

Diocese of West Texas Church Building Guidelines



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Based upon the following Diocesan Canon, the Commission on Church Buildings has put together these Church Building Guidelines to help with planning and construction.

Constitution and Canons of the Episcopal Diocese of West Texas

Canon 10

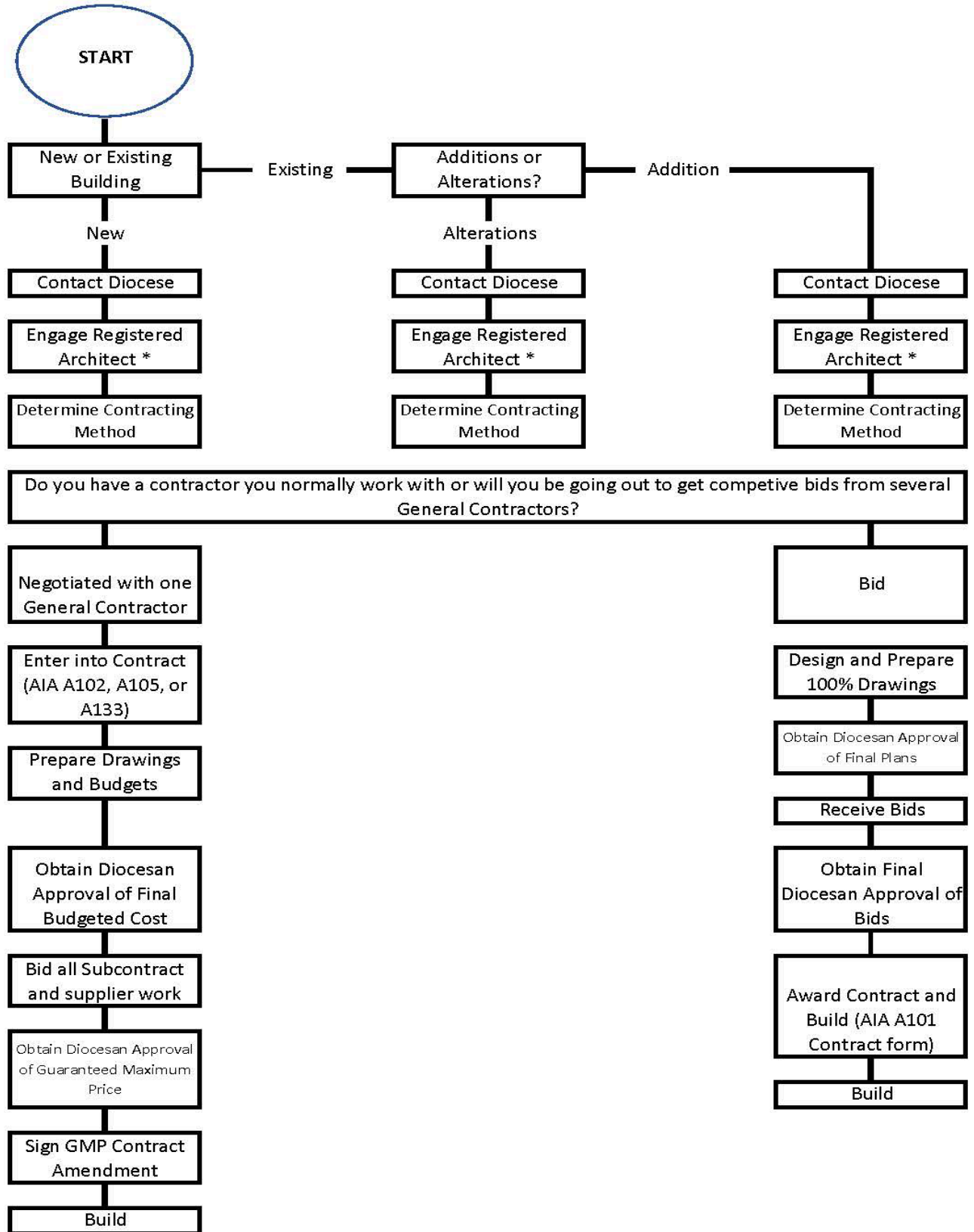
Section 1. There shall be a diocesan Commission on Church buildings, consisting of two priests and at least five lay persons who shall be elected annually by the Council, upon nomination by the Bishop.

Section 2. It shall be the duty of the Commission to counsel and advise congregations concerning plans for new buildings and for alterations to existing buildings. Congregations shall follow the process set forth in the most recent publication of the Diocesan Church Building Guidelines. The Commission of professional architects, builders, and clergy shall review the church's plans and provide an overview of best practices, guidance, and respond within thirty days after receiving the plans.

Section 3. The Commission is available, as needed, to further assist and guide diocesan congregations and entities throughout the planning and building process.

Section 4. No new building or structural alteration of an existing building can commence until the plans and specifications have been submitted for review by the Commission and approved by the Episcopal Church Corporation in West Texas.

Guidelines for Construction - Diocese of West Texas



Alteration

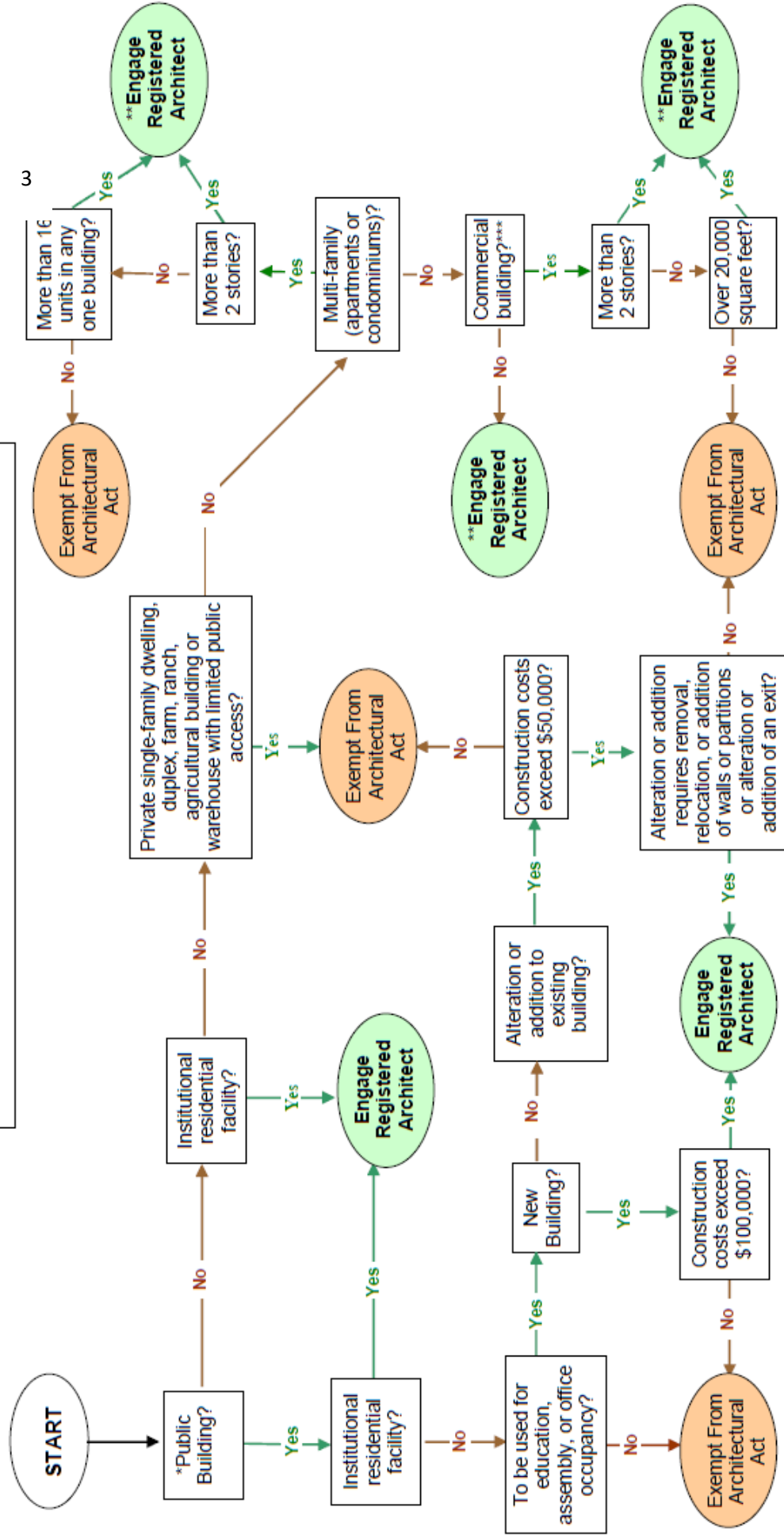
* Architect Selection

When selecting an architect, fees for service are generally negotiated after the final selection of the firm. The architect will negotiate the architect's contract with the diocese.

Architect Required: When to Engage an Architect for Design and Construction Observation

P.O. Box 12337
Austin, Texas 78711-2337
512-305-9000
www.tbae.state.tx.us

NOTE: An unlicensed person who wishes to offer or perform design services pursuant to any of the exemptions **must not use any form of the word "architect"** in connection with the offer or performance of design services.



* "Public Building" means any building that is owned by a State agency, a political subdivision of the State, or any other public entity in Texas.

** If a project involves only the alteration of an existing building and the alteration does not involve a substantial structural or exitway change to the building, the project is exempt from the architectural act.

*** "Commercial building" means an enclosed structure primarily used for the purchase, sale, or exchange of commodities or services.

Additional copies of this flowchart may be downloaded from our website at: www.tbae.state.tx.us/LawsEnforcement/BuildingOfficials.shtml.
To verify the registration status of an architect, landscape architect, or interior designer, please visit: www.tbae.state.tx.us/PublicInfo/FindProfessional.shtml.

TBAE “Architect Required Flowchart” Notes:

(For the latest information and complete details, see Tex. Occ. Code Ann. Ch. 1051 and the Rules and Regulations of the Board at www.tbae.state.tx.us.)

Clarification of certain types of privately owned buildings

RULE 1.211 PRIVATELY OWNED BUILDINGS (excerpt from Rule 1.211) For the purposes of Section 1051.606 of the Texas Occupations Code:

“**multifamily dwelling**” means a building containing more than two separate units intended to be used for human habitation where the units are not separated by open space but instead are separated only by walls or partitions.

“**commercial building**” means an enclosed structure primarily used for the purchase, sale, or exchange of commodities or services.

“**warehouse that has limited public access**” means a building primarily used for the storage of equipment, merchandise, or commodities where:

- (1) only employees, delivery persons, and other specifically authorized people are routinely expected to enter the building; and
- (2) persons who enter the building are expected to occupy the building only on a limited basis.

Clarification of terms regarding publicly owned buildings

Public Entity—A state, a county, a city and county, a district, a department or agency of state or local government which has official or quasi-official status, an agency established by state or local government though not a department thereof but subject to some governmental control, or any other political subdivision or public corporation.

RULE 1.212 PUBLICLY OWNED BUILDINGS (excerpt from Rule 1.212 regarding intended uses)

education: the use of a building at any time for instructional purposes;

assembly: the use of a building for the gathering together of persons for purposes such as civic, social, or religious functions or for recreation, food or drink consumption, or awaiting transportation; or

office occupancy: the use of a building for business, professional, or service transactions or activities.

Alterations: Determining if “substantial” structural or “substantial” exitway change.

RULE 1.213 EXEMPTION FOR ALTERATIONS TO EXISTING BUILDINGS

(a) For purposes of Section 1051.606 of the Texas Occupations Code, a structural change is “substantial” if the engineering plans and specifications for the structural change must be prepared by a licensed engineer pursuant to Chapter 1001 of the Texas Occupations Code.

(b) For purposes of Section 1051.606 of the Texas Occupations Code, an exitway change is “substantial” if the change will affect a path of egress intended to be used by more than fifty (50) persons.

Clarification of requirements regarding institutional residential facilities

RULE 1.214 INSTITUTIONAL RESIDENTIAL FACILITIES (excerpt from Rule 1.214)

(b) For purposes of this section, “institutional residential facility” means a building intended for occupancy on a 24 hour basis by persons who are receiving custodial care from the proprietor or operator of the building.

Architect required for construction observation on projects requiring an architect for plans and specs

RULE 1.217 CONSTRUCTION OBSERVATION

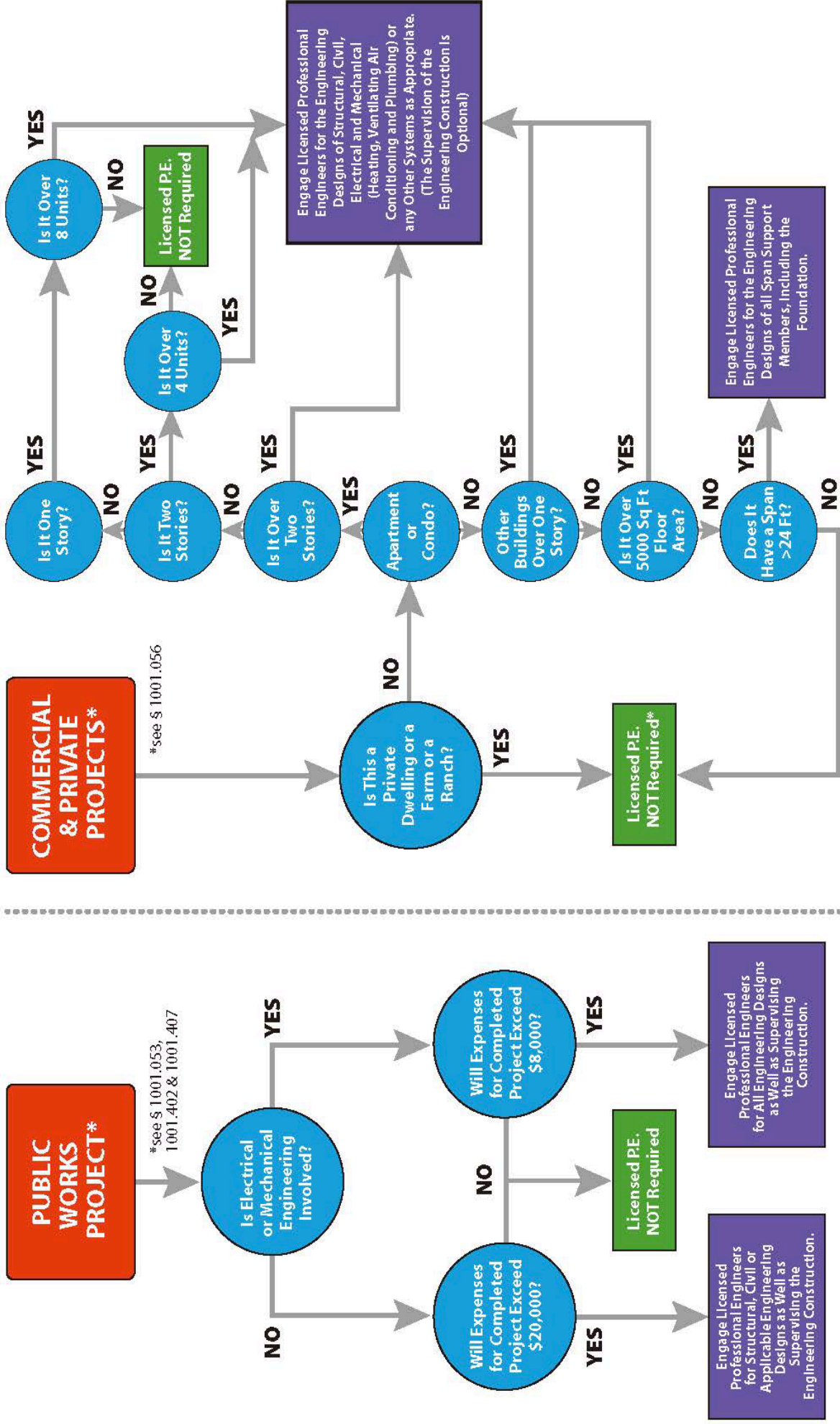
If, pursuant to Section 1.211, Section 1.212, or Section 1.214, an Architect must prepare or supervise and control the preparation of the architectural plans and specifications for a new building or the alteration of or addition to an existing building, construction observation for the project shall also be conducted by an Architect or by a person working under the Supervision and Control of an Architect. For purposes of this Subchapter, “construction observation” means the administration of the portion of the construction contract described and documented in the architectural plans and specifications, including the following:

- (1) reviewing each shop drawing, sample, and other submittal by a contractor or consultant;
- (2) preparing or reviewing each change to an architectural plan or specification;
- (3) visiting the construction site at intervals appropriate to the stage of construction to:
 - (A) become generally familiar with and keep the client generally informed about the progress and quality of the construction completed;
 - (B) make a reasonable effort to identify defects and deficiencies in the construction;
 - (C) determine generally whether the construction is being performed in a manner indicating that the project, when fully completed, will be in accordance with the architectural plans and specifications; and
- (4) in addition to any responsibilities under Section 1.216, notifying the client in writing of any substantial deviation from the architectural plans and specifications that may prevent the building from being occupied or utilized for its intended use.

When is a Professional Engineer required on a project?



Texas Board of Professional Engineers and Land Surveyors



* Unless not exempt per 1001.056(c)
 Visit <http://pels.texas.gov/downloads.htm> for a copy of the Texas Engineering Practice Act and Board Rules and download this diagram.

This flowchart is intended for guidance purposes only and the Texas Engineering Practice Act and Rules govern final interpretation. Local codes and ordinances may be more restrictive as long as not in conflict with the Texas Engineering Practice Act and Rules.



PLANNING COMMITTEE

Church buildings are an expression of the mission and ministry of the church, and need to follow that mission and ministry. The Planning Committee will take the seeds of a perceived need, lead a vision process, and recommend the creation of a Building Committee and Finance Committee to carry the vision forward.

All of this work should be immersed in prayer, both formally when groups meet and in the lives of the committee members. At every step, communication should be a priority at every level of work: with the committee, with the Vestry/Bishop's Committee, with the congregation and with those who are hired.

The Planning Committee should include the Rector, Vestry/Bishop's Committee/Bishop's Committee representation along with some members from the congregation familiar with design and construction, as well as the mission and ministry of the church. In smaller churches the Vestry/Bishop's Committee/Bishop's Committee may be the Planning Committee. This committee will be a source of the creation of the Finance Committee and Building Committee.

The Planning Committee may want to use a facilitator to help guide the initial vision work. The book *Missional Ministry* is a good study guide to work from mission to building and funding. It recommends a three phase process; *Dream, Design, Deliver*. Another book recommended by the Commission is *Holy Places: Matching Sacred Space with Mission and Message*.

The initial Dream Phase should not limit possibilities, this is where unexpected creativity can come into play, and where the Holy Spirit may connect the needs of the community with the ministry of your church. Later the limits and focus can be set, but keep in mind not to restrict big dreams and ideas early on in the process.

Your team will want to inventory existing ministries as broadly as possible, then consider needs in your community and other creative possibilities. Suspend the "where and how" questions, those will come later. Once the Planning Committee has an initial vision, invite the whole congregation to participate in a combination of Sunday meeting and smaller gatherings as suits your congregation. Your committee will have notes, but go through the whole process with the congregation and add your input as you go, or after the church gives input.



Then the Planning Committee can discern:

What are we called to take on this time, and what will our church campus need to look like to support that mission and ministry? Again, after working as a Committee, go back to the congregation and ask the same questions of them. Offer copies of a layout of the church campus and allow people to draw their own ideas for locating and designing church buildings. This too is part of the Dream Phase, and can be limited and scaled to reality later.

From that process, with input from the congregation, and discernment by the Planning Committee, a recommendation may be made to the Vestry/Bishop's Committee, and then a Building Committee and Finance Committee should be formed. The results of the planning may produce projects for a later date, which can inform a master plan of the campus, and help focus on what is needed for ministry now, next, and later.

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BUILDING COMMITTEE

The Building Committee for the overall building program should include the rector, Vestry/Bishop's Committee representation and parish members with a background in design or construction. The building committee should be empowered by the Vestry/Bishop's Committee or Bishop's Committee to engage an architect or builder. (This depends on the size of the project.) Once the plan designer submits a preliminary set of plans and its estimated cost of project, then it will be necessary for the Building Committee and Vestry/Bishop's Committee to decide how the Church is going to raise the money to complete the project.

The Building Committee will have the responsibility to work with the selected architect for the preparation of a set of preliminary sketches and ideas, and development of a preliminary estimate of cost and schedule for the project. Using this information, the Vestry/Bishop's Committee then can determine if the project is financially possible and is approximately what is needed by the Church.

The Building Committee will need to meet regularly with the architect and report to the Vestry/Bishop's Committee or Bishop's Committee throughout the project until it is complete. It will be important to report to the congregation in some way as well.

The Building Committee will work closely with the Finance Committee as they prepare to raise funds, and help communicate the vision, including drawings and artist's renderings.

When selecting a general contractor for larger projects, ensure the project is bonded and building insurance is in place before any work is begun. The Building Committee should also help plan and participate in groundbreaking and dedication services.

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FINANCE COMMITTEE

The finance committee is established at the same time as the building committee. The finance committee should be commissioned to determine how much you can afford to spend and to develop ways to finance the project. Members of both of these groups should be prepared to spend many hours before the new facility becomes a reality.

The finance committee is in charge of all the functions of the finances of the total project. Therefore, the selection of its members is very important. It is strongly recommended that the current Treasurer of the congregation should be on the committee, but should not serve as Chairman.

The Chairman should be knowledgeable in “finances” and familiar with the fund raising activities of the Parish. Customarily, finance committee members are responsible for the making contact to with larger donors for commitment to the building work.

The Finance Committee will be responsible for the financial side of the building program from drawing up a preliminary budget to paying the last bills. It explores various options for financing the building and makes recommendations to the building committee. This committee also handles the details of special fundraising efforts for the building. It submits regular financial reports to the building committee.

Any parish undertaking a building program should be in sound financial shape. It is not required that all the necessary money be in the bank before the architect is engaged. However, according to the best possible projection, the parish should be capable of carrying the immediate expense of undertaking a building program, as well as future mortgage payments. Beware of assuming that new members, who may be attracted to the building, will pledge generously enough to carry a mortgage that is too large for your current membership.

Most churches can raise two and one-half to three times their annual canvass in a capital campaign with pledges paid over three years. The Diocesan staff can help advise a parish on financing, including providing names of fundraising consultants which includes conducting a church wide financial assessment to estimate how much the congregation could potentially raise.



With a congregation that has been involved in the dream and design phase, the engagement for fundraising will follow naturally. Lead gifts from the leadership (Rector, Vestry/Bishop's Committee/Bishop's Committee, and Finance Committee) will help set the stage for commitment to the project.

When a capital campaign is launched, there should be both a financial goal and an end-date to the campaign. This will help the congregation know when to give, and help everyone share a sense of completion.

Beside raising funds from within, a reasonable loan may be worth it if there is a clear plan to pay off the loan.

Once contracts are signed with the Architect and builder, this committee will release the funds at the time required in the contracts.

The Finance Committee Chairman and the Treasurer should also be included on the committee selecting the architect and builder.

If the project is small, it is possible to raise monies internally. Some churches find it useful to employ a fund raising expert to assist them in determining the amount of money a Church can raise. If the project is larger, it would be desirable to interview a few professional fund raisers to assist in securing the capital. There is a cost for using a Professional Fund Raiser so carefully evaluate the proposed fee prior to signing the contract. Check with the Diocese for names of fund raising consultants or contact the *Association of Fund Raising Professionals*.

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SELECTION OF ARCHITECT

Whenever you start a new church project, choosing the right architect is vital to a successful project. Architect selection should begin as early as possible.

Architects can help you define the project in terms that provide meaningful guidance for design. They may also do site studies, help secure planning and zoning approvals, help you work out financing, and a variety of other pre-design services.

The Architect is almost always employed by the Church. The lone exception is when the Design-Build construction delivery method is used (and discussed later in these Guidelines), where the Design-Builder employs the Architect. There are many ways of selecting an Architect. Normally they are picked from a short list based on their qualifications and interview with the building committee. Some architects specialize in churches, and many design churches as part of their normal course of business.

Although it may be useful to employ an Architect who specializes in church work or even specializes in the Episcopal denomination, most architects are qualified to design churches. Remember, other than your sanctuary, most church buildings are classroom buildings, recreational facilities and offices. Sanctuaries can be more complex and consideration should be given to employing an architect who has designed a sanctuary similar to what you want, or who understands the particular nuances of the Episcopal Church.

Remember that the Commission on Church Buildings can help provide a list of suggested architects, an example of a Request for Qualifications (RFQ), or other resources.

Keep your list of potential architects at a manageable number. Remember that each one must be communicated with and will need to be told how they did in relation to the other architects submitting proposals. Interviews are long and very tiring and they seem to run together. The list of potential architects can come from a number of sources. Word of mouth is often an excellent source. Architects within the church may assist the building committee in Architect selection. The local office of the *American Institute of Architects* (AIA) can provide a list of architects who claim churches among their expertise.



Ask for qualification statements and proposed fees for the work. Provide enough information to the proposed Architects that they can understand the scope of the project and accurately provide a fee proposal. Remember that lower fees are no indication of the final cost of the project. The building committee should include such things as the amount of money the Church wishes to spend, the size of the building in terms of area or seating capacity, and the type of building (e.g.: sanctuary, gymnasium, classroom building).

Qualification statements should include examples of projects that the firm has designed that are similar in type and size to yours, or that have addressed similar issues (for example, building location on the site, functional complexity, or design aspirations). Ask for the names of other owners you may contact for references. Review all responses and then narrow the list down to two or three firms.

Interview these firms. An interview addresses one issue that can't be covered in brochures: the chemistry between the owner and the architecture firm. Interviews also allow the owner to learn how each firm plans to approach the project. You can learn how the architect's team will approach your project by talking to key members. Ask how the architect will gather information, establish priorities, and make decisions. Ask what the architect sees as the important issues for consideration in the project. Evaluate the firm's style, personality, priorities, and approach—are they compatible with yours. Personal confidence in the architect is paramount. Seek also an appropriate balance among design ability, technical competence, professional service, and cost. Select the one who you think best fits the needs of the Church and who will make commitments to you concerning the schedule and maintenance of the budget. Once you've made the selection, enter into detailed negotiations regarding services and compensation. The AIA Contract Documents—the industry standard—offer an excellent starting point for contract negotiation.

Choose your architect at least as carefully as you would your dentist or doctor. Factors such as experience, technical competence, and available staff resources will be important to your decision. When you are soliciting proposals from more than one firm, make sure that you can provide all the information required for definite proposals to ensure that the proposals you get offer the same scope of services, and you can evaluate them on a consistent basis.



Yours will be a business relationship. Find out how prospective architects do business, how they work with their clients, how responsive they are to your management and decision styles, and how well their work stacks up against their clients' expectations.

Ask questions. Approach the architect as a professional who will bring experience and specialized knowledge to your project. Don't be afraid to ask the same questions you've asked yourself: What does the architect expect to contribute to the project? How much information does the architect need? How does the architect set priorities and make decisions? Who in the firm will work directly with you? How will engineering or other design services be provided? How does the firm provide quality control during design? What is the firm's construction-cost experience?

Be frank. Tell the architect what you know and what you expect. Ask for an explanation of anything you don't understand. The more on the table at the outset, the better the chances are for a successful project. Remember, a good architect is a good listener. Only when you have outlined your issues can the architect address them.

Because you will be in a business relationship to acquire the professional skills and judgment of the prospective architect, you might also want to inquire about the ability of the architect to stand financially behind the services to be provided. For example, you might ask if the architect carries professional liability insurance--much like that carried by doctors, lawyers, and accountants. While not all architects carry such insurance, it can, in many circumstances, be an indicator of sound business acumen.

Be prepared to answer questions about your project's purpose, budget, time frame, site, and the team of players you anticipate being involved with the project. Once again, be frank, and inform the architect of any information you want to be kept in confidence. Protecting your confidential information is an ethical requirement for members of the AIA.

Design activity by your consultants may be paused during this period, except for obtaining approvals from municipalities for zoning and site planning as this process is often quite lengthy. Be sure to convey this to your Architect to avoid design fees.



The most thoughtful architects are as careful in selecting their clients as owners are in selecting architects. They are as interested in a successful project as you are, and they know that good architecture results from fruitful collaboration between architects and clients.

Even the simplest of projects are very complex. Each situation is different, including people, needs, site, financing, and regulatory requirements. Many of the owner's needs and expectations come into focus only in the process of design. As the owner and architect mutually evaluate alternative approaches to the project's design, priorities are clarified and new possibilities emerge. There is no substitute for the complex, time-consuming, and intensive dialogue and inquiry that characterize the design process.

The experiences of others may be instructive up to a point, but every project is unique. Your architect is prepared to advise and assist you in tailoring the array of professional services available to meet your needs and expectations.

Most building projects require design and construction documents, assistance in securing a contractor, and evaluation of the progress and quality of construction. The services an architect can provide for you in-house or through consultants may include facilities programming; marketing and economic feasibility studies; budgeting and financing packages; site-use and utilities studies; environmental analysis; planning and zoning applications; preparation of materials for public referenda; special cost or energy analysis; tenant-related design; special drawings, models, and presentations; and facility operation services after project completion.

Not all services must be provided by the architect. Some owners have considerable project-planning, design, and construction expertise and may be fully capable of undertaking some project tasks themselves. Other owners find it desirable or necessary to add other consultants to the project team to undertake specific tasks. Discussion with your architect will be necessary to establish who will coordinate owner-supplied work or other services provided beyond the scope of the architect's agreement.



SITE SELECTION

The site should be evaluated by qualified professional person to determine if it:

- Is large enough for projected size requirements and future growth
- Is accessible from the roadways
- Will be acceptable from municipal planning and zoning aspects
- Has no adverse environmental factors
- Cost is within preliminary budget for land acquisition
- Has topography suitable for a church facility

Determine site attributes and building restrictions. Good design must begin with a thorough familiarity with the attributes and restrictions that the building site offers and imposes, respectively. A reasoned design response to these factors will enhance the project's functionality and visual appeal.

Employ a surveyor to prepare a topographical and tree location survey, locating all existing built objects, underground and overhead utilities, major trees etc. Dependent on the topography, the topography usually needs to be shown at 1-foot intervals, with spot elevations at critical locations such as building floor elevations, tops of manholes and drains, etc.

Assemble data on zoning and other restrictions for the property.

Check with municipal and other governmental authorities to see if any changes to streets, drainage, utilities, etc. are planned, both soon and long range.

If the area has a history of foundation problems, it may be judicious to employ a geotechnical engineer or testing firm to make a preliminary soils investigation to determine if the site is suitable for a particular type of construction. This can be amplified later when more exact building locations are known.

Learn if there are those which might have an interest in your plans, such as a neighborhood group. Have a preliminary meeting with them to simply let them know that you are beginning a planning effort, and that you will keep them informed as the project progresses. Ask if they have any specific concerns beyond your complying with all existing rules and regulations.

Most of the above will be performed by one of your consultants.

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PROGRAMING PROCESS

Planning should start on all functions of the church before construction of any part of the structure(s) is considered. Plan for the entire site, with the realization that the final facility may be somewhat different from the one now visualized, at least the first phase will not be built in such a way that it limits or prohibits eventual use of the remainder of the site. The selected architect will normally take the lead in guiding the Building Committee through the programming process.

Determine the approximate size and nature of the future facility. An approximation of the amount of interior and exterior physical space required should be made. Several factors enter into this equation:

- Number of persons to be served in each space.
- Number and types of meetings and services expected, and at what days and times of the week. (Some spaces can be used for more than one function. There may be overlap due to time constraints.)
- Expected modes of transportation to and from the facilities (number of persons per car, use of buses, etc.).
- Municipal zone and planning requirements for parking to seat or square foot ratios.
- Municipal zoning, planning and environmental requirements for open space, etc.

When the preliminary numbers are tabulated, 30% to 35% additional should be added to the total to account for corridors and other circulation spaces, equipment rooms, storage spaces and walls.

A statement of the image or general character of the facility should be developed.

The planning must consider the following:

- Building numbers, sizes and forms
- Immediate environmental factors, such as storm water drainage, prevailing winds
- Views to and from the site
- Access to and from the site
- Geological conditions
- Availability and location of municipal utilities
- Location of future possible roadways and utilities



Functions to be studied include:

1. Bathrooms (handicapped & gender)
2. Regular church service
 - a. Sunday (early morning & regular)
 - b. Special (Easter, Christmas & etc.)
 - c. Weekdays
3. Other Groups
 - a. Sunday School
 - b. Day Care Activities
 - c. Youth Groups
 - d. Men's Group
 - e. Women's Group
 - f. Fellowship Group
 - g. Function other than church related (12 Step, Boy or Girl Scouts, etc.)
4. Other areas to be studied
 - a. Play grounds
 - b. Parking (regular & handicapped)
 - c. Landscaping
 - d. Cemetery
 - e. Drainage
 - f. Water & Sewage
 - g. Garbage
 - h. Outdoor lighting
 - i. Protection from vandalism & theft
4. Extra Special Functions
 - a. Funerals
 - b. Weddings
 - c. Memorial Services

The Building Committee should consist of active members of Church who are knowledgeable about the above items or areas. Even the smallest problems should be considered. This Committee should be big enough to be divided into smaller groups to really study each area.

The Building Committee can consolidate a final report to the Vestry/Bishop's Committee at a special meeting. This recommendation should suggest that the Vestry/Bishop's Committee go ahead with the findings of the Building



Committee. If the Vestry/Bishop's Committee agrees, they then should authorize the Building Committee to begin the detailed design of the project.

It is important to create a master plan for the entire site, and realize that the final facility may be somewhat different from the one now visualized. The first phase should not be built in a way that it limits or prohibits eventual use of the remainder of the site. The phasing must consider the following:

- Building numbers, sizes and forms
- Immediate environmental factors, such as storm water drainage, prevailing winds
- Views to and from the site
- Access to and from the site
- Geological conditions
- Availability and location of municipal utilities
- Location of future possible roadways and utilities

The master plan should be viewed as the document, which defines the extent of the building on this site and locates the first building phase. It should be understood that it will be modified in the future as the church's mission develops and changes, but will serve as a guideline for future development.

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BUDGET AND SCHEDULE

A preliminary budget and schedule should be formulated before the physical aspects of the facility design are begun, and should be revised as the project proceeds. Some aspects of it will continue in a parallel fashion to the design process. The budget must be balanced against the expected available funds.

The Project Budget includes construction budget and numerous additional cost items. It should include all or most of the following, and may include additional items:

- Land cost
- Real estate fee
- Legal fees
- Professional fees for site evaluation
- Surveys
 - Boundary
 - Topographical survey
 - Tree survey
- Adverse environmental aspects survey. (Are there previous landfills or dangerous substance disposal sites on the property? Is asbestos or lead paint present in an existing facility to be remodeled?)
- Financing costs for both the construction period and after occupancy, including origination fees, points, interest, legal fees, etc.
- Insurance costs
- Fund raising fees and costs
- Capital recovery fees or utility fees levied by the municipality
- Testing
 - Site geotechnical test report for foundation design purposes
 - Materials testing during construction
- Construction contracts
 - Building and site work
 - Landscaping
- Construction document printing
- Furniture, fixtures, equipment and furnishings
- Special items such as stained glass or organ.
- Architectural and engineering fees, other consultant fees.



Note: Architect's fees normally include structural, mechanical and electrical engineering fees. Costs of other consultants, including surveys, civil engineers, acoustical consultants, lighting consultants, sound system consultants, interior designers, landscape architects, building permit facilitators, etc. are usually additional.

- Contingencies: All allowance of 10% to 15% should be included at first. This can be reduced as the scope and quality of the project is determined. A 5% contingency should be included in the construction budget at the time that the construction contract is executed.

The development of the initial construction budget and schedule can proceed after the development and the master plan or the initial schematic design for the proposed project. This process will involve both the finance committee and the building committee. The construction budget is the amount that the church is committed to raise in funding for construction, and is the limiting guideline for the measuring the cost to construct the scope of the design. It is important to provide three budget estimates during the development of construction drawings. Typically the estimates are prepared following the main stages of design; the first after the development of Schematics; the second after Design Development; and the third after Contract Documents. It is recommended that a 10-15% contingency be carried with the initial estimate; a 7% contingency at the second; and a 5% contingency be included in the construction budget at the time of the execution of the construction contract.

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PROJECT DELIVERY METHODS

In recent years a number of different project delivery methods have come into favor. There are five basic delivery methods. The five methods are *Design-Bid-Build*, *Competitive Sealed Proposals*; *Construction Manager at Risk*; *Construction Manager-Agency*; and *Design-Build*.

Design-Bid-Build. This method is the method which has been used in the United States for many years as the method of choice for the delivery of a construction project. Under this approach, the Architect, who is hired by the Church, designs the project, including a full set of construction documents, and the project is bid by General Contractors. Normally, the project is awarded to the Contractor with the lowest bid, a contract is issued and work commences. The contract, in almost every case of this method, will be a Lump Sum type of contract.

The number of contractors can be limited or can be left open for anyone who wishes to bid. The bids can be opened publicly or privately. The award can be to the lowest bidder or to someone deemed more qualified by the Church. Normally however, it is not recommended to have a public opening and award the project to someone other than the lowest bidder. Under this method the Church should allow for a reasonable project contingency to allow for unanticipated project changes that develop during the construction process.

This method, by its nature, creates an adversarial role among the Owner, Architect and the Contractor. Often, under this method, the Owner wants all he can get for the dollars spent and the Contractor wants to do as little as possible for the dollars he is paid. Professional General Contractors, although they will demand a change order for anything they believe is legitimate, will strive very hard to overcome the sense of an adversarial relationship. In fact, good Contractors hate this position. Some people, however, believe the adversarial relationship is actually healthy. It promotes debate about the requirements of the contract and with the Architect as an agent of the Owner providing third party oversight of the work.

PROS

- Familiar delivery method
- Defined project scope
- Single point of responsibility for design and single point of responsibility for construction
- Open, aggressive bid competition



CONS

- No design phase assistance from construction professional
- Longer total project schedule duration compared to other methods
- Price not established until bidding is complete
- Lack of flexibility for change
- Adversarial relationship
- Redesign time if project comes in over budget

Limitation of Bidders. It is best to always limit the number of bidders of a Church project. Open bidding can have a number of negative consequences.

1. Bidders should be limited to three to five. Having too many bidders on a "Select List" has the effect of discouraging qualified Contractors and you may not obtain good quality bids.
2. When having a select bid list, be prepared to award the project to the lowest bidder. It is suggested to have a private bid opening and a bid tabulation may be provided after a contract has been awarded.
3. Pre-qualify potential bidders. The Architect can help you prepare an RFQ (Request for Qualifications) from which you can select three, four or five bidders to bid the project.

Bid Process.

1. Allow ample time for the bid process, usually three weeks. Even though it may only take several days to put a project together, the longer it is "on the street" the better your bids will be. Encourage contractors to submit questions to the Architect so that ambiguities in the plans can be cleared up before bid day. Discuss with the Architect the value from holding a pre-bid conference to discuss the projects and entertain questions.
2. Simplify the amount of responses required on the bid form. Limit the number of alternates to three or four, and limit the amount of additional information required of the bidders. Whenever funding is tight, the tendency is to set up alternates so that the Church can pick and choose various options for the building. Some alternates, particularly those which cross a number of "trade" lines can be hard to accurately bid along with the base bid.



3. If multiple alternates are required, allow extra time for the alternate bids and additional information to be turned in after the base bid deadline. Once all bids have been turned in, open all bids. For example, consider the base bid is due at 2:00 PM with alternates and the list of subcontractors due at 4:00 PM. Open bids then at 4:00PM.
4. Strictly adhere to bid times, especially on public openings. If a Contractor is one minute late, do not accept his bid. On private openings, bid times may be less strictly enforced but should not be abused.

Award. The award of a construction project to a General Contractor is an important event. Treat it as such. Remember that all of the bidders have expended time and money in the effort to win the bid. Sometimes the amount of money spent to bid a project can be substantial, up in the thousands. Recognize and respect this effort.

Always be honest with the bidders. When an award is made, be prepared to explain the award to each of the unsuccessful bidders. If it is made on price alone then so indicate. If it is made on some other factor, be honest enough to share with the bidders what that factor was.

Nothing is more frustrating to a contractor that to bid a project and then never fully understand why someone else gets the job.

Competitive Sealed Proposals. This is a variation of the Design-Bid-Build method and is similar in all aspects, except the criteria for evaluation and selection of the contractor. This method requires contractors to submit additional information with their bids, which usually includes a listing of subcontractors, experience and proposed staff. These bid items are weighted in advance by the Church on factors of their choosing. For example, the Building Committee may give 60% weight to the bid amount, 20% weight to the proposed subcontractors, 10% weights to similar experience, and 10% weight to proposed staff. Other factors, such as proposed construction schedule, can be included and considered in the evaluation and selection of the contractor who is determined to be the “best value” for the Owner. The Competitive Sealed Proposal delivery method has received increasing favor from construction users.

PROS

- Contractor selection flexible
- Assurance of better subcontractors



- Familiar delivery method
- Defined project scope
- Single point of responsibility for design and single point of responsibility for construction
- Open, aggressive bid competition

CONS

- No design phase assistance from construction professional
- Longer total project schedule duration compared to other methods
- Price not established until bidding is complete
- Lack of flexibility for change
- Adversarial relationship (but less than Design-Bid-Build)
- Redesign time if project is over budget

Construction Manager at Risk (CM@Risk). This is a fancy term for picking your Contractor before he bids the job. He is normally hired after the Architect, after Schematic Design (SD) but before Design Development (DD). The idea is that you will use the CM to assist the Church in establishing and maintaining the budget and the design and construction schedule. The CM will evaluate construction techniques proposed for the project, proposed materials and mechanical systems. The CM@Risk will provide several estimates throughout the course of design to ensure that the project remains within budget. At each periodic estimate the Construction Manager is required to make suggestions on what changes to make to keep the project within the funds available. He will provide scheduling of the project to meet the needs of the Church.

The CM@Risk can be selected in a number of ways. Typically, he would be selected in a manner similar to the Architect. An RFP (Request for Proposal) is issued to a pre-selected group of Contractors, who respond with the requested information. This RFP should include a fee proposal and may include a general conditions proposal or estimate. Limit the amount of additional information required of the bidders.

Once the committee has reviewed the contractor proposals, they will narrow the field down to two or three firms which they will interview. The committee will make a selection based on factors of their choosing. For example, the committee may weigh the amount of fee at 40%, the contractor's previous church experience at 20% and the experience and qualifications of the contractor's proposed staff at



20%. Other factors can be included and considered in the selection of the CM@Risk.

Some churches may elect to interview only one Contractor / CM@Risk, obtain a proposal from that firm and make a selection. This may be based on a level of trust established by the firm with the Church. This is simply a negotiated contract.

The CM@Risk will provide estimates of construction cost and schedule as the Architect and his consultants develop the plans. The first will be at the completion of Schematic Design, which should include a contingency of 10%. The next budget is prepared at the end of Design Development and the final budget at the completion of the Final Contract Documents. The last two budgets should include contingencies of 5% and 3%, respectively. Each budget should include the Construction Manager's listing of assumptions and qualifications used in the calculation of the budget as a way to clarify ambiguities in the plans. At some point during the design process the CM@Risk will provide the church a Guaranteed Maximum Price (GMP). This is the price for the work. The GMP is the maximum amount the contractor will charge for the work based on the plans as they exist at the time the GMP is issued. Any changes in the scope of work will result in an adjustment in the GMP.

The term Guaranteed Maximum Price implies that the contract will be other than a lump sum. The GMP is determined as the estimated cost of work at the inception of the contract, including general conditions costs, plus the pre-agreed upon fee. The GMP may be revised by change orders to reflect an agreement for scope changes. The Owner will pay no more than the agreed upon GMP. At the end of construction, the accounting records for the project, as kept by the CM@Risk may be reviewed or audited by the Church.

This contract delivery method is preferable for projects with schedule issues, complex designs and limiting factors such as renovations with phased additions. The ability to work as a team to explore cost, material and schedule options during the design phase of a project proves valuable. It is believed by some experienced construction users that the CM@Risk process adds three to five percent to the total cost of the project. But because of their exceptional experience with this delivery method, they believe the additional cost is typically justified when project conditions warrant such a method.



PROS

- Contractor selection flexible
- Assurance of even better subcontractor selection than CSP
- Owner input into subcontractor selection
- Design phase assistance
- Single point of responsibility for construction
- Team concept
- Faster total project schedule delivery
- Change flexibility
- Budget and schedule control
- Reduced adversarial relationship

CONS

- Difficulty in evaluating the Guaranteed Maximum Price
- Less competition on subcontractor bids

Design-Build. The Design-Build approach is actually the oldest approach to construction delivery. The early builders were almost always the Architect. The concept of a general contractor who simply builds what another firm designs is really relatively new. Design-Build can be a useful way to deliver a Church building, but it is not for every Church project. Some firms specialize in Design-Build for churches, and it can be a way to get the building built faster than almost any other method.

Under this approach, the Church would select a Design-Builder, who would be totally responsible for the design and construction of the building. The Church would describe its needs and the Design-Builder would estimate the cost. The final cost may not be known any earlier than under the CM@Risk method because the Design-Builder still must have adequate plans before a realistic price can be established.

There are different leaders of Design-Build. Some are Architect led, and some are Contractor led. Some are joint venture projects between an Architect and a Contractor. The prevalent leader is the Contractor. He may be more likely to have the scheduling skills and financial resources to accomplish the task. It is important to know who is leading the effort and who will be financially responsible for the completion of the project. There are other variations including a Developer led team.



PROS

- Selection flexibility
- Single point of responsibility for both design and construction
- Faster schedule delivery
- Team concept

CONS

- Loss of check and balance
- More difficult process to manage
- Potential for adversarial relationship between Church and Design-Builder
- Lose some control of the design
- Architect not working as the owner's representative

Contract Forms. The various delivery methods also have various contracting forms that apply.

- Design-Bid-Build and Competitive Sealed Proposal are almost always *Lump Sum* or *Stipulated Sum* contracts for this form of contract.
- Construction Manager at Risk is usually *Cost of the Work plus a Fee with a Guaranteed Maximum Price (GMP)* where the Construction Manager is the Constructor.
- Design-Build has unique contract forms and can ultimately be *Cost of the Work plus a Fee* or *Lump Sum*.

The *American Institute of Architects* publishes standard forms which are widely used throughout the industry. Ask your Architect about AIA contract forms. Contractors are used to working with AIA documents, which are the standard in the industry. The more these standard documents are used, the easier getting under contract becomes.

Lump Sum contracts are also referred to as *Stipulated Sum* contracts and simply state that for a given set of plans defining a specific amount of work, the Owner will pay a specific amount for that work. This is the simplest and most commonly used form of contract. The AIA A101, Standard Form of Agreement between Owner and Contractor—Stipulated Sum is the *Lump Sum* form of contract.



Cost of the Work plus a Fee contracts are also referred to as “Cost Plus” contracts. This type of form provides that for a given set of plans defining a specific amount of work, the Owner will pay the actual cost to perform the work plus a fee to the Contractor for doing the work. The fee could be in the form of a percentage of the cost or it could be a fixed amount agreed to by the parties. The Owner would pay only what it costs to perform the work plus this fee unless the Contractor guarantees that the cost will not exceed some amount. The AIA form A111, Standard Form of Agreement between Owner and Contractor—Cost of the Work Plus a Fee, With a Negotiated Guaranteed Maximum (GMP) contract is the *Cost of the Work plus a Fee* contract form.

Most, though not all, Cost Plus contracts contain a Guaranteed Maximum Price provision which states that no matter what the cost of the work plus the Contractor’s fee, the Owner will pay no more than an agreed maximum amount for that set of plans and specifications. If the total cost plus the fee is less than the revised GMP, then a savings is realized. Prior to entering into a contract, the Owner and Contractor negotiate a distribution of this savings. Variations of the distribution of savings may include: 100% return to owner; 50-50 split; 25-75 split with contractor receiving 25% and total savings return capped at 1% of the GMP; for example.

The Guaranteed Maximum Price is adjusted throughout the course of the project by change orders just as a *Lump Sum* contract is adjusted. This is because the CM@Risk wants the GMP to rise to ensure that he has an adequate contract to complete the work within the GMP.

The Design-Build contracts usually have two parts. The first part is for the design services and usually covers the cost of the design (through some level of completion) and the final pricing of the project. The second part of the contract covers the project from that point on (final design and construction). Normally, if the Owner is satisfied with the design and the pricing at the end of the first part, then they will authorize the Design-Builder to proceed with the second part. The Owner usually has the option at the completion of Part One to cancel the contract and go a different route, either getting other bids or re-designing the project. The AIA A141, Standard Form of Agreement between Owner and Design/Builder is the standard Design-Build contract form. The *Design Build Institute of America* also produces a standard for Design-Build.



CONTRACT DOCUMENTS

Once funds are either obtained or pledged to fund the project, the architect and his consultants are released to proceed with drawings and specifications that are necessary for obtaining bids or negotiations towards a contract for construction.

This phase will include a room-by-room re-evaluation of the program and space requirements as each room is fit into the overall scheme, and specific functional requirements are finalized. It will include the selection of building systems and materials, heating and cooling systems, decisions on types of sound systems, preparation of final site and building floor plans and construction details, construction specifications, obtaining necessary governmental permits, and all other decisions necessary to define the scope of construction work to be performed. This should also include an estimate of the probable construction cost and a construction schedule.

The selection of worship space seating (pews, chairs, etc.) may be deferred to after the commencement of construction. When designed and selected, this work can be bid and contracted separately from the main construction contract.

Contract forms for construction are discussed in Section 9, Project Delivery Methods. As stated, we recommend the use of an AIA contract form. For each contract format, the AIA provides a separate document of General Conditions specific to each contract. The General Conditions are the part of the contract documents which describe in detail the relationships and obligations of the parties. For more information and for a listing of the different documents refer to www.aia.org. Supplementary General Conditions (SGC's) are developed to supplement, amend, delete from, or add to the standard General Conditions of the construction contract and other provisions of construction contract. Typically the SGC's would indicate the limits for insurance limits and the requirement for the contractor to furnish the Owner with payment and performance bonds from a surety from the U.S. Department of Treasury's Listing of Approved Sureties. See www.frm.treas.gov/c570/c570.html. They may also modify such other items in the general conditions as payments, phasing, allowable time extensions, and dispute resolution.

Contract forms are important. Included as an attachment at the end of these guidelines is an example of Supplemental General Conditions that is appropriate for use by churches. The Commission of Church Buildings is a resource for questions relating to contracting.



CONSTRUCTION PHASE

Owner's Representative. During construction, a single person should be selected from the Building Committee to represent and speak for the Church during planning and construction meetings. The scope of authority of the owner's representative should be clearly understood by all participants. The Building Committee should not send more than one representative to periodic progress meetings and should never give instructions to job site personnel.

Internal Coordination. If yours is an organization in which several people or departments must be involved in the project work, make it clear that the owner's representative is authorized to speak for you. Multiple sources of advice or requirements will inevitably cause problems later.

Meetings. Plan on regular (probably every two weeks) meetings of the project team and participate in them. Meetings should have clear agendas. Persons with assigned tasks should have them done in time for the meetings. Be sure that minutes are prepared that clearly identify what was discussed, and what items require further action and by whom. Minutes should be circulated to all team members.

Payments. Make sure there is a clearly defined method in place for paying the architect and contractor. Who signs off on payments? Do funds get disbursed directly from the lender or does the lender pay the owner who then pays the architect and contractor? In the case of unbonded work, are monthly lien releases required?

Documentation. Require that contacts between architect and client, and architect/owner and contractor, (for example, phone conversations and data gathering sessions) be documented, and the results shared with appropriate members of the project team. This system keeps everyone informed of what's being discussed and decided outside of formal project meetings and presentations.

Decision Process. Be sure that both the owner and architect understand the process by which you will make decisions. Who requires what information, whose approval is required, how much time-with-contingencies should be allocated for review of submissions.



During construction, the architect can:

- Administer the construction contract. This includes evaluating the work for compliance with the contract documents, checking shop drawings and other submittals to confirm the contractor's understanding of the design, and checking the contractor's payment requisitions against the progress of the work.
- Make design changes during construction. These may be required due to unexpected conditions in the field, the need for further refinements in the design, or changes in your own requirements as construction proceeds. These changes should be priced by the contractor and approved by the church prior to execution.
- Inspect the facility to determine that it is complete and ready for use, and that the contractor is entitled to final payment.

As a design professional, the architect has a continuing interest in knowing that your building works. You may wish to retain the same firm to assist with start-up, to review operations at a later date, for tenant-related services, or for later alterations and modifications.

NOTES:



CLOSE-OUT DOCUMENTS

Close-out is the process of completing the project and turning it over to the owner, and includes a sequence of approvals, possible partial occupancies, punch list inspections, and documentation.

Preparation of punch lists is not a committee function. The same parties that built the project will prepare the final punch list upon completion of the contractor's punch list. The architect, the contractor, and the owner's representative will create the punch list.

While owners rely on the architect to confirm the receipt of this work, it is important to be aware of each step required to assure a successful project. An important process is that of commissioning. This is the process of assuring that all equipment is working properly and that operators [from the church] are trained in the use of the equipment.

Other close-out documents include, but are not limited to:

- Certificate of Substantial Completion. This is the date certified by both architect and owner when the building is sufficiently complete to be used for its intended purpose. This is the date when warranties commence.
- Certificate of Occupancy. This certificate from the city or governing entity having jurisdiction over building inspections. This is required before a building may be occupied.
- A copy of all approved submittals made by the contractor to architect.
- Operating and Maintenance manuals.
- Warranties.
- As-built drawings.
- Contractor's Release of Lien. This certifies that all subcontractors and material men supplying labor to the projects have been paid in full by the contractor.

Final completion is determined by certification from the architect when a project is thoroughly completed, including all punch list items, and is "closed out". It is at this stage that the contractor is due all remaining payment.



INSURANCE

Adequate insurance which protects the interests of the Church and the Diocese must be in place for all projects, regardless of size. Everything from adding a door to building a new building should have adequate insurance coverage in place prior to the start of work.

Worker's Compensation Insurance. Should be provided for the contractor performing the work as well as his subcontractors. This is not only for their protection but also for the Church's to help discourage lawsuits in the event of an accident. Worker's Compensation sets up a "shield" between the contractor and his employees. The employees are guaranteed their wages and medical expenses should they injure themselves. In exchange, the employer is exempt from getting sued for those injuries. Limits on Worker's Compensation are set by statute at \$1,000,000.

General Liability Insurance. Is the insurance that contractors and subcontractors purchase to cover the expense of something that was caused by their action. For example: A water pipe bursts in the ceiling and ruins a copy machine. General Liability takes care of that damage. A larger and more expensive issue is if a subcontractor's employee gets hurt. That employee is covered under Worker's Compensation so they have no further recourse against the employer. The injured employee may sue the General Contractor, the Church, and the Diocese for unsafe work practices, and an unsafe work environment. For that reason, the General Contractor will indemnify and hold harmless the Church and Diocese from any and all liability. That indemnity is only good WHEN REQUIRED BY WRITTEN CONTRACT. That is the reason to always have a written contract. A reputable general contractor will have those same provisions in place with their subcontractor so that any accident or injury of a subcontractor's employee is ultimately defended by that subcontractor. Limits of Liability should be a minimum of \$1,000,000 per occurrence and a \$2,000,000 aggregate.

No work may be performed on a project until a contract is signed and an insurance certificate is on file with the Diocesan entity.



GLOSSARY OF TERMS

Addendum: a supplement to contract documents including additions or changes, usually issued following distribution of documents, but prior to acceptance of proposals by contractors.

Administrative relationship: a working condition between two parties which is not contractual but which entails transfer of valuable services and information.

Affidavit: a written sworn statement, submitted by a contractor with application for payment as part of the documentation of work completed and disbursement of funds, intended to assure payors (owners and lenders) that suppliers, subcontractors, and workers have been duly paid and will not seek further payment, possibly through liens, from the payor.

Agent: one who is empowered to act in behalf of and in the best interests of another for prescribed activity. Agency is the act or quality of being an agent.

Agreement, form of agreement: a document setting forth the provisions, responsibilities, and obligations of parties to a contract. Standard forms of agreement for building construction are available from the American Institute of Architects and the Associated General Contractors of America and are designed to allow the insertion of data relevant to particular projects.

Allowance: a sum of money stated in contract documents to cover the cost of materials or items in those documents, the full description of which is not known at the time of bidding. All contractors include the stipulated allowance(s) as part of their proposals. The actual cost of the items are determined by the contractor (not including installation) at the time of their selection by the architect and owner, and the total contractual amount is adjusted accordingly. Examples include brick, finish hardware, carpet, etc.

Alternative Dispute Resolution (ADR): A range of procedures which are options to work stoppages, alienation of parties, and litigation, with the objective of resolving problems before they negatively affect contractual relationships, schedule, and productivity. Ideally, any ADR provision should be included either in the contract or in a partnering charter. Examples, in general order of seriousness, include:



Negotiation: a semi-formal process in which parties directly involved in a disagreement meet, ideally away from the distraction of the job site, to attempt to resolve differences with a minimum of aggravation and energy, and to avoid a full blown dispute.

Mediation: negotiation aided by a neutral third party whose role is to establish key facts in the dispute and to guide the disputants to resolution. The mediator has no binding powers.

Dispute Resolution Board: a panel of people (usually three) who are knowledgeable of both construction and the law, appointed prior to commencement of a project, and then called upon to hear and decide disputes when they occur. Typically, the owner and contractor each select one representative, and these two select the third member, who serves as Chairman of the DRB.

Arbitration: a formal process which engages a single arbitrator or a three person panel with binding powers to decide a dispute. The process typically includes legal representation of the parties, introduction of evidence, testimony by witnesses, etc. If standard procedures are followed (such as those promulgated by the American Arbitration Association), courts will typically honor arbitrated decisions. It is recommended that the disputants agree in the contract to allow the mediation process to move directly into arbitration.

American Institute of Architects (AIA): a national association which promotes principles, standards, and activities which are important to the practice of architecture, including ethics, education, legislation, and professional advice. The AIA also publishes many documents which guide design and construction processes.

Application for Payment: a formal submittal by a contractor or subcontractor for payment for work performed within a particular period, usually each month, which may include materials purchased and properly stored. The form of application, timing, and documentation are stated in the agreement between owner and contractor.

Architect: a professional person who is duly licensed by a state (by examination or reciprocity) to perform services in that state involving the design of buildings. Licenses are periodically renewable, are policed to varying degrees by



State boards, and are revocable upon breaches of professional conduct. (The term architect is sometimes used generally for any person who designs buildings, but legally one must be licensed to use the term.)

Association of Fund Raising Professionals (AFP): a professional association of individuals responsible for generating philanthropic support for a wide variety of nonprofit, charitable organizations. See website address at www.afpnet.org .

Associated General Contractors of America (AGC): a national trade association made up primarily of general contracting companies but also including related occupations and professions. See website address at www.agc.org.

Award: the act by one party of granting a contractual opportunity to another party typically as a response to a proposal, as in an owner awarding a contract to a bidder.

Basic services: those provided under typical agreements, as differentiated from extra or comprehensive services.

Bid: a proposal submitted in various forms, oral or written, to perform remunerated work or to buy an object. Related definitions in construction are:

Bid, competitive: proposals are compared to each other on some prescribed basis, such as a set of contract documents, and the “lowest and best” bid is usually accepted.

Bid day or bid date: the date set by the owner or architect, usually with a definite hour when competitive bids are due.

Bid form, form of proposal: official document used for submittal of competitive bids.

Bid guarantee, bid security: a bid bond or certified check, cashier’s check, or similar instrument to assure an owner that a bid is valid and that the bidder will enter into a contract if awarded. Refusal to enter into a contract leads to forfeiture of the guarantee.

Bid period: the time between announcement or advertisement of a project available for bidding and the bid date.

Bid requirements: instructions to bidders, the written prescription of how bidders shall submit proposals and what to include.



Bid, responsive or non-responsive: characterization of a bid as either meeting all the bid requirements or not meeting such.

Bond: a written agreement containing a financial guarantee that one party, the surety, obligates itself to a second party, the obligee (usually an owner), to assure the performance, service, or payment by another party, the principal (usually a contractor and sometimes called an obligor). Various types of bonds and related items are offered below as supplied by the Surety Association of America.

Bid bond: a bond given by a bidder to accompany a construction contract to guarantee that the bidder, if awarded the contract within the time stipulated, will enter into the contract and furnish any prescribed performance and payment bond. Default (not proceeding after being awarded a contract) will ordinarily result in liability to the obligee for the difference between the amount of the principal's bid and the bid of the next lowest bidder who can qualify for the contract. In any event, the liability of the surety is limited to the bid bond penalty.

Bonding capacity: the limit of bonded work which a contractor can perform; a function of the willingness of a surety to provide bonding.

Labor and material (payment bond): a bond given by a contractor to guarantee payment to certain laborers, subcontractors, and suppliers for the labor and material used in the work performed under the contract. This liability may be continued in the performance bond, in which case a separate labor and material bond (payment bond) is not given.

Maintenance bond: the normal coverage provided by a maintenance bond guarantees against defective workmanship or materials. However, maintenance bonds may occasionally incorporate an obligation guaranteeing "efficient or successful operation" or other obligations of like-intent and purpose.

Performance bond: a bond which guarantees performance of the terms of a written contract. Performance bonds sometimes incorporate payment bonds (labor and materials) and maintenance bond liabilities.

Building permit: a regulatory device employed by building authorities to enforce building, zoning, environment, and other legislated codes. Drawings and specifications must be submitted for review and must meet all applicable codes for a permit to be issued. Similar permits are issued for specialty work such as plumbing, HVAC, electrical, elevators, etc., usually by sub-agencies of the



building authority. Fees are charged for all permits and are theoretically in an amount to cover the activity of the building authority, including field inspections.

Certificate of occupancy (CO): a regulatory device employed by building authorities to assure that all code requirements are met prior to occupying a building. Conditional CO's may be granted for a phased move-in by the owner. The architect or contractor typically notifies the building authority to request a final inspection for CO.

Change order: amendment to a contract based on a change initiated by the owner, designer, contractor, or building official and documented by a written amendment signed by the owner and contractor after price and schedule adjustment are agreed upon.

Changes in the work: changes in a project ordered by the owner or architect which are revisions from work as shown in the contract documents. If within the scope of work, the contractor is required to perform the revisions (usually with change orders). If the changes are additions to the scope there is no mandate to make them, but such changes are ordinarily negotiated.

Close-out: a process of completing a construction project and turning it over to the owner. It is usually a multi-week sequence of approvals, partial occupancies, punch list, documentation, and celebrations.

Commissioning: a process of assuring that all equipment is working properly and that operators are trained in use of equipment.

Completion: finalization of a project and conclusion of a contract. Substantial completion is the condition when gainful occupancy may be taken by the owner or users and when final payment (except retainage) is ordinarily made to the contractor. Final completion is when a project is thoroughly completed, including all punch list items, and is "closed out". The contractor receives all remaining payment due upon final completion. Both completions are usually certified by the architect.

Conditions: a broad term used to describe a number of situations and relationships in construction:

General conditions: the part of contract documents which describe in detail the relationships and obligations of the parties. A frequently used standard form is AIA A201, General Conditions of the Contract for Construction. Related general conditions refer to the support and



coordinating elements on a job site, including temporary facilities, security, signage, reporting, and parts of management and supervision.

Special conditions: the part of contract documents which describes aspects peculiar to a project.

Supplemental (supplementary) conditions: usually elaborations on general conditions.

Conditions of acceptance: pertains to many circumstances wherein one party sets limits on acceptability of performance of another party.

Constructability: a design review process by experienced general contractors and designers with the objective of establishing during design rational and efficient construction procedures for field execution. The ultimate aim is to cause the designer to adopt materials, systems, and details which are both cost effective and time effective in the field without sacrificing aesthetic intent. Constructability is frequently combined with value engineering as a review process.

Contingency fund: an amount of money set aside in anticipation of costs beyond a target price or contractual amount. Contingency funds are important in any agreement with a guaranteed maximum price. The following are types of contingencies used with GMP's:

Design contingency: a fund of money established to absorb cost growth during the design process.

Owner's contingency: a fund to cover cost growth during design or construction and used only with approval of the owner; usually used for items requested by the owner.

Contractor's or construction manager's contingency: a fund to cover the cost growth during design or construction and used in the discretion of the contractor or construction manager, usually for costs which are the result of project circumstances rather than any one party's instigation.

Contract: a binding agreement between two parties describing obligations of both parties. Most construction contracts are based on standard forms of agreement provided by associations such as the American Institute of Architects and the Associated General Contractors of America. Some owners generate their own contract forms. Standard forms have the advantage of being broadly recognized with clauses which have evolved over time due to dispute resolution and court tests.



Contract documents: the drawings, specifications, and attendant documents which make up the total agreement and obligations between owner and contractor. Sometimes called construction documents, they describe in advance the finished product to result from the contract.

Default: a condition wherein a party to a contract fails to complete the terms of the contract. The most frequent construction situation is when a contractor fails to complete the contracted work and declared by a third party, such as the architect, to be unable to continue adequate performance.

Design: a process of composing ideas and requirements into an understandable scheme or plan for a product. Building design involves architects, engineers, consultants, and sometimes constructors working together to develop drawings and written descriptions (specifications) for a building. Architectural design terms and phrases, generally in the order in which they occur, include:

Programming: typically done prior to the design process, but sometimes integrated with early design procedures, programming clarifies objectives of the proposed building and lays a strategy for the design and construction process.

Diagrammatics: single line drawings indicating spaces, shapes, circulation patterns, and perhaps massing. Sometimes called pre-schematics, they are usually accompanied by a schedule of spaces and a budget.

Schematics: accurate pictorial drawings indicating all of the elements shown in diagrammatics but with more information including materials, sizes, colors, and aesthetic factors that determine the general scope, preliminary design, scale and relationships among the components of the project. An estimate of cost is made at this time. Owner approval is required to proceed with the next phase.

Design development: the information from the schematic stage is further investigated; materials and components are further researched and compared, and detail drawings are undertaken; specifications are begun, and an updated estimate of cost is given. Value engineering and constructability are frequently performed during design development by a team including designers, constructors and consultants. Owner approval may be required to proceed to the next stage.

Contract documents: a continuum with the design development in which fully detailed drawings, specifications, and attendant documents are



produced in preparation for accurate pricing by contractors and execution of construction.

Contract administration: extension of design duties into the construction stage, during which architects and engineers maintain liaison with contracts and monitor the job site to interpret the contract documents and to act as the owner's agent in reviewing construction proceedings.

Guaranteed maximum price: an amount established in an agreement for a project where the exact costs are not known at the time of the agreement, the final costs are anticipated to be equal to or lower than the GMP, and the contractor or construction manager must absorb any costs above the GMP subject to revision by change orders to the contract.

Insurance: coverage through an agreement (contract) whereby one party insures (underwrites, provides coverage) to guarantee against losses of another party which may result from perils specified in the agreement. Insurance types and terms are as follows:

Builder's risk: purchased to cover property and casualty loss and liability related to the project.

Contractor's auto liability: coverage for owned or leased autos or those driven on behalf of the contractor for bodily injury, property damage, uninsured motorist, collision, and comprehensive damage.

Contractor's liability: ongoing coverage for premises/operations, protective liability, completed operations, broad form property damage, contractual liability, and blasting/tunneling/high hazard; documented by certificates indicating amounts of coverage in effect at the time of entering a contract.

Workers' compensation: coverage for injury, death, or illness of employees or benefits to their survivors; required in all states.

Professional liability: coverage for services rendered by the designer and sometimes called errors and omissions insurance; an important coverage in design-build projects.

Penalty clause: a contractual inclusion (different from liquidated damages) which reduces the contract sum based on inadequate performance on the part of the contractor, usually tied to project duration. May be offset by an incentive clause.

Phased construction: a process involving the construction of one or more buildings over a period of time with different start dates and completion dates,



usually involving owner's sequential occupancy needs over time. This term also relates to a series of bid packages wherein different trade contractors perform different parts of the project through phases; somewhat analogous to fast-tracking.

Post-construction services: a range of activities performed following the actual construction process, including commissioning, start-up, warranty documentation, and warranty work.

Preconstruction services: a range of activities performed by a contractor prior to execution of construction, including value engineering, constructability, cost and schedule studies, procurement of long lead time items, and staffing requirements.

Prequalification: sometimes simply called qualification, a process for determining whether a contractor has the ability, credentials, financial strength, and personnel to carry out a project. Formal Prequalification employs standard forms such as those used by AIA or AGC and includes statements of experience, key personnel, and audited financial records.

Program management: a project delivery "set of processes" based on an agreement whereby

Project: the physical and contractual definition of the execution of construction of one or more buildings; the total work being done. Related terms:

Project manager: one who is responsible for a project, particularly awarding subcontracts, procuring materials, monitoring costs, and managing the paperwork.

Project manual: written parts of the contract documents, including specifications, conditions, forms of agreement, and forms of proposal, bound together; sometimes refers to a contractor's binder of many guidance documents and instructions.

Project superintendent: contractor's job site supervisor charged with coordinating and directing operations toward the completion of the project.

Project delivery system: a comprehensive process wherein designers, constructors, and various consultants provide services for design and construction to deliver a built project to the owner.

Schedule: an organized array of information to illustrate resource allocation, interrelationships of activities, costs, and performances. There are many types of schedules and scheduling terms related to construction. The following are adapted from the AGC Publication *Construction Planning and Scheduling*:



Critical path: longest continuous chain of activities through the network schedule that establishes the minimum overall project duration.

Milestones: important dates included in schedules for reference or measurement. Milestones do not consume any time or resources. An example of a milestone is “building enclosed”.

Schedule update: revision of the project schedule to reflect the current status of activities at the time of the update as well as how the project is planned to be completed.

Scope of work: a contractual term describing the overall boundaries of work included in a contract, such as site and building geometry, extent of improvements, and particular equipment.

Self-performance: work done directly by a prime contractor. This may be covered in the prime contract or it may be left to the contractor. An important project preplanning decision is the amount of self-performance vs. subcontracting to be done on a project.

Unit Price: bid cost (priced in advance) for anticipated extra work, such as additional excavation or concrete.

Value engineering: a design review process involving critical evaluation of elements of a building to determine the relative value to the owner of the specified product or system compared to alternative products or systems. Life-cycle costing and constructability studies may be parts of value engineering processes.

Working drawings detailed drawings used for construction; a principal component of contract documents.