proposal Contingency**, is an Owner controlled contingency to cover bid/proposal over-runs. Use 5% of line 3. *This contingency is contained within the Guaranteed maximum Price for projects using Construction Manager at Risk or Design-Build.*

- Line 8, **A/E Fees**, is the A/E fee for Basic Services as determined from the Construction Cost Limitation (Line 3 above) times the interpolated percentage (*The University of Texas System, Office of Facilities Planning and*

Construction, Architect/Engineer Fee Schedule). Also include amounts for additional services, reimbursable expenses, record drawings and contingency. *This fee is included in Preconstruction Services for Design-Build.*

❑ Line 9, **Movable Furnishings, OFPC Managed**, is the bare costs associated with furnishings and accessories managed by the OFPC Interiors Group. A budget should be established using the following 3 step process:

❑ Line 10, **Movable Furnishings, Institution Managed**, is the cost associated with furnishings and accessories managed by the Institution (breakdown provided by User).

❑ Line 11, **Other Work, OFPC Managed**, is the Costs associated with additional "large" contracts and other project costs managed by OFPC, which includes:

- Rolling Owner Controlled Insurance Program (1.76% of Line 6 above)
- Material Testing ($0.50-1/Gsf - New)
- Test & Air Balance ($1.50-2.50/Gsf - New)
- Interior Design Production Fee (12% of Line 9 above)
- Other costs as agreed to by OFPC Accounting

❑ Line 12, **Other Work, Institution Managed**, is the cost associated with equipment, security systems, make project ready costs, asbestos/lead abatement, telephone/data/ communications, interior remodeling, commissioning, parking, move from existing space, artwork, graphics, easements, vending machines, outside consultants, computers, etc… (breakdown provided User).

- Line 13, **Miscellaneous Expenses**, is the cost associated with site surveys, geotechnical reports, cast bronze plaque (material only), soils testing, printing, partnering, postage/over-night deliveries, advertising, constructability reviews, VOC testing, hazardous materials testing/monitoring, permits, additional consultants.

- Line 14, **Project Contingency**, is a contingency jointly controlled by OFPC and the User to protect the project against claims and to cover unforeseen project expenses not included in lines 1 through 15.

  - The contingency shall be no less than 3% of the subtotal of lines 6 thru 13.

- Line 15, **Subtotal**, is the subtotal for lines 6 through 15.

- Line 16, **OFPC Management Fee**, is the OFPC Administration Fee equals the Total Project Cost less Institutionally Managed budget line items (Lines 10 and 12 above) times the interpolated OFPC Fee Percentage, per the schedule below. (Refer to "A/E & OFPC Fee Matrix" as PAGE 4 of the PIF)

- Line 17, **Total Project Cost**, is the total for lines 15 and 16.

- Lines 22 & 23 **Per Gross Square Foot**, is the quotient of either line 6 or line 17 divided by the total GSF from lines 25 and 27.

- Lines 24-27, **New/Renovated ASF & GSF**, divides the project into four classifications. Divide the total GSF for the project among the categories for *New/Addition ASF and GSF* and *Renovated ASF and GSF* as appropriate.

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.

Preparing the Project Schedule

The facility programmer should develop the project schedule in consultation with OFPC and the institution. The schedule will include various milestones, any unusual schedule considerations, and submissions/ approvals by the Chancellor, FPCC, The Board of Regents, and The Texas Higher Education Coordinating Board. Following the Chancellor's appointment of the project Architect/Engineer, OFPC will work with the institution and the project Architect/Engineer to refine the schedule.

The facility programmer should document the project schedule in the facility program using the OFPC format for the Project Schedule. The format is shown in *Figure 10.1 and a full-sized sheet is given in Appendix D.*

CSP & CM	Select A/E	Advertise Request For Qualifications (RFQ)	mm/dd/yy
		Receive RFQs	mm/dd/yy
		Interview A/E	mm/dd/yy
		Appoint A/E - Chancellor	mm/dd/yy
		Execute A/E Contract - AVC FPC	mm/dd/yy
CM & DB	Select CM or DB	Advertise Request For Qualifications (RFQ)	mm/dd/yy
		RFQ Pre-Proposal Conference	mm/dd/yy
		Receive RFQs	mm/dd/yy
		Issue Request For Proposals (RFP)	mm/dd/yy
		Receive RFPs	mm/dd/yy
		Interview CM/DB	mm/dd/yy
		Approve Award - EVCBA	mm/dd/yy
		Issue NTP - Part I Services (Preconstruction)	mm/dd/yy
CSP, CM & DB	Schematic Design	Authorize A/E/DB Start	mm/dd/yy
		Submit for Owner Review - A/E/DB	mm/dd/yy
		Joint Review for Owner Comments	mm/dd/yy
		Approve Schematic Design - OFPC ADPM	mm/dd/yy
	Design Development	Authorize A/E/DB Start	mm/dd/yy
		Submit for Owner Review - A/E/DB	mm/dd/yy
		Joint Review for Owner Comments	mm/dd/yy
		FPCC Meeting Project Submission Deadline	mm/dd/yy
		FPCC Meeting Approval	mm/dd/yy
		Approve TPC & Design Development - BOR/Chancellor	mm/dd/yy
		Approve DD Documents - OFPC ADPM	mm/dd/yy
	THECB	Submit Construction Application - Component	mm/dd/yy
		Approve Construction Application - THECB	mm/dd/yy
CM & DB	GMP	Receive GMP	mm/dd/yy
		Approve GMP - EVCBA	mm/dd/yy
CSP, CM & DB	Construction Document	Authorize A/E/DB Start	mm/dd/yy
		A/E/DB Submit _____ CD for Review	mm/dd/yy
		Joint Review for Owner Comments	mm/dd/yy
		A/E/DB Submit _____ CD for Review	mm/dd/yy
		Joint Review for Owner Comments	mm/dd/yy
		A/E/DB Submit _____ CD for Review	mm/dd/yy
		Joint Review for Owner Comments	mm/dd/yy
		Approve 100% Construction Documents - OFPC ADPM	mm/dd/yy
CSP	Request For Proposals	Advertise for Proposals	mm/dd/yy
		Pre-Proposal Conference	mm/dd/yy
		Receive Proposals	mm/dd/yy
		Award - EVCBA	mm/dd/yy
CSP, CM & DB	Construction	NTP for Construction & Updates	mm/dd/yy
		Substantial Completion	mm/dd/yy
		Final Completion	mm/dd/yy
		Start Furniture Move-In / Make Ready	mm/dd/yy
		Operational Occupancy	mm/dd/yy

Figure 10.1 Format of Preliminary Project Schedule

❑ **Select A/E Phase:** The projected/actual dates for adverstising, reviewing, interviewing, selecting and executing a contract with the Project A/E.

❑ **Select CM/DB Phase:** The projected/actual dates to advertise a Request For Qualifications (RFQ), hold a Pre-Proposal Conference, receive RFQs, issue Request For Proposals (RFP), receive RFPs, interview CM/DB, approve the award, and issue NTP for Preconstruction Services.

❑ **Schematic Design Phase:** The projected/actual dates to prepare, review, submit and approve the Schematic Design for the entire project.

❑ **Design Development, FPCC & BOR Approval Phase:** The projected/actual dates to prepare, review and submit the Design Development for review and approval by the Facilities Planning and Construction Committee and the Board of Regents.

- These dates must coincide with regularly scheduled FPCC and BOR quarterly meetings.
- The FPCC meets quarterly on the second week of January, April, July and October. The deadline to request a FPCC agenda item is approximately two weeks prior to the meeting.
- The Board of Regents meets quarterly on the second week of February, May, August and November.
- The projected/actual date for approving the Design Development Drawings for the entire project if it is not the same date as the BOR approval.

❑ **THECB Review Phase**: The projected/actual dates for the the Institution and the A/E to submit the project the the Texas Education

Coordinating Board for project review. (These dates must coincide with regularly scheduled submission and meeting dates for the THECB.)

- The THECB meets quarterly in the third week of January, April, July and October. THECB applications are due thirty (30) days prior to the meetings.

❑ **Guaranteed Maximum Price:** The projected/actual dates to receive the initial GMP and approve the final GMP by the EVCBA.

❑ **Construction Document Phase**: The projected/actual dates to prepare, review, submit and approve Construction Documents for the entire project.

- The "blanks" may be used to identify %CDs or Bid Package Numbers.

❑ **Request for Competitive Sealed Proposals Phase**: The projected/actual dates to adertise, meet and receive proposals from contractors.

- Allow two (2) weeks for OFPC, the institution and the A/E to confer, and the president of the institution to make a written request to the appropriate Executive Vice Chancellor for award of the contract.
- Typically allow eight (8) weeks between lines 8e and 10a for award of the construction contract to the start of contract time. (This includes time for the Notice to Proceed to take effect, which is normally 10 days from the date of contract award to the start of contract time.)

❑ **Construction Phase:** The projected/actual dates to issue the Notice to Proceed, hold a Pre-construction/Partnering meeting, mobilize, complete the foundation, structure, building dry-in, start commissioning, pre-final inspections, achieve Substantial and Final Completion, start furniture move-in and Operational Occupancy.

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 institution 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 approach to implementation of this Facility Program "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 firmness 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.

Comprehensive Project Schedule

In addition to the Project Schedule developed in Chapter 10, this section should address how the institutions 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, for example furniture procurement may be handled differently from general construction

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 architect-engineer 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), 3-Dimensional computerized modeling of MEP systems, physical models, etc.

Contracting Plan

- ❑ State law dictates that construction contracts for higher education projects be publicly bid and awarded to the lowest responsible bidder. If the institution 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.)

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 OFPC, Institution EHS, and outside agencies should be discussed.

Safety Process

- ❑ The State of Texas Uniform General Conditions and The U.T. System 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
- Potential impacts to Institution security or safety during construction and operation

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

Institution's Staffing and Team Building Plan

❑ Update organization structure for the project during design and construction.

- Roles and responsibilities within the institution's organizational structure, including designation of a single institutional representative for the remainder of the project.

Project Insurance Approach

❑ Construction insurance requirements for the project should be defined at the programming stage and these costs reflected in the preliminary project cost budget.

Once the program scope of the project is defined, a meeting should be held between the programming team and institutional and UT System representatives responsible for risk management and insurance issues. The purpose of the meeting is to consider including the project in the Owner's Rolling Owner Controlled Insurance Program (ROCIP) and to

evaluate levels of coverage vs. risk for the anticipated scope and delivery method of the project. These insurance costs should then be included in the appropriate line items within the preliminary project budget.

12 Information Specific to the Institution

Use this chapter to include any pertinent information that applies specifically to this institution, such as campus design or technical standards, permitting requirements, operating protocols, certifications, 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 or academic programming.

13 Selecting a Project Delivery Method

Texas Higher Education Codes 51 allows public institutions of higher learning, including OFPC, to use alternative delivery methods for construction of capital projects. It does not preclude use of the traditional, design-bid-build approach. Under this legislation, the new approach may result in the award of a construction contract either based solely on the lowest responsive bid, or based on the benefit of consideration of value provided, relative to established criteria, other than strict adherence to the lowest bid. The three alternate delivery methods are as follows:

Competitive Sealed Proposals (CSP)

This is the default project delivery method for the capital Improvement Program (CIP) and OFPC, and is to be used whenever the design-bid-build approach is determined for a project. The design and construction contracts are held separately and construction documents are completed prior to award of a contractor. CSP further offers benefit of some limited degree of constructability and value negotiation including some input to the determination of subcontractors, neither of which is likely when selection is based entirely on lowest price.

Construction Manager at Risk (CM-R)

This project delivery method combines the traditional design team relationship with expedited involvement by the construction team prior to the completion of contract documents. Both the design team and the CM-R are contracted separately to the Owner and each is selected through the RFQ and RFP process (2-part). Under this contractual relationship, which is similar to CSP, the Owner remains responsible to the CM-R for errors and omissions on the part of the design team. The CM-R's services are divided into Preconstruction – Pre-construction Services and Construction Services and the Owner derives benefit from "in-house" construction expertise throughout final development of the project documents and materials selections as well as budget and schedule development and tracking. Subcontractors are selected through competitively sealed proposals for trade packages. The CM-R is encouraged to utilize the CSP process to allow for consideration of values other than price.

Design–Build (DB)

This project delivery method creates a unique singular contract agreement between the Owner and a singular entity (most often a limited joint venture of construction and design firms) for both the design and construction of a project. The DB's services are divided into Pre-construction Services and Construction Services. While the Owner gives up direct control of the design process, those A/E services typically amounting to full professional services, including administering the construction phase, are included in the DB contract requirements. The Owner derives benefit from having construction expertise involved at the very beginning of design so constructability, budget, and schedule control are maximized throughout the project development.

Delivery Selection Matrix

The following guideline matrix is intended to assist the project team to select the most appropriate alternate project delivery method for Capital Improvement Project. The team should identify 3-4 goals in the matrix, critical to project success. Then circle the value(s) in the corresponding columns. When all criteria have been selected and the values have been circled, total all values in each column. The column with the highest total should be considered the most appropriate project delivery method.

	CSP	CM	DB
Constructability is necessary for project design, budget and schedule		2	2
Construction Cost Limitation (CCL) is less than $10,000,000	2		1
Facility Program requires further refinement during the design process	2	2	
OFPC's Project Manager is currently managing two or more CM/DB projects	3		
Owner desires some degree of participation in the subcontractor selection process		3	3
Owner requires a high level of control over the Project's design and quality	3	2	
Owner requires construction costs to be "guaranteed" during the design phase		2	2
Owner requires the ability to select the "best" design and construction firms	3	3	
Owner will allow a completed facility based on the approved Facility Program			3
Project is "complex", large, innovated or non-standard	2	2	
Project is "simple" in design and construction	3		
Project requires multiple construction stages		2	2
Project schedule is CRITICAL (eliminate CSP from consideration)		3	1
Project schedule is not critical	3	2	1
TOTALS			

Delivery Method Summary Matrix

	COMPETITIVE SEALED PROPOSALS	CONSTRUCTION MANAGEMENT-AT-RISK	DESIGN-BUILD
TYPICAL PROJECT PROFILES	Small to large, new or renovations projects of low to high complexity where the Owner desires control of the design and quality of materials and systems. - The speed of project delivery is secondary to design and quality control. Cost estimates and constructability are provided by consultants typically not responsible for their accuracy.	Moderate to large, new or renovations projects of moderate to high complexity with phasing or detailed scheduling requirements where accurate, early cost estimates and constructability is required. - The construction budget is established early and the speed of project delivery is primary.	Moderate to large, new projects, of moderate complexity where scope, budget and schedule are well defined in the Facility Program prior to selection of a Design-Build firm. - The construction budget is established early and the speed of project delivery is secondary.
SUMMARY	The Owner selects two separate entities: - An Architect/Engineer is selected to design the project to meet the Program and budget, to prepare construction documents and administer the construction contract. - A General Contractor is selected via Competitive Sealed Proposals to provide construction services. - This method is most similar to traditional design-bid-build.	The Owner selects two separate entities: - An Architect/Engineer is selected to design the project to meet the Program and budget, to prepare construction documents and administer the construction contract. - A Construction Manager is selected to provide pre-construction and construction services.	The Owner selects a single entity: - The Design-Build firm consists of an Architect/ Engineer to provide design and develop Construction Documents, and a Construction Manager to serve as the general contractor during construction.

	COMPETITIVE SEALED PROPOSALS	CONSTRUCTION MANAGEMENT-AT-RISK	DESIGN-BUILD
DESIGN	The Owner makes a qualifications-based selection of an A/E through a RFQ process to design the project to meet the program and budget, to provide complete contract documents, and to administer the construction contract. - The A/E may develop the Facility Program, or the Owner may hire a separate Programming firm. The Owner is responsible for the performance of the A/E.	The Owner makes a qualifications-based selection of an A/E through a RFQ process to design the project to meet the program and budget, to provide complete contract documents, and to administer the construction contract. - The A/E may develop the Facility Program, or the Owner may hire a separate Programming firm. The Owner is responsible for the performance of the A/E.	The Owner makes a selection based on a two-step qualifications and proposals RFQ/P process to design the project to meet the program and budget, to provide complete contract documents, and to administer the construction contract. - The Owner hires a separate firm to develop the Facility Program. The Owner is responsible for the performance of the DB.
CONSTRUCTION	The Owner solicits General Contractors for competitive sealed proposals based on complete construction documents. - Selection of the "best value" Contractor is based on a combination of price and other criteria that the Owner determines prior to solicitation.	The Owner makes a selection based on a two-step qualifications and proposals RFQ/P process. - The CM typically develops a GMP based on incomplete design documents and the Owner tracks the GMP throughout the construction phase.	The CM typically develops a GMP based on incomplete design documents and the Owner tracks the GMP throughout the construction phase.

	COMPETITIVE SEALED PROPOSALS	CONSTRUCTION MANAGEMENT-AT-RISK	DESIGN-BUILD
SUBCONTRACTS	Neither state law nor the contract requires competitive bidding of subcontractors. However, both require Good Faith Efforts at obtaining, tracking and reporting HUB participation. - General Contractor procures and manages subcontracts based on complete construction documents.	The CM is required to follow the Contract (as required by Texas Education and Texas Government Codes) for soliciting competitive bids for Cost of Work and for providing a Good Faith Effort on HUB participation. - The CM typically procures and manages subcontracts on bid packages based on 100% signed and sealed construction documents.	The DB is required to follow the Contract (as required by Texas Education and Texas Government Codes) for soliciting competitive bids for Cost of Work and for providing a Good Faith Effort on HUB participation. - The DB typically procures and manages subcontracts on bid packages based on 100% signed and sealed construction documents.

A Acknowledgments

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For assistance using these guidelines, or to make suggestions for future edits, please contact the appropriate OFPC Senior Project Manager, or the Project Improvements Coord. at 512-499-4600.

B Notes About Complying with the THECB Space Model

The Texas Higher Education Coordinating Board (THECB) was created by the Texas Legislature in 1965 as "the highest authority of the state in matters of public higher education." The Coordinating Board recommends formulas for allocation of state funds to public institutions, works to eliminate duplication of academic programs, unnecessary construction projects and real estate acquisitions.

The *Space Projection Model for Higher Education Institutions in Texas* guides The Coordinating Board in its review of new construction and renovation projects at academic and health-related institutions. The Model uses an academic five-factor model and a health-related four-factor model to compare actual with predicted assignable square footage at each publicly supported institution of higher education in Texas.

Academic	**Health-Related**
Teaching	Teaching
Library	Research
Research	Office
Office	Support (includes Library)
Support	

The Coordinating Board continually updates the Model to track the use of assignable square footage at each institution. Any institution may request a copy of the current Model for its campus at any time.

The Coordinating Board evaluates proposed new construction and renovation projects based on a number of different criteria. **The assignable square footage for any proposed project may not cause the institution's actual assignable square footage to exceed the Model's predicted assignable square footage for the campus total.** In some cases, however, it may be justifiable to exceed the Model's predicted assignable square footage for a single factor as long as the campus total is not exceeded.

It is the Coordinating Board's policy to only approve projects where the assignable square footage divided by the gross square footage is sixty percent (60%) or more.

Refer to the Appendix C for the *Definition of Terms Relating to Square Footage* for Compliance with The Texas Higher Education Coordinating Board.

The U.T. System Board of Regents approves its *Capital Improvement Plan* (CIP) every two years, in which they identify and approve capital projects for further development at each institution. The facility programmer and institution should verify that the assignable square footage for the proposed project is coordinated with other projects in the CIP. The total assignable square footage for the institution's construction program in the CIP cannot exceed the Model as previously discussed.

The *Rules and Regulations* of the Board of Regents require that each institution maintain an Institutional Building Advisory Committee, whose responsibility is to advise the president regarding the overall need and long-term use of space at the institution. If the facility program should deviate in the quantity or use of space from that previously approved for the project, the proposed change should be reviewed with the Committee.

In 1970 the Coordinating Board issued Study Paper 12, *Space Factors and Space Utilization Values for Use in Meeting the Facility Needs of Texas Colleges and Universities*, which established the first facility standards in Texas. This study employed many space factors that are still valid today. If interested, a copy may be obtained from the Coordinating Board's Campus Planning Office.

C Definition of Terms Relating to Square Footage

The definitions described below must be used to illustrate project compliance with the Texas Higher Education Coordinating Board. A summary of important definitions for square footage is given below. Contact the Office of Facilities Planning and Construction for further explanations. See *Figure C.1* for a graphic illustrating the relationships of the definitions for the various square footages.

Gross Square Feet (GSF): The sum of the square footage of all areas on all floors of a building included within the inside faces of its exterior walls, including floor penetration areas, however insignificant, such as circulation and shaft areas that connect one floor to another.

Basis for Measurement: Gross area is measured from the OUTSIDE face of exterior walls, disregarding cornices, pilasters, buttresses, etc., which extend beyond the wall faces. Exclude areas having less than a 6'-6" ceiling height.

Description: In addition to all the internal floored spaces obviously covered above, gross area should include the following, provided they have greater than 6'-6" clear ceiling height and potential usability: Excavated basement areas; mezzanines, penthouses and attics; garages; enclosed porches, inner or outer balconies whether walled or not, if they are utilized for operational functions; and corridors whether walled or not, provided

they are within the outside face lines of the building, to the extent of the roof drip line. The footprints of stairways, elevator shafts and ducts (examples of building infrastructure) are to be counted as gross area on each floor through which they pass.

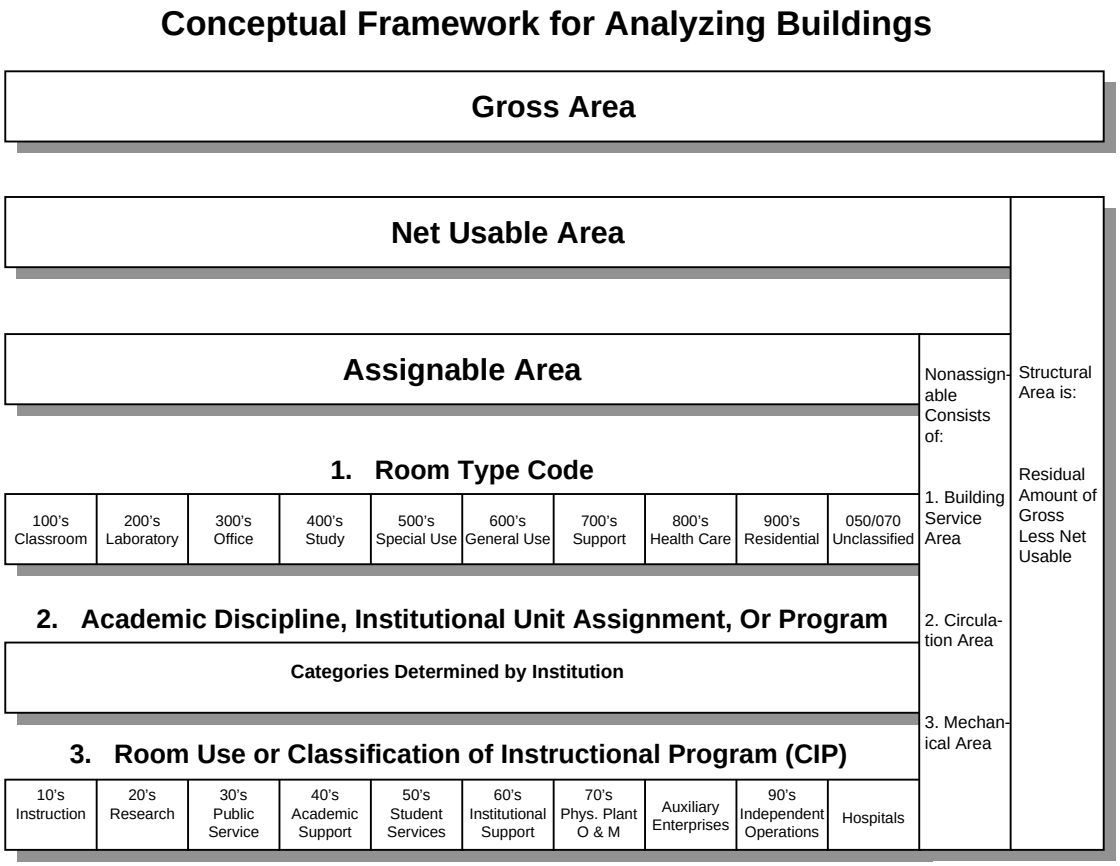


Figure C.1 Diagram outlining relationships of the definitions for square footage according to the Texas Higher Education Coordinating Board.

Assignable Square Feet (ASF): The sum of the square footage of all areas on all floors of a building assigned to, or available for assignment to, an occupant or other specific program use. Exclude non-assignable area and structural area (see below).

Basis for Measurement: Assignable area is measured from the inside faces of surfaces that form the boundaries of the designated area. Exclude areas having less than a 6'-6" ceiling height.

Description: Included should be space subdivisions of the ten major room use categories for assignable space that are used to accomplish the institution's mission: classrooms, labs, offices, study facilities, special use, general use, support, health care, residential and unclassified.

Assignable Area = Gross Area minus Non-assignable Area (Building Service Area, Circulation Area, and Mechanical Area) minus Structural Area

Non-assignable Area (Includes Building Service Area, Circulation Area, and Mechanical Area): The sum of all areas on all floors of a building not available for assignment to an occupant for specific program use, but necessary for the general operation of a building.

Basis for Measurement: Non-assignable Area is measured from the outside faces of surfaces that form the boundaries of the designated areas. Excludes areas having less than 6'-6" clear ceiling height.

Description: Included should be space subdivisions of the three non-assignable room use categories that are used to support the building's general operation, and structural area: building service, circulation and mechanical.

Building Service Area: The sum of all areas on all floors of a building used for custodial supplies, sink rooms, janitorial closets and for public rest rooms. Building service areas do not include assignable areas.

Basis for Measurement: Building service area is computed by measuring from the outside faces of

surfaces that form boundaries of the designated areas. Exclude areas having less than 6'-6" clear ceiling height.

Description: Included should be janitor closets or similarly small cleanup spaces, maintenance material storage areas, trash rooms exclusively devoted to the storage of non-hazardous waste created by the building occupants as a whole, and public toilets.

Circulation Area: The sum of all areas on all floors of a building required for physical access to some subdivision of space, whether physically bounded by partitions or not.

Basis for Measurement: Circulation area is computed by measuring from the outside faces of surfaces that form the boundaries of the designated areas. Exclude areas having less than 6'-6" clear ceiling height.

Description: Included should be, but is not limited to, public corridors, fire towers, elevator lobbies, tunnels, bridges and each floor's footprint of elevator shafts, escalators and stairways. Receiving areas, such as loading docks, should be treated as circulation space. Any part of a loading dock that is not covered is to be excluded from both circulation area and the gross building area. A loading dock, which is also used for central storage should be regarded as assignable area. Also included are corridors, whether walled or not, provided they are within the outside face lines of the buildings to the extent of the roof drop line.

Mechanical Area: The sum of all areas on all floors of a building designed to house mechanical equipment, utility services and shaft areas.

Basis for Measurement: Mechanical area is measured from the outside faces of surfaces that form the boundaries of the designated areas. Exclude areas having less than 6'-6" clear ceiling height.

Description: Included should be mechanical areas such as central utility plants, boiler rooms, mechanical and electrical equipment rooms, fuel rooms, meter and communications closets and each floor's footprint of air ducts, pipe shafts, mechanical service shafts, service chutes and stacks.

Structural Area: The sum of all areas on all floors of a building that cannot be occupied or put to use because of structural building features.

Basis for Measurement: Structural area should be construed to mean that portion of the gross area, which cannot be occupied or put to use because of the presence of structural features of the building.

Description: Examples of building features normally classified as structural areas include exterior walls, fire walls, permanent partitions, unusable areas in attics or basements or comparable portions of a building with ceiling height restrictions, as well as non-excavated basement areas.

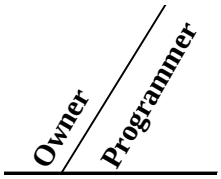
D Examples of OFPC Forms Described in these Guidelines

The following pages contain:

- List of Programming Tasks from chapter iv that may be used as an attachment to a contract for services.
- Category 1A Land Title Survey Exhibit from Chapter 6

List of Programming Tasks

The following list is intended to be an attachment to an Agreement for Programming Services. It identifies the tasks to be completed by the Programmer and the tasks that are the responsibility of the Owner (including the Institution, OFPC, and other parties.) The chapter listed after each item refers to chapters in the *OFPC Facilities Programming Guidelines.*



Programming Schedule *(chapter iii)*

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

Project Goals *(chapter 3)*

- ❑ ❑ A statement of agreement with the institution's mission and objectives
- ❑ ❑ A statement of agreement with the institution's strategic plan
- ❑ ❑ A statement that the project follows the institution's master plan
- ❑ ❑ A description of the programs and curricula 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 Coordinating Board's space model for this institution

Space and Adjacency Requirements *(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

Supporting Requirements *(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 *(chapter 6)*

(May not apply to interior renovation projects)

- ☐ ☐ An analysis of the site or sites under consideration
- ☐ ☐ An analysis of the site- or institution-specific environmental or safety considerations

Existing Facilities Studies *(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 *(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 U.T. System's technical and design standards that apply to this project
- ❑ A list of the institution's technical and design standards that apply to this project

Preliminary Project Cost *(chapter 9)*

- ❑ A preliminary project cost estimate using the OFPC format

Project Schedule *(chapter 10)*

- ❑ A preliminary schedule for the project using the OFPC format

Implementation Approach *(chapter 11)*

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

Information Specific to this Institution *(chapter 12)*

- Any institution requirements that will have an impact on the project

Executive Summary *(chapter 2)*

- A synopsis of all areas in the program

Sign-Offs *(chapter 1)*

- A sign off page with appropriate approval signature

EXHIBIT - Category 1A Land Title Survey

Survey Requirements. A current Category 1A land title survey of the Land (the "Survey") sufficient to permit modification of the standard survey exception on the Owner Policy of Title Insurance and prepared by a registered surveyor. The Survey shall include the following:

1) a written description of the Land containing information to properly locate the Land on the ground and containing language confirming the contiguity of the Land with adjoining land owned by the Board of Regents, if applicable; if the Land's dimensions, boundary and area are in close agreement with the existing subdivision plat, if any, then use of lot, block, and subdivision, with all appropriate recording data, filing dates, and map numbers, may be used; otherwise a metes and bounds description must be provided;

2) a plat showing the actual dimensions of, and area within, the Land;

3) the location of any easements, existing and proposed roadways, encroachments or overlaps;

4) the physical access to the Land from a publicly dedicated street or road;

5) the outside boundary lines of the Land and all improvements;

6) all easements and other matters that are of record and would appear on a title commitment;

7) all easements or rights-of-way that are apparent from an on-the-ground survey;

8) the identification by name and deed recording reference of adjoining property owners;

9) the surveyor's signature, certification in the form shown below, registered number, seal, and the date of the Survey; and

10) identification of any area within the Land that has been designated as a Special Flood Hazard Area on the most recent U.S. Department of Housing and Urban Development and Federal Insurance Administration Flood Hazard Boundary Map.

FORM OF SURVEYOR'S CERTIFICATION

The undersigned Registered Professional Land Surveyor ("Surveyor") hereby certifies to the Board of Regents of The University of Texas System and ____[title company]_____ that (a) this plat of survey and the property description set forth hereon were prepared from an actual on-the-ground survey of the real property ("Property"); (b) such survey was conducted by the Surveyor, or under his direction; (c) all monuments shown hereon actually existed on the date of survey, and the location, size and type of material thereof are correctly shown; (d) except as shown hereon: (*i*) there are no observable encroachments onto the Property or observable protrusions therefrom, (*ii*) there are no observable improvements on the Property, (*iii*) there are no observable easements or rights-of-way either burdening or benefiting the Property, and (*iv*) there are no observable discrepancies, conflicts,

shortages in area or boundary line conflicts; (e) the size, location and type of improvements, if any, are as shown hereon; (f) the Property has access to and from a public roadway; (g) recorded easements and rights-of-way referenced in Title Commitment GF No. _____ (issued _____, 20___) prepared by _____ have been labeled and plotted hereon, unless otherwise noted; (h) the boundaries, dimensions and other details shown hereon are true and correct and conform to the appropriate accuracy standards of the Manual of Practice for Land Surveying in Texas (____) for a Category 1A Condition __ (_____ Land Title Survey); (i) the Property is located in Zone __ as delineated on the _____, Texas, Flood Insurance Rate Map Panels Numbered _____, dated _____, 20___, as published by the Federal Emergency Management Agency, which zone is defined as "_____"; and (j) the basis of bearing for this survey is _____ _____.

_____

Name:_____

Registered Professional Land Surveyor,

Texas, No. _____

Date _____

Revision Log

By	Date	Section	Revision
DRD	12/23/04	Page ii.3	Added "…risks, and impacts"
DRD	12/23/04	Page ii.5	Added "…risks…" to 8th bullet
DRD	12/23/04	Page iii.1	Added note 4
DRD	12/23/04	Page iv.3	Modifications to "Supporting Requirements" and "Existing Site Studies"
DRD	12/23/04	Pages 5.1-2	Added section on EHS requirements
DRD	12/23/04	Page 5.3	Added "…and detention…" and "…audio-visual"
DRD	12/23/04	Page 6.2	Added "…or require development of special operating protocols"
DRD	12/23/04	Page 7.2	Added "…or detention"
DRD	12/23/04	Section 8	General modifications to define code conflict resolution
DRD	12/23/04	Page 11.3	Added "…3-dimensional modeling of MEP systems" and "…Institution EHS"
DRD	12/23/04	Page 11.4	Added "Potential impacts to Institution security and safety during construction and operation"
DRD	12/23/04	Page 12.1	Added "…permitting requirements, operating protocols, etc."
DRD	12/23/04	Page D.2	Added "An analysis of the site- or institution-specific environmental or safety considerations"
BR	08/12/05	Page 11.4	Added section on "Project Insurance Approach"
JEJ III	3/1/2011	Pages 6.1-2	Added Category 1A Land Title Survey requirement
JEJ III	3/1/2011	Pages D.5-7	Added Category 1A Land Title Survey Exhibit and Form of Surveyor's Certification
PAC	4/1/2015	Pages 6.1-2	Modified text in "…Category 1A Land Title Survey" to include "Location of any existing easements and setbacks" and "Site boundary", per ORE edits on 3/24/15
PAC	4/1/2015	Various Pages	Revised references to THECB "Approval" to "Review". THECB no longer "Approves" projects. Removed references to old Controls Group Corrected minor formatting errors throughout