



Guide to Design & Construction For Public Projects in Iowa

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American Council of Engineering Companies of Iowa (ACEC)

www.iaengr.org

Master Builders of Iowa (MBI)

www.mbionline.com

INTRODUCTION

The purpose of this guide is to provide public owners at all levels of government a clear understanding of the mandatory and available procedures for design, documentation and construction for public works construction in Iowa.

There is a continuing need for education on this subject – laws and regulations frequently change, as do elected and appointed officials who act on behalf of the public. The authors intend to update the Guide after any significant changes in laws by the Iowa Legislature or in the rules of the Iowa Administrative Code.

The guide primarily discusses the procurement of licensed design professionals and the Design-Bid-Build (DBB) project delivery system for construction, singularly required by Iowa law for public projects. It is essential that public owners have a thorough understanding of how the DBB project delivery system works. This guide reviews the many facets of a public construction project to help guide the process from start to finish. Companion ICIF publications are:

- *Public Owners' Guide to Legal Issues on the Bidding and Award of Construction Contracts in Iowa*
- *Manual of Recommended Procedure for Competitive Bidding and Award of Building Contracts*

All three guides are available for free download on the AIA Iowa website.

Public owners have the responsibility of ensuring that the project is built in a legal, responsible and efficient manner and at the lowest fair and reasonable cost to taxpayers. They are also challenged with the task of assuring that their construction projects are sources of community pride as well as sound investment.

Many public officials are seasoned veterans of construction projects. For others, however, it can be a new and worrisome experience. This guide strives to address both situations... a thorough overview and update for the veteran and clear and simple explanations for the newcomer.

For clarity of what is not permitted by Iowa law for the delivery of public construction projects, this guide also reviews project delivery systems commonly used in private construction, but not legal for public works.



DEFINITIONS

Addendum – a modification to the bidding documents issued sufficiently prior to the published bid date that bidders have a reasonable opportunity to investigate the new requirement. (Plural, addenda).

Bidding Threshold – competitive bids for public construction required when the estimated cost exceeds this amount, typically \$100,000 for most projects.

Building Authority – the governmental official or group charged with the code review of plans, issuance of approval to proceed or a building permit, and inspection during construction.

Competitive Bidding – a sealed bid based on published contract documents, opened in public, and subject to scrutiny by the public and other bidders.

Contractor – although technically anyone holding a contract with a public entity is a contractor, this term with respect to public works usually refers to the contractor(s) for construction, along with subcontractors and materials suppliers.

Design Professional – a person licensed to practice the profession of architecture, engineering or landscape architecture in Iowa.

Documents, Bidding – mostly the same as Contract Documents, except the contract agreement is blank or referenced, there are no modifications (by definition) and with the addition of various instructions to bidders and the bid form, neither of which are intended to become contract documents.

Documents, Construction – drawings and specifications describing the intended project work.

Documents, Contract – the legal basis on which the contract is based and contractor performance measured; this includes the completed contract agreement itself, conditions of the contract (general, supplementary and other), drawings, specifications, addenda, any other documents specifically listed in the agreement, and modifications, if any, which become issued after execution of the agreement (i.e., change order).

Estimated Total Cost of a Public Improvement - means the estimated total cost to the governmental entity to construct a public improvement, including the cost of labor, materials, equipment, and supplies, but excluding the cost of architectural or engineering design services and inspection.

Fair and reasonable - as defined by Iowa Department of Administration rule, means a price commensurate with the extent and complexity of services to be provided and comparable to the price paid for projects of similar scope and complexity.

Governmental Entity - means the state, political subdivisions of the state, public school corporations, and all officers, boards, or commissions empowered by law to enter into contracts for the construction of public improvements, excluding the state board of regents and the state department of transportation.

Governmental Use - as defined by IAC 193B-5.1 means a building or portion of a building owned or occupied by a municipal, county, state, federal, or other public agency including, but not limited to, municipal fire and police stations and libraries.

Infrastructure, Horizontal is any publically owned road, bridge or culvert (IDOT).

Infrastructure, Vertical means buildings, all appurtenant structures, utilities, incidental street improvements including sidewalks, site development features, recreational trails, and parking facilities. (IAC 761-180.3)

Iowa Code – the statutory laws of the state passed into law by the Legislature and signed by the Governor.

Iowa Administrative Code (IAC) – the administrative rules of the state, authorized by law, and promulgated by state agencies.

Project Delivery System – a method by which a project is contracted for design, documentation and construction

Public Improvement - means a building or construction work which is constructed under the control of a governmental entity and is paid for in whole or in part with funds of the governmental entity, including a building or improvement constructed or operated jointly with any other public or private agency, but excluding urban renewal demolition and low-rent housing projects, industrial aid projects authorized under Iowa Code chapter 419, emergency work or repair or maintenance work performed by employees of a governmental entity, and excluding a highway, bridge, or culvert project, and excluding construction or repair or maintenance work performed for a city utility under Iowa Code chapter 388 by its employees or performed for a rural water district under Iowa Code chapter 357A by its employees. (IAC 761-180.3)

Qualifications Based Selection (QBS) – a preferred method of selecting design professionals and other advisory-type consultants.

Responsible Bidder – a prime contractor that can perform and complete the work required by the contract documents, demonstrated to the satisfaction of the owner.

Responsive Bid – an unequivocal offer to do everything required by the contract documents, without exception.

Request for Proposal (RFP) - an invitation to submit a scope of services and fees for a project with a definitive scope of work requirements, with the purpose being a proposed basis of contractual agreement to perform such services.

Request For Qualifications (RFQ) – an invitation to express interest in a project by submittal of stipulated information on business organization, experience, etc. Such a request is a first step in implementation of QBS selection. (This should not be confused with a Request for Quotation, used in procurement areas other than design professional selection, or a Request for Information (RFI) which is used to clarify the contractors' understanding of intent during construction.)

1. PUBLIC POLICY FOR PUBLIC CONSTRUCTION PROJECTS



COMPETITIVE BIDDING REQUIRED

For more than a century, Iowa’s competitive bidding laws governing the procurement of contractors for construction of most public works has been based upon the concept of a responsive low bid from a responsible contractor.

This model has endured through the years, providing a process that completes public construction projects efficiently and at a fair and reasonable price. The lowest responsive and responsible bid helps guard against political corruption, graft and favoritism, protecting both the public owner and the Iowa taxpayer.

BID THRESHOLDS

The determining factor of whether a public project must abide by Iowa’s competitive bid laws varies by type of governmental entity. The bidding thresholds and their Iowa Code citations are discussed in detail in the “*Public Owners’ Guide to Legal Issues on the Bidding and Award of Construction Contracts in Iowa*”.

In general, competitive bidding is required when estimated construction cost exceeds \$100,000 for public works projects for cities, counties, schools, the Iowa Dept. of Administrative Services and the Board of Regents. There are exceptions for road and bridge, farm-to-market roads, and state highway projects.

There is no ambiguity in the requirement. In the past, some public owners have occasionally tried to skirt the threshold, only to find that their efforts increased either the cost to the taxpayer or the time necessary to complete the project. Some public owners have attempted to manipulate the bidding process to the advantage of one

Iowa’s competitive bidding laws apply to selection of contractors for construction but do not apply to the procurement of architects, engineers and landscape architects.

entity over another or show preference in the award of projects. Not only is preference against the law, it will very likely increase the costs of the project, adversely impacting the taxpayer and can often result in a reduction in the perceived credibility of those involved.



However, certain limited preferences exist relating to American-made and Iowa-based businesses and products (Iowa Code 8A, 23, 73 & 218).

DESIGN-BID-BUILD (DBB) PROJECT DELIVERY

The “traditional” Design-Bid-Build (DBB) project delivery system is at the heart of competitive bidding and the only legal approach for public construction contracts when estimated cost exceeds the bidding threshold.

DBB is a three-part, sequential process that involves establishing separate contractual relationships with a design professionals team responsible for building design and documentation and another with a construction team responsible for the construction of the building design prepared by the design professionals. This multi-contractual arrangement has withstood the test of time by offering a method of checks and balances in the design and construction of buildings that protects the public interests by assuring the level of quality envisioned in the design phases is implemented in the construction phases:

- **Design and Documentation**, which must by law be prepared by architects, engineers and/or landscape architects properly licensed to practice in Iowa;
- **Bidding**, where qualified construction contractors compete by submitting cost proposals based on the bid documentation;
- **Construction**, where the successful low bidder builds the project according to the bid documentation.

DBB brings the forces of competition directly to bear upon the cost of construction by soliciting a price for all work required by the plans and specifications issued for bidding.

CONTRACTING METHODS

Various methods are available to the public owner to deliver the construction portion of a project under the DBB system:

- **Single Prime** contract, with a general contractor as the successful low bidder acting as the Prime contractor, utilizing and

coordinating various subcontractors to complete all work. This is by far the most common approach.

- **Multiple Prime** contracts, with several co-equal Prime contractors who are successful low bidders for their portions of the work. This requires significant expertise and additional coordination of the several contractors' efforts, either by the owner, the design professional, or a third party.
- **Fast-track** contracts, where partial construction packages are documented and bid before other parts of the design and documentation are completed. This requires very significant expertise and active coordination, along with careful monitoring and control of cost commitments by the owner, the design professional, or a third party. Control of total cost is a greater challenge under this method because they are not fully identified until the final bids are completed, while cost commitments have already been made on earlier bids.
- **Construction Manager as Advisor / Construction Manager as Agent** (CMA), where a construction manager is under separate contract with the owner, parallel to the owner's contract with the design professional. The CM coordinates the efforts of several contractors, a variation of the Multiple Prime contracts delivery system or the Fast-track system. Depending on the degree of authority extended to the CM, this is called Construction Manager as Agent when greater authority is granted to the CM by the owner. This function may instead be filled by a public owner's staff is well-experienced in construction.

These options, explained in greater detail later in Chapter 4, must all be performed consistent with the competitive bidding requirements of Iowa law. If a construction manager is involved, they may perform not any construction services.

DESIGN PROFESSIONALS REQUIRED

Public policy mandates that a building for governmental use and its site must be designed by an Iowa-licensed design professional. This means an architect, engineer, and/or a landscape architect licensed to practice in Iowa. This requirement is based on concern for the protection of public health, safety and welfare.

METHODS OF SELECTING DESIGN PROFESSIONALS

By contrast with the mandatory competitive bid method of selecting the contractor team for construction, Iowa law is mostly silent on the method of selection of design professionals. **Iowa Code 8A.311.4b** offers guidance, stipulating that "architectural and engineering services shall be procured in a reasonable manner, as the director by rule may determine, on the basis of competence and qualification for the type of services required and for a fair and reasonable price".

The rules of **IAC 11-105.9**, implemented to describe the proper design professional selection process, explain the process in more detail.

Architect required – Iowa Code 544A and IAC 193B

Engineer required – Iowa Code 542B and IAC 193C

Landscape architect required – Iowa Code 544B and IAC 193D

Iowa Code 8A.311.4b (law) and Iowa Administrative Code Ch. 105.9 (rules)

Refer to Appendix A-1 for a detailed description of the selection process as prescribed by these rules.

While this mandate applies specifically to facilities under the authority of the Iowa Department of Administrative Services, it is consistent with Federal procurement (the Brooks Act) and the qualifications-based selection (QBS) process recommended by professional design associations and adopted by 46 other states¹. The Brooks Act is similar to that of *The 2000 Model Procurement Code for State and Local Governments*, published by the American Bar Association. An abstract of the ABA procurement process recommended for architects is included in Appendix A-2.

The Brooks Act is Public Law 92-582, adopted Oct. 27, 1972.



BUILDING CODES

Public policy also prescribes building codes and state fire marshal rules that set minimum standards of quality and life safety for most publically owned buildings. Like the requirement for architects, engineers, and landscape architects, this mandate is based on the protection of public health, safety and welfare. Building codes are discussed in more detail in Chapter 3.

PLAN REVIEW & BUILDING PERMITS

Where any building code applies, a plan review and building permit or approval to proceed is required prior to beginning construction. Periodic inspections by building authorities provide an added measure of life safety for the public.

NONPUBLIC PROJECT DELIVERY TYPES

In private construction projects and in the public works of some other states, other types of project delivery are sometimes utilized, such as Design-Build (D-B), Construction Manager as Constructor (CMc, also called Construction Manager at Risk), and Sole-service Provider.

These methods are not permitted for public construction in Iowa. However, private owners are free to select any project delivery

Licensed design professionals are required for most private construction, subject to certain exclusions.

¹ ACEC survey of state QBS laws: http://www.acec.org/advocacy/committees/pdf/qbs_matrix.pdf

method of their choosing. Sometimes public owners in Iowa become confused, having heard about these other methods, and mistakenly thinking they are also available for public projects. However, only competitive bidding is permitted in Iowa as a method of selecting the contractor team for construction.

It is useful to briefly describe and contrast these other methods with the competitive bid laws to better understand the critical differences and avoid unintended conflict.

Design-Build

Under a Design-Build delivery system, a private owner selects, at its own discretion, one entity to assume the responsibility for both design and construction. The owner provides the design-builder its requirements, and the design-builder then both designs and builds the project.

By contrast, public owners cannot arbitrarily select a design-builder and must keep separate the functions of design and construction.

Construction Manager as Constructor or At Risk

Another common private sector delivery system is the construction manager as constructor, or CMc, approach often called Construction Management at Risk. The CM@Risk may provide optional consulting services during design and documentation (also called the pre-construction phase), and then takes on the financial obligation to carry out construction under a specified cost agreement. The cost is based on the design and documentation prepared by the design professional team. The cost may be a stipulated sum if the documentation is complete or a Guaranteed Maximum Price (GMP) if the cost is provided based on preliminary and thus incomplete documentation.

A CM@Risk can choose, if the owner agrees, to actually perform portions of the construction work on the project. Often this is done through a blind competitive bid system where the owner reviews the sealed bids and is thus assured of the lowest price for that work.

The extent of “risk assumption” is the fundamental difference between CMA (Advisor or Agent), which is legal in Iowa in that the Iowa Code is silent on the subject, and CMc (@Risk), which is not legal in Iowa.

A CMA does not assume the risk of guaranteeing a maximum price for the project, nor does the CMA perform any construction. Because the CMA by definition cannot hold the trade contracts, they are held directly by the owner as they are in DBB, and the CMA typically manages the construction contracts as an advisor or agent of the owner. The CMA still has some risk as it relates to the services provided, including scheduling, construction coordination, and safety.

The D-B firm is typically led by either a contractor or a design professional, and the firm may either directly employ or subcontract the others skills needed to provide a total D-B service.

By contrast, a CMc on a private project provides a stipulated price such as a GMP or a fixed price. The CMc assumes the contractual risk by holding the trade contracts with subcontractors and suppliers.

Sole-service Provider

A delivery system sometimes used by the private sector, but not permitted with Iowa taxpayer money, is the bundling of design, construction, finance and maintenance of a project. Aptly named “sole-service provider”, but also marketed as “energy performance-based contracting”, bundling is not permitted by Iowa law because the overarching requirement for competitive bidding would not be satisfied.

Even if it would become legal in the future, the bundling of all aspects of a construction project would be risky for an owner not deeply experienced in construction. There are many ways that revenues, costs and profits for the provider could be manipulated or concealed to the financial disadvantage of the owner. An analogy might be the acquisition of an automobile and the differences between the clear understanding of purchasing vs. the more vague complexities of leasing.



INTEGRATED PROJECT DELIVERY

A relatively recent term in the design and construction industry is Integrated Project Delivery (IPD). While collaboration has long been the case to some degree among owners, design professionals and builders, the IPD approach to delivering a project focuses much more intensively on the parties working closely together throughout a project, from beginning to completion.

The earlier in the process complete collaboration is introduced, the more successful it is in achieving project goals efficiently and satisfactorily.

True IPD is more easily achieved with certain² delivery models available to private development. The requirement for competitive bidding of public construction by definition defers the builders' collaboration until after design; documentation and bidding are already complete.

The only method available to Iowa public owners that includes some aspects of IPD is the CM-Advisor (CMA) process. In this case, the public owner can select a design professional by QBS method, and then select a CMA by a similar QBS method with assistance from the design professional. The advice of the CMA during the preconstruction phase can offer a limited version of the more complete role provided by a construction contractor. The difference is that the CMA cannot speak absolutely with respect to such considerations as methods and materials, accurate schedule, true costs, etc., because these are the responsibility only of the eventual builder under contract.



² For private owners, IPD is optimized when the contractor is added to the team at the start of design, with any method of contractor selection of the owners' choice. For public owners in states that allow certain kinds of alternate project delivery, the best opportunities for IPD-type collaboration are available with CM@Risk/QBS and Design-Build/QBS, where the participants are selected based on qualifications prior to the start of design.

2. THE DESIGN TEAM & THE CONSTRUCTION TEAM



Successful public construction projects require a collaborative team dedicated to the success of the project. The team always includes the owner, design professionals, contractors and suppliers.

OWNER

For the scope of this Guide, the owner is the public body that commissions the construction of a public improvement. Examples include a state agency, a city, a county, or a public school district. As prescribed by Iowa law (and sometimes by other requirements like city or county ordinances), a public corporation is granted the authority to hire design and construction services.

During the course of design, documentation and construction, the governing body often delegates authority to act on its behalf to one or more employees or board members, subject to periodic review and approval by the entire governing body. This is done to promote an efficient process of decision-making and communications. This person is often called the “Owner’s Representative”, or a group might be called a “Building Committee”. Examples of individuals able to fill this important role include department heads, school superintendents, board members, buildings and grounds managers, city managers, public works directors, and county engineers.

DESIGN PROFESSIONALS

Iowa law almost always mandates the services of licensed design professionals to provide design and documentation for public projects. This requirement is based on the rationale of protection of public health, safety and welfare and the extensive knowledge and skills needed to prescribe complex buildings.

Public construction bidding law is found in Iowa Code Ch. 26.

Preferences laws are found in Iowa Code Ch. 73.

Laws covering Cities are found in Iowa Code Ch. 364 & 384.

Laws covering Counties are found in Iowa Code Ch. 331.

Laws covering the Board of Regents institutions are found by Iowa Code Ch. 262.

Laws covering the Iowa Department of Administration and the General Services Enterprise responsible for much of the state’s construction are found at Iowa Code Ch. 8A.

Laws covering School Construction are found at Iowa Code Ch. 297.

The practices of architecture, engineering and landscape architecture are limited to persons properly licensed in Iowa. Licensure requires extensive education, several years of experience as an intern, and a rigorous examination. Design professionals offer a wide range of services, determined by mutual discussion between the owner and the design professionals.

Design and documentation services usually include, at a minimum:

- **Programming** - assisting the owner in defining the scope and needs of the project
- **Design** – a conceptual solution for building and site that best meets the project needs
- **Documentation** – elaboration and detail of the conceptual design in the form of plans (drawings) and performance details (specifications) for bidding
- **Bidding Assistance** – advising and assisting the owner in the construction bidding process
- **Construction Administration** - assisting the owner in administering the contract for construction and periodically reviewing the evolving construction for conformance to the plans and specifications.

Other design services often provided include interior design, FF&E (furniture, furnishings and equipment), master planning and feasibility planning, among others.

For more detail on available services, refer to the many standard owner-design professional agreements available.

In counties and larger communities, it is possible for the designers of certain public construction projects to be employees of the government entity, provided they are properly registered design professionals in Iowa. For example, the city or county engineering department may provide services if they have the expertise and time needed for the project. But for most governmental bodies, the design of public construction projects is provided by private professional service firms - organizations for architecture, engineering or landscape architecture that provide the specific design services needed for the project.

It is common for the owner to select one design professional as its primary consultant and execute a singular agreement with that consultant as the prime professional. Other design professionals who may be required for a particular project are then added to the design team, with the concurrence of the owner, through subcontracts with the prime professional. This simplifies communication and the management and coordination of consultant services.

For a “vertical infrastructure” building project, a design team typically includes an architect, a structural engineer, a mechanical engineer and an electrical engineer. It may also include a landscape architect and a

The hiring of design professionals by a governmental entity is usually undertaken through a competitive qualifications-based negotiation process such as QBS.

This contrasts with the selection of construction contractor services, where the owner is required to use competitive sealed bidding.

The American Institute of Architects (AIA), the Engineers Joint Construction Documents Committee (EJCDC) and the Associated General Contractors of America (AGC) have a large number of standardized documents available for construction agreements, general conditions and procedures for design and construction. The series of documents are carefully integrated into “families” to work together during the complex evolution of a project; only one family should be used for any particular project.

civil engineer. While not required by law, the services of an interior designer may also be included.

For other than building-type projects, called “horizontal infrastructure”, the design team may include civil engineers, traffic or transportation engineers, structural engineers, environmental engineers, landscape architects, urban planners, and architects.



PROCUREMENT OF SERVICES

The method of selection of design professionals such as architects, engineers, and landscape architects is only minimally addressed in Iowa law.

A common misconception is that competitive bidding is required for procurement of design services, the result of confusing the legal requirement for selection of the contractor construction team with that of the design team. However, the only state law addressing design professional procurement applies to certain state agencies and requires competence, qualification and reasonable price as the selection criteria. It is appropriate to note that this approach still involves a competitive process, but the selection criteria are based on considerations other than lowest cost.

In general, the public owner may select an appropriate design firm using one of several approaches.

1. The owner may have an ongoing successful past relationship with a firm and simply decide to continue that relationship as a direct selection for a new project. There are no state laws that prevent this approach; however, some local governmental bodies may have adopted ordinances or rules that govern the selection of design professionals.
2. A second method of selecting a design firm, the one most recommended by professional associations, is a competitive

Excellent “how-to” information on QBS is available from AIA Iowa (515-244-7502) (www.aiaiowa.org) and the Consulting Engineers Council of Iowa (CEC) (515-284-7055) (www.iaenr.org).

Qualifications-Based Selection (QBS) process. QBS is in fact required by federal laws when federal funding is involved. When federal funding is involved, the owner should consult with the respective agency regarding processes for selecting design professionals. This may be based on the similar provisions of the federal acquisition regulations (FAR), the federal Brooks Act, the American Bar Association (ABA) Model Procurement Code, and the Qualifications-Based Selection (QBS) recommended by architectural and engineering associations. A typical QBS selection process consists of the following:

- a. The owner issues an open advertisement or invites selected firms to respond to a Request for Qualifications (RFQ). The RFQ usually outlines:
 - i. The project description
 - ii. The services expected from the design firm
 - iii. The general firm information requested, and
 - iv. The criteria for selection.
- b. The owner reviews the RFQ submittals and invites a small number of firms, usually three or four, to be interviewed for the project (too many can be confusing to the interview team).
- c. The owner's interview team rank-orders the design firms in order of preference based on their qualifications and perceived competence and suitability for the project.
- d. The owner negotiates with the first-ranked design firm to discuss in detail and identify a mutually acceptable scope of work for the project and a fair and reasonable fee.
- e. If negotiations are unsuccessful, the owner moves on to the second-ranked design firm, and so on, until a satisfactory contract for design services is obtained.

In this manner, competitiveness is integrated into the selection process in two ways – first, based on competing qualifications, and second, subject to negotiation of a fair and reasonable fee based on a detailed mutual understanding of project scope, with the next-ranked firm available for negotiation if an agreement cannot be reached with the first-ranked firm. The QBS negotiation has the added advantage of exposing the owner to a better understanding of the design team's "chemistry" – the intangible sense of commitments and relationships.

3. A third method of selecting a design firm is to bid the services and accept the bid deemed in the best interest of the owner, which may not necessarily be the lowest cost bid -- qualifications can also be considered. However, there is a problem in this approach. Unlike construction bidding where

The cost of design services is a fraction of the total cost of a project over its life – i.e. construction cost, operations, maintenance. But informed design decisions by competent experts can dramatically and favorably affect that total life cost. It is thus important to select the best qualified design team rather than placing lowest fee as the most important factor in selection.

highly detailed plans and specifications are always available to bidders, it is rare that the owner has a detailed specification for the required professional design services. Design services are not a commodity or product, but rather an initially indeterminate scope of work which becomes much clearer after detailed discussions and early design considerations. Thus it is usually not possible to view bids for A/E services as comparing equal levels of effort, types of service, and quality of performance. Bidding of design services is therefore generally not suited to achieving the best overall value for the owner or its taxpayers.

CONSTRUCTION MANAGER AS ADVISOR/AGENT

In limited circumstances for certain types of projects, an Owner may wish to add a Construction Manager as Advisor (CMA) to the project team. Usually, CMA services are utilized only on larger, more complex projects due to the added cost of such services.

The owner should determine its “in-house” abilities and expertise, as well as the services included in the scope of the design professional, when making a final decision on whether or not to utilize CM services, no matter the size or scope of the project.

Small to moderate-sized building construction projects and engineering projects such as streets, sewers and water mains do not normally warrant hiring a construction manager.

The CMA is an advisor to the owner, a consultant role parallel to that of the architect, engineer and landscape architect. The selection of the CMA should follow a qualifications procedure similar to that of selecting design professionals. The approach preferred by consultants is the competitive QBS process.

The services of a CMA can vary widely, but may include both advice during the design and documentation (pre-construction) phase as well as construction phase services. Preconstruction services might include budgeting and construction cost estimating, constructability reviews, value engineering, preparing instructions to bidders, and bid evaluation. Construction phase services typically include periodic construction observation, review of contractor pay requests and change order cost proposals, project closeout scheduling, project oversight, safety oversight, coordination of construction testing, and review, approval, and inspection by local and state governing authorities.

Several of these services are usually provided within the scope of the design professional agreement. It is important to coordinate the contracted scope of both the design professional and the CM-Advisor to avoid the cost and confusion of duplicative services.

A common CMA approach is to separate the desired construction services into several packages of work such as mechanical, electrical,

For detailed explanation of CM as Agent services, refer to AIA Document B801 CMA.

concrete, etc. These packages are bid and awarded to the lowest responsible bidder for each package. In this case, the CMA has the duty to coordinate the work of the several contracts.

CONTRACTORS & SUPPLIERS

For projects with an estimated cost greater than \$100,000 (subject to exceptions), prime construction contractors for public projects must by law be selected by a public competitive bidding process.

Subcontractors are selected by the prime contractor(s), without owner influence, while preparing its bid, based on a combination of considerations such as cost, qualifications and previous performance experiences satisfactory to the contractor, who must take responsibility for their actions.

Under a Single Prime project delivery system, the general contractor will typically perform some of the construction and will employ subcontractors for the balance of the work.

In instances where a CMA is used, prime contractors bid on their respective field of expertise and form a contractual relationship directly with the owner and managed and coordinated by the CMA.

Sometimes the owner may wish to direct-purchase certain items for a project. Sole source procurement is generally discouraged by Iowa law, but may be possible in limited circumstances. The owner should follow its own purchasing regulations or should bid such supply contracts in a manner similar to and under the same legal constraints as the bidding of construction. Examples might be matching carpet, or a particular brand of chillers for air conditioning systems, or traffic signal controllers. The installation of these items may or may not be the responsibility of the contractor or subcontractors, depending on the owner's desire and the resulting project specifications. Sometimes the suppliers are responsible for the installation of their own products.

REGULATORY AUTHORITIES

The owner is not the only government entity that has control over the design and construction of projects. Depending on the type of governmental entity – state agency, city, county, etc. – various code and permitting authorities will have jurisdiction and are an important partner on the design team.

Building permits are usually required before construction can legally proceed. Federal, state, county or city governments may require the owner or its contractor to obtain construction permits.

The design professional team assists in the process by working closely with the building code authorities during design and documentation. Preliminary progress reviews and concurrence on interpretation of code requirements are critically important in order to smooth the way for the subsequent permitting.

Many public owners are not aware of the extremely complex regulations governing the design and construction of public projects. Codes and permits can be numerous, overlapping and even sometimes in conflict with one another.

The prime contractor is usually responsible for obtaining the building permit, after preliminary reviews have been obtained by the design professional during the design process.

Failure to obtain permits in a timely way can cause delays and result in project cost increases. Starting construction without the required permits can result in the shutting down of construction until the permit is obtained, redesign of the project, and even fines. Therefore, it is important to hire design professionals who understand the appropriate regulations.

3. DESIGN & DOCUMENTATION FOR PUBLIC CONSTRUCTION PROJECTS



A construction project begins with planning. After determining there is a need that should be met with new construction or with the remodeling of an existing structure, a source of funding must be identified. Public building construction requires formal action by a governing authority in order to proceed.

The design and documentation of a project pass through sequential milestone phases which serve to measure progress, provide opportunities for review and decisions, and refine objectives and projected costs. Presentations of progress in the design and documentation are typically made several times to the owner and stakeholders, both during and at the conclusion of each phase.

At the end of each phase, it is appropriate for the governmental authority to take formal action approving the progress to date. This approval serves as a threshold to the refining work of the next phase. At each succeeding phase, more and more detailed information about the project is developed, evaluated and selectively incorporated.

PHASES

The typical phases of the design and construction process are:

Design

- Programming - development of a statement of needs and goals; investigation of site; preparation of a conceptual project budget and a preliminary schedule.
- Schematic Design - development and evaluation of conceptual alternatives, leading to the owner's selection of the preferred design scheme
- Design Development - refinement of the preferred schematic design to a more complete design, but still as an outline of the eventual design to come, resolving key planning considerations

Documentation

- Construction Documentation - conversion of Design Development into a coordinated set of detailed documents for bidding that explain what is intended, including bidders' information, plans, details and schedules, and written specifications

Bidding

- Submittal of cost proposals by competing construction teams based entirely on the Bid Documents

Construction

- Implementation of the work required by the Contract Documents

THE SEVERAL FORMS OF BUDGETS

The **Project Budget** is the most inclusive of the several budgets of a project and includes all direct costs of the project, such as construction cost; fees for the design team and legal and other consulting fees; site cost; movable equipment and furnishings; etc. It represents the initial total financial impact of a project, but does not include the long-term costs such as maintenance, insurance, payroll and operational costs.

The **Construction Budget** consists only of the construction cost - labor and materials, including built-in equipment, and the profit and overhead for the construction team. Construction Cost is usually the same as the low responsible bid and thus does not include design team fees or other miscellaneous costs. When a building cost is expressed in terms of dollars per square foot, this is calculated by dividing Construction Cost by the building area.

It is important for the design professional to include, with the owner's concurrence and on its behalf, **Contingencies** in the budgeting process. These are uncommitted reserve allowances under the owner's discretionary control to account for costs not yet fully defined in preliminary designs or which could arise from unforeseen circumstances. It is usually determined as a percentage of the estimated or known construction costs. Its purpose is to protect against exceeding the owner's total available funds.

On engineering projects and smaller architectural projects, Schematic Design and Design Development are sometimes combined into a single Preliminary Design phase.

It is both impractical and in fact virtually impossible for construction documents to be a perfect and complete set of "instructions" on how to construct a building. There is no industry standard as to what constitutes a "complete" drawing. Due to the complexities of thousands of considerations that go into the design of a building, harmless discrepancies are inherent in construction documents. Drawings that are not quantitatively complete are regularly used to construct buildings because they are proven by experience to be sufficient for that purpose.

There is no particular amount of contingency that could be considered standard. Contingencies often vary in extent between projects for new buildings, building additions, and restorations or renovations of existing buildings, largely due to the lack of knowledge or documentation of existing buildings often built many decades ago. This is true particularly with respect to construction contingencies. However, the following rules of thumb are a reasonable starting point for design³, estimating⁴ and construction⁵ contingencies, not including the owner's⁶ contingency. As the plans and specifications develop, the amount of contingency can reasonably be reduced in subsequent updated budgets):

During the Programming Stage	15 to 20%
During the Schematic Design Stage	10 to 15%
During the Design Development Stage	8 to 10%
During the Construction Documents Stage	6 to 8%
During the Construction Stage	4 to 6%

The contingencies through design and documentation act as conservative “buffers” to keep the project within the owner’s intended budget and scope as the project develops. The construction stage contingency is used to fund potential needed or desired changes in the work.

PRELIMINARY SCHEDULE

It is important in early planning to allow sufficient time for the various steps in design, documentation, bidding and construction. An example of an overall preliminary planning calendar is shown in Appendix A-6 as a rough guide to time expectations.

BUILDING CODES & STANDARDS

Codes and standards are a critically important part of the design process. Depending on the nature of the public construction, there are likely to be state and local, as well as federal, requirements that provide minimum standards for safety of lives and property and the welfare of the public. Local zoning ordinances must also be reviewed for compliance issues. The codes and standards are complex and numerous, and it is not unusual for requirements to conflict with one another.

It can be difficult to enumerate the many codes that apply to a particular project. The most common codes required are a building code, fire code, mechanical code, electrical code, plumbing code, and

³ A contingency for design is applied early in the programming/design phases to provide for refinement as design progresses. This drops away from the budgeting process after completion of construction documents.

⁴ A contingency for estimating allows for uncertainties in pricing components of labor and materials prior to bidding, at which time it is eliminated.

⁵ A contingency for construction would generally remain until project completion. It would be incrementally added to the construction budget by change order with the owner’s agreement.

⁶ An optional owner’s contingency would cover items that might be committed to the project at a later time.

an existing building code. Federal requirements will be more likely to apply if federal funding is involved in the project, or if a recognized historical building is being altered, but will always include considerations of accessibility for disabled persons and occupational health and safety.

More detailed information on the applicability of the Iowa State Building Code and Fire Marshal rules are provided in Appendices A-3 and A-4. The Fire Marshal rules apply to a broader range of building construction than the State Building Code. A plan review and approval is required by the State Building Code Bureau except for projects located in jurisdictions that are exempt from state plan review

The website of the State Fire Marshal, Building Code Bureau at <http://www.dps.state.ia.us/fm/building/provisions/index.shtml> provides links and an overview to the several components of the State Building Code. Most of the adopted codes are the coordinated family of codes of the International Code Council, including the International Building Code. A particular updated version of the code is usually adopted every three years.

The website of the State Fire Marshal lists Fire Marshal rules at <http://www.dps.state.ia.us/admrule/existing.shtml>. The 200 series of rules provides both general requirements and rules for specific types of occupancies.

In cities and counties, there are often locally adopted building codes that apply. Under certain circumstances, the state defers to local building officials to review plans and issue building permits. The State Fire Marshal webpage under State Plan Review at <http://www.dps.state.ia.us/fm/inspection/> provides a list of local jurisdictions approved by the State Fire Marshal to perform plan review and inspections for compliance with the State Fire Code and the State Building Code.

The building officials who have jurisdiction over the project are an important contributor to the work of the owner and the design team, acting as a “second opinion” to evaluate the adequacy of the design to conform to codes and standards as well as a “referee” for code conflicts.

If no state code or local code applies, it is nevertheless wise to utilize the State Building Code as a guide to best practices of life safety.

Appendix A-4 provides an overview of Iowa codes and resources.

Building codes and standards represent the minimum requirements for health, safety and welfare.

4. DELIVERY SYSTEMS FOR PUBLIC CONSTRUCTION PROJECTS



Design-Bid-Build (Single Prime/General Contractor)

Under the Design-Bid-Build (DBB) delivery system, the public owner first selects a qualified design firm through a QBS or other method. This begins the process of designing a project that meets the needs and scope of the owner. Once the design and documentation process is complete, the bidding phase begins. The constructor is determined using a competitive bid process with the selection based on the low responsive bid from a responsible bidder.

An important feature of the DBB method is that it intentionally separates the design phase, the bidding phase and the construction phase so that each is performed independently. This creates important consequences in the roles and responsibilities of the owner, the design professional and the constructor.

There is a logical sequence in establishing DBB contracts. The owner first enters into a contract with a design professional, who prepares plans and specifications, referred to as contract documents.

The contract documents are then issued to all bidders for bidding. These documents contain all technical requirements for the construction. In addition, the contract documents typically include instructions to the bidders, a bid form and the proposed terms and conditions of the contract between the owner and the successful bidder. Also, these documents contain all technical requirements for the construction.

Competitive bidding is at the heart of DBB. Bids are used in public work to obtain fairness and objectivity in the expenditure of public funds. Bids are opened in public, and the entire process is subject to scrutiny by all bidders, other interested parties, and ordinary citizens. Public bidding procedures must conform to state law (Iowa Code) and to administrative regulations (Iowa Administrative Code).

By contrast, private owners have the freedom to set their own requirements for receiving proposals and may base their decisions on whatever factors they believe to be relevant.

It is not uncommon during the bidding period that questions arise or clarifications are needed. These further pre-bid instructions to bidders are called an addendum (for one) or addenda (for more than one).

The expectation is that bidders will compete against each other to offer the owner the lowest price. Each bidder must propose to furnish all materials and labor necessary to complete the work required by the contract documents in conformance with the stated terms and conditions. At the conclusion of the bidding, the owner is required by law to accept the low, responsive bid unless they decide instead to reject all bids.

A “*responsive* bid” is an unequivocal offer to do everything required by the contract documents, without exception. If a bid contains qualifications, conditions or exclusions that differ from the requirements stated in the contract documents, the bid is said to be “non-responsive.” A bid must offer to perform all requirements of the contract documents so that the owner’s acceptance of the bid forms a binding contract for the general contractor to perform the work required by the contract documents.

An “unequivocal” offer is clear and unambiguous, having only one possible meaning, and not subject to any conditions or exceptions.

A “*responsible* bidder” is one that can perform and complete the work required by the contract documents, demonstrated to the satisfaction of the owner. A *responsible* bidder must possess the necessary financial and technical capability to perform the work, as well as the tenacity to do so, usually demonstrated by the constructor’s past performance record. A *responsible* bidder must have the equipment, material and manpower – or ability to obtain them – sufficient to complete the work. This usually is demonstrated by ownership of equipment (or suitable arrangements to rent equipment), and the ability to purchase materials and hire employees.

Responsible bidders must exhibit “financial” stability in order to be deemed a qualified bidder. In the bidding, a bid bond is used to qualify general contractors submitting proposals on a project. This bond guarantees that if the bid or proposal is accepted, the general contractor will enter into a contract with the public owner to perform the work specified on the project. Once all bond guarantees are met, the bidder is deemed *responsive* and thus qualified (with the financial backing of the surety company) to perform the work.

A *responsible* bidder must possess the integrity to perform the work, usually demonstrated by the absence of violations of the law.

At the conclusion of bidding and designation of the successful low bidder, an owner-contractor contract documents the terms of the agreement, accompanied by the contractor’s required certificates of insurance and a performance and payment bond.

In a common version of a Single Prime contract, the general contractor holds several subcontracts with other specialty contractors who assist the general contractor in the performance of the work.

The contract is usually for a lump sum (fixed price) for the scope of work described in the contract documents. The general contractor together with its subcontractors, assume the risk of performing the work within the price. The owner assumes the risks of unknown conditions, unforeseen conditions, underground conditions, hazardous materials contamination of existing conditions, such as asbestos, lead, etc. If such owner risks arise and result in cost consequences, these are added to the original contract for construction as an amendment called a Change Order.

Design-Bid-Build (Multiple Prime)

As with the DBB Single Prime system, the DBB system for multiple prime contracts is a linear sequential process that starts with the design and documentation phase, then enters the bid phase and culminates with the construction phase.

Multiple prime contracts are executed, for instance, where separate bid packages are prepared for the general, mechanical and electrical components of the project. All multiple prime packages must be bid and awarded under the competitive bidding statutes of Iowa law.

The choice of single prime or multiple prime contracts is at the discretion of the owner. Coordination of multiple contracts adds some effort and cost to the project in that the several contracts must be managed either by the project's design professional, by the owner, or by a construction manager.

Design-Bid-Build (Construction Manager as Advisor/Agent)

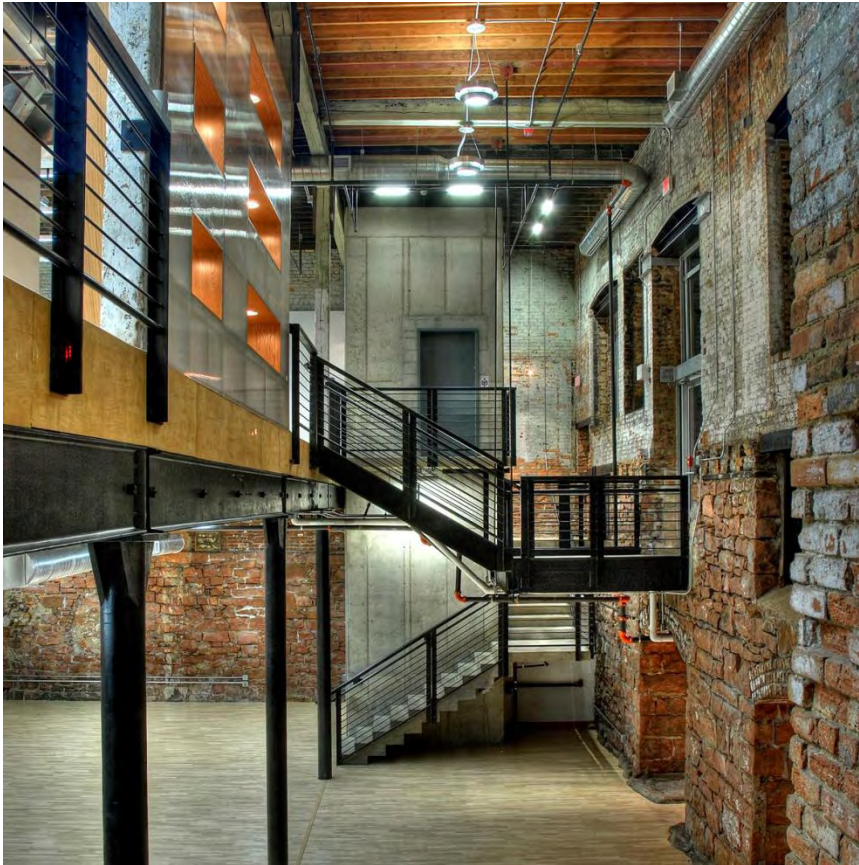
Another instance in which an owner would hold multiple construction contracts is when the owner chooses to employ a Construction Manager as Advisor (or Agent) (CMA). CMA is a management service that can provide pre-construction, project coordination and project management services within a specified scope of services. Since CMA services are regarded as professional consulting services, procurement of these services is selective and is not required to be accomplished by a competitive bidding process; a QBS method is recommended. The construction manager cooperates with the project design team in furthering the interests of the owner.

In its decision as to whether to also hire a construction manager, the owner must determine whether there is a need to supplement in-house staff and expertise and the typical services of design professionals. When adding a CMA to the team, it is important to identify in the contracts with the design professional and with the CMA the desired scope of work for each in order to avoid overlapping duties, confusion and redundant fees.

A common misconception is that CM as Advisor/ Agent is a project delivery system. A CMA is not contractually responsible for delivering the construction. Rather, the CMA is responsible for furnishing the advisory management services necessary to deliver construction. Thus, it is more accurate to describe CMA as a way to manage the process of construction, but not a way to physically deliver a construction project.

Iowa law is silent on the prospect of a construction manager acting as a consultant. There is no licensure requirement either to include or to prohibit such a service. The inclusion of a CMA in a typical project is relatively uncommon and usually is due to high complexity or other unusual project circumstances.

5. BIDDING & CONSTRUCTION FOR PUBLIC CONSTRUCTION PROJECTS



Iowa allows a governmental body to choose whether a public project is built with a single prime general contractor or multiple prime contractors. However, all delivery processes for public construction must follow the basic competitive bidding principles of the Design-Bid-Build delivery system.

BIDDING PHASE

The companion ICIF publications, *Public Owners' Guide to Legal Issues on the Bidding and Award of Construction Contracts in Iowa* and *Manual of Recommended Procedure for Competitive Bidding and Award of Building Contracts* explain in detail the legal and recommended procedures for public bidding.

In very general terms, these are the common steps in bidding:

1. Announce the project to potential bidders by a public notice in the form of a legal advertisement.
2. Conduct a pre-bid conference, with attendance either mandatory or optional at the owner's choice. This serves to focus and clarify bidders' questions and assure that all bidders are well-informed about the project.

3. Issue one or more addenda during the bidding phase to record pre-bid discussions and for clarifications to the construction documents.
4. Open bids at a public meeting, at a specified date and time and at a specified place. Important aspects of conformance to the bid requirements are recognized during the public opening, such as receipt of bid bond, acknowledgement of receipt of addenda, and the bid amount.
5. The design team (and the optional CM) usually assists the owner in evaluating the bids to determine the lowest, *responsive* bid by a *responsible* bidder.
6. A recommendation is presented to the governing body for formal action and award of the contract for construction.

On some projects, bid alternates are included. These are options that are separately priced within the bid procedure to provide the owner with a choice of either the base bid condition or the alternate condition. These should best be used only sparingly, if at all. If there are too many alternates, or if they are too complex, the bidding process quickly becomes confusing and will almost always result in higher costs due to caution by the bidders. As well, the design team will likely require additional fees to design and document more than one solution.



CONSTRUCTION PHASE

A Notice to Proceed is usually given to the construction team who is awarded the contract after all of the bidding and contract requirements are determined to be in order.

It is common to hold a preconstruction meeting of all parties involved to begin the project. This serves to focus all parties on the intent of the project as well as make a strong case for close collaboration among the owner, the design professionals and the contractors.

The construction team will usually prepare a construction schedule. During the course of construction, regular construction meetings are held, usually either once per month or once every two weeks, involving all major parties. The primary purpose is to assure good communication and cooperation as issues arise.

Depending on the nature and scope of the project and the terms of their contract with the owner, the design team will make periodic

visits to the construction site to evaluate construction progress and confirm that the work is consistent with the intent of the construction documents.

The design professional's scope of work normally includes site visits for evaluation of the progress of the work; these usually range from twice per week to once every two weeks, depending on the size and complexity of the project and on the type of work then underway. If the owner desires and if its budget permits, it may elect to contract with the design professional (or the optional construction manager) to provide daily observation of the construction.

Information about the project is often exchanged daily by telephone, fax, mail and e-mail among the parties. Applications for payment are presented monthly by the contractor to the design professional, who then certifies to the owner the amount of the recommended progress payment, based on the construction observed to be satisfactorily completed to date.

When the contractor feels the project is *substantially complete*, a major milestone in the contract, the design team will perform a site inspection with the owner's representative to determine if the work is complete. This usually results in a "punch list" of uncompleted items which is distributed to the construction team.

When the punch list is sufficiently completed, a *Certificate of Substantial Completion* is issued, which formally transfers the responsibility for the construction site from the construction team to the owner. This is a significant event in that it is the start of the warranty period.

Substantial Completion typically leads to final inspection and issuance by the building authority of an occupancy permit. The owner may then occupy the space.

After the punch list is completed and all other contract requirements are fulfilled, a final inspection is conducted. The contractor may then submit a final application for payment.

6. SUMMARY



This Guide discusses Public Policy as established by Iowa law (Code of Iowa) and the regulations authorized by law in the Iowa Administrative Code. This explains why and how the constraints of public works projects can and must be accomplished.

The Guide discusses the requirements and procurement methods for design professionals, and the nature of the constructors who make up the construction team.

The Guide offers insights into the owner's expectations for the design and documentation process, including the setting of realistic and protective budgets and timeframes.

The Guide provides an overview of building codes and the review and inspection protections that assist in the protection of public health, safety and welfare.

The Guide provides a detailed explanation of the Design-Bid-Build project delivery system singularly required by Iowa law for public projects, and contrasts that with other project delivery methods available only to private projects.

The Guide provides a brief overview of the bidding procedure and some of the major expectations of the construction process.

Finally, the Guide offers in its appendices some models for procurement of design professionals based on qualifications and valuable information on building codes and resources.

PROJECT ILLUSTRATION CREDITS

Cover: University of Iowa P. Sue Beckwith Boathouse

Architect: Neumann Monson Architects

Engineers: Structure – Neumann Monson Architects; M/E/P – Design Engineers; Civil – Shive Hattery

Prime Construction Contractor: Miron Construction

Photographer: Farshid Assassi, Hon. AIA, Assassi Productions

Page 2: Polk County River Place, Des Moines, IA

Architect: Keffer/Overton Architects

Engineers: Structural: Performance Engineering; M/E/P: Modus; Civil: Kirkham Michael

Prime Construction Contractor : Hansen Company

Photographer: Immortal Images

Page 4: Davenport Police Facility, Davenport, IA

Architect: Neumann Monson Architects

Engineers: Structure – M2B Engineers; M/E/P - Design Engineers; Civil – MSA Professional Services

Prime Construction Contractor: Williams Brothers Construction

Photographer: Farshid Assassi, Hon. AIA, Assassi Productions

Page 5: Ankeny Public Library and City Hall, Ankeny, IA

Architect: OPN Architects

Engineers: N/A

Prime Construction Contractor : N/A

Rendering: OPN Architects

Page 7: United States Courthouse, Cedar Rapids, IA

Architect: OPN Architects | William Rawn Associates

Engineers: KJWW Consultant Engineers

Prime Construction Contractor : Ryan Companies

Photographer: N/A

Page 9: Principal Riverwalk Pavilion and Pump Station, Des Moines, Iowa

Architect: substance

Engineers: Pavilion: KJWW, Charles Saul Engineering; Pump Station: V & K, Charles Saul Engineering

Prime Construction Contractor : Pavilion: Cramer and Associates; Pump Station: Larson & Larson

Renderings: Peripheral Matters

Page 10: Chicago, Burlington & Quincy Train Depot Vertical Extension

Architect: Durrant

Engineers: Durrant

Prime Construction Contractor : Stumpf Construction

Photographer: Design Photography

Page 11: Unity Elementary School, Sioux City, IA

Architect: Cannon Moss Brygger Architects

Engineers: Performance Engineering – Structural; Eda Inc. – Mechanical & Electrical

Prime Construction Contractor : L&L Builders

Photographer: Paul Brokering

Page 13: Urbandale City Hall
Architect: SVPA Architects Inc.
Engineers: Mosher Engineering
Prime Construction Contractor : Schroeder Leverington
Photographer: Dale Photographics

Page 18: US Courthouse Flood Recovery & Restoration, Cedar Rapids, IA
Architect: substance
Engineers: KJWW
Prime Construction Contractor : Neumann Brothers
Photographer: Paul Crosby Architectural Photography

Page 22: Ankeny Fire Department Headquarters Expansion, Ankeny, IA
Architect: SVPA Architects Inc.
Engineers: ME Group, Snyder & Associates
Prime Construction Contractor : Dean Snyder Construction
Photographer: Integrated Studio

Page 25: ISU Design West Studio, Sioux City, IA
Architect: M+ Architects
Engineers: MEP: West Plains Engineering; Structural: Draco Engineering
Prime Construction Contractor : Frank Audino Construction
Photographer: Chadd Goosmann, Aurora Photography

Page 26: Iowa State Patrol Post #8 Office Building, Mason City, IA
Architect: Brooks Borg Skiles Architecture Engineering
Engineers: Brooks Borg Skiles Architecture Engineering / Snyder & Associates
Prime Construction Contractor : Henkel Construction Company
Photographer: Audrey Jones

Page 28: Dallas County Courthouse Renovation, Adel, IA
Architect: Keffer/Overton Architects
Engineers: Structural: Shuck-Britson, M/E/P: Modus
Prime Construction Contractor : Keffer/Overton Construction Management
Photographer: Immortal Images

APPENDIX

A-1 Iowa Administrative Code rules for the Iowa Department of Administration relating to selection of architectural and engineering services:

11—105.9(8A) Procurement of architectural and engineering services.

105.9(1) *Qualifications*. As part of the competitive selection process, the department shall determine whether an architect or engineer is competent and qualified. In making this determination, the department may consider the following factors:

1. Professional licensing or registration credentials,
2. Integrity and reliability,
3. Past performance relative to the quality and timeliness of service on similar projects,
4. Past experience with the state in relation to services provided,
5. Quality and timeliness of the services provided,
6. The proposed terms of delivery, and
7. The best interests of the state.

105.9(2) *Fair and reasonable price*. As part of the competitive selection process, the department may request, in addition to the architect's or engineer's qualifications, pricing information that may include a total fee for the specified services, hourly rates, or other pricing measures that will help the department establish a fair and reasonable price.

- a. The department shall request a fee proposal(s) as part of the competitive selection process only when the services required are of limited scope, limited duration or otherwise clearly defined. An award shall not be made solely on the basis of the lowest price.
- b. When a fee is not requested as part of the competitive selection process, other pricing factors shall be requested, and the firm deemed most qualified will be asked to negotiate a fee using the pricing factors included in the firm's proposal. If a fair and reasonable price for the work cannot be negotiated, the department shall reject the firm's proposal and begin negotiations for a fair and reasonable price with the next most qualified firm.

Examples of fair and reasonable pricing factors include:

- (1) Hourly rates and anticipated hours,
 - (2) A lump sum fee,
 - (3) Any other costs the department determines to be fair and reasonable.
- c. If reimbursable expenses are included in the price proposal, rates shall not exceed those in procedure

210.245, "Travel-in-state—board, commission, advisory council, and task force member expenses," of the department of administrative services state accounting enterprise's Accounting Policy and Procedures Manual.

- d. The fee proposal or other pricing information shall serve as a basis for contract negotiations.

A-2 The 2000 Model Procurement Code for State and Local Governments, published by the American Bar Association

The provisions of Section 5-205 Architectural and Engineering (A/E) Services are paraphrased here:

- (1) Policy: publically announce all requirements for A/E services and the intent to negotiate A/E contracts on the basis of demonstrated competence and qualification for services required, and at fair and reasonable prices.

(ABA Comment: this section must be read in conjunction with Section 5-202. This identifies project delivery methods and relates A/E qualifications-based selection to the Design-Bid-Build method, among others.)

- (2) Encourage A/E firms to submit an annual statement of qualifications and performance. Establish an A/E Selection Committee for each contract. The Selection Committee evaluates current qualifications and performance on file, and conducts discussions with at least 3 firms about the contract and the relative utility of alternative approaches to providing the required services. The Selection Committee determines, in order of preference based on established criteria, no less than 3 firms to be most qualified.
- (3) The Selection Committee (or its leader) negotiates a contract with the highest qualified A/E firm at fair and reasonable compensation, taking into account estimated value, scope, complexity and nature of professional services required. If the negotiation does not result in satisfactory contract terms and a fair and reasonable price with the top-ranked firm, the negotiation is formally terminated, and negotiations are undertaken with the 2nd most qualified A/E firm. If the negotiation does not result in satisfactory contract terms and a fair and reasonable price with the 2nd-ranked firm, the negotiation is formally terminated, and negotiations are undertaken with the 3rd most qualified A/E firm. .

(ABA Comment:

- 1) This section applies to procurement of all A/E services.
- 2) The principal reasons supporting this selection procedure for A/E's are the lack of a definitive scope of work for such services at the time of selection and the importance of selecting the best qualified firm. In general, the A/E is engaged to represent the government's interests and is therefore in a different relationship from that normally existing in a buyer-seller situation. For these reasons, the qualifications, competence, and availability of the 3 most qualified A/E firms are considered initially, and price negotiated later.
- 3) It is considered more desirable to make the qualification selection first and then to discuss price because both parties need to review in detail what is involved in the work (for example, estimates of man-hours, personnel costs, and alternatives that the A/E should consider in depth). Once parameters have been fully discussed and understood and the A/E proposes a fee, the government then makes its own evaluation and judgment as to reasonableness of the fee.
- 4) If the fee is fair and reasonable, award is made without consideration of proposals and fees of other competing firms. If fee is not deemed reasonable, negotiations with other firms are initiated. Thus price clearly is an important factor in the award of A/E services under this procedure. The principal difference between the recommended procedure for A/E selection and the procedures used in most other competitive source selections is the point at which price is considered.

A-3 State Fire Marshal Checklist



Iowa State Fire Marshal's Office Checklist for Preliminary Review For Construction Documents

Plan Reviewer: _____ Date _____

Project Name _____

Project Street Address _____

In order to meet the requirements of the Exception to Administrative Rule 661- 300.4(1), the following items must be shown to be in compliance with the applicable codes in a manner satisfactory to this Office.

New Construction -Area: _____ Addition -Area: _____ Renovation-Area: _____

1) What is the Occupancy Classification as defined by IBC 2009, Section 302? _____

1a) is this Classification correct? Yes No

2) What is the square footage of the building's footprint? _____

2a) is the square footage of this project within the limits of IBC 2009, Table 503? Yes No

3) How many stories is the building? _____

3a) Are the number of stories within the limits of IBC 2009, Table 503? Yes No

4) What is the Construction Type as defined by IBC 2009, 602? _____

4a) is this Construction Type correct? Yes No

4b) Do structural elements meet the requirements of IBC 2009, Table 601? Yes No

5) Does the building meet the separation requirements in IBC 2009, Table 602? Yes No

6) Does the project include requirements fire department access? Yes No

Is one provided? Yes No

7) Is a fire sprinkler system required? Yes No Is a system to be provided? Yes No

8) Is a fire alarm system required? Yes No Is a system to be provided? Yes No

9) Is a smoke control system required? Yes No Is a system to be provided? Yes No

10) Preliminary Review of Means of Egress:

10a) Do large spaces have adequate number of exits? Yes No

10b) Do large spaces have adequate egress width? Yes No

10c) Are exit enclosures properly rated? Yes No

10d) Do exits discharge to a public way? Yes No

11) If project is an addition, does it have any impact on existing means of egress? Yes No

12) Does project require an accessible route throughout? Yes No
Is one provided? Yes No

12) Does project require an energy review? Yes No

This project is approved as meeting the Exception to Administrative Rule 661- 300.4(1) Yes No

IMPORTANT: Preliminary approval under this Exception does not relieve the owner or designer of the project from correcting all violations of applicable codes even if not identified during this preliminary review or any other review or inspection.

Before you submit final plans, please be sure to check if following is required:

- Final drawings and specifications to be submitted in electronic format (.dwf format)
- Building Code Inspections
- Building Code Inspections fees
- Energy Review
- Life Cycle Cost Analysis approval

For additional information regarding these requirements, please go to: <http://www.dps.state.ia.us/fm/building/index.shtml>

The Building Code Plan Review Approval

The following architectural technical submissions, engineering documents, and plans and specifications shall be submitted for the state building code plan review:

1. Buildings and facilities owned by the state of Iowa;
2. The initial construction of any building or facility not wholly owned by the state of Iowa or any department or agency of the state of Iowa which is financed in whole or in part with funds appropriated by the state, if there is no local building code in effect in the jurisdiction in which the construction is located or if there is a local building code in effect in the jurisdiction, and the local building code is not enforced through a system of plan reviews and inspections;
3. Buildings and facilities subject to the state building code, pursuant to a provision of state or federal law other than Iowa Code chapter 103A;

The Building Code Inspections

Any building or facility for which construction is subject to a plan review by the commissioner, except construction involving any building or facility owned by the board of regents or by any institution subject to the authority of the board of regents, shall be subject to inspection by the commissioner or staff of the bureau. Any construction involving any building or facility owned by the board of regents or by an institution subject to the authority of the board of regents shall be subject to inspection by the commissioner or staff of the bureau or division at the direction of the commissioner.

Exception:

Construction which is limited to buildings renovations or repairs shall not be subject to inspection by the commissioner.

Buildings subject to inspection by the state building code commissioner, except construction involving any building or facility owned by the board of regents or by any institution subject to the authority of the board of regents, shall pay an inspection fee based upon the construction cost of the project.

The inspection fee shall be calculated as follows:

Construction Cost	Base Inspection Fee
Up to \$100,000	\$598
\$100,001 to \$1,000,000	\$645
\$1,000,001 to \$10,000,000	\$722
\$10,000,001 and above	\$783
Follow-up inspection	\$214

The base inspection fee shall cover three inspections—a foundation, rough-in and final. The base inspection fee shall be due and payable at the time completed construction documents are submitted for review. The plan review will not be conducted until the proper base inspection fee is paid. Checks should be made payable to the Treasurer, State of Iowa, and delivered to the bureau office. This fee is separate and distinct from the plan review fee established in [subrule 300.4\(2\)](#).

Inspection fees and standard operating procedures for construction involving any building or facility owned by the board of regents or by any institution subject to the authority of the board of regents shall be established through a written agreement between the commissioner and the board of regents.

The ar iac a661 c5 r3
Fire Code Plan Review approval

Plans for the proposed construction of all buildings, structures, and facilities in which people congregate, or additions, alterations or changes to existing buildings require the approval and inspection of the fire marshal. Plans for initial construction or alterations, changes, additions, renovations or remodeling of the following shall be submitted to the fire marshal for approval, unless the plans have been submitted to a local fire or building department for approval based upon compliance with the rules of the fire marshal or a local fire ordinance recognized in [Rule 661—201.4\(100\)](#):

- Any health care facility, subject to provisions of 661-Chapter 205
- Any educational building or facility serving kindergarten through twelfth grade,
- Any college or university building or facility,
- Any child care facility intended to serve seven or more children at one time,
- Any correctional facility, or
- Any gaming facility.
- Adult day services, or
- Assisted living facilities.

Building, planning and design services are required to be in conformance with Iowa Code chapters 542B and 544A. For any construction project requiring approval of the state fire marshal, construction shall not begin until such approval has been received. It is recommended that approval of the fire marshal be obtained prior to the release of bid documents.

The ar iac a661 c5 r3
Fire Code inspections

The final fire code inspection is required for any construction project requiring plan approval of the state fire marshal.

A-4 Regulatory Resources in the State of Iowa from the Iowa Department of Economic Development (<http://www.iowalifechanging.com/business/downloads/constcodes.pdf>)

INTRODUCTION

Construction codes establish minimum standards for structural integrity, life safety, accessibility and energy conservation in construction of buildings and facilities intended for human occupancy. These requirements affect all of the major systems of buildings and facilities.

WHO REGULATES WHAT?

Jurisdiction over construction codes in Iowa is shared among several state agencies and political subdivisions. The following are all subject to requirements established at the state level:

Building Code Commissioner, Department of Public Safety

- Electrical installations authority shared with State Fire Marshal and Electrical Examining Board)
- Energy efficiency measures required in construction
- Accessibility to persons with disabilities of buildings and facilities which are available to the public
- Factory built structures, which are manufactured homes and modular buildings of all types
- Minimum plumbing facilities in places of public assembly restaurants, pubs, and lounges
- The State Historical Building Code, which may be used in lieu of the State Building Code or local building codes, at the discretion of the code authority, for buildings or facilities of historical significance

State Fire Marshal, Department of Public Safety

- General Fire Safety Requirements
- Flammable Liquid Installations
- Fire Safety at Construction Sites

Labor Commissioner, Iowa Workforce Development

- Elevators
- Boilers and pressure vessels

Iowa Department of Public Health

- Plumbing installations in cities or connected to city water or wastewater treatment systems

Political subdivisions in Iowa (cities and counties) have discretionary authority to adopt local building codes, which may cover any aspect of construction not listed above as under state jurisdiction. Local code adoptions may also include more stringent standards than are required by the state in many of the areas listed above as subject to state jurisdiction, but not in all of them.

Construction projects may also be subject to other regulatory requirements, such as requirements for registration, licensing, or certification of persons or firms engaged in specific aspects of construction, zoning restrictions and environmental standards.

THE TERM “BUILDING CODE”

The term “building code” is used in two different ways:

- (1) It may be used to refer to the whole set of codes establishing requirements for construction in force in a jurisdiction.
- (2) Alternatively, the “building code” is one of the set of codes typically adopted. It establishes general requirements for structural integrity and life safety features.

An illustration of these two uses is the following: The “State Building Code” refers to construction requirements established by the State Building Code Commissioner and the Building Code Advisory Council.

Among the provisions of the State Building Code is the adoption by reference of the International Building Code (IBC), a nationally-recognized code which is one of a “family” of codes published by the International Code Council.

STATE BUILDING CODE

As described earlier, authority to adopt construction codes in Iowa is shared among state agencies and political subdivisions. The State Building Code is adopted by the Building Code Commissioner, within the Iowa Department of Public Safety; it applies generally to construction projects involving the following:

- Buildings and facilities owned by the state or any agency of the state;
- Buildings and facilities in political subdivisions which have adopted the State Building Code by local ordinance and in any city of more than 15,000 population which has not adopted a local building code;
- Newly constructed buildings and facilities, including additions to existing buildings, which are financed in whole or in part with state funds or federal funds distributed by a state agency;
- Any school construction which occurs in an area without a local building code;
- Gaming facilities, in a jurisdiction without a local building code; and
- Conversion of an apartment building from rental units to condominiums, in a jurisdiction without a local building code.

STATEWIDE REQUIREMENTS

Electrical Installations

Standards for electrical installations are established by the Electrical Examining Board, the State Fire Marshal and the Building Code Commissioner. While each of these agencies has authority to establish such requirements, they cooperate in doing so and all three have adopted the National Electrical Code, 2008 edition, published by the National Fire Protection Association. Local jurisdictions may establish additional, more stringent standards.

Electrical Examining Board:

<http://www.dps.state.ia.us/fm/electrician/index.shtml>

State Fire Marshal:

<http://www.dps.state.ia.us/fm/index.shtml>

Building Code Commissioner:

<http://www.dps.state.ia.us/fm/building/index.shtml>

State Energy Code

The State Energy Code is adopted by the Building Code Commissioner, with the approval of the Building Code Advisory Council. The State Energy Code establishes minimum energy efficiency requirements for all construction in the state, except for renovation or remodeling of one or two family residences.

<http://www.dps.state.ia.us/fm/building/energy/index.shtml>

Accessibility Requirements

The Building Code Commissioner adopts requirements for accessibility to persons with disabilities of buildings and facilities available to the public. These requirements, which are included in the State Building Code, are based upon the federal Americans with Disabilities Act Accessibility Guidelines (ADAAG) and federal Fair Housing Act. Additional requirements may be established by local jurisdictions.

<http://www.dps.state.ia.us/fm/building/accessibility/index.shtml>

Fire Codes

State requirements for fire safety in construction are established by the State Fire Marshal. The rules of the Fire Marshal apply statewide, although any city or county may also adopt a local fire ordinance, establishing such requirements. The rules of the Fire Marshal provide that enforcement of certain municipal or county ordinances may substitute for enforcement of the rules of the Fire Marshal, based upon what requirements those ordinances establish and how they are enforced.

<http://www.dps.state.ia.us/fm/rules/index.shtml>

State Plumbing Code

Plumbing installations within cities or connected to municipal water systems or municipal wastewater treatment systems are required to comply with the State Plumbing Code, which is adopted by the Iowa Department of Public Health. For further information, contact 515.281.8722.

http://www.idph.state.ia.us/eh/plumbing_code.asp

Private Sewage Disposal

Private sewage disposal (septic) systems are required to comply with requirements established by the Iowa Department of Natural Resources. These requirements are enforced by local public health departments. Daniel.Olson@dnr.iowa.gov 515.725.0346

<http://www.iowadnr.gov/water/septic/index.htm>

Elevators and Escalators

Safety requirements for elevators are established by the Elevator Safety Board. Every elevator is required to be inspected by and to obtain a permit from the Labor Services Division of Iowa Workforce Development.

<http://www.iowaworkforce.org/labor/elevatorboard.htm>

http://www.iowaworkforce.org/labor/elevator_forms.htm

Boilers and Pressure Vessels

The Boiler and Pressure Vessel Safety Board establishes safety requirements for boilers and pressure vessels, which are required to be inspected by the Labor Services Division of Iowa Workforce Development.

<http://www.iowaworkforce.org/labor/boilerboard.htm>

http://www.iowaworkforce.org/labor/boiler_inspection_.htm

Swimming Pools and Spas

Requirements for swimming pools and spas are established by the Iowa Department of Public Health:

http://www.idph.state.ia.us/eh/swimming_pools.asp

REGISTRATION, LICENSES, AND CERTIFICATIONS RELATED TO CONSTRUCTION

There are a variety of requirements for registrations, licenses, certifications and permits related to construction projects, and to requirements for engaging in various occupations related to construction. Among those which are most likely to affect projects are the following:

- Asbestos Permits and Licenses
<http://www.iowaworkforce.org/labor/asbestos.htm>
- Air Quality: Asbestos
<http://www.iowadnr.gov/air/prof/asbestos/asbestos.html>
- Air Quality: Construction Permits
<http://www.iowadnr.gov/air/prof/const/const.html>
- Alarm System Contractor and Installer Certification
<http://www.dps.state.ia.us/fm/alarm/index.shtml>

- Building Permits (contact local jurisdiction)
- Contractor Registration
<http://www.iowaworkforce.org/labor/contractor.htm>
- Electrician Licensing and Electrical Permits
<http://www.dps.state.ia.us/fm/electrician/index.shtml>
- Fire Extinguishing System Contractor Certification
<http://www.dps.state.ia.us/fm/fescpc/index.shtml>
- Environmental Permitting
http://regassist.iowa.gov/business_resources/enviro_n_assistance/index.html
- Health Care Facilities: Certificate of Need
http://www.idph.state.ia.us/adper/cert_of_need.asp
- Plumber and Mechanical Professional Licensing
<http://www.idph.state.ia.us/eh/plumbing.asp>
- Zoning Requirements (contact local jurisdiction)

IOWA BUSINESS AND REGULATORY ASSISTANCE NETWORK

The Iowa Business and Regulatory Network includes regulatory and business assistance coordinators from Iowa's regulatory agencies.

FOR FURTHER ASSISTANCE:

Michael Coveyou
 Planning and Research Administrator
 Iowa Department of Public Safety
 515.725.6185
regassist@dps.state.ia.us
<http://www.dps.state.ia.us/regassist/index.shtml>

Kathleen Uehling
 Regulatory Assistance Coordinator Iowa Workforce Development, Labor Services Division 515.281.5915
kathleen.uehling@iwd.state.ia.us
<http://regassist.iowa.gov>

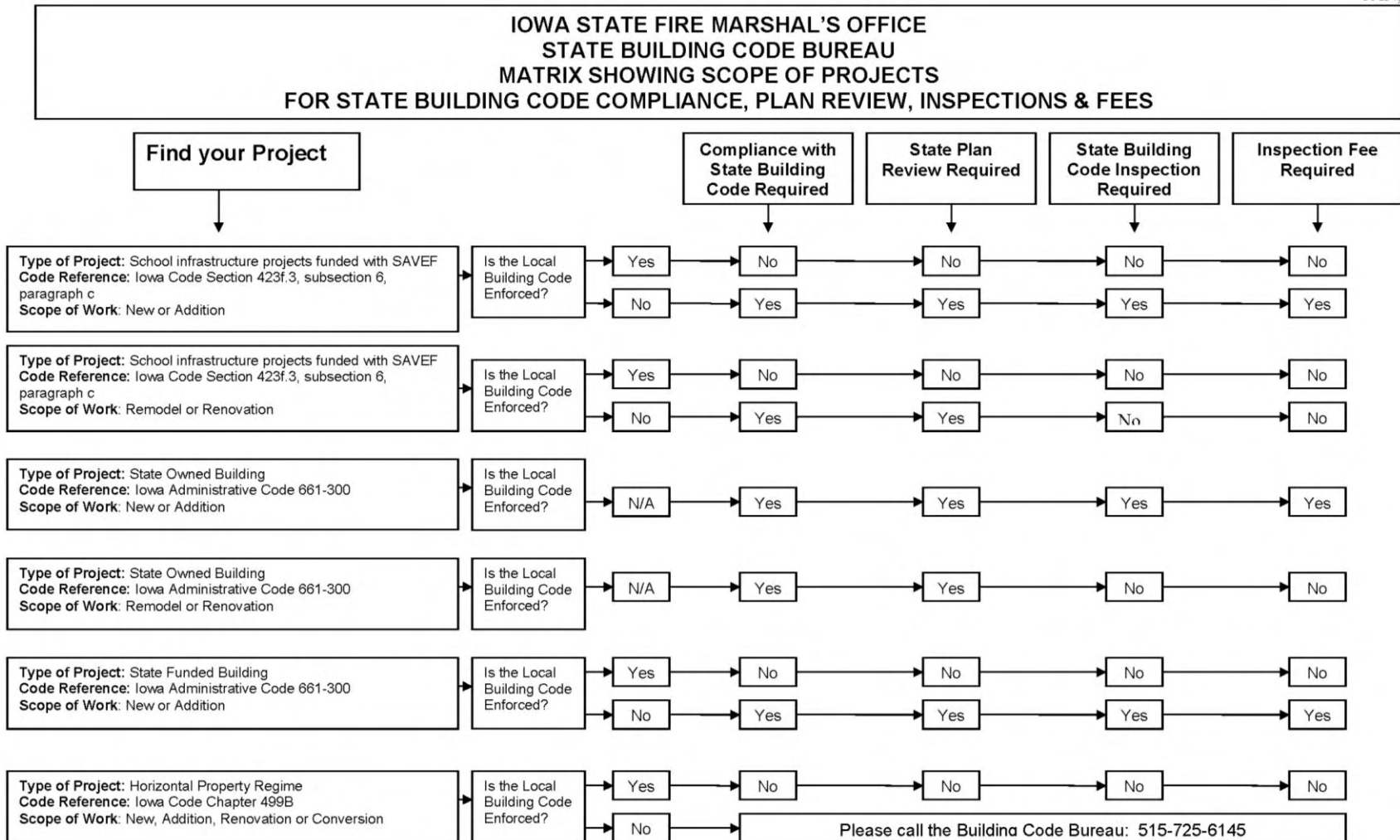
Dean Austin
 Regulatory Assistance Coordinator Iowa Department of Public Health 515.242.6514
daustin@idph.state.ia.us
http://www.idph.state.ia.us/bh/regulatory_response.asp

Christine Spackman
 Business Assistance Coordinator Iowa Department of Natural Resources 515.281.7276
Christine.Spackman@dnr.iowa.gov
<http://www.iowadnr.gov/other/bizreg.html>

Sherry Timmins
 Regulatory Assistance Coordinator Iowa Department of Economic Development 515.242.4901
regulatoryassistance@iowalifechanging.com
<http://regassist.iowa.gov/>

A-5 Matrix Showing Scope of Projects for State Building Code Compliance

JAN. 2010



A-6 Project Calendar Planning Guide

Approximate Time in Months for Traditional Design-Bid-Build Project Delivery ¹

EXAMPLE Project Cost, Const Cost ² & Area		A/E Selection ³	Programming of Space Needs	Design ⁴ (SD+DD)	Construction Documentation ⁵ (CD)	Bidding	Construction	Range in Time
Project Cost	\$ 10,000,000	1	1	3	4	1	12	22 to 38 months
Const Cost	\$ 6,500,000	to	to	to	to	to	to	
Area SF	40,000	3	3	5	6	3	18	
MEDIAN		2	11 Design/Document			2	15	
Median Aggregate Months From Start		2	4	8	13	15	30	
Project Cost	\$ 25,000,000	1	2	6	6	1	18	34 to 50 months
Const Cost	\$ 16,000,000	to	to	to	to	to	to	
Area SF	100,000	3	4	8	8	3	24	
MEDIAN		2	17 Design/Document			2	21	
Median Aggregate Months From Start		2	5	12	19	21	42	
Project Cost	\$ 50,000,000	1	2	8	9	2	24	46 to 62 months
Const Cost	\$ 32,000,000	to	to	to	to	to	to	
Area	200,000	3	4	10	11	4	30	
MEDIAN		2	22 Design/Document			3	27	
Median Aggregate Months From Start		2	5	14	24	27	54	

Footnotes

1 The range of time will be influenced by the complexity of the project. Highly technical and labor-intensive projects such as laboratories and restoration/renovation will fall into the longer ranges of time.

2 Estimated Project Cost includes building shell, interior finishes, site development, surface parking, furnishings, telecommunications & planning/development (A/E, legal, survey, borings, testing, contingency, etc.) but does not include cost of land or financing costs.

CAUTION: Project Cost includes an allowance of 10% of the building construction cost for site development costs -- THIS CAN VARY WIDELY FROM ONE SITE TO ANOTHER FOR THE SAME BUILDING.

3 Assume 4 to 8 weeks to issue RFQ, receive proposals, interview, select A/E & negotiate contract.

4 Assume 2 week review/approval periods at end of SD and DD

5 Assume 2 week review/approval periods at 50% CD and 90% CD