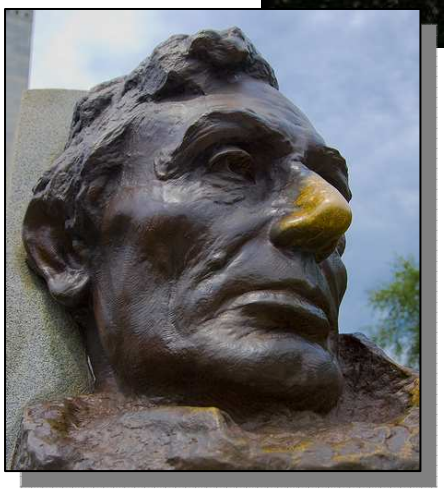
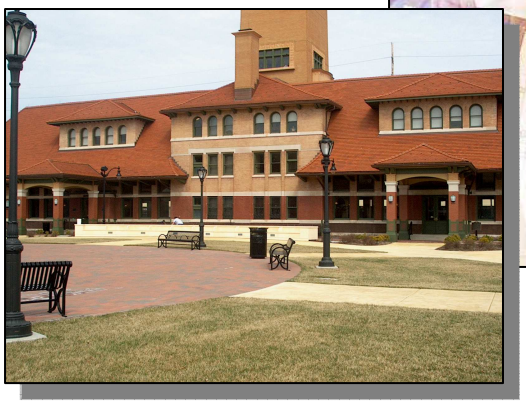
CAPITAL DEVELOPMENT BOARD

State of Illinois





Design and Construction Manual

March 2009

TABLE OF CONTENTS

INTRODUCTION v

ARTICLE 1 BASIC INFORMATION 1
1.1 General 1
1.2 Web Site 1
1.3 Benchmarks 1
1.4 Meeting Minutes. 1
1.5 Monthly Progress Reports. 1
1.6 A/E Pay Requests 1

ARTICLE 2 CODES AND STATUTORY REQUIREMENTS 3
2.1 General. 3
2.2 Building Codes 3
2.3 Illinois Building Related Requirements. 3
2.4 Special Statutory Requirements 3
2.5 Design Policies 4
2.6 Permits. 5
2.7 Federally Funded Projects. 5

ARTICLE 3 DESIGN GUIDELINES 7
3.1 General. 7
3.2 LEED. 7
3.3 Division of the Work 7
3.4 Competitive Product Selection. 8
3.5 Specified Contractors. 9
3.6 Contractor Qualifications. 9
3.7 Project Construction Duration 9
3.8 Sequence of Construction. 9
3.9 Utilities 9
3.10 Civil 9
3.11 Architectural 10
3.12 Structural 11
3.13 Plumbing 12
3.14 Heating 13
3.15 Ventilation 14
3.16 Electrical. 15
3.17 Alternate Bids. 16
3.18 Unit Prices 16

ARTICLE 4 PROJECT BUDGET AND ESTIMATING 19
4.1 General. 19
4.2 Construction Budget. 19
4.3 Design Budget 19
4.4 Proposed Project Cost Budget Form. 19
4.5 Construction Administration Fee (CAF). 19
4.6 Estimates. 19

ARTICLE 5 PROGRAM ANALYSIS AND DESIGN DEVELOPMENT PHASE 21
5.1 Project Scope. 21
5.2 CDB Review Checklist. 21
5.3 Program Analysis Phase 21
5.4 Schematic Design 22
5.5 Design Development Phase 23

ARTICLE 6 BIDDING DOCUMENT PREPARATION 25

6.1 General. 25
6.2 Application of Professional Seals. 25
6.3 Design Firm Registration Number. 25
6.4 Permits. 25
6.5 Reviews. 25
6.6 Project Manual. 27
6.7 Drawings. 28

ARTICLE 7 PREPARATION OF DIVISION 00 AND 01 SECTIONS 31
7.1 Prototypes. 31
7.2 Cover. 31
7.3 00 01 10 Table of Contents 31
7.4 00 01 15 Drawings, Schedules, & Details Listing 31
7.5 00 11 13 Advertisement for Bids. 31
7.6 00 31 32 Soil Report 31
7.7 00 41 00 Bid Forms. 31
7.8 00 43 42 Federal Funding. 32
7.9 00 43 43 Prevailing Wage Rates. 32
7.10 01 11 00 Project Summary 32
7.11 *01 22 00 - Unit Prices.* 35
7.12 *01 23 00 - Alternates* 36
7.13 *01 31 00 - Coordination, Supplemental to the SDC* 36
7.14 *01 32 00 - Construction Schedule, Non-CPM Option* 36
7.15 01 32 23 – Survey and Layout Data 36
7.16 *01 32 33 - Construction Photographs* 36
7.17 01 33 23 - Shop Drawings, Product Data, & Samples 36
7.18 *01 35 16 - Alteration Project Procedures* 36
7.19 01 35 53 - Security 36
7.20 01 41 00 - Regulatory Requirements 36
7.21 01 45 29 - Testing Laboratory Services, Supplemental to the SDC 36
7.22 01 51 00 - Temporary Utilities 36
7.23 *01 51 50 - Use of Existing Facilities* 36
7.24 *01 54 00 - Construction Aids* 37
7.25 *01 55 00 - Access Roads, Parking Areas, & Traffic Control, Supplemental to the SDC* 37
7.26 01 56 00 - Barriers 37
7.27 *01 66 00 - Storage & Protection* 37
7.28 *01 73 29 - Cutting & Patching, Supplemental to the SDC* 37
7.29 01 74 13 - Construction Cleaning, Supplemental to the SDC 37
7.30 01 74 23 - Final Cleaning 37
7.31 01 78 23 - Operating & Maintenance Data 37
7.32 *01 78 36 - Extended Warranties & Bonds* 37
7.33 01 78 39 - Project Record Documents 37

ARTICLE 8 PREPARATION OF DIVISIONS 02 AND FOLLOWING 39
8.1 Master Format 39
8.2 CDB Format. 39
8.3 Listing Sections 39
8.4 Sub-headings 39
8.5 Abbreviations 39
8.6 Outline 39
8.7 Paragraph 1.1 Example 39
8.8 Sample Technical Specification Format. 40

ARTICLE 9 PREPARATION OF DRAWINGS 41
9.1 Cover Sheet. 41
9.2 Civil Drawings. 41
9.3 Architectural Drawings. 41

9.4 Structural Drawings. 42
9.5 Plumbing Drawings....43
9.6 Heating Drawings. 43
9.7 Ventilating Drawings. 44
9.8 Electrical Drawings....45
9.9 Other Drawings. 46

ARTICLE 10 BIDDING PHASE 47
10.1 General. 47
10.2 Advertisement for Bids. 47
10.3 Document Distribution. 47
10.4 Plan Holder Lists....48
10.5 Addenda. 48
10.6 Pre-Bid Meeting. 49
10.7 Final Estimate. 50
10.8 Bid Openings. 50

ARTICLE 11 CONSTRUCTION CONTRACT AWARD....51
11.1 General. 51
11.2 Bid Analysis. 51
11.3 Award Notification. 51

ARTICLE 12 PRE-CONSTRUCTION MEETING....53

ARTICLE 13 MISCELLANEOUS CONSTRUCTION PHASE RESPONSIBILITIES....55
13.1 Construction Documents. 55
13.2 Contractor and Tradesmen Licensing....55
13.3 Contractor Submittals/Shop Drawings, Product Data, Samples. 55
13.4 Interpretations. 56
13.5 Construction Testing. 56
13.6 Contractor’s Schedule of Values (CSV). 56
13.7 Contractors’ Record Drawings. 56
13.9 Construction Schedule. 57

ARTICLE 14 OBSERVATION OF THE WORK....59
14.1 Basic Service....59
14.2 On-Site Representative. 59
14.3 Observation Reports. 60

ARTICLE 15 COMMISSIONING ACTIVITIES 61
15.1 Critical Systems/Components. 61
15.2 Performance Testing And Start-up. 61
15.3 Using Agency Training. 61

ARTICLE 16 PROGRESS/PAY MEETINGS 63

ARTICLE 17 REVIEW OF CONTRACTOR PAY REQUESTS 65
17.1 General. 65
17.2 Contractor's Affidavit and Sworn Statement....65
17.3 Federal Certified Payroll. 65
17.4 Stored Material Log 65
17.5 Partial Waivers of Lien. 66
17.6 Invoice-Voucher....66

ARTICLE 18 REVIEW OF REQUESTS FOR REDUCTION OF RETAINAGE....67

ARTICLE 19 REVIEW OF REQUESTS FOR PROPOSAL AND CHANGE ORDER....69

ARTICLE 20 SUBSTANTIAL COMPLETION....71

ARTICLE 21 FINAL ACCEPTANCE....73

ARTICLE 22 A/E CLOSEOUT 75
22.1 A/E Final Close-out Package 75
22.2 Record Construction Drawings. 75
22.3 Final Payment. 76

ARTICLE 23 NINE MONTH INSPECTION 77

APPENDICES 79

APPENDIX 1 STATUTORY REQUIREMENTS 81
Life Cycle Cost Analysis. 81
Farmland Preservation Act. 81
Endangered Species Act. 81
Wetlands Policy Act. 81
Historic Preservation Act. 82
Archaeological and Paleontological Resources Protection Act. 82
Steel Products Procurement Act. 82
Clean Water Act 83

APPENDIX 2 CHECKLISTS 85

APPENDIX 3 TECHNICAL SPECIFICATION FORMAT 89

APPENDIX 4 CDB ACRONYMS 93

APPENDIX 5 PROJECT MANUAL WORKBOOK FOR ASBESTOS, LEAD,UST AND PCB 97

INTRODUCTION

Welcome to the 2009 edition of CDB's design and construction guide for architects and engineers.

In 2002, the Design and Construction Manual was created so that all project phase requirements - from design through closeout - were included in one manual, so the A/E has one main reference to look to. The legal language, insurance requirements, and a skeleton description of A/E duties and responsibilities are included in the PSA, but the DCM is the "working document" for A/Es.

There are no major changes to the content of this edition of the DCM. We have corrected a few things overlooked in the last edition and have made some changes reflecting administrative and legislative changes. These include:

- Article 2
  - The Flood Plain Policy Guidelines were updated to comply with Executive Order 2006-05.
  - Illinois Plumbing Code
  - The Legislature passed an energy bill which mandates certain requirements for CDB. CDB has now formally adopted ASHRAE 90.1, which had been the basis for CDB's energy design policies for several years. Additional information regarding energy policies is available on CDB's website.

- Article 3
  - LEED
  - SJI certification of steel joists
  - Plumbing fixture calculation per Ill State Plumbing Code
  - Clarification of electrical design requirements
  - Clarification of SWPPP design requirements
  - Design Criteria for Metal stud exterior wall systems with brick veneer added

- Article 5 - Submittal of LEED checklists when applicable

- Article 6
  - Penalty for excessive resubmittals
  - Clarified document signing and sealing requirements
  - Submittal of LEED checklists when applicable

- Article 8 - Clarification re use of 2004 Master Format

- Article 9
  - Clarification of Bid set and Record drawing submittal
  - Clarification of electrical design requirements
  - Clarification of SWPPP design requirements

- Article 10 – Added statement regarding interpretations and clarifications during pre-bid period.

- Article 17 - Surety letter for Stored Material not required

- Article 19 - Clarification of A/Es RFP/CO responsibilities

- Article 22 - Clarification of Bid set and Record drawing submittal

- Appendix 2 - The design checklists (PA/DD and 50/75%) have been revised and clarified.

DESIGN AND CONSTRUCTION MANUAL UPDATES

(errata page for future updates)

Article 1 BASIC INFORMATION

1.1 **General**. This guide has been prepared for use with the 2009 Standard Documents for Construction (SDC) and the 2009 A/E PSA.

1.2 **Web Site**. All CDB manuals and forms are available on CDB's Internet site (www.cdb.state.il.us).

1.3 **Benchmarks.** The A/E is required to provide or obtain surveys essential to the design and construction of the project as a basic service. A/E is responsible for obtaining its own benchmarks, location of utilities and topographical information for establishing building and site improvement locations.

1.4 **Meeting Minutes.** The A/E shall record minutes of all meetings held throughout the course of the project and distribute copies to participants and other project team members as directed by the CDB PM within seven (7) calendar days.

A. Orientation/Fee Negotiation
B. Design Submittal Review
C. Pre-Bid
D. Pre-Construction
E. Construction Progress/Pay
F. Substantial Completion
G. Final Acceptance

1.5 **Monthly Progress Reports.** The A/E shall submit monthly progress reports of design/construction activities to the CDB Project Manager. Failure to submit monthly reports may result in delay to A/E's progress payments. The report shall include:

A. Activities completed since last report, items pending from last report
B. Projected progress
C. Comparison of schedule and actual progress
D. Decisions or information required
E. Pending Change Order report (construction phase)

1.6 **A/E Pay Requests**

A. Design Phase: The A/E may submit a pay request upon completion of each phase of work as outlined on the A/E PSA. On large projects, the A/E may request to be paid on a monthly basis. In either case, the A/E must submit to the PM proof of satisfactory progress, commensurate with the payment requested.

B. Bid Phase: A/E may submit a pay request upon completion of all requirements for bidding phase, including submittal of the Bid Document CD incorporating all addenda. See Article 10.

C. Construction Phase: A/E may submit a pay request monthly; the amount of base fee payment is based on overall completion of project.

D. CAF: CAF shall be billed on the first pay request. A/E will send a check for the CAF to CDB Fiscal before submitting second pay request. If CAF is increased by contract modification, A/E will bill increase in CAF on first pay request after approval of modification and send CAF check to CDB Fiscal before submitting next pay request.

E. A/E should obtain multiple proposals for reimbursable work performed by others. Submit all proposals to CDB PM with recommendation for selection.

1. A/E shall provide at least two quotes from local vendors as backup for in-house printing reimbursement.
2. All plan deposits not returned to bidders shall be credited to the printing reimbursable account and reported with the A/E's regular pay requests.

F. The pay request package shall include:

1. Invoice-Voucher (CDB Form C-13) ***completed*** and signed by A/E.

2. A/E PRB (Payment Request Breakdown form) completed based upon the terms of the PSA and updated to reflect current status.

3. Back-up in the form of itemized invoices, breakdown of hours and/or work performed, etc., and proof of payment for previously invoiced items for all reimbursable items, including Additional Services.

4. On-Site Representative Summary form when payment for observation is requested. Include <u>all</u> on-site hours on form and indicate whether in fulfillment of basic services or on-site observation. Backup in the form of Daily Reports for each day or partial day of observation by each observer must be in PM's possession. A/E must submit verification of each observer's wage rate (DWE) by copy of a payroll checkstub or by the payroll information form.

Article 2 CODES AND STATUTORY REQUIREMENTS

2.1 **General.** The A/E shall comply with all State and Federal requirements governing the design of the project and this agreement.

2.2 **Building Codes.**

A. In accordance with the State Fire Marshall, Division of Fire Prevention, all projects shall be designed in accordance with NFPA 101, Life Safety Code. Consult the State Fire Marshall's office to determine the adopted edition.

B. All projects shall be designed in accordance with the Illinois Energy Conservation Code and the Federal Energy Policy Act. Consult CDB's website for additional information.

C. All projects shall be designed in accordance with the Illinois Plumbing Code.

D. It is the policy of CDB to design projects in substantial compliance with applicable building codes formally adopted by the unit of local government in which the project is located. When the local code is not the current edition, the A/E will document all project related conflicts between the two versions and confer with CDB on which one to follow.

E. Where no local code applies, the building code shall be the International Building Code, current edition (published by the International Conference of Building Officials, International Code Council, 5203 Ceesburg Pike, Suite 708, Falls Church, VA 22041-3401 (703/931-4533)) unless another is mutually acceptable to the using agency, CDB and the A/E.

F. All differences between state-required codes and local codes and all requests for deviations from the local codes shall be documented by the A/E and submitted to CDB for review. Approval by CDB is required for designs which deviate from required codes. When "approval by local authority" or "authority having jurisdiction" is referenced, substitute CDB for the local authority.

2.3 **Illinois Building Related Requirements**. To assist the A/E in determining which codes might be applicable to a project, the Illinois Building Commission has assembled a Directory of Illinois Building Related Requirements which lists all of the statutory requirements relative to state construction. It also includes a table of primary codes/standards/ specifications for State of Illinois Building Requirements. This directory is available from the CDB web site (www.cdb.state.il.us) or by calling 217/557-7500.

2.4 **Special Statutory Requirements**

A. The following are statutory requirements that may impact the project. This list is not exclusive. Some of these requirements are unique to State projects.

B. The A/E, in cooperation with CDB, shall review the project and determine if any of these statutory requirements apply. CDB will make every attempt to note these requirements in the project program or scope statements when they can be anticipated.

C. Major statutory requirements include:

1. Life Cycle Cost Analysis
2. Farmland Preservation Act
3. Endangered Species Act
4. Wetlands Policy Act
5. Historic Preservation Act

6. Archeological and Paleontological Resources Protection Act
7. Steel Products Procurement Act
8. Clean Water Act

D. Refer to Appendix 1 for a more complete description of these requirements.

2.5 **Design Policies.** CDB has adopted certain design policies in force at the time of execution of this agreement. The A/E shall determine the policies required for the project and obtain the current policy from the CDB.

A. **Flood Plain Construction Policy.** In response to Executive Order 2006-05, CDB has adopted the following policies. Assistance may be requested from IDNR Office of Water Resources.

1. All development shall comply with all requirements of the National Flood Insurance Program (44 C.F.R. 59-79) and with all requirements of 92 Illinois Administrative Code Part 700 or 92 Illinois Administrative Code Part 708, whichever is applicable.
2. All new Critical Facilities shall be located outside of the floodplain. Where this is not practicable, Critical Facilities shall be developed with the lowest floor elevation equal to or greater than the 500-year frequency flood elevation or structurally dry floodproofed to at least the 500-year frequency flood elevation.
3. All new buildings shall be developed with the lowest floor elevation equal to or greater than the Flood Protection Elevation or structurally dry floodproofed to at least the Flood Protection Elevation (one foot above the applicable base flood or 100-year frequency flood elevation).
4. Modifications, additions, repairs or replacement of existing structures may be allowed so long as the new development does not increase the floor area of the existing structure by more than twenty (20) percent or increase the market value of the structure by fifty (50) percent, and does not obstruct flood flows.
5. A/Es shall submit a statement with the PA/DD submittal affirming compliance with the Flood Plain Construction Policy.

B. **Roofing Program Policy.** A comprehensive CDB roofing handbook, sample specifications, and a list of acceptable manufacturers that must be utilized for all projects which include new roofs, re-roofing, or modifications, including penetrations, of existing roofs is available on our website. The handbook addresses single and multi-ply membrane roofing, metal roofing and decking, and pre-engineered metal buildings.

C. **Asbestos Abatement and other Hazardous Pollutants.** A comprehensive manual (Project Manual Workbook for Asbestos, Lead, UST and PCB) including estimating worksheets, requirements for inspection and sampling, abatement design and design review procedures, and complete bidding and construction phase procedures is included in Appendix 5. Sample specifications are available on our website.

D. **Buy Illinois Program**. CDB is encouraging contractors to voluntarily procure products manufactured in Illinois and will be tracking the value of the Illinois products used on state construction projects for a report to the Governor and General Assembly. To assist the contractors in this process:

1. When suitable products are available, A/E will include Illinois products, as defined below, in the specifications (typically only when products are specified by manufacturers, product names, and/or numbers).

2. Illinois products, when specified, are to be identified with (IL) before the manufacturer's name. Materials specified by standards and/or codes and not by manufacturer will not be highlighted as Illinois products.
3. CDB has established a directory of products manufactured in Illinois which are used in the construction industry. To qualify as an Illinois product, the product must be manufactured, fabricated or assembled within the State of Illinois. The directory is available on the CDB web page.

E. **Prohibited Products Policy.** The following products are prohibited from use on all CDB projects:
1. Asbestos and asbestos containing material (ACM)
2. Fire retardant treated (FRT) wood products in structural applications
3. Chlorofluorocarbons (CFC).
4. Polychlorinated Biphenyl (PCB)
5. Lead Based Coatings
6. Fire suppression systems using ozone depleting halons

2.6 **Permits.** A/E shall design to the standards necessary to receive permits from state and federal agencies having jurisdiction over any aspect of the project (EPA, IEPA, IDNR, IDPH, Corps of Engineers, etc.) and is responsible to submit for and obtain such permits.

2.7 **Federally Funded Projects.** Certain projects may be funded in full or in part with federal funds which may have specific restrictions. On federally funded projects, standards of the federal agency may supplement or take precedence. Special requirements for individual projects will be provided by the CDB PM.

Article 3 DESIGN GUIDELINES

3.1 **General.** Most CDB projects are funded with State of Illinois 20 year Bond Funds. Therefore, building systems and materials incorporated into our projects are required to have an average life span of 20 years or longer. CDB recognizes that some items, such as roofing materials and mechanical equipment, will not achieve 20 year life spans. Other systems and materials, such as building shells, etc. must then be designed and specified to exceed a 20 year life span.

3.2 **LEED.**

A. Design all projects to incorporate maximum LEED points within practical, scope and budgetary limits.

B. For all new buildings and major renovation projects over 10,000 sf, obtain USGBC LEED Silver certification or higher.

C. For additional information, see the "Green Building Guidelines for State Construction" on CDB's website.

3.3 **Division of the Work.** The A/E shall divide the work into distinct trade contracts as required by CDB and in accordance with the Illinois Procurement Code. This division shall be clear, concise and comprehensive. All work must be explicitly assigned to a particular trade contract. The A/E shall not include any clause or provision in the contract documents that attempts to assign any of the work by common trade practice, by indirect linkage, etc.

A. If the estimated value of the construction work exceeds $250,000, the work must be divided into at least five trade contracts. They are:

1. General
2. Plumbing
3. Heating
4. Ventilation
5. Electrical

B. Below the $250,000 level, the work may be bid as one or more contracts as approved by the PM.

C. If the A/E estimate for an individual trade is less than $35,000 (or current adjusted amount - check with PM), that trade's work may be combined with another trade. The A/E shall discuss with and obtain concurrence from the CDB PM before combining trades in the bidding documents.

D. Do not reference a "mechanical contractor." Refer specifically to the individual Plumbing, Heating, Ventilating, or Sprinkler contractors.

E. The required five trade contracts may be expanded as appropriate for the project. The A/E shall confer with the PM for the appropriate contract trade designations. Some examples of additional designations are:

1. General/Roofing
2. General/Paving
3. Asbestos Abatement
4. Sprinkler
5. Test and Balance
6. Temperature Control/Building Automation

7. Electrical/Communications

F. Project Manual. The trade contracts and the work assigned to each shall be described in Paragraph 1.1 of each specification section (as illustrated in Article 8).

G. Drawings. An appropriate letter identification (as described in Article 9) shall be used on the drawings to designate separate contracts within the project.

1. 'M' **shall not** be used as a drawing letter identification.

2. If work of a trade other than that indicated by the drawing letter designation is depicted on a drawing, that work must be clearly noted and distinguished from the other work on the drawing.

3.4 **Competitive Product Selection.** It is the responsibility of the A/E to select and specify products. The A/E shall write specifications that are explicit, realistic, and non-restrictive.

A. Products shall be specified by manufacturer and model number with a minimum of three manufacturers named who make comparable products. When available, specifications shall include Illinois manufacturers. A/E may include more than three manufacturers if all products are considered to be of equal quality.

B. The A/E may request approval from CDB to prepare a performance specification for a specific material or equipment item when that product or system can be specified by reference to commonly accepted standards such as ASTM, IEEE, NEMA, etc. Performance specifications are allowable only on commodity-type products with multiple manufacturers producing similar items, such as lumber, structural steel members, piping, etc.

C. The use of the phrases "or approved equal", "similar products manufactured by...", and "equal products manufactured by...", or any similar phrase in the bidding documents is prohibited.

D. Only those products named in the bidding documents or approved by written change order shall be approved for installation, and the language shall so state. Do not use the phrase "includes, but is not limited to" the following products or manufacturers.

E. Products or systems cannot be sole or dual sourced unless the A/E receives written approval from CDB to specify less than three sources.

1. Requests for single or dual sourcing may be initiated by the A/E or the using agency and shall be in writing, addressed to the PM. A/E shall review and make recommendations, in writing, to CDB for any using agency requests.

2. Each request shall include justification for the request, including a cost/benefit analysis that establishes that the product or system is economically procurable from only one manufacturer and a comparison of the value of the sole (or dual) sourced item(s) to the total value of the project.

3. Approvals will not be given for aesthetic desirability alone.

4. A request must be made for each product for each project even if CDB has approved a similar request in the past. A new request does not need to be made for Phase 2 (or subsequent) phase of a project for the use of a product approved as a single source in Phase 1, provided the work is similar in both phases.

5. Where sole sourcing has been approved by CDB for use in the bidding documents because it is meant to be restrictive, the language shall state that no substitutions will be acceptable.

3.5 **Specified Contractors.** The A/E shall not specify a restrictive list of acceptable contractors or subcontractors for furnishing and installation of any component or system without the written approval of the CDB Construction Administrator. Although their equipment may be acceptable, the firm may not be a responsible contractor. Determination of contractor responsibility is the province of CDB. The A/E shall submit a written request to the PM indicating the system or component of the work for which the A/E desires to specify a list of furnishing and installing contractors. This request shall indicate the justification for specifying the installing firms. CDB may direct the A/E to publicly solicit additional qualified firms.

3.6 **Contractor Qualifications.** When installing contractor competence could affect a significant portion of the work, the A/E shall include criteria in the specifications to ensure that the installing contractor is competent. These criteria may include experience, size of previous projects, certification by industry recognized associations, or any other relevant factor. A/E shall include language requiring submittal of documentation of these criteria before CSV will be approved.

3.7 **Project Construction Duration.** A/E shall determine the construction duration based on complexity of the design, site availability, material procurement duration, season of construction start and end, needs of the using agency, and any other relevant circumstances. When requested by CDB PM, A/E shall provide written evidence to support their estimate of the construction duration.

3.8 **Sequence of Construction.** A/E shall recommend a sequence of construction for all unusual conditions, such as rehabilitation of existing structures, underpinning of existing foundation, constructing openings through an existing wall or floors, etc.

3.9 **Utilities.**

A. The A/E is responsible for design coordination with the utility company. The A/E shall develop load requirements, contact the respective utilities to determine how that load can be accommodated and what procedures the utility will require for the connection, and determine where and by whom the connections will be made.

B. The A/E shall locate all utility connection points on the drawings. If a connection must be made to a public utility, the A/E shall include name and phone number of the person at the utility familiar with the facility/project.

3.10 **Civil**

A. Any project site larger than one acre must have a storm water discharge permit under NPDES. A/E shall follow IEPA guidelines including design of a SWPPP and inclusion of the NOI and NOT with the appropriate specification section. Additional information is available in Appendix 1.

B. The A/E shall use IDOT Standard Specifications for Road and Bridge Construction including Supplemental Specifications and Recurring Special Provisions for site work including roads, bridges and miscellaneous concrete. Provide reference to appropriate articles when applicable.

C. The A/E may use the latest edition of Illinois Society of Professional Engineers (ISPE) Standard Specifications for Water and Sewer Main Construction in Illinois for preparing water and sewer specifications. Provide reference to appropriate sections as applicable. Copies of the latest edition are available from ISPE, 1304 S. Lowell, Springfield, IL, 62704.

D. Comply with local regulations for storm water piping or retention. Notify CDB at program analysis if there is an absence of local governing agency criteria.

E. Parking lots shall be designed to accommodate a minimum five-year storm.

F. Buildings shall be protected from the effects of a 100-year storm and located above the 500 year flood plain.

G. New grading plan shall consider adequate site drainage including building and paved areas, and shall consider erosion and sediment control.

H. Soil testing

1. For a new building, major addition, or other project requiring excavation and removal of soil, A/E shall investigate and present a report on previous use and owners of the site for the past 100 years as part of the PA/DD submittal package.
2. In urban areas or sites with previous occupancy, provide a minimum of 4 soil borings with at least 1 soil boring /10,000sf in areas to be disturbed with samples taken to test for hazardous chemicals in each disturbed layer of soil.
3. If hazardous chemicals or other contaminants are found such that soil would be required to be disposed of as a 'special waste' or a 'hazardous waste', sufficient borings and tests must be made to delineate the area and depth of the 'special waste' or 'hazardous waste' soil with a minimum of one boring per 1500 sf.
4. The soil report shall include specific recommendations for use or disposal of soils, and clearly describe limitations on use or disposal of 'special waste' or 'hazardous waste' soil.

I. Use IDOT Standard Specifications for Road and Bridge Construction for specifying measurement and disposal of soils (e.g. 202.07 and 669.15).

J. The compaction requirements and bearing limits of soils and fill material shall be based on the recommendation of the soils consultant or structural engineer.

K. Only ACI or ASTM standards shall be specified in Division 03 "Concrete" specifications, except as otherwise approved for IDOT projects, which shall be governed by IDOT's Standard Specifications and Design Manual for concrete as noted in Article 3.10 B above.

L. Fire hydrants shall be located within 10 feet of a road or a fire lane and at least 50 feet from the building. Any point on the perimeter of any building shall be covered with a maximum hose length of 300 feet.

3.11 Architectural

A. Include building expansion and control joints at intervals determined by the design criteria and the shape of the building, but not to exceed 200 feet. Provide complete expansion joints between existing and new structures.

B. All masonry shall be designed in accord with building code requirements for masonry structures (ACI 530) and standards set forth by the Brick Industry Association (BIA) technical notes.

C. Metal stud exterior wall systems with brick veneer.

1. These systems are strongly discouraged for use in state buildings because, as traditionally designed, they do not have the longevity required for State of Illinois buildings.
2. If brick veneer and metal stud wall systems are considered for design, a cost analysis comparison with other wall systems is required with Program Analysis.
3. When considered for design, the A/E shall calculate location of dewpoint within the wall, and verify that dewpoint falls within the cavity or brick veneer. The A/E shall submit these calculations to CDB for review with the PA/DD submittal.
4. The design shall include a 2 inch air gap behind the brick, the brick will not act as part of the structural lateral resistance system, metal studs and the exterior wall sheathing shall limit the out of plane wall deflections at service load levels to exceed BIA recommendations of l/600, and the metal studs shall be galvanized at G90 standards. An air barrier shall be installed on the outside face of the exterior sheathing. The insulation shall be placed on the outside face of the exterior sheathing. Masonry flashing shall seal to the wall to preclude water from entering the wall space below the flashing. Metal two piece masonry ties shall be attached soundly to the studs per building code.
5. Do not proceed with design of brick veneer and metal stud wall systems beyond the Program Analysis Phase without approval in writing from the CDB Professional Services Unit.
6. If included in the project, metal stud exterior wall systems with brick veneer will be considered "Critical Work Items" (see Article 6.5K.1. and Article 15.1).

D. Provide roofing design in compliance with CDB's Roofing Program Handbook.

E. The use of sloped glazing is discouraged.

3.12 **Structural**

A. Design for optimum use of materials. Allowable Stress Design or Load and Resistance Factor Design in steel and ultimate strength design in concrete construction shall be considered for more economical and efficient use of materials.

B. Submit design calculations for structural design when requested by CDB.

C. Design roof drainage slope into the structural system for all new buildings. See CDB's Roofing Program Handbook.

D. Include Structural notes on design drawings in accordance with IBC 1603.

E. State buildings which are administrative, (National Guard armories, State Police headquarters, Emergency Operation facilities) residential, (hospitals, skilled care), or institutional facilities (K-12 schools, prisons, mental health centers) shall be considered essential facilities for assignment of importance factors.

F. Seismic design requirements:

1. A/E shall use the International Building Code to calculate seismic design requirements for all structures (unless the local code is more stringent).

2. In accordance with the International Code Council International Building Code, use the Maximum Considered Earthquake (MCE) Ground Motion maps Figures 1615(1) and 1615(2) to determine the Mapped Ss and S1 values and follow code procedure.

3. A/E will verify project location within the county and will be conservative using linear interpolation for seismic values.

4. Seismic design criteria will be included with the submittal for the Design Development phase.

5. The A/E will ensure the seismic performance Seismic Use Group, the Spectral Response Coefficients S_{DS} and S_{D1}, the Site Class, the Basic Seismic-Force Resisting System, the Design Base Shear, and the Analysis Procedure are added to the structural notes on the drawings.

G. Snow load design requirements. In accord with the applicable building codes; with the following modifications: Roofs for new buildings shall be designed to support a snow load using a Ground Snow Load Factor Pg of 30 psf in Northern Illinois (Peoria and north), 25 psf in Central Illinois (south of Peoria through Carbondale), and 20 psf in Southern Illinois (south of Carbondale).

H. Applicable Codes and Standards:

1. Building Code Requirements for Reinforced Concrete - ACI 318.
2. Specifications for Structural Steel for Buildings - AISC.
   a. Allowable Stress Design.
   b. Load and Resistance Factor Design.
3. Specifications for the Design of Light Gauge Cold-Formed Steel Structural Members - AISI, Cold-Formed Steel Design Manual.
4. Structural Welding Code AWS.
5. Steel, AWS D1.1.
6. Sheet Steel, AWS D1.3.
7. National Design Specification for wood construction, and Supplemental Design Values for Wood Construction, NFPA.
8. Specifications for the Design and Construction of Load-Bearing Concrete Masonry - NCMA.
9. Recommended Practice for Engineered Brick Masonry - BIA.
10. Metal Building Systems-Metal Building Mfg. Association.
11. Code of Recommended Standard Practice for Composite Deck, Form Deck, and Roof Deck Construction - SDI Design Manual
12. Standard Specification for Steel Joists, Including Load and Weight Tables, SJI
    a. Open Web-Type K Series.
    b. Longspan and Deep Long Span-Type LH and DLH Series.
    c. Joist Girders.
    d. Certification that fabricator is a member in good standing with SJI. Requirement for certification may be waived by CDB if circumstances warrant.
13. When project design includes pre-cast concrete, the A/E shall include the Precast/Prestressed Concrete Institute Plant Certification Program in the appropriate sections of the specifications. If amount of pre-cast concrete is minor, this requirement may be waived by CDB.

3.13 **Plumbing**

A. Specify dielectric insulating unions between all dissimilar metals.

B. Specify insulation thickness per Table 6.2.4.1.3 of ASHRAE Standard 90.1-2001.

C. Show **all** piping on drawings (domestic water, waste and vent, pumped waste, roof drain, storm and sanitary sewers - if part of plumbing contract, water service - if part of plumbing contract, natural gas piping, etc.). Do not call for piping in the specifications and not show it on the drawings. Clearly define who provides the water meter (utility company or contractor). Also, contact all utility companies that will be involved in the project to determine their requirements.

D. See ASHRAE *Application Handbook* for seismic design requirements for piping systems. Consult IBC to determine when seismic supports are necessary. See Article 3.12 F.

E. Underslab plumbing drain and waste lines shall be 4" diameter minimum. Plastic pipe under slabs and in inaccessible areas shall be permitted where permitted by local code, providing CDB and the using agency consent to use of plastic pipe.

F. Prepare and submit calculations for fixture counts/occupancy requirements according to the Illinois State Plumbing Code and the local building code requirements. Provide fixtures according to the more stringent of the requirements.

G. The use of pipe heat tracing systems in lieu of pumped recirculation systems must be approved by CDB.

H. Design roof drains in accordance with requirements of the locally adopted code. Built-in gutters are subject to approval by CDB.

I. Place rooftop piping and conduit on factory fabricated pipe supports. Consult CDB Roofing Program Handbook for height requirements. Wood blocking is not acceptable.

J. Sprinkler Systems shall be designed in compliance with NFPA 13.

1. The water line and water hydrants outside the building and entering the building, including the backflow preventer, are plumbing work. Sprinkler work begins at the outlet of the backflow preventer.
2. Design sprinkler work as a separate bid where it is a major portion of a project. When specifying matching fire protection components, include cabinet, hose, extinguisher, etc. in the general contract.

K. Testing shall be specified as part of the plumbing contractor's work.

3.14 Heating

A. Refrigerants/Halons. CFC alternates such as HCFCs and HFCs are scheduled to be phased out in the future. Specifications should be written for the refrigerant offering the best life cycle cost commensurate with engineering judgment as to industry trends.

B. When specifying chillers, condensing units, heat pumps, roof top units, and other types of air conditioning equipment, include a minimum warranty of 5 years for parts and labor on the compressors.

C. See ASHRAE *Application Handbook* for seismic design requirements for piping systems. Consult IBC to determine when seismic supports are necessary. See Article 3.12 F.

D. Specify dielectric insulating unions between all dissimilar metals.

E. List the pressures and temperatures associated with each class (high, medium, low) of steam or hot water. Specify the **correct** (material, pressure rating and temperature rating) type of piping, fittings and valves for each class of steam, condensate return or hot water.

F. Specify insulation thickness per Table 6.2.4.1.3 of ASHRAE Standard 90.1-2001.

G. The use of pipe heat tracing systems (instead of adding glycol to the piping system) for chilled water piping located outside must be approved in writing by CDB.

H. HVAC temperature controls should provide energy-efficient operation where possible (i.e., demand type economizers, night setback, non-simultaneous heating and cooling, low leakage outdoor air dampers, etc.).

I. Building automation systems shall use 'open' communication protocols such as ASHRAE standard 135.

J. Mount rooftop equipment on a curb or on supports that provide a minimum of 24" clearance above the roof. Avoid interior angles to facilitate flashing. Consult CDB Roofing Program Handbook.

K. Place rooftop piping and conduit on factory fabricated pipe supports. Consult CDB Roofing Program Handbook for height requirements. Wood blocking is not acceptable.

L. When not included in the A/E's contract, testing and balancing may be specified as part of the contractor's work or as a separate contract.

3.15 Ventilation

A. Specify insulation thickness per Table 6.2.4.1.2A and B of ASHRAE Standard 90.1-2001.

B. Ductwork:

1. Underfloor duct systems must be approved in writing by CDB. A/E's written request shall include groundwater evaluation, water table location, and a description of the engineering controls necessary to prevent moisture from entering the system.
2. Fiberboard ductwork shall not be specified.
3. Reference SMACNA duct gauges for all ductwork.
4. See SMACNA manuals and ASHRAE *Application Handbook* for information on seismic design of ventilation systems. Consult IBC to determine when seismic supports are necessary. See Article 3.12 F.

C. When specifying condensing units, heat pumps, roof top units, and other types of air conditioning equipment, include a minimum warranty of 5 years for parts and labor on the compressors.

D. HVAC temperature controls should provide energy-efficient operation where possible (i.e., demand type economizers, night setback, non-simultaneous heating and cooling, low leakage outdoor air dampers, etc.).

E. Mount rooftop equipment on a curb or on supports that provide a minimum of 24" clearance above the roof. Avoid interior angles to facilitate flashing. Consult CDB Roofing Program Handbook.

F. Place rooftop piping and conduit on factory fabricated pipe supports. Consult CDB Roofing Program Handbook for height requirements. Wood blocking is not acceptable.

G. When not included in the A/E's contract, testing and balancing may be specified as part of the contractor's work or as a separate contract.

3.16 **Electrical.**

A. Comply with NFPA 70, latest edition.

B. A/E to provide specifications that are applicable to the project, having the correct voltage, circuit elements, products, and wiring methods for the particular work at hand. Specifications that do not apply to the particular project shall not be included.

C. A/E shall perform the load analysis calculations necessary to determine service size, panel and transformer capacities, available fault currents and voltage drop, a coordination study, and size equipment accordingly. Calculations will be made available to CDB upon request.

D. Transient voltage surge suppression shall be provided in the main disconnect in all buildings. Additional transient protection shall be provided for sensitive electronic equipment.

E. The effects of harmonics shall be evaluated and appropriate design methods shall be utilized to minimize their effects. Overdesigning the distribution system as standard practice without evaluating the harmonics shall not be done.

F. Illumination levels listed in the I.E.S. Lighting Handbook shall be used.

G. All transformers shall be NEMA TP-1 compliant.

H. Select service voltages to minimize energy losses. The use of 480Y/277 volt system is encouraged for all ballast lighting and power with reduction to 208/120 for general receptacles and incandescent lighting.

I. Define switching methods employed for lighting, motor control, and other systems.

J. Conduit:

1. Electrical Metallic Tubing fittings shall be Steel Compression Type only.
2. All cable shall be installed in conduit. (Exceptions may be made on a case by case basis. A/E to submit request and justification no later than 50% review submittal.)
3. Minimum conduit size shall be 3/4", 1/2" for single switch legs only.
4. Install an equipment grounding conductor in all conduits for feeders and branch circuitry.

K. Panel Boards:

1. Provide at least three spare conduits, stubbed into an accessible ceiling space, for each flush mounted panel board.
2. Provide a minimum of 10% spare breaker space and load capacity.
3. Spare breakers shall not exceed 10% of the available poles in the panel.
4. All panel boards and distribution equipment shall be fully rated. (Series rated equipment shall not be allowed.)

L. Use energy efficient ballasts, lamps, reflectors and refractors. The use of electronic ballasts and T-8 lamps for energy efficiency is encouraged. Where suitable, use of specular or semi-specular reflectors should be considered. When rehabilitating existing fixtures the use of

replacement specular reflectors may be considered in addition to ballast and lamp replacement. When specifying electronic ballasts include:

1. minimum power factor of 0.99
2. less than 10 percent total harmonic distortion
3. less than 6 percent third harmonic distortion
4. five (5) year manufacturer's warranty
5. compliance with ANSI spec
6. no polychlorinated biphenyls (PCB's)

M. Telecommunications Equipment**:**

1. Telecommunications or radio equipment for State facilities generally falls under the jurisdiction of the Division of Telecommunications, Department of Central Management Services.

2. Consult with the telephone company to establish network point of presence (NET POP) at the building (for a single building facility) or at a common distribution point for a multi-building complex.

3. Consult with PM early in design to determine if telephone system beyond NET POP will be provided by using agency, CMS, or as part of project. The PM will coordinate with CMS and A/E to ensure information is shared.

N. Cable Testing:

1. When high voltage cable testing is required, specify that it shall be performed by a firm employed by the A/E with the contractor assisting.
2. Properly identify the phase conductors tested in all test records.
3. If a fault in a cable, splice, termination, etc. is noticed during testing, the fault shall be cleared, necessary repairs or replacement made, and the cable retested.

3.17 **Alternate Bids.** The A/E shall prepare the bidding documents to include all elements of the work. When the total scope clearly exceeds the design budget, the A/E shall evaluate the components of the design, in conjunction with CDB and the Using Agency, and move any portion not essential to the function of the project to an alternate bid.

A. Alternate bids may not be included in the project without prior approval of the PM.

B. Alternate bids are intended to complete the original scope of work.

C. Alternate bids shall be developed in manageable dollar values. No more than three alternates shall be developed unless approved by CDB.

D. Alternates must be clearly defined by trade and work item in the specifications and on the drawings.

E. All alternate bids shall be clearly identified on the Proposed Project Cost Budget form.

3.18 **Unit Prices.**

A. The use of unit prices is discouraged.

B. CDB must approve the use of unit prices in any construction contract.

C. When unit prices are used, it is preferable that they be extended to, and included in, the contractor's base bid. (Note: If a unit price is rejected, the project must be rebid.)

D. Only in extreme cases may unit prices be utilized that are not included in the base bid. The A/E must write a letter justifying why the unit prices should not be included in the base bid.

E. Unit price estimates shall include overhead, profit and all related costs (e.g. demolition, debris removal, additional supports, time) within the unit price.

F. A/E shall utilize CDB's sample specification section 01 22 00 Unit Prices when unit prices are incorporated into the project.

Article 4 PROJECT BUDGET AND ESTIMATING

4.1 **General.** Estimating is an integral part of the design process. No design, or phase of design, is complete without the related detailed estimate.

4.2 **Construction Budget.** The construction budget is the balance of funds available for construction after subtracting the value of the A/E's contract and any miscellaneous items (such as Art-in Architecture or moveable equipment) required by state statute or CDB policy from the total project budget.

4.3 **Design Budget.** The design budget is set at 90% of the construction budget; 10% of the construction budget shall be set aside for the project contingency. The A/E shall make all requests to exceed the 90% threshold in writing to the PM and include appropriate documentation, including a detailed estimate. Evaluation of such request shall be at the Regional Manager level and the A/E shall be notified in writing of the result.

4.4 **Proposed Project Cost Budget Form.** The A/E shall use the Proposed Project Cost Budget form (PPCB) to show the distribution of the project costs. The PM shall furnish the A/E any miscellaneous costs to be deducted from the project budget for inclusion on this form. This form is to be used as a summary of project costs and updated and submitted with each design review phase. This form does not satisfy the requirement of a detailed construction cost estimate as described herein.

4.5 **Construction Administration Fee (CAF).** The CAF is required for **each** construction contract. The CAF shall be computed as set forth in the CDB PPCB form as three percent (3%) of the base bid estimate plus all the alternate estimates rounded **up** to the next hundred dollars.

4.6 **Estimates.** Estimates of probable construction costs shall be prepared at each stage of the project design phase. The A/E shall submit these estimates with each review submittal. These estimates shall be prepared in greater detail as the design progresses.

A. At program analysis, the estimate may be presented as scope items and their anticipated cost. Parameter based estimating is acceptable at this phase. For example:

1.	Install fire detection system	$5.00 per bldg gsf
2.	Replace bituminous paving	$15.00 per sy

B. At the intermediate phases of the design, estimates can be based on components of the work. Components costs as illustrated in R.S. MEANS Square Foot Costs or Assemblies Cost Data manuals is the level of detail required at these stages of design development. For example:

1.	Roofing, built-up tar and gravel	$1.65 per sf of roof
2.	2-1/2 inch bituminous overlay	$4.50 per sy paving
3.	6 inch aggregate base	$8.75 per sy paving

C. At the 100% design review, the estimate shall be fully itemized and detailed at a level equal to R.S. MEANS Construction Cost manual. The costs as reported by R.S. MEANS are not endorsed by CDB and are used only as an example.

D. When project design stages are combined, the A/E shall provide the more detailed estimate level of the combined stages.

E. At every stage, include CAF and 10% contingency in the budget estimate.

Article 5 PROGRAM ANALYSIS AND DESIGN DEVELOPMENT PHASE

5.1 **Project Scope.**

A. For projects with a simple or well-defined scope CDB will supply a project scope statement containing background and justification for the project and identification of work items contained in the project.

B. For new construction and major rehabilitation projects, CDB may provide a program statement describing proposed program activities, space requirements, and equipment needs.

1. When a movable equipment line item is included in the budget, the responsibility for specifying, purchase and installation is that of the using agency and/or the Department of Central Management Services.

2. The A/E shall cooperate by providing the using agency with the dimensional, color, finish, etc. information necessary to specify any equipment not included in the CDB project.

C. The A/E will utilize this information as the basis of their design effort.

5.2 **CDB Review Checklist.** CDB Review Checklists for Program Analysis, Design Development and 50/75% Design submittals are available in Appendix 2 and on the CDB website.

A. A/E and CDB PM together will determine the relevant sections of the checklist to be completed for the project.

B. A/E will submit the appropriate checklist with each submittal.

C. A/E will review submittal and checklist and mark each item on the checklist as either included or not relevant to the project.

D. Submittals without the appropriate checklist will be rejected.

5.3 **Program Analysis Phase.**

A. Review and coordinate the data contained in the project scope statement, consult with designated representatives of CDB and the using agency when required and visit the project site to obtain a thorough understanding of the existing conditions and the project.

B. Provide a program analysis report containing the coordinated project scope supplemented by all other information necessary to form a complete basis for the project design, including field verification of any information provided by CDB and the Using Agency.

C. Requirements for the program analysis submittal vary with the scope of the project, but generally include the following:

1. Narratives and diagrams required to show all program functions, off-site elements, and their relationships. Provide flow diagrams showing the movement of persons (visitors, staff and residents) and traffic when appropriate.

2. Space itemization including: function and size (show as net assignable sq. ft./area), number and classification of occupants, type and quantity of fixed and movable equipment (noting required utilities), special environmental and/or system requirements.

3. Total of all program areas including a percentage allowance for circulation, mechanical and maintenance functions.

4. Code analysis report indicating all regulatory agencies, permits, building codes, and standards that apply to the project. Include in this report an action checklist indicating all required regulatory agency reviews and permits. Include a copy of the code analysis report, updated as required, with each design document submittal package.

5. For renovation projects, A/E shall provide a statement of the status of asbestos inspections and/or abatement. The A/E shall review the asbestos inspection report and/or management plan. Provide a listing of the type and quantity of materials tested positive that will be disturbed. Note also any materials listed as "assumed" to be positive for containing asbestos and indicate the quantity of samples proposed to be taken and tested to verify the "assumed" condition. CDB Form 9 as provided in the A/E Manual of Procedures for Asbestos Inspections and Management Plans (and on the website) is an acceptable format for this purpose. A/E may copy Form 9 from the management plan for each area to be disturbed. If new (previously unsurveyed) ACM (asbestos containing material) is discovered, the A/E must complete Form 9 for that ACM.

6. Opinion of probable construction costs including asbestos abatement in scope itemization format per Article 4.6 A and the PPCB form.

7. Estimated duration of project construction schedule including asbestos abatement.

8. Completed Program Analysis checklist.

9. Completed LEED checklist (if applicable).

D. Resolve, in consultation with CDB and the using agency, any discrepancies in the project scope or budget prior to proceeding to the next design phase.

5.4 **Schematic Design**

A. When provided for in Appendix A to the agreement, A/E shall prepare up to three design studies for review and consideration by CDB and the Using Agency, either as part of Program Analysis or as a separate phase.

B. Design studies may include written alternatives, drawings, or other documents as appropriate. Drawings can be sketch format, single line drawings or other as appropriate to illustrate basic information. Submittal shall include written analysis of the advantages and disadvantages of each alternative.

C. Provide PPCB form and cost estimates for each schematic design study in project component format per Article 4.6 B.

D. Provide LEED checklist for each schematic design study (if applicable).

E. Design Development will be based on the alternative accepted by CDB and the User, as modified by their comments during the review process.

5.5 **Design Development Phase.**

A. Prepare design development submittal based on the program analysis (and accepted schematic design). Submittal shall illustrate the resolution of all building and site elements. Fix and illustrate the scope, scale and relationship of the project components for structural, mechanical and electrical systems. Identify materials and specify performance characteristics and quality standards.

B. Requirements for the design development submittal vary with the scope of the project, but generally include the following:

1. Project Manual:

   a. Table of Contents
   b. Section 01 11 00
   c. Specification section outlines for each major project component

2. Site Plan. Locate each building, existing and finished contours, ground floor elevations, roads, walks, parking areas, utilities (existing, new, and relocated), other site construction, and limits of the contract. (Coordinate any proposed interruptions to services, roads, etc. with the using agency.)

3. Estimate of probable construction cost per Article 4.6 B and a PPCB form.

4. Current project schedule.

5. Life Cycle Cost Analysis for each alternative energy system (as outlined at the Orientation meeting).

6. A statement indicating compliance with the Federal Energy Policy Act and ASHRAE 90.1-current edition.

7. An area analysis tabulation comparing the net and gross square footage with those provided in the Program Analysis Phase.

8. Floor Plans. Identify room numbers, names, and mechanical spaces.

9. All elevations showing finishes, window and door styles, etc.

10. Vertical building sections.

11. Location and type of primary structural members.

12. Utility service requirements, including temporary service.

13. Basic plumbing layouts and fixtures.

14. Basic HVAC systems and their major components.

15. Basic layouts of lighting, power, fire alarm, emergency lighting, exit signs, and communication systems.

16. Fixed equipment in tabular form with utility connection requirements noted.

17. Identify areas requiring acoustical treatment.

18. Model or rendering if included in the agreement.

19. Completed or updated LEED checklist (if applicable).

20. Completed Design Development checklist.

C. A/E shall not proceed beyond design development phase until provided with a written statement from CDB and the using agency signifying acceptance of the proposed design. This acceptance statement shall note all agreed upon revisions to the design development submittal.

Article 6 BIDDING DOCUMENT PREPARATION

6.1 **General.** The A/E shall prepare the bidding documents (Project Manual, Drawings and Addenda) based on the accepted design development submittal in conformance with the Illinois Procurement Code and CDB Rules and Regulations.

6.2 **Application of Professional Seals.**

A. Bidding documents shall contain a legible seal with signature, date signed and license expiration date of the architect, structural engineer and/or professional engineer responsible for the document or under whose supervision the document was prepared.

1. Date signed is the date the documents are finalized for printing and the architect or engineer seals and signs the documents.
2. The architect or engineer's license expiration date must be later than the date the documents are signed (e.g. license must be current when signing documents).

B. The cover sheet and each sheet of the drawings shall be sealed in the manner prescribed above. All disciplines must seal the cover sheet.

C. Project manuals shall be sealed by the design professional responsible for the overall coordination of the project. If more than one design professional has responsibility for portions of the work, additional seals may be provided on the cover or on a separate sheet immediately following the table of contents.

6.3 **Design Firm Registration Number.** The Illinois Department of Professional Regulation requires that all technical submissions prepared by a design firm contain the design firm registration number. This number shall be placed under the firm name on the cover of the project manual and on each sheet of the drawings.

6.4 **Permits.**

A. A/E shall apply for any required state or federal (IEPA, IDNR, Corps of Engineers, MWRD, etc.) permits. As stated in Article 2.6, A/E must comply with all regulations of state and federal agencies necessary to obtain such permits. It is the A/Es responsibility to ensure that such permits are received in a timely fashion so as not to delay construction.

B. When specifically directed by CDB, the A/E shall provide the local authority (or authorities, where more than one local authority has jurisdiction) with sufficient design documents as it may require for purposes of review and/or issuance of permits.

C. A/E shall provide CDB with all review correction notices or comments issued by the local authority. When directed by CDB, A/E shall make corrections to the documents and resubmit to the local authority for review and/or issuance of permits.

6.5 **Reviews.**

A. The PM will schedule design review submittals and/or review meetings required by the agreement.

B. Documents shall be submitted for review to CDB and the Using Agency at the stages of completion (25%, 50% and/or 75%) set forth in Appendix A of the PSA and at final completion (100%). The A/E shall provide up to ten (10) sets of review documents for CDB and using agency for each review.

C. Each submittal will contain (at a minimum), the Project Manual, Drawings, updated LEED checklist (when applicable), detailed cost estimate and PPCB form. When an in-progress review is required by the agreement, the A/E shall include with the submittal package a "CDB Review Checklist" suitably marked by the A/E as to the topics to be reviewed per Article 5.2.

D. The review of documents by CDB does not constitute a complete and exhaustive review. CDB reviews the documents for general compliance with the program objectives, design standards, contract requirements and budget. CDB may also review for cost effective design, energy conservation, competitive bidding procedures, operating and maintenance costs, and general compliance with applicable codes, rules and regulations. CDB's acceptance of the documents does not relieve the A/E of its responsibilities as a design professional.

E. The using agency may review the documents for compliance with scope and design intent.

F. Review comments prepared by CDB, the using agency and/or regulatory agencies will be provided to the A/E at or prior to the review meetings. When a meeting is not required, comments will be transmitted to the A/E by the PM.

G. CDB will, in writing or at the review meeting, provide notice of the acceptance of the review documents or issue instructions regarding required resubmittal. If the required corrections are minor, CDB may conditionally accept and authorize the A/E to proceed to the next review phase. When documents are not accepted, a resubmittal will be required. In this instance, the A/E shall repeat the review stage (including another review meeting) at no additional compensation. A/E may not be paid for completion of a design stage until the majority of the design document submittal for that stage has been accepted by the reviewers.

H. CDB reserves the right to backcharge the A/E if excessive 100% re-reviews are required. If more than two 100% reviews are required, the A/E's prequalification status may be affected.

I. A/E shall insure that all key design staff and consultants attend the review meeting(s).

J. Following the reviews, the A/E shall:

1. Prepare meeting minutes indicating issues discussed/resolved.

2. Provide CDB with a written response to all review comments and questions within 14 calendar days.

3. Copy reviewers on meeting minutes and responses to review comments.

K. The 100 percent bidding documents submittal will include a final code analysis/regulatory review action checklist, copies of all permits and approvals, proposed list of critical work (below), ASHRAE 90.1 compliance forms, explanation of factors used in determining specified construction duration and executed utility agreements, as applicable.

1. A/E shall compile a list of work they have determined to be critical and submit it for CDB and using agency review at the 100% completion stage of design. The submittal shall include justification of the need for on-site representation, the A/E staff responsible for observing the work and an estimate of the duration/frequency of the observation with the resulting cost and overall impact on the on-site representation budget. The CDB, A/E and using agency will reach consensus regarding the critical work list items.

2. Utility agreements are contracts between CDB and a utility company for the installation or relocation of utility service facilities in conjunction with a CDB project to be maintained by either the utility company or the customer (using agency). The A/E shall review such agreements to determine that the required utility service/equipment has been provided for the project and shall include the associated costs in the summary of proposed project costs.

6.6 **Project Manual.**

A. Specifications shall be written as directions to the contractor.

B. Written product specifications shall be included in the Project Manual and shall not be duplicated on the drawings.

C. All material specifications shall be included in the Project Manual.

D. Soil boring logs must be provided in the Project Manual or on the drawings.

E. CDB has prepared draft specification sections for the A/E's use on selected project types such as roofing and pre-engineered buildings. Please contact your project manager for the current versions of these specifications if required for your project.

F. Except as required by code, provision of spare parts, "attic stock", and/or maintenance services shall not be included in the bidding documents.

G. Special tools which are required for the operation and/or maintenance of specified systems or equipment or are required by code may be included in the bid package(s). For example:

1. Suction Cup Lifter: (*Access floor panels. One or two per facility depending on quantity of flooring.)
2. Swimming Pool Accessories: (*First aid kit, life buoy, life pole, rope, water test kit. In accord with Illinois Department of Public Health requirements.)
3. Hydrometer, Thermometer: (*Large storage battery rooms. May be augmented by special battery maintenance tools.)
4. Elevator tools: Tools used for maintenance, operation or access to elevators when specific to a particular manufacturer.
5. Hardware tools: Special wrenches, screwdrivers, etc, when required by manufacturer.

H. Specify all tests required for all systems and devices to be tested. Where required, testing procedure shall also be specified.

I. The A/E shall ensure that each contractor is required by the contract documents to provide sufficient training of the using agency's designated personnel prior to substantial completion.

J. Any warranties requested beyond two years for HVAC equipment, roof systems, carpet, etc. should be clearly specified by the A/E as warranties from the manufacturer. It is the A/E's responsibility to verify that such warranties are available and to include them in the appropriate Project Manual section and Section 01 78 36. The contractor is responsible for all warranties up to 1 year and for 1 year plus 1 growing season for landscaping or 2 years for seasonal equipment such as chillers. See current Standard Documents for Construction for guidelines.

K. Refer to the PMW for Asbestos, Lead, UST and PCB (Appendix 5) for procedures when abatement of hazardous materials is required for the project.

6.7 **Drawings.**

A. Bid and project record drawings must be submitted to CDB on compact disk (CD). Use AutoCAD Release 2004 or the most current version (verify on the CDB website what is the latest version CDB can accept, if using a version later than 2006). When using another CAD product, ensure that all drawings and support files convert fully to AutoCad.

B. The title block and all related information shall appear on each sheet. Standard sheet size 30" x 42" maximum - 24" x 36" minimum unless otherwise approved by CDB.

C. With CDB approval, the complete project or selected details may be prepared on 8 1/2" x 11", or 11" x 17" (folded to 8 1/2" x 11") paper and bound into the Project Manual.

1. Drawings bound into the Project Manual shall be noted as such in section 00 01 15 and shall be located after the last technical specification section.
2. All drawings shall comply with the requirements of this section. When bound into the Project Manual, a cover sheet is not required.

D. Minimum scales of drawings, unless approved otherwise by the PM, shall be:

1. Site Plan 1" = 30'
2. Floor and Roof Plan 1/8" = 1'0"
3. Temperature Control 1/16" = 1'0" (Schematics, not to scale, may be acceptable)

E. All sheets shall contain a graphic scale (one for each different scale used on that sheet) and a north arrow. North shall be consistent between all sheets.

F. Minimum acceptable lettering size is 3/32 inch, adequately spaced and legible.

G. Line weights and other techniques shall be used appropriately to clearly communicate the work required and to delineate new work from existing conditions.

H. Match lines shall be used to identify portions of buildings or sites shown on separate sheets. Match lines shall be consistent throughout drawing set.

I. Other Drawing Requirements:

1. All floor plans and partial floor plans shall show consistent column grid line indications, room names and numbers and shall be to the same scale. Building elevations and sections shall also indicate column grid lines. Larger scale plans of special areas such as toilets (including elevations), lecture rooms, stairs, kitchens, shall be provided as necessary to show details of the work.

2. The elevation of the finished floor shall be indicated under the title for each floor level (all disciplines).

3. All details shown on drawings shall be applicable to the project. Details shall be drawn to scale.

4. Designation for sections, details, etc. shall denote detail and sheet number on which it is detailed.

5. Items shown on the drawings that are not a part of the contract shall be labeled as NIC (not in contract).

6. Assign a number or name to all buildings, rooms, corridors, etc. for reference purposes. Ensure that they are identical for all drawings. Names are preferred if they do not cause drawing congestion.

7. Clearly identify and show all work involved in demolition, alternate bids, removals, abandonment, or other activities associated with the project.

8. A key plan in the lower right-hand corner of the drawing shall be used to locate a building, a portion of a building or portion of a site in relation to the larger unit.

9. All work shown is assumed to be new unless stated otherwise. Do not use the word "Proposed" on contract drawings when referring to required work. Existing items pertinent to the project may be marked as "existing" to avoid confusion with new work. Future work shall be shown only where necessary to coordinate with current project and shall always be noted as "NIC".

10. Show all known asbestos-containing material (ACM) locations where the contractors' activities could accidentally damage the ACM. Include a note stating that this material is known or assumed to contain asbestos, that the workmen should exercise extreme caution to avoid damaging the material, that any accidental damage should be immediately reported to the A/E, coordinating contractor (when applicable), and/or the facility's designated asbestos person and that if the material is damaged during the course of the work, the contractor will be required to reimburse CDB for any costs incurred which may include A/E services.

J. All drawings shall be labeled for the appropriate division of work as set forth in Article 9.

Article 7 PREPARATION OF Division 00 and 01 SECTIONS

7.1 **Prototypes**. Sample specifications or prototypes for the following items are available on CDB's website. The A/E is to review the prototypes and edit, complete, and/or adapt them as necessary to the specific requirements of the project.

7.2 **Cover**. Professional seals and signatures shall comply with the current requirements of the various professional practice acts. Other notes or certifications required by authorities having jurisdiction shall also be shown. List CDB building numbers for buildings affected by the project.

7.3 **00 01 10 Table of Contents**. The numbering of sections or schedules through division 1 substantially complies with the latest CSI Master Format. Note that CDB has added certain sections required by our bidding process and other procedures. For spec sections in divisions 2 onwards the A/E should use the latest CSI Master Format numbering.

7.4 **00 01 15 Drawings, Schedules, & Details Listing.** Section 00 01 15 of the project manual shall contain a listing of all drawings, schedules, books and details issued separately or as part of the project manual. Note that all documents shall bear the same date of issuance as the project manual.

7.5 **00 01 13 Advertisement for Bids.** The A/E shall prepare the advertisement for bids and submit it to the project manager at least six weeks before the proposed bid opening date.

7.6 **00 31 32 Soil Report**. When soil reports are provided as part of the A/E services they should be inserted into the manual as part of section 00 31 32.

7.7 **00 41 00 Bid Forms.** Documents 00 41 00 through 00 41 07 collectively are known as the Bid Forms or the Bid Package.

A. **Changes**. If one or more of the forms in the bid package require a change by addendum, the A/E shall reissue a complete set of the bid package with the addendum. Each page shall be marked: "Revised per Addendum No. X". The addendum will be prepared and issued as described in Article10.5.

B. **00 41 00 Bid Form.**

1. The bid forms shall clearly indicate the project number and the contract trade.

2. The bid form shall make it clear that unit price work shall be included in the base bid, unless specifically approved otherwise by CDB.

3. The A/E shall list on each trade bid form **all** the alternates for the projects. If the A/E is certain that the alternate does not affect a particular trade, the A/E shall insert "not applicable" in the space for the price of that alternate for that trade. The A/E shall refer to the A/E Note contained within the prototypical section 01 23 00 or Article 7.12 for the use and numbering of alternates.

4. The certifications and bidder agreements on the bid form are not to be added to, deleted in whole or in part, or modified in any manner.

C. **00 41 04 Bidder's Employee Utilization Form, DHR PC-2.** This is a **required** form. CDB will forward to the A/E the appropriate completed PC-2 forms for each trade to be bid. These forms must be included in the bid package.

D. **00 41 05 Contract Requirements for Minority/Female Business Participation.** This form is **required** with all bids. This form shall be completed as described in Article 7.10 N below.

E. **00 41 06 Bid Bond Form.** Bid bonds must be submitted on CDB's bid bond form. It is the A/E's responsibility to include these forms in the bid package.

F. **00 41 07 Product Substitution Form.** This form must be included in all bid packages for the bidder's use.

7.8 **00 43 42 Federal Funding.** Where projects are wholly or partially funded by the Federal Government, Section 00 43 42 shall be included in the project manual along with all applicable federal exhibits required. See the CDB project manager for specific exhibits necessary.

7.9 **00 43 43 Prevailing Wage Rates.** Applicable wage rate information may be obtained from either the CDB project manager or the IDOL Website (www.state.il.us/agency/idol). The rates for the specific county(s) where the project is located shall be inserted into the project manual in section 00 43 43.

7.10 **01 11 00 Project Summary**

A. **General**. Section 01 11 00 not only summarizes the work associated with the project but also establishes division of the work by construction contract, sets the time duration of the construction contracts, defines bidding requirements, and specifies any special general condition requirements of the project.

B. **Preparation.** Preparation of Section 01 11 00 requires careful consideration of project needs and characteristics and should be completed in consultation with CDB's project manager and a representative of the using agency. No additions may be made to this section without the express permission of the Project Manager.

C. **Relationship to Standard Documents for Construction**. Section 01 11 00 augments and supplements the Standard Documents for Construction (SDC). Certain articles of the SDC require information to be in the project manual to be complete in their requirements. These are required paragraphs in Section 01 11 00. Other articles may be modified in the project manual and are optional paragraphs in Section 01 11 00. It is important that the A/E read and understand the Standard Documents for Construction before preparing this section.

D. **Listing of Required and Optional Paragraphs**. Below are the instructions for the required and optional paragraphs included in Section 01 11 00. When optional paragraphs are not used, the paragraphs shall be renumbered consecutively. Optional paragraphs are *italicized*.

E. **Paragraph 1. STANDARD DOCUMENTS FOR CONSTRUCTION**. This **required** paragraph specifies the edition of the Standard Documents that applies to the project. The edition specified shall be the one listed on the signature page of the PSA unless directed otherwise by the project manager.

F. **Paragraph 2. GENERAL PROJECT INFORMATION**. This paragraph is composed of three **required** subparagraphs.

1. **Para 2.A DESCRIPTION**. This subparagraph shall briefly describe the work to be performed. The description should not duplicate the detailed description of systems or materials in the technical specification sections.

2. **Para. 2.B EXISTING CONDITIONS**. This subparagraph shall briefly describe any existing conditions that may affect the work. This section would include any

working hour restrictions, site or building access restrictions, scheduling any down time for mechanical systems, etc. This subparagraph is not for soil conditions or to place into the work any undisclosed conditions that might be encountered. If there are no existing conditions that require specifying, so state.

3. **Para. 2.C RELATED WORK**. This subparagraph shall include any work related to these contracts which affects the contractors' work. This would include utility agreements, other current or future projects at the site, etc. If there are no related work items, so state.

G. **Paragraph 3 SUBSTANCE ABUSE PREVENTION ON PUBLIC WORKS PROJECTS ACT** This is a **required** section. This section explains the requirements of the Substance Abuse Prevention on Public Works Projects Act.

H. **Paragraph 4 APPRENTICESHIP TRAINING REQUIREMENT** This is a **required** paragraph. This paragraph explains the Apprenticeship Training program requirement.

I. **Paragraph 5 DELINQUENT DEBT** This is a **required** paragraph. This paragraph explains the Delinquent Debt policy requirements.

J. **Paragraph 6 CONTRACT TIME**. This **required** paragraph establishes the contract time for the entire project and/or each contract individually. See Article 3.7 regarding construction duration.

1. Contract time will be specified in two blocks - construction from Authorization to Proceed through Substantial Completion and close-out activities from Substantial Completion through Final Acceptance. Sufficient time for pre- and post-construction activities (e.g. mobilization, procurement) must be added to the estimated construction duration to determine the construction time. Confer with your CDB project manager for help in estimating these activities.

2. There are three options for specifying the contract time:

   a. The first (standard) option requires Substantial Completion to be achieved in a set number of consecutive calendar days from the Authorization to Proceed and Final Acceptance to be achieved in a set number of consecutive calendar days from Substantial Completion.
   b. The second option requires the contractor to achieve Substantial Completion by a certain date and Final Acceptance to be achieved in a set number of consecutive calendar days from Substantial Completion. This is to be used only when there are external constraints on the completion of the project, e.g. beginning of school semester, yearly closing of asphalt plants.
   c. The third option is for projects that must be fully completed by the August following the close of the fiscal year in order for payment to be made from that fiscal year's appropriation.

3. When asbestos abatement precedes the contract work the contract time will begin when the building or space is available to the contractor (e.g. "The contractor shall complete all work through Substantial Completion in accord with the contract within *_____ consecutive calendar days from *the date of Final Air Clearance in Room XX"). Consult with your project manager regarding contract time for multi-phase projects.

K. **Paragraph 7 CONTRACT(S)**. This **required** paragraph specifies the division of the project work into contracts by trade. Division of the work shall comply with Article 3.3.

L. **Paragraph 8 PRE-BID CONFERENCE**. Provide time, date and location of pre-bid meeting. The pre-bid meeting may be made mandatory **only** with the written permission of the PM. A/E must request approval for a mandatory pre-bid conference in writing. Notification of all mandatory pre-bid conferences must also be included in the advertisement for bid (00 01 13).

M. **Paragraph 9 CONSTRUCTION ADMINISTRATION FEE**. This is a **required** paragraph. The A/E shall calculate the construction administration fee (CAF) for each trade contract listed in Paragraph 7 in accordance with Article 4.5, and include the amount here.

N. **Paragraph 10 BID SECURITY**. This is a **required** paragraph and shall be included in all project manuals as provided.

O. **Paragraph 11 BIDDER'S EMPLOYEE UTILIZATION FORM, DHR PC-2**. This is a **required** paragraph.

P. **Paragraph 12 BUSINESS ENTERPRISE FOR MINORITIES, FEMALES AND PERSONS WITH DISABILITIES ACT**.

1. This is a **required** paragraph. The A/E shall include one of the two options per the instructions of the project manager.

2. The first option (1) is to be used when the project includes goals for the use of MBE/FBE subcontractors and/or suppliers. The goals are based on the geographical location of the project. Unless otherwise directed, the following goals shall be included in Section 01 11 00 and inserted on the Contract Requirements for Minority/Female Business Participation (00 41 05) form for each trade contract.

a. REGION 1 (Cook, Lake, DuPage, & Will Counties)

1) General Work 18%
2) Mechanical/Electrical Work 13%

b. REGION 2 & 3 (Counties north of the northern boundaries of the following counties: Calhoun, Greene, Macoupin, Montgomery, Fayette, Effingham, Jasper, & Crawford; except Region 1)

1) General Work 6%
2) Mechanical/Electrical Work 4%

c. REGION 4 (St.Clair, Madison, & Monroe Counties)

1) General Work 8%
2) Mechanical/Electrical Work 6%

d. REGION 5 (Counties including and south of Calhoun, Greene, Macoupin, Montgomery, Fayette, Effingham, Jasper & Crawford; except Region 4)

1) General Work 4%
2) Mechanical/Electrical Work 4%

3. Option two (2) does not require MBE/FBE business participation although it is encouraged. The 00 41 05 Contract Requirements for Minority/Female Business Participation form shall be included in the bid package but shall indicate a goal of zero (0) percent.

Q. **Paragraph 13 BUILDER'S RISK INSURANCE**. This is a **required** paragraph. The A/E shall designate the contractor who is to provide the builder's risk insurance for the project, usually the coordinating contractor. There is an option for no builder's risk insurance which is to be used **only** with the written approval of the project manager.

R. **Paragraph 14 BUY ILLINOIS PROGRAM.** This is a **required** paragraph. This paragraph explains the Buy Illinois program to the contractors.

S. ***Paragraph 15 RESPONSE ACTION CONTRACTORS' INDEMNIFICATION ACT***. This is an optional paragraph. The A/E shall include this paragraph when indemnification of a response action (hazardous material) contractor is required. The A/E shall check with the project manager on whether any withholding will apply to the contract.

T. ***Paragraph 16 LIQUIDATED DAMAGES***. This is an optional paragraph and shall be used only with the written consent of the project manager. CDB discourages use of liquidated damages. Refer to Article 00 72 75 of the Standard Documents for Construction.

U. ***Paragraph 17 DURATION OF BIDS***. This is an optional paragraph. Para. 00 51 10.3 of the SDC requires the bidders to hold the bids open for 60 calendar days. If, upon the instruction of the project manager, the bids are to be held open for a longer period of time, complete and insert this paragraph.

V. ***Paragraph 18 SITE SECURITY.*** This is an optional paragraph. The paragraph shall be included in Section 01 11 00 when the work is to be performed at a secure facility (e.g. a prison). The A/E shall review this requirement with the using agency and the project manager.

W. ***Paragraph 19 PROJECT IDENTIFICATION SIGN.*** This is an optional paragraph. The A/E shall include when required. The A/E shall provide size and location of the sign on the drawings and have the wording approved by CDB prior to issuing to the contractor.

X. ***Paragraph 20 FIELD OFFICES.*** This is an optional paragraph. The A/E shall include when required after consultation with the project manager. If the using agency has existing space for field offices, coordinate with the using agency and include in Section 01 11 00.

Y. ***Paragraph 21 VALUE MANAGEMENT.*** This is an optional paragraph. Generally it should be included in all project manuals unless the Project Manager specifically directs otherwise.

Z. ***Paragraph 22 EXCESS FACILITY CHARGES.*** This is an optional paragraph. It will be used when new connections are being made for permanent utilities.

7.11 ***01 22 00- Unit Prices.*** The A/E shall include this section if unit prices are to be included in the bids. Unit price work must be listed in the appropriate specification section as well as on the bid form and in this section. Use of unit priced work must be approved in writing by CDB.

7.12 ***01 23 00- Alternates***. The A/E shall include this section if alternate bids are to be included with the base bids.

A. Alternate bids shall be clearly and completely specified in this section. Alternate bids must also be noted in the relevant technical specification section(s) and on the drawings.

B. Alternate bids may not be included in the project without permission of the PM.

C. Each contract to be bid that has work in the same alternate shall have the same alternate designation number following the trade designation letter. For example, three alternates - the first involving the General and Electrical contractors, the second the Plumbing contractor only, and the third all three contractors - would be numbered G-1/E-1, P-2, and G-3/P-3/E-3.

7.13 ***01 31 00- Coordination, Supplemental to the SDC***. This is an optional section that supplements the basic requirement for coordination included in Article 01 31 00of the SDC. This section may be used to modify, add to, or delete the requirements of Article 01 31 00 if that paragraph does not meet the project requirements.

7.14 ***01 32 00 - Construction Schedule, Non-CPM Option***. This is an optional section that complements Article 01 32 00 of the SDC which requires the use of a critical path method of scheduling the project. CPM is required on all multi-discipline projects. For other projects, the A/E should consult with the project manager on the type of schedule required.

7.15 **01 32 23– Survey and Layout Data.** This section is required in order to designate contractor responsibility for grades, lines & levels needed for the work.

7.16 ***01 32 33- Construction Photographs*.** This is an optional section for use when progress photos are deemed appropriate and required by CDB.

7.17 **01 33 23 - Shop Drawings, Product Data, & Samples**. This is a required section if any submittals are required. If a large number of submittals is expected, a schedule of submittals is suggested instead of a list.

7.18 ***01 35 16- Alteration Project Procedures***. This is an optional section for appropriate projects.

7.19 **01 35 53- Security**. Specify responsibility for security and level required. Check with Using Agency for site specific requirements. Coordinate with Section 01 11 00 paragraph 16 Site Security.

7.20 **01 41 00 - Regulatory Requirements**. This section is required for all project manuals. The A/E shall edit this section leaving only those regulatory requirements that pertain to the work. Any regulatory requirements not listed that pertain to the project shall be added when appropriate, e.g. local codes. Be sure to include the date of the code for each code used in the project design.

7.21 **01 45 29 - Testing Laboratory Services, Supplemental to the SDC**. This section is required when construction phase testing will be provided by the A/E. Specify testing required. The A/E is to submit a list of proposed tests with the 50% submittal.

7.22 **01 51 00 - Temporary Utilities**. This section is generally included in all projects; however, it must be carefully written so as to be applicable to the specific project conditions. A/E is to be sure to assign temporary utilities to the correct trade. A/E may not specify temporary use of permanent systems without permission from PM.

7.23 ***01 51 50 - Use of Existing Facilities.*** This is an optional section intended for small projects.

7.24 ***01 54 00 - Construction Aids***. This is an optional section and is to be used only with the express permission of CDB. The Standard Documents of Construction require that all contractors provide their own construction aids. If there is a need for one contractor to provide a common construction aid, request approval of such from the project manager.

7.25 ***01 55 00 - Access Roads, Parking Areas, & Traffic Control, Supplemental to the SDC***.

7.26 **01 56 00 - Barriers**. Specify required construction barriers appropriate to the project.

7.27 ***01 66 00 - Storage & Protection.*** This is an optional section for use where there are restrictions on storage or where off site storage may be contemplated. Use when appropriate.

7.28 ***01 73 29 - Cutting & Patching, Supplemental to the SDC***. This is an optional section that supplements the basic requirement for cutting and patching included in Article 01 73 29 of the SDC. This section may be used to modify, add to, or delete the requirements of Article 01 73 29, if that paragraph does not meet the project requirements.

7.29 **01 74 13 - Construction Cleaning, Supplemental to the SDC**. Assign responsibility for cleaning and degree of cleaning required during the course of the project.

7.30 **01 74 23 - Final Cleaning.** This is a required section for the purpose of assigning responsibility for *final* cleaning.

7.31 **01 78 23 - Operating & Maintenance Data**. This is a schedule of the O & M data required to be submitted and complements Article 01 78 23 of the SDC. This is a required schedule if any O & M manuals are required.

7.32 ***01 78 36 - Extended Warranties & Bonds***. This is a schedule of the extended warranties and bonds to be furnished by the contractors. This schedule complements Article 01 78 36 of the SDC. This schedule is required only if warranties or bonds with a warranty period longer than one year are specified. See SDC section 01 78 36.2 for required extended warranties.

7.33 **01 78 39 - Project Record Documents.** This is a required section to ensure that CDB receives suitable documents for record purposes.

Article 8 PREPARATION OF DIVISIONS 02 AND FOLLOWING

8.1 **Master Format**. The use of the Construction Specifications Institute's (CSI) Master Format for specification titles and numbers is preferred by CDB for developing sections beginning with Division 02. Specifications developed using this edition of the DCM will use the 6 digit numbering format of CSI's 2004 Master Format.

8.2 **CDB Format.** Please note that the first section of each specification section must follow CDB's format (Article 8.7 below) rather than the CSI format.

8.3 **Listing Sections**. Save space wherever possible. Do not list sections or sub-sections as "not applicable". Just leave them out.

8.4 **Sub-headings**. Do not use a lone sub-heading in the outline if only one sub-heading applies. Begin text immediately following the heading.

8.5 **Abbreviations**. Do not spell out "Capital Development Board", "Project Manager", or "Architect/Engineer". Once they are clearly identified, use "CDB", "PM", or "A/E".

8.6 **Outline**, Break down sub-paragraphs using the following outline definition:

0.0

A.

1.

a.

1)

a)

8.7 **Paragraph 1.1 Example**. Following is a guide for use in preparing Paragraph 1.1 of a technical specification section. Options are flagged with an asterisk (*). A/E must insert appropriate data or information wherever there is an asterisk. Notes to the A/E are included where appropriate.

Section 1 General

1.1 WORK INCLUDES

A. Base Bid: (* List each contractor who has work in this section)

1. (*_____) Contractor:

a. (A/E: briefly summarize work in this section)

2. (*Continue for any other contractor who has work under this section)

B. Alternate Bids: (*) (A/E: list all alternate work applicable to this section by contractor and alternate number)

1. (*_____) Contractor:

a. Alternate Bid (*letter) – (*1)

1) (A/E: briefly summarize work)

2. (*Continue as appropriate)

C. Unit Prices: (*) (A/E: Describe unit price work applicable to this section)

1. (*_____) Contractor:

a. (A/E: briefly summarize work)

8.8 **Sample Technical Specification Format.** A sample technical specification is included in Appendix 3. Please note that in this sample section, as well as in all sample sections in this manual, items noted with an asterisk must be edited by the A/E to suit the requirements of the current project.

Article 9 PREPARATION OF DRAWINGS

9.1 **Cover Sheet.** Cover sheet shall be prepared per standard cover sheet available on the CDB Website.

A. When appropriate for the project, include applicable building codes, building square footage, occupancy classification, type of construction and fire resistance rating.

B. On small projects, symbols and abbreviations may be listed on the cover page.

C. Edit symbol and abbreviations lists to include only those items used on the drawings.

D. List CDB Building Identification number(s) for each building affected by the project. CDB building numbers are available from the PM.

E. Cover sheets, drawing index sheets, and information sheets shall be designated: G.

9.2 **Civil Drawings**. Civil drawings shall include the following, as applicable to the project.

A. Site development work, storm sewers, and landscaping shall be included in the general work contract. Water service shall be included in the plumbing work contract. Sanitary sewer may be included in either the general or plumbing work contract. Electrical and telecommunications service shall be included in the electrical contract.

B. New contours shall be labeled, and shall indicate adequate drainage and contrast with labeled existing contours. Each fifth contour should be shown as an index contour.

C. Show all new topography, newly established levels and grades, existing structures, new structures, roadways, walks, location of nearest drainage/sewer connections, other identifiable features and areas to be seeded and landscaped. All structures and improvements which are to be removed under the construction contract shall be shown.

D. Profiles and cross sections shall be provided for all new roadways. Cross sections shall be provided for each type of sidewalk and curb design. Expansion joints shall be shown in plan view and details shall be provided of each joint type used.

E. Profiles shall be provided for all sewers. Show invert elevations of all sewers, manholes and catch basins. Show frame and grate elevations of all manholes and catch basins.

F. Show the Stormwater Pollution Prevention Plan (SWPP) and details for erosion and sediment control.

G. Standard drawing designations for civil work include:

1.	Civil	C
2.	Fencing	F
3.	Well Drilling	WD

9.3 **Architectural Drawings**. Architectural drawings shall include the following, as applicable to the project.

A. Plan of each floor and roof.

B. Elevations of each facade.

C. Longitudinal and transverse sections through entire building.

D. Schedule of finishes, doors, and accessories.

E. Roof plan showing high and low elevations; show exact slopes.

F. Wall sections at relative elevations, including flashing details.

G. Miscellaneous details, sections, and enlarged plans as necessary to effectively communicate the design.

H. Reflected ceiling plans showing all ceiling elements visible on the ceiling, such as lighting fixtures, exit signs, speakers, detectors, diffusers, sprinkler heads, and suspended ceiling grids.

I. Standard drawing designations for architectural work include:

1.	Architectural	A
2.	Carpet	CPT
3.	Painting	PNT
4.	Demolition	D

9.4 **Structural Drawings**. Structural drawings shall be separated from architectural work. Drawings shall include the following as appropriate for the project.

A. Include the following information in general notes:

1. Governing structural codes with year of edition.
2. Design live, wind and earthquake loads, or design coefficients used as a basis for structural design.
3. Detailed breakdown of live and dead loads.
4. Net allowable soil bearing capacity.
5. Strength of all structural materials.
6. Other information required as a basis for structural evaluation.

B. Show overall dimensions, center lines, location of members and offsets.

C. Show all columns on grids.

D. Schedule (as required) footings, columns, beams, girders, slabs, lintels, and reinforcement.

E. Detail all special connections, assemblies, and expansion joints.

F. Show connection details or required design reaction loads for all structural steel framing connections.

G. For new construction, unless otherwise approved by CDB, design roof drainage slope into the structural system.

H. Show elevations for top of beams and slabs; top and bottom of columns; bottom of footings, etc.

I. Drawings must be sealed by a Structural Engineer or Architect licensed in the State of Illinois.

J. Standard drawing designations for structural work include:

1.	Structural	S

9.5 **Plumbing Drawings**. Plumbing drawings shall include the following as applicable to the project.

A. Show where the work of others (contractors, utilities, existing work, etc.) stops and where the plumbing work begins.

B. Show underground plumbing work on a footing plan or foundation drawing.

C. Show all connections to all equipment (electrical, etc.) and note contractor responsible.

D. Show piping over 12" to scale in double lines.

E. Detail major plumbing equipment such as PRV stations, pumps, water heaters, flash tanks, and boilers showing valves, gauges, thermometers, unions, drains, etc.

F. Show all work spaces (tube pull area, coil pull area, access space, etc.) for all equipment requiring same.

G. Show all cleanouts on plumbing drawings.

H. Show all valves, cocks, unions, strainers, gauges, traps, etc., on plan or in typical details.

I. Schedule plumbing fixtures including kitchen equipment, drinking fountains, electric water coolers, water heaters and water treatment equipment. Schedules on drawings are preferred.

J. Provide waste and vent, hot and cold water riser diagrams; and isometrics for all plumbing fixtures or fixture groups. Number all fixture groups. Show air chambers on isometrics and shock absorbers where provided on multiple fixture groups in lieu of air chambers.

K. Show and size all sprinkler mains and risers. Show all head locations. Specify code.

L. Show all fire hose cabinets (provided by general contractor) on plumbing drawings or sprinkler system if a separate contract.

M. Identify equipment provided by other contractors to be installed or connected by the plumbing contractor.

N. Standard drawing designations for plumbing work include:

1.	Plumbing	P
2.	Pipe covering and insulation	INSL
3.	Sprinkler	FP

9.6 **Heating Drawings**. Heating drawings shall include the following as applicable to the project.

A. Show where the work of others (contractors, utilities, existing work, etc.) stops.

B. Show all connections to all equipment (electrical, etc.).

C. Show duct work or piping over 12" to scale in double lines.

D. Clearly label High Pressure Steam, Medium Pressure Steam, Low Pressure Steam and Condensate Return piping (high, medium or low pressure). Clearly label High Temperature Hot Water, Medium Temperature Hot Water and Low Temperature Hot Water piping.

E. Schedule equipment such as coils, pumps, chillers, cooling towers, boilers, unit heaters, convectors, air separators, radiation traps, etc. Include technical information (capacity, power requirements, motor sizes, etc.) only. Indicate each contractor's responsibilities where interface is required.

F. Detail major heating equipment such as pumps, coils, boilers, and chillers showing valves, gauges, thermometers, unions, drains, etc.

G. Show all work spaces (tube pull area, coil pull area, access space, etc.) for all equipment requiring same.

H. Where rooftop equipment is used, provide a roof plan showing all equipment (units, exhaust fans, cowls, etc.).

I. Standard drawing designations for heating work include:

1.	Heating	H
2.	Temperature Control/Building Automation	TC

9.7 **Ventilating Drawings**. Ventilating drawings shall include the following as applicable to the project.

A. Show where the work of others (contractors, utilities, existing work, etc.) stops.

B. Show all connections to all equipment (electrical, etc.).

C. Show duct work or piping over 12" to scale in double lines.

D. Schedule equipment such as air handling units, fans, coils, diffusers, registers, grilles, pumps, unit heaters, convectors, air separators, radiation traps, etc. Include technical information (capacity, power requirements, motor sizes, etc.) only. Schedules on drawings are preferred. Indicate each contractor's responsibilities where interface is required.

E. Detail major ventilating equipment such as pumps, coils, chillers and air handling units showing gauges, thermometers, drains, etc.

F. Show all work spaces (tube pull area, coil pull area, access space, etc.) for all equipment requiring same.

G. Where rooftop equipment is used, provide a roof plan showing all equipment (units, exhaust fans, cowls, etc.).

H. Show all devices (balancing dampers, fire dampers, turning vanes, extractors, splitters, etc.) and access panels on drawings for contractor providing them.

I. Standard drawing designations for ventilating work include:

1.	Ventilating	V
2.	Test and Balance	T&B

9.8 Electrical Drawings

A. Single line diagram with all primary and secondary distribution equipment and loads, including feeder identification with conductor and raceway size and type.

B. Primary distribution equipment and all other loads located in plan view, with initial spatial coordination done by the design professional.

C. Service entrance arrangements with the serving utility, made, confirmed, and noted by the design professional.

D. Branch circuiting with voltage drop considerations, for both power and lighting, including switching, dimming, special controls, and home run designations.

E. Mechanical equipment power requirements and physical locations, including special information as to who mounts, connects, tests, etc.

F. Control diagrams and schematics revealing interactive relationships as well as operating logic for all systems. Information should be adequate to understand and install appropriate wiring.

G. Provide a one line diagram for all special systems (e.g. Fire Alarm, Security, PA and Nurse Call Systems) specific to the project.

H. Schedules of fixtures, panelboards, switchgear and other equipment, including sizes, types, styles, catalog numbers, and other pertinent characteristics.

I. Provide the foot candle level and the watts per square foot for each room. Provide total wattage for building.

J. Define equipment grounding system, including special requirements for telecommunications, interference shielding, isolated systems, filters, etc., when used. Verify compatibility with ground fault protection systems used.

K. Schedule light fixtures and lamps. Include the type designation, the number, type, and size of lamps per fixture, and the accessories and methods necessary for mounting the type of fixture.

L. Define lightning protection system, if applicable.

M. Include electrical power, telecommunications and other electrical systems on the site drawings or combined site plans. Designate as the work of the electrical contractor.

N. Completely circuit and define all work. Do not leave for contractor to design.

O. Show a one-line diagram of power distribution, including emergency power distribution and ground fault protection. Use riser diagrams, if appropriate, to further define distribution.

P. Show power distribution and special systems layouts separate from lighting layouts for clarity. Provide separate plans for each system.

Q. Draw major items of electrical equipment such as switch gear, transformers, panels, lighting fixtures, etc., to scale, making sure that the largest of the three specified pieces of equipment will fit.

R. Schedule motor control, including auxiliaries, overload protection, interlocking, etc.

S. Show a detailed schedule for each panel board, switchboard, motor control center, etc. Include breaker size, fusible switch size, or fuse size, frame size and trip setting, usage of circuit, spares, spaces, connected load for each circuit, etc. Preferably, show schedule on the drawing depicting wiring from that unit.

T. Identify equipment provided by another contractor to be wired by the electrical contractor.

U. Fire Alarm Systems

1. For projects with sprinkler systems, kitchen hood fire extinguishing systems, or other special systems, include the devices and circuiting to actuate the system. Duct smoke detectors, fan shutdown and smoke evacuation devices shall be considered part of the fire alarm system. Duct smoke detectors which are not readily accessible should be provided with remote controls.

2. When fire alarm systems are provided, include both audible and visual alarms in compliance with the Illinois Accessibility Code.

V. Standard drawing designations for electrical work include:

1.	Electrical	E
2.	Fire Alarm	FA
3.	Security/Communications	COM

9.9 **Other Drawings.** Standard drawing designations for other work include:

A.	Equipment	EQP
B.	PCB Equipment Disposal	PCB
C.	UST Removal/Replacement	UST
D.	Asbestos Abatement	ASB

Article 10 BIDDING PHASE

10.1 **General.** Upon CDB acceptance of 100% design documents, the A/E shall sign, seal and date each sheet of the drawings and the project manual with the same date. CDB PM approval, in writing, for release of bidding documents must be obtained by the A/E before printing and distributing documents to the public.

10.2 **Advertisement for Bids.** The Illinois Procurement Code 30 ILCS 500/1 requires that contracts shall be advertised at least 14 calendar days before the bid opening. The A/E shall provide the necessary information to the PM in a timely fashion.

A. For small or single contract projects a single bid opening will be scheduled. For large projects, the bids for the coordinating contractor will usually be received one week following receipt of bids for the assigned contractors.

B. The advertisement for bids shall include the pre-bid meeting information. Mandatory attendance at the pre-bid conference shall be noted in the advertisement.

10.3 **Document Distribution.**

A. The reproduction and distribution of bidding documents is the responsibility of the A/E. If more bidding documents are distributed than the number of sets listed in Appendix A of the agreement, the additional sets are reimbursable to the A/E. The A/E shall maintain an accurate record of all vendor provided printing costs. "In-House" printing of bid sets is permitted. CDB will reimburse for in-house printing based on area costs for vendor provided printing. A/E shall provide at least two quotes from local vendors as backup with pay request.

B. The A/E shall distribute bid documents to all interested bidders, subcontractors, suppliers, etc. Each prospective bidder shall be provided with one loose copy of the bid forms, one CDB bid envelope addressed to the appropriate bid receipt location, and the "Bidder Check List". The envelope and check list are available from CDB.

1. The PM can provide a list of potential bidders from the prequalification list maintained by CDB. Contractors not pre-qualified with CDB should be referred to CDB's Contracts section.

2. It is in the interest of the A/E to solicit competitive and multiple bids for each contract to avoid having to rebid or redesign the work.

C. Plan holders shall make a reasonable plan deposit or be a member of a non-cash deposit program in accord with the advertisement for bids. The plan deposit may be cash or company check. Plan holders who return bidding documents in good condition within forty-five (45) calendar days of the bid opening shall have their deposit returned. The A/E will return the deposit within 10 days of receipt of bidding documents if the plans are in good reusable condition. The contractors awarded the work shall not be required to return their bidding documents but their deposits shall be returned to them. An accurate record of all deposits shall be kept by the A/E and submitted to the PM. All deposits not returned shall be credited to the A/E printing reimbursable account and reported with the A/E's regular pay requests.

D. Plan holders shall not be charged handling and postage to obtain bidding documents. This is considered an overhead item in the A/E agreement. Postage for additional sets above the number listed in Appendix A shall be a reimbursable to the agreement. Postage to return documents shall be at the plan holder's expense.

E. The following individuals and offices shall receive the bidding documents, or portions of the bidding documents. These individuals and offices shall be listed on the plan holder lists.

1. Dodge Plan Rooms. The A/E shall send one complete set of bidding documents to the F.W. Dodge Corporation Plan Room in Springfield, IL. F.W. Dodge divides the state into a north and south region for advertising purposes. Projects located in the northern region shall also be filed at the Chicago office. Projects located in the southern region shall also be filed at the St. Louis Area office.

2. Other Plan Rooms. The A/E shall send complete sets of the bidding documents to other plan rooms as prudent to solicit competitive bids and to make the bidding documents available to as many potential bidders, subcontractors, and suppliers as possible. PM may advise A/E of distribution. All participating plan rooms are listed in each CDB Bid Information Newsletter.

3. CDB Offices. Bidding documents shall be distributed to CDB personnel and sections as listed below:

a. PM - one set of bidding documents plus detailed estimate.
b. FEP section - one project manual
c. Archivist - one printed set of bid drawings and specifications and one set of drawings and specifications on compact disk (CD), including all addenda. See Article 22.2 B. for detailed instructions on preparing the CD submittal.
d. Contract Administration Division in the Springfield office: detailed estimate and all addenda (all projects);
e. Bid Officer in a Regional Office: project manual and detailed estimate plus all addenda (for projects bid in that location).

4. Using Agency. Two sets of bidding documents (or as specified in PSA) including all addenda.

10.4 **Plan Holder Lists.** Periodically, the A/E shall submit to the PM the list of plan holders, including address, telephone number, fax number, and the contract(s) the plan holder intends to bid. A list of plan holders shall be submitted to the PM for verification of contractors' pre-qualification no later than seven (7) calendar days prior to the bid opening date. A/E shall submit a final list of plan holders to the PM and CDB Bid Officer on each day bids are received.

10.5 **Addenda**. The A/E shall prepare all required addenda.

A. CAF may not be changed by addendum, unless directed by CDB.

B. Technical clarifications and interpretations may only be made by addendum. No technical clarifications or interpretations are to be given to individual contractors outside the addendum process.

C. All addenda, including all revised drawings and sections, must be accepted by the PM prior to distribution to the plan holders. A/E shall allow sufficient time for CDB review to fulfill the adequate notice requirement.

D. Distribution and Adequate Notice. All addenda shall be issued to all plan holders as required to ensure receipt no later than three (3) business days prior to the bid opening. The A/E shall use whatever delivery method is most prudent to ensure receipt. A/E shall verify receipt of the addenda with each plan holder. When addenda are not issued in a timely manner, the

bids will be returned unopened and the bid opening date will be extended. Any additional costs incurred by the A/E for the extension of the bids shall be at A/E's expense.

E. The A/E will consider written requests by prospective bidders to amend the bidding documents. Such requests must be received at least ten (10) calendar days prior to bid opening date and include complete description of the desired change including any technical data and references for the A/E's evaluation. If a request is approved, the A/E will revise the bid documents by addendum. When requested, the A/E will provide to CDB a listing of the requests that were not approved.

F. The addenda shall be numbered sequentially and dated.

G. Addenda shall be prepared according to the Addendum format in the Reference Library on CDB's website. Addenda in any other format (e.g. on the firm's letterhead) will not be accepted.

1. List all changes in order of specification sections and drawing numbers.

2. The A/E shall not specify any sole or dual sourcing of an item in an addendum unless approved by CDB per Article 3.4 E.

3. If one or more of the bid forms require a change, the A/E shall issue a complete set of new bid forms with the following information located in the lower right hand corner of each page: REVISED, ADDENDUM #( ), (addendum date).

4. Changes shall be clearly noted and identified (A, B, C, etc.) on the drawings. Make a notation in the revision column of the drawing indicating the change letter, the date of the change, and a brief description of the change. All changes are to be incorporated into the original drawing. Revised drawing page numbers shall be identified by addition of "R" to the number (e.g. A-3R).

5. The A/E shall state the status of previously issued addenda.

H. Pre-bid meeting minutes and bid tabulations are not to be issued as addenda. These are informational items and are to be distributed as such.

10.6 **Pre-Bid Meeting.**

A. When a pre-bid meeting is scheduled, the A/E shall include the date, time, and location of the pre-bid meeting in the Advertisement for Bids (00 01 13). The pre-bid meeting will be scheduled by the CDB PM and will be held no less than seven calendar days prior to the day the bids are to be opened. The CDB PM will chair the pre-bid meeting.

B. With the consent of the PM, attendance at the pre-bid meeting may be mandatory for prospective bidders when specified in the project manual and in the advertisement for bids. The A/E shall submit the list of attendees to the PM. This list will be transmitted to CDB's Contract Administration Division. Bidders who do not attend a mandatory pre-bid meeting shall have their bids rejected.

C. The A/E shall record the names, and the names and addresses of their respective firms, of all persons in attendance. The A/E shall also record the minutes of the pre-bid meeting, listing all questions and all responses to those questions.

D. Minutes of the meeting shall be issued to all plan holders and all persons attending the pre-bid meeting, but are not to be included as part of any addendum.

10.7 **Final Estimate.** Prior to the bid opening, the A/E shall submit a final detailed estimate of probable construction costs of the contracts being bid based on the bidding documents and all addenda.

10.8 **Bid Openings**.

A. The A/E shall attend all bid openings for the project unless specifically excused by the PM.

B. The A/E shall have developed, in conjunction with the using agency and the PM, an order of priority to be used in awarding alternates. Unless an order of priority is publicly announced before the bid opening, alternates will be awarded in the order specified in the bidding documents.

C. The A/E shall provide bid results to all parties who require the information. CDB will provide the A/E with one set of bid tabulations at the bid opening. In the event the PM excused the A/E from attending the bid opening, the PM will fax the bid tabulations to the A/E within two hours of the bid opening.

D. For projects which have a coordinating contractor, the A/E shall provide the assigned contractor bid tabulations to the coordinating contractor bidders within two business days. These bid tabulations are to be issued for informational purposes only and shall not be issued as an addendum.

Article 11 CONSTRUCTION CONTRACT AWARD

11.1 **General.**

A. A/E shall comply with CDB policy that discussions with bidders, news media, etc. not include any presumption of award until the award is decided by CDB.

B. CDB may award construction contracts within 60 days receipt of the bid(s) or any other period stated in Section 01 11 00 of the Project Manual or CDB may request bidders to provide written consent to extend their bid beyond the 60 day period or the period stated in Section 01 11 00.

11.2 **Bid Analysis.** A/E shall provide assistance to CDB to identify the apparent successful bidder or bidders.

A. Review all product substitutions submitted in accordance with procedures set forth in the Standard Documents for Construction and provide CDB with a written recommendation to accept or reject the proposed substitution.

B. Review all unit prices submitted and provide written explanation of acceptance or rejection.

C. Review bids that fail to acknowledge all addenda issued. A/E will be requested to attest whether, in the A/E's opinion, the addendum not acknowledged is, or is not, work related for that contractor.

D. Review bid forms that contain additional verbiage supplied by the bidder. A/E will be requested to attest whether, in the A/E's opinion, the additional verbiage does or does not constitute a qualifying statement applicable to the bid amount.

E. When lowest bid received differs substantially from the other bids received, A/E shall contact the low bidder and review the requirements of the project as it pertains to the bid. Report findings to the CDB Project Manager in writing.

F. When single bids are received, A/E shall provide the CDB Project Manager with a written explanation of all efforts used to obtain bidders and include an informed opinion addressing the reason(s) multiple bids were not received.

11.3 **Award Notification.** CDB will notify the successful bidder(s) and the A/E of the award(s) by copy of the Notice of Award letter (NOA).

Article 12 PRE-CONSTRUCTION MEETING

12.1 This meeting will be scheduled by the CDB PM within 7 calendar days of the NOA. See Article 013122 of the Standard Documents for Construction. Attendance is mandatory for the A/E, coordinating contractor, all assigned contractors, and using agency representatives. Attendance by sub-contractors and A/E consultants is encouraged, but not mandatory unless requested by PM.

12.2 Agenda will consist of CDB discussion of construction procedures, pay request application procedures, and documentation to be supplied by contractors, sub-contractors and material suppliers in support thereof. **Contractor compliance with Fair Employment Practice, (FEP) goals and programs will also be discussed.**

12.3 A/E on-site observation/representation shall be discussed as it may pertain to the specific requirements of the project.

12.4 The contractors will be advised of the A/E's critical work list items so that they can notify the A/E to make arrangements for on-site representation.

12.5 Requirements for A/E attendance during all field tests specified to be performed by the contractor as well as during installation of critical systems shall be discussed.

12.6 A/E will explain requirements for submission of shop drawings, samples and product data.

12.7 The process for obtaining document interpretations and authority for same shall be delineated.

12.8 CDB and the using agency shall review requirements for logging site visits with the appropriate using agency authority at the facility.

12.9 Using agency may review facility access and specific safety/security procedures.

Article 13 **MISCELLANEOUS CONSTRUCTION PHASE RESPONSIBILITIES**

13.1 **Construction Documents.** The A/E shall issue documents stamped and dated "Issued for Construction" to the contractors. The contractors shall not commence work without the documents stamped and dated "Issued for Construction".

A. Issued for Construction documents are bid sets (drawings and specs) that have been updated by the Architect to incorporate all addenda issued.

B. Each contractor will receive construction documents in the quantity determined by CDB up to a maximum of six sets. The contractor may purchase additional sets for a charge to cover reproduction and handling.

13.2 **Contractor and Tradesmen Licensing.** The contractors are responsible for any applicable licensing with the appropriate authority in accordance with the Contractor Licenses Section of the Standard Documents for Construction. The A/E shall receive and review all applicable licenses prior to that contractor or tradesman commencing any work.

A. The A/E shall not knowingly allow any activity to commence or accept any work installed by a non-licensed firm or tradesman where licensure is required.

B. A/E shall also receive and review all certificates called for by the specifications (e.g. welding certificate).

C. A/E shall submit a list of all required licenses and certificates with copies of each of the required licenses and certificates attached to CDB.

13.3 **Contractor Submittals/Shop Drawings, Product Data, Samples**.

A. A/E shall review and monitor all required submittals for timeliness and conformance with the contract documents and project schedule. A/E shall review and respond to submittals within 14 calendar days.

B. Each submittal shall be stamped, dated, and either initialed or signed by the reviewer. The reviewer shall provide clear instruction to the contractor of any corrective action to be taken.

C. The A/E shall only review those materials and equipment specified in the contract documents. **The A/E shall not make changes in the contract requirements through the review of submittals.**

D. **The contractor may not submit and gain approval of material substitutions through the shop drawing review process.** In this event, the A/E shall return the submittal without review and advise the contractor that he may request and initiate a material substitution change order in accordance with the substitution clause of the Standard Documents for Construction.

E. If in reviewing the submittal the A/E determines that contract changes are required, notify the CDB PM and request approval of the required changes prior to returning the submittal to the contractor. The submittal shall then be returned to the contractor with the note that a change order request is contemplated.

F. No activity requiring review of submittals may be started without A/E approval. The A/E shall notify the contractor to cease the activity until approval is obtained. The contractor shall be liable to replace any work that is not in compliance with the subsequently reviewed submittal.

13.4 **Interpretations.** When requested by CDB or a contractor, the A/E shall provide interpretation of the contract documents. A/E shall prepare and distribute supplementary drawings, specifications and instructions as necessary to communicate the interpretation. A/E shall expedite all interpretations in such a manner as to not adversely affect the project schedule or sequence of work and to avoid the potential for a claim by the contractor.

13.5 **Construction Testing.** A/E shall witness field tests, review and evaluate test reports and notify CDB of any deficiencies. A copy of all test results shall be provided to CDB. Field tests may be specified to be conducted by the contractor employing a testing firm to provide assistance and/or analysis, or conducted by the A/E employing a testing firm as a reimbursable expense to provide assistance and/or analysis.

13.6 **Contractor's Schedule of Values (CSV).**

A. Each contractor is required to prepare the CDB CSV form and submit it to the A/E for review and approval prior to the first progress/pay meeting. This form is a detailed breakdown of the contract amount and is the basis for the CASS (Contractor's Affidavit and Sworn Statement) form of the progress payment requests.

B. The A/E shall review the CSV to ensure each item of work required for the contract is listed and all values are expressed in separate line item costs for material and labor. The A/E may request the contractor provide sub-contracts and relevant documentation to substantiate the values indicated.

C. The A/E will also review to confirm that the contractor has properly noted "Buy Illinois" products, if any, on the CSV.

D. The Standard Documents for Construction requires that a percentage of the work be performed by the contractor's own forces. The A/E shall reject any contractor's schedule of values which does not comply with this requirement.

E. The CSV must be approved by the architect/engineer, FEP technician, and CDB PM prior to submission of the first pay request. The A/E, FEP technician, and CDB PM must also approve all changes to the CSV during the course of the project.

13.7 **Contractors' Record Drawings.** The A/E shall review the contractors' record drawings monthly, prior to the pay meeting, (or more often, if required) and notify CDB of any apparent failure to maintain up-to-date records in accordance with the contract documents. Contractors' pay requests will be held until record drawings are up to date.

13.8 **Claims and Disputes.**

A. A/E shall record any observed occurrence or work that might result in a claim for a change in contract time or amount. Any disputes or claims shall be referred directly to the CDB PM. A/E shall enter the claim or dispute into a claims log and provide a current copy of the log to CDB at each monthly progress/pay meeting.

B. A/E shall review each claim or dispute, including documentation of any time, money or other expenditure made in connection with it. A/E shall provide a written response, interpretation, and recommendation for resolution to the claimant and CDB. CDB shall make a final determination on all disputes unless removed to ADR and/or the Courts.

C. While work is in progress, A/E shall observe, measure and verify costs incurred that are related to the dispute. Immediately notify the CDB PM if additional on-site representation is required to monitor the disputed work.

13.9 **Construction Schedule.** The construction schedule is to be prepared by the coordinating contractor with the input and concurrence of all assigned contractors and submitted to the A/E prior to the first progress/pay meeting. The A/E shall review the schedule for conformance with the contract requirements. Schedules shall be in the format specified in the project manual and shall include submittals (shop drawings, product data and material samples), major equipment order and delivery dates, on-site construction activities, A/E's critical work list items, commissioning activities, User training, and any other activities deemed important by the project team.

Article 14 OBSERVATION OF THE WORK

14.1 **Basic Service**

A. As a basic service of the agreement, the A/E shall make periodic site visits as set forth herein and as is reasonably necessary in accordance with the complexity of the contracted work and the scheduled construction activities. The A/E shall observe the construction operations and report on the progress and quality of the work being performed to determine, in general, that the work is proceeding in accordance with the approved construction schedule and that the materials, finishes and workmanship are in accordance with the contract documents.

B. The A/E is required to conduct site visits when contractors are present on the site and installing their respective trade work. Site visits shall be made by appropriately experienced personnel with specific knowledge of the project requirements as designed and specified. Unless otherwise agreed, minimum site visits shall be as set forth below for each trade contract included in the project through substantial completion providing sufficient work is being performed. **When minimal work is being performed, the A/E may make one all-inclusive project site visit in addition to the services provided in Article 14.1 C**.

Fee Group	**Combined General Work**	**Combined PHVE Work**
1 (R or N)	**2 visits/month**	**4 visits/month**
2 (R or N)	**2 visits/month**	**2/visits/month**
3 (R or N)	**1 visit/month**	**1/visit/month**

C. Attendance at Pay/Progress meetings is a basic service and is not compensable as a reimbursable expense under Article 14.2 , but may be used to fulfill the requirements for periodic site visits providing:

1. Contractors are present on site and installing their respective trade work.
2. Observation is provided by professionals experienced in the discipline of work they are observing with specific knowledge of the requirements of the project.
3. Observation reports are filed in accordance with Article 14.3.

D. CDB shall be notified immediately if, in the A/E's opinion, the materials, finishes and/or workmanship do not conform to the contract documents, require special inspection or testing (beyond the specified requirements), or have been disapproved or rejected by the A/E.

E. The A/E and the contractor shall be liable for the replacement and/or any damages incurred as a result of knowingly permitting non-specified material, or otherwise non-conforming work, to be incorporated into the project.

14.2 **On-Site Representative.** When included in the agreement as a reimbursable service expense, the A/E may provide one or more representatives on-site to facilitate the progress of the project and report on special conditions and critical installations as delineated herein.

A. The duties of the on-site representative are exclusive of Article 14.1 A and are limited to:

1. Observe installation of critical systems or components as set forth in Article 15.1.
2. Observe and verify installed quantities of material specified in the project as an allowance or unit price quantity.
3. Observe specified field tests and CDB approved special testing recommended by A/E as a result of observations provided in Article 14.1 B.
4. When specifically requested by CDB, or by a contractor with CDB concurrence, provide field clarification of document interpretations issued in accordance with Article 13.4.
5. Observe, measure and verify costs incurred by contractors related to any disputes or claims.

B. Prior to commencing the construction phase, A/E shall submit the name, resume, and DWE for each proposed on-site representative to the CDB PM for approval. CDB shall provide written acceptance or rejection of each person proposed.

14.3 **Observation Reports.**

A. A written report shall be submitted to the CDB PM for each site visit made under basic services and each on-site representative's visit. Reports shall be submitted in a timely manner as the construction activity dictates. In no case shall the submission interval exceed 7 days from the date of the site visit.

B. CDB shall not provide any reimbursement for on-site representative visits without an observation report.

C. CDB may withhold a portion of the construction phase fee if the A/E fails to provide observation reports as set forth herein.

D. Each report shall include general and specific information regarding the project as follows:

1. General Information
   - a. CDB Project Number
   - b. Project Name and Location
   - c. A/E Name and Phone Number
   - d. Report Preparers' Name
   - e. Coordinating Contractor's Name
   - f. Date of Site Visit
   - g. Date of Report
   - h. Report Number
   - i. Weather Conditions
2. Specific Information
   - a. Purpose of Site Visit
   - b. Basic Services or On-Site Representative visit
   - c. Names of All Observers Present
   - d. Names of Contractors On-Site
   - e. Size of Each Contractor's Workforce
   - f. Nature and Location of Work Being Performed
   - g. Progress of the Work
   - h. Items Inspected
   - i. Problems Resolved
   - j. Verbal Interpretations Given to Contractor
   - k. Tests Witnessed/Performed
   - l. Site Visitors

E. When directed by the CDB PM, the A/E shall provide copies of reports to the coordinating contractor, assigned contractors and using agency representative.

Article 15 COMMISSIONING ACTIVITIES

15.1 **Critical Systems/Components**.

A. A/E shall advise the CDB PM and using agency regarding on-site representation for observing specific work critical to the success of the project based on the list of critical work submitted to CDB and using agency at the 100% completion stage of design.

B. CDB, A/E and using agency will reach consensus regarding the submitted critical work list and advise the awarded contractors of the list at the Pre-Construction Meeting so that the A/E can be sufficiently notified and make arrangements for on-site representation.

C. A/E shall provide observation reports per Article 14.3 of critical activities within 48 hours of the site visit to CDB, the coordinating and installing contractors and the using agency.

D. Failure of the A/E to comply with the provisions of this article will result in loss of on-site representation compensation effectively reducing the site visit to a fulfillment of the provisions of Article 14.1 A.

15.2 **Performance Testing and Start-up.** A/E shall be responsible for attesting that each contractor, as required by the contract documents, performed a thorough and systematic performance test and start-up of their respective work.

A. Each general, mechanical, electrical and fire suppression element and the total system shall be tested in the presence of the A/E, all appropriate consultants, and the using agency prior to substantial completion of the project.

B. When requested, and if not previously provided in the contract documents, the A/E shall provide the contractor with all design criteria and system design/operation concepts to facilitate performance testing and start-up.

C. The A/E shall provide a report to CDB and the using agency attesting that they have observed the performance testing and start-up process, and that each contractor has demonstrated that all systems comply with the requirements of the contract documents. The report shall include the test results and any changes and/or reconfiguration which may have occurred during the performance testing and start-up process.

15.3 **Using Agency Training.** The A/E shall attend the training sessions to observe and provide input regarding the operation and maintenance of the systems as designed.

Article 16 PROGRESS/PAY MEETINGS

16.1 Meeting dates are established by the CDB PM at the pre-construction meeting.

16.2 The meeting shall be attended by the CDB PM, any additional CDB staff as designated by the PM, the A/E project manager, the coordinating contractor, all assigned contractors, the using agency representative and, when requested by CDB, the on-site representative, design architect/engineer and consultants. The A/E representative attending the meeting must have signature authority.

16.3 Minimum agenda will consist of reviewing contractor's progress, noting projections for work to be completed in the next month and comparing this information to the current approved project construction and submittal schedule, discussing project problems and proposed contract changes (claims, RFI, and/or RFP logs), and reviewing and reconciling contractor's pay applications using CDB form CASS (Contractor's Affidavit and Sworn Statement).

16.4 Approximately one week prior to the progress/pay meeting, or as directed by the CDB project manager, the contractors will submit copies of the draft CASS and SML, if utilized, to the A/E, User, CDB PM and coordinating contractor.

16.5 CASS Form. The draft CASS and SML will be reviewed by the participants and corrected, as required. The corrected drafts will be signed by all participants. A copy of the CASS will be retained by each party as a record of any objections/approvals noted during the meeting.

16.6 Approximately one week before meeting, A/E will verify that contractors are keeping record drawings up-to-date.

Article 17 REVIEW OF CONTRACTOR PAY REQUESTS

17.1 **General.** A/E shall review and certify contractor's applications for payment and maintain a record of payments and contract balances and all proposed and approved changes thereto. The A/E shall reconcile and maintain files for the CASS forms and contractor's and subcontractor's and/or supplier's waivers of lien.

17.2 **Contractor's Affidavit and Sworn Statement** (CASS). A/E will ensure that the CASS was completed by the contractor in accordance with the amounts on the draft CASS approved at the progress/pay meeting. This form must be dated, signed and notarized.

17.3 **Federal Certified Payroll.** On projects with Federal funding, contractors may be required to submit Federal Certified Payroll reports. A/E will ensure that these reports are submitted by the contractors and transmitted to the proper authorities.

17.4 **Stored Material Log** (SML), if applicable.

A. Definition. Stored materials are materials purchased by the contractor, which are ready to be installed and which are either stored on or off the site.

B. The SML form must be submitted to the architect/engineer for review. The A/E will inspect the stored materials and attest to their existence, security, and identification by initialing the items listed on the SML. This certification must be obtained by the contractor prior to the progress/pay meeting. The SML will be submitted each month until all stored materials are installed.

C. The value of stored material approved for payment shall be incorporated into the CASS.

D. Off site storage.

1. CDB does not usually pay for materials stored out-of-state or at a manufacturer's facility.

2. All material stored off the site must be clearly tagged and labeled with the CDB project name and number and is to be available for inspection by the architect/engineer, CDB and the using agency, upon reasonable notice.

3. When material is stored off site, pay requests must be accompanied by a certificate of insurance for each off site storage location.

4. If stored in a bonded warehouse, the contractor must provide the CDB project manager with a copy of the bond, along with the certificate of insurance.

5. CDB will compensate the A/E up to 8 hours travel and review time to inspect off-site stored materials at the billable rate for on-site representation. A/E is not required to review material stored at a location which cannot be inspected within this 8 hour limit. A/E shall reject requests for compensation for stored material until such time the material is moved to a location within the 8 hour reimbursement limit.

17.5 **Partial Waivers of Lien.**

A. All waivers must use the CDB Partial Waiver of Lien form and bear the signatures of the president or vice-president and secretary or assistant secretary. The corporate seal is not a required element.

B. Contractor: A Partial Waiver of Lien for the full amount of the payment is required from the submitting contractor with each pay request.

C. Subcontractors and suppliers: Waivers for subcontractors are not required with the first payment package, unless the contractor is requesting more than 50% of its total contract. Each subsequent payment package must include Partial Waivers of Lien from each subcontractor and supplier included in the immediately preceding payment package, in the amount of that prior payment.

17.6 **Invoice-Voucher** (Form C-13)

A. If all above items have been submitted and are correct, A/E will review the invoice-voucher for agreement with the CASS form approved at the progress/pay meeting and sign where indicated.

B. Signer must be a licensed architect or engineer.

Article 18 REVIEW OF REQUESTS FOR REDUCTION OF RETAINAGE

18.1 Contractors who have completed 50% of the project work and are in compliance with all project requirements (supervision, submittals, schedule, etc.) will have their retention reduced from 10% to 5%. CDB will be responsible for approving, processing and distributing the 10/5 RRR. Payment requests including the reduced retention amount may not be submitted until the 10/5 RRR is approved by CDB and must comply with Article 18.5 below.

18.2 Under certain circumstances, the contractor may request a reduction in retainage to less than 5%. Any such request must follow the procedures below. The request for reduction in retainage shall be submitted 1 month prior to the payment request on which retention is reduced.

18.3 Request for Reduction of Retainage form (RRR). The contractor completes the top of this form and attaches the Surety Letter of Consent with power of attorney and jurat. The percentage of work completed is based on the contractor's approved payment applications. Stored materials, bonds and insurance are not included in this percentage.

18.4 The completed RRR is reviewed by the A/E and, if the contractor's performance is considered satisfactory, the reduction in retention may be recommended by: the coordinating contractor, the Architect/engineer, the Using agency, and the CDB Project Manager. All parties must agree for the reduction to be approved.

18.5 For the pay request following approval of the RRR by CDB, the new retention percentage will be used to calculate the “total retained,” automatically returning a portion of the previous retainage to the contractor in that payment request. All changes in retainage must be reflected on the CASS form.

Article 19 REVIEW OF REQUESTS FOR PROPOSAL AND CHANGE ORDER

19.1 A change order must be issued whenever it becomes necessary to modify any of the elements of a contract, which include scope, compensation, and time.

19.2 Specific procedures and standard CDB forms required for preparing and processing construction contract changes have been developed by CDB and are included in Procedures and Forms - Construction Phase manual.

19.3 Requests for a change may be initiated either verbally or in writing. Subcontractors' requests shall be directed to their contractor, assigned contractors to the coordinating contractor, and coordinating contractor to the A/E who, in turn, will notify the CDB PM of the request. Requests by the using agency or A/E shall be made in writing to the CDB PM.

19.4 Only the CDB PM can authorize the A/E to prepare a Request for Proposal/Change Order (RFP/CO).

A. A/E shall provide an 'order of magnitude' level estimate for each proposed RFP/CO and submit to the PM within 10 days of request.
B. If A/E rejects a request for change, before or after issuing the RFP/CO, s/he must prepare a letter of explanation and copy the PM and the affected contractor(s).

19.5 The A/E shall prepare an RFP/CO for each contract affected by the proposed change including supplemental drawings and/or specifications to fully describe the change in the work.

A. Each RFP/CO package should be self-explanatory.
B. The architect/engineer will complete the RFP/CO form through Section 5. Sufficient information must be provided in Sections 2, 3 and 4 on the front of the form to adequately describe the change and explain the reason for the change. Include attachments only as needed to adequately describe the change and its reason.
C. Sole and/or dual sourcing via change order is prohibited.
D. When requested by the CDB PM, the A/E shall submit a cover letter to the change order package explaining the need for the contract change.
E. The architect/engineer transmits two sets of the RFP/CO package for each contract to the coordinating contractor. One set is for the assigned contractor whose work is affected. One set is for the coordinating contractor.

19.6 Stringing of change orders (multiple change orders in small amounts addressing the same, or similar, problem), is prohibited.

19.7 Each assigned contractor submits one copy of their proposal package (including back-up for their own work as well as back-up for work performed by their subcontractors) to the coordinating contractor. When there is no assignment of contracts, the contractor submits one copy of its package to the architect/engineer.

19.8 The A/E shall review the contractor's proposal for completeness and conformance with the RFP/CO and contract documents. Where change orders require additional clarification or additional back-up, the A/E shall obtain such information from the contractors prior to forwarding the change order package to CDB. See Procedures and Forms - Construction Phase for detailed information on required forms and back-up. At a minimum, A/E shall review RFP/COs for:

A. Signatures of contractor, subcontractors and suppliers
B. Contractor's proposal meets and matches approved RFP language
C. CPBS form, summary computations form, labor wage breakdown sheet, and material back-up for contractor and subcontractors
D. Correct labor and material quantities, prices, and math

E. On a user requested change order, a letter of request on the user's letterhead, signed by the user.

19.9 A/E shall review and accept or reject the contractor's RFP/CO package within 10 days of receipt. When A/E has reviewed all back-up, quantities, prices and other data in the contractors' proposal and has found such to be reasonable and in conformance with the provisions of the Contract Documents, the A/E shall recommend issuance of a change order by completing Section 6 and signing the RFP/CO form. Signing the RFP/CO indicates that the A/E has completed a thorough review and that the RFP/CO is correct and acceptable. The A/E may be held responsible for problems resulting from their failure to provide proper and timely review of RFPs.

19.10 The A/E shall be responsible for obtaining the signatures of the using agency representative prior to forwarding the change order package to CDB. When the work of a change order has been divided between more than one contractor, all RFPs relating to that change order constitute a package.

19.11 When requested by CDB, the A/E and any consultants shall be required to attend Board meetings to explain and/or may be required to provide written explanation of any change orders presented for Board approval.

Article 20 SUBSTANTIAL COMPLETION

20.1 Substantial Completion occurs when CDB accepts the certification of the architect/engineer that construction on the project or a designated portion thereof is sufficiently complete in accordance with the contract documents that it may be occupied or utilized for the use for which it is intended.

20.2 The contractor notifies the architect/engineer in writing that the work or a designated portion thereof is substantially complete and submits to the architect/engineer a list of incomplete items.

20.3 The architect/engineer will make a preliminary evaluation and, if in agreement with the contractor that the project is substantially complete, notify the CDB project manager to schedule a substantial completion inspection. The A/E should not recommend substantial completion if, based on the A/E's site visits and observer reports, the punch list would be excessive or critical elements of the project are not operational or incomplete.

20.4 The substantial inspection date will be scheduled by the architect/engineer and the CDB project manager after agreement that the project appears to be substantially complete. Notice for the inspection will be issued by the architect/engineer.

20.5 The architect/engineer will prepare a preliminary punch list prior to the scheduled inspection.

20.6 Attending the inspection will be:

A. The coordinating contractor
B. All assigned contractors
C. Architect/engineer
D. Architect/engineer's construction observer
E. Using agency representative and/or CPL
F. CDB project manager

20.7 The final punch list will be developed from the preliminary list submitted by the contractor and the A/E's list, with input from the using agency representative and the CDB project manager.

20.8 After the inspection, participants:

A. Discuss the punch list items and determine the final completion dates.
B. Discuss the date and time the using agency will take occupancy.
C. Review the using agency or contractor responsibilities for:
   1. Insurance
   2. Utilities
   3. Operation of mechanical, electrical and other systems
   4. Maintenance and cleaning
   5. Security

D. A/E and contractor sign agreed upon punch list.
E. All participants complete and sign the Substantial Completion Form.

20.9 Each contractor will submit a Substantial Completion package which consists of the following:

A. Completed Guaranties, Warranties, Bonds form (GWB) and all warranties required by the specifications. Each contractor must also include its one-year warranty on labor and materials for all work in their contract.
B. Certificate of Operating and Training Instruction.
C. One complete set of approved shop drawings.

D. Operating and maintenance manuals and parts lists for equipment installed in the project in quantity specified.

E. A signed receipt from the Using Agency for all materials turned-over to the using agency.

F. A list of all suppliers and subcontractors with complete names, addresses and telephone numbers of persons to be contacted for service and/or replacement of materials and equipment.

20.10 The architect/engineer reviews the submittals for accuracy and compliance with the contract documents, attaches the Certificate of Substantial Completion and the punch list and forwards the package to the CDB project manager.

A. Review guarantees, warranties and bonds for coverage, start date and duration in accordance with the contract documents.

B. Ensure that the contractors comply with the requirements of sections 01 78 23 and 01 78 36 of the Project Manual.

C. Confirm that all extra material, salvaged material, and equipment specified in the contract documents which are the property of CDB are properly identified, delivered and stored. A/E shall obtain and transmit signed receipts of such deliveries by the contractor to the authorized agency or the using agency accepting the delivery. Proper identification shall include the CDB project number; project specification number; description of the item and its purpose for use; name, address and phone number of the contractor who provided the item.

Article 21 FINAL ACCEPTANCE

21.1 Final acceptance is a condition which occurs when CDB accepts the certification of the architect/engineer that the contractor has complied with all requirements of the contract, and that the contractor is authorized to receive final payment in full including all retainage.

21.2 Final acceptance is dependent only on an individual contractor's performance and is not related to the other contractors' performance on a project. Upon completion of contractual obligations, each contractor's contract will be closed out. Due to the coordinating contractor's contractual obligations to the assigned contractors, the coordinating contractor usually will not be closed out prior to the other contractors.

21.3 To initiate close-out, the contractor notifies the architect/engineer, in writing, that:

A. All punch list items have been completed or corrected.
B. Contract documents have been reviewed and the project has been inspected for compliance with the contract.
C. Equipment and systems have been tested in the presence of the using agency representative and are operational.
D. The using agency's personnel have been instructed in the operation and maintenance of all equipment and systems.
E. The project is complete and ready for final inspection.

21.4 When the A/E considers the work is complete in accordance with contract requirements, the final acceptance and final payment submittal will be submitted and reviewed.

21.5 A formal final acceptance meeting may be held at the option of the CDB project manager. Verification of completion of the punch list will be made by the architect/engineer and the project manager. The final acceptance form will be signed at the meeting or forwarded by the A/E to the appropriate parties for signature.

21.6 The final close out package from each contractor to the architect/engineer consists of the following:

A. The final payment package:
   1. Invoice Voucher
   2. Revised CSV, if applicable. Marked as "FINAL"
   3. Contractors Affidavit and Sworn Statement (CASS)
   4. Contractors Final Declaration (CFD) with Power of Attorney
   5. Final Waivers of Lien from each subcontractor and supplier for the full amount of their contract (as shown on the current CSV) on CDB forms only.

B. Testing and balancing reports
C. Marked-up specifications and addenda
D. Project record documents (marked up prints)
E. Architect/Engineer Performance Evaluation (A/E-PE). (May be sent directly to the PM)
F. Contractor Performance Evaluations (CPE) on other contractors
G. Guarantees, Warranties and Bonds form and warranties for items on the punch list. GWB duration for all punch list items begins on the date of final acceptance.
H. Any items not submitted at Substantial Completion.

21.7 The architect/engineer reviews the submittal for completeness and accuracy and transmits to the CDB PM:

A. FCP form with top part completed and signed by A/E.
B. Certificate of Final Acceptance

C. The final payment package
D. Guarantees, Warranties and Bonds form and warranties for items on the Punch List
E. Copy of the transmittal letter to the using agency for O&M manuals, shop drawings, as-builts, etc.
F. Certificate of Operating and Training Instruction
G. CPE's and A/E-PE's completed by contractor
H. Contractor's Performance Evaluation form (by A/E)

21.8 The Contractor Performance Evaluation Form (CPE) may be initiated at any time; however, it is usually submitted during the final close-out.

Article 22 A/E CLOSEOUT

22.1 **A/E Final Close-out Package (FCP)**

A. After all contractors are closed out, A/E may submit A/E-FCP and final pay request.

B. A/E-FCP includes record documents, T & B reports, and hazardous material reports.

22.2 **Record Construction Drawings.** Prior to submitting A/E's final payment request, A/E shall submit to CDB revised contract documents labeled "Record Construction Drawings," which show all changes reported by the contractor(s), all changes made by change orders or addenda, and any clarifications made by the A/E during construction.

A. All drawings shall be sealed in accordance with Article 6.2.

1. Electronic seal and expiration date and date signed are required. Electronic signatures are strongly discouraged, but acceptable.
2. If the professional who originally sealed the documents is no longer with the firm, the original seal shall be left in place on all sheets and a seal from one of the firm's principals shall be added to the cover sheet only, with a statement of explanation similar to the following:

_____(Name of professional who left the firm_____, licensed architect/professional engineer/other professional, who as the designer of record originally signed and sealed these documents is no longer employed by _____(name of firm)____, and I _____, a principal of _____(name of firm)____, am sealing the Record Drawings in his/her stead.

B. Documents (drawings and specifications) shall be submitted in electronic format (DWG and PDF).

1. Use AutoCad, Release 2004 or the most current version for drawings as noted on the CDB website. Use "Pack-N-Go" or "eTransmit" to organize files in the root directory of the CD.

2. Drawing files must be listed before the support files and must appear in the same order as the in the drawing index.

3. Drawing files may be renamed to ensure they appear in the correct order, for instance by adding numerical prefixes to the drawing name, e.g. **001_**G1.dwg, **002_**C1.dwg, **003_**A1.dwg.

4. When using Microstation or other CAD program, convert the drawings and software support files to AutoCad and place all files in the root directory as above. Be sure that all drawings and support files convert fully.

5. Ensure that all drawings and support files on the CD are complete. Support files include fonts, Xrefs, and Image files.

6. Ensure that the drawings, fonts and support files are compatible with AutoCad or a CAD viewer.

7. Appropriate Professional Seals (No Signature) are required on all sheets of the electronic Record Drawings with seals of all disciplines on the cover sheet.

8. PDF Version: In addition to the DWG version noted above, provide a single PDF file containing all the drawings in the same order as the drawing index and set up to open the drawings in the proper orientation.

9. Project Manual: Submit entire project manual, cover to cover, including all addenda, in a single PDF file.

10. CDB will reject the submittal if it does not conform to all drawing requirements. See checklist in Appendix 2.

C. The CD shall be accompanied by the Record Drawing Certification and Signature form. Each professional who seals the drawings must also sign and seal this form. Use additional pages if all seals do not fit on one form.

D. A/E will provide CDB PM with one set of record drawings on CD for CDB and one set of record drawings on CD or diskette for Using Agency central office; a black line print paper copy may also be required for the Using Agency. Verify requirements with the CDB PM.

E. For asbestos abatement projects and projects that included asbestos abatement, the A/E shall complete an Asbestos Abatement Project Summary Report and forward it to the CDB PM on CD. The report format can be found in the Project Manual Workbook for Asbestos, Lead, UST and PCB (Appendix 5) and on the website. Reports not on CD will not be accepted. Supplemental Sampling Report shall be submitted on CD for any sampling done as part of the project.

22.3 **Final Payment.** In addition to the construction related requirements in this section, A/E's final payment is dependent upon final resolution of any fee adjustments required by the agreement. A/E is encouraged to resolve such issues early to expedite the final pay request.

A. If a final modification is required to adjust basic fee or reimbursables (discuss with PM), A/E will cooperate with CDB, provide required backup, and sign and return modification promptly.

B. If some reimbursable line items remain unused, and a modification is not required to close out those line items (see PM), A/E will provide CDB with a letter summarizing used and unused reimbursables and releasing any claim to the unused reimbursables.

Article 23 NINE MONTH INSPECTION

23.1 CDB shall notify the A/E who shall make arrangements with the Using Agency for an inspection of the contracted work nine months after substantial completion of the project. The A/E shall exercise care and judgment to determine corrective action to be taken under warranties or guarantees as opposed to abuse, misuse, normal wear and tear or lack of proper maintenance. The A/E shall provide a written report of the inspection to CDB and the using agency within seven calendar days. CDB will notify the contractor(s) of any required corrective action noted in the report.

APPENDICES

Appendix 1 STATUTORY REQUIREMENTS

1. **Life Cycle Cost Analysis.** Public Act 80-430 amended the Capital Development Board Act and requires CDB "To prepare, or cause to be prepared, general plans, drawings and estimates, including the life-cycle cost estimate of energy systems, for public buildings and improvement to be erected for any State agency." A/Es are required to prepare life cycle cost estimates for the energy consuming systems proposed to be improved or constructed new.

    1.1. CDB shall establish the parameters for all life cycle cost estimates to be prepared. These include the life of the study, the "discount rate or cost of capital", escalation rates by category, bond financing repayment schedule, etc. The life cycle cost estimates shall be prepared in accordance with CDB's latest revision of its Life Cycle Cost Analysis Manual unless another computation model is approved by CDB.

    1.2. The preparation of life cycle cost estimates is considered part of the basic services of the agreement.

2. **Farmland Preservation Act.** The Farmland Preservation Act, 505 ILCS /1 et seq., seeks to "minimize the conversion of prime farmland that results from the direct or indirect effects of State programs...". In compliance with that act, CDB has adopted an Agricultural Land Preservation Policy and a working agreement with the Department of Agriculture.

    2.1. No State funds may be committed for land acquisition or construction unless it is provided for in an exception in CDB's working agreement with the Department of Agriculture or until a study of the agricultural impact has been completed by the Department of Agriculture.

    2.2. If required, CDB shall notify the Dept. of Agriculture if the proposed project will lead to conversion of farmland to nonagricultural purposes. The A/E may be directed to mitigate the conversion to greatest extent possible. This policy does not affect the agreement and any effort involved is considered part of the basic services.

3. **Endangered Species Act.** The Illinois Endangered Species Protection Act, 520 ILCS 10/1 et seq., provides protection for the State's threatened or endangered flora and fauna. It is the public policy that all agencies, through a consultation process with the Department of Natural Resources, determine whether any action funded by CDB is "likely to jeopardize the continued existence of Illinois listed endangered and threatened species or are likely to result in the destruction or adverse modification of the designated essential habitat of such species...". CDB may request the A/E to prepare or cause to be prepared a determination of the project impact on any endangered flora and fauna at the site. This study would be an additional service under the agreement.

4. **Wetlands Policy Act.** The Interagency Wetlands Policy Act of 1989, 20 ILCS 830 /1et seq., requires State agencies to avoid impacting wetlands. If impacts are unavoidable, compensation is required. This Act is administered by the Department of Natural Resources through administrative rules that the department has and may promulgate.

    4.1. Any CDB project having an adverse impact to a wetland is subject to compliance with this act and the associated administrative rules. No project impacting a wetland shall commence without review and approval of the compensation plan by the Department of Natural Resources.

    4.2. The A/E shall prepare, or cause to be prepared, a wetland impact determination according to the administrative rules. In addition to the project identifying information, the A/E shall provide the alternative actions considered and the justification for the selected alternative that may or is likely to adversely impact a wetland.

    4.3. The A/E may be requested to prepare a wetlands compensation plan when the wetland determination which adversely impacts a wetland is approved. This plan must be developed in cooperation with the using agency and CDB.

4.4. If the project impacts a wetland, both the determination and the compensation plans must be approved by the Department of Natural Resources prior to commencement of the design.

4.5. The preparation of a wetland determination and compensation plan is an additional service to the agreement.

4.6. Use the technical procedures approved by or recommended by the Interagency Wetlands Committee.
   A. 1997 Illinois Wetland and Creation Guide
   B. US Corps of Engineers Wetland Delineation Manual (www.wes.army.mil/el/wetlands)

5. **Historic Preservation Act.** The Historic Preservation Act, 20 ILCS 3410/9, states that "Public funds administered by State agencies shall not be used in projects which will have an adverse economic or environmental impact on a Registered Illinois Historic Place unless in the opinion of the Director (Historic Preservation Agency):

   A. the project is necessary to provide an important public service or benefit
   B. the project cannot be carried out practically so as to avoid the adverse effect and
   C. the adverse effect is minimized to the maximum extent feasible."

5.2. A historic place includes real property where any significant improvements are at least 50 years old or any aboriginal mound, fort earthwork, village, location, burial ground, historic or prehistoric ruin, mine case or other location which is or may be the source of important archeological data. A Registered Illinois Historic Place means any historic place placed on the registry.

5.3. CDB may request the A/E to prepare or cause to be prepared an impact statement of the project on a Historic Place. This would be an additional service to the agreement.

5.4. Any project that is subject to the provisions of this act may require review for adverse impact by the Illinois Historical Preservation agency (IHPA), early in the design process. The CDB PM shall provide the A/E with a copy of the IHPA Architectural/Engineering Review handout when applicable.

6. **Archaeological and Paleontological Resources Protection Act.** The Archaeological and Paleontological Resources Protection Act, 20 ILCS 3435, regulates the exploring, excavating, and surveying of all such resources on public land through the Historic Preservation Agency (HPA). Resources are defined as any significant material remains or localities of past human life or activities. A permit from the HPA is required before disturbance, exploration, excavation or collection of any resources protected by this act is commenced.

6.1. CDB may request the A/E to prepare, or cause to be prepared, an application for a permit from HPA when CDB believes that significant archaeological or paleontological resources exist on a project site. CDB may also request the A/E or its consultant to explore, survey, and collect information on the resources on the site. This would be an additional service to the agreement.

6.2. If during the life of the project, archaeological or paleontological resources are unexpectedly discovered on the project site, the A/E shall issue directives to protect the resources and advise CDB immediately of the findings.

7. **Steel Products Procurement Act.**

7.1. The Steel Products Procurement Act, 30 ILCS 565, requires that all contracts for the construction, reconstruction, or improvement of public works contain a provision that steel

products used or supplied by the contract or a subcontract thereto, shall be manufactured or produced in the United States. Steel products means "products rolled, formed, shaped, drawn, extruded, forged, cast, fabricated, or otherwise similarly processed or process by a combination of two or more such operations, from steel made in the United States by open hearth, basic oxygen, electric furnaces."

7.2. The exceptions to the Act are:

A. Where the expenditure is less than $500.
B. Where the Executive Director of CDB certifies in writing that:
   1. The specified product can not be manufactured or produced in sufficient quantity to meet the project needs.
   2. The specified product can not be manufactured or produced in necessary time to meet the project needs.
   3. Obtaining the product would increase the cost of the contract by more than 10 percent.
C. When the application of the Act is not within the public interest.

7.3. The A/E shall select products for inclusion in the project specifications that meet the requirements of the Act.

7.4. The Act provides that CDB may not authorize payment to any contractor in violation of the Act.

8. **Clean Water Act**

8.1. All discharges of pollutants into waters of the United States are illegal unless they comply with a permit or with approved standards. 'Pollutants' includes any dirt or waste. 'Waters of the United States' includes any body of water that eventually reaches a navigable body of water by an overland route, including streams and ditches that may be dry for most of the year.

8.2. The Clean Water Act calls for two types of permits: NPDES (National Pollutant Discharge Elimination System) under Section 402 or dredge and fill permits under Section 404.

8.3. NPDES permits are required on construction sites when storm waters may carry soil or other pollutants into waters of the Unite3d States. NPDES permits are issued in Illinois by the Illinois Environmental Protection Agency (ILR 10).

8.4. For further information, contact the IEPA: 217/782-0610.

APPENDIX 2 CHECKLISTS (PADD, 50/75%),

CDB REVIEW CHECKLIST

Program Analysis (PA) Phase submittal
Design Development (DD) Phase submittal

Date _____
Project Number _____
CDB PM _____
A/E Representative _____

These checklists have been prepared to provide clarity and instruction to A/E's in the preparation of the PA/DD submittal(s). They are intended to clarify the requirements stipulated in CDB's Design and Construction Manual (DCM), *and* ***neither alter nor eliminate*** *the requirements set forth in the* DCM *or in the Professional Services Agreement. CDB recognizes that unique challenges and solutions are inherent in each project. Therefore these requirements should be addressed by the A/E* ***only as applicable*** *to each project and scope of work. Submittals which combine the PA and DD phases should include all applicable requirements for each phase.*

PA submittal

- ☐ Narrative indicating the scope of work and a complete basis for the project design
- ☐ Diagrams (i.e., floor plans, site plans, flow diagrams, etc.) to graphically supplement the narrative
- ☐ Code analysis (see reverse side)
- ☐ Statement of compliance with Flood Plain Construction Policy
- ☐ Proposed Project Cost Budget form
  - ☐ Cost estimate for each trade
- ☐ Estimated construction schedule
- ☐ LEED checklist (if applicable)

New buildings, additions

- ☐ Space itemization analysis.
  - ☐ Function and size of space
  - ☐ Number and classification of occupants
  - ☐ Type and quantity of equipment
  - ☐ Required utilities
  - ☐ Special environmental and/or system req's.
- ☐ Total area of program spaces
- ☐ Report on historical uses of the site
- ☐ Masonry wall dewpoint calculation

Remodeling projects

- ☐ Statement of the status of asbestos and other hazardous materials (see DCM 5.3.C.5)
- ☐ If required, involvement of the Illinois Historic Preservation Agency has been acknowledged
- ☐ Required general phasing of work has been identified

DD submittal

Budget

- ☐ Proposed Project Cost Budget form
  - ☐ Cost estimate for each trade and major work item

Project Manual

- ☐ Project Summary section 01 11 00 is complete
- ☐ Outline specification for each major project component.
  A Table of Contents list is not acceptable.

Drawings

- ☐ Site Plan
  - ☐ Each building located
  - ☐ Existing CDB Building Numbers are indicated
  - ☐ Existing and finished contours
  - ☐ Ground floor elevations
  - ☐ Roads, walks, parking areas
  - ☐ Utilities
  - ☐ Other site construction
  - ☐ Limits of the contract
  - ☐ Floor Plans
- ☐ All exterior elevations
- ☐ Vertical building sections
- ☐ Location and type of primary structural members
- ☐ Fixed Equipment, including utility service req's.
  - ☐ Plumbing fixtures
  - ☐ Heating
  - ☐ Ventilating
  - ☐ Electrical
  - ☐ Areas requiring acoustical treatment are identified

Other Requirements

- ☐ Current project schedule (not necessarily *contractual* schedule)
- ☐ Soil testing as required by DCM 3.09.H)
- ☐ Seismic design criteria (DCM 3.11.D)
- ☐ Life cycle cost analysis for each alternative energy system considered
- ☐ Statement of compliance with Federal Energy Policy Act and ASHRAE 90.1 (DCM 2.2.B)
- ☐ Model or rendering (if required)
- ☐ Area analysis tabulation (PA comparison)
- ☐ Illumination levels
- ☐ LEED checklist (if applicable) _
- ☐ Other negotiated requirements

E-MAIL THIS FORM: This form may be submitted to CDB electronically. Attach a completed form to an e-mail addressed to the CDB Project Manager. All CDB e-mail addresses are available on our website: www.cdb.state.il.us**.**

CDB REVIEW CHECKLIST
50% or 75% Design Submittal

Date _____
Project Number _____
CDB PM _____
A/E Representative _____

This checklist has been prepared to provide clarity and instruction to A/E's in the preparation of the 50% design submittal. It indicates information that is generally expected by CDB at the 50% phase, and ***neither alters nor eliminates*** *the requirements set forth in the* Design and Construction Manual *or in the Professional Services Agreement. CDB recognizes that unique challenges and solutions are inherent in each project. Therefore, these requirements should be addressed by the A/E* ***only as applicable*** *to each project and scope of work.*

Cost Estimate

- ☐ "Proposed Project Cost Budget" form
  including all applicable trades and the Construction Administration Fee (CAF) for each trade.
- ☐ Cost estimate
  Costs are identified for each trade and a breakdown of work items within each trade. Major budgetary decisions are established, including construction cost, base bid and alternates.

Project Manual

- ☐ Divisions 00 and 01 are 95% complete
  - ☐ Table of Contents is complete
  - The following sections are complete and coordinated with the technical specifications sections:
    - ☐ 01 33 23
    - ☐ 01 45 29
    - ☐ 01 78 23
    - ☐ 01 78 36
- ☐ Hazardous materials are identified
- ☐ Alternate bids are established
- ☐ Each technical specification section is partially complete in standard CDB format (as per CDB's Design and Construction Manual). A list of products and execution processes is required.
- ☐ All technical specification sections are in correct Base Bid / Alternate format (as per CDB's Design and Construction Manual), assigning work to the correct trade/contractor(s).
- ☐ Single- and dual-source products have been identified
  - ☐ Letters of request from the A/E and the Using Agency have been submitted to CDB.
- ☐ Roofing sections are complete
  As per CDB's Membrane Roofing Program Handbook
- ☐ Roofing sections have been submitted to the specified roofing system manufacturers for the signing and returning of the Roofing System Manufacturer's Certificate.

Drawings

General information

- ☐ Cover Sheet G-1 is complete
  - ☐ Standard CDB title block
  - ☐ State Building Inventory numbers and names
  - ☐ Maps
  - ☐ Index of Drawings
- ☐ Key to symbols, abbreviations and material indications is provided

Civil Drawings

- ☐ Site Plan includes utility locations, topographic drawings, site drainage, parking areas, roads, sidewalks, survey control points, grades and radii
- ☐ Details are partially complete
- ☐ Cross sections are established
- ☐ Soil investigations, including septic analysis

Architectural

- ☐ Floor Plans are complete
  Includes dimensions, room names, room numbers, door numbers, large equipment items, section symbols, detail symbols and interior elevation symbols
- ☐ Reflected ceiling plans are complete
  Includes heights, materials finishes, light fixtures and grills
- ☐ Roof Plan is complete
  Per CDB's Membrane Roofing Program Handbook
- ☐ Building elevations are complete
- ☐ Building sections are complete
- ☐ Wall sections are complete
  Includes a section at each significant wall configuration
- ☐ Details
  - ☐ All connections of new work to existing structures
  - ☐ All enlarged details of wall sections
  - ☐ Roofing and flashing details
- ☐ ASHRAE 90.1 building envelope compliance forms attached
- ☐ Complicated interior elevations are complete
- ☐ Door Schedule is partially complete
  Door numbers, locations, types and sizes are indicated
- ☐ Room Finish Schedule is partially complete

Room names, room numbers, finishes and ceiling heights are indicated. Room Finish Schedule is partially complete
Room names, room numbers, finishes and ceiling heights are indicated.

50% checklist

Drawings, *continued*

Structural

- ☐ Structural Notes include information pertaining to applicable building codes, strengths of materials, live loads, dead loads, lateral loads, seismic provisions and other general notes.
- ☐ Foundation Plan is established
  - ☐ Footing schedules are partially complete
- ☐ Framing plans are complete
  - ☐ Framing systems and preliminary sizes of members are indicated
  - ☐ Frame elevation sheets are partially complete
  - ☐ Column schedules are partially complete

Plumbing

- ☐ Plumbing plans indicate fixture locations, equipment locations, gas, water, interior storm, sanitary waste and vent pipe routing.
- ☐ Plumbing equipment schedules are partially complete.
  Indicates capacities of major equipment
- ☐ Basic installation details of major equipment
- ☐ Source of utilities
  May be located on Site Plan or Site Utility Plan

Fire Protection

- ☐ Plans indicate sprinkler riser, standpipe riser, fire department (Siamese) connection and areas to be protected by sprinkler system or other automatic extinguishing system
- ☐ Source of water / connection to existing system

Heating

- ☐ Heating plans indicate major equipment, heating water and chilled water piping
- ☐ Equipment schedules are partially complete.
  Indicates capacities of major equipment
- ☐ Basic installation details of major heating equipment

Ventilating

- ☐ Ventilating plans indicate major equipment, duct routing and location of required fire or smoke dampers
- ☐ Equipment schedules are partially complete.
  Indicates capacities of major equipment
- ☐ Basic installation details of major ventilating equipment
- ☐ Provision for oversized or backup equipment
  In consideration of future capacity

Temperature Controls

- ☐ Sequence of operations for major equipment
- ☐ Preliminary points list
- ☐ Temperature control / building automation system connection to existing system
- ☐ ASHRAE 90.1 mechanical system compliance forms attached

Electrical

- ☐ Electrical plans indicate fixtures, devices, symbols, mechanical equipment and special systems, including fire detection/alarms
- ☐ Ratings are partially determined
  Service entrance equipment, switchgear, panelboards, motor services and other equipment
- ☐ All feeders 100A and larger that are shown should show conduit routing
  Home run symbols are not acceptable
- ☐ Code-required clearances are established
- ☐ Equipment schedules are partially complete, identifying all equipment
- ☐ Power one-line diagrams are partially complete
  Indicates all panels, transformers, voltages, main overcurrent devices and amp ratings
- ☐ Panel schedules are partially complete
  Indicates the load requirements per circuit, the total panel connected loads and any de-rated load calculations
- ☐ Special systems one-line diagrams show all major equipment
- ☐ Grounding electrode system and connections are shown
- ☐ Illumination levels are indicated, and light sources are identified
- ☐ ASHRAE 90.1 electrical system compliance forms attached

Miscellaneous

- ☐ List of required construction phase tests
- ☐ Utility contact information – names, phone numbers, etc.
- ☐ LEED checklist (if applicable)

Appendix 3 TECHNICAL SPECIFICATION FORMAT

DIVISION - (*DIVISION NUMBER & TITLE)
Section - (*Section Number & Title)
(*Header at the top of the first page of each section)

1. GENERAL

1.1 WORK INCLUDES

A. Base Bid: (A/E: List each contractor who has work in this section)

1. (*_____) Contractor:

a. (A/E: briefly summarize work in this section)

2. (*Continue for any other contractor who has work under this section)

B. Alternate Bids: (*) (A/E: list all alternate work applicable to this section by contractor and alternate number)

1. (*_____) Contractor:

a. Alternate Bid (*letter)-(*1):

1.) (A/E: briefly summarize work)

2. (*Continue as appropriate)

C. Unit Prices: (*) (A/E: Describe unit price work applicable to this section)

1. (*_____) Contractor:

a. (A/E: briefly summarize work)

1.2 RELATED WORK (*) (A/E Note: The following sub-sections should be closely coordinated with sub-section 1.1.)

A. Specified elsewhere: (A/E: List Sections that require direct coordination with this section. Do not include any General Condition or Division 00 & 01 Sections.)

B. Installed but furnished by others: (A/E: Specify who furnishes and who installs.)

1.3 Furnished, but installed by others: (A/E: Specify who furnishes and who installs.)

1.4 SYSTEM DESCRIPTION (*) (A/E: Use this to describe any special or complex building systems. Include definitions.)

1.5 QUALITY ASSURANCE (*) (A/E: Include any special qualifications for manufacturer, installer, supplier, etc., particularly where a performance specification is used for the product or its installation.)

1.6 REGULATORY REQUIREMENTS (*) (A/E: List special codes, national standards, etc. that apply to section. For individual product requirements, this information should be located in sub-section 2.)

1.7 ABBREVIATIONS (*) (A/E: List those unique to this section.)

1.8 SUBMITTALS (*) (A/E: Cross reference and include on Schedule 01 33 23.)

A. Shop drawings: (*)

B. Samples: (*)

C. Product data: (*)

1. Manufacturer's catalogs: (*)
2. Test reports: (*Source quality control)
3. Certifications: (*ANSI, UL, FM, etc.)

D. Mock-up: (*)

E. Operating and maintenance data required. (*) (A/E: Coordinate with and include on Schedule 01 78 23.)

2. PRODUCTS

2.1 (*Item 1 - Title of material, product, equipment, etc.)

A. (*) (A/E: Describe as appropriate.)

1. Size
2. Color
3. Finish
4. Utility Requirements
5. Features
6. (*)

(A/E: Utilize one of the three following formats for specifying products, equipment, etc. Utilize the performance specification option only when necessary.)

B. Acceptable Products: (A/E: Minimum of 3 required without written approval from CDB. Matrix format preferred. List manufacturer's address and city only when not well known.)

	Manufacturer (*Address, City)	Model, Product, Catalog No.
1.	*(IL)	_____
2.	_____	_____

3. _____ _____

* * * OR * * *

B. (A/E: Provide competitive performance specification. Include form, fit and function characteristics. Specify post-award review requirements.)

* * * OR * * *

B. (A/E: Specify national standard (ANSI, ASTM, etc.) to which product must comply.)

C. (A/E: Specify special requirements for fabrication, tolerances, etc.)

D. Special Warranty. In addition to that required by the Standard Documents for Construction: (A/E: Use this <u>only</u> for warranties beyond the Contractor's one-year guarantee.)

1. (*_____) Manufacturer (*)
2. (*_____) Contractor (*)

2.2 (*Item 2) (A/E: Continue for each material, product, equipment, etc.)

2.3 SCHEDULES (A/E do not duplicate schedules on Drawings and Specs.)

A. Hardware.
B. Paint.
C. Color.
D. Equipment.
E. Lighting Fixture.
F. (*)

3. EXECUTION

3.1 ENVIRONMENTAL CONDITIONS (A/E: Specify any special weather, temperature, ventilation, etc. conditions that must be considered for the performance of the work.)

3.2 SEQUENCING/SCHEDULING (A/E: Specify any special scheduling requirements of user, delivery, early occupancy, etc.)

3.3 REMOVAL OF EXISTING CONSTRUCTION (*)

A. Temporary removals: (*Remove, store, protect, recondition, replace in original location.)

B. Remove and relocate existing construction: (*)

C. Remove and dispose: (*)

3.4 PREPARATION (A/E: Be specific to avoid disputes.)

A. Site clearing: (*)
B. Fine grading: (*)
C. Sanding: (*)
D. Priming: (*)

3.5 (*INSTALLATION) (*APPLICATION) (*PERFORMANCE) (*ERECTION) (*)

A. Methods (A/E: Do not tell the contractor how to do basic work. Where possible, reference national standard or trade association installation standards.)

B. Tolerances: (*)

3.6 FIELD QUALITY CONTROL (A/E: Specify who will take tests, when, and routing of results. Coordinate test requirements with applicable codes and the DCM.)

A. Soils
B. Piles
C. Concrete
D. Piping Systems
E. Electrical Systems
F. High Voltage Cable
G. Special Inspections
H. (*Continue as appropriate.)

3.7 PROTECTION (A/E: Describe any special protection required; carpet, mechanical equipment, etc.)

3.8 CLEAN UP (A/E: Describe any special clean up requirements only)

3.9 CLOSEOUT (A/E: Specify if building or system commissioning is applicable to this section.)

3.10 EXTRA STOCK/SPARE PARTS (A/E NOTE: When financed by Bonds all extra stock or spare parts must meet bondability guidelines. The CDB restricts this to the following):

A. Keys: (*All locksets. Specify type and quantity in accord with User Agency needs. Include master and submaster.)

B. Sprinkler System Accessories: (*Sprinkler heads, special wrench in cabinet. Quantity as required by Code, NFPA 13.)

END (*)

Appendix 4 CDB ACRONYMS

CDB Acronyms

AACA	=	African American Construction Association
AACE	=	Association of Asian Construction Enterprise
ACM	=	Asbestos Containing Material
ADA	=	Americans with Disabilities Act
ADR	=	Alternative Dispute Resolution
A/E	=	Architect/Engineer
A/E FCP	=	Architect/Engineer Final Close-Out Package
A/E-PE	=	Architect/Engineer Performance Evaluation
A/E PRB	=	Architect/Engineer Payment Request Breakdown
AGC	=	Associated General Contractors of America
AGSF	=	Architectural Gross Square Footage
AHERA	=	Asbestos Hazards Emergency Response Act
AHU	=	Air Handling Unit
AIA	=	American Institute of Architects
ALD	=	Asbestos Litigation Division (Attorney General)
APM	=	Asbestos Project Manager
ASCE	=	American Society of Civil Engineers
ASHRAE	=	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASP	=	Air Sampling Professional
AST	=	Air Sampling Technician -OR- Above Ground Storage Tank
ATP	=	Authorization to Proceed
BA	=	Business Agent
BAS	=	Building Automation System
BCU	=	Black Contractors United
BHE	=	Illinois Board of Higher Education
BIN	=	Bid Information Newsletter
BOCA	=	Building Officials and Code Administrators
BOMA	=	Building Owners and Managers Association of Chicago
C-13	=	Invoice Voucher
CAF	=	Construction Administration Fee or Contract Administration Fee
CASS	=	Contractor's Affidavit & Sworn Statement
CAWGC	=	Contractors Association of Will and Grundy Counties
CD	=	Construction Documents
CDB	=	Capital Development Board
CDBF	=	Capital Development Board Fund
CDBRF	=	Capital Development Board Revolving Fund
CDF	=	Capital Development Fund
CE	=	Contract Executive
CECI	=	Consulting Engineers Council of Illinois
CF	=	Central Files
CFC	=	Chlorofluorocarbon
CFD	=	Contractor's Final Declaration
CFN	=	Centralized Fee Negotiation
CIBA	=	Central Illinois Builders Association
CISCO	=	Construction Industry Service Corporation
CM	=	Construction Manager
CMS	=	Illinois Department of Central Management Services
CO	=	Change Order

CORR	=	Change Order Review Routing
CPBS	=	Contractor's/Subcontractor's Proposal Breakdown Summary
CPE	=	Contractor Performance Evaluation
CPL	=	Capital Planning Liaison
CSI	=	Construction Specifications Institute
CSV	=	Contractor's Schedule of Values
CUSAS	=	Comptroller's Unified Statewide Accounting System
DBE	=	Disadvantaged Business Enterprise
DD	=	Design Development
DDC	=	Direct Digital Controls
DHR	=	Illinois Department of Human Rights
DHS	=	Illinois Department of Human Services
DLD	=	Direct Labor Dollars
DOC	=	Illinois Department of Corrections
DNR	=	Illinois Department of Natural Resources
DWE	=	Direct Wage Expense
EE	=	Electrical Engineer
EEO	=	Equal Employment Opportunity
EPA	=	Environmental Protection Agency
EPACT	=	National Energy Policy Act of 1992
FA	=	Final Acceptance
FBE	=	Female Business Enterprise
FCP	=	Final Closeout Package
FEIN	=	Federal Employee Identification Number
FEP	=	Fair Employment Practices
FOIA	=	Freedom of Information Act
FWC	=	Federation of Women Contractors
GC	=	General Contractor
GIS	=	Geographical Information System
GPS	=	Global Positioning System
GRF	=	General Revenue Fund
GWB	=	Guarantees, Warranties & Bonds
HACIA	=	Hispanic American Construction Industry Association
HCFC	=	Hydrochlorofluorocarbons
HFC	=	Hydrofluorocarbons
HPA	=	Illinois Historic Preservation Agency
HVAC	=	Heating Ventilation Air Conditioning
HW	=	Hazardous Waste
IAC	=	Illinois Accessibility Code -OR- Illinois Administrative Code -OR- Industry Advisory Committee
IAPHCC	=	Illinois Association of Plumbing-Heating-Cooling Contractors
IBA	=	Illinois Building Authority
ICCB	=	Illinois Community College Board
ICIC	=	Illinois Construction Industry Committee
IDOL	=	Illinois Department of Labor
IDOT	=	Illinois Department of Transportation
IEMA	=	Illinois Emergency Management Agency
IEPA	=	Illinois Environmental Protection Agency
IMSCA	=	Illinois Mechanical Specialty Contractors Association
IPA	=	Illinois Purchasing Act
IPS	=	Illinois Procurement System
IS	=	Information Systems
ISPE	=	Illinois Society of Professional Engineers
ISTEA	=	Intermodal Surface Transportation Enhancement Act

ITEP	=	Illinois Transportation Enhancement Program
JCAR	=	Joint Committee on Administrative Rules
JRTC	=	James R. Thompson Center (Chicago)
LA	=	Landscape Architect
LAN	=	Local Area Network
LUST	=	Leaking Underground Storage Tank
MABB	=	Michael A Bilandic Building (Chicago)
M/FBE	=	Minority/Female Business Enterprise
MBE	=	Minority Business Enterprise
ME	=	Mechanical Engineer
MEP	=	Mechanical Electrical Plumbing
MMUR	=	Monthly Manpower Utilization Report
NEC	=	National Electrical Code
NESHAP	=	National Emissions Standards for Hazardous Air Pollutants
NFPA	=	National Fire Protection Association
NOA	=	Notice of Award
NRO	=	Northern Regional Office (Chicago)
NTE	=	Not to Exceed
OBS	=	Obligations
OPA	=	Office of Public Affairs
OSFM	=	Office of Illinois State Fire Marshal
OSHA	=	U.S. Occupational Safety and Health Administration
OTQM	=	Office of Training and Quality Management
PA	=	Program Analysis
PAF	=	Personnel Action Form
PA/DD	=	Program Analysis and Design Development
PBMC	=	Pre-Engineered Metal Building Manufacturer's Certification
PBMW	=	Pre-Engineered Metal Building Manufacturer's Warranty
PC-2	=	Manpower Hiring Form in Bidding Documents (DHR PC-2)
PCB	=	Proposed Cost Budget
PCBS	=	Proposed Cost Breakdown Summary
PE	=	Professional Engineer
PIR	=	Project Inspection Report
PO	=	Purchase Order
PM	=	Project Manager
PPCB	=	Proposed Project Cost Budget
PQ	=	Prequalification
PRB	=	Payment Request Breakdown
PSA	=	Professional Services Agreement
PSB	=	Professional Services Bulletin
PSR	=	Project Status Report
PVC	=	Polyvinylchloride
QBS	=	Qualifications-Based Selection
QRT	=	Quality Review Team
QSC	=	Quality Steering Committee
RACIF	=	Response Action Contract Indemnification Fund
RFI	=	Request for Information
RFP	=	Request for Proposal
RFP/CO	=	Request for Change Order Proposal
RM	=	Regional Manager
R & M	=	Repair and Maintenance
R & R	=	Remodeling and Rehabilitation
RRR	=	Request for Reduction in Retainage
RSMC	=	Roofing System Manufacturer's Certification

RSMW	=	Roofing System Manufacturer's Warranty
RT	=	Retention Trust
RTA	=	Recommendation to Award
SAMS	=	Comptroller's Statewide Accounting Management System
SE	=	Structural Engineer
SEAOI	=	Structural Engineers Association of Illinois
SIBA	=	Southern Illinois Builders Association
SML	=	Stored Material Log
SOB	=	Stratton Office Building (Springfield)
SOS	=	Illinois Secretary of State
SRO	=	Springfield Regional Office
SWA	=	Structural Work Act
T & B	=	Testing and Balancing
T & M	=	Time and Materials
TCV	=	Total Contract Value
TIN	=	Taxpayers Identification Number
TJR	=	FEP Technician Jobsite Report
TQM	=	Total Quality Management
TSR	=	Telephone Service Request
UBC	=	Uniform Building Code
UL	=	Underwriters Laboratory
USACE	=	United States Army Corps of Engineers
UST	=	Underground Storage Tank
WBDC=		Women's Business Development Center
WBE	=	Women's Business Enterprise
WC	=	Workers' Compensation

PROJECT MANUAL WORKBOOK for ASBESTOS, LEAD, UST and PCB

January 2006

Illinois Capital Development Board

TABLE OF CONTENTS

ARTICLE 1 PROJECT MANUAL WORKBOOK FOR ASBESTOS, LEAD, UST & PCB 1
1.1 GENERAL. 1
1.2 MATERIAL INCLUDED 1
1.3 CDB'S WEB SITE. 1
ARTICLE 2 ASBESTOS PROJECTS 1
2.1 GENERAL. 1
2.2 ADMINISTRATION. 1
2.3 DESIGN CRITERIA 2
2.4 PRELIMINARY DESIGN PHASE 2
2.5 BIDDING DOCUMENTS PHASE 3
2.6 CONSTRUCTION PHASE 3
2.7 REFERENCES 4
2.8 ATTACHMENTS. 4
GUIDELINES FOR ESTIMATING ASBESTOS ABATEMENT PROJECTS 5
ASBESTOS ABATEMENT PROJECT SUMMARY FORM 7
APM FINAL REPORT REQUIREMENTS 11
ARTICLE 3 GUIDELINES FOR LEAD 13
3.1 GENERAL. 13
3.2 SAMPLING (PAINT CHIP) & TESTING (XRF). 13
3.3 DESIGN 13
3.4 CONSTRUCTION. 14
3.5 DISPOSAL. 14
3.6 TRANSPORTATION OF LBP WASTE 14
3.7 INDEMNIFICATION. 14
3.8 REFERENCES. 15
3.9 ATTACHMENTS. 15
SECTION 01 11 00 - PROJECT SUMMARY WITH SAMPLE LANGUAGE FOR LEAD ABATEMENT 17
ARTICLE 4 UNDERGROUND STORAGE TANKS 19
4.1 UST/REGULATORY RESPONSIBILITIES 19
4.2 CONTRACT PERSON AND PHONE NUMBERS 19
4.3 REFERENCES 19
4.4 ATTACHMENTS. 19
DOCUMENT 00 41 00 - BID FORM WITH EXAMPLE OF UNIT PRICES FOR USTS 21
ARTICLE 5 PCBS 23
5.1 FEDERAL REGULATIONS 23
5.2 TSCA 23
5.3 SUPERFUND LAWS 23
5.4 STATE REGULATIONS 23
5.5 IDENTIFYING PCB BALLASTS 23
5.6 IDENTIFYING LEAKERS 24
5.7 BALLAST REMOVAL. 24
5.8 DRUM LABELING 24
5.9 DISPOSAL. 24
5.10 PCB LEAKS. 24
5.11 REFERENCES. 24

Article 1 PROJECT MANUAL WORKBOOK FOR ASBESTOS, LEAD, UST & PCB

1.1 General. This workbook has been prepared for use with the current edition of the "Standard Documents for Construction" (SDC) and this "Design & Construction Manual."

1.2 Material Included. This manual/workbook contains instructions and forms. Guide specification sections available on CDBs website are the minimum requirements for the preparation of the specific Project Manual sections. However, the material in this workbook, including instructions, is mandatory.

Instructions to the A/E reference the Associated Regulatory Requirements.

1.3 CDB's Web Site. CDB documents, forms and publications are available on CDB's web site Reference Library (www.cdb.state.il.us).

Article 2 ASBESTOS PROJECTS

2.1 General. Asbestos abatement requires compliance with regulatory requirements and the use of Illinois Department of Public Health (IDPH) licensed personnel. Each A/E shall comply with the following procedures if asbestos is encountered.

2.2 Administration.

A. CDB shall assign a Project Manager (PM) for all abatement projects. The PM's will coordinate with the A/E, CDB staff and the User for asbestos projects including inspections, sampling, management plan and abatement design required for remodeling/rehabilitation projects.

B. The A/E shall design the abatement of asbestos (ACBM) to minimize asbestos exposure to all individuals involved in the project. This includes building occupants, contractors, employees, and A/E staff.

   If an A/E encounters asbestos during a routine remodeling project and the A/E does not employ licensed staff as described above, the A/E shall contract with a CDB prequalified firm to provide the necessary asbestos abatement services. Separate project numbers and accounts may be assigned by CDB for the asbestos portion of the work.

C. All bulk samples for analysis shall be collected by IDPH-licensed Building Inspectors. All inspection, sampling and management planning services shall comply with the A/E Manual of Procedures for Asbestos Inspections and Management Plans (Asbestos Protocol).

D. The State of Illinois will indemnify all contractors (including A/E's) involved in asbestos work.

2.3 Design Criteria

A. Rules and regulations for asbestos abatement promulgated by the IDPH shall be used for asbestos abatement: Rules for Asbestos Abatement for Public and Private Schools and Commercial and Public Buildings (77 Ill. Admin. Code 855, Subpart E). This includes the same format for abatement Completion Reports [855.170(a)(5)] (APM Report). Variances shall be approved in writing by CDB (and IDPH, if the project involves elementary or secondary schools) with the following exceptions:

1. All projects not under IDPH jurisdiction shall utilize a dual role APM/ASP unless otherwise directed by CDB.

2. All tent enclosures shall require a minimum 6-hour hang time.

3. All floor tile and floor tile mastic abatement projects not under IDPH jurisdiction shall utilize a single layer of poly sheeting on wall surfaces, unless otherwise directed by CDB.

4. All projects not under IDPH jurisdiction shall utilize PCM clearance, unless otherwise directed by CDB.

5. All projects which involve demolition of an unoccupied facility shall follow applicable IEPA & NESHAP regulations.

6. All non-friable, floor tile abatement projects not under IDPH jurisdiction shall require a specific variance from CDB. CDB will require engineering controls during abatement, area air monitoring, clearance air monitoring and notification of all non-friable projects.

7. The APM Final Report shall include documentation of medical clearance for all supervisors, workers and the APM/ASP.

B. All asbestos abatement work will be performed using appropriate respiratory protection in accordance with applicable OSHA regulations (29 CFR 1910.134; 29 CFR 1910.1001; 29 CFR 1926.103 and 29 CFR 1926.1101).

2.4 Preliminary Design Phase

A. For an asbestos abatement project, the A/E's Preliminary Design Phase Services are modified as follows. Whenever Inspection and sampling has not previously occurred, the A/E shall provide inspection and sampling prior to the preliminary design. The documents shall be prepared in accord with CDB's *A/E Manual of Procedures for Asbestos Inspections and Management Plans.*

B. A Management Plan may be required if all of the identified asbestos is not removed during construction.

2.5 Bidding Documents Phase

A. CDB has developed guide specifications sections, edited versions of which may be used as appropriate by the A/E on abatement projects.

B. The A/E shall coordinate with the building user to determine when abatement may occur.

C. CDB and the A/E shall coordinate the contracting method; options include a separate abatement contractor (not assigned) or a separate project for abatement work.

D. Any variance request must be approved in writing by CDB, and IDPH when applicable, prior to being incorporated in the plans and specifications by the A/E.

E. The A/E shall consider notification and other regulatory requirements in determining the construction schedule.

2.6 Construction Phase

A. The A/E shall provide an Asbestos Project Manager/Air Sampling Professional (APM/ASP) whose full-time responsibility during construction shall be monitoring the contractor's methods and procedures to ensure all specified rules and regulations for abatement are followed. The APM/ASP shall be licensed as defined in the IDPH Rules and Regulations.

B. The Asbestos Project Manager/Air Sampling Professional (APM/ASP) shall be inside containment a minimum of two hours each half day of work. The APM/ASP may spend additional time in containment whenever air sampling indicates higher than normal fiber counts, or during cleaning periods prior to final clearance to verify all ACM has been properly removed. Failure of the APM/ASP to comply with the above will result in a decrease in the payment to the A/E for the APM/ASP services.

C. The A/E will submit copies of the APM FINAL REPORT to the Contractor, CDB, IDPH (when applicable) and two copies to the Using Agency within 60 days of final clearance testing. All APM Final Reports shall be submitted in electronic .pdf format.

D. Required Air Sampling:

1. Maximum of seven (7) samples/day per contained work area which includes: two (2) inside work area, two (2) outside work area, one (1) at the negative air, one (1) field blank, one (1) lab blank for 02 82 13 projects. All OSHA samples are the contractor's responsibility (for AHERA follow IDPH rules).

2. Maximum of three (3) samples for glovebag tent enclosures.

3. Non friable projects:
    a. representative sample of worker exposure.
    b. minimum one day for each work activity.

E. All air monitoring is to be conducted as per IDPH Rules and Regulations.

F. Air monitoring procedures for glovebag removal is to be conducted following IDPH Section 855.480 of IDPH Rules and Regulations.

G. Personal air monitoring for CDB Projects is the contractors' responsibility under OSHA Regulations. Only projects under IDPH jurisdiction will have personal sampling performed as part of CDB's responsibility.

2.7 References

A. Sample Specification Section 02 82 11 - Minor Demolition for Non-friable Asbestos Removal
B. Sample Specification Section 02 82 13 - Asbestos Abatement
C. Sample Specification Section 02 82 15 - Minor Demolition for Non-friable Asbestos Roof Removal

2.8 Attachments.

A. Asbestos Abatement Estimate Outline Form with Instructions (Capital Development Board)
B. Asbestos Abatement Project Summary with Instructions (Asbestos Litigation Division, Attorney Generals Office)
C. APM Report Requirements

GUIDELINES FOR ESTIMATING ASBESTOS ABATEMENT PROJECTS

The attached listing of asbestos abatement work items are provided as a guideline for use in preparing cost estimates during the design phase. It should be used as appropriate; modified, or supplemented when required. The A/E is responsible for the estimate and these guidelines should not be construed as inclusive or the only method which may be used. An estimate of comparable detail is required regardless. Be sure to include asbestos costs on CDB's Proposed Project Cost Budget (PPCB) form.

- Preparation - All costs for mobilization, set-up and area preparation prior to removal of any ACM. Note the inclusion of work items for demolition of non-contaminated building components to gain access to ACM. Verify that this demolition work is truly not contaminated by asbestos prior to including the costs in this section.
- Architectural Systems - This section is for cost of removal of ACM encountered in architectural systems or work normally installed as general work.
- Thermal Systems - This section is for cost of removal of ACM encountered in work originally installed as part of HVAC work, usually by the insulation subcontractor.
- Equipment Rental - The costs of capital equipment used on the project by the contractor. Either direct rental costs or allocation of costs for equipment owned by the contractor.
- Final Clean-up & Restoration All costs, after removal of the bulk of the ACM to perform final removal and clean up, dismantling, and demobilization required to restore the facility for the owner's use.
- General Conditions - Project costs required by the general conditions and typically estimated by the size and/or duration of the project.
- Recapitalization - For summarizing the costs on the previous sections and adding insurance overhead, profit and contingency.

ESTIMATE RECAPITULATION

PROJECT ASBESTOS ABATEMENT ESTIMATE OUTLINE | ESTIMATE NO.

LOCATION | SHEET NO.

ARCHITECT/ENGINEER | DATE

SUMMARY BY | PRICES BY | CHECKED BY

D E S C R I P T I O N	QUANTITY	UNIT	UNIT PRICE	TOTAL ESTIMATED MATERIAL COST	UNIT PRICE	TOTAL ESTIMATED LABOR COST	UNIT PRICE	TOTAL
Preclean		Square Ft.						
Protection		Square Ft.						
Temp. Partitions		Square Ft.						
Polyethylene		Square Ft.						
Remove Plaster		Square Ft.						
Remove Drywall		Square Ft.						
Remove Ceiling Tile		Square Ft.						
Remove & Clean Light Fixtures		Each						
Protect Grills & Registers		Each						
Remove Fireproofing		Square Ft.						
Remove Boiler Insulation		Square Ft.						
Remove Pipe Insulation by Size		Lineal Ft.						
Abate Fittings by Size		Each						
Remove Breaching of Flue Insul		Square Ft.						
Remove Duct Insulation by Size		Lineal Ft.						
Glove Bags		Each						
Remove V.A.T.		Square Ft.						
Remove Mastic with Solvent		Square Ft.						
Remove Mastic Bead Blast		Square Ft.						
Remove Transite Pipe by Size		Lineal Ft.						
Remove Transite Board		Square Ft.						
Remove Contaminated Soil		S.F. / C.Y.						
Load & Haul Waste		Loads						
Dump Fee		Cubic Yd.						
Final Clean		Square Ft.						
Reinsulation Pipe or Duct by Size		Linear Ft.						
Reinsulate Fittings by Size		Each						
Patch Fireproofing		Square Ft.						
Encapsulate		Square Ft.						
Equipment (Pre-List)		Each						
Scaffolding Per Job								
Highlift								
Electrical with Lighting								
Mechanical - Heat, Vent & Plumb								
General Conditions								
Overhead & Profit								
Bond & Insurance								
CAF								

INSTRUCTIONS FOR COMPLETING
ASBESTOS ABATEMENT PROJECT SUMMARY

Purpose of Asbestos Abatement Project Summary

The state uses this information to determine what buildings were included in a particular CDB project. In addition, for each building in the project, the summary indicates the areas that were abated, the type and amount of materials and the percent of cost for each. Any change orders should be reflected on the summary. The summary should reflect the work actually completed as it may differ from the original scope of work. If any work in the project was not related to abatement of ACM or asbestos contaminated materials, the percent of the project cost should be indicated on the form.

Directions For Completing Project Summary [See corresponding numbers on attached Summary]

1. Enter CDB Project Number.

2. Enter CDB Building Name and Number.

3. Enter name and phone # of the person who prepared the form, as well as the date it was prepared.

4. Enter page numbers, i.e. 1 of 1, 1 of 3, etc. Use a separate form for each building.

5. If project costs for this building are not all ACM related, enter non ACM% on this line.

6. Enter location within building from which material was abated such as floor, wing, room, etc.

7. Enter the approximate amount in square feet, linear feet or number under the column of the type of material that was abated. USE A SEPARATE LINE FOR EACH DIFFERENT TYPE OF MATERIAL.

8. Enter the type of abatement (removal, enclosure, encapsulation or repair) that was performed.

9. Enter the percent of the total project cost that is associated with the abatement of this type of material. THE PERCENT OF COST MUST ADD UP TO 100% WHEN ALL PAGES ARE ADDED TOGETHER

ASBESTOS ABATEMENT PROJECT SUMMARY

① **CDB Project No. _____ - _____ - _____**

CDB Building Name:	②	**Use a separate form for each building.**		④ **Page _____ of _____**
CDB Building Number:	②	**The Total of all pages together will be 100%.**		
Prepared by:	③	**Phone: (③) _____**		**Date: ③ _____**

	A S B E S T O S M A T E R I A L T Y P E												
Location (Wing, Floor, Room, Etc.)	**Mag Block**	**Air Cell**	**Other TSI Specify\: _____**	**Acoustic Spray-On**	**Fire-PF Spray-On**	**Hard Plaster**	**Ceiling Tile**	**Floor Tile**	**Mastic**	**Tran-site**	**Other Specify: _____**	**Type of Abate-ment**	**Percent of Cost**
⑤ ***If project costs for this building are not all ACM abatement-abated, enter non-ACM % on this line.***													
⑥	⑦											⑧	⑨
			FOR INFORMATIONAL PURPOSES										

ASBESTOS ABATEMENT PROJECT SUMMARY

CDB Project No. _____ - _____ - _____

CDB Building Name: _____

CDB Building Number: _____

Prepared by: _____

Use a separate form for each building.

The Total of all pages together will be Page _____ of _____ 100%.

Date: _____

Phone: (____) _____

	ASBESTOS MATERIAL TYPE												
Location (Wing, Floor, Room, Etc.)	Mag Block	Air Cell	Other TSI Specify: _____	Acoustic Spray-On	Fire-PF Spray-On	Hard Plaster	Ceiling Tile	Floor Tile	Mastic	Transite	Other Specify: _____	Type of Abate-ment	Percent of Cost

APM FINAL REPORT REQUIREMENTS

Within 60 days of final clearance testing, the Asbestos Project Manager will submit the Final Report to the following:

A/E:	1 copy
Contractor:	1 copy
Using Agency:	2 copies
CDB:	1 copy
I.D.P.H.:	1 copy (if applicable)

The A/E shall distribute the reports in electronic format with letters of transmittal sent to the CDB Project Manager.

Reports for IDPH-regulated projects shall be submitted on hard-copy, unbound, with tabs. The following information shall be provided on the front cover sheet:

Job Title	Building Name		Building No.
CDB Project Number			
Using Agency	City	County	State
APM/ASP	Name and Address		
Project Designer	Name and Address		Seal and Signature
Date	Date of Final Clearance		
CDB Logo			

The Final Report is to have a Table of Contents. Each Section of the Report is to be tabbed and titled. Pages within each Section are to be numbered. The report shall follow the IDPH format, shall be submitted to CDB and to the Using Agency in an electronic format and shall include the following:

Section A) Project Manager's Report Form provided by IDPH.

Section B) Items submitted by the Contractor under Section 833.350(a).

Section C) For clearance air samples, include the location of the sample, start and end times of sampling, sampling air flow rate, volume of air sampled, name and address of laboratory performing the analysis and name and address of the analyst.

i) When final air clearance monitoring samples are analyzed by a laboratory using TEM, include a copy of the NVLAP certificate for airborne fiber analysis for the laboratory.

ii) When final air clearance monitoring samples are analyzed by PCM in a laboratory, include a copy of the Proficiency analytical Testing (PAT) program's year-to-date performance report for the laboratory.

iii) When final air clearance monitoring samples are analyzed by an analyst outside of a laboratory, include a copy of the report of the performance testing under the Asbestos Analyst Registry (AAR) Program for the analyst for the testing round completed prior to the completion of the project, but not after the completion of the project.

Section D) Names, license numbers, current training certificates and medical clearance certificate for asbestos abatement workers who conducted the abatement.

Section E) Name, address and license number of the asbestos contractor.

Section F) Names, addresses, license numbers, initial and current training certificates and certificate of medical clearance for the project designer, project manager and contractor's supervisor(s) and signature of the project manager.

Section G) Name, signature and license number of each air sampling professional.

Section H) Log of negative pressure measurements taken by the contractor for contained areas. The readable tape for the manometer shall serve as the log. This is only applicable to IDPH-regulated projects.

Section I) Variance requests submitted to CDB and/or IDPH and the responses to those requests.

Section J) Locations, times and results of background, personal and area air samples taken prior to and during the project.

Section K) A detailed description, diagram or blueprint indicating the location of ACBM abated, locations of barriers and locations of decontamination enclosures.

Section L) A detailed description of the project, including abatement methods employed, reasons for the project and for the selection of abatement methods, description of types and amounts of ACBM abated, and start and completion dates of the project.

Section M) Daily log of observations made by the project manager, including a description of project activities, documentation of smoke-testing of barriers by the contractor, documentation of post-abatement visual inspection of each work area, and description of procedures used during clearance air sampling.

Section N) Items submitted by the contractor under Section 855.350(c)(d).

Section O) For cleaning performed in accordance with Sections 855.400(f)(1)(A), (D) and (E), include the names of persons performing the cleaning, the date and locations of the cleaning and the methods used.

Article 3 GUIDELINES FOR LEAD

3.1 General

The majority of paint manufacturers utilized lead (Pb) paint formulations prior to 1978. In 1978, the use of lead-based paint for residential use was banned; in 1990 lead-based paint was prohibited for CDB projects. Most paints today do not contain quantities of lead sufficient to be categorized as lead-based coatings; however, there are still some paints which do contain sufficient lead to be categorized as lead-based.

3.2 Sampling (paint chip) & Testing (XRF)

As required by the Professional Services Agreement, the A/E shall provide for the selective testing of materials to be affected by the project. The A/E shall recommend to CDB the number of samples to be taken, and written approval shall be issued by the CDB Project Manager prior to testing. Existing materials integral to the project shall be tested, as well as any adjacent materials that are affected by the construction. Such materials shall be categories as CDB recommends: walls, ceilings and trim (windows, doors and frames) - 5 samples per category. Sampling shall be conducted by a licensed inspector. If sample analysis is required, then the laboratory used shall be accredited by the Environmental Lead Laboratory Accreditation Program.

Paint containing more than five-tenths of one percent (½% or 0.5%) lead by weight is considered lead-based paint (LBP). Costs incurred in the sampling and testing of materials are reimbursable expenses. Results of the testing shall be included in Section 02 83 19 of the Project Manual.

3.3 Design

Should testing indicate the presence of LBP, regulations established by the Occupational Safety and Health Administration (OSHA) and the Illinois Environmental Protection Agency (IEPA) are applicable to the project. If the project site is utilized for either public housing or for day care purposes, then guidelines established by the U.S. Department of Housing and Urban Development (HUD) are applicable as well.

In the project documents, identify all LBP. The A/E shall indicate in 01 11 00.2.B. of the Project Manual the existing conditions where lead paint is located. See the attached example. Specify remediation in Section 02 83 19 Lead-Based Paint Removal. IDPH notification is required only in residential and day care projects.

If asbestos abatement activities are being conducted in conjunction with lead remediation, then the A/E shall maximize all opportunities to combine similar activities and equipment items such as containment barriers and negative-air machines.

Clearance sampling shall be required following all LBP-related activities and shall conform to current HUD requirements. All interior LPB removal shall be conducted within containment areas. Critical barriers shall be maintained, drop cloths shall be utilized on floors and additional protection of adjacent finishes shall be provided as necessary. If removal is to occur adjacent to an occupied area, or if the site is to be re-occupied, then negative air pressure is required within the containment area. Containment utilizing opaque barriers may be required for all exterior removal

3.4 Construction

The Lead Construction Standard (OSHA 1926.62) has been in effect since June 4, 1993 and all construction activities shall be conducted in accord with this standard. The permissible exposure limit (PEL) for lead is 50 micrograms per cubic meter ($\mu g/m^3$) and the action level is 30 $\mu g/m^3$. Both levels are for an 8-hour time weighted average (TWA). The OSHA standard also requires contractors to perform an exposure assessment for each project. It is the responsibility of the A/E to provide on-site representation during the critical activities.

3.5 Disposal

If demolition/construction debris containing LBP still adhered to the substrate is generated from a non-residential structure, the waste may be handled as general refuse. However, if the LBP is removed from the original substrate to which it was adhered, then the waste is a special waste. The waste shall be analyzed by the Toxicity Characteristic Leaching Procedure (TCLP). LBP waste that meets the definition of special waste is hazardous if it has a concentration of lead equal to or greater than 5.0 mg/l as determined by TCLP. In addition, other parameters shall be below the regulatory limits for toxicity and other characteristics and listings. The Resource Conservation Recovery Act (RCRA) establishes LBP regulations. The handling and disposal of hazardous waste shall be conducted in accordance with the RCRA regulations applicable to the activity being conducted. LBP waste shall be stabilized prior to disposal in a facility that is permitted by IEPA to accept the waste.

3.6 Transportation of LBP Waste. Anyone who hauls or transports special waste shall have a current, valid waste hauling permit issued by the IEPA.

Note: Any person who is transporting special waste for a generator who generates less than 100 kilograms (220 pounds) of special LBP waste in a calendar month is exempt from this requirement. The Contractor shall submit all waste manifests to CDB with their respective pay request.

3.7 Indemnification. The State of Illinois will indemnify A/E's for testing and contractors for remediation in accord with the Response Action Contractor's Indemnification Act (RACIA).

3.8 References

A. IDPH Notice of Commencement, Lead Abatement/Mitigation Project.

3.9 Attachments

A. Section 01 11 00 - Project Summary with Sample Language for Lead Abatement

1. GENERAL

A. STANDARD DOCUMENTS FOR CONSTRUCTION: CDB's (*2006) edition of the "Standard Documents for Construction" shall apply to this project.

B. **IN-HOUSE ARCHITECT/ENGINEER: (OPTIONAL PARAGRAPH) The staff of (*Agency) has prepared the bidding and contract documents for the project and will assume the duties of the A/E described in the Standard Documents for Construction*.

2. **GENERAL PROJECT INFORMATION**

A. DESCRIPTION:(*)

B. EXISTING CONDITIONS:

1. Paint (*) in this project (*location and extent) has been determined to contain lead (Pb) as indicated in the documents. Any work which will disturb the paint (*) shall comply with OSHA 1926.62 (Lead Construction Standard) and EPA disposal regulations including TCLP testing when required.

C. RELATED WORK

1. WORK BY OTHERS:

2. FUTURE WORK:

Article 4 UNDERGROUND STORAGE TANKS

4.1 UST/Regulatory Responsibilities

A. The Office of the State Fire Marshall (OSFM) is charged with enforcing the regulations regarding USTs and ASTs in Illinois. Technical questions regarding USTs or ASTs should be addressed to that office. Permits are issued by the OSFM for tank removal, abandonment and new installations. Fire safety is handled by the Chicago Office of the Fire Marshal.

B. Illinois Emergency Management Agency (IEMA) is notified when a release of product is discovered and forwards this information to the IEPA for eventual enforcement of clean-up. In case of fire hazards or life safety issues, they will be first line of authority.

C. The Illinois Environmental Protection Agency (IEPA) will be involved with site classifications, site remedial activities and final approval of site cleanup.

D. The Capital Development Board is the construction management arm of State government, as such the CDB is involved with A/E selection, contract administration, bid advertisement and project management.

4.2 Contract Person and Phone Numbers

IEPA: Cliff Wheeler or Russ Irwin 217/782-6761
(Environmental requirements)

OSFM: Dale Tanke or Bill Alderson 217/785-5878
(UST removal/installation permits)
Ken Woods 312/814-2693
(Fire safety issues or questions)

IEMA: 17/782-7860 (To report a release from an UST)
Must be reported within 24 Hrs.

CDB: Lisa Mattingly 217/524-6408 (Environmental programs)
Stan Gralnick 217/782-1523 (Programming or funding questions)

4.3 References

A. Sample Specification Section 02 65 00 - Underground Storage Tank Removal
B. Sample Specification Section 02 61 00 - Excavation, Transportation and Disposal of Contaminated Soil
C. Sample Specification Section 02 70 00 - Removal of Contaminated Groundwater
D. Sample Specification Section 33 56 13 - Aboveground Storage Tank Installation

4.4 Attachments.

A. Document 00 41 00 - Bid Form -- Example with Unit Prices for USTs

NAME OF FIRM

FOR (* Trade) WORK

BID FOR: CDB PROJECT NUMBER: (*___-___-_____)

PROJECT TITLE: (*)

BID TO: State of Illinois, Capital Development Board

THE BIDDER ACKNOWLEDGES THE FOLLOWING ADDENDA: (Failure to acknowledge may cause bid rejection.)

NO._____, DATED _____ NO._____, DATED _____ NO_____, DATED_____

NO._____, DATED _____ NO._____, DATED _____ NO_____, DATED_____

EACH BID SHALL INCLUDE:

A. THE BID FORMS, INCLUDING THE PC-2 FORM (00 41 04) AND THE MBE/FBE FORM (00 41 05)).
B. BID SECURITY (00 41 06)
C. PRODUCT SUBSTITUTION FORM (00 41 07) (at Bidder's option)

*UNIT PRICES: ITEM DESCRIPTION	UNIT OF COST	ESTIMATED QUANTITY		UNIT PRICE		COST EXTENSION
1. *02 61 00-Excavating, Transporting, & Disposal of Contaminated Soil	(*Ton)	(*)	X	$	=	$
2. *02 70 00-Removal of Contaminated Water	(*Gal.)	(*)	X	$	=	$
3. *312323-Additional Backfilling & Compacting	(*CY)	(*)	X	$	=	$
4. *CONTINUE AS APPROPRIATE	(*)	(*)	X	$	=	$

SUM OF ALL UNIT PRICE COST EXTENSIONS (TO BE INCLUDED IN THE BASE BID PRICE) =
$_____

BASE BID: THE BIDDER AGREES TO PERFORM ALL WORK FOR THE ABOVE TRADE, EXCLUSIVE OF ALTERNATE BIDS, FOR THE SUM OF:

_____ DOLLARS ($____)

Article 5 PCBs

5.1 Federal Regulations. There are two primary Federal Laws which affect the disposal of PCB ballasts:

A. Toxic Substances Control Act (TSCA)

B. Superfund Law (Comprehensive Environmental Response, Compensation and Liability Act or "CERCLA")

TSCA states that it is permissible to dispose of non-leaking ballasts in a sanitary landfill, while Superfund prohibits the disposal of more than one pound of PCB's (16 or more ballasts) in a sanitary landfill. Prudent policy would follow the more stringent of the two regulations.

5.2 TSCA. TSCA does not regulate the disposal of non-leaking, intact "small capacitors", defined as containing less than three pounds of PCB dielectric fluid. Ballasts contain a small capacitor and are unregulated for disposal.

A. The exceptions to this rule are as follows:

1. If the capacitor or ballast is leaking
2. If the asphalt potting material inside the ballast contains PCB's in excess of 50 ppm.

B. If a ballast meets either criteria, it must be disposed of by incineration in a TSCA approved facility or a chemical waste landfill. For practical reasons it is better to incinerate them.

5.3 Superfund Laws. Under superfund laws, PCB's are listed as a hazardous substance. The release or "threat of release" of more than one pound of PCB's into the environment triggers a superfund notification and cleanup requirement.

Since 16 ballasts collectively contain roughly one pound of PCB's, a conservative interpretation is that 16 or more ballasts in a landfill triggers a superfund action.

5.4 State Regulations. It is recommended that the State Environmental Protection Agency be contacted for specific requirements for each project.

5.5 Identifying PCB Ballasts. Nearly all ballasts made prior to 1979 contain PCB's. Ballasts made after July 1, 1978 that do not contain PCB's are required to be clearly marked "No PCB's".

Most ballasts contain a date stamp in the metal base plate. Look for both the date stamp and the "No PCB's" marking. Unmarked ballasts should be classed as PCB ballasts. Sort PCB vs Non-PCB ballasts because of the difference in disposal or recycling cost.

5.6 Identifying Leakers . Most leaks are visible. If oil is visible on the surface of the ballast, it is a leaker. PCB oil is either clear or yellow. The presence of asphalt may indicate a leaker but is not a positive indication. If in doubt, treat as PCB contaminated.

5.7 Ballast Removal.

A. Wear proper chemical resistant protective gloves and clothing.

1. Clip off wire leads on the ballast as close as possible to the ballast.
2. Pack ballasts in steel drums and label. Most people use 55 gallon drums.
3. Leakers should be placed individually in double plastic bags before putting in drums.

B. A drum can hold approximately 200 ballasts, but loaded drum weight should not exceed 750 pounds for safety purposes.

5.8 Drum Labeling . Check with the Illinois Environmental Protection Agency for latest requirements.

5.9 Disposal.

A. Options
1. Chemical waste landfill (recommended with reservations)
2. Whole ballast incineration in PCB incinerator (recommended)
3. Capacitor removal/incineration and recycling (recommended)

B. Waste Manifests - the contractor shall submit all waste manifests to CDB with their respective pay requests.

5.10 PCB Leaks.

Because of the small amount of PCB's in a ballast, notification is not required, unless the leak is into surface waters, sewers or drinking water. All leaks must be cleaned up and area decontaminated. All solvents, rags and other materials used in the cleanup must be properly disposed of as PCB waste.

5.11 References.

A. Sample Specification Section 02 84 00 - PCB Containing Equipment Removal and Disposal