Title 22. Public Property
Chapter XVII. Building Authority Division, Department of Shared Administrative Services
Subchapter B. Building Authority Minimum Standards and Criteria
Part 111. Design Review Section
Subpart 1. Design Professional Services Selection Procedures

22 CAR § 111-101. Design professional services selection procedures generally.

(a)(1) To ensure an equitable opportunity for all practicing design professionals and in accordance with the Building Authority Division Act, Arkansas Code § 22-2-101 et seq., the Building Authority Division has initiated the following procedures that shall be followed to select firms or individuals to perform professional services for capital improvement projects.

(2) All departments except as exempted by law are required to use the MSC.

(b) Departments shall comply with the Department of Shared Administrative Services, Office of State Procurement guidelines and policies in the development of requests for qualifications, structure of evaluation committees, and evaluation of responses in the solicitation, evaluation, and selection of design professional under this part.

(c) Any reference to the words "the section" within this part shall mean the Design Review Section.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-102. Selection authority schedule.

(a)(1) Departments' whose funds have been appropriated by the General Assembly to the department or appropriated to the Building Authority Division for specific buildings within Pulaski County shall have the responsibility for selecting the design professional.

(2) Any questions regarding the interpretation of this method should be directed to the Design Review Section.

(b) Departments desiring to enter into a professional services agreement wherein the contemplated fee, exclusive of reimbursable expenses, is twenty thousand dollars ($20,000) or less, may contact any qualified provider without division approval and negotiate an agreement for the required services.

(c)(1) Departments desiring to enter into professional services agreements where the contemplated fee, exclusive of reimbursable expenses, does not exceed fifty thousand dollars ($50,000), may utilize a purchase order for these services in accordance with Arkansas Code § 19-11-1012(b)(9)(A).

(2) Departments may enter into such purchase order agreements without prior approval of the division.

(d)(1) Departments desiring to enter into a professional services agreement wherein the contemplated fee, exclusive of reimbursable expenses, is more than twenty thousand dollars ($20,000) but less than seventy-five thousand dollars ($75,000), may solicit qualifications from three (3) or more qualified providers without division approval.

(2) Departments should review Arkansas Code § 19-11-801 before initiating the process.

(3) The following is the recommended process:

(A) Issue a letter of request to the selected firms describing the nature of the services desired, the description of the project contemplated, and require interested parties to submit a statement of qualifications and or pertinent information;

(B) Form a selection committee to evaluate the qualifications of the respondents and select the firm or individual to negotiate with;

(C)(i) Should negotiations for a fee of less than seventy-five thousand dollars ($75,000) fail, departments may approach their next selection and initiate negotiations.

(ii) If negotiations are unsuccessful with all respondents, the department should determine to terminate the selection process and either reevaluate

the scope of services required and begin this process over or move to the formal selection process described in this part;

(D) While these agreements seventy-five thousand dollars ($75,000) or less are not submitted to the division for prior approval, departments must report the agreements to the Office of State Procurement in accordance with their rules; and

(E)(i) While division approval is not required for contracts fifty thousand dollars ($50,000) or less, departments can make a written request for division assistance in the selection process.

(ii) See 22 CAR § 111-103 on the process of written requests.

(e) Departments desiring to enter into a professional services agreement where the contemplated fee, exclusive of reimbursable expenses, exceeds twenty-five thousand dollars ($25,000) shall follow the procedures described in 22 CAR §§ 111-103 – 111-107.

(f) Selection of design professionals and consultants will be coordinated by the State Architect or State Engineer or designee depending upon their respective or related fields.

(g)(1) Departments desiring to enter into a sole-source professional services agreement wherein the contemplated fee, exclusive of reimbursable expenses, exceeds five thousand dollars ($5,000) shall follow the procedures established by the office.

(2) Upon office approval of a contract which exceeds fifty thousand dollars ($50,000) in fees (excluding reimbursables), the department shall attach a copy of the justification and approval to the contract when submitting for division review.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-103. Authorization to conduct selection.

(a)(1) Advertising shall not be implemented until approved by the Design Review Section.

(2) The Design Review Section shall assign the solicitation process the appropriate request for qualifications (RFQ) number for tracking purposes.

(3) This RFQ number shall be:

(A) Referenced on all documents and correspondence related to the selection process; and

(B) Shown on the lower left-hand corner of the first page of the professional services contract.

(4) Any department requiring design professional services or other appropriate consultants, regardless of the nature of funding, shall submit by letter their intentions, and request "Authorization to Proceed" from the Design Review Section, providing the following information:

(A) Department name and project;

(B) Location of project;

(C) Description of services desired;

(D) Source of funding;

(E) Description of the work to be accomplished and approximate square footage where applicable;

(F) Approximate time frame for the anticipated need to start and complete the project;

(G) Department project coordinator and telephone number;

(H) Estimated cost of the construction project or estimated total fees that will be expended over the life of the contract; and

(I) Acknowledgement that the department has the RFQ document ready for distribution.

(b) **Draft of advertisement, name of newspapers advertising in, and deadline for submitting advertisement.**

(1) Notice shall be placed on the Building Authority Division website.

(2) Published notices shall run at least one (1) time.

(3) The date of publication shall not be less than one (1) week before the day fixed therein for the receipt of the responses.

(4) See 22 CAR § 111-106, exception.

(c) The draft advertisement should contain but not be limited to the following information:

(1) Advertisement cost billing information from the department including the name, address, and phone number of the purchasing official to which all invoices should be submitted;

(2) Notice to the design professional as needed (i.e., architects, engineers, environmental consultants, or specialized fields such as electrical engineers);

(3) Name of the department, division, and location of the project, and RFQ number;

(4) A brief description of the project, including the approximate square footage for new construction or renovations and the desired services;

(5) The desired deadline for responses to the request for qualifications;

(6) Instructions for obtaining a copy of the request for qualifications package (i.e., website address, telephone number, contact name); and

(7) The name, address, and phone number of the department person to whom the responses should be directed.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-104. Public notifications required.

(a) After approval by the Design Review Section to conduct selection procedures, the selecting department shall be required to publish a notification that design professional services are being solicited.

(b) A notice shall be published in at least one (1) statewide newspaper for each project pursuant to the advertisement criteria under 22 CAR § 111-103(c).

(c) Departments are encouraged to utilize other methods for publication including newspapers or trade journals with general circulation in the county where the project will be located.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-105. Design professional qualifications.

The following are minimum qualifications required for design professionals desiring to contract for design services with the state:

(1) All design professionals shall demonstrate their capability to perform the design of the project to the satisfaction of the selection committee;

(2) All design professionals, except for geotechnical engineers, whether prime or serving as consultants to the prime, shall have in force professional and general liability insurance in the amounts shown in 22 CAR §§ 111-312 and 111-313 and proof of compliance shall be attached to all standard professional services contracts; and

(3)(A) All design professionals, whether prime or serving as consultants to the prime, shall be licensed in their respective disciplines in Arkansas or shall be capable of being licensed and shall do so immediately in accordance with their respective licensing entities, if awarded the project.

(B) Bid documents shall not be released to bidders without a design professional's Arkansas registration stamp or seal and signature as evidence of compliance.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-106. Responding procedures.

(a) Allow a minimum of one (1) week after the last advertisement for the receipt of responses from interested design professionals.

(b) Responses shall be:

(1) In writing and in the format stipulated in the RFQ (fax and email are not acceptable); and

(2) Addressed to the department official identified in the RFQ document.

(c) For projects that are large, complex, or might require the services of an out-of-state design or consultant firm, allow a minimum of no less than two (2) weeks.

Authority. Arkansas Code § 22-2-108.

Codification Notes. "RFQ" means request for qualifications.

22 CAR § 111-107. Selection method.

(a) After the response period, if the receiving department decides to proceed, it shall take one (1) of the following actions:

(1)(A) For design professional type services or single project contracts wherein the estimated construction cost is less than one million dollars ($1,000,000), pursuant to Arkansas Code §§ 19-11-801 — 19-11-805, departments may select a design professional from annual statements of qualifications on file with the department.

(B)(i) Nothing in this policy shall prohibit a department from conducting an individual solicitation for on-call services or single projects regardless of estimated cost.

(ii) Departments shall issue a public notice of their intent to solicit annual statements of qualifications and performance data from interested design professionals in accordance with 22 CAR § 111-104.

(iii) Departments shall maintain qualifications received on file for a period of not more than twelve (12) months after closing date of solicitation.

(iv)*(a)* When a department has a need for design professional services, the department shall notify the Design Review Section of the need and the type of services desired.

(b) The department shall select no less than three (3) qualified firms or individuals from the qualifications on file and shall submit the names of the firms or individuals selected for consideration to the Design Review Section.

(v)*(a)* The Design Review Section shall review the list of consultants and the scope of the services desired to determine that the correct type of design professionals are being considered.

(b) Upon a favorable determination, the Design Review Section will issue a letter of authorization and the department may then proceed with the selection process.

(c) The Design Review Section may request additional information as necessary to conduct this review.

(vi)*(a)* Departments shall evaluate the qualifications of the consultants and select the best qualified candidate capable of providing the desired services and negotiate a contract.

(b) The department shall conduct oral interviews of all selected candidates prior to making the final selection.

(vii)*(a)* Departments shall initiate a contract with the design professional and then submit it to the Office of State Procurement for review, approval, and processing.

(b) Prior to final approval, the office submits contracts and amendments for the Design Review Section to review which are under its jurisdiction.

(c) The department may request the assistance of the Design Review Section in the negotiation phase of the contract development; or

(2)(A) For project-specific contracts wherein the estimated construction cost is over one million dollars ($1,000,000) per project, departments shall select design professionals from qualifications received from a specific public notification of request for qualifications.

(B)(i) The department shall convene the Preliminary Selection Screening Committee.

(ii) The Preliminary Selection Screening Committee shall be composed of no less than three (3) members from the department desiring design professional services.

(iii) It is recommended that members should have subject matter experience or expertise in the areas the project will affect, and/or financial management, contracting, or experience managing construction or design professional services contracts.

(C)(i) The Preliminary Selection Screening Committee shall meet at a designated time and place and review all responses.

(ii) There shall be no more than five (5) finalists selected.

(iii) A minimum of three (3) finalists may be selected for smaller, low budget projects (under five million dollars ($5,000,000)).

(iv) The department may request the assistance of the Design Review Section during the selection process.

(v) If requested, a Design Review Section representative will be assigned to the Preliminary Selection Screening Committee to guide the Preliminary Selection Screening Committee through the process but shall not vote.

(vi) If five (5) or less firms (three (3) or less for smaller projects) respond, the department may submit a written request to the Design Review Section for a waiver from the preselection process provided the department agrees to interview all firms that responded.

(vii) If only one (1) firm responded, the department may:

(a) Submit a written request to the Design Review Section for a waiver of the preselection and interview process; and

(b) Begin negotiations with the firm that responded to the advertisement.

(viii) The department may also request authorization to begin the selection process over.

(ix) Nothing shall prohibit an agency from interviewing more than the initial five (5) finalists, if the department determines that is in its best interest and receives written approval of the Design Review Section.

(D) Upon completion of the preselection process, the Preliminary Selection Screening Committee chairperson shall complete the Design Professional Selection Tracking Form and return it to the Design Review Section with the following information:

(i) List of all responses received;

(ii) List of respondents selected for evaluation;

(iii) List of respondents selected for interview; and

(iv) List of Preliminary Selection Screening Committee members.

(E) Within three (3) working days, the department shall notify all responding applicants by mail of the selection results, naming the finalists selected for interview.

(F)(i) The Final Selection Screening Committee shall be made up of the Preliminary Selection Screening Committee.

(ii) While it is recommended that no substitution of members of the Final Selection Screening Committee occur, if more than three (3) members served on the Preliminary Selection Screening Committee, departments may reduce the number to a minimum of three (3) members.

(G)(i) The final selection shall be made by the department following the interviews and oral presentations from the finalists selected by the Preliminary Selection Screening Committee.

(ii) Finalists shall be notified of the time and location of the interview at least ten (10) days in advance of .

(iii) **Exception.** Allow fifteen (15) working days for projects that are large or complex and that may require the services of an out-of-state design or consultant firm.

(H)(i) Each finalist shall be given a specific time to make their presentation and a time schedule to follow.

(ii) The order of presentations shall be determined by random drawing during the preselection process.

(I)(i) Preliminary designs or suggested designs shall not be permitted during the selection process and shall be grounds for disqualification.

(ii) However, audio/video presentations and boards may be used to help communicate so the firm understands the nature of the proposed project and unique design challenges that may be encountered.

(J) Nothing in this subchapter shall be construed to prohibit a Building Authority Division representative from attending any preselection or final selection proceeding for the purposes of auditing the process.

(K)(i) The department shall forward the name of the design professional selected to the Design Review Section within two (2) working days after the final selection is approved by the department.

(ii) This notification becomes part of the permanent record and the department shall notify all finalists of the interview results.

(iii) Upon notification to the selected design professional, the department shall:

(a) Initiate a contract with the design professional; and

(b) Submit it to the office for review, approval, and processing.

(iv) The office shall forward the contracts and amendments subject to division review to the Design Review Section.

(v) Departments may request the assistance of the Design Review Section in the negotiation phase of the contract development.

(b)(1) Departments shall be responsible for maintaining a complete record of the selection process from initiation through execution of the contract and contract closeout.

(2) This record shall include copies of all qualifications, scoring, notes, and correspondence, including the firms not selected for consideration.

(3) The division is responsible for maintaining documents or copies thereof which have been submitted in the approval process.

(c)(1) At the conclusion of the selection process, the department shall submit to the Design Review Section:

(A) A CD or portable electronic device containing a copy of the initial request to begin the selection process;

(B) Design Review Section letter of authorization to proceed;

(C) The advertisement publication (tear sheet);

(D) A copy of the RFQ documents;

(E) One (1) complete copy of each respondent's qualification package received;

(F) A copy of the completed division tracking form; and

(G) Copies of all letters of notification.

(2) The professional services contract may not be approved until receipt of this information.

(3) To facilitate tracking, the contract shall reference the assigned RFQ number.

(4) The CD submitted to the division should be labeled with the RFQ number and project name or type of services requested.

Authority. Arkansas Code § 22-2-108.

Codification Notes. "CD" means compact disc.

"RFQ" means request for qualifications.

Subpart 2. Standard Fee Schedule for Professional Services

22 CAR § 111-201. Standard fee schedule for professional services generally.

(a) The fees shown in the schedule in 22 CAR § 111-212 are the maximum that will be allowed and are considered necessary for the performance of adequate professional services, unless exempted by law.

(b) Any increase beyond the scope of the fee schedule must be approved by the Director of the Building Authority Division if such increases are determined to be in the best interests of the state.

Authority. Arkansas Code §§ 22-2-107, 22-2-108.

22 CAR § 111-202. Design professional's basic services defined.

(a)(1)(A) When referred to in the following fee schedules, basic services shall be defined as follows and includes all the services of the architectural, landscape architect, civil, mechanical, electrical, and structural consultants under one (1) basic fee.

(B) For review of funding and department programs, refer to 22 CAR § 111-402 – 111-405.

(2)(A) Estimate of probable construction cost.

(B) Provide a separate line item for each of the technical specification divisions.

(3) Perform life cycle cost analysis of building components and systems in accordance with the Arkansas Energy Office of the Division of Environmental Quality rules for Energy Efficiency and Natural Resource Conservation, 22 CAR pt. 10, for new construction projects of a single building exceeding twenty thousand (20,000) gross square feet or aggregate buildings exceeding fifty thousand (50,000) combined square feet of occupied or conditioned space and renovation projects exceeding twenty thousand (20,000) gross square feet or aggregate buildings larger than fifty thousand (50,000) combined square feet of occupied or conditioned space where the estimated construction costs are more than fifty percent (50%) of the current replacement value.

(4)(A) Schematic design, approximately fifteen percent (15%) complete.

(B) To be submitted to the departments only for approval.

(5)(A) Design development, approximately fifty percent (50%) complete.

(B) Include an estimate of the annual operation costs and energy consumption of all utilities, using industry standard average energy use for the building type.

(C) To be submitted to the departments only for approval.

(6) Seismic design as required for projects to comply with Arkansas laws and the current Arkansas Fire Prevention Code, 12 CAR pt. 15.

(7)(A) Construction documents.

(B) One hundred percent (100%) complete documents to be submitted to the departments for review then submit to the Design Review Section for review and approval.

(C) Include an up-to-date copy of the estimated annual operation cost and energy consumption submitted with the design development documents.

(D) Consumption data shall be expressed in terms of total BTUH/SF/YR for new buildings and additions over twenty thousand square feet (20,000 ft^2) and for renovations exceeding twenty thousand square feet (20,000 ft^2) wherein the estimated cost of the renovation exceeds fifty percent (50%) of the insured value of the building.

(E) For all other projects, consumptions shall be expressed as total BTUH/YR for the affected work.

(8) Department reviews as applicable, which includes but is not limited to the Building Authority Division, the State Fire Marshal, and the Department of Health.

(9) Advertisement, bidding of project, and contract negotiations as required to conform to the project funding.

(b) Basic services also includes periodic construction observation (site visits) by the prime design professional and all consultants at key critical times for that applicable portion of the work for which they are involved during construction and construction administration, including:

(1) Contract, bonds, insurance requirements review, coordination of contract documents, and processing to the Construction Section;

(2) Shop drawings and material submittal reviews by the appropriate design professional or consultant;

(3)(A) Periodic observation reports, a minimum of one (1) per month, complying with 22 CAR § 111-1606, "Design professional project observation requirements", prepared by the design professional and appropriate consultants and furnished to the department and the Construction Section.

(B) Include subconsultant site visit or visits and observation report or reports which are provided with the prime design professional's observation report and certification of contractor's payment applications;

(4)(A) Monitor and ensure that all department operations, orientation, training, and equipment manuals are submitted, reviewed, approved, and transmitted to the department.

(B) Acknowledgment of this transmittal shall be included in the final closeout documents;

(5) Receive for the department from the contractor "record" drawings and all project close-out items pursuant to 22 CAR § 112-501 – 112-505 and prepare a CD containing the record documents; and

(6) Follow up inspection by all parties within thirty (30) days prior to the expiration of the one-year contractor's warranty.

Authority. Arkansas Code §§ 22-2-107, 22-2-108.

Codification Notes. "BTUH/SF/YR" means British Thermal Unit per hour per square foot per year.

"BTUH/YR" means British Thermal Unit per hour per year.

"CD" means compact disc.

22 CAR § 111-203. Architectural and building-related engineering services fees.

(a)(1) Fees shall be based on the design services fee schedule shown in 22 CAR § 111-212.

(2) This fee schedule is to be used for all architectural, civil, landscape architecture, structural, and electrical design professional services.

(3) These fees shall be considered part of basic services for a project as defined in 22 CAR § 111-202.

(b) The fee schedule shall be used to determine the base fee computed based on the design professional providing all basic services multiplied by a percentage of the total construction cost.

(c) Unless otherwise negotiated, base fees shall include the full services of all normal consultants, i.e., civil, architectural, landscape, structural, mechanical, and electrical, per 22 CAR § 111-202.

(d)(1) All standard professional services contracts, negotiated as a percentage of construction cost, shall pay compensation to the design professional based on actual construction cost, including all negotiations and change orders through final acceptance and payments to the contractor.

(2) Estimated construction cost, as approved by the department, shall be used until the bids are accepted or if the project is canceled.

Authority. Arkansas Code §§ 22-2-107, 22-2-108.

22 CAR § 111-204. Other design professional services.

(a) For boundary or topographical land survey services, refer to 22 CAR § 111-208.

(b) For geotechnical engineering services, refer to 22 CAR § 111-209.

(c) For environmental engineering services, refer to 22 CAR § 111-210.

(d) For interior design services, refer to 22 CAR § 111-207.

(e) For seismic design fee allowance, refer to 22 CAR § 111-205.

(f) For asbestos consultant fees, refer to 22 CAR § 111-211.

Authority. Arkansas Code §§ 22-2-107, 22-2-108.

22 CAR § 111-205. Seismic design fee allowances.

(a) For projects requiring seismic design and certification to comply with Arkansas laws and the current Arkansas Fire Prevention Code, 12 CAR pt. 15, fees may be increased, with the approval of the Design Review Section, as follows:

(1) Arkansas Seismic Design Categories A, B, and C — Basic services as defined in 22 CAR §§ 111-201 and 111-202;

(2) Arkansas Seismic Design Category D — Multiply base fee only, up to one and four-hundredths (1.04) maximum;

(3) Arkansas Seismic Design Category E — Multiply base fee only, up to one and five-hundredths (1.05) maximum; and

(4)(A) Where applicable, the multipliers may be used to compute the seismic design allowance in Seismic Design Categories D and E only.

(B) These allowances shall be listed under the base fee shown on the standard professional services contract under "Compensation" as "Seismic Design Fee Allowance, Category D (or E) = $ [Amount]".

(C) Do not list as a combined fee.

(b)(1) Compliance with applicable seismic design building codes shall include all Building Authority Division defined structural and normal nonstructural elements.

(2) Refer to 22 CAR § 111-901.

(c) **Additional services for nonstructural elements (all zones).**

(1) Earthquake-resistant design of specific, out-of-the-ordinary items or equipment not listed may require additional services on the standard professional services contract, unless otherwise negotiated.

(2) These additional services may be negotiated on an hourly, lump sum, or percentage of construction cost agreement when approved by the Design Review Section.

(d) **Additional services for dynamic structural analysis.**

(1) If dynamic structural analysis is required for the seismic design of a structure to meet all applicable building codes, the analysis shall be considered an additional service under the standard professional services contract or its attachment, unless otherwise negotiated.

(2) This expense shall not be incurred without the approval of the Design Review Section.

Authority. Arkansas Code §§ 22-2-107, 22-2-108.

22 CAR § 111-206. Specialized consultants.

(a) Fees may be negotiated on a percentage of construction cost, lump sum, or hourly fee (not-to-exceed) agreement with approval by the Design Review Section.

(b) Specialized consultants may include the following specialized fields:

(1) Acoustical;

(2) Theatrical lighting;

(3) Parking;

(4) Food service;

(5) Solar;

(6) Computer;

(7) Exhibit planners;

(8) Building commissioning;

(9) Graphic;

(10) Geotechnical;

(11) Testing;

(12) Land surveying; and

(13) Land planning.

(c) Include a line item for each specialized consultant's fee under "Compensation" in the professional service contract and list as "Additional Services – [TYPE OF CONSULTANT] Fees".

Authority. Arkansas Code §§ 22-2-107, 22-2-108.

22 CAR § 111-207. Interior design services.

(a) A basic interior design service fee not to exceed ten percent (10%) maximum of the total cost of all furniture, draperies, equipment, fixtures, paintings, and artifacts, including the planning and observation of placement and installation, shall be used by all departments.

(b) Extra services desired by the owner shall require prior approval by the Design Review Section.

(c) Include all interior design fees under "Compensation" in the professional service contract and list as "Additional Services – Interior Design Fees".

Authority. Arkansas Code §§ 22-2-107, 22-2-108.

22 CAR § 111-208. Boundary or topographical land surveying services fees.

(a) Boundary or topographical land surveys are considered a specialized engineering service and fees for these types of services shall be negotiated on an hourly, not-to-exceed rate, or a lump sum commensurate with the scope of the survey.

(b) Fees for this type of service require the approval of the Design Review Section.

(c) Prior to finalizing the negotiations, departments shall submit a draft of the scope of the work and the proposed fee arrangement to the Design Review Section.

Authority. Arkansas Code §§ 22-2-107, 22-2-108.

22 CAR § 111-209. Geotechnical engineering services fees.

(a) Geotechnical investigations are considered a specialized engineering service and fees for geotechnical services may be negotiated on an hourly, not-to-exceed rate, or a lump-sum agreement.

(b) If conditions are such that a lump sum (not to exceed) cannot be guaranteed, then a unit price per boring or trench may be included to cover the suspected conditions that may be encountered.

(c) Fees for this type of service require the approval of the Design Review Section.

(d) Prior to finalizing the negotiations, submit a draft of the scope of the work and the proposed fee arrangement to the Design Review Section.

Authority. Arkansas Code §§ 22-2-107, 22-2-108.

22 CAR § 111-210. Environmental engineering services fees.

(a) For projects involving purely environmental engineering services, excluding asbestos consulting services, independent of a new building construction project and where the services of the engineer are contracted directly to the department, the fees may be negotiated on a percentage of the construction cost, lump sum, or hourly fee (not-to-exceed) agreement with approval by the Design Review Section.

(b) Prior to finalizing negotiations, submit a draft of the scope of the work and the proposed fee arrangement to the Design Review Section.

Authority. Arkansas Code §§ 22-2-107, 22-2-108.

22 CAR § 111-211. Asbestos consultant fees.

(a) Asbestos inspection, design, air monitoring, and project management services are considered a specialized consulting service and fees for these types of services shall be negotiated on an hourly not-to-exceed rate, a daily or abatement shift rate, or a lump sum commensurate with the scope of the project.

(b) The Design Review Section shall approve fees for this type of service.

(c) Departments shall submit a draft of the scope of work and the proposed fee arrangement to the Design Review Section prior to finalization of negotiations.

Authority. Arkansas Code §§ 22-2-107, 22-2-108.

22 CAR § 111-212. Design services fee schedule.

(a)(1) The following fee schedule for basic services as defined in 22 CAR § 111-202 is based upon a percentage of the total (final) construction cost including all adjustments (increases and decreases) by change order or negotiations and as modified by the footnotes at the bottom of this schedule.

(2) For projects less than fifty thousand dollars ($50,000) or more than fifty million dollars ($50,000,000), fees may be negotiated subject to Building Authority Division approval.

CONSTRUCTION COST	BASIC FEE
Less than $50,000	As Negotiated
$50,001 to $75,000	9.25%
$75,001 to $100,000	9.00%
$100,001 to $200,000	8.75%
$200,001 to $300,000	8.50%
$300,001 to $400,000	8.25%
$400,001 to $500,000	8.00%
$500,001 to $600,000	7.75%
$600,001 to $700,000	7.50%
$700,001 to $800,000	7.25%
$800,001 to $900,000	7.00%
$900,001 to $1,000,000	6.75%
$1,000,001 to $20,000,000	6.50%
$20,000,001 to$ 22,500,000	6.25%
$22,500,001 to $25,000,000	6.00%
$25,000,001 to $27,500,000	5.75%
$27,500,001 to $30,000,000	5.50%
$30,000,001 to $32,500,000	5.25%
$32,500,001 to $35,000,000	5.00%
$35,000,001 to $37,500,000	4.75%
$37,500,001 to $40,000,000	4.50%
$40,000,001 to $42,500,000	4.25%
$42,500,001 to $50,000,000	4.00%
Over $50,000,000	As Negotiated

(b)(1) Prior to applying any of the modifiers listed below, departments shall submit a request for authorization to negotiate a contract containing these modifiers to the Design Review Section.

(2) The request shall include a description of the services to be added or deleted and the range the department intends to negotiate.

(3) For simple projects such as warehouses, parking lots, parking decks, agricultural facilities or similar, deduct a minimum of one percent (1%) from the fees indicated.

(4) For projects involving the site adaptation of an existing design such as a standard bath house or employee residence, deduct a minimum of two percent (2%) from the fees indicated.

(5) For complex projects such as hospitals, medical or research facilities, or laboratories containing extensive amounts of scientific equipment, add a maximum of one and five-tenths percent (1.5%) to the fees indicated.

(6) For projects involving the renovation of existing structures where accurate as-built information does not exist, add a maximum of two percent (2%) to the fees indicated to allow the design professional to survey the facility and develop accurate plans of existing conditions.

(7)(A) For projects where more intense observation is required to ensure proper execution of the project such as installation of underground utilities and pouring of massive or structural concrete structures, add a maximum of four percent (4%) to the fees indicated.

(B) Departments are encouraged to negotiate these additional fees on an hourly rate not to exceed the four-percent maximum.

(C) These services shall be listed on the professional services under "Compensation" as a separate line item entitled "Additional Project Observation".

Authority. Arkansas Code §§ 22-2-107, 22-2-108.

Subpart 3. Professional Services Contract Development

22 CAR § 111-301. Professional services contract development generally.

(a)(1) All professional service contracts and amendments shall only be submitted on the forms developed and approved by the Office of State Procurement only.

(2) Attachments to these standard forms are permitted and encouraged.

(3) All attachments shall be edited to ensure compliance with applicable rules and laws.

(b)(1) Contracts may be amended to:

(A) Increase or decrease the fees, to add or replace subconsultants, or modify the terms and conditions at any time during the contract period; and

(B) Extend the time annually until the project is completed.

(2) However, the contract may not be amended to extend the time beyond maximum limits for professional services contracts as established by laws and office rules.

(c) All contracts and the selection of the design professional:

(1) Shall be approved by the Design Review Section; and

(2) Must follow all of this subchapter and office rules regarding submission schedules, fees, and reimbursable expenses for reporting and tracking unless exempted by law.

(d) All reports, studies, and budget cost estimates produced under these contracts shall be submitted to the Design Review Section for recording in the same manner as plan reviews.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-302. Project-specific type contracts.

(a)(1) Departments are required to use a project-specific contract for each capital improvement project where the estimated construction cost exceeds one million dollars ($1,000,000) including contingency costs.

(2) These contracts shall not be amended to add additional projects or to increase the scope of the work to add or alter additional buildings, or to make additional improvement to site work or utilities beyond the originally defined scope in the solicitation for design service.

(b)(1) Fees for professional services under this type of contract are customarily based on a percentage of the construction cost as established in 22 CAR § 111-212.

(2) Fee arrangements other than a percentage fee require written justification submitted to the Design Review Section for approval prior to negotiating the contract.

(3) Additional services beyond the basic fee may be added as appropriate and as defined in 22 CAR § 111-201.

(c) Departments may enter into design professional contracts for project-specific types of contracts in which the project is less than one million dollars ($1,000,000).

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-303. Design professional (multiple-project type) contracts.

(a)(1) In some instances, departments may elect to enter into a standard professional services contract with an architect, engineer, or consultant for multiple minor projects or minor projects which are time critical during the contract period.

(2) Do not use the phrases "Indefinite Delivery" or "Open End" when referring to these contracts.

(3) The use of these phrases implies that these contracts will not end.

(4) State contracts must have a finite term and cost.

(5) These types of contracts are referred to as design professional contracts as defined in Arkansas Code § 19-11-1001.

(b)(1) These types of contracts are to provide professional services for small projects and additions, particularly renovation-type and maintenance-type projects, that do not exceed one million dollars ($1,000,000) in construction cost.

(2) These types of contracts are also applicable for feasibility studies, programming studies, budget estimates, technical assistance, emergency damage

recovery projects, and other similar activities involving architectural or engineering expertise.

(c)(1) Fees for each individual project under this type of contract should be based on a percentage of construction cost, lump sum, or an hourly (not-to-exceed) type contract.

(2) A detailed statement of work documents or task order assignment documents should be developed for each assignment defining the scope of the assignment, fee arrangement, completion time, and deliverables required from the consultant at the time of the project assignment.

(3) Fee payments should be closely audited to ensure they do not exceed the maximum allowable fee authorized by the assignment order.

(4) Terms for these contracts must remain the same for the duration of the contract period.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-304. Lump sum or hourly fees (not to exceed).

(a) As an alternative to the fees as a percentage of construction cost set forth in 22 CAR § 111-212, the department may negotiate a lump sum or hourly (not-to-exceed) fee contract, subject to approval by the Design Review Section.

(b) The lump-sum or hourly (not-to-exceed) fee should be based on the estimated construction cost, which is applied the percentages set forth in 22 CAR § 111-212, or a lesser percentage figure may be used if the department determines that portions of the design work can be furnished by other qualified sources.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-305. Additional services fees.

(a)(1) Fees for additional services may be based on lump-sum or hourly (not-to-exceed) unit prices.

(2) Additional services fees shall be agreed upon in writing prior to the encumbrance of expense.

(b)(1) Multipliers for additional services may not be used in an attachment to a professional services contract or invoice for services unless approved by the department and the Design Review Section in the initial standard professional services contract.

(2) Design professionals may include a multiplier only where above normal and lengthy coordination of the additional services of outside specialized consultants is involved and approved by the department.

(3) This multiplier shall not exceed one and one-tenth (1.10) times the actual cost and should be clearly stated in any invoices for payment.

(c)(1) Multipliers shall not be applied to equipment, material, or incidentals furnished to complete a project.

(2) Only consultant or personnel charges are applicable.

Authority. Arkansas Code §§ 22-2-107, 22-2-108.

22 CAR § 111-306. Multipliers for reimbursable expenses.

(a)(1) Certain contracts, such as the AIA document, “Abbreviated”, "Standard Form of Agreement Between Owner and Architect", provide for the use of multipliers when computing the expenses incurred by the architect (design professional), employees, or consultants.

(2) Multipliers shall not be used when submitting invoices during the initial preparation of a standard professional services contract without the written agreement of the department and the Design Review Section.

(3) Multipliers up to a maximum of one and one-tenth (1.10) times the actual expenses for the procurement, coordination, and review of the work required such as legal surveys, geotechnical services, specialized consultants requested by the department may be used only if acceptable to the department and the Design Review Section and are clearly stated and referenced in the standard professional services contract in an attachment.

(b)(1) Reimbursable expenses for material items, printed materials, and reproduction of plans and specifications, testing lab fees, or department review fees shall not be billed or invoiced with any multipliers.

(2) Invoices are accepted for actual expenses incurred only.

(3) Expenses will not be accepted without an invoice.

Authority. Arkansas Code § 22-2-108.

Codification Notes. "AIA" means American Institute of Architects.

22 CAR § 111-307. Acceptable/allowable reimbursable expenses.

(a) Certain expenses will be incurred during a construction project which may need to be included in all standard professional services contracts and included as allowances in the design professional's contract under "Reimbursable Expenses", such as:

(1)(A) Reproduction of design and bid documents (blueprints, printing, electronic media, cost, etc.).

(B) These expenses to the department are limited to those provided the review agencies during the design review phases of the project, the minimum number of sets required to bid the project subject to approval of the department, and the minimum number of sets to be furnished to the successful contractor (22 CAR § 111-1604).

(C) This includes all:

(i) Bid documents;

(ii) Drawings;

(iii) Specifications;

(iv) Addenda;

(v) Negotiated changes; and

(vi) Change orders.

(D) Subcontractors and suppliers requesting additional copies shall be responsible for all printing and shipping costs.

(E) The design professional shall furnish documentation of all printing and delivery cost.

(F) Acceptable documentation for printing cost shall be an invoice on letterhead or business forms from an outside printing company or service.

(G) Invoicing for these services on the design professional's letterhead only is not acceptable;

(2) Land and topographical surveys;

(3) Geotechnical soils testing services and material testing (soils compaction, asphalt, concrete, and similar testing services);

(4) Department review fees, for example, Department of Health plan reviews; and

(5)(A) Postage and delivery expenses (including overnight or priority shipping when authorized by the department) related to transmittal of submittal documents, contracts, pay applications, and correspondence related to the project or contract.

(B) Request for reimbursement of these expenses must be accompanied by a receipt from the provider or a photocopy of the envelope showing the address of the recipient and value of postage when using regular mail where a receipt is not otherwise rendered.

(b) **Travel expenses.**

(1)(A) Out-of-state travel expenses, including airfare, lodging, meals, ground transportation, parking, and tolls for in-state design professionals when specifically requested by the department.

(B) Reimbursement rates shall be subject to the guidelines published by the Department of Finance and Administration for out-of-state travel by state employees.

(2)(A) In-state travel expenses, including airfare, lodging, meals, ground transportation, parking, and tolls for out-of-state design professionals and out-of-state specialized consultants when specifically requested by the department.

(B) Reimbursement rates shall be subject to the guidelines published by the Department of Finance and Administration for out-of-state travel by state employees.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-308. Unacceptable reimbursable expenses.

(a) Professional service contracts and invoices for services shall not list any of the following as a reimbursable expense:

(1) Mileage to and from a project site at any time;

(2) Any other connected travel expenses such as meals, lodging, and parking (except for out-of-state travel when specifically requested by the department);

(3) Facsimile communications (fax);

(4) Long distance telephone expenses;

(5) In-house computer or CAD time or equipment expense; or

(6) In-house printing or reproductions.

(b)(1) This applies to all design professionals and consultants, including geotechnical consultants, whether in-state or out-of-state.

(2) These expenses are considered normal overhead costs covered in the contract agreement and are not reimbursable expenses.

Authority. Arkansas Code § 22-2-108.

Codification Notes. "CAD" means computer assisted drafting.

22 CAR § 111-309. Progress payments to the design professional (rendering of compensation).

(a)(1) While contract requirements may vary greatly, a mutually agreed upon method of rendering of compensation shall be established in the standard professional

services contract under Section V, "Rendering of Compensation", or in a separate attachment.

(2) Compensation may be paid monthly or in stages of completion, but compensation or invoices may not be paid or processed until the department has received that portion of work.

(b) In a normal, average construction project, compensation for services and reimbursable expenses may be paid at the end of the following stages:

(1) Schematic design — Up to fifteen percent (15%) of fee after completion of the owner/department review;

(2) Design development — Up to fifty percent (50%) of fee after completion of the owner/department review, where applicable;

(3) Construction documents — Up to seventy-five percent (75%) of fee after completion of Building Authority Division plan review and approval;

(4) Bidding, negotiations, award, contract administration — Up to eighty percent (80%) of the fee after issuance of notice to proceed;

(5) Construction administration through the final inspection and final punch list preparation up to ninety-five percent (95%) of fee; and

(6)(A) Project closeout — Up to one hundred percent (100%) after processing final pay request and project closeout items (maximum forty-five (45) days).

(B) Refer to 22 CAR § 112-501 et seq., and 22 CAR § 112-601 et seq.

(c) Any supplemental contracts (such as AIA owner/architect agreements) listed as an attachment to the standard professional services contract shall agree to the language and intent for all:

(1) Compensation;

(2) Reimbursables; and

(3) Multipliers.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-310. Projects with fixed limits of construction cost.

(a)(1) Where applicable, the department and the design professional may jointly agree to a fixed limit of construction cost as a condition of a standard professional services contract between the department and the design professional (or on the project assignment form or letter for projects executed under multiple-project type contracts).

(2) If such a fixed limit has been established, the design professional and the department will cooperate to mutually agree with the Design Review Section on contingencies for design, bid climate and price escalation, on building program scope, construction materials, equipment, component systems, and types of construction to be included in the contract documents.

(b)(1) The fixed limit of construction cost shall be included with all plan review submittals to the Design Review Section.

(2) The fixed limit of cost shall be stated in bold letters on the cover sheet of all documents submitted for review.

(3) The cost shall be stated in the following manner, "FIXED LIMIT OF CONSTRUCTION COST = [enter dollar amount]".

(4) This statement shall be removed from the documents prior to publishing for bids.

(5) Budgetary concerns by all parties shall be resolved during program review and the schematic design phase, before the first plan review submittal to the Design Review Section.

(c) Where this fixed limit of construction cost is exceeded, the design professional shall, without additional compensation, modify the construction documents as necessary to comply with the fixed limit, if provided under the terms of the standard professional services contract.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-311. Projects exceeding construction funding after bidding.

(a) After bids have been opened and reviewed, if all bids exceed the maximum allowed for negotiations pursuant to Arkansas law and it becomes apparent the project cannot be awarded because of budget overruns, the design professional shall:

(1) Meet with the designated project coordinator of the department to review bids, budgets, program, and owner's needs within seven (7) working days;

(2)(A) Review project costs with bidders for areas of possible savings or cost reduction.

(B) Analyze areas of excessive cost;

(3) Review project with the department project coordinator or coordinators, the Design Review Section, and the Construction Section to resolve project status as quickly as possible;

(4) Modify bid documents as approved and directed by all parties and resubmit the bid documents to the Design Review Section for review, comments, and approval for re-bidding;

(5)(A) Re-bid project.

(B) Coordinate bid date with the Construction Section; and

(6)(A) The design professional may be required to redesign the project for re-bid without additional compensation.

(B) Additional redesigns beyond one (1) re-bid may be eligible for additional compensation subject to the approval of the Design Review Section.

(b) Other than reimbursables for printing costs, no additional compensation for re-bidding will be allowed unless approved in writing by the Design Review Section.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-312. Omissions and errors in construction documents.

(a) Omissions or errors in construction documents often arise from unrealistic project schedules, lack of communication, failure to coordinate, review, or edit construction documents accordingly, as well as other shortcomings in the design and construction process.

(b) The department project coordinator should work closely with the chosen design professional to set realistic project schedules which allow time for review and coordination by all parties, particularly during the scheduled Building Authority Division plan reviews.

(c) Failure to include necessary construction detailing, lack of coordination in the architectural, civil, structural, mechanical, electrical, and other portions of the drawings and specifications, may result in costly change orders.

(d)(1) If these change orders are reasonably attributed in whole or part to errors or omissions on the part of the design professional or his or her consultants, the design professional shall without additional compensation (to the degree the change orders are responsibly required because of the errors and omissions of the design professional), correct or revise all errors or omissions in his or her designs, drawings, specifications and other services, and prepare construction change orders to effect corrective work.

(2) Good judgment and fair practice should be exercised by all parties in making these types of decisions.

(3)(A) The Design Review Section and the Construction Section will review all decisions respectively.

(B)(i) An omission of an item (such as a flagpole inadvertently left out of a set of project bid documents) which would have otherwise been included in the base bid for the project should not be used to penalize the design professional.

(ii) However, if remedial work to the landscaping or concrete paving is needed to allow for installation of the flagpole at a later, less opportune time during construction, then the design professional may be held responsible for these remedial costs (assuming the department has reasonably documented this requirement during preparation of bid documents for the project).

(C)(i) In general, when additional costs are incurred in a construction project which are directly attributed to negligent errors or omissions on the part of the design professional, the design professional may be required to bear some or all of the costs for remedial work needed to correct these negligent errors or omissions.

(ii) The design professional should work closely with the department and the general contractor to ensure that all errors or omissions are corrected in a timely manner before any remedial costs are incurred to contain and reduce change order costs.

(iii) Errors and omissions should be resolved between the department and the design professional whenever possible, and as quickly as possible.

(D) The administrator of the applicable section or sections shall have the authority to settle or resolve disputes concerning errors or omissions in a set of bid documents prepared for any department project utilizing professional judgment and accepted standards of care required of design professionals.

(E)(i) Any dispute involving negligent omissions or errors not resolved by the department and the design professional shall be submitted to the Design Review Section.

(ii) Either party may then request a conference review with the Design Review Section and the other party to attempt to resolve the issue.

(iii) A request to the Design Review Section shall include but not be limited to:

(a) A description of the omission or error;

(b) All documentation related to the item or items in question;

(c) Copies of all meeting notes; and

(d) Correspondence or instructions referring to the issues in question.

(iv) The requesting party shall copy all other parties on the request and documentation.

(v) All other parties shall submit a letter stating their position on the issue and any additional documentation related to the issue within ten (10) working days to the Design Review Section and copy all other parties.

(vi) The Design Review Section will review the information provided and issue a letter of opinion within fifteen (15) working days (a total of thirty (30)

working days after receipt of the initial request) or request additional information from the parties.

(F)(i) Change orders required as a result of an error or omission may not be eligible for design professional fee compensation.

(ii) For omissions, the design professional may be assessed a percentage of the cost of the change order, subject to Design Review Section approval as determined in 22 CAR § 111-313, to cover the additional cost of the work due to failure to include the work in the original bid package.

(iii) For an error, the design professional may be assessed the full cost of the change order, not as punishment, but in fulfillment of the principal of betterment, that the owner should not be required to pay twice for the same element of construction.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-313. Design professional's liability insurance.

(a)(1) The design professional shall carry professional liability insurance covering negligent acts, errors, and omissions.

(2) A copy of the current certificate of insurance shall be included as an attachment to the standard professional services contract.

(3) The minimum policy value shall be five hundred thousand dollars ($500,000) except that the value shall be increased to a minimum of one million dollars ($1,000,000) for projects where the estimated construction cost is between five million dollars ($5,000,000) and twenty million dollars ($20,000,000).

(4) For projects exceeding twenty million dollars ($20,000,000) in estimated construction cost, the policy value shall be a minimum of five percent (5%) of the estimated construction cost.

(5) The design professional may utilize a project-specific professional liability policy for projects exceeding five million dollars ($5,000,000) in estimated construction cost.

(6) The design professional shall be required to disclose the size and nature of all pending claims against his or her liability insurance during the negotiation phase.

(7) The design professional shall maintain this insurance in force after the completion of the services under the contract for a period of one (1) year after substantial completion of the construction.

(b)(1) The review, approval, acceptance of, and payment for any of the services required by the Design Review Section or department shall be construed to operate as a waiver by the owner of any rights or any cause of action arising out of the contract.

(2) The design professional shall remain liable to the state for reasonable project costs which are incurred by the state as a result of negligent acts, errors, or omissions on the part of the design professional.

(3) This liability shall extend to the prime design professional's subcontractors and consultants in the performance of any of the services furnished.

(c)(1) The design professional may be held responsible for reasonable project costs resulting from his or her professionally negligent acts, errors, omissions, or other breaches of the applicable standards of care established by Arkansas laws or rules.

(2) Liability may include, but not be limited to, the design professional's own cost of labor and other in-house cost, any resulting contractor change order cost including demolition, cutting, patching, repairs, or modification of work that is already in place.

(3) The design professional may also be held responsible for any contractor or owner delays or damages, and any judgment, fines, or penalties against the department resulting from the design professional's professionally negligent acts, errors, omissions, and other breaches of the applicable standards of care.

(d) However, the design professional may not be held responsible for the cost of the correct equipment or system which should have been originally specified, except that the design professional shall be responsible for any increased cost, whether the result of inflation, reordering, restocking, or otherwise of incorporating the corrected work into the contractor's change order.

(e)(1) Upon determination that there may be design professional financial responsibility involved, the design professional shall be contacted by the department.

(2) The design professional shall be:

(A) Advised of the design deficiency;

(B) Informed that it is the agency's opinion that the design professional may be financially responsible; and

(C) Requested to provide a technical solution to the problem, including a cost estimate.

(3) The design professional shall be given the opportunity to take the measures necessary to minimize the consequences of such defects within a timely manner without jeopardizing the integrity of the project.

(4) The department project coordinator shall:

(A) Promptly inform the Design Review Section of the issue; and

(B) Keep the Design Review Section informed until the issue is resolved.

(f)(1) If the design professional refuses to cooperate in the negotiations, the department shall have the right to proceed with the remedial construction and/or change order negotiations without the design professional.

(2) Disputes shall be resolved as set forth in the standard professional services contract.

(g)(1) Alternatively, the design professional may discharge its financial responsibility through negotiations with, and direct payment to, the contractor.

(2) This action must be participated in and approved by the owner.

(3) Evidence of the department's participation and approval of these negotiations and a description of the corrective action and cost incurred by each party shall be reported in writing to the Design Review Section for record.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-314. Other insurance required of the design professional.

(a) Prior to the start of any work under the professional services agreement, the design professional shall provide the department with certificates of insurance forms approved by the state and shall maintain such insurance until completion of all work under the agreement.

(b) The minimum limits of liability shall be as follows:

(1) Workers' compensation — standard Arkansas workers' compensation policy with statutory requirements and benefits;

(2) Employers' liability — one-hundred-thousand-dollar minimum;

(3) Broad form comprehensive general liability — one-million-dollar minimum;

(4)(A) Combined single limit coverage.

(B) The state shall be named as an additional insured with respect to the services being provided.

(C) The coverage shall include but not be limited to:

(i) Premises/operations liability;

(ii) Products and completed operations coverage;

(iii) Independent contractors' liability;

(iv) Owners' and contractors' protective liability; and

(v) Personal injury liability; and

(5) Automobile liability — Arkansas statutory limits, 22 CAR § 111-315.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-315. Professional services contract.

(a)(1) Selection of architect, landscape architects, interior designers, engineers, land surveyors, and other related building consultants shall be coordinated and verified by the Design Review Section.

(2) When the department has completed the selection process, the department shall prepare a standard professional services contract.

(3) All basic compensation items, compensation for additional services, and reimbursable expense items shall be carefully reviewed by both the department and design professional before signing the standard professional services contract.

(4) The signature page of this form shall be the only signature page in the agreement.

(5) Delete or strikeout the signature pages from all attachments to avoid confusion.

(6) Upon request, the Design Review Section is available for contract draft reviews between the department and the design professional.

(b)(1) For compensation and reimbursable expenses, see 22 CAR § 111-201 et seq., and 22 CAR § 111-301 et seq.

(2) Additional services of the design professional may be based on a percentage of construction cost, lump sum, or hourly fee with a not-to-exceed amount stated on the contract.

(c)(1) All standard professional service contracts and amendments shall be submitted to the Office of State Procurement website.

(2) The office will forward the contracts and amendments to the Design Review Section for review.

(3) Contracts or amendments expected to receive legislative review must have attached appropriate information regarding the contract or amendment.

(4) Contracts shall also contain disclosure forms and documents pursuant to Governor’s Executive Order 98-04.

(5) Appropriate information includes but is not limited to:

(A) Department name;

(B) Project description;

(C) Construction and design professional funds;

(D) Number of standard professional services contracts;

(E) Identification of design professional and the objectives and scope;

(F) Design professional fees;

(G) Estimated construction cost;

(H) Contract control number;

(I) Amendment compensation with explanation;

(J) Design professional reimbursables with breakdown;

(K) Contract extension date;

(L) Name of the contractor;

(M) Contract amount; and

(N) Change orders.

(6) Contracts shall be completed in their entirety prior to submission for review.

(7) Particular attention will be given to areas concerning "Calculations for Compensation" and "Description of Services to be provided".

(d)(1) Failure to meet the office submittal schedule for review and approval can cause a delay of thirty (30) days or more for legislative review.

(2) All standard professional services contracts fifty thousand dollars ($50,000) or more require legislative review.

(3) The standard professional services contract form takes precedent over any attachments regarding:

(A) Time;

(B) Funds; and

(C) Compensation.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-316. Attachments to the professional services contract.

(a)(1) The department and design professionals may wish to add attachments to the standard professional services contracts.

(2) These attachments may be used to clarify the extent of the professional services, either basic or additional, for the department and the design professional.

(3) When the department and the design professionals wish to add attachments to the standard professional services contract, the following shall be done:

(A) Attachments shall be referenced as Attachment "A", "B", "C", or "1", "2", "3", etc., and be referenced on the contract under "Objectives and Scope"; and

(B)(i) Attachments shall be neatly typed or the department and design professional may choose to use the standard American Institute of Architects "Abbreviated Standard Form of Agreement Between the Owner and the Architect", the Engineers Joint Council on Construction Documents "Standard Form of Agreement Between Owner and Engineer", or other documents approved by the Design Review Section.

(ii) The Building Authority Division neither endorses nor rejects the use of these documents.

(iii) If these documents are used, they shall be carefully edited to fully agree with the standard professional services contract, Arkansas laws and rules regarding allowable fees, compensation, multipliers, acceptable reimbursable expenses, etc., and the services to be provided under the contract.

(iv) Hourly rates and attachments shall remain in place for the duration of the contract, subject to annual or biennial review and negotiations.

(v) The language contained within the standard professional services contract shall take precedence over all attachments except the division "Basic Services Defined" attachment.

(b)(1) In addition, the division "Basic Services Defined" (refer to 22 CAR § 111-202) shall be attached to, or added under the AIA contract, Article 12, "Other Conditions or Services".

(2) All contracts shall adhere to the division "Basic Services Defined" as a condition of the contract.

Authority. Arkansas Code § 22-2-108.

Codification Notes. "AIA" means American Institute of Architects.

22 CAR § 111-317. Amendments to professional services contract.

(a) Any modification to an existing standard professional services contract requires the submission of an amendment for approval by all parties, as per the original contract, including, but not limited to:

(1) Changes in the project cost and scope of the project;

(2) Fee or hourly rate adjustment;

(3) Reimbursable expenses or additional services adjustments;

(4) Contract extension;

(5) Funding change (character code); and

(6) Additional subconsultants.

(b)(1) The base fee in a standard professional services contract will normally remain constant for the duration of a project.

(2) However, if the funding or scope of the project changes significantly enough to reduce or increase the base fee allowed by the Building Authority Division standard fee schedule (see 22 CAR § 111-212), then the standard professional services contract shall be amended by both parties to reflect the new base fee agreement and submitted for approval.

Authority. Arkansas Code § 22-2-108.

Subpart 4. Procedures for Project Development and Construction

22 CAR § 111-401. Procedures for project development and construction generally.

[This section is intentionally left blank.]

22 CAR § 111-402. Initiation of project.

(a)(1) Many projects begin with a needs analysis and planning for the acquisition of property or space to be developed or renovated.

(2) For major projects, this process begins months or years before a budget and appropriation request can be prepared.

(3) In conjunction with the Department of Finance and Administration, the Design Review Section reviews the capital project appropriation requests submitted for funding each biennium.

(4) Often, these requests are insufficient to cover the total cost of construction desired once funded and approved for bidding.

(5) The Design Review Section is available to assist departments in this long-term planning phase to help ensure that adequate space or funding is requested.

(b)(1) As a part of the needs assessment and budgeting process, departments often conduct or have performed certain studies or exercises such as:

(A) Feasibility studies;

(B) Building space or systems programming studies;

(C) Financing; and

(D) Contingency budgeting.

(2) While some departments may have adequately experienced staff to perform these initiatives, others may not.

(3) The Design Review Section is available to assist with these activities or to assist the department with the selection of outside consultants specializing in these types of services.

(c)(1) A department may initiate a predesign study before developing a capital project budget request or after the project has been funded.

(2) The intent of the predesign study is to:

(A) Reduce the amount of uncertainty related to the scope of the project;

(B) Identify major project/funding milestones;

(C) Select the proper delivery method for construction; and

(D) Establish project costs and project timelines.

(3) While it is best to conduct such studies before a budget request is finalized, there may be significant advantage to applying such studies to projects which have already been funded to ensure that the project:

(A) Remains in the existing budget;

(B) Meets the minimum program needs; and

(C) Is executed in a timely manner.

(4) Predesign studies may include but are not limited to activities such as:

(A) Project analysis;

(B) Program analysis;

(C) Site analysis;

(D) Preliminary cost projections or existing budget analysis;

(E) Operations and maintenance impact analysis;

(F) Staffing analysis; and

(G) Development of preliminary scope of work for the design process.

(5) Departments may utilize their own staff in the production of this study or may use outside consultants for all or part of the study.

(6) The Design Review Section is available to assist with these activities or to assist the department with the selection of outside consultants specializing in these types of studies.

(7) It is not necessary to use the same design professional who prepares a predesign study to perform the design phase of the project.

(8) These activities can be mutually exclusive of each other.

(9) By the same measure, preparation of a predesign study or other predesign service does not exclude a design professional from seeking a contract for the design phase of the project.

(d)(1) During the initial phase of the project design, departments shall review whether revisions to the Comprehensive Annual Financial Report (CAFR) should be made.

(2) Determinations of whether to add new asset equipment or remove old asset equipment from the report shall be made.

(3) In addition, the project plans and specifications shall designate:

(A) How assets will be disposed; and

(B) Who shall bear the responsibility of the disposition.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-403. Feasibility study requirements.

(a)(1) A feasibility study may be required to determine the:

(A) Initial building program needs;

(B) Property requirements;

(C) Probable construction cost; and

(D) Site improvement cost.

(2) The study may include but not be limited to other nonconstruction cost such as financing cost, design service fees, equipment cost, furnishing cost, and contingency cost to determine if a project is economically feasible and if adequate funding is available.

(b)(1) The feasibility study should determine site selection needs, such as property size, zoning, utilities, acquisition costs, floodplain management, drainage costs, environmental review, pedestrian and vehicular access, parking needs, and storage needs as applicable.

(2) Building size and area requirements for all functions including the electrical, lighting, heating, cooling, and building system requirements should be addressed.

(3) Estimated construction, operation, and utility costs based on square footage and specific development costs should be computed.

(4) Operational and staffing cost for security, maintenance, janitorial, and building operators should be included on a cost-per-square-foot basis as a part of the study.

(5) The study should include a brief discussion of the requirements and possible solutions for each area along with a line item cost estimate for each area.

(6) Consideration should be given to future expansion capabilities in all cases.

(7) The feasibility study should be used as a basis to help establish funding and to guide the department’s project coordinator in selection of, and directing the work of, the appropriate design professional.

(c)(1) Design professionals shall be selected in accordance with this subchapter (refer to 22 CAR § 111-101 et seq.).

(2) The department shall obtain approval from the Design Review Section prior to initiating a feasibility study with outside consultants or design professionals.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-404. Programming.

(a)(1) Unless otherwise negotiated, basic programming costs for a project are not covered under basic services provided in a standard professional services contract.

(2) The department shall provide the design professional with a minimum program of all project requirements, including site and building requirements, a program of required spaces, their approximate size or square footage, and all needed functions required for the building or project site, including all basic electrical, lighting, heating, cooling, and building system requirements.

(3) This information should be provided prior to negotiating a contract with the design professional.

(4) Copies of this information shall be included in the plan review submittal to the Design Review Section for informational purposes.

(b)(1) If the department cannot provide a minimum program as described above, the department may include under "Additional Services" to standard professional services contract a not-to-exceed cost for programming.

(2) This should be invoiced per the number of actual hours spent in preparation of the program, up to the not-to-exceed cost stated in the contract.

(3) The department should only incur this expense with the approval of the Design Review Section.

(c)(1) When programming is provided by the department, review any needed corrections and compilations to the overall building program for site analysis, the addition of circulation space, mechanical equipment space, ancillary and storage space, and the like, as well as review and coordination of all electrical, lighting, heating,

cooling, and building system requirements, shall be considered part of the schematic and design development phase furnished under basic services, unless otherwise approved by the Design Review Section.

(2) A copy of the program approved by the department project coordinator shall be included in the plan review submittal to the Design Review Section.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-405. Financing and contingency budgeting.

(a) Authorization to proceed with the project will be given to the department providing appropriate funding is available for the project.

(b)(1) It is recommended that all cost estimates for construction, all projected building costs, and all methods of finance include a contingency fund.

(2) Contingency funds should be used to offset inflation, unforeseen expenses, and/or cost overruns on construction projects.

(3) Items that may be covered by a contingency fund are unexpected utility work or relocation, damaged roof decking replacement, rock excavation, and the like.

(4) Contingency funding normally should not exceed ten percent (10%) and should depend on the cost and complexity of the project, with a proportionately smaller amount as project budgets increase.

(5) While five percent to ten percent (5% – 10%) may be necessary on low-cost projects, this percentage may be excessive on higher cost projects (one and one-half percent to two and one-half percent (1 1/2% – 2 1/2%) may be sufficient).

(6) Overall building budgets should be reviewed with the Design Review Section and the design professional chosen to perform the work.

(7) Contingency funds are not set up to cover the cost of errors in design and construction by the design professional or for lack of coordination on their part, which requires remedial work during completion of construction.

(c) Refer to 22 CAR § 111-312 for errors and omissions.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-406. Project coordinator.

(a)(1) The department shall assign a project coordinator.

(2) The name and position of the project coordinator shall be submitted to the Building Authority Division, on a form approved by the division, for recording with the first review submittal.

(3) The project coordinator shall not be changed without written notice to the Design Review Section.

(b) The responsibilities of the project coordinator shall cover the following:

(1) Allow the department to work closely with the design professional;

(2) Cooperate with the Design Review Section in all design and budget decisions, including compiling and approval of the department's program for the project and approval of the estimated construction cost at each plan review submittal;

(3) Help make decisions regarding programming and operational restraints to best benefit the department and to bring the scope of the project within the estimated construction cost as submitted by the design professional and approved by the department;

(4)(A) Be aware of the project status at all times.

(B) Attend all meetings and keep records accordingly;

(5) Keep the department secretary advised on the project progress;

(6) Maintain adequate records of the project for future use, including:

(A) Plans;

(B) Specifications; and

(C) Record drawings;

(7) Serve as the department primary contact regarding all matters concerning the capital improvement project;

(8)(A) Prereview all submittals from the design professional prior to forwarding to the Design Review Section for review.

(B) The project coordinator shall ensure that all submittals meet the project requirements as defined for the design professional and as required for a division submittal (refer to 22 CAR § 111-1501 et seq.);

(9)(A) The project coordinator shall forward all submittal data to the Design Review Section along with any comments or supplemental instructions issued to the design professional.

(B) If the department has no comments to forward, the transmittal letter should so note and should include a statement to the effect that the submittal generally meets the scope of the project as defined to the design professional and that the estimated construction cost is within the established budget for this project.

(C)(i) Ensure that all submittals are forwarded to the division in the order that meets the department's priority needs.

(ii) This will prevent the division from reviewing a low priority project that has been submitted directly by the design professional; and

(10)(A) The project coordinator shall:

(i) Receive and review all comments regarding the submittal review by the Design Review Section; and

(ii) Be responsible for distribution of these comments to all appropriate parties.

(B) The project coordinator shall:

(i) Ensure that the design professional responds to all comments in writing; and

(ii) Notify the design professional and the Design Review Section in writing if he or she disagrees with a comment or a response.

(C) Responses shall be included with the next submittal package.

(D) It is acceptable and encouraged to include the direct responses from the design professional to the division comments.

(E) It is the project coordinator's responsibility to ensure that each comment is addressed and to the department's satisfaction before submitting responses to the Design Review Section.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-407. Building codes adopted.

(a)(1) The adopted building code for state projects is the Arkansas Fire Prevention Code, 12 CAR pt. 15, as adopted by the Division of Arkansas State Police, State Fire Marshal's office.

(2) Arkansas laws and this subchapter shall have precedence over the Arkansas Fire Prevention Code where they exceed the requirements of the Arkansas Fire Prevention Code.

(3) All project designs shall comply with all Arkansas laws and the Arkansas Fire Prevention Code.

(b)(1) Other codes, rules, or standards may be applicable to a specific project.

(2) It is the department's and design professional's responsibility to determine all applicable codes for each specific project.

(3) A partial listing of the more common codes applicable to state projects can be found on the Building Authority Division website.

(c) The Design Review Section shall reference these codes, state law, and this subchapter in its review of documents presented for review.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-408. Regulatory entities' review.

(a)(1) In addition to reviews completed by the Design Review Section, design professionals are encouraged to work closely with municipal building officials and/or fire chiefs throughout the planning stages of state-funded capital improvements.

(2) It is recommended that such municipal authorities be given the opportunity to review such plans to coordinate zoning, parking, and street utility and fire department requirements (specific fire protection, building access, fire lane, and the like requirements).

(3) Special requirements may be needed according to available equipment and firefighting/emergency procedures.

(4) Coordination with and review by the local fire official is a mandatory requirement.

(b)(1) The design professional shall be responsible for coordinating a project directly with these regulatory entities, independently from the Design Review Section, allowing adequate time for plan reviews and approval before submitting final plans to the Design Review Section for review.

(2) The project coordinator shall submit copies of all regulatory review department comments, waivers, variances, and instructions regarding the project, including local fire official reviews, with the Building Authority Division plan review submittal.

(c)(1) The following is a partial list of the regulatory entities which:

(A) Have adopted design or construction standards; and

(B) May require preconstruction plan review and approval.

(2) Design professionals should request copies of all acts, laws, and adopted standards from these individual entities.

(3) This listing is not exclusive of any other department which may under special circumstances exercise design authority:

(A) Department of Health:

(i) Plumbing and Natural Gas Section (plumbing systems, domestic water, septic design, swimming pools, etc.);

(ii) State Radiation Control Agency and the Division of Emergency Management (X-ray, nuclear medicine, installation, or safety evaluations);

(iii) Division of Environmental Health Protection of the Department of Health (kitchens, restaurants, etc.);

(iv) Engineering Section of the Department of Health (wastewater systems, water systems and districts, cemeteries, swimming pools, etc.); and

(v) Division of Health Facility Services of the Department of Health (hospitals, health units, etc.);

(B) Division of Arkansas State Police, State Fire Marshal (fire code review, life safety, etc.);

(C) Department of Labor and Licensing, Elevator Safety Board (elevator safety, including inclined stairway chairlifts and vertical wheelchair lifts, boiler inspection, industrial hygiene, Occupational Safety and Health Administration reviews);

(D) Department of Energy and Environment, Division of Environmental Quality (Resources Conservation and Recovery Act of 1976, Pub. L. No. 94-580, when federal funding exceeds ten thousand dollars ($10,000) and Storm Water Pollution Prevention Plan for disturbed sites in excess of one (1) acre, asbestos issues, and other required environmental reviews);

(E) Department of Commerce, Division of State Services for the Blind (vending facilities in state-owned or leased properties);

(F)(i) Arkansas Department of Transportation (highway access, right-of-way design).

(ii) Contact local district headquarters' engineer;

(G) Department of Human Services, Office of Long-Term Care within the Division of Provider Services and Quality Assurance (long-term care facilities/nursing homes);

(H) Liquefied Petroleum Gas Board (review/inspect rural installation of LP storage tanks and gas meters); and

(I) Department of Energy and Environment, Arkansas Energy Office of the Division of Environmental Quality (Arkansas Energy Code for New Building Construction Supplements and Amendments, 15 CAR pt. 233).

Authority. Arkansas Code § 22-2-108.

Codification Notes. "LP" means liquefied petroleum.

22 CAR § 111-409. Unacceptable design configurations.

(a) Certain configurations have proven too expensive or result in excessive maintenance activity or utility costs.

(b)(1) The following configurations shall not be accepted for use in state-owned building designs unless they are submitted for approval in writing to the Design Review Section prior to the schematic design review submittal to the department.

(2) A copy of the approval letter from the Design Review Section shall be included with the plan review submittal to the department and with the final submittal to the Design Review Section:

(A) Pedestrian or vehicular circulation (other than for maintenance) on roofs of habitable spaces or support spaces such as pedestal pavers, on a plaza, over occupied spaces, shall not be accepted;

(B) Sloped glazing (except for greenhouses), such as ridge or sloped skylights, which increases heating and cooling capacity requirements;

(C) Rooftop-mounted heating or cooling units and associated piping and/or ductwork which increases:

(i) Foot traffic;

(ii) Roof penetrations;

(iii) Maintenance requirements; and

(iv) Reroofing costs;

(D)(i) Seismic design upgrades for existing buildings in Seismic Design Categories D and E.

(ii) Upgrades of existing structures involved in additions, alterations, or retrofitting in Seismic Design Categories D and E shall be submitted for approval prior to beginning schematic design.

(iii) Design changes required by failure to follow this procedure shall be the responsibility of the design professional;

(E)(i) Buildings located in the floodplain.

(ii) All additional design requirements associated with building in a floodplain shall be submitted to the Design Review Section prior to beginning schematic design.

(iii) The additional cost of design changes required by failure to follow this procedure shall be borne of the design professional; and

(F)(i) Air conditioning systems which do not meet the requirements of the Mechanical Code, 17 CAR pt. 260, or the Arkansas Code for New Building Constructions Supplements and Amendments, 15 CAR pt. 233, for ventilation air.

(ii) This includes systems which, when set to meet this standard, will be operating outside of their intended design parameters and will result in a reduced life expectancy for the equipment.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-410. Phased projects.

(a) Where a project size or complexity requires funding in stages and takes many years to complete, the department and design professional shall take the following steps to ensure project completion in a timely and prudent manner:

(1) Be aware that future funding is subject to termination;

(2) Work to the budget established in the funding for each phase or portion of the project;

(3) Establish a building program for the established budget for each phase only;

(4)(A) Base all work in the schematic design and design development and construction bid documents for the funded portion of the project only.

(B) Do not obligate the department for design services beyond the project funding limits.

(C) Any authorization for design professional services beyond available funding must be approved in writing by both the Design Review Section and department officials;

(5) Do not bid or obligate funding for partial construction, such as slab work only, for a project which will be unused and of no value until future funding is established for completion; and

(6) Coordinate project requirements as to master planning, funding, and program review in the schematic design plan review submittal to the department.

(b)(1) Departments are required to disclose the estimated cost, scope, and timeline including all phases in accordance with Arkansas Code § 19-4-1402.

(2) When it is determined that a project will be constructed in multiple phases, the department shall submit a statement to the Building Authority Division describing:

(A) The estimated scope of the capital improvement project;

(B) The estimated timeline for implementing each phase of the project; and

(C) A breakdown of the estimated cost of the total project showing each phase's cost.

(3) The statement shall bear the signature of the department project coordinator or other authorized department official.

(4) This statement shall accompany the first submittal to the Design Review Section and shall be updated if the estimated scope, timeline, or costs change prior to the approval to proceed with the first phase of the work.

(5) The statement shall be updated and resubmitted with each subsequent phase submitted for Design Review Section review.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-411. Project schedule.

(a) Prior to commencing the design work, the project coordinator shall submit to the Design Review Section a projected project schedule developed in conjunction with the design professional, which shall include the following anticipated dates:

(1) Date of schematic design plan review submittal to the department;

(2) Date of design development plan review submittal to the department;

(3) Date of construction document plan review submittal to the department;

(4) Date of one hundred percent (100%) complete plan review submittal to the Design Review Section; and

(5) Dates for bidding and construction start and estimated completion date.

(b)(1) Upon submittal of this schedule, the Design Review Section will assign a project number to the project.

(2) This number should be referenced on all correspondence and shown in a prominent location on the cover sheet of plans and specifications submitted for review.

(3) If the department desires to have this project number assigned at an earlier time for its internal tracking purposes, the department should submit a written request to the Design Review Section indicating:

(A) The official title the project will be listed under;

(B) The name of the design professional (if known at that time);

(C) The estimated budget for the project; and

(D) A brief description of the project.

(4) For Building Authority Division tracking purposes, the name of the project shall remain the same through the completion of the construction phase of the project.

(c) When it becomes apparent that the schedule must be altered, the project coordinator shall submit a revised schedule to the Design Review Section immediately.

Authority. Arkansas Code § 22-2-108.

Subpart 5. Building Commissioning

22 CAR § 111-501. Building commissioning generally.

(a) Commissioning is a systematic process of design to ensure that building systems perform interactively according to the design intent and the owner's operational needs.

(b) This is best achieved beginning in the design phase by documenting the design intent and continuing through construction, acceptance, and the warranty period with actual verification of performance, operation and maintenance (O&M) documentation verification, and training of operating personnel.

(c) When properly performed, commissioning can often:

(1) Reduce the overall cost of a project;

(2) Reduce the time required to complete a project;

(3) Increase the quality of a project; and

(4) Increase the probability of a successful startup of a project.

(d) These cost reductions and quality improvements often exceed the cost associated with the commissioning process.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-502. Need for commissioning.

(a)(1) Today's buildings and our expectations in their performance are becoming increasingly sophisticated.

(2) Like any sophisticated machine, a building:

(A) Should be set up and balanced to operate properly; and

(B) May require a periodic tune-up to remain operating at peak efficiency.

(3) Departments are encouraged to consider the concept of total building commissioning on new construction projects and major renovations.

(4) Commissioning, when applied from the beginning of the design process and continuing through the warranty period, can result in projects that:

(A) Cost less to construct;

(B) Start up with fewer problems; and

(C) Have proper documentation for operations and maintenance.

(5) In many cases, the cost of the commissioning process is offset by a reduction in:

(A) Construction cost;

(B) Change orders; and

(C) Startup problems.

(b)(1) With utility cost and maintenance cost escalating at rates above the average rates of growth in the state's economy, reductions in operations and maintenance cost

are an essential part of a department's obligations to being a good steward of public funds.

(2) Commissioning can be a vital part of the process of controlling these costs within an acceptable limit.

(3) In many instances, including existing buildings, the cost of the commissioning process can often be returned in two (2) years or less with the reduction in energy cost alone.

(c)(1) When departments elect to pursue green building design certifications such as Leadership in Energy and Environmental Design (LEED), Green Globes, or similar certifications, these processes usually have a prerequisite requirement to perform fundamental commissions and offer additional points toward certification for additional or total commissioning.

(2) These programs often require the commissioning for points to be conducted by an independent third-party firm.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-503. Types of commissioning.

(a)(1) Commissioning is a systematic process of ensuring that building systems perform interactively according to the design intent and the department's operational needs.

(2) This is achieved beginning prior to the design phase by documenting the owner's program requirements.

(3) The process is continued through the design phase by documenting the design intent and through construction, acceptance, and the warranty period with actual verification of performance, operation and maintenance documentation verification, and the training of operating personnel.

(b)(1) Recommissioning is the process of reverifying the performance of building systems that have been commissioned previously to ensure the systems continue to operate according to the design intent or current operating needs.

(2) Recommissioning may be initiated periodically or in response to a building renovation or a change in building usage.

(c)(1) Retro-commissioning is the process of commissioning existing building systems that were not commissioned when originally constructed.

(2) It is a process to ensure building systems perform interactively according to the design intent and/or to meet the department's current operational needs.

(3) This is achieved by documenting the design intent where possible and the current operational needs, measuring the existing performance, implementing necessary operational and system modifications followed by:

(A) Actual verification of performance;

(B) Operation and maintenance documentation verification; and

(C) The training of operating personnel.

(d)(1) Testing, adjusting, and balancing (TAB) is a form of commissioning that can apply to mechanical and electrical systems in a building.

(2) TAB is routinely specified in the construction project as a portion of the mechanical work in the technical specifications sections.

(3) Many specifications require the TAB specialist to be the supplier of the air devices or the controls vendor.

(4) The intent behind this type of specification is to require someone with a working knowledge of the air devices or the controls to be the TAB technician.

(5) In this approach, the TAB technician is a subcontractor that is not directly responsible to the department.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-504. Commissioning agent.

(a)(1) The relationship of the commissioning agent or the TAB technician to the department is critical to the success of the project.

(2) The commissioning agent should be under direct contract to the department and should act as the department's representative during the design and construction phases of the project.

(3) This direct relationship allows the commissioning agent to freely express ideas concerning design changes that will enhance the project goals and in reporting the correct status of the project construction and operation of the system components.

(4) During the training and documentation phase, this direct relationship allows the commissioning agent to objectively evaluate the training and documentation to ensure that adequate time and preparation is provided to meet the department's expectations.

(5) While many small projects may be adequately handled by the concept of a TAB technician as a subcontractor, even these types of projects may be better served by the inclusion of an independent commissioning agent.

(b)(1) Commissioning agents are typically professional engineers who have developed the specialty expertise necessary to advise and evaluate construction for defects and omissions and to provide or oversee the start up and the testing and balancing of systems and components.

(2) Commissioning agents also understand the documentation necessary to properly own and operate a building and understand the technical and operational parameters of a building well enough to oversee the training of the department's operating personnel.

(3) While professional registration is not always a requirement or necessity, it is a desirable qualification when considering the total building commissioning concept.

(4) It is desirable to find a firm or team that contains professional representation in all of the critical building trades.

(5)(A) Commissioning agents and TAB consultants shall be:

(i) Considered as specialized engineering consultants; and

(ii) Selected and contracted in the same manner as engineering consultants.

(B) Refer to 22 CAR § 111-101.

(6) The commissioning agent or TAB consultant should be selected before or at the same time as the building design team.

(7) The commissioning agent's contract and the design professional's contract should clearly define the role the agent will have as the department's representative.

(c)(1) The building design professional's contract should clearly acknowledge the role of the commissioning agent.

(2) The department is responsible for coordinating the two (2) contracts.

(3) To make one (1) contract subordinate to the other would make the process less effective.

Authority. Arkansas Code § 22-2-108.

Codification Notes. "TAB" means testing, adjusting, and balancing.

22 CAR § 111-505. Submittal requirements.

(a) Commissioning plans and specifications that are developed as a part of a commissioning project must be submitted to the Design Review Section for review and approval prior to issuing to the construction contractor.

(b) Input from the commissioning agent during the design phase should be carefully documented to evaluate the validity of recommended design changes.

(c) These changes should be included in the plan review submittals under the heading "Commissioning Agent's Recommendations".

(d) The activities of a commissioning agent may affect the progress or schedule of the building construction project particularly where defects or omissions are discovered.

(e) The construction bid documents should acknowledge the presence of an independent commissioning agent on the project and should clearly define the role of the agent and the responsibilities of the contractor to the agent as an authorized representative of the department.

Authority. Arkansas Code § 22-2-108.

Subpart 6. Asbestos Surveys and Management Plans

22 CAR § 111-601. Asbestos survey and management plans generally.

(a) It shall be the policy of the Building Authority Division that state-owned buildings be surveyed for asbestos containing materials (ACM) before demolition or construction work begins or where otherwise required by federal and state laws and rules.

(b) Even if no demolition or construction work is planned, the division encourages operators of state-owned buildings to obtain a survey for asbestos.

(c) The survey report should be used to make building maintenance/service personnel or interested building occupants aware of the location and condition of the ACM.

(d) A management plan for each surveyed building should be developed in accordance with federal guidelines and industry practices.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-602. Asbestos projects generally.

(a) The Division of Environmental Quality regulates activities related to asbestos containing materials (ACM).

(b) Refer to the division's Asbestos Abatement Rule, 20 CAR pt. 860, for the state's policies and procedures related to ACM.

(c) Inspection and design of abatement materials or projects shall be performed only by persons properly licensed by the division when the activity or quantity of materials equals or exceeds the limits regulated by the division.

(d) Certain activities involving quantities below the division threshold may be regulated under Occupational Safety and Health Administration regulations for worker protection.

(e) These activities must be performed by personnel properly trained and certified for this activity pursuant to Arkansas Code § 20-27-1001 et seq.

(f) It may be in the department's best interest to have such activities performed by a licensed abatement contractor prior to the general construction activities.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-603. Asbestos projects subject to Building Authority Division review and approval.

(a) When a department contemplates an asbestos abatement project wherein a separate abatement contractor and the estimated cost of the abatement contract exceeds the limits shown in 22 CAR § 112-102, this type of project shall be considered a capital improvement project and shall fall under the jurisdiction of the Building Authority Division.

(b)(1) For standalone-type projects, plans and specifications (for the abatement project and the replacement materials) shall be submitted to the Design Review Section for review and approval.

(2) These projects shall be subject to the bidding requirements under 22 CAR pt. 112.

(c)(1) For projects wherein the asbestos abatement is included as a part of the general construction bid package, the plans and specifications must be submitted to the division for review as a part of the general construction review documents and those services listed in subsection (b) of this section are applicable.

(2) The asbestos consultant should be under contract to the prime design professional as a subconsultant.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-604. Asbestos consultants.

(a) Unless adequately trained, experienced, and licensed personnel are employed by a department, the Building Authority Division recommends that private sector licensed asbestos consultants be utilized to:

(1) Survey;

(2) Investigate;

(3) Prepare abatement documents; and

(4) Monitor abatement activities.

(b) Asbestos consultants shall be considered as design consultants and as such may be hired in accordance with 22 CAR § 111-102 and state law governing procurement of consulting contracts.

(c) Asbestos consultants shall be licensed and bonded pursuant to Arkansas Code § 20-27-1001 et seq., which mandates the Division of Environmental Quality with the authority to license asbestos abatement consultants and asbestos abatement contractors as well as for certifying:

(1) Air monitors;

(2) Contractors-supervisors;

(3) Inspectors;

(4) Management planners;

(5) Project designers; and

(6) Workers involved with:

(A) Demolitions;

(B) Renovations; and

(C) Asbestos-response actions.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-605. Plan review submittals.

(a) For projects subject to Building Authority Division approval, before a bid date is provided, these documents shall be reviewed and approved by the Design Review Section.

(b) A designer who is properly licensed by the Division of Environmental Quality shall prepare the bid documents for asbestos abatement projects.

(c) The designer's license number must appear on the cover sheet for projects submitted for review.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-606. Project supervision and monitoring.

(a) Abatement contractor activities should be adequately supervised and monitored by the asbestos consultant.

(b) The frequency of inspections and type of air monitoring shall be as established by federal and state laws and rules.

(c) On abatement projects occurring in occupied buildings, supervision and monitoring of the abatement work should be more intense as dictated by the particular project circumstances.

Authority. Arkansas Code § 22-2-108.

Subpart 7. Floodplain Management Program Standards

22 CAR § 111-701. Floodplain management program compliance.

It shall be the policy of the Building Authority Division to ensure that all state properties coming under division jurisdiction shall comply with the floodplain management program.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-702. Authorization.

(a)(1) The Design Review Section shall review all capital improvement projects to determine whether the proposed development will be reasonably safe from flooding.

(2) If the proposed site is within a flood-prone area, a development permit shall be submitted and approved prior to releasing the project for bidding or construction.

(b)(1) All requests to the Design Review Section for variance from these guidelines shall be submitted through the Arkansas Natural Resources Commission to the Federal Insurance Administrator.

(2) The Building Authority Division shall provide all available technical assistance concerning the flood management program to all requesting state departments.

(3) The division shall cooperate with the commission, the Federal Insurance Administrator, and with all parties in implementing an effective flood management program.

(4) Flood hazard boundary maps may be examined at the division or the commission or in some cases, in the local United States Natural Resources Conservation Service office.

(5) Maps are also available at the Federal Emergency Management Agency website, www.fema.gov.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-703. Development subject to permitting requirements.

(a) Developments subject to the Building Authority Division floodplain management program include but are not limited to improvements to, or new construction of buildings, structures, mining, dredging, excavating, drilling operations, filling, grading, paving, landscaping, or storage of equipment or materials.

(b)(1) New project sites should be carefully selected to avoid development in a known:

(A) Floodplain;

(B) Flood hazard area; or

(C) Wetland.

(2) Prior to selecting a site, the department should review all available data and consult with the Design Review Section to minimize the impact of developing in a floodplain on the project.

(c)(1) Renovation or alteration project sites should be reviewed to determine if the site is in a known floodplain.

(2) While interior renovations and roofing projects may not necessarily require a floodplain development permit, the expenditure of funds on projects located within a floodplain may not be a wise use of public funds.

(3) Additionally, if the project site is located in the floodplain, the department should discuss this finding with its insurance risk management representative to ensure that the existing facilities are adequately covered for flood damage or loss.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-704. Procedures.

(a) Any department considering the development of any construction project or wishing to enter any existing structures in participation in the National Flood Insurance Program, shall adhere to the following procedures:

(1) Submit the exact location and a brief description of the project to the Design Review Section; and

(2) The Design Review Section will locate the project on the applicable flood hazard boundary map and advise the submitting department as to whether:

(A) The project is not in a flood management area and they may proceed without further consideration of the Building Authority Division flood management program;

(B) The project is in a flood management area but is a conforming use and they must comply with division flood management program guidelines; or

(C)(i) The project is in a flood management area and is a nonconforming use.

(ii) In this case, the submitting department may relocate the project so that it does conform or may apply for a variance using the procedures outlined in this subpart.

(b) The Design Review Section shall review proposed development to ensure that all necessary permits have been received from those governmental agencies from which approval is required by federal or state law, including Section 404 of the Federal Water Pollution Control Act Amendments of 1972.

(c)(1) Failure to comply with the provisions of the division floodplain management program may result in the loss of federal or state disaster assistance for the recovery and reconstruction of flood damaged facilities.

(2) Furthermore, under circumstances of repeated loss, the department and the state may be denied federal funds for other programs or activities.

(d)(1) Departments are encouraged to prepare, or have prepared, scaled maps of their campus or site showing all human-made features and the boundary of any floodplain on the property.

(2) Where base flood information is available, the elevations of the base flood and existing structures should be noted.

(3) This information is critical in the planning of future developments at the site.

(4) If the department has such information prepared, a copy shall be provided to the Design Review Section for record.

Authority. Arkansas Code § 22-2-108.

Codification Notes. Section 404 of the Federal Water Pollution Control Act Amendments of 1972 is codified at 33 U.S.C. § 1343.

22 CAR § 111-705. Permits.

(a)(1) When a department proposes to develop property within the boundaries of the hundred-year floodplain or a Building Authority Division designated flood hazard

area, the department shall submit an application for a development permit on a form approved by the Design Review Section.

(2) The form shall include but not be limited to the following information:

(A) Application number (department project number issued by the Design Review Section);

(B) Date of application;

(C) Name of the department/owner of the property;

(D) Address of the development site (or legal description if an undeveloped site);

(E) Type of development;

(F) Brief description of the development;

(G) Base flood elevation at the site;

(H) Elevation of the lowest floor of the proposed structure;

(I) Acknowledgement of attachments to the permit application; and

(J) Typed name and phone number of the applicant and signature and date.

(b)(1) The department should attach all information pertinent to the application that will support the application.

(2) Attachments should include but are not limited to:

(A) A copy of the Federal Emergency Management Agency map for the project site with the exact location of the project site marked;

(B) Copies of other regulatory agency permits such as those required under Sections 401 and 404 of the Federal Water Pollution Control Act and Amendments of 1972;

(C) Elevation certificates;

(D) Certification of no increase in the base flood elevation or no rise certificate;

(E) Flood-proofing certificate;

(F) Certification for water supply systems, sanitary sewer systems, and on-site waste disposal systems; and

(G) Notification of the alteration or relocation of a watercourse.

(c)(1) The Design Review Section shall review the permit application and approve or disapprove the application.

(2) Requests for additional information may be made in conjunction with the initial review of the application.

(d)(1) If the application is approved, the floodplain administrator will issue a development permit for the design phase of the project.

(2) A copy of the permit shall be posted at the project site during the construction and available for review by the division or any other regulatory entity during normal business hours at the site.

(e)(1) At the completion of the project, but prior to final acceptance, the division will review the development site to verify compliance with the permit requirements.

(2) The floodplain administrator will sign off on the permit signifying that the development complies with the permit requirements.

(3) If noncompliant work or construction is discovered, the department shall make the necessary corrections for compliance or the project will be designated as a nonconforming use site under the division floodplain management program.

(f)(1) In riverine situations, the department shall notify the division, adjacent communities, and the state NFIP Coordinator at the Arkansas Natural Resources Commission prior to any alteration or relocation of a watercourse and submit copies of such notifications to the Federal Insurance and Mitigation Administration.

(2) Assure that the flood carrying capacity within the altered or relocated portion of any watercourse is maintained.

(3) This assurance shall:

(A) Be accompanied by an engineering study of the before and after conditions; and

(B) Have been prepared by a registered professional engineer.

Authority. Arkansas Code § 22-2-108.

Codification Notes. "NFIP" means National Flood Insurance Program.

Section 401 of the Federal Water Pollution Control Act Amendments of 1972 is codified at 33 U.S.C. § 1341.

Section 404 of the Federal Water Pollution Control Act Amendments of 1972 is codified at 33 U.S.C. § 1343.

22 CAR § 111-706. Federal Emergency Management Agency designations and types.

(a)(1) The Federal Emergency Management Agency is the official source for all floodplain maps used in the Building Authority Division floodplain management program.

(2) The Federal Emergency Management Agency began publishing flood hazard boundary maps for the United States in 1977.

(3) These early maps were constructed from information obtained from other sources such as the United States Army Corps of Engineers, United States Geological Survey, United States Natural Resources Conservation Service, and other available sources.

(4) In some instances, the data used to compile these source maps have not been updated in many years.

(5) In many parts of the state, these older maps are still the effective maps in use.

(b)(1) The Federal Emergency Management Agency regularly reviews these maps and will issue updated maps periodically when new or better flood study information is available.

(2) These maps will be designated by a community panel number and an effective date.

(3) Some maps will be designated as Flood Hazard Boundary Maps (FHBM), Flood Insurance Rate Maps (FIRM), Special Flood Hazard Areas (SFHA), or other designations.

(c)(1) Maps are issued in several formats.

(2) Some older maps will be printed on ledger size paper eleven inches by seventeen inches (11" x 17") and are commonly referred to as "plates".

(3) Larger format maps are printed and folded much like a road map and are commonly referred to as a "panel".

(4) Newer maps are being issued in an electronic format and are referred to as a "DFIRM" or digital map.

(5) Some maps are available for viewing and or purchasing at the Federal Emergency Management Agency website (www.fema.gov).

(d)(1) Due to the methodology of producing the original maps and the incorporation of better information from actual field studies, sometimes property which is shown in a known floodplain may actually be at an elevation that is above the established base flood elevation.

(2) In these instances, the department or owner may submit an application to the Federal Emergency Management Agency to have the property in question removed from the floodplain for insurance purposes.

(3) The Federal Emergency Management Agency evaluates these applications and may issue a letter of map amendment (LOMA) or letter of map revision (LOMR).

(4) The actual map panel may not be redrawn to reflect this change until the next scheduled revision.

(e)(1) Some maps or portions of maps will show a floodplain boundary but will not show the elevations of the base flood.

(2) In these cases, the Design Review Section may determine the approximate base flood elevation by one (1) or more of the following methodologies:

(A) Contour interpolation;

(B) Obtainment of a base flood elevation determination from another authoritative source;

(C) Review of high water marks from previous flood events; or

(D) Review of flood studies prepared by other governmental or private agencies.

(3) In the absence of a base flood elevation determination by the Federal Emergency Management Agency, the Design Review Section determination will be the official determination for that specific site.

(f)(1) Some maps or portions of maps will show a floodplain boundary with base flood elevation data but will not indicate a designated floodway.

(2) In these cases, the Design Review Section will use the established base flood elevations and may designate a portion of the floodplain as a floodway for the purpose of regulating the development in the floodplain.

(3) The area selected and designated a regulatory floodway shall be based on the principle that the area chosen for the regulatory floodway must be designed to carry the waters of the base flood without increasing the water surface elevation of that flood more than one foot (1') at any point in the floodplain.

(4) The division-designated floodway will be the official determination for that specific project site.

(g)(1) Some areas of the state have not yet been mapped by the Federal Emergency Management Agency for flood hazard areas.

(2) When a project site falls within an unmapped area, the Design Review Section will determine if the project site is located within a potential flood-prone or hazard area.

(3) When the project site is determined to be in a flood hazard area, the department shall be required to relocate the project outside of the division-determined hazard area or to provide an engineering study to verify the site will not be in a hundred-year flood hazard area.

Authority. Arkansas Code § 22-2-108.

Codification Notes. "DFIRM" means digital flood insurance rate map.

22 CAR § 111-707. General requirements.

(a)(1) Encroachment, including fill, new construction, substantial improvements, and other development are prohibited within the adopted regulatory floodway unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment would not result in any increase in flood levels within the floodway during the occurrence of the base flood discharge.

(2) Engineering analyses shall be prepared by a registered professional engineer.

(b) Except in unnumbered Zone "A", until a regulatory floodway is designated, no new construction, substantial improvements, or other development (including fill) shall be permitted.

(c) Notwithstanding any other provisions, encroachment may be permitted within the adopted regulatory floodway that would result in an increase in base flood elevations, provided that the requesting agency:

(1) First applies to the Federal Emergency Management Agency for a conditional FIRM and floodway revision;

(2) Fulfills the requirements for such revisions as established under the provisions of National Flood Insurance Program Regulations, 44 C.F.R. § 65.12; and

(3) Receives the approval of the Flood Insurance Administrator.

(d)(1) Construction of new structures or substantial improvements to existing structures are prohibited within the floodplain unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed construction would result in an increase in flood levels of less than one foot (1') within the floodplain during the occurrence of the base flood discharge.

(2) Engineering analyses shall be prepared by a registered professional engineer.

(e) Adequate drainage paths around structures on slopes are required within the floodplain to guide floodwaters around and away from proposed structures.

(f) New structures or modifications and equipment installed within a floodplain shall be installed using methods and practices that minimize the potential for damage or loss due to flooding.

Authority. Arkansas Code § 22-2-108.

Codification Notes. "FIRM" means flood insurance rate maps.

22 CAR § 111-708. Elevation requirements in floodplains.

(a) Elevation of the lowest floor level for structures and the elevations of equipment pads for equipment located in the floodplain shall be as shown in this section.

(b) Where no Federal Emergency Management Agency map exists and the project site is located in a flood-prone area, the minimum elevation shall be two feet (2') above the adjacent grade.

(c) Where a Federal Emergency Management Agency map exists but no base flood elevation data is provided within five hundred feet (500') of the project site location, the minimum elevation shall be two feet (2') above the base flood elevation established by the Building Authority Division.

(d) Where a Federal Emergency Management Agency map exists but no base flood elevation is provided at the project site and a base flood elevation is noted within five hundred feet (500') of the site or a base flood elevation is obtained from another authoritative source such as a United States Army Corps of Engineers study or Arkansas Department of Transportation study, the minimum elevation shall be one foot (1') above the base flood elevation accepted by the division.

(e) Where a Federal Emergency Management Agency map exists and a base flood elevation is provided at the project site, the minimum elevation shall be one foot (1')

above the elevation shown on the map in the flood insurance study, if available, or as interpolate between elevations shown on the map.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-709. Recommended development types in a floodplain.

(a)(1) While it is strongly desirable to prohibit development within the floodplain, the Building Authority Division recognizes that there are beneficial developments that, when constructed properly, can provide vital public spaces while minimizing the potential for damage or loss due to flooding.

(2) Departments are encouraged to reserve the floodplain for these uses to the maximum extent possible.

(b)(1) When possible, floodplains at a department site or campus should be reserved for their natural purpose.

(2) Leave floodplains in their natural state as wildlife or bird habitats.

(3) Departments shall maintain the floodplain and floodway in a manner that will reduce or minimize the accumulation of debris in the floodwaters which may inhibit or restrict the free flow of the waters.

(4) When clearing or landscaping of a floodplain is necessary to reduce fire hazards for safety and security or to enhance the scenic view from a building or gathering point, the area located within the boundaries of the floodplain should be left as a green belt or space.

(5) Erosion control measures shall be implemented to ensure that flood events do not create erosion or unacceptable levels of sediment transportation.

(c)(1) Development of walking, biking, and riding trails within the floodplain, particularly along the stream or river, are encouraged to allow the public to experience the beauty of these natural features.

(2) Amphitheaters and gazebos may be constructed within the floodplain provided that they are:

(A) Securely anchored to prevent floatation or collapse; and

(B) Constructed of materials to resist flood damage.

(3) Departments should emphasize the purpose of the floodplain and floodway through the use of informational and interpretive signs and exhibits.

(d)(1) Sports fields and playgrounds may be constructed within the floodplain.

(2) Equipment installed must be properly anchored and constructed of materials that resist flood damage.

(3) Bleachers and stands may also be installed provided that they are properly anchored to prevent flotation or collapse and allow the free flow of floodwater through the structure.

(4) Concession stands that are enclosed on four (4) sides must be elevated above the base flood elevation in accordance with 22 CAR § 111-707.

(e)(1) Parking lots may be constructed within the floodplain provided no overnight parking is allowed at the site.

(2) Parking lot lighting must be installed on an elevated concrete pedestal with the handhole installed above the base flood elevation.

(3) All wiring shall be installed to prevent the entry of water into the conduit system.

(4) The electrical disconnect serving the lighting circuits must be installed above the base flood elevation and preferably outside the floodplain.

(5) Consideration to the anticipated velocity of floodwaters shall be considered in the selection of the paving system to minimize the loss of paving during a flood event.

(6) Provide adequate signage indicating that part or all of the parking is located in a known floodplain and that flooding may occur without warning during periods of heavy rainfall.

(7) Layout and location of signage must be included in the review submittal to the Design Review Section.

(f) Campsites and recreational vehicle parking may be constructed within a floodplain provided that the following conditions are met:

(1)(A) Campsites may be constructed with permanent tent pads and accessories such as grilles, seating, fire rings, and similar appurtenances.

(B) Campsites may be suitable for tents or pull-along campers only.

(C) Tents and pull-along campers:

(i) Shall be on site no more than seven (7) consecutive days; and

(ii) Must be suitable for strike-down within less than one (1) hour.

(D) No permanent cabins, lodges, or similar structures are allowed unless the lowest floor level is elevated above the base flood elevation in accordance with 22 CAR § 111-708;

(2)(A) Recreational vehicles shall be on the site for fewer than one hundred eighty (180) consecutive days and must be fully licensed and ready for highway use.

(B) A recreational vehicle is considered ready for highway use if it:

(i) Is on its wheels or jacking system;

(ii) Is attached to the site only by quick disconnect type utilities and security devices; and

(iii) Has no permanently attached additions.

(C) Vehicles not meeting these requirements must be installed to meet the elevation and anchoring requirements for manufactured homes;

(3)(A) Where overnight camping is allowed within a floodplain, the department shall have a written formal emergency plan for staff use in the notification of campers and the evacuation of the affected campsites.

(B) The department shall:

(i) Install signage at each campsite advising the camper that the site is located with a known flood hazard area; and

(ii) Provide a clearly designated evacuation route to a safe location.

(C) Signage shall clearly mark the:

(i) Evacuation route; and

(ii) Area of refuge.

(D) When campers check in at the campground, the department shall provide:

(i) Printed instructions on the evacuation procedures during flooding; and

(ii) The campers with a map showing the:

(a) Evacuation route;

(b) Signage; and

(c) Area of refuge.

(E) Sign design and locations shall be indicated on plans and submitted for review;

(4)(A) Departments should also post warning signs at all locations within its property that may be subject to flash flooding regardless of whether the area is located in a known floodplain.

(B) Signage should advise that:

(i) The area is known to be subject to flash flooding during heavy rains; and

(ii) Caution is advised during rainy weather.

(C) The signage should also provide directions to the closest exit from the flood-prone area; and

(5)(A) Campsites and recreational vehicle parking may be provided with utility hook-ups such as electricity, water, and sewer provided that these utilities are designed to prevent the entry of floodwaters into the piping systems.

(B) Electrical connections within the floodplain area shall:

(i) Have a disconnecting means located outside the floodplain or at an elevation above the base flood elevation; and

(ii) Be accessible by the campground operators to disconnect power during flood events.

(g)(1) Telecommunication towers, utility poles or towers, underground utilities, and similar facilities may be constructed in the floodplain provided that facilities:

(A) Are designed to resist collapse due to floodwaters;

(B) Are properly anchored; and

(C) Permit the free flow of water in and around the structures.

(2) For utility service lines such as water, sewer, gas, electric, and similar, the piping system shall be designed to prevent the entry of floodwater.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-710. Structures not permitted below the base flood elevation.

(a) Residential structures, institutional restrained occupancy facilities, hazardous materials storage, educational facilities, emergency services facilities, and office buildings shall not be constructed with the lowest floor below the base flood elevation.

(b)(1) Water treatment and sewage treatment plants shall not be constructed with the lowest floor or operations level below the base flood elevation.

(2) When topography requires that such facilities must be constructed below the base flood elevation, the facility shall be protected from flooding by the use of levees or floodwalls and provided with reliable means to remove rainwater before over topping the critical treatment tanks or structures.

(c)(1) Where these types of structures must be located within a floodplain, the department must elevate the building or equipment pads above the base flood elevation by installing suitable fill.

(2) This installation must comply with the provisions of 22 CAR § 111-707.

(d)(1) The department may make application to the Federal Emergency Management Agency for the site to be removed from the floodplain based on this fill activity.

(2) If the Federal Emergency Management Agency approves the application, it will issue a letter of map amendment based on fill (LOMAF).

(3) A copy of this letter must be submitted to the Design Review Section before the plans can be approved for bidding or construction.

(4) Note that this approval:

(A) Is for insurance purposes under the National Flood Insurance Program only; and

(B) May not result in a premium reduction under the current state master insurance policy.

(5) The department shall verify the insurance requirements and restrictions with its insurance risk management representative.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-711. Structures that may be permitted below the base flood elevation.

(a)(1) Nonresidential structures may be permitted if dry flood proofed or wet flood proofed subject to Design Review Section approval.

(2) Types of structures that will be considered include but are not limited to:

(A) Picnic pavilions;

(B) Park restroom facilities;

(C) Parking garages;

(D) Boat storage; and

(E) Marine dock facilities (including dock-mounted stores).

(b)(1) For dry flood proofing, the structure and attendant utility and sanitary facilities shall be designed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.

(2) The elevation of the dry flood proofing must be equal to the elevations noted in 22 CAR § 111-708, certified by the design professional, and documentation submitted to the Design Review Section for review and approval.

(c)(1) For wet flood proofing of new construction and substantial improvements, fully enclosed areas below the base flood elevation which are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters.

(2) Designs for meeting this requirement must be certified by a registered engineer or architect and meet or exceed the following minimum criteria:

(A)(i) A minimum of two (2) openings having a total net area of not less than one (1) square inch for every square foot of enclosed area subject to flooding shall be provided.

(ii) The bottom of all openings shall be no higher than one foot (1') above grade.

(iii) Openings may be equipped with screens, louvers, valves, or other coverings or devices provided they permit the automatic entry and exit of floodways;

(B)(i) Automatic vents and screens must be periodically inspected and tested to ensure proper operation during a flood event.

(ii) The agency shall maintain a record of each test procedure and result along with maintenance records on the automatic type vents; and

(C)(i) Structure shall be constructed with materials resistant to flood damage and allow for quick sanitary cleanup and return to service.

(ii) Materials that support the growth of mold shall be prohibited.

(d)(1) Structures shall be adequately anchored to prevent flotation, collapse, or lateral movement of the structure or equipment resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy and velocity of the water.

(2) The potential for debris impact must also be considered as well as the probability for the structure or contents becoming debris for downstream property.

(3) Designs for meeting this requirement must be certified by a registered engineer or architect.

(e)(1) Facilities shall be constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities that are designed or located to prevent water from entering or accumulating within the components during conditions of flooding.

(2) Designs for meeting this requirement must be certified by a registered engineer.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-712. Manufactured homes and portable buildings.

(a)(1) Manufactured homes or portable office or classroom buildings should not be located in a floodplain if other property at the site or campus is outside of the floodplain.

(2) When these types of structures must be located in a floodplain, the department may raise the grade on which the structure sits and the surrounding grade to meet or exceed the base flood elevation.

(b)(1) The chassis shall be:

(A) Supported by reinforced concrete piers or other foundation elements of equivalent strength; and

(B) No less than thirty-six inches (36″) above the base flood elevation and be secured to an adequately anchored foundation system to resist:

(i) Floatation;

(ii) Collapse; and

(iii) Lateral movement.

(2) All mechanical and electrical equipment (including ductwork) shall be installed in accordance with 22 CAR § 111-711(e).

(c) When an existing manufactured home or portable building which has been located below the base flood elevation has incurred substantial damage as the result of a flood, it shall not be replaced or repaired unless the provisions of subsections (a) and (b) of this section are met.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-713. Utility and site improvement projects.

(a) All public utilities and facilities, such as sewer, gas, electrical, telecommunication, water systems, and roadways shall be located and constructed to minimize or eliminate flood damage.

(b) Adequate drainage shall be provided to reduce exposure to flood hazards around these facilities.

(c) New and replacement sanitary sewage systems shall be designed to minimize infiltration of floodwaters into the systems and discharges from the systems into waters.

(d) Onsite waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

(e)(1) Roads and driveways for normal access may be constructed below the base flood elevation as the topography may require.

(2) Roads and drives required for access by emergency vehicles during a flood for evacuation or emergency rescue or response shall be constructed at or above the base flood elevation.

(f)(1) Bridges and crossings of streams, creeks, and primary drainage paths of floodwaters may be constructed below the base flood elevation provided that proper signage is installed advising of "low water crossing, do not enter when water is above roadway".

(2) Construction must be compliant with 22 CAR § 111-707 and other applicable sections of the Building Authority Division floodplain management program.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-714. Variance.

(a)(1) The issuance of a variance is for floodplain management purposes only.

(2) Insurance rates:

(A) Are determined by statute according to actuarial risk; and

(B) Will not be modified by the granting of a variance.

(3) Therefore, while a variance initially offers relief to a developer department, for example, through lower construction costs, higher insurance premiums may offset or exceed the reduced cost of construction.

(4) The Building Authority Division Flood Plain Administrator, after examining the applicant's hardship, shall approve or disapprove a variance request.

(5) While the granting of variances generally is limited to a lot size less than one-half (1/2) acre, deviations from that limitation may occur.

(6) However, as the lot size increases beyond one-half (1/2) acre, the technical justification required for issuing a variance increases.

(7) Variances may be issued for the reconstruction, rehabilitation, or restoration of structures listed on the National Register of Historic Places or the State Register of Historic Places, without regard to the procedures described in this section.

(b)(1) If a department wishes to construct a nonconforming structure in a flood management area, that department shall:

(A) Submit a description of the proposed project in enough detail to allow consideration of the eleven (11) variance factors listed below; and

(B) Submit a written detailed response to each of the variance factors listed below.

(2) The Building Authority Division will consider the variance in conjunction and either disallow the variance, thereby requiring that the project be relocated, or submit it to the Building Authority Division Flood Plain Administrator for consideration:

(A) Danger to life and property due to increased flood heights or velocities caused by the nonconforming structure;

(B) Danger that materials may be swept downstream and cause injury to persons or property;

(C) Ability of any proposed water supply or sanitary systems to prevent:

(i) Disease;

(ii) Contamination; and

(iii) Unsanitary conditions;

(D) The susceptibility of the proposed facility and its contents to flood damage and the practicality of plans to prevent such damage;

(E) Importance of the proposed facility to the state or local community;

(F) Degree of necessity that the proposed facility be placed in this location;

(G) Availability and practicality of alternate locations;

(H) Compatibility of the proposed facility with existing development;

(I) Relationship of the proposed facility to the comprehensive plan and floodplain management program for the area;

(J) Safety of access of the facility in times of flood, particularly for emergency vehicles; and

(K) The expected heights, velocity, duration, rate of rise, and sediment transport of the floodwaters expected at the site.

(c) Procedures for the granting of variances are as follows:

(1) Variances shall not be issued by the Building Authority Division Flood Plain Administrator within any designated regulatory floodway if any increase in flood levels during the base flood discharge would result;

(2) Variances may be issued by the Building Authority Division Flood Plain Administrator for new construction and substantial improvements to be erected on a lot of one-half (1/2) acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, in conformance with the division floodplain management program requirement; or

(3) Variances shall only be issued by the Building Authority Division Flood Plain Administrator upon:

(A) A showing of good and sufficient cause;

(B) A determination that failure to grant the variance would result in exceptional hardship to the applicant;

(C) A determination that the granting of a variance will not result in:

(i) Increased flood heights;

(ii) Additional threats to public safety;

(iii) Extraordinary public expense;

(iv) The creation of nuisances;

(v) Causing fraud upon, or victimization of, the public; or

(vi) Conflict with existing state or federal laws; and

(D) A determination that the variance is the minimum necessary considering the flood hazard to afford relief.

(d)(1) The division shall notify the applicant in writing that:

(A) The issuance of a variance to construct a structure below the base flood level will result in increased premium rates for flood insurance up to amounts as high as twenty-five dollars ($25.00) annual premium for one hundred dollars ($100) of insurance coverage, increased deductibles per claims, and in some instances, insurance coverage may be denied;

(B) Such construction increases the risk to life and property; and

(C) Any terms or conditions of the variance approval.

(2) This information constitutes notification to the applicant of the criteria for and consequences of the issuance of the variance.

(3) The division shall maintain a record of variances and report the number of variances to the Federal Insurance Administrator when requested.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-715. Reporting a flood event.

(a)(1) To provide for effective management of floodplain development, it is essential that the Building Authority Division be informed about each flood event in sufficient detail to plan future developments and adjust the floodplain management program.

(2) Therefore, departments shall report each flood event to the division-designated floodplain administrator and to its respective insurance risk management representative.

(3) The report shall include but not be limited to the following items:

(A) Date of the flood event;

(B) Rainfall in inches and duration of rain in hours (if known);

(C) A description of the damage to structures and facilities (include photos);

(D)(i) A map of the campus or site showing the boundaries and elevations of the flooding at high water.

(ii) If a map is not available, mark the high water at one-hundred-foot intervals along the perimeter and on structures that were partially flooded and notify the division.

(iii) The division will attempt to locate a suitable map and assist the department with this documentation; and

(E)(i) Attach copies of news articles or reports that indicate the magnitude of the flood.

(ii) If an authoritative source such as the United States Army Corps of Engineers or National Weather Service designates the event as a particular frequency event such as a twenty-five-year, fifty-year, hundred-year event, or similar, include a copy of this information.

(b)(1) It is not the intent of this policy to inhibit a department's response to or recovery from a flood event.

(2) This report should be completed after the emergency is over and submitted no later than sixty (60) days after the event.

(3) However, a department may request a thirty-day extension if submitted in writing.

(4) The request should include:

(A) The date of the event;

(B) A brief description of the damages; and

(C) The estimated date the full report can be submitted.

(c)(1) Once an insurance settlement has been determined, the department shall submit a supplement to the report noting the value of the total losses and the amount of the insurance settlement.

(2) This information is requested for tracking purposes only.

Subpart 8. Energy Conservation

22 CAR § 111-801. Energy conservation generally.

(a)(1) The life cycle cost of operating a building, including energy cost and labor cost, can often exceed the cost of the building construction by eight (8) to ten (10) times.

(2) Efforts to reduce energy consumption or improve employee efficiency by as little as ten percent (10%) can often result in lifetime cost savings equaling the cost of new construction.

(3) It is therefore incumbent upon each building operator, manager, and designer to be aware of the issue regarding energy consumption in the building and to plan construction and operations as wisely as possible to minimize the energy consumption while meeting the operational needs of the facility and while promoting a healthy indoor environment.

(b)(1) Energy conservation for only the sake of avoiding energy consumption can often lead to indoor environmental problems that can have a potential cost far greater than the value of the energy saved.

(2) All energy plans should consider not only the energy reduction but also the impact upon the building materials, systems, and upon the occupants' health and productivity.

(3) Pursuant to the Arkansas Code for New Building Construction Suppleents and Amendments, 15 CAR pt. 233, and the Arkansas Fire Prevention Code, 12 CAR pt. 15, all new construction projects and renovations shall comply with these codes.

(4) Departments should give careful consideration to the principles of the standards and codes for incorporation into the project design to allow a stable base from which the building operator can begin to manage the building's energy consumption.

(5)(A) All occupied buildings shall be designed to maintain the indoor environment within the parameters of the "comfort envelope" as defined in the ASHRAE Fundamentals Handbook.

(B) This envelope defines a range of temperatures and humidity levels that are deemed to be acceptable to most occupants under normal activity levels.

Authority. Arkansas Code § 22-2-108.

Codification Notes. "ASHRAE" means American Society of Heating, Refrigerating, and Air-conditioning Engineers.

22 CAR § 111-802. Life cycle cost analysis.

(a) In accordance with the Arkansas Energy Office of the Division of Environmental Quality rule for Energy Efficiency and Natural Resource Conservation in Public Buildings, 22 CAR pt. 10, departments and the project designer are required to evaluate all material and equipment selections on the basis of life cycle cost as opposed to a first cost only for:

(1) New construction projects exceeding twenty thousand square feet (20,000 ft^2); and

(2) Renovations of buildings exceeding twenty thousand square feet (20,000 ft^2) wherein the renovation cost exceeds fifty percent (50%) of the insured value of the building.

(b) During a competitive bid process for construction, often the product having the better life cycle cost can be incorporated into the project for little or no incremental cost over the lesser quality product.

(c) Departments should evaluate the proposed products at a thirty-year life cycle.

(d) Careful consideration should also be given to the utility escalation rates, the maintenance rate, and the discount rates for the cost of money.

(e) These factors can vary significantly from those applied to private sector cost (shorter life cycle) and if improperly applied can invalidate the analysis.

(f) Departments are encouraged to use life cycle costing on all other projects to the extent that it is economically feasible.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-803. Automated controls.

(a) Where possible, use automatic controls for HVACR systems and for lighting applications.

(b) Space temperature and humidity should be controlled by automatic controls capable of maintaining the space set-point within a fixed upper limit and lower limit.

(c) Where practical, provide for the automatic setback or setup of the space temperature during the unoccupied periods.

(d) Avoid turning off systems where the rise in space temperature or humidity above the ASHRAE recommended maximums might result in damage to the building materials or growth of microbiological organisms.

(e) Avoid exposing the building water systems or other components to potentially damaging freezing conditions.

(f) Where possible, use space occupancy sensors such as motion sensors to control lighting and individual room air conditioning terminal units to allow setback or to turn out the lights when a space is unoccupied.

(g) Where sufficient natural lighting exists due to windows or skylights, use automatic lighting controls to regulate the overall space lighting levels.

Authority. Arkansas Code § 22-2-108.

Codification Notes. "ASHRAE" means American Society of Heating, Refrigerating, and Air-conditioning Engineers.

"HVACR" means heating, ventilation, air conditioning, and refrigeration.

22 CAR § 111-804. Manual controls.

(a) When automatic controls are not part of the building systems, the building manager should develop policies for each building or facility.

(b) These policies should be written and distributed to all employees.

(c) The policy should encourage the conservation of energy through the direct involvement of the building occupants.

(d) Occupant efforts should include activities such as:

(1) Turning lights off when not in use;

(2) Maintaining thermostat settings as directed by the building manager;

(3) Setback or set-up thermostat settings during the unoccupied periods;

(4) Not leaving windows open when the building heating or air conditioning systems are in operation;

(5) Using the blinds or drapes to moderate the lighting level in the space so as to take maximum advantage of the natural lighting and so as to reduce the building air conditioning load;

(6) Leaving blinds or drapes closed when the space is unoccupied and over the weekends and holidays; and

(7) Not using electrical space heaters in spaces that are air conditioned.

(e) Adjust the heating/cooling set-points or encourage employees to dress in multiple layers of lightweight clothing such as jackets or sweaters which can be removed or added to accommodate individual variations in comfort levels.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-805. Equipment efficiency.

(a)(1) Do not overlook water conservation as an opportunity to reduce or manage the building operating cost.

(2) When selecting water-cooled or liquid-ring seal equipment, consider the water usage rates.

(3) When designing or operating lawn irrigation systems, consult with the University of Arkansas Cooperative Extension Service to determine the maximum water rates for all vegetation.

(4) Evaluate the soil conditions with regards to absorption rates.

(5) Where possible, provide irrigation systems that calculate the evaporation transpiration rate based on local conditions.

(6) It is more effective to have multiple watering cycles to allow ample time for the water to absorb into the soil than to have longer cycles which results in excessive run-off.

(7)(A) Be cautious not to overwater, especially where large trees are concerned.

(B) The damage caused by the loss of an old growth tree due to overwatering can be many times the cost of proper watering in that area.

(8)(A) Where possible, use plumbing fixtures with infrared sensors to activate the flow of water.

(B) This not only saves water but also is more sanitary and reduces the transmission of bacteria from hand contact with the fixture.

(b)(1) Departments and designers should endeavor to specify new equipment and fixtures to be Energy Star® compliant.

(2) Energy Star® equipment has been tested and certified to be low energy consuming during normal operation.

(3) In addition, many Energy Star® products such as computers have built-in power reduction modes that further reduce energy consumption during nonuse or standby periods.

(4) Building managers should encourage occupants to not defeat or disable these energy reduction features.

(5) Equipment, like building systems, should be selected based on the best life cycle cost for each specific application.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-806. Energy Star® Building Program.

(a)(1) The Energy Star® Building Program is a voluntary partnership between United States organizations and the United States Environmental Protection Agency to promote energy efficiency in buildings.

(2) These organizations represent owner-occupied public and privately owned buildings.

(3) The United States Environmental Protection Agency provides participants in the program with:

(A) Unbiased technical information;

(B) Customized support services;

(C) Public relations assistance; and

(D) Access to a broad range of resources and tools.

(b)(1) The Energy Star® Building Program allows building owners to benchmark their building's energy performance relative to other similar properties in the program database.

(2) The Energy Star® Building Label is awarded to buildings performing in the top twenty-fifth percentile of the market.

(3) This mark of excellence in energy performance signifies that the building has:

(A) Outstanding energy performance;

(B) Lower operating cost; and

(C) Superior value.

(4) Buildings qualifying for the Energy Star® Building Label are eligible to receive a placard to display on the building denoting:

(A) The building as an Energy Star® Building; and

(B) The year date the building was certified.

(c)(1) The Energy Star® building labeling program is cosponsored by the United States Environmental Protection Agency and the United States Department of Energy.

(2) Information concerning the program criteria and participation can be accessed through the United States Environmental Protection Agency website at https://www.energystar.gov/buildings/building_recognition/building_certification.

(3) Departments are encouraged to apply for the building label.

(d) The Energy Star® Portfolio Manager building benchmarking program is recommended for agencies subject to the energy reduction mandate of Governor's Executive Order 09-07 and the Sustainable Energy-Efficient Buildings Act, Arkansas Code § 22-3-2001 et seq., as a tool to monitor and achieve the goals of the department's strategic energy plan.

Authority. Arkansas Code § 22-2-108.

Subpart 9. Design Standards

22 CAR § 111-901. Design standards generally.

(a) The standards contained herein are considered the minimum acceptable for capital improvement projects submitted to the Design Review Section.

(b) Departments and their design professionals are encouraged to exceed these standards when in the best interest of the state.

(c) If the department encounters a situation whereby these minimum standards cannot be met, the department shall submit a written request to the Design Review Section for a waiver of each specific standard.

(d) The waiver request shall define the conditions of the project that cannot meet the MSC, the applicable paragraph references for which the waiver is sought, the cost of compliance with the MSC if the waiver is not granted, and the cost of the proposed alternate construction and why the department cannot comply with the standards under the proposed project.

(e) All waivers must be approved by the Design Review Section in writing prior to the first plan submittal to the Design Review Section.

Authority. Arkansas Code § 22-2-108.

Codification Notes. "MSC" means minimum standards and criteria.

22 CAR § 111-902. Design philosophy.

(a)(1) The goal of the department and its consulting design professionals should be to create a capital investment that meets the user's functional requirements and program requirements and provides the most economical life cycle cost for the taxpayer.

(2) Buildings and structures will often be used for periods exceeding fifty (50) years and, consequently, should be designed for durability, adaptability, and economy of operation and ease of maintenance.

(3) The state currently has many functioning buildings that are over fifty (50) years old.

(b)(1) Building system components should be selected based on life cycle cost.

(2) If an increased first cost or initial cost can be documented to show a reduced life cycle cost for the state, particularly for operating and personnel cost, then the design should incorporate the more expensive first cost feature or system.

(3) Studies have shown that the initial construction cost for most buildings equals ten percent (10%) or less of the total cost of owning and operating a building over the life cycle of the building.

(4) Departments shall require the design professional to produce life cycle cost data for review before approving a design element or system where required by the Arkansas Energy Office of the Division of Environmental Quality's rule, Energy Efficiency and Natural Resource Conservation in Public Buildings, 22 CAR pt. 10.

(c)(1) Departments must be alert to ensure their consulting design professionals exercise discipline in their designs to promote efficient use of facility space in terms of floor area and building volume.

(2) Exterior design features and materials should be consistent with the architectural character of the surrounding buildings and should complement the natural materials at the site.

(3) Excessive features or unusual geometry which are not related to the function or intended use of the facility shall be avoided.

(d)(1) Acceptance of a particular design does not imply that other more cost-effective designs are not acceptable.

(2) Good architecture can be achieved simply by good design which implies sensitivity to scale, mass, proportion, color, materials, lighting, and detail, none of which necessarily cost more.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-903. Design standards and requirements for owners/departments.

(a)(1) The department and the design professional should be aware of differences between private work and work performed for the state.

(2) Failure to comprehend these basic differences in rules and policies can result in:

(A) Costly disputes;

(B) Protest;

(C) Claims; and

(D) Document resubmittals.

(3) The design professional should become familiar with these differences, which include but are not limited to the following areas.

(b)(1) Since the knowledge and experience of the contractors bidding on the project is unknown, drawings and specifications requirements shall be clear as to the intent of the work.

(2) The plans and specifications must be:

(A) Clear;

(B) Concise; and

(C) Provide thorough detailing of existing and new construction.

(c)(1) Sections, details, and dimensions must be in sufficient quantity, clarity, and detail to allow the bidder to understand what is expected, to make takeoffs of material

types and quantities, and, once hired, to prepare shop drawings and execute the construction.

(2) This particularly applies to:

(A) Stairs;

(B) Special connections for framing;

(C) Typical details of system interfaces;

(D) Flashing for roofs;

(E) Walls; and

(F) Similar building features.

(d)(1) Details should clearly distinguish between existing and new construction.

(2) The drawings must also clearly show the beginning and the ending point of demolition requirements.

(e)(1) The project design is solely the responsibility of the design professional.

(2) Specifications requiring the contractor to provide engineering design are not acceptable unless the products specified for contractor design are closed-engineering systems.

(3) Closed-engineering systems may include:

(A) Preengineered metal buildings;

(B) Elevated water storage tanks;

(C) Prefabricated trusses;

(D) Post tensioned structural concrete slabs;

(E) Precast concrete systems; and

(F) Common steel structural connections.

(4) Other systems can be classified as closed-engineering systems if approved in writing by the State Engineer.

(5) When closed-engineering system specifications are used, the design professional shall include the requirement for such system's designs to be stamped by a professional engineer duly licensed to practice in the state pursuant to Arkansas Code § 22-9-101 et seq.

(6) Closed-engineering system shop drawings shall be submitted through the design professional to the engineer of record for review and approval for incorporation into the overall project design.

(f)(1) To encourage competition required in the expenditure of public funds, performance specifications that define a desired result or assembly are strongly preferred.

(2) If performance specifications are not practical and a manufactured product must be used to define a desired result of assembly, then at least three (3) manufacturers and three (3) products should be referenced.

(3) Do not reference both manufactured products and performance criteria because conflicts in the performance criteria and the product performance may create ambiguity and result in the misapplication of a:

(A) Product;

(B) Protest; or

(C) Claim.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-904. Specification standards.

(a)(1) Specifications shall clearly define the quality, performance, and installation standards for the work and the conditions under which the work is to be executed.

(2) They shall be in sufficient detail to describe the materials, equipment and supplies, and the methods of installation and construction.

(3) Required tests and guarantees shall be indicated in the specifications.

(b)(1) Federal specifications, MILSPECS, United States Army Corps of Engineers specifications, and Arkansas Department of Transportation specifications often contain requirements or standards which are not applicable to state work.

(2) Those specifications may contain requirements and options ranging from the lowest quality to the highest quality product, which must be carefully reviewed, selected, and identified in the specifications.

(3) Therefore, it is recommended that all reference to these types of specifications be avoided.

(c)(1) Specifications shall be on eight and one-half inch by eleven inch (8 1/2" x 11") sheets and bound into a project manual with bid sets preferably printed on both sides of the sheet.

(2) Type print size shall be suitable for microfilming and shall not be smaller than twelve-point type size.

(3) The table of contents pages, or index, shall be dated with the same date as the drawings and shall be sealed and signed by the appropriate design professionals.

(d) The project manual shall include but not be limited to:

(1) Title of project and name of department;

(2) Names, addresses, and phone and fax numbers of the design professional and all consultants;

(3) An index of all contents;

(4) Notice of invitation to bid;

(5) Instructions to bidders;

(6) Bid form;

(7) The general conditions;

(8) Supplemental general conditions (if applicable);

(9) Contract between owner and contractor;

(10) Workers' compensation insurance certificate;

(11) Standard performance and payment bond;

(12) List of drawings;

(13) Other Division Zero (0) requirements, as appropriate;

(14)(A) Technical specifications (Divisions 1 – 49 applicable sections).

(B)(i) Technical specifications sections shall be numbered with appropriate six-digit section numbers corresponding to the CSI numbering system.

(ii) The preferred paragraph numbering system format is the alpha numeric format.

(C) Technical sections shall be subdivided into the Part I-General, Part II-Products, and Part III-Execution format; and

(15)(A) Appendices containing Soils Report, Asbestos Report, or other information pertinent to the project but not a part of the work.

(B) Such material should be noted as "INFORMATION ONLY", for use by the contractor as he or she deems appropriate.

(e) The four (4) types of specifications used on state projects are:

(1) Performance specifications;

(2) Nonproprietary specifications;

(3) Proprietary specifications; and

(4) Sole source specifications.

(f)(1) Performance specification or nonproprietary formats are the preferred methods of specifying:

(A) Materials;

(B) Equipment; and

(C) Systems.

(2) A nonproprietary specification shall be written either as:

(A) A generic performance specification (preferred); or

(B) A specification naming a minimum of three (3) manufacturers with model or series numbers.

(3) The following describes the Building Authority Division requirements for performance specifications and nonproprietary specifications:

(A)(i) A generic performance specification must be written to describe the required characteristics, performance standards, capacities, quality, size or dimensions, and the like of the item or system.

(ii) The specifications must be written with sufficient detail to allow manufacturers to determine if their product meets the requirements of the project.

(iii) Include only the salient features that will be used to judge a product's acceptability for the project.

(iv) The performance specification shall not name manufacturers or brand name products;

(B)(i) A nonproprietary specification may be based on a manufacturer/model number type specification and must list at least three (3) manufacturers with their respective model numbers.

(ii) Each of the listed manufacturers/model numbers must have been determined by the design professional to meet the specifications and be acceptable.

(iii) If a named manufacturer prepackages or preassembles its item or system, the model number shall be specified.

(iv) If the named manufacturer custom builds the item or system, naming of model numbers is not required.

(v) When model numbers are used in a specification, be aware that each number and letter may be a unique identifier for various features of that manufacturer's product line.

(vi) Avoid listing model long numbers.

(vii) Limit the model number to the point necessary to describe the appropriate series of products and describe the unique product characteristics in the body of the specification or the schedules; and

(C)(i) The nonproprietary specification must describe the required characteristics, performance standards, and capacities that will be used to determine equal products.

(ii) Do not specify extraneous characteristics that do not relate to the product's performance or suitability for the project.

(iii) The specification shall not be contrived to benefit or exclude any of the manufacturers listed over another.

(iv) If only two (2) acceptable manufacturers can be found and documented by model number, but other equal products are acceptable if found by the bidder, the design professional may list only those two (2) manufacturers and the phrase "or equal".

(v) If the phrase "or equal" is used, the design professional may only reject the unnamed substitute if there is clear evidence of noncompliance in the submittal information presented for review or documented evidence that the substitute product or material has failed to perform satisfactorily as intended.

(g)(1) A specification is proprietary if it fails to meet requirements of a generic specification or a nonproprietary specification.

(2) Although a proprietary specification should be avoided because it restricts competition, circumstances such as space limitations, mandatory performance standards, compatibility with an existing system, and the like may leave no other reasonable choice.

(3) Two (2) typical situations that may require proprietary specifications are:

(A) When only two (2) manufacturers or suppliers provide an acceptable product or system when there are no equals and when no substitutions are allowed; or

(B) When only one (1) manufacturer is available, but two (2) or more vendors or suppliers can purchase the material and compete to provide the product or system to contractors or bidders.

(h)(1) A specification is sole source when it:

(A) Names only one (1) manufacturer or product to the exclusion of others; or

(B) Is contrived so that only one (1) manufacturer, product, or supplier can satisfy the specification.

(2) A product or piece of equipment that is available only through a single franchised vendor is also considered to be a sole source item.

(i)(1) Proprietary and sole source specifications may be used only when the department has determined that:

(A) A proprietary or sole source specification is in the best interest of the state; and

(B) Use of alternate materials or equipment will be cost prohibitive.

(2) When a sole source specification is used:

(A) The specification shall clearly identify the materials or equipment as a proprietary or sole source item; and

(B) The approved supplier or installer and a cost allowance shall be allocated in the appropriate section for allowances in the project manual.

(3) In this manner, all bidders will have equal pricing for all allowance items within their bid price.

(4) For projects awarded by summation of unit pricing, the item or items may be shown as a unit price line item without the allowed cost shown.

(5) The agency shall:

(A) Incorporate the proprietary or sole vendor's/supplier's pricing based on the final construction drawings into the allowance item; and

(B) Retain a copy of the vendor's/supplier's price proposal for the item for record.

(6) To ensure that accurate cost accounting of allowances is maintained, adjustments in the allowance cost during the construction phase shall be by individual line items matching the allowance schedule.

(7) Combining multiple allowance items into a single price or lumping allowance adjustments into a single pricing with other items is prohibited.

(8) It is acceptable and appropriate to include allowance adjustments with other cost items in a single change order provided that supporting documentation is attached to delineate the allowance adjustments.

(j)(1) Prior to advertising the project for bids that contain sole source specifications, the department is encouraged to either procure the sole source item and specify it as owner furnished/contractor installed or the department may preselect a sole source item through a competitive life cycle cost request for proposals (RFP).

(2) The product having the lowest life cycle cost shall be:

(A) Selected; and

(B) Included in the specification as an allowance cost item listing the:

(i) Manufacturer;

(ii) Product number;

(iii) Allowance price;

(iv) Vendor contact name, address, and phone number; and

(v) Manufacturer's quote number.

(3) The specifications shall clearly indicate that the specified product was selected based on a life cycle cost analysis.

(k)(1) The use of standardized specifications or "guide specs" as a basis or resource for editing has many advantages for the:

(A) Design professional;

(B) Reviewer; and

(C) Contractor.

(2) The design professional shall edit the guide specifications to include only the materials, requirements, and procedures applicable to the project.

(3) Specifications which are submitted without editing will be rejected as an incomplete submittal.

(4) Where military guide specifications are used on a project, they shall be edited to delete references to military and federal specifications.

(5) References to the contracting officer shall be changed to the department.

(6) Also, requirements for tests, inspections, and visits to the manufacturer's plant, and the like which are not normally required for state projects shall be deleted.

(l)(1) The design professional shall not require samples, shop drawings, or similar materials to be submitted for approval prior to receipt of bids without the specific written approval of the Design Review Section.

(2) The specifications must contain sufficient information to describe to the contractor and bidders the performance and quality standards that will be used to evaluate the submittals.

(m)(1) Complex or sensitive systems such as locking systems, detention equipment, and security control systems for prisons often require manufacturers with a proven history of reliable, operable equipment in special situations with minimal malfunctions.

(2) In these instances, sole source or proprietary specifications may be appropriate.

(n)(1) Projects for the state are not testing grounds for new types of materials or equipment.

(2) However, the fact that a material is newly developed does not preclude its use if documentation of recognized, independent laboratory tests clearly shows that the material will meet the applicable requirements for the project.

(3) The department shall submit a written request and justification to the Design Review Section for approval to specify a new product or material prior to the final plan review submittal.

(4) Unless the manufacturer of a new product furnishes factual data sufficient to evaluate the product, it should not be considered for use.

(5) If a new product is considered for use, a competitive-type specification should be written to ensure that a competitive, good quality product will be obtained.

(6) In instances where competitive specifications are not appropriate, a sole source or proprietary specification may be appropriate.

(7) The department, with the approval of the Building Authority Division, may authorize use of a new material, equipment, or system for a particular project on a trial basis for observation or evaluation.

(o)(1) Specifications must clearly indicate the requirements for the project.

(2) Words or phrases which are vague or may be interpreted more than one (1) way often lead to problems during bidding or construction and result in change orders or claims.

(3) The following instructions are intended to reduce common errors and conflicts evolving from interpretations of the specifications:

(A)(i) Under "Requirements", do not say, "the work consists of".

(ii) Drawings should show the entire scope of the work.

(iii) If necessary to list certain parts, say, "Generally, the work includes…";

(B) In lieu of reference to the accompanying drawings, use the words "as shown", "as indicated", "as detailed", "as approved by", "as directed by", or "as permitted by";

(C)(i) The contractor is responsible for determining the packages of work for each subcontract.

(ii) It is acceptable to specify certain specialty work be performed by a person qualified, certified, or licensed (if appropriate) and experienced in this type of work.

(iii) If it is necessary to reference a specific trade group, it may be referred to as that group or trade by the CSI division number or section number, i.e., "Division 26" for electrical work instead of "electrical subcontractor" or "Section 283100-Fire Detection and Alarm" instead of "fire alarm contractor";

(D)(i) Do not use "etc.".

(ii) This term is too indefinite for bidding and inspection purposes;

(E)(i) Minimize the use of cross-references and in no case use paragraph numbers for this purpose.

(ii) If it is necessary to refer to a particular paragraph, do so by its section number and title (e.g., Section 03 30 00, Cast-in-Place Concrete);

(F)(i) Do not include a paragraph in the various sections entitled "Work not Included".

(ii) Describe only the work that is included under the respective sections;

(G)(i) Specifications should clearly delineate air conditioning ducts, heating ducts, and piping systems which require insulation.

(ii) The phrase "insulating all ducts except in conditioned spaces" has resulted in differences of opinion and claim situations.

(iii) All duct systems should be appropriately designated as supply, exhaust, outside air intake, transfer, relief, or return and further clarified by stating insulating requirements;

(H)(i) Do not confuse "any" and "all".

(ii) "Correct any defects" should read "Correct all defects".

(I)(i) Do not confuse "either" or "both", e.g., "Paint sheet metal on either side" should read "Paint sheet metal on both sides".

(ii) "Either" implies a choice;

(J)(i) Do not confuse "or" and "and", e.g., "The equipment shall not have defects in workmanship and material".

(ii) The use of "and" in this sentence indicates both requirements must be met, e.g., "Additives that decrease strength or durability are not permitted";

(K)(i) Do not use "and/or".

(ii) The courts have considered this phrase to be intentionally ambiguous and, therefore, claims are often rendered in favor of the contractor;

(L)(i) Use statements that are definite and contain no ambiguous words and phrases.

(ii)*(a)* "Remove" implies to take away from its current location.

(b) If "remove" is used, the design professional must also indicate whether to dispose of, salvage, or reinstall the material removed.

(iii)*(a)* "Reinstall" implies putting the existing material back in the indicated place.

(b) If "reinstall" is used, the design professional must also indicate that the contractor must carefully remove the item, properly store it, and then reinstall the item at the appropriate time.

(iv) "Replace" implies the removal of old material and furnishing and installing new material.

(v) The preferred wording would be "remove" and "provide";

(M)(i) "Provide" is defined as furnish and install.

(ii) When material or equipment is furnished by the department directly or under other contracts for installation by the contractor, the term "install" should be used.

(iii) However, the contractor may be required to provide foundations, fastenings, and the like for the installation.

(iv) If the word "install" is used alone, the bidder or contractor has a right to assume, on the basis of the definition cited, that the department will furnish the materials in question;

(N)(i) Do not include equipment schedules in the specifications.

(ii) Equipment schedules should be provided on the plans for quick access and review.

(iii) The construction record prints are often used by the building maintenance and operation personnel daily.

(iv) Having the equipment schedule information readily available on the plans can save critical time and avoid confusion during an operational emergency or repair; and

(O)(i) Ensure that the plans and specifications do not contain statements or requirements similar to the following: "[Contractor][Supplier][Installer] must have a minimum of X-years of experience in [installation][manufacture] of the specified [project][product] or must have [office][facilities] located within X-miles of the project site".

(ii) These types of statements can be construed to unfairly limit competition in the procurement of state-funded projects by unnecessarily excluding some Arkansas providers and can result in bid protest which may result in lengthy delays in award of the project or rejection of all bids, necessitating rebidding and/or redesign of the project.

(iii) This prohibition will not negate the use of LEED MR Credit 5 for regional materials as this credit allows materials or products that have been extracted, harvested, or recovered, as well as manufactured, within five hundred (500) miles of the project site.

(iv) This range encompasses the entire state of Arkansas regardless of project locations so no Arkansas manufacturer or provider will be excluded by this requirement.

Authority. Arkansas Code § 22-2-108.

Codification Notes. "CSI" means Construction Specification Institute.

"LEED MR" means Leadership in Energy and Environmental Design Material Resources.

22 CAR § 111-905. Drawing standards.

(a)(1) The following represents the minimum requirements, standards, and expectations applicable to all drawings prepared for bidding and construction on state projects.

(2) Refer to 22 CAR § 111-1505 for a description of the contents of each discipline submittal.

(3) Not every category will be used on every project.

(4) The design professional shall select the appropriate categories for each specific project.

(b) **Arrangement of drawings.** Drawings shall be arranged in the following order with the discipline identifying character shown:

T Title Sheet & Index
TS Topographical Surveys & Plot Plan Drawings
B Boring Logs & Soils Data
D Demolition Drawings
C Civil Site Drawings
L Landscaping Drawings
FA Fire Service Access Drawings
A Architectural Drawings
K Kitchen Equipment Drawings
S Structural Drawings
M Mechanical (HVAC) Drawings
FP Fire Protection Drawings (Sprinkler Systems)
P Plumbing Drawings

E Electrical Drawings

*Special Category Drawings (Assigned by the Design Review Section)
*For special categories such as laboratory case work, acoustical plans, and audio-visual plans that do not readily fit into the defined categories, contact the Building Authority Division for a drawing category assignment.

(c) **Drawing numbers.**

(1) Drawings shall be sequenced by discipline letter and number, i.e., A1, A2, A3.1, A3.2, S1, S2, and the like.

(2) For large projects (exceeding twenty (20) sheets), the Design Review Section recommends the designer use a flexible numbering system such as A1.01, A1.02 for plans, A2.01, A2.02 for sections, and the like.

(3) This will allow the designer to insert additional drawings as the project develops without requiring a renumbering of sheets.

(d) **Sizes of drawing sheets.**

(1) Drawing sheet size, except in special cases approved by the Design Review Section, shall be twenty-four inches by thirty-six inches (24" x 36") (preferred) or, alternatively, thirty inches by forty-two inches (30" x 42").

(2) Drawings shall be prepared to be suitable for microfilming and for making clear, legible half-size reproductions.

(e) **Lettering.**

(1) Unnecessary letter embellishments, poor spacing, careless lettering, weak lines, and lettering which is crowded or too small result in illegible films and poor reproductions.

(2) The minimum height for hand lettering on all projects shall be one-eighth inch (1/8").

(3) Mechanical (typed or CAD) lettering shall be one-tenth-inch minimum and in all caps.

(4) Make minimum gaps between lines equal to one-half (1/2) the letter height.

(5) Lettering and line weight must be in accordance with classical drafting practices.

(f) **Detail numbers.** Each plan view, section view, or detail shall be given an individual detail number to facilitate written and verbal communication.

(g) **Scales.**

(1) An indication of the scale of the object drawn shall be located directly under the title of each plan, elevation, section, detail, and the like, for example, scale is one-eighth inch equals one foot (1/8″ = 1′-0″).

(2) All floor plans shall be drawn at a minimum scale of one-eighth inch equals one foot (1/8″ = 1′-0″).

(3) The use of a smaller scale for floor plans must be approved in writing by the Design Review Section prior to the first submittal.

(4) Avoid odd size scales such as three and thirty-second inches equals one foot (3/32″ = 1′-0″) as these scales often lead to takeoff errors.

(5) In addition to the standard inch/foot scale, provide a graphic bar scale that can be used for the approximation of dimensions on reduced size plan sets.

(6) Use break lines and match lines for larger building plans.

(7) For sheets with one (1) plan such as a floor plan or site plan, the title should be located centered under the main part of the plan or at the lower right-hand corner of the sheet.

(8) The north arrow should be located at the right side of the title.

(h)(1) Provide a master listing of all applicable abbreviations and symbols used in the set of drawings or provide a listing of all common abbreviations and symbols at the beginning of the drawings and provide a listing of the discipline specific abbreviations and symbols at the beginning of each discipline.

(2) For complex piping schematics, electrical riser diagrams of special system layouts, the designer is encouraged to provide an abbreviated legend of symbols on those specific sheets to minimize the need to flip sheets to find critical symbols.

(i) Topographic and civil site drawings shall conform to the approved site plan and shall show:

(1) Building location by dimensions;

(2) Existing and approximate new finished grades;

(3) Roads and walks;

(4) Temporary and permanent erosion and sediment control devices; and

(5) Stormwater management facilities.

(j)(1) Boring logs representing soil conditions encountered in the site investigation including pertinent logs from previous explorations in the project location should be presented in the project manual for informational purposes.

(2) Logs shall show:

(A) The ground elevation;

(B) The depths of borings;

(C) Depths and classifications/descriptions of materials encountered;

(D) Blow counts per ASTM D-1586;

(E) Ground water elevation; and

(F) Other pertinent information.

(3) Boring locations relative to the project shall be shown on a small-scale location plan or on the site plan.

(k)(1) Building floor plan drawings for all disciplines shall be oriented the same to avoid confusion and to facilitate overlaying of drawings.

(2) It is customary for a building plan to be oriented with north toward the top or left edge of the sheet.

(3) All plans shall have a north arrow for orientation.

(4) For projects where the plan is divided and shown on multiple sheets, provide a key plan on each plan sheet and crosshatch or shade the area of the key plan shown on the sheet.

(5) Provide clearly defined match lines and reference the sheet where the match can be found.

(6) Avoid showing construction information across the match lines as this can lead to confusion and duplication of material counts.

(l)(1) The drawings shall describe/show the work to be provided by the contractor.

(2) Existing features, structures, or improvements to remain shall be so noted.

(3) Existing features, structures, or improvements to be demolished and/or removed shall be clearly identified.

(4) Work, improvements, demolition, or construction which the department will perform or have performed by separate contract shall be identified as "Not in Contract" or "NIC" if the abbreviation has been defined.

(5) Do not use the phrase "Work by Others".

(m)(1) All foundation and floor plans shall be drawn to a scale not less than one-eighth inch equals one foot (1/8" = 1'-0") with all necessary dimensions shown.

(2) Roof plans are preferred at one-eighth inch equals one foot (1/8" = 1'-0") scale.

(3) However, roofs without mechanical equipment and metal/shingled pitched roofs may be drawn at a one-sixteenth inch equals one foot (1/16" = 1'-0") scale if approved in writing by the Design Review Section prior to the first submittal to the department.

(4) Foundation, floor, and roof plans shall show all permanent equipment vents, utilities or pipe penetrations, openings, and such items affecting the construction.

(5) All plans shall be provided with column numbers or grid numbers to facilitate written and verbal communication describing the location of specific information on the plan.

(n) Design live load capacity for all floors and the roof in pounds per square foot shall be noted on structural floor plans.

(o)(1) Every floor plan or partial plan or space shall be provided with a unique room number and/or name.

(2) All schedules shall reference the specific room number to which the schedule applies.

(3) Reflected ceiling plans shall show room numbers, locations of lights, HVACR items, sprinkler heads, speakers, smoke detectors, etc.

(p) Enlarged plans to one-fourth-inch scale shall be furnished to clearly show the location and arrangement of built-in equipment/casework and of the furniture, fixtures, and equipment which influence the location of utilities, including electrical, plumbing, and heating, and the assignment of space within the project.

(q)(1) A minimum of one (1) transverse and one (1) longitudinal section through the building shall be shown along with as many additional sections as are needed for understanding the overall construction requirements.

(2) Include necessary dimensions on each.

(3) All elevations shall be drawn to scale at not less than one-eighth inch equals one foot (1/8″ = 1′-0″).

(r)(1) Typical wall sections shall be drawn at not less than three-quarter inch equals one foot (3/4″ = 1′-0″) scale.

(2) Typical window, door, and special opening details shall be drawn at one and one-half inches equals one foot (1-1/2″ = 1′-0″) scale or larger.

(s) Provide stair sections for each stair configuration including dimensions, sizes, framing members, components, and any special details required.

(t) Provide all necessary interior and exterior details, including special doors, windows, woodwork, paneling or other decorative work, toilets and washrooms, and the like, with plans and elevations at a minimum scale of one-quarter inch equals one foot (1/4″ = 1′-0″) and with construction details at a minimum of three-quarter inch equals one foot (3/4″ = 1′-0″).

(u)(1) Door schedules shall include door number, label or type, size, material, frame, lintel, and remarks.

(2) Also provide elevation and detail references.

(3) Window schedules shall include make or type, size, material, and lintel remarks.

(4) Also provide elevations and details, if required, for complete description.

(5) Finish schedules shall include space or room number, space name, floor finish, wall type/finish, ceiling type/finish, ceiling height, base, wainscot, remarks, and other comments, if required.

(v)(1) Provide an enlarged plan view of each unique mechanical, electrical, or equipment room.

(2) Equipment room plans shall be drawn at one-quarter inch equals one foot (1/4" = 1'-0") scale minimum.

(3) Provide a minimum of one (1) section through each equipment room drawn at one-quarter inch equals one foot (1/4" = 1'-0") scale minimum to clarify the height of equipment, ductwork, piping, etc.

(4) Provide one (1) longitudinal section and one (1) transverse section through the building (minimum) to show mechanical and electrical work with relation to the work by other disciplines.

(5) Provide other partial sections as required to clearly explain the scope of the work and to describe the restrictions at congested areas.

(w) **Relation of drawings and specifications.**

(1) Drawings generally indicate the scope of work, locations, relationships, and dimensions while specifications generally indicate quality, performance, and installation requirements.

(2) Drawings and specifications shall supplement each other and must not conflict.

(3) Terminology used in specifications and drawings should be the same.

(4) For state projects, the drawings and specifications are considered complimentary of each other, and neither shall take precedence over the other.

(5) Where conflicts arise between the drawings and specifications, the more stringent requirement shall apply.

(x)(1) Since the final plan review drawing submittals are, in the opinion of the design professional, complete and ready for bid, all drawings submitted for final review shall bear the Arkansas registration seal and signature of the individual or individuals responsible for its design (and corporate seals where applicable).

(2) To prevent incomplete drawings from being mistaken as construction drawings, the design professional shall over stamp the seal with either "Preliminary" or "Not for Construction" or "For Review Only".

(3) To facilitate proper review by the Design Review Section, the name and registration numbers on the seal should be visible and legible.

(y)(1) All drawings and the specifications submitted with the final plan review responses and issued for bid or construction shall be dated with the same date which is established by the design professional as the date the documents are (or will be) complete.

(2) Documents printed for bidding shall bear the date described above with no revision numbers or dates.

(3) In accordance with the Arkansas Architectural Act, Arkansas Code § 17-15-101 et seq., and the Engineering Act, the design professional shall sign and date the stamp.

Authority. Arkansas Code § 22-2-108.

Codification Notes. "ASTM" means American Society for Testing Materials.

"CAD" means computer assisted drafting.

"HVACR" means heating, ventilation, air conditioning, and refrigeration.

22 CAR § 111-906. Quality control.

(a) The design professional shall be responsible for the professional and technical accuracy and coordination of all designs, drawings, specifications, cost estimates, and other work or materials furnished under the standard professional services contract.

(b)(1) The design professional shall perform a quality control review of the specifications and drawings prior to making a plan review submittal to the department.

(2) The design professional shall ensure that the plans and specifications being submitted for review meet the MSC submittal requirements and that all elements of the design have been coordinated with respect to function and location.

(3) It is not the responsibility of the department, the Building Authority Division, or the contractor to ensure that the plans have been coordinated from sheet-to-sheet and discipline-to-discipline.

(c)(1) The cover sheet of all plans and specifications submitted for review to the Design Review Section shall contain the following statement signed by the responsible design professional who is a principal in the firm.

(2) Failure to perform proper coordination or to include and sign this statement may be grounds for rejection of the submittal without review.

(3) This statement may be removed from the cover sheet prior to issuing the plans for bids:

> "A Quality Control check, including the appropriate coordination among disciplines, has been made on this project's documents, and corrections related to this check have been made. The undersigned principal/owner states that these plans and specifications as submitted for review are, to the best of his or her knowledge and ability, complete and ready for review."
> Signed__Date____
> (name and title)
>
> This statement need not appear on sets of documents issued to bidders.

Authority. Arkansas Code § 22-2-108.

Subpart 10. Accessibility for Individuals with Disabilities Standards

22 CAR § 111-1001. Accessibility for individuals with disabilities standards generally.

(a) **Purpose.**

(1) The requirements in this standard are intended to make buildings and facilities accessible to and usable by individuals with disabilities such as, but not limited to:

(A) The inability to walk;

(B) Difficulty walking;

(C) Reliance on walking aids;

(D) Blindness and visual impairment;

(E) Deafness and hearing impairment;

(F) Coordination reaching and manipulation disabilities;

(G) Lack of stamina;

(H) Difficulty interpreting and reacting to sensory information; and

(I) Extremes of physical size.

(2) Accessibility and usability allow individuals with disabilities to access, enter, and use a building or facility.

(b) This standard provides guidance for design and specifications for constructed elements that make spaces accessible.

(c) This standard:

(1) Can be applied to the design and construction of new buildings and facilities, renovations, alterations, and rehabilitation of existing buildings and facilities; and

(2) Is applicable to permanent construction as well as temporary construction and emergency conditions.

(d)(1) Arkansas Code § 6-20-1407(e) authorizes the Design Review Section to review and approve construction documents for new public school facilities for compliance with this standard prior to bidding or construction.

(2) Construction documents submitted for review shall comply with these standards.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-1002. Review authority.

(a) The Design Review Section is responsible for the review of accessibility standards and criteria for capital improvement projects of those state departments under its jurisdiction and for public school new construction projects.

(b) See Arkansas Code § 6-20-1407(e).

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-1003. Acts, codes, and standards.

(a)(1) There are numerous codes and standards which address accessibility issues in the constructed environment.

(2) The most common are the 2010 Americans with Disabilities Act Standards for Accessible Design which is the current standards adopted by the United States Department of Justice, ANSI A117.1 Standard for Accessible and Usable Buildings and Facilities which is the standard adopted by the State Fire Marshal through the Arkansas Fire Prevention Code (AFPC), 12 CAR pt. 15, the Uniform Federal Accessibility Standards (UFAS) which applies to certain projects funded partially or fully with federal funds, and the Fair Housing Accessibility Guidelines adopted by the United States Department of Housing and Urban Development, just to name a few.

(b)(1) Since one (1) or more of these standards may apply to a particular project (i.e., the Americans for Disabilities Act standard and AFPC will apply to most projects subject to Building Authority Division review), the design professional should gain familiarity with the standards that apply to their specific project prior to submitting for review.

(2) When competing standards have differing requirements on a particular project, the most stringent requirement (the one providing the most accessibility) must be met.

(c)(1) In certain projects, the use of a design guide other than the Americans for Disabilities Act standard or the AFPC may be warranted or mandated by the funding source.

(2) Several of the standard accessibility guide documents are considered safe harbor documents by the enforcement authority of other document review agencies.

(3) When the design professional prepares construction plans using one (1) of the safe harbor documents, he or she should include a note on the coversheet or the accessibility details sheet stating which guideline documents were used in the preparation of the plans and specifications.

(d) Copies of the Standards for Accessible Design, Federal Register (federal law pertaining to ADA) and technical guideline bulletins published by the United States Department of Justice and the United States Access Board may be obtained at the following website, www.ada.gov, or by calling the United States Department of Justice Americans for Disabilities Act Information line at (800) 514-0301 (voice) or (833) 610-1264 (TTY).

(e)(1) Furthermore, copies of the Americans with Disabilities Act of 1990, 42 U.S.C. § 12101 et seq., are available in the following alternate formats:

(A) Large print;

(B) Braille;

(C) Electronic file on computer disk; and

(D) Audiotape.

(2) Copies may be obtained from United States Access Board at (202) 272-0800 (voice).

(3) These telephone numbers are not toll-free numbers.

(4) For toll-free Americans for Disabilities Act information, call (800) 872-2253.

(5) For email access, refer to TA@access-board.gov.

(6) The Americans with Disabilities Act of 1990 addresses program requirements and defines the situations for which accessibility must be provided.

(7) The Americans for Disabilities Act standards provide scoping and technical requirements that define the method or manner in which the constructed environment must be built to provide program access.

(8) The limits of the division's review is to the constructed environment as governed under the Americans with Disabilities Act of 1990 and as defined in the current enforceable Americans for Disabilities Act standards.

(9) It is within this parameter that the Design Review Section reviews are limited to the technical requirement of the scoping provided in the submitted construction documents.

(10) The Design Review Section does not provide commentary on the scoping or program requirements for the agency's facilities.

(11) The division review will be limited to the technical requirements for the scoping provided in the construction documents presented for review.

Authority. Arkansas Code § 22-2-108.

Codification Notes. "ANSI" means American National Standards Institute.

"TTD" means telecommunications device for the deaf.

"TTY" means teletypewriters.

22 CAR § 111-1004. Owner/department responsibilities.

(a) Owners are responsible for ensuring all facilities are compliant with accessibility acts, laws, and codes.

(b) Owners should evaluate facilities for the minimum scoping requirements, such as minimum number and types of accessible parking spaces on a campus and the like, to ensure compliance with the Americans with Disabilities Act of 1990, 42 U.S.C. § 12101 et seq., and the Americans with Disabilities Act of 1990 standards.

(c) These evaluations should be reviewed when contemplating future capital improvement projects.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-1005. Construction document submittal requirements.

(a)(1) Unless the project has been approved under the delivery method, a full set of plans and specifications should be submitted to the Design Review Section for review when the documents are one-hundred-percent complete.

(2) A full set of documents is required for plan review and record.

(b)(1) Plans submitted for department and Building Authority Division review should clearly define the elements and features required to be accessible.

(2) Partial plans, section views, elevations, and details shall be provided at a scale large enough to show all applicable clearance and mounting heights and dimensions for each unique accessible feature.

(3) The drawings shall include but not be limited to the following:

(A)(i) Provide a plan view of the building showing the intended accessible path into the building and to each accessible space or clearly describe the accessible path with a general or keyed note on the plan.

(ii) Incorporating the accessible path by arrows, shading, or other identifiers on the life safety plan is an acceptable method;

(B) Where parking is a part of the project, define the accessible path from the designated parking into the building;

(C) Where multiple buildings are included in the scope of the project, show the accessible path between buildings;

(D) Where construction of a public transit stop, such as a bus or trolley stop, is included in the scope of the project or is existing on the developed site, define the accessible path between the stop and the project facilities;

(E)(i) A detail sheet (or sheets) should be provided with the standard accessible elements shown and dimensioned and the plans should be cross-referenced to the appropriate details.

(ii) Referencing the Americans for Disabilities Act standard is not a substitute for proper and accurate dimensions or specifications.

(iii) Specific information on the drawing is required for the construction phase;

(F)(i) Technical specifications shall clearly require that accessible components such as door hardware, furniture, and fixtures be manufactured to meet accessibility standards and installed in accordance with the standards and manufacturer's recommendations.

(ii) Components requiring adjustment to pressure thresholds of the standards shall clearly specify the minimum and maximum allowable limits as required by the standards; and

(G)(i) Field construction techniques and issues often arise that can cause a designed accessible element to be built out of compliance.

(ii) Field verification during the construction phase by the design professional, building inspectors, and the building owner are essential to ensuring that noncompliant issues are identified early and corrected before the project is completed.

(iii) Plans and specifications shall have sufficient details and dimensions to allow proper verification during and after construction.

Authority. Arkansas Code § 22-2-108.

Subpart 11. Grading Standards

22 CAR § 111-1101. Grading standards generally.

(a) To promote good drainage, ease of maintenance, and ease of travel in and around state facilities, the minimum slopes or grades shall be established.

(b) Where existing natural grades prohibit regrading to these standards without excessive cut or fill, obtain approval of the Design Review Section prior to the schematic design submittal.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-1102. Standards for grading around structures.

CONDITIONS	MAXIMUM		MINIMUM		PREFERRED
Side slopes with vehicular access	10%	10:1	2.0%	50:1	1 – 3%
Back slopes with vehicle access	15%	6.6:1	2.0%	50:1	1 – 5%
Side slopes without vehicular access	15%	6.6:1	2.0%	50:1	1 – 10%
Back slopes without vehicular access	20%	5:1	2.0%	50:1	1 – 10%
Grassed athletic fields	2%	50:1	0.5%	200:1	1%
Berms and mounds	20%	5:1	5.0%	20:1	10%
Mowed slopes	25%	4:1	----	----	< 20%
Unmowed grass banks	Soils natural angle of repose				< 25%
Planted slopes and beds	10%	10:1	0.5%	200:1	3 – 5%

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-1103. Standards for grading streets and ways.

CONDITIONS	MAXIMUM		MINIMUM		PREFERRED
Crown of improved streets	3%	33:1	1%	100:1	2%
Crown of unimproved streets	3%	33:1	2%	50:1	2.5%
Side slopes on walks	4%	25:1	1%	100:1	1 – 2%
Tree lawns	20%	5:1	1%	100:1	2 – 3%

Slope of shoulders	15%	6.6:1	1%	100:1	2 – 3%
Longitudinal slope of streets	20%	5:1	0.5%	200:1	1 – 10%
Longitudinal slope of driveways	20%	5:1	0.5%	200:1	1 – 10%
Longitudinal slope of parking areas	5%	20:1	0.5%	200:1	1 – 5%
Longitudinal slope of sidewalks	5%	20:1	0.5%	200:1	1 – 5%
Longitudinal slope of valley section	5%	20:1	0.5%	200:1	2 – 3%

Refer to 22 CAR § 111-1001 for grading requirements to meet ADA guidelines.

Authority. Arkansas Code § 22-2-108.

Codification Notes. "ADA" means Americans with Disabilities Act of 1990.

22 CAR § 111-1104. Standards for drainage channels.

CONDITIONS	MAXIMUM		MINIMUM		PREFERRED
Swale side slopes	10%	10:1	1%	100:1	2%
Longitudinal slope of swales-grass invert	8%	12:1	1%	100:1	2%
Longitudinal slope of swales-paved invert	12%	8.3:1	0.5%	200:1	5%
Ditch side slope-grass invert	8%	12:1	1%	100:1	3%
Ditch side slope-paved invert	10%	10:1	----	----	6%

Authority. Arkansas Code § 22-2-108.

Subpart 12. Roofing System Requirements

22 CAR § 111-1201. Roofing system requirements generally.

(a) These minimum roofing system requirements are to provide design professionals and state personnel with functional, working guidelines to aid in the determination of the required roofing systems and specifications.

(b) A proper understanding of the roofing industry, methods of construction, application, workmanship, and its inherent problems and pitfalls is necessary to design a proper roof system.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-1202. Determination of the proper roof system.

(a) In designing and specifying the proper roof system for a new building, the following should be considered:

(1) Type of building refers to a state-owned or leased property (library, office buildings, campus buildings, the like) under Building Authority Division oversight;

(2)(A) Special considerations refer to what goes on in the building.

(B) For example, will there be a pool or a unique use inside the structure?

(C) The uses of the building will determine roof traffic, surfacing, need for a vapor retarder sheet, and insulation ("R" value) requirements;

(3) External considerations include:

(A) High winds;

(B) Snowfall;

(C) Rains and their concentrations; and

(D) Outside contaminating processes;

(4) Life of the building determines how long it will be expected to last;

(5) Building and regulatory codes refer to UL Solutions, FM Global, and the various applicable local, state, and national codes; and

(6)(A) Structural considerations mean that the roofing system must work with the other building components.

(B) For example, are the edges of the roof deck flush or are there parapets?

(C) Dimensions of the building and shape of the roof deck will determine the need for expansion joints.

(D) Any protrusion through the roof will require flashing materials.

(b)(1) The roofing system as specified should be a complete and compatible system.

(2) The system should be manufactured by a manufacturer doing business in this region of the United States.

(3) The design professional shall investigate the need for and specify all roofing components needed for a complete roof assembly.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-1203. Steep roofing.

(a)(1) Asphalt shingles on sloped roofs shall be Class "A", fiberglass based, asphalt shingles with a recommended twenty-five-year minimum limited warranty over felt underlayment installed as per manufacturer's specifications minimum slope, four (4) in twelve (12).

(2) Peel and stick self-adhered ice and water shield synthetic underlayments are recommended along:

(A) The roof perimeter;

(B) Valleys; and

(C) Penetrations.

(b)(1) Wood shingles shall not be used on buildings unless approved in writing by the Design Review Section.

(2) Any shingles used shall carry the "B" classification as listed by UL Solutions.

(3) Minimum slope — four (4) in twelve (12).

(c) Metal roofing systems on sloped roofs in excess of one (1) in twelve (12) slope (minimum two (2) in twelve (12) (+) slope preferred) are acceptable when properly detailed and specified.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-1204. Unconventional roofing systems.

(a) Unconventional roofing systems (roof systems other than built-up, modified bitumen, EPDM (ethylene propylene diene monomer) or single-ply) shall be submitted for review to the Design Review Section for approval on a case-by-case basis for use on the roof of a state building under Building Authority Division oversight.

(b) Criteria for approval shall be:

(1) Acceptable material and method of application;

(2) Ability of local installers to apply the proposed roof system;

(3) Ability of the state to obtain competitive bids on the proposed roofing system;

(4) Proven track record of the system and the manufacturer; and

(5) Roof warranty available from the manufacturer for the particular installation.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-1205. Roof system components.

(a) **Decking.**

(1)(A) The type of structural deck and the complete roofing system to be used should be determined by the design professional.

(B) Slope for drainage shall be achieved by structural means if possible.

(C) If structural slope is not feasible, a lightweight concrete fill, sloped perlite board, or tapered insulation board shall be specified.

(2)(A) The structural deck must be designed to provide an adequate foundation or base for the roofing system.

(B) In addition to supporting all design loads, it must also be relatively smooth, free of humps, depressions, offsets at joints, allow for expansion and contraction, and be rigid enough to support the equipment and materials needed to

apply the roof system without undergoing excessive deflection or deformation, which could impair the life of the roofing system.

(3)(A) Metal decks shall be fabricated from adequate gauge steel, accurately aligned, and securely anchored to the structure below.

(B) Provide side lap connections to prevent displacement between adjacent sheets.

(C) The design professional shall inspect the deck for any possible defects prior to the installation of any insulation and roofing.

(4) On poured decks such as concrete, gypsum, and lightweight insulating concrete, adequate drying time for the material shall be allotted prior to application of the roofing membrane.

(5) Over low slope wood decks, always specify a nailed down layer of sheathing (five-pound rosin paper) as a separator sheet followed by felt underlayment and a layer or layers of insulation to prevent problems with roofing such as:

(A) Nails backing out;

(B) Expansion; and

(C) Contraction.

(b) **Insulation.**

(1)(A) Insulation thickness shall be specified by the design professional and be such that when combined with complete roof and ceiling construction, shall have an overall heat transmission coefficient to obtain a satisfactory "R" value meeting applicable energy use codes.

(B) Insulation should have sufficient density and rigidity to span any flutes or irregularities in the decking and support the weight of all anticipated traffic on the roof without crushing or breaking down of the edges.

(C) The design professional or consultants or both shall verify the insulation requirements for each particular building and roofing system.

(D) Provide adequate ventilation in the plenum spaces to prevent moisture and condensation from damaging the interior spaces of the building.

(2)(A) All insulation shall be applied in two (2) layers with all joints broken and staggered.

(B) All insulation boards shall be installed in the same direction throughout unless fields are separated by an expansion joint.

(C) Butt edges of insulation tightly and cut in neatly around all roof penetrations.

(3) Insulation shall be secured to deck using approved fasteners conforming to FM Global Class I construction for wind uplift protection unless otherwise approved by the Design Review Section.

(c) **Securement/fasteners.** All roof assemblies for new construction shall meet or exceed specifications for FM Global Class I construction regarding wind uplift protection.

(d) **Fire, wind, and code requirements.**

(1) New roof construction on buildings shall meet or exceed all applicable codes.

(2) In addition, the roof assembly shall meet or exceed specifications for UL Solutions Class "A" construction and FM Global Class I construction, regarding fire resistivity and wind uplift.

(3) When reroofing existing buildings, this may not always be possible, especially when reroofing over existing membranes.

(4) Submit plans and specifications to the Design Review Section for approval.

(e) **Vapor retarder sheets.**

(1)(A) The design professional shall investigate the need for, and specify as required, the proper vapor retarder sheet and its applications.

(B) All buildings with high humidity (such as swimming pools where moisture migration will be a problem) should be specified with vapor retarders unless otherwise approved by the Design Review Section.

(2)(A) The vapor retarder sheet shall be installed over the roof deck prior to the installation of the insulation or roof membrane or both.

(B) Seal all edges, punctures, and around all penetrations through the roof to form an envelope enclosing the insulation.

(3)(A) The vapor retarder application shall meet all fire-retardant requirements which building use requires.

(B) Refer to applicable building codes for requirements.

(C) Determine proper attachment for wind uplift protection from manufacturer's specifications.

(f)(1) Venting base sheets are usually heavy-coated base sheets with an embossed grid designed to channel current moisture out of built-up and modified bitumen roof assemblies and prevent blistering.

(2) Venting base sheets are primarily used on reroofing applications or to vent moisture out of poured gypsum or lightweight concrete decks.

(3) Application is by spot mopping to existing membranes or mechanical attachment to a nailable deck.

(4) In some instances, it is more desirable and economical to use gypsum board or perlite re-cover boards in lieu of a separate venting base sheet.

(5) Moisture release vents should always be specified in conjunction with a venting base sheet.

(6) See subsection (g) of this section.

(g)(1) Moisture release vents shall be installed on all roof systems when required for certain types of poured decks and reroofing over existing membranes.

(2) Vents for bitumen roof systems shall be only factory-made vents with spun aluminum housings designed to vent moisture out but not allow moisture back into the roofing system.

(3) Shop-built sheet metal vents are not acceptable for use on buildings.

(4) Moisture release vents are primarily designed to vent moisture from a roof system including insulation and to reduce the possibility of blistering.

(5) To properly vent, holes should be cut all the way down to the deck, or vapor retarder sheet where applicable, according to the manufacturer's specifications.

(h) **Membranes for built-up roof systems.** Built-up roofing membranes for buildings shall be asbestos-free felts with fiberglass and/or polyester mats.

(i) **Membranes for modified bitumen roof systems.** Membranes for modified bitumen roofing shall be a minimum of an asbestos-free felt with fiberglass and/or polyester mat overlaid with a modified bitumen cap sheet.

(j) **Roof surfacing for built-up and modified bitumen roof systems.**

(1)(A) For APP (or atactic polypropylene) modified bitumen and built-up roof systems, an Energy Star® approved fibrated aluminum roof coating (asbestos free) (ASTM, D-2824, Type III) applied in two (2) separate coats, at the rate of one to one and one-half gallons per one hundred square feet (1 – 1 1/2 gals/100 ft^2), is the preferred roof coating for state-owned buildings.

(B) Aggregate ballast is not recommended for built-up roofing with aluminum coating.

(2) For (or styrene-butadiene-styrene) modified bitumen roof systems, use ceramic granules or metal clad "veral".

(3)(A) For built-up roofs, where aggregate ballast is allowed by code, all aggregate surfacing shall be clean, dry, rounded pea gravel ranging in size from one-quarter inch to three-eighths inch (1/4" – 3/8"), applied as per manufacturer's specifications for the particular installation (four hundred (400) pounds per square minimum is the typical application).

(B) Light color aggregates are preferable to aid in heat reflectivity.

(4) Asphalt and emulsion coatings are not recommended.

(k) **Roof cants.**

(1) Roof cants shall be required at all vertical projections including walls, equipment curbs, and the like on bituminous roof systems.

(2) Cants shall be securely set in hot steep asphalt or cold applied adhesives.

(3) Precautions should be taken to avoid bitumen drippage where it can occur, such as steel decks.

(4) Provide a minimum face width of four inches (4") to provide a transition of the roofing felts from the horizontal to the vertical face.

(l) **Membrane flashing.**

(1) All membrane roof flashing shall be compatible with the manufacturer's installed system.

(2) Membrane roof flashing:

(A) Shall be provided at all vertical projections, roof perimeters, curbs, parapets, walls, roof penetrations, and elsewhere as required; and

(B) Should be properly designed and carefully detailed to provide a watertight installation.

(3)(A) All membrane flashing at vertical surfaces shall extend a minimum of six inches (6") above the top of the cant strip (ten inches (10") above the roof surface if a four-inch cant is used) and eight inches (8") onto the roof surface from the bottom edge of the cant.

(B) Do not hot mop the base flashing above the top of the cant strip.

(C) Bituminous membrane flashing shall be set in hand rubbed applications of industrial roof cement.

(D) The top edge of the membrane shall be sealed and metal counterflashing provided for protection.

(E) Do not surface mop base flashing of bituminous roof systems with hot asphalt.

(m) **Metal counterflashing.**

(1) Metal counterflashing shall be provided over all membrane flashing where it occurs at vertical projections, parapet walls, equipment curbs, and the like.

(2)(A) A two-piece locking type counterflashing shall be used in all masonry wall construction.

(B) The horizontal flashing part shall be laid in the wall during construction at the proper height.

(C) The vertical face of the counterflashing shall lock in place and be removable to facilitate maintenance and reroofing.

(3)(A) The counterflashing should:

(i) Be approximately four inches (4") in height;

(ii) Have a hemmed edge; and

(iii) Turn out at the bottom to form a drip edge.

(B) The counterflashing should never extend below the top edge of the cant.

(4) Refer to subsection (n) of this section for the type, gauge, and quality of sheet metal to be specified and used.

(5)(A) Cast-in-place reglets are acceptable.

(B) Specify only nondeteriorating type metal.

(C) Surface-mounted extruded aluminum anchor bars will be acceptable if no other method is feasible.

(D) Anchor bars shall be fabricated of nondeteriorating type metal of sufficient strength and rigidity and have pre-punched, slotted holes for attachment using heavy-duty fasteners.

(E) **Note.** Plastic anchor pins are not acceptable.

(n) **Sheet metal components.**

(1) All metal components of the roof assembly shall be fabricated of a nondeteriorating metal free of dents, waves, and blemishes.

(2) Twenty-four-gauge prefinished sheet metal or mill finish aluminum of thirty-two thousandths inch (.032") thickness (minimum) shall be the standard material used on buildings.

(3) Other nondeteriorating metals such as copper and stainless steel are acceptable.

(4) Twenty-four-gauge prefinished sheet metal or forty thousandths inch (.040") thickness aluminum is recommended for:

(A) Scuppers;

(B) Guttering;

(C) Down spouts; and

(D) Splash pans.

(o) **Expansion joints.**

(1) Provide expansion joints in the roofing system:

(A) Wherever structural expansion joints occur;

(B) Wherever structural framing or roof decks change direction or materials; and

(C) Where roof areas dictate the need for an expansion joint.

(2) Provide additional expansion joints within the roofing system itself wherever the roof perimeter is interrupted by either a projection into or out of the major field of roofing to form an isolated segment of roofing at the same elevation and as may be required by the dimensional stability of the several components used.

(3)(A) Curb-type expansion joints, in lieu of low-profile type, are desirable for purposes of maintenance and longevity.

(B) Treated two by twos (2 x 2s) should be used of sufficient height to install cant strips and membrane flashing of sufficient height for a watertight installation.

(4)(A) Consider using, warranty permitting, metal expansion joint covers of forty thousandths inch (.040") mill finish aluminum in lieu of neoprene expansion joints for all roof and roof-to-wall expansion joint conditions on state-owned buildings.

(B) Hex-head fasteners shall only be used.

(C) Nails are prohibited.

(p) **Roof penetrations.** All roof penetrations shall be flashed as recommended by the roofing membrane or metal panel manufacturer furnishing materials for the particular installation and the recommendations of the National Roofing Contractors Association based on the best, current roofing practice.

(q) **Roof drainage.**

(1)(A) All roof drains are to be located at the low points of the roof deck.

(B) Areas drained should be limited so that no drain exceeds four inches (4") in diameter.

(C) Locate drains so that all roof surfaces may be readily drained (each side of expansion joints).

(D) The roof drain itself should be set a minimum of three-quarters inch (3/4") below the roof surface.

(E) Taper insulation in a three-foot diameter around drains.

(2)(A) Coordinate roof drain placement with drainage slopes to stay within acceptable limits according to manufacturer's recommendations.

(B) Install roof crickets between drains where required to properly drain roof areas.

(3) Roof drains shall be interior where possible to allow for future expansion of the building.

(4) Every roof shall have an appropriate overflow scupper or emergency roof drain to prevent flooding or roof failure should the roof drains become stopped up.

(r) **Roof protection walk pads.**

(1)(A) In most cases, roof pads or walk boards are not recommended on roofs except in extreme high-traffic conditions.

(B) Roof top protection walk pads are only recommended on roofs where mechanical equipment, flagpoles, penthouses, and laboratory experiments are located which require periodic maintenance and protection from daily foot traffic.

(2) Walk pads should be neatly laid out and designed in such a manner as to not impede roof drainage.

(3)(A) Twelve inches by twenty-four inches (12" x 24") is the recommended size of the individual pieces of roof protection walk pads.

(B) Walk pads shall comply with and be installed per roof membrane manufacturer’s warranty requirements.

(4) Walk pads should be installed prior to aggregate surfacing or, if smooth surface roof membranes, before the application of the coating.

(5) In many instances, simply adding an extra layer of membrane for walk paths and roof protection is preferred.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-1206. Rooftop-mounted mechanical equipment (self-contained heating and/or cooling package units and associated ductwork).

(a)(1) Mechanical equipment shall not be located on the roof unless contained in a separate mechanical roof penthouse or submitted for approval in writing to the Design Review Section prior to the first plan review.

(2) Refer to 22 CAR § 111-409 regarding unacceptable design configurations.

(b) In those instances where mechanical equipment is approved to be located on the rooftop due to the building budget or design, the following guidelines should be followed:

(1)(A) Rooftop equipment (defined here as self-contained heating and/or cooling package units and associated ductwork) which is elevated above a roof shall be designed with adequate support and clearance.

(B) The larger a piece of equipment is, the more clearance it will require.

(C) Provide a minimum of ten inches (10") of clearance above the finished roof surface and additional clearance as required sufficient to maintain and reroof the building.

(D) Contact or refer to the National Roofing Contractors Association for recommended minimum heights of equipment and support systems above the roof;

(2) Rooftop equipment shall be adequately supported and attached to the structural system of the building;

(3) Provide vibration isolation, as required;

(4)(A) Legs of equipment (of substantial size and weight) supports should be surrounded by a pitch pan filled with one inch (1") of fast setting gypsum cement and topped off with a commercial pitch pan sealer sloped to shed water.

(B) Lightweight equipment should be set on water-resistant treated wood blocking and secured to the roof structure with metal straps, as needed, for protection and safety;

(5) Protect pitch pans and pan sealants by installing watertight aluminum or prefinished sheet metal umbrellas with drawbands attached to equipment support legs; and

(6)(A) Provide support for any piping or lightweight equipment on the roofs.

(B) Piping or equipment shall be supported by treated wood blocking set on an extra layer of loose membrane set in industrial roof cement on the roof surface.

(C) Electrical conduit shall not be surface run on the roof.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-1207. Minimum roof slopes for positive roof drainage.

(a) All state facilities of new construction shall be required to have roof surfaces with a minimum slope of one-quarter inch per foot (1/4″/ft.) for positive drainage.

(b) Where possible, roof slopes shall be accomplished structurally in lieu of large amounts of tapered insulation fill to reduce costs and weight on the structural system.

(c)(1) Avoid excessive slopes in excess of one-half inch per foot (1/2″/ft.) in built-up and modified bitumen roof assemblies which cause slippage and bitumen run-offs.

(2) Use proper fasteners and bitumen for the slope of the roof and the type of roof assembly.

(d)(1) On reroofing of existing facilities, the roof slope may be reduced to one-eighth inch per foot (1/8″/ft.).

(2) The existing roof should be surveyed for areas which pond water.

(3) These areas should be leveled or filled as required and practical for the type of substrate.

(4) Verify that equipment curbs, counterflashing heights, and the like are of sufficient height for reflashing after the installation of new tapered insulation and roof membrane.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-1208. Roof access requirements.

(a) Roof access for inspection and periodic maintenance shall be required on all buildings.

(b) A lockable, factory produced roof access scuttle (minimum size two feet six inches by three feet (2'6" x 3'0")) with an insulated curb and hinged door shall be located as directed by the owner’s representative in a convenient location such as a janitor's closet or mechanical equipment room.

(c)(1) A heavy-duty metal ladder (twenty inches (20") wide, minimum) shall be provided at all roof access scuttles.

(2) Bolt ladder to floor, wall, and scuttle curbing.

(3) Ladders shall comply with current Occupational Safety and Health Administration requirements.

(d)(1) Access to all roof levels shall be provided.

(2) Utilize lockable type doors, windows of sufficient size, roof access scuttles, or exterior mounted rungs or ladders to provide access.

(e)(1) When reroofing existing buildings, verify need for roof access and provide as needed.

(2) Coordinate locations with the owner’s representative.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-1209. Workmanship/quality control.

(a) **Installer's qualifications.**

(1) Installers shall be recognized roofing contractors specializing in the chosen system roof application, skilled and experienced in the type of roofing required.

(2) In addition, the installer shall be familiar with the specific requirements and methods needed for proper performance and workmanship in accordance with recognized standards of the industry and the manufacturer.

(b) **Preinstallation conference**

(1) A preinstallation conference shall be held prior to installation of any roofing and associated work on a state building.

(2) The preinstallation conference shall be initiated by the design professional at the proper time with a minimum of three (3) days' notice for the following parties to attend:

(A) Installer's representative (roofing subcontractor);

(B) General contractor's representative (where applicable);

(C) Mechanical contractor's representative (where applicable);

(D) Electrical contractor's representative (where applicable);

(E) Deck installer's representative (where applicable);

(F) Testing services representative (where applicable);

(G) Design professional;

(H) Construction Section of the Building Authority Division representative;

(I) Department representative or project coordinator; and

(J) Physical plant or maintenance representative.

(c) Review the following with all concerned representatives:

(1) Letter from manufacturer furnishing roofing system/roof warranty, stating manufacturer has reviewed job specifications and agrees to furnish warranty as specified;

(2) Project requirements, drawings, specifications, and construction details;

(3) Material submittals and manufacturer's requirements for bonding (where applicable);

(4) Deck condition and installation (where applicable);

(5) Storage of materials;

(6) Installer's set-up directions;

(7) Safety considerations;

(8) Protection of rooftop, building, and grounds;

(9) Scheduling of work;

(10) Roof inspection and testing;

(11)(A) Weather limitations.

(B) Rejection of phased construction;

(12) Application of materials/building and regulatory codes;

(13) Cleanup; and

(14)(A) Project close-out.

(B) A record shall be made by the design professional of the preinstallation conference discussions, the decisions and agreements reached, and a copy of the record shall be made available to each party attending.

(d) **Roofing materials delivery and storage requirements delivery.**

(1) No materials are to be delivered to the site prior to the:

(A) Approval of the materials submittal;

(B) Preinstallation conference; and

(C) Owner’s representative's approval.

(2) No materials are to be delivered to the site without the proper arrangements for placement, storage, and protection from the weather.

(3) Departments and their representatives are instructed not to accept delivery or be responsible for acceptance.

(4) Deliver materials in manufacturer's original containers, dry, undamaged, seals and labels intact.

(e) **Sheet material storage.**

(1) Storage of all sheet materials (roll goods) and insulation shall be subject to the following requirements:

(A) If within fifty (50) miles of contractor's warehouse, all sheet materials (roll goods), insulation, and the like, shall be trucked to the job daily from enclosed warehouse storage.

(2) All other storage shall conform to the following:

(A) Enclosed trailer, vans, or truck storage on the project site;

(B) Canvas (no plastic sheeting is acceptable) tarpaulins, with material on wooden pallets, six inches (6") minimum above the ground, secured by ropes, top and sides of all material protected from moisture and rain; and

(C) Bitumen may be stored separate, adjacent to kettle location.

(f) **Rejection of phased construction.**

(1)(A) The installer shall not phase the application of the roofing system.

(B) The roof system components shall be applied consecutively as recommended by the manufacturer (within the limits of a day's work) and be weather-tight so that in the event of inclement weather, no damage will occur to the roof components or interior contents of the building.

(C) Phased roof construction will be rejected by the owner's representative and shall be removed and replaced by the installer.

(2)(A) Final surfacing of aluminum coating, where applicable, may be delayed until the roof membrane cap sheet has properly weathered.

(B) Allow owner's representative time to inspect roof surfaces.

(C) All roof surfaces shall be clean and dry for approximately forty-eight (48) hours prior to application of final surfacing.

(g) **Weather condition limitations.**

(1) Proceed with roofing and associated work only when weather conditions will permit unrestricted use of materials and quality control of the work being installed, complying with all requirements of the specifications and recommendations of the roofing materials manufacturers, without phased construction.

(2)(A) Proceed only when the installer is willing to guarantee the work as required and without additional reservations and restrictions.

(B) Record decisions or agreements to proceed with the work under unfavorable weather conditions and contact the Construction Section of the Building Authority Division.

(C) State the reasons for proceeding and the names of the persons involved in the decisions, along with changes (if any) in other requirements or terms of the contract.

(h) **Protection and cleanup.**

(1) **Rooftop protection and cleanup.**

(A) Protect roof surfaces over which work is to be performed.

(B) Exercise care and caution that roofing materials placed on rooftop do not overload structure or damage decking or other roofing materials.

(C)(i) Take care to prevent bitumen, aggregate, and debris from running into and clogging roof drains and rainwater conductors.

(ii) Remove trash and debris promptly.

(D)(i) Schedule work in order not to track over and damage newly installed roofing in place.

(ii) If absolutely necessary to cross a newly applied roof area, coordinate exact protection procedures with owner’s representative.

(E) The installers shall be responsible for all damage to any related items to his or her trade and will be responsible for the cleaning and repair or replacement of any such items.

(2) **Building protection and cleanup.**

(A) Properly and efficiently protect building and work of other trades from damage by roofing materials during the performance of the work.

(B) The installer shall:

(i) Protect building walls and other surfaces from disfiguration by bitumen stains, runs, or spillage, etc.; and

(ii) Bear the labor and material costs for repair of these surfaces from damage by the roofing installer's work.

(C)(i) Protection of the building and its interior contents is mandatory.

(ii) The installing contractor shall submit a written plan for providing this protection to the owner’s representative for approval.

(iii) The installing contractor shall furnish plastic sheeting to protect computers, word processors, printers, typewriters, and any other sensitive equipment in the building.

(D) It is suggested, and may be necessary, for the installing contractor to contract with the agency’s designated employee or employees (custodial or physical plant) for after-hours cleanup and protection.

(3) **Grounds protection and cleanup.**

(A) Coordinate access, parking, storage of materials and equipment on the grounds with the owner's representative designated at the preinstallation conference.

(B) Protect the grounds, lawn, landscaping, shrubbery, and the like from abuse and damage during roofing work.

(C) Remove trash, debris, wrapping, and the like promptly and clean up daily around the job.

(D)(i) The installer shall be responsible for removing all equipment and surplus material from the grounds prior to final acceptance of the work.

(ii) Installer shall leave his or her portion of the work, as specified, clean and in complete order.

(iii) Upon final completion, the ground shall be cleaned of all trash, debris, gravel, bitumen, lumber, scraps, and the like and the grounds raked to conditions prior to roof work.

(i) **Installer's guarantee.**

(1) **Terms.** Upon completion of all work and as a condition of its acceptance, deliver to the owner a written guarantee signed by the general contractor and the installing subcontractor agreeing to correct all leaks and defects in the roofing system work.

(2) **Time period.**

(A) The time period for correction of the roofing system work shall be two (2) years from the date of final acceptance of the roof by the owner's representative and the division.

(B) Sixty (60) days before the end of the two-year period, review roof conditions of the site with the owner and all parties concerned and correct all defects in conformance with the original specifications.

(3) **Warranty repairs.** During the correction of work period, the roofing installer shall, upon notice from the owner, make immediate temporary repairs and notify the roofing materials manufacturer, make a report, and, if covered by this

guarantee or the roofing materials manufacturer's guarantee, the roof shall be permanently restored to a water-tight condition, at no cost to the owner.

(j) **Manufacturer’s roof warranty.**

(1)(A) A manufacturer’s warranty shall be required on all reroofing, new construction, and associated roof work on state buildings unless the cost and size are very minor.

(B) Specified work shall be guaranteed by the roofing materials manufacturer for a period as specified (maximum term and maximum penal sum available) starting from date of final acceptance by the owner of the completed roofing system.

(C) The materials manufacturer shall approve the roof warranty.

(D) Surety company bonds are not acceptable.

(E) Submit one (1) copy of the roof warranty on manufacturer's standard printed form to the department upon acceptance of the roof.

(2)(A) Specified work shall be inspected by qualified representatives of the manufacturer during its installation and at final completion for conformance to manufacturer's warranty program.

(B) Minimum follow-up inspections shall be made in accordance with the manufacturer's requirements and corresponding observations and reports provided to the owner.

(k) **Installer’s warranty signs.**

(1)(A) Provide ten inches by twelve inches (10" x 12") minimum size painted signs (quantity of signs as needed or specified) made of aluminum with a light color background and letters of a contrasting color.

(B) Use paint that is compatible with the aluminum.

(C) Make the sign to read as follows:

> "DO NOT MAKE REPAIRS OR ALTERATIONS TO THIS ROOF" without the written approval from the department’s authorized representative. This roof is maintained until (insert the date, month and year, two

years after date of final acceptance), by (insert contractor's name, address, and telephone number).

(2)(A) Permanently post signs as directed by the owner's representative.

(B) Provide at least one (1) sign on each roof of the building where new roof work occurs.

(l) **Roof inspections/roof cuts.**

(1) The design professional's specifications, based on the manufacturer's recommended installation procedures, when approved by the owner and the division, will become the basis for inspecting and accepting or rejecting actual installation procedures used on the work.

(2) **Roof inspections.**

(A) Provide safe access to the roof for proper inspection by the owner's representative.

(B) Notify the roofing materials manufacturer whenever roofing work is to be done in sufficient time to arrange all inspections necessary for bonding of the roof system.

(C) Keep the owner's representative and Construction Section informed of the status of the project and schedule for completion.

(3) **Roof tests, roof cuts.**

(A) Roof cuts will be made only when considered absolutely necessary to determine compliance with specifications.

(B)(i) When necessary, cut four inches by forty-two inches (4" x 42") test samples (to cut a total cross-section of all roof plies) of installed roofing as directed by the owner's representative.

(ii) Immediately repair roof to conform to adjacent roof construction without cost to the owner.

Authority. Arkansas Code § 22-2-108.

Subpart 13. Fundamental Mechanical and Electrical Requirements

22 CAR § 111-1301. Fundamental mechanical and electrical requirements generally.

(a) These requirements apply to new construction and renovation projects only.

(b) Existing conditions or systems are exempt from these requirements.

(c) Departments are encouraged to upgrade existing systems to meet these requirements as much as practical when equipment or system components are replaced.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-1302. General requirements.

(a)(1) Mechanical and electrical systems should be appropriate for the intended application regardless of the geographical location in the state.

(2) Location should be considered from a standpoint of availability of a competent service organization.

(3) Where critical replacement parts cannot be delivered within twenty-four (24) hours, consideration should be given to inventorying these parts on site.

(4)(A) However, it is not the intent of a capital improvement project to stock the department's supply shelves.

(B) Other sources of funds are available for that purpose.

(b)(1) Systems shall be capable of meeting the intended operational parameters of the application year-round without requiring special seasonal reconfigurations.

(2) Controls should be clearly labeled and described to allow the operator to manage the system with a minimum of training.

(3) In all new system specifications, include a specific training time and course outline for the contractor to provide to agency personnel.

(4) It is recommended that all training classes on the control systems and the system operational concepts be supplemented with videotape information or with compact disk interactive training aids.

(5) This data should be customized for the particular application to avoid confusion and promote operational awareness.

(c)(1) New design concepts, equipment, and materials should be carefully evaluated before incorporating them into a state project.

(2) While departments are not discouraged from incorporating new and innovative solutions to design problems, state projects should not be used as the proving grounds for new concepts or ideas.

(3) Therefore, if a department desires to try new design concepts or materials, the Design Review Section may approve such applications for the intent of observation to determine the suitability of such applications for other projects.

(4) Departments shall submit a written request for approval to the State Engineer for use of such new concepts or materials.

(5) The request shall include but not be limited to the following information:

(A) A detailed description of the application or material;

(B) Backup literature from the manufacturer or supplier;

(C)(i) A discussion of how this application differs from other applications utilizing conventional concepts or materials.

(ii) Include the unique features of each situation that led to selecting this concept or material;

(D) A discussion of the expected cost difference between the conventional systems and the proposed systems;

(E) A discussion of what benefits the department expects to achieve over the conventional systems approach; and

(F) A discussion of how the department expects to monitor the application for verification of expected results.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-1303. Mechanical systems.

(a)(1) Air handling units, pumps, boilers, and other mechanical equipment requiring frequent inspection and service should be located within the building or in separate buildings with interconnecting chases or pipe tunnels.

(2) Equipment shall be located in rooms with ample space to provide routine maintenance, component replacement, operation, and inspection without requiring demolition of the building structures or unnecessary climbing or crawling by service technicians or mechanics.

(3) Equipment located outdoors should be installed on the ground on solid foundations with concrete service pads around the equipment.

(b)(1) When equipment must be installed on the roof, provide raised equipment platforms that allow roof replacement and maintenance or full perimeter curb to eliminate the need to reroof under the equipment.

(2) Equipment shall be selected with water tightness of the roofing system in mind.

(3) Equipment that is prone to allowing leaks to penetrate the unit casing, interiors, or connections during normal and windblown rain shall be avoided.

(4) Where equipment is mounted above the roof, provide a service platform on the service access sides of the equipment.

(5) Provide stairs that are integral to the platform to avoid the need for ladders to gain access to the work platform.

(6) Conform to Occupational Safety and Health Administration safety requirements with regards to:

(A) Platforms;

(B) Ladders; and

(C) Confined spaces.

(7) When it is absolutely necessary to have piping, conduits, ductwork, etc., across the roof, specify zero penetration support systems with nonrusting base supports to distribute the equipment weight without damage to the roof membrane or insulation.

(8) Ensure that the installed system will resist the design wind loads without damage to the supported system or the roof.

(c)(1) Air handling equipment should be specified with access doors with view ports between each major section or component to allow inspection of the operating equipment without requiring the shutdown and opening of the unit.

(2) Provide internal lights with exterior-mounted pilot light switches on units exceeding ten feet (10') in width or height.

(3) For package split-system equipment, provide a means to remove and clean the cooling coils and heating coils without requiring complete dismantling of the system.

(d)(1) A mechanical air conditioning system should be specified with the highest operating efficiency permitted by the project budget while still allowing for competitive bidding.

(2) Minimum acceptable seasonal energy efficiency ratio (SEER) shall be twelve (12.0) and minimum energy efficiency ratio (EER) shall be ten (10.0) indirect.

(3) Gas-fired heating equipment shall have a minimum annual fuel utilization efficiency (AFUE) of eighty percent (80%).

(4) Departments are encouraged to require higher efficiencies.

(e)(1) The use of alternative energy sources for both heating and cooling are encouraged.

(2) Departments should consider the effects of diversity and quantity aggregation on their ability to negotiate utility rates and their ability to provide uninterrupted service at an affordable cost to the state.

(f)(1) Mechanical systems shall meet the requirements of the Arkansas Energy Code (ASHRAE Standard 90.1 for energy efficiency) and the ASHRAE Standard 62 for indoor air quality.

(2) Equipment shall be selected to meet these requirements without requiring the equipment to operate outside of the manufacturer's recommended performance envelope during the extremes of summer or winter.

(3) Operation of the equipment during these extremes should not shorten the intended life of the equipment or subcomponents.

(g)(1) Mechanical system designs should be conducive to promoting good indoor air quality.

(2) Air equipment subject to exposure to condensed moisture should be constructed of materials that do not promote or support biological growth.

(3) These surfaces should be sloped to a drain point that will readily remove the moisture from the system.

(4) These surfaces should be easily accessible for periodic inspection and cleaning.

(5) The remainder of the system should also be readily accessible for inspection and cleaning.

(6) Filter selections in air systems should consider not only the particle size to be arrested but also the possibility of odor transmission through the system.

(7) Frequency and cost of replacement media should be considered, however, the cheapest filter media is often the least desirable from an air quality standpoint and a frequency of replacement standpoint.

(8)(A) Unless otherwise specified by the department or dictated by the specific application, all HVACR systems shall maintain the space temperature and humidity within the bounds of the "comfort envelope" as defined by the ASHRAE Fundamentals Handbook.

(B) This comfort envelope is generally accepted as a region where the indoor temperature and humidity will be acceptable to the majority of the occupants.

Authority. Arkansas Code § 22-2-108.

Codification Notes. "ASHRAE" means American Society of Heating, Refrigerating, and Air-Conditioning Engineers.

"HVACR" means heating, ventilation, air conditioning, and refrigeration.

22 CAR § 111-1304. Plumbing systems.

(a) Plumbing systems shall be designed pursuant to all state and federal laws and rules.

(b)(1) Backflow prevention shall be applied to each project as required to protect the public water supply and the interior building distribution systems from the potential for cross contamination from a nonpotable or contaminated source.

(2) Many building projects will require an approved backflow prevention device to be installed on the incoming water service prior to the first connection tap.

(3) In addition, all connections to mechanical systems or equipment shall be provided with an approved backflow prevention device at the connection to the equipment or at the point where the dedicated piping system for makeup water begins.

(4) Backflow devices shall be installed in accessible locations and provided with an adequate drain connection to allow proper operation and inspection.

(c) All fire sprinkler services and standpipe systems shall be installed with an approved backflow prevention device.

(d) All lawn irrigation systems, agricultural/aquatic operations, and wash racks shall be provided with an approved backflow prevention device to protect the public water supply and eliminate cross connection contamination within the facility.

(e)(1) All heating water equipment shall be selected for energy-efficient operation.

(2) Gas-fired heating equipment shall have a minimum AFUE rating of eighty percent (80%).

(f)(1) All plumbing fixtures shall be selected and installed in a manner that is conducive to ease of cleaning of the:

(A) Fixture;

(B) Support; and

(C) Surrounding area.

(2) Cleanliness promotes good indoor air quality and a healthier indoor environment.

(3) System designs should not result in wet, damp, or pooling water, which can be a source of microbiological growth or promote the formation of mold and mildew if left uncleaned.

Authority. Arkansas Code § 22-2-108.

Codification Notes. "AFUE" means annual fuel utilization efficiency.

22 CAR § 111-1305. Electrical systems.

(a)(1) Electrical distribution systems shall be designed to allow rapid comprehension of the basic system layout.

(2) Where multiple voltages will occur within a space or structure, careful consideration should be given to the layout, routing, labeling, and color coding of conductors and components to minimize potential injuries due to confusion of the various systems.

(b) Where three-phase power is available, utilize this power for larger motor loads.

(c)(1) The use of copper conductors and copper busses is recommended.

(2) Where aluminum conductors are to be considered, the Building Authority Division recommends that aluminum not be used on branch circuits below the distribution panel level.

(3) The division recommends that all terminations on aluminum conductors be made with bolt-on or weld-on lugs only.

(4) Panel board termination bars or lugs utilized with aluminum conductors should be made of copper, cadmium, or other approved materials rated for use with aluminum or copper.

(d) Where buildings are provided with a four hundred eighty/two hundred eight/one hundred twenty (480/208/120) volt system, perform an economic analysis of the cost benefit of two hundred seventy-seven (277) volt lighting versus one hundred twenty (120) volt lighting.

(e) Specify lighting fixtures, lamps, and ballast for energy efficiency and to minimize the amount of hazardous waste that may be generated by the department during routine maintenance replacement.

(f)(1) Specify high-efficiency transformers when the transformer losses are included in the utility metering.

(2) Utilize transformers that are operationally stable at the anticipated operating conditions.

(g)(1) Where critical operations include electronic equipment or computers, utilize transformers that minimize harmonic distortion or provide electrical isolation of susceptible equipment or circuits.

(2) Provide neutral conductors sized for two hundred percent (200%) of the line conductor capacity.

(h)(1) Provide a minimum of ten-percent spare circuit capacity at each panel to allow future growth.

(2) Provide a minimum of twenty-five-percent growth capacity on wire management systems for each system's future growth.

(i) Circuits serving critical loads or equipment should be provided with a minimum ride through capability to allow continuous operation of the equipment or component during nominal dips in power to seventy percent (70%) of RMS voltage and for momentary outages of one-half (1/2) cycle or less.

(j) All new construction shall be evaluated for lightning risk hazard in accordance with the procedures outlined in NFPA 780.

Authority. Arkansas Code § 22-2-108.

Codification Notes. "NFPA" means National Fire Protection Association.

"RMS" means root mean square.

Subpart 14. Fundamental Cabling Systems Requirements

22 CAR § 111-1401. Fundamental cabling systems requirements generally.

(a) This subpart pertains to the planning, installation, maintenance, and documentation of the various new cabling systems of ninety (90) volts or less in state-owned buildings.

(b)(1) The development, installation, and management of cabling systems presents many unique problems for building managers and operators.

(2) Departments shall endeavor to ensure that each system is properly designed and installed to minimize the potential for problems to develop.

(3) Therefore, building operators and managers shall maintain up-to-date documentation of each cabling system to allow:

(A) Proper maintenance;

(B) Identification of system components; and

(C) Coordination with other projects.

(4) When systems are abandoned, the department shall require the obsolete cabling to be removed from the premises.

(c)(1) Projects subject to the jurisdiction of the Office of State Technology shall be coordinated with the office at the earliest opportunity.

(2) The department project coordinator shall notify the office of the project.

(3) Comments or requirements of the office should be incorporated into the project design in a timely manner.

(4) Copies of all comments or requirements shall be forwarded to the Design Review Section with the plan review submittal.

(5) When the office is responsible for providing telephone or data services or for arranging the activation of these services, agencies shall allow ample time in the construction project for this coordination.

(6) Departments shall promptly inform the Design Review Section and the office of all changes in the project scope and schedule to avoid delays.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-1402. Planning requirements.

(a) The following types of cabling projects are not considered capital improvements and are not subject to this policy:

(1) Cabling between components of a system which is routed exposed in the space and passes between components, i.e., cabling between the computer and peripherals on the workstation;

(2) Cabling routed exposed in the space between the system component and the network connection, i.e., the telephone or computer on the workstation and the network outlet in the wall, floor, or ceiling; and

(3) Cabling routed exposed in the space between system components for television, radio, and satellite broadcast or audio/visual systems.

(b) All other cabling projects, including the systems above when routed concealed or in conduit, are considered capital improvements subject to federal and state laws and rules.

(c)(1) All cabling projects contracted independently or that are part of a larger project which exceed the amounts established in Arkansas Code § 22-9-101 shall have the plans and specifications prepared by a registered professional engineer licensed to practice in Arkansas.

(2) Conversely, for projects below the limit set forth in Arkansas Code § 22-9-101 requiring the involvement of a professional engineer, the plans and specifications shall comply with all other provisions of this subchapter.

(3) Nothing in this policy shall prohibit departments from utilizing the service of a competent registered professional engineer for these smaller projects.

(d)(1) Plans for cabling projects shall be drawn to scale not less than one-eighth inch equals one foot (1/8″ = 1′-0″).

(2) Scaled drawings are necessary to allow for proper quantity take-off and verification.

(3) The plans shall show the location of the cable entry into the building, the location of the telecommunication room or termination board for the cable entry.

(4) The plans shall show the routing of the cabling between the termination board and the individual run out.

(5) Run outs shall be grouped or bundled to minimize the congestion:

(A) Above ceilings;

(B) Below floor; or

(C) In other chase spaces.

(6) A single line may be used to graphically represent multiple cables in a run.

(7) Designate the quantity or types of cables in each run.

(e)(1) Cabling systems should be planned with flexibility and growth in mind.

(2) Systems should be segregated and labeled to avoid confusion and accidental cross connection.

(3) Face plates and jacks should be color-coded to facilitate user connection of equipment to the appropriate systems.

(4) In facilities where frequent reorganization of space occurs, the location of outlets should be reviewed to ensure an adequate number of outlets are installed in each space to accommodate minor reorganization without requiring a major recabling project.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-1403. Telecommunication rooms.

(a)(1) In a new construction project or major renovation project, provide at least one (1) wiring room on each floor in each building.

(2) Rooms should be located as near to the center of the floor as practical.

(3) In multistory buildings, stack the telecommunication rooms above one another to allow vertical wiring chases between floors.

(b)(1) For very large buildings or buildings where it is not practical to locate the rooms near the center of the floor, provide two (2) or more rooms per floor.

(2) Wiring rooms should be located such that the length of cabling between the telecommunication room and the most remote outlet face plate is no more one hundred meters (100 m) (three hundred thirty feet (330')), for data networks or the

maximum cable length recommended by the system manufacturer for other types of systems.

(c)(1) Telecommunication rooms and cabling termination rooms shall be a minimum size of eight feet by twelve feet (8′ x 12′) (not just ninety-six square feet (96 ft^2)).

(2) For systems containing more than one hundred (100) faceplate outlets, the minimum room size shall be ten feet by fifteen feet (10′ x 15′) (not just one hundred fifty square feet (150 ft^2)).

(3) For projects containing multiple wiring systems (i.e., data, telephone, public address, security, and CATV), the department shall review the cable installation requirements and should increase the minimum size of the room or provide separate wiring rooms for each system.

(4) When system terminations can be consolidated into one (1) room, the maintenance and management of these systems is simplified.

(d)(1) Many cabling systems include components that require strict environmental controls.

(2) Review these requirements and provide the appropriate air conditioning and power quality services.

(3) Many systems require redundant cooling or power, which may necessitate additional capital cost during the installation.

(4) Review these requirements and identify them during the planning stage.

(e)(1) Recommend a minimum of eight (8) electrical duplex outlets (two (2) on each wall) on isolated electrical circuits in each room.

(2) These outlets should have isolated ground conductors and dedicated neutral conductors.

(3) Isolated outlets should be color-coded for positive identification (i.e., orange).

(4) Recommend at least four (4) general power duplex outlets (one (1) on each wall) for power tools.

(5) These outlets should not be on the same panel board or circuit as the electronic equipment in the room.

Authority. Arkansas Code § 22-2-108.

Codification Notes. "CATV" means community antenna television.

22 CAR § 111-1404. Cabling standards.

(a) All cabling shall conform to the latest industry standards applicable to the specific system at the time of installation.

(b)(1) Cabling not installed in a closed conduit system should be specified to be plenum rated cabling regardless of whether the space is a return air plenum or not.

(2) This will eliminate the need to replace the cabling system if the HVACR system is renovated to a return plenum system.

(3) In addition, plenum rated cabling generally develops less smoke and has a reduced flame spread in the event of a fire, thus improving the fire safety of the building.

Authority. Arkansas Code § 22-2-108.

Codification Notes. "HVACR" means heating, ventilation, air conditioning, and refrigeration.

22 CAR § 111-1405. Wire management.

(a)(1) Efficient wire management can be achieved with a properly planned wire management system.

(2) Cable trays or "J" hook systems should be installed in all major corridors and hallways.

(3) For large projects with multiple cabling systems, provide multiple cable trays, divided trays, or multiple hook systems to allow segregation of each cable system.

(4) Cable management systems should be provided with a twenty-five-percent growth capacity for each cable system.

(b)(1) Cable trays and hooks shall be attached to building structural members or wall framing systems only.

(2) Do not attach or support wire management systems from other building systems such as:

(A) HVACR;

(B) Piping;

(C) Conduit systems; or

(D) Ceiling support wires.

(3) Extend wire management systems into the ceiling areas of all telecommunication rooms or cable termination rooms.

(4) Cable trays should run the length of the room along the center of the room.

(5) Where possible, extend conduit from the back box to the corridor ceiling where the wire management system runs.

(6) Provide plastic bushing at conduit termination to minimize damage to cable jacket.

(c)(1) Provide pull boxes and long sweep elbows in conduit systems to facilitate cable pulls.

(2) Pull boxes shall be at a maximum spacing of three hundred feet (300’) in outdoor conduits without bends.

(3) If one (1) or more ninety-degree bends are included in a run, reduce the maximum spacing to one hundred feet (100’).

(d)(1) Provide spare empty conduits with each exterior run and with runs between floors or wiring rooms.

(2) Recommend a minimum of two (2) four-inch conduits be provided as spares in new construction or major renovations.

(3) Provide pull cords in each conduit to facilitate future cable installation.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-1406. Identification.

(a)(1) Each cable system shall be clearly labeled as to the type of service the system provides.

(2) Departments are encouraged to develop a standard practice for labeling and identifying cabling both in conduit and exposed.

(3) The following is one recommended scheme of color-coding cabling and conduit to facilitate quick recognition of various systems.

(4) Other industry standard schemes are acceptable.

System Type	Color Code
Data cables	Blue
Data (fiber optics)	Orange
Fire Alarm	Red
Telephone (voice/fax/modem)	White
Security	Yellow
Sound, Paging, Music	Gray (with label)
Access control	Black (with label)
CCTV	Black (with label)
CATV	Black (with label)
Satellite	Black (with label)
Building Automation Systems (BAS)	Black (with label)

(b)(1) Pull box and junction box cover plates inside buildings should be color-coded the same as the system cable.

(2) The name of the system should also be labeled on the cover (i.e., "CATV").

(c)(1) Terminal boards, punch down panels, and cabinets should be labeled as to system type.

(2) In addition, clearly identify the point of demarcation between the building cable system and the utility connection point.

(3) Include the name of the service provider, phone number, contact person (if known), and the account number to facilitate service calls and coordination.

(d) When empty nonmetallic conduit systems or systems containing fiber optic cable or other nontraceable cables are installed below grade, provide a metallic tracer wire inside the conduit or immediately above the conduit or a detectable trench tape to facilitate future locating of the conduit.

(e)(1) A cable labeling system should be developed by the department to facilitate tracking and troubleshooting after installation.

(2) As a minimum, the cabling shall be labeled on both ends and at junctions to identify where the cable originates and where it ends.

Authority. Arkansas Code § 22-2-108.

Codification Notes. "CATV" means community antenna television.

"CCTV" means closed-circuit television.

22 CAR § 111-1407. Documentation.

(a)(1) Building managers/operators should maintain a complete record of each cabling system.

(2) The record should include the:

(A) As-built drawings;

(B) Cable test/certification reports;

(C) System start-up records;

(D) Catalog-cut sheets of cable and accessories;

(E) Name of the installing firm;

(F) Phone number; and

(G) Copies of all warranties.

(b)(1) As-built drawings should show routing on scaled drawings.

(2) The route and identification number of each cable should be clearly shown as well as the location of all wiring rooms, front end equipment, and demarcation points.

(3) Drawings should include riser diagrams or schematics to facilitate rapid understanding of the system and troubleshooting.

(c)(1) Where continuity or performance testing is required, the record documentation should include the:

(A) Specifications for the test;

(B) Data points gathered during the test; and

(C) Results of the test.

(2) All problems identified during the test and all deviations from the specification requirements should be clearly outlined and discussed in a summary at the front of the report.

(3) Include copies of all certificates or letters of certification in the front of the report.

(d)(1) Documentation should include the approved submittal drawings, catalog-cut sheets, or shop drawings for all components.

(2) Submittals should be bound, tabbed, and divided into discrete system components.

(3) Include the name of the installing firm and phone number.

(4) Copies of warranties and guarantees should also be included in the manual.

(5) The documentation should also include a listing of the manufacturer's recommended spare parts by name and product number.

Authority. Arkansas Code § 22-2-108.

Subpart 15. Plan Review Requirements

22 CAR § 111-1501. Plan review requirements generally.

(a) The following guidelines pertain to the submittal of construction documents to the Design Review Section for review.

(b) See 22 CAR § 111-411 for additional responsibilities and duties of the department.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-1502. Plan review authority.

(a)(1) The Design Review Section reviews capital improvement construction documents for compliance with this subchapter during its normal review of capital improvement projects.

(2) Such review does not relieve the design professional from the responsibility for designing in accordance with state and federal laws and regulations.

(3) While the Design Review Section endeavors to provide a thorough review of the documents presented for review, the Design Review Section shall assume no liability for the completeness, accuracy, or constructability of the documents approved for bidding.

(4) The Design Review Section approval for bidding implies only that the documents reviewed contain the minimum amount of information required to achieve a reasonably accurate price for the actual value of the work contemplated.

(b) While some code reviews are performed under the terms of various memoranda of understandings between the Building Authority Division and the department or authority having jurisdiction, the review provided by the division does not relieve the design professional from the responsibility for full compliance with these codes and good design practices.

(c) The Design Review Section reserves the right to reject a submittal for incompleteness, unacceptable design configuration, or failure to meet the requirements of the Arkansas Fire Prevention Code, 12 CAR pt. 15, or other applicable codes, rules, or standards, or if the submittal lacks the detailing or information necessary for proper review and bidding.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-1503. Plan review schedule.

(a)(1) Plans shall be submitted for review when the documents are one-hundred-percent complete and considered ready for bidding or construction.

(2) Refer to 22 CAR § 111-202.

(b)(1) Nothing in this part shall prohibit a department from requesting additional plan reviews at the schematic design and design development phases of production.

(2) The Design Review Section will provide review commentary to aid the department in assessing the appropriateness of the design and to ensure the design process remains on track for timely completion.

(3) All requests for additional reviews shall be submitted in writing to the Design Review Section for approval.

(c)(1) Design professionals may request a preliminary review of the project or portions thereof to ensure that the design direction chosen will result in a review submittal that will meet final review requirements.

(2) Request for such review meetings shall be submitted in writing to the administrator of the Design Review Section and shall include a brief description of the topics to be discussed.

(d)(1) The department shall schedule a minimum of thirty (30) calendar days for the plan review process.

(2) If the submittal is deemed to be incomplete:

(A) The review time will be stopped; and

(B) The department project coordinator will be:

(i) Notified in writing of the discrepancies; and

(ii) Given an opportunity to provide the additional information.

(3) The review time will recommence upon receipt of the additional information in its entirety.

(e)(1) The department shall respond to all Building Authority Division review comments in writing and shall submit one (1) set of corrected plans and specifications with the responses to the comments.

(2) The division shall review the responses and verify that all commentary has been satisfactorily addressed.

(3) The department shall schedule a minimum of five (5) working days after receipt in the Design Review Section for this review.

(4) If additional commentary is necessary, comments will be issued in writing and this process will be repeated.

(5) If no additional comments requiring additional review are necessary, the project will be released so that the bidding or contracting process can begin.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-1504. Plan review submittal requirements.

(a) While exceptions may occur, the following represents the minimum documentation required for most capital improvement projects.

(b)(1) Provide two (2) complete sets of all submittal documents and correspondence.

(2) One (1) copy shall be in paper form and one (1) copy shall be in electronic form.

(3) The electronic copy shall be submitted to the Design Review Section in a readable format which is acceptable to the Design Review Section such as Adobe Acrobat PDF format on one (1) or more CDs or portable electronic device.

(c)(1) Only documents that are considered one-hundred-percent complete shall be submitted for a review.

(2) These submittals shall be ready to issue for bidding without requiring additional:

(A) Notes;

(B) Details; or

(C) Other work.

(3) Do not submit projects that are less than one-hundred-percent complete.

(4) Plans and specifications approved at a final review should not require extensive or lengthy addenda to complete or change the scope of work and should not result in excessive change order requests due to uncoordinated documents or lack of information.

(d) The following documents shall be included in the Building Authority Division review submittal:

(1) A completed copy of the Building Authority Division Review Submittal Cover Sheet;

(2) Transmittal letter from the department project coordinator indicating that:

(A) The information contained in the submittal package has been reviewed by the department;

(B) The information complies with the project program; and

(C) The final cost estimate is within the department's project budget as described in the certification of available funds or the method of finance (MOF);

(3)(A) One (1) copy of the professional services contract containing the:

(i) Initial contract;

(ii) Attachments; and

(iii) Amendments.

(B) For projects executed under multiple-projects type contracts, include a copy of the task order assignment, delivery order, or letter of assignment issued to the design professional for this assignment.

(C) If the design professional was engaged under a purchase order (in lieu of a standard contract form), submit a copy of the purchase order and attachments describing the services to be provided;

(4)(A) An updated statement of the final estimated construction cost.

(B) Cost figures should be broken down by division and section or subsystem components such as paving, windows, millwork, and painting as required to determine an accurate projection of cost.

(C) As a minimum, provide a line item for each of the CSI Divisions and for the "General Conditions" contained in Division 0;

(5)(A) A copy of the department program provided to the design professional along with any revisions and a copy of any pertinent meeting notes reflecting a change in the scope of work since the first submittal to the department.

(B) Include a copy of the funding source noting any revisions since the first submittal;

(6) If a feasibility study or predesign study was performed, submit a copy of the Building Authority Division approval letter for each study;

(7)(A) Provide complete project manual containing all appropriate CSI Division specifications including Division 0 and the invitation to bid.

(B) Be advised that a separate submittal of the invitation to bid, Division 0, and Division 1 specifications to the Construction Section will be required upon approval of the plan review submittal;

(8)(A) Provide complete drawings as shown under 22 CAR § 111-1505.

(B) All drawings and the project manual shall be stamped and signed by the appropriate design professional.

(C) Provide a preliminary or Not-for-Construction over stamp of the design professional's seal;

(9) Submit copies of approval letters from all regulatory review entities; and

(10) If the project site will be located in a floodplain, submit a copy of the permit application to develop in the floodplain in accordance with 22 CAR § 111-701 et seq.

Authority. Arkansas Code § 22-2-108.

Codification Notes. "CD" means compact disc.

"CSI" means Construction Specifications Institute.

22 CAR § 111-1505. Plan review drawing requirements.

(a) Title sheet (T1) shall include:

(1) Title of project;

(2) Location of project;

(3) Name of department;

(4) List of all design consultants with phone numbers and addresses;

(5) Arkansas Fire Code Prevention Certification Statement;

(6) QC review statement;

(7) Building Authority Division agency project number;

(8) Department project number (if different than division assigned number);

(9) State location map;

(10) Vicinity maps of city and campus;

(11) Arkansas Fire Prevention Code, 12 CAR pt. 15, analysis data, which shall include:

(A) Occupancy classification;

(B) Minimum occupant loads;

(C) Type of construction;

(D) Allowable height;

(E) Allowable building per floor;

(F) Gross floor area for each floor of all buildings;

(G) Net floor area for each assembly occupancy classification;

(H) Horizontal separation distances;

(I) Exit and access corridor protection strategy;

(J) Seismic design category; and

(K) Seismic use category; and

(12)(A) Index of all drawings in the project.

(B) For large projects, the index of drawings and other information may be placed on Sheet T2.

(b) **Topographical surveys and plot plans (TS).**

(1)(A) Survey shall meet the Arkansas Minimum Standards for Property Surveys and Plats.

(B) A registered land surveyor licensed to practice in Arkansas shall stamp and sign these plans.

(2) Where required by the scope of the project, provide a legal description of the subject property.

(3) Show property lines and surrounding features affecting future development.

(4)(A) Show the location of all known easements, flood plan boundaries, and other features that will limit or prohibit development of the site.

(B) Note the elevation of the hundred-year floodplain on the plan and define the perimeter or extent of this elevation with a bold line.

(C) Recommend you shade or crosshatch a screened pattern within the boundaries of the flood plan for clarity.

(D) Include a source data reference on the plan identifying where the flood plan information was obtained.

(5)(A) Show contour elevations at a minimum of five-foot intervals for undeveloped areas of the site and one-foot or two-foot intervals within the project limits as necessary to accurately describe the site terrain.

(B) Indicate the path and contour of all existing surface run-off drainage into and out of the site.

(6)(A) Show the location of existing utility lines, materials, and sizes and surface features.

(B) When underground utilities are shown and could not be verified during the survey, provide a disclaimer statement on the plan noting the source of the assumed information.

(C) When information is derived from public utility records, include the location of the record archive, a contact phone number, and the plate or drawing record from which the information was taken.

(7) Show the locations of existing:

(A) Buildings;

(B) Towers;

(C) Tanks;

(D) Wells;

(E) Pads;

(F) Old foundations;

(G) Drives; and

(H) Lots.

(8)(A) Show the location, size, and type of existing means of access to the site.

(B) Where bridges, trestles, or other load limit or height limiting structures are located along the access routes, note the posted load limit or height restriction.

(C) Where height restriction exists and is not posted, such as utility line crossings, determine the minimum clear height under the structure at the center of the road or access drive.

(D) Where gravel or paved roads are shown on the plans, identify these roads by their official name or designation number (i.e., County Road 69).

(9) Show location of permanent monument markers on the site and the coordinate information describing the monument location.

(10)(A) Show location, size, and type of all trees greater than three inches (3″) in diameter within the project limits.

(B) Show other prominent trees or vegetation on the plan site that may affect the project development.

(C) Where heavily wooded or bushy areas exist, define the approximate profile of the perimeter of these areas and note as:

(i) Heavily wooded;

(ii) Wooded;

(iii) Bushy;

(iv) Marshy; or

(v) Swampy.

(11)(A) Provide a north arrow and a plan scale in a prominent location on the plan.

(B) The preferred location is the bottom center of the plan sheet or the lower right-hand corner of the plan sheet.

(c) **Boring logs and soils data.**

(1)(A) Provide a small-scale plan of the site and building showing the location where samples were taken.

(B) Distinguish between borings and test pits.

(2) Indicate the surface ground elevation, the depths of each boring or test pit, and the blow counts per ASTM D-1586 at each bore.

(3)(A) Note the classification/description of materials encountered.

(B) Indicate the ground water level at each boring or pit.

(C) Note the general site conditions and recent weather history, if known (i.e., heavy rains in general area over the last month).

(D) Include other pertinent data.

(4) Provide a brief description of site geology and subsurface conditions encountered.

(d) **Demolition drawings.**

(1) Show the location of all existing elements that will affect the work or be used as a reference point.

(2)(A) Clearly define elements that are to remain after the demolition is complete.

(B) Coordinate the location of this information with the new construction plans to avoid omissions or errors.

(3)(A) Clearly define the beginning point and the ending point of the demolition work.

(B) Where possible, provide a flag symbol indicating these points.

(4)(A) Clearly state on the drawings how the demolished materials are to be disposed.

(B) If materials or equipment are to be retained by the owner, clearly identify these items and note where the removed items are to be stored.

(C) Avoid using the phrase "Owner has the first right of refusal on demolition materials".

(D) Coordinate this activity with the owner prior to issuing the plans.

(5)(A) Clearly indicate all temporary and permanent closures of penetrations in building envelopes.

(B) Indicate temporary or permanent backfill requirements where demolition opens the existing site or removes structures.

(6)(A) Clearly note the size, location, and type of material for piping systems, electrical systems, and the like that will be abandoned in place.

(B) Where possible, in existing structures, require the contractor to label piping and the like that is to be abandoned with the date of the contract drawings, i.e., "Abandoned May 2000".

(C) Labels should appear on both ends of the abandoned system.

(e) **Civil site drawings.**

(1) If the project is to be constructed on a newly acquired state property, provide a legal description prepared by an Arkansas registered land surveyor or refer to the description provided on the topographic survey sheet if one is provided in the set of plans.

(2)(A) Show the location of all adjacent buildings, tanks, structures, towers, and the like in the vicinity of the proposed building project.

(B) Show the location, size, and type of all trees greater than three inches (3") in diameter that may affect the construction or access to the construction area.

(3)(A) Show the location of the boundary of the hundred-year floodplain as it relates to the project site.

(B) Show the elevation contour of the hundred-year flood level.

(C) Lightly shade or crosshatch the area within the floodplain boundary and clearly indicate all new work within this area.

(D) Include a reference to the source of the data.

(4)(A) Show the location of all known existing utilities and new utilities including the location of all connection points.

(B) Where connections to existing utilities are governed by the local utility company, provide the name and phone number of the local company.

(C) Provide connection details, temporary flushing details, and details for expansion and thrust blocking where applicable.

(D) The One Call Center is to locate all underground utilities as required by Arkansas Code § 14-271-101 et seq.

(5)(A) Where roadways, driveways, parking lots, sidewalks, and other paved areas are to be provided, show locations of all:

(i) Control joints;

(ii) Constructing points; and

(iii) Expansion joints.

(B) Provide details of:

(i) Joints;

(ii) Turndowns; and

(iii) Reinforcing.

(C) Provide cross-section view of paving showing the subbase and paving materials.

(6)(A) Show existing grade contours as thin, dashed lines and new contours as heavy, solid lines.

(B) Where extensive cut and fill are required, show cut and fill cross-sections.

(C) Where roadways, driveways, and parking lots are to be constructed, show cross-sections and profiles as necessary to clearly define their construction.

(D) Where cut and fill are required, show location of designated areas on the site for surplus or stockpile materials.

(E) Show spot elevations at all critical control points and construction points.

(F) Note the finished floor elevation of the first floor located above grade.

(G) For buildings with basements or sublevels, also include the finished floor elevation for the lowest level.

(7)(A) Show the location of all drainage features on the site.

(B) For new construction, show the intended path of surface runoff drainage.

(C) Indicate the direction of flow by placing arrows in the direction of the flow.

(D) Where existing or new drainage structures occur, show the inverts in and out of boxes, drop inlets, manholes, and the like.

(E) For long runs of underground drainage piping, provide plan and profile drawings indicating the:

(i) Depth of the piping and structures;

(ii) Slope of the system; and

(iii) Cover depth above the system.

(F) Where the piping system material must change as the piping passes under a road or drive or where the system extends above grade to cross a low area or streambed, clearly indicate the change on the profile and the plan view.

(f) **Landscaping drawings.**

(1)(A) Show the location of all:

(i) Landscaping beds;

(ii) Retaining walls; and

(iii) Water features.

(B) Include schedules showing the planting types and sizes.

(C) Indicate planting season limits and watering schedules.

(2)(A) Show location and type of irrigation system heads.

(B) Show the head spray pattern and radius.

(C) Show the location of:

(i) Zone control valves;

(ii) Drain valves; and

(iii) Isolation valves.

(D) Show the layout of the piping distribution system.

(E) Show location of the connection to the public or private water supply and the approved backflow prevention device.

(F) Show location of all control panels and transformers requiring power above twenty-four (24) volts.

(G) Show the location of the source power or refer to the appropriate electrical drawing for the location of main power and connections.

(3) For systems with future extension or potential for future growth, show the location of all sleeves under driveways, sidewalks, and lots as required to extend future services without cutting and patching paving.

(4)(A) Provide staking details for all trees and shrubs that are not self-supporting.

(B) Provide installation details for each type of irrigation head, zone valve, and backflow prevention device.

(g) **Fire services access.**

(1) Show locations of all buildings and structures around the project site.

(2) Show the location of all drives, roads, parking lots, and sidewalks large enough to allow passage for emergency service vehicles.

(3)(A) Show locations and types of all fences or barricade structures around the site that may limit access or impede evacuation in an emergency.

(B) Where gates are installed that restrict access to the building or site, provide a Knox Box that is keyed to the local fire department or emergency response service.

(4)(A) Show the total square footage and number of floors on the building plan.

(B) Show the type of construction as determined by the Arkansas Fire Prevention Code.

(5) If specific areas of the site have been designated as areas of assembly or refuge for the building occupants, show the locations on the plans.

(6) Show the approximate location of the building entrances and exits and the approximate location of the following items, if applicable:

(A) Fire alarm panel or firefighter's service panel;

(B) Main power disconnect switch, or shunt power trip device;

(C) Area of rescue inside the building;

(D) Fire stair towers; and

(E) Elevator shafts.

(7) Show locations of all fire hydrants within five hundred feet (500') of any point on the building and within the area covered by the plan view.

(8) Show the location of the fire department connections, post indicator valves, and fire pump, if applicable.

(h) **Architectural drawings.**

(1)(A) Floor plan drawings shall be shown at a scale no less than one-eighth inch equals one foot (1/8" = 1'-0").

(B) For large buildings, use match lines to separate the building plan as required to fit this scale.

(C) For large buildings requiring match lines, provide an overall composite plan at a scale smaller than one-eighth inch (1/8") to show the relationship of all areas to one another.

(D) Show the match line locations on this plan and reference the one-eighth inch (1/8") scale plan sheet number for each area.

(E) Show the room name and number for each space.

(F) Show the detail marks, elevation marks, and door and window marks referenced to the door and window schedules.

(G) Provide legends, material notes, and general notes as required to describe the work.

(2)(A) Provide dimensional plans separate from the general floor plans as necessary to describe and dimension the size and relationship of the space and features.

(B) Dimensions may be shown on the general floor plans and enlarged plans provided the sheets do not become so cluttered as to be illegible or difficult to read.

(3)(A) Provide larger-scale drawings for toilet areas, elevator lobbies, entry lobbies, special use rooms, and similar spaces where more intricate work is to be performed by the contractor.

(B) Drawings shall be shown at a minimum scale of one-quarter inch equals one foot (1/4″ = 1′-0″).

(4)(A) Provide exterior elevations of all faces of the buildings.

(B) Elevations shall be shown at a scale not less than one-eighth inch equals one foot (1/8″ = 1′-0″).

(C) Elevations should indicate:

(i) The building materials to be used;

(ii) The texture of materials; and

(iii) The color of the finished surfaces.

(D) Where accent bands or features are used, provide clarification of the:

(i) Size;

(ii) Type; and

(iii) Color.

(E) Show exterior features such as gutters, downspouts, railings, screens, construction joints, expansion joints, masonry control joints, and the like.

(F) Show locations of all:

(i) Building section cut lines;

(ii) Detail marks; and

(iii) Door and window marks.

(G) Indicate the relationship between the finished floor and the exterior grade.

(H) Show the floor-to-floor height by dimension.

(I) Dot in the footings or foundation.

(5)(A) Provide at least one (1) traverse section and one (1) longitudinal section through each major axis of the building.

(B) These sections may be shown at a scale of one-eighth inch equals one foot (1/8″ = 1′-0″).

(C) Provide additional large-scale building and wall sections as required to properly understand and construct the building.

(D) Building sections shall clearly illustrate all building materials, sizes, spacing, and attachment.

(E) Show all through wall flashings, roof flashings, flashings at slabs, and floors.

(F) Show the relationship between the floor slab and the footings or supporting structure.

(G) Note the finished floor elevation for each floor and the elevations of perimeter footings or upper floor supports.

(H) Show the relationship of the finished floor to the exterior grade.

(I) Show the location of perimeter insulation and foundation drainage systems.

(J) Indicate special feature details such as:

(i) Ceiling heights;

(ii) Furr-downs;

(iii) Coffered-ceilings; and

(iv) Skylights.

(K) Provide details at each unique condition through the ceiling cavity where the relationship between the ceiling height and the structural framing changes the space available in the ceiling cavity for mechanical and electrical systems.

(L) Show the location of the vapor barrier or air barrier in each exterior wall section and roof section.

(6)(A) Provide large-scale details of unique construction features of the building.

(B) Where special angle cuts are required on masonry materials, framing materials, or finish materials, provide details at a scale large enough to clearly define the desired detail.

(C) Coordinate the plans with these details to ensure that the contractor can determine where these special cuts occur.

(D) Where special patterns are to be formed in the finish materials, provide large-scale plans, elevations, and details as necessary to describe the work.

(E) Provide large details of typical construction elements as necessary to describe the building construction.

(7)(A) Provide door and window details as required to describe the size, style, and installation of each unique door and window.

(B) Provide details showing the head, jamb and sill, or threshold condition for each door or window.

(C) Details shall be shown at a scale large enough to show the framing and attachment requirements.

(D) Provide door schedules and window schedules in a graphic format as required to define the type, size, location, hardwood, finish, operation, and accessories required for each.

(8)(A) Provide a room finish schedule for each space in the building.

(B) Schedule should include:

(i) The room number;

(ii) The name;

(iii) The location;

(iv) The floor material and finish;

(v) The base;

(vi) The wall material and finish;

(vii) The ceiling cove;

(viii) The ceiling material and finish; and

(ix) Any special trim or features.

(C) Provide notes as required to adequately describe the finish treatments desired.

(D) Provide references to the appropriate specification sections where additional information can be found.

(9)(A) Where built-in furniture, casework, or millwork is to be included in the construction project, provide large-scale plans, elevations, sections, and construction details as required to describe the size, construction, and finish of these elements.

(B) Provide detail reference marks as required on the floor plans and the millwork plans as required to accurately locate the details and the space where they apply.

(C) Built-in millwork should be designed to be as simple to construct as the function of the millwork will permit.

(D) Where customized furniture is to be a part of the construction contract, provide the detailing necessary to construct the piece.

(E) Clearly note all such pieces as "custom built", i.e., "Custom Built Desk".

(10)(A) Provide reflected ceiling plans for each floor (including floors with open structure).

(B) Drawing shall indicate the types of ceiling materials, pattern of layout, and changes in elevations of the ceilings.

(C) Note the height above the finished floor for each section of ceiling.

(D) Show the location of all ceiling-mounted devices such as:

(i) Light fixtures;

(ii) Air devices;

(iii) Access doors;

(iv) Speakers;

(v) Sprinkler heads; and

(vi) Similar devices.

(E) These devices shall be coordinated with the various discipline drawings to ensure that the contractor can install the subsystems correctly.

(F) A reflected ceiling plan is not a substitute for properly coordinated plans.

(11)(A) Provide a plan view of the roof system at a scale not less than one-eighth inch equals one foot (1/8" = 1'-0") or the same as the floor plan.

(B) The design professional may request a waiver from this requirement for large-scale projects where needed.

(C) Show the size and location of all:

(i) Expansion joints;

(ii) Roof drains;

(iii) Emergency roof drains;

(iv) Scuppers;

(v) Overflow scuppers; and

(vi) Roof vents.

(D) Show the pitch or slope for each section of the roof.

(E) Indicate the materials of construction and the color of the finish materials.

(F) Show the access to all roof levels.

(G) For multistory buildings with roof-mounted equipment requiring maintenance, provide at least two (2) roof access points to provide an alternate means of escape during an emergency.

(H) Where skylights or clerestory glass is provided over atrium or high spaces, provide Occupational Safety and Health Administration safety cages or approved alternate protection to prevent maintenance personnel from falling through the glazing.

(I) Where roof-mounted equipment requires maintenance or inspection access, provide footpath walkways to minimize damage to the primary roof membrane.

(J) Where absolutely necessary to have pipes and conduits across a roof, specify "zero penetration" portable suspended pipe hangers with nonrusting base supports to distribute weight without damage to the membrane.

(K) Provide details for all penetrations, joints, abutments, and changes in materials or elevations.

(L) Details shall be drawn large enough to clearly indicate the location of each layer of material, attachment, and overlap necessary to provide a proper seal, lap, or flashing.

(M) The use of bold lines to indicate ambiguous details without clearly showing the installation requirements shall be prohibited.

(N) Refer to §2-400 for additional information.

(12)(A) Provide a life safety plan for each building.

(B) Show the location of all required fire exits.

(C) Show the locations of all other exits meeting the requirements of a designated fire exit.

(D) Show the locations of all rated partitions and the rating requirements.

(E) Provide details of typical rated wall construction keyed to the floor plans.

(F) Provide details for recommended penetrations and openings in rated partitions.

(G) Show the location of the firefighter service command center if applicable.

(13)(A) Provide all information related to the Americans with Disabilities Act of 1990, 42 U.S.C. § 12101 et seq., (ADA) accommodations and access.

(B) Show where the ADA parking accommodations will be provided and clearly design the routes of access and exit to the building.

(C) Show the location of ADA facilities including ADA toilets, drinking fountains, vertical transport, sleeping rooms, bathing facilities, and the like on the plans.

(D) Reference other architectural drawings as necessary to locate the construction details and dimensioning.

(E) Provide details of all ADA required special features such as handrails, door controllers, ramps, curb cuts, and the like.

(F) Provide a riser type detail showing the ADA mounting heights of countertops, work surfaces, thermostats, light switches, fire alarm devices, door handles, toilet fixtures, and other features included in the work to provide for a central point of information regarding the heights of these elements.

(G) Do not merely refer to ADA requirements or guidelines.

(14)(A) Where modular furniture or movable furniture will be a part of the contract, provide plans showing the specific locations for each component by component name or model number.

(B) Provide legends and schedules as necessary to adequately describe the components in the plan view.

(C) Provide elevation views of modular workstations and furniture to allow verification of functionality and to describe the scope of the work.

(D) Furniture not provided as a part of the contract shall be clearly labeled as "Not in Contract" (NIC) or as "Owner furnished/Contractor installed".

(15)(A) When seismic restraint of nonstructural elements is required by code, provide details of typical acceptable restraining methods.

(B) Show locations of all restraints on the plans and cross-reference the appropriate details.

(C) Provide the basic design criteria for the restraining system including the seismic zone/category in which the project is located.

(i) **Kitchen equipment drawings.**

(1)(A) Floor plan drawings shall be shown at a scale no less than one-eighth inch equals one foot (1/8" = 1'-0").

(B) Food preparation areas and food service area plans shall be drawn at a minimum scale of one-quarter inch equals one foot (1/4" = 1'-0").

(C) Plans should show the relationships for all fixed and movable furniture, equipment, and appliances.

(D) Provide area names to define the various function areas in the food service drawings (i.e., preparation, cooking, baking, and serving).

(2)(A) Provide an equipment schedule that identifies:

(i) Each piece of equipment's function, power and utility requirements, motor sizes, and voltage requirements, where applicable; and

(ii) A reference product manufacture and model number.

(B) Where equipment, fixtures, or furniture must be custom fabricated for this specific project, note in the schedule that the item is "custom built".

(3)(A) Provide details and elevations as required to describe the fabrication and installation requirements for all fixtures and furniture.

(B) Where components must be custom built, provide the fabrication details necessary for the contractor to select the proper materials, methods, dimensions, and finishes required to construct the project.

(4)(A) Where connections are required by other trades, do not refer to "connection by plumbing subcontractor" (refer to 22 CAR § 111-905(p)).

(B) The Building Authority Division considers equipment as fixtures which are permanently attached to the building structure by anchor bolts or fasteners or which require hardwired or permanent connection to the building's mechanical or electrical systems to be capital improvements and as such shall be subject to compliance with all Arkansas laws and rules including but not limited to:

(i) The Arkansas Architectural Act, Arkansas Code § 17-15-101 et seq. (licensing for architects);

(ii) Arkansas Code § 17-30-101 et seq., (licensing for engineers); and

(iii) Arkansas Code § 22-9-101 et seq., (Public Works Codes).

(C) Furniture or equipment which is completely portable or movable and only requires a plug-in connection or a quick copper connection is considered as furniture and not as a capital improvement.

(j) **Structural drawings.**

(1)(A) On the first sheet of the structural drawings, provide the information pursuant to Arkansas Code § 12-80-101 et seq., and the Arkansas Fire Prevention Code regarding seismic design.

(B) Provide a brief description of the type of foundation and framing system used.

(C) Reference the subsurface soil investigation and survey (company and date).

(D) If no investigation has been performed, indicate all assumptions used for the foundation design.

(E) Describe the live load allowances included in the system design.

(F) Note the allowances used for partition loads, mechanical and electrical system loads, and the allowance for movable items such as furniture and the like.

(2)(A) Foundation drawings shall include a notation for the design bearing values for all spread footings and caissons and bearing loads for all pilings.

(B) Show details for all slab and footing interfaces including those for interior partitions.

(C) Show the locations and spacing for all construction, expansion, and control joints on all concrete expanses.

(D) Show locations of:

(i) Perimeter insulation systems;

(ii) Under-slab drainage; and

(iii) Foundation drain system.

(E) Where expansive clay soils or other unsuitable soils are indicated, show the requirements for the proper backfill of a suitable material or engineered system to provide the proper bearing support.

(F) When collapsible forms are required to compensate for subsurface expansion, show the detail requirements for installation and control.

(3)(A) For all plans, show the minimum concrete strength required for each part of the structure as required to comply with the Arkansas Fire Prevention Code.

(B) For special areas such as mezzanines, show the maximum safe live load that the owner may place on the mezzanine after construction.

(C) Show the steel yield point strength for all reinforcing and structural steel.

(4)(A) Framing plans shall show the size of each element and the dimensional location.

(B) When the framing system includes areas such as shear walls which should not contain penetrations, these areas shall be clearly noted and shaded or hatched to allow rapid location and identification during the review process.

(C) On systems such as post-tension slabs where penetrations must be exactly located, show all locations by dimension and provide a cautionary note for the contractor advising him or her of the restrictions or precautions necessary to follow during construction regarding the cutting of additional openings.

(5)(A) For preengineered systems such as preengineered metal buildings, tilt-up slab construction, pre-tension slabs, post-tension slabs, or modular prefabricated construction, provide sufficient information and details as required for the fabrication to meet the requirements of the project.

(B) Include all design values necessary to fabricate the structures and to allow independent verification that the furnished product meets the design intent.

(C) Include plan views and elevations of these preengineered systems to allow review of the concept and coordination of work designed by other trades such as mechanical, electrical, and architectural finishes.

(6)(A) Provide schedules showing all grade beams, pilings, caissons, and other elements where size, type, strength, and special connections must be coordinated to ensure proper construction.

(B) Include other schedules as required to allow accurate bidding, construction, and field verification or as required to communicate the design intent.

(C) This can include, but is not limited to:

(i) Column schedules;

(ii) Beam schedules; and

(iii) Truss schedules.

(7)(A) Show all typical and special connection details.

(B) Indicate the location and type to allow quick coordination and review.

(8)(A) Show section views and elevations as required to indicate the connection locations of:

(i) Beams;

(ii) Floors;

(iii) Joints; and

(iv) Trusses.

(B) Where sections do not show the floor below, provide a dimension reference to the top of the beam bearing elevation of the joist or other element that will allow accurate determination of the clear space below the bottom of the structural elements.

(C) This dimension should be in reference to the finished floor below or in elevation dimensions, i.e., ten feet (10’-0”) above second floor or elevation one hundred twelve feet and six inches (112’-6”).

(k) **Mechanical drawings.**

(1)(A) Show the locations of all heating, ventilating, and air conditioning equipment on the plan view.

(B) Provide each piece of equipment with a unique designation mark keyed to the equipment schedule.

(C) Equipment shall be located as required to provide proper access for maintenance and repair.

(D) Equipment shall also be located as required to facilitate future removal and replacement without requiring the demolition of walls, windows, or other perimeter features of the building.

(E) Where replacement will require removal of louvers, other equipment, piping, or ductwork, clearly indicate the separation points on the plans.

(F) Use bolted flanges or other replaceable type connections.

(G) Where replacement or installation will require removal of a wall, door, window, or the roof, the design professional must obtain written approval from the Design Review Section prior to the submission of the final review documents (construction documents).

(2)(A) Show the routing of all ductwork and piping on the plan views.

(B) Ductwork shall be shown double line all the way to the diffuser or grille.

(C) Differentiate between high velocity ductwork, double wall ductwork, single wall ductwork, and internally insulated ductwork with a distinctive shading or hatching pattern.

(D) Differentiate between different duct system materials such as PVC, aluminum, galvanized, and the like in a similar manner.

(E) Piping six inches (6″) and larger shall be shown double lined on plan and section views at one-quarter inch equals one foot (1/4″ = 1′-0″) scale or larger.

(F) Piping ten inches (10″) and larger shall be shown double lined on plans and section views at one-eighth inch equals one foot (1/8″ = 1′-0″) scale and larger.

(G) All other piping shall be single line and bold.

(H) Show reducers, increasers, and when fittings on all ductwork and piping at each change in size.

(I) Provide arrows on the piping plans indicating the direction of flow and direction of slope of the lines.

(3)(A) Where the HVACR system contains refrigeration equipment with remote condensers, condensing units, or fluid coolers, show the routing of the refrigerant piping between each piece of equipment on the plan and section views.

(B) On small systems such as package coolers or split system air conditioners, the designer may use a single line to represent both the suction and liquid lines.

(C) Provide dual designation on the line (i.e., RS/RL) and provide the size of both lines in the dimension note.

(D) Where hot gas by-pass, double suction risers, or similar special lines are required, show these lines separate from the combined suction and liquid lines.

(E) Provide refrigerant piping schematics for each unique system.

(F) Show all the refrigerant specialty items and isolation valves.

(G) The designer may show the pipe sizes in a schedule format for each unit adjacent to the piping schematic.

(4)(A) Show the airflow quantity at each air device with a balancing damper to facilitate capacity verification and final air balance.

(B) For special areas such as laboratories, isolation rooms, special procedure rooms, and hazardous storage or sterile storage rooms, show the pressure relationship for that space relative to the adjacent spaces such as:

(i) Positive pressure;

(ii) Negative pressure; or

(iii) Neutral pressure.

(C) This is not required for toilet rooms, janitor closets, or similar spaces which are clearly negative to the adjacent spaces.

(D) The designer may indicate the pressure relationship for these spaces if necessary to clearly communicate specific design intent.

(E) The sum of the air flow quantities in a zone shall match the capacity of the air handling unit or terminal devices in the respective zone plus or minus an appropriate amount as required to maintain the space pressure relationship.

(5)(A) Show the exact location for each fire damper, smoke damper, control damper, balancing damper, and control sensor device and the access door to each device on the plans and section views.

(B) In variable volume systems, show the locations for all relief doors upstream or downstream of every fast-closing damper as required to prevent the collapse or rupture of the duct system.

(6)(A) Where ductwork penetrates a floor or a roof and where a duct rises up or down, show the cross-section of the duct with the appropriate diagonal marking and

shade a portion of the cross-sectional view to prominently show the location of the penetration or riser on the plan view.

(B) Provide a note indicating the size and direction of the riser and to where it goes, i.e., 10/10 up to second floor).

(7)(A) Where hydraulic or steam piping systems are provided, show the location of all expansion joints or loops and the locations of all anchors and guides required to control the expansion.

(B) In steam systems, show the locations of all traps and vents required for the proper startup and maintenance of the equipment.

(C) Show these locations on the plan views.

(D) Include the locations of access doors where required.

(E) When designed offsets in these systems create traps or air pockets, show a drain and vent location to facilitate future drain and fill of the system.

(8)(A) When hydraulic systems require freeze protection additives such as a glycol or brine solution, show the estimated system volume on the drawings along with the percentage by weight or by volume of the antifreeze additive and the type of additive required.

(B) This may be noted on the system flow diagram.

(C) Ensure that all equipment capacities have been adjusted to account for the additive.

(9)(A) Provide an enlarged plan view of each unique mechanical room at one-quarter inch equals one foot (1/4" = 1'-0") scale minimum.

(B) Show the location of all HVACR equipment, piping, ductwork, and controls panels and the locations of all electrical panels, plumbing equipment, and other equipment within the room.

(C) All nonHVACR equipment should be shown dashed and a reference provided to the appropriate sheet where that equipment can be found.

(D) Coordinate the location of these items to ensure:

(i) Proper code clearance;

(ii) Maintenance access; and

(iii) Operational access.

(10)(A) Provide at least one (1) cross-section view of each mechanical room showing the elevation of the equipment, ductwork, and piping in the room to allow the contractor sufficient information for bidding and to allow verification of proper access for service and replacement of equipment.

(B) Large or complex rooms may require multiple section views to clarify these issues.

(C) All section views should be drawn to a minimum scale of one-quarter inch equals one foot (1/4″ = 1′-0″).

(11)(A) Provide at least two (2) cross-sectional views through the building along each of the major axis showing the mechanical systems.

(B) The minimum scale for these views shall be one-eighth inch equals one foot (1/8″ = 1′-0″).

(C) Provide additional enlarged scale sectional views as required at crossovers of ductwork and piping, furr-downs, and offsets under major structural members to clearly describe the installation limitation at these areas.

(D) Reference all known or possible interference from other trades such as sprinkler piping, electrical conduits, plumbing drains, and the like.

(E) Where these large-scale sections do not show the floor-to-floor view, provide a dimension to the finished ceiling and bottom of the structure to allow verification of the clearance, i.e., ten-foot ceiling and eleven-foot-six-inch bottom of joist and the like).

(12)(A) Provide details of:

(i) Typical connections;

(ii) Mounting details;

(iii) Piping specialties; and

(iv) Unique installations.

(B) Details may be drawn not to scale provided the detail is not required to clarify a clearance or service access issue.

(C) In these cases, show the detail at an appropriate scale.

(D) Cross-reference the sheet number to where the specific detail applies.

(E) Also provide a detail flag on each plan sheet which references the appropriate detail number on the detail sheet.

(F) Provide an individual detail number on each detail to facilitate this cross-referencing.

(G) Provide as many details and detail sheets as necessary to clearly communicate the installation requirements for the project.

(13)(A) Provide flow schematic for:

(i) Chilled water;

(ii) Heating water;

(iii) Condenser water;

(iv) Steam systems; and

(v) Other heat transfer systems.

(B) Show the relationship of the equipment in the process.

(C) Show all piping connections control elements and valves necessary for the proper operation and maintenance of the systems.

(D) Size all piping, vents, drains, and valves.

(E) Show capacity, flow, and pressure loss for generating equipment.

(F) The diagram should be drawn to enhance rapid understanding of the system.

(G) For complex systems, provide diagrams in a ladder-type arrangement to eliminate line crossings and the need for isometric views to clarify flow path.

(H) Correctly show the flow path and the relative location of all:

(i) Components;

(ii) Junctions; and

(iii) Branches.

(I) Do not change the relative location of flow junctions to avoid line crossings.

(J) Provide arrows indicating direction of flow on each pipe segment.

(K) Show all make-up valves, relief valves, pressure reducing valves, and expansion tanks.

(L) Show the pressure rating and capacity of each on the diagram.

(M) For complex systems with numerous valves, fittings, and components, provide multiple versions of the basic diagram with control capacities or subsystem elements superimposed on the diagram.

(14)(A) Provide control diagrams for each unique system or unit.

(B) Diagrams shall show the locations of all sensors and control elements.

(C) Provide a designation for each component and a legend or schedule for symbols on the same sheet, i.e., mixed air sensor and the like.

(D) Show the set point and alarm points on the diagrams or in the schedules.

(E) Indicate the type of control point for each device, i.e., Analog Input (AI).

(F) Include the sequence of operation on the sheet with the control diagram.

(G) Ensure that the sequence is clearly spelled out as to the actions and reactions of the components to the command or control signal.

(H) When pipe-mounted or duct-mounted sensors are installed, provide a spare well adjacent to the control device to allow field verification of the device operation or the media temperature or pressure with portable, handheld instruments.

(I) Provide a schematic diagram for each network LAN showing the location of each panel and workstation connection and the equipment it serves.

(15)(A) Provide equipment schedules on the drawings.

(B) Do not schedule equipment in the specifications manual.

(C) Schedules shall be arranged in graphic format with the major operating conditions defined and the capacities shown.

(D) Include the electrical requirements showing the:

(i) Power voltage;

(ii) Phase;

(iii) Amperage;

(iv) Motor horsepower; and

(v) Brake horsepower.

(E) For major equipment such as chillers and boilers, include the energy efficiency rating.

(F) Provide sufficient data to allow purchase, startup, and balancing of the system or equipment.

(G) Include data necessary to trouble shoot equipment in the event of a startup or operational problem.

(H) Schedules shall be provided for each type of equipment or component, i.e., air handler, air devices, pumps, traps, and the like.

(I) Provide a unique designator for each piece or type of equipment.

(J) Ensure that the schedule title and designator are consistent with the plan labels.

(K) In the header for each schedule, show the specification section number where that item can be found, i.e., Air Handlers – 15850.

(16)(A) Where seismic restraints are required by code, provide details of typical acceptable restraining methods for:

(i) Piping;

(ii) Ductwork; and

(iii) Equipment.

(B) Show locations of all restraints on the plans and cross-reference the appropriate details.

(C) Provide the basic design criteria for the restraining system including the seismic zone in which the project is located.

(D) Where the code allows exemptions or exceptions based on pipe size or location of piping or ductwork relative to the supporting structure, note the exceptions on the plan.

(E) Designers are encouraged to lay out system piping and equipment in a manner which eliminates, where possible, the need for costly restraints and minimizes the hazard to the building occupants during a seismic event.

(l) **Fire protection drawings.**

(1)(A) Show location and types of sprinkler heads.

(B) Provide a different symbol for each type of head.

(2) Show the hazard classification for each area with a different classification.

(3)(A) Show the locations and ratings of all fire and smoke partitions.

(B) Show all fire doors, smoke vents, or fire shutters.

(4)(A) Show the location of the fire service entrance.

(B) Show a detail of the service entrance including all valves and devices in the entry riser.

(C) Include the locations of the:

(i) Test drains;

(ii) Alarm devices;

(iii) Seismic connections; and

(iv) Backflow preventers.

(5) Where a fire pump is required, show a minimum of:

(A) One-quarter inch equals one foot (1/4″ = 1′-0″) scale plan review of the pump room; and

(B) One (1) cross-section view of the room showing the elevation of the piping and valves.

(6)(A) When standpipe risers are required, show the location and size of the piping from the service entrance to each riser.

(B) Show the location and size of each hose or fire department connection.

(C) Indicate the mounting height of each hose cabinet or fire department connection.

(7) When sprinkler heads are installed in electrical rooms, computer rooms, telecommunication rooms, elevator shafts, or elevator machine rooms, show the

temperature ratings for these special heads and indicate if these are preaction or deluge-type systems.

(8)(A) Show the area of coverage by special systems such as:

(i) Dry-pipe systems;

(ii) Preaction systems; or

(iii) Nonwater systems.

(B) In nonwater systems, show the complete layout of:

(i) Piping;

(ii) Storage tanks; and

(iii) System controllers.

(9)(A) Show the locations of all control valves and tamper switches in the system.

(B) Show other devices that require interconnection with the building fire alarm system or other alarm or monitoring systems.

(10)(A) Show the location of all piping and the preferred routing throughout the building.

(B) Size all piping, including branch piping, on the bid documents.

(C) The designer may use the pipe size chart provided in NFPA 13 or may perform the hydraulic calculations necessary to size the piping.

(D) It is permissible to allow the successful contractor to submit an alternate layout in the shop drawing phase subject to review and approval by the engineer.

(11)(A) Provide the details necessary to show the preferred or acceptable mounting requirements and piping support systems.

(B) Where systems are subject to seismic design requirements, provide the seismic restraint details necessary to comply with the requirements of the zone in which the system is installed.

(C) Show locations of all restraints on the plans and cross-reference the appropriate details.

(m) **Plumbing drawings.**

(1)(A) Show the locations of all plumbing fixtures, equipment, drains, vents, outlets, and valves necessary for isolation, operation, or emergency service on the floor plans.

(B) Enlarged plans may be used to show exact locations.

(2)(A) Clearly define which piping is located below the floor, above the ceiling, or exposed in the occupied spaces.

(B) Piping subject to freezing shall be:

(i) Installed on the warm side of the building insulation; or

(ii) Provided with a heat trace system.

(3)(A) Size piping on the plan views.

(B) Show increasers and reducers at the point where sizes change.

(C) Show sizes of piping risers or headers concealed inside chases or where they pass through a floor.

(4)(A) Crosshatch or shade all plumbing fixtures and equipment for ease of location.

(B) Provide a unique designation for each type of fixture or equipment.

(5)(A) Provide waste and vent risers in accordance with the requirements of the Arkansas State Plumbing Code, 17 CAR pt. 65.

(B) Size the piping on the floor plans and these diagrams.

(C) Show the size of each vent through the roof and designate these penetrations on the risers and plan views with their size, i.e., four-inch VTR.

(6)(A) Show the locations of all roof drains and area drains on the plan views.

(B) Show where all drains terminate or discharge.

(C) Where emergency overflow drains or scuppers are to be used, show locations and sizes.

(D) Provide correct locations and details on the plumbing drawings and cross-reference the appropriate locations and details on the correct architectural sheets.

(7)(A) Show the locations of all cleanout plugs and manholes as required by the Arkansas State Plumbing Code.

(B) On open drain inlets, outlets, and all connections to manholes and catch basins, show the elevation of the top of the feature as well as the flow line inverts of all inlets and outlets.

(8)(A) Provide a schedule showing the sizes, capacities, operating characteristics, and design basis product name for all plumbing equipment, i.e., water heaters, pumps, compressors, and the like.

(B) Plumbing fixtures may be scheduled in the specifications, however, the preferred location is on the drawings.

(9)(A) For special piping systems such as natural gas, medical gas, laboratory gas, process piping, and the like, provide the same information as generally described above.

(B) For small projects, multiple systems may be shown on the same plan view.

(C) For large or complex projects such as laboratories and hospitals, provide separate plans for clarity.

(D) For systems such as reverse osmosis, deionized water, or ultra-pure water systems, show all components in their respective locations on a flow schematic.

(E) Ensure that complete specifications are provided for each component in the system.

(F) Do not rely on the contractor or the vendor to size the system and select the components.

(10)(A) Provide details for fixtures and equipment connections showing all valves, accessories, mounting supports, hangers, and auxiliary connections to other systems as necessary to communicate the:

(i) Installation requirements;

(ii) Operation requirements; and

(iii) Maintenance shutoff or removal points.

(B) Provide control interlock diagrams for equipment with automatic controls.

(C) For systems containing tanks or holding vats, show all header piping requirements, tank, cylinder, or vat sizes in gallons or cubic feet, and methods for securing the tanks in place.

(D) If alarms are required for notification of over temperature, over pressurization, overflow, or low volume, note these set points on the details or control interlock diagrams.

(11)(A) Where seismic restraints are required by code, provide details of typical acceptable restraint methods for piping and equipment.

(B) Show locations of all restraints on the plans and cross-reference the appropriate details.

(C) Provide the basic design criteria for the restraint system including the seismic zone in which the project is located.

(D) Where the code allows exemptions or exceptions based on pipe size or location of piping relative to the supporting structure, note the exceptions on the plan.

(E) Designers are encouraged to lay out system piping and equipment in a manner which eliminates, where possible, the need for costly restraints and minimizes the hazard to the building occupants during a seismic event.

(n) **Electrical drawings.**

(1)(A) Show the source and voltage characteristics of all power sources.

(B) Show the exact location for connections to existing power, telephone, fiber optics, security, and other services to the project.

(C) Where such connection points are shown on other drawings such as civil drawings, reference the sheet number where these connection points can be found.

(D) Coordinate these cross-references to ensure the proper connection and entry points are shown.

(E) Indicate the ownership of the existing utility to which these connections are to be made.

(F) Some state facilities own their own distribution networks and many do not.

(G) Provide a phone number and a contact name for the owning agent to coordinate connection requirements.

(H) Provide a detail of each utility entry into the building.

(2)(A) Lighting layout shall indicate the switching and circuiting of each fixture or group of fixtures.

(B) Circuiting shall indicate the power source panel and the circuit breaker number for that circuit.

(C) Emergency egress lighting shall be crosshatched or shaded so the fixtures will stand out for rapid identification during review of the drawings.

(D) When emergency power is provided by a generator or other backup source, the circuiting lines connecting fixtures and outlets should be designated with an "E" to identify these circuits as emergency power.

(E) Each fixture symbol shall contain an identification designator that is keyed to the fixture schedule.

(3)(A) Power outlets shall be circuited in the same manner as lighting circuits.

(B) Indicate the mounting heights of outlets to ensure proper installation.

(C) Where outlets must be installed in a specific pattern or spacing, provide dimensional plans and elevations.

(D) In the absence of the specific dimensional location of outlets, the contractor will install the box on the nearest stud or blocking.

(E) Where power is provided to equipment, show the exact location of the disconnect switch.

(F) Indicate the starter location and note if the starter is to be furnished unit-mounted with the equipment.

(G) Show the size of the power conductors and the conduit serving the equipment.

(4)(A) Show the location of all system components such as:

(i) Fire alarm;

(ii) Security;

(iii) Closed circuit television;

(iv) Sound;

(v) Paging;

(vi) Telephone; and

(vii) Computer.

(B) When the systems to be furnished are complex or may be installed by a specialty contractor, provide separate drawings for these systems.

(C) Ensure that all components and locations are coordinated with other trades in the design phase.

(D) Where systems are simple or small in nature, they may be combined with other system drawings such as the lighting or power.

(E) When the interconnecting cabling for these systems may pose an interference with other trades, show the preferred or engineered routing of the cabling and conduit.

(F) As a minimum, provide riser diagrams or schematics for each system.

(G) Show the location of all system head-end or front-end panels, control stations, and subpanels.

(H) When a system must interlock or interface with another system such as the fire alarm and fire sprinkler system, show the exact location of such interfaces and the specific interlock requirements.

(5)(A) Perform the lightning hazard calculations as defined in NFPA 780 and include this information on the cover sheet or in the electrical general notes.

(B) If a lightning protection system is to be provided, show the locations of all:

(i) Air terminals;

(ii) Interconnecting grounding cables;

(iii) Down leaders; and

(iv) Ground termination points.

(C) Where grounding is connected to other grounding systems, show the connection point and the location of the other grounded systems termination points.

(D) Show all details necessary to describe the attachment of air terminals, cabling support, penetrations of the building envelope, and attachment to the grounding rods or other systems.

(E) Indicate the location of all test points necessary to measure the system resistance and specify the maximum permissible resistance allowed by the system design.

(6)(A) Show the location of main electrical rooms.

(B) Provide enlarged scale drawings as necessary to show and designate all equipment.

(C) For rooms containing equipment over six feet (6′-0″) tall, provide section views of equipment in the room showing installed elevations and clearance above the equipment.

(D) Ensure that all equipment including branch panels and disconnect switches are installed with proper clearances in front of and above the unit as required by the National Electrical Code (NEC) Article 110.

(E) Ensure that all panel locations are coordinated with other equipment in the space.

(F) Show the locations of all panels on the small-scale plans also.

(7)(A) All new buildings and additions and renovations of more than four thousand square feet (4,000 ft^2) of space shall include at least one (1) dedicated telecommunication room per floor sized in accordance with the recommendations in the appropriate EIA/TIA standards but no less than the size shown in 22 CAR § 111-1403.

(B) Show the location of all:

(i) Cable entries;

(ii) Mounting racks;

(iii) Backboards;

(iv) Operator stations;

(v) UPS equipment; and

(vi) Power outlets.

(C) For mission critical operations, provide emergency lighting in the room.

(D) Clearly define on the drawings who will be furnishing the interconnection cabling, i.e., cable and terminations, by the contractor or by the owner.

(E) Specify plenum rated cabling in all installations not in conduit regardless of whether the ceiling cavity is currently a return air plenum.

(8)(A) Provide a wire management system in all new construction for the installation of special systems wiring which will not be installed in conduit raceways.

(B) The wire management system shall be attached to the building structure or walls in a manner so as not to overload the structure.

(C) Wire management systems shall be designed to accommodate multiple systems without electronic interference or creating a code violation.

(D) Where necessary, provide multiple systems for dedicated use by a single system.

(E) Wire management system and attachments should be designed to allow a minimum of twenty-five-percent future growth for each wiring system.

(9)(A) Provide electrical details and system details as required to completely describe the installation requirements and interconnection with other systems installed by other trades.

(B) Particular attention should be paid to the installation of exterior lighting fixtures and special interior fixtures such as chandeliers, operating room lights, and the like.

(C) Details of special grounding requirements should also be included.

(10)(A) Provide riser diagrams or schematics showing the relationship of major components such as:

(i) Panel boards;

(ii) Transformers; and

(iii) Service entrances.

(B) Risers shall also be provided for special systems such as fire alarm and security systems.

(C) For large or technically complex projects, provide one-line diagrams showing the source of power or service and the size and relationship of subcomponents such as distribution panels, breakers, fuses, switches, and routers to each major subpanel or element.

(D) These diagrams shall also include the size of the wiring and conduit between elements and the ratings of the breakers, fuses, switches, and routers with enough information being provided to describe the limits of the capacity of the system and components.

(11)(A) Provide schedules for all lighting fixtures, transformers, panel boards, and specialty systems components.

(B) Schedules shall include the voltage rating for each item, the capacity of the item, and any power losses or inefficiency of the fixture or equipment.

(C) Equipment producing a heat loss (greater than one-half of one percent (.5%) of the equipment rating) shall include the manufacturer's heat loss in BTUs on the schedule.

(D) Equipment producing radio frequency interference (RFI) or electromagnetic interference (EMI) greater than that allowed by Federal Communications Commission regulation shall be noted on the schedule and any special shielding requirements necessary to control or eliminate this interference should be noted and detailed or specified.

(E) Schedules shall be provided for each type of equipment or component, i.e., fixtures, transformers, and generators.

(F) Provide a unique designator for each piece or type of equipment or fixture.

(G) Ensure that the schedule title and designator are consistent with the plan labels.

(H) In the header for each schedule, show the specification section number where that item can be found, i.e., Transformers-16460.

(I) Panel board schedules shall be presented in a graphic format and shall include a designator for what each circuit feeds to facilitate the development of the panel board directory.

(J) Do not limit the panel board schedule to a description of the quantity of certain size breakers such as circuits 1, 2, 3, 4 = 20A or provide 20-20A/1P breakers.

(12)(A) Where seismic restraints are required by code, provide details of typical acceptable restraint methods for piping and equipment.

(B) Provide the basic design criteria for the restraint system including the seismic zone in which the project is located.

(C) Where the code allows exemptions or exceptions based on pipe size or location of piping relative to the supporting structure, note the exceptions on the plan.

(D) Designers are encouraged to lay out system piping and equipment in a manner which minimizes the need for costly restraints and eliminates where possible the hazard to the building occupants during a seismic event.

Authority. Arkansas Code § 22-2-108.

Codification Notes. "ASTM" means American Society for Testing Materials.

"BTU" means British Thermal Unit.

"EIA/TIA" means Electronic Industries Alliance/Telecommunications Industry Association.

"HVACR" means heating, ventilation, air conditioning, and refrigeration.

"LAN" means local area network.

"NFPA" means National Fire Protection Association.

"PVC" means polyvinyl chloride.

"QC" means quality control.

"RS/RL" means refrigerant suction/refrigerant liquid.

"UPS" means uninterruptible power supply.

"VTR" means vent through roof.

Subpart 16. Approval to Bid or Proceed

22 CAR § 111-1601. Approval to bid or proceed generally.

[This section is intentionally left blank.]

22 CAR § 111-1602. Department approval.

(a)(1) Upon department approval of the completed construction documents (previously submitted including responses to the Design Review Section comments), the department project coordinator shall inform the Design Review Section and the design professional in writing that the agency accepts and approves the drawings as submitted.

(2) There shall be no changes from the date of the letter unless submitted and approved by procedures initiated by the Building Authority Division.

(b)(1) The approval to bid or approval to proceed letter is valid for one (1) year from the date of the letter.

(2) If the project has not bid within that one-year period, the project must be resubmitted to the Design Review Section for review and approval.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-1603. Bid date requests or request to proceed with construction.

(a)(1) Bid date requests to the Construction Section may not be made until approval from the Design Review Section has been given.

(2) If the design professional is responsible for coordinating the bid date, written approval must be secured from the department prior to bidding.

(3) The Construction Section must be contacted to coordinate a bid:

(A) Date;

(B) Time; and

(C) Location.

(4) Upon coordination with the Construction Section, the project may be advertised and bid documents released to bidders.

(5) Refer to 22 CAR §§ 112-201 and 112-304.

(b) For projects subject to Building Authority Division bidding and contract management, a separate submittal of the front end documents may be required to the Construction Section prior to the establishment of a bid date.

(c) A department may not enter into a contract for a negotiated capital improvement project unless allowed by law and prior approval of plans and specifications has been provided by the Design Review Section.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-1604. Contract documents to be provided to the general contractor.

(a)(1) The owner and design professional shall provide the successful general contractor with the minimum necessary copies of the contract documents as outlined below.

(2) However, this section shall not preclude lesser amounts if agreed upon by the owner and contractor.

PROJECT SIZE (COST)	NO. OF SETS TO ISSUE
$0 – $500,000	10 sets
$500,001 – $1,000,000	15 sets
$1,000,001 – up	20 sets

(b)(1) The project general contractor shall be responsible for the cost and distribution of additional bid documents to their respective subcontractors.

(2) Partial sets of the contract documents shall not be allowed.

(3) All trades shall have complete contract documents for reference.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-1605. Record copies of project documents.

(a)(1) At the final completion of the project, the design professional shall submit one (1) copy of the complete set of the project documents on a CD or portable electronic device.

(2) See 22 CAR § 112-501(d).

(b) In addition, if any of the drawings or specifications were prepared by computer assisted drafting (CAD) or word processing, the design professional shall also provide one (1) copy of all computer generated "read only" documents to the Building Authority Division and one (1) copy of the "read only" documents to the department for record purposes.

(c)(1) Acceptable formats for word processing, spreadsheets database, presentation graphics, and other similar documents are Microsoft Office Products or other formats converted and saved as such.

(2) Cost of the microfilm and electronic media are reimbursable from the department.

(d)(1) When drawings or specifications are not produced electronically, the design professional shall have the documents scanned into a photo image such as a TIFF image, PDF file, or an AutoCAD file for record purposes.

(2) These files shall be furnished on CD or portable electronic device.

(3) The files shall be capable of being opened by an industry standard file manager such as:

(A) Adobe Acrobat Reader;

(B) Kodak Image reader; or

(C) Similar software.

(4) Verify the department preference prior to submitting these types of files.

(e)(1) Departments requiring electronic media copies should carefully consider environmental storage requirements.

(2) It is recommended that electronic information be transmitted on CD or portable electronic device.

(f) If a department utilizes portions of existing reproducibles or electronic media for bidding purposes, i.e., carpet replacement, the division requires all title blocks (of the original design professional) be removed and new title block information provided before project is released to any bidders.

(g)(1) Design professionals providing electronic media, tracings, reproducible, and as-built record drawings may request that release agreements limiting their use be signed prior to releasing to the department or the division.

(2) These release agreements shall be carefully reviewed by legal representation of the agency and submitted to the division for review before signing.

(3) Improper use of a design professional’s work may result in claims for additional compensation.

(h)(1) If the design professional is required to deliver any services required hereunder in the form of electronic encoded media, the printed representation of such media furnished by the design professional shall be the official record of the design professional’s service.

(2) The department shall have a right to rely on such printed representation in connection with any subsequent modification of such electronic media.

(3) The department and the division recognize that the printed material represents the intent and instructions of the design professional but does not represent the as-built condition of the project.

(4) The department must obtain written authorization from the design professional allowing the use of the documents for any purpose other than the specific intended use of those documents.

Authority. Arkansas Code § 22-2-108.

Codification Notes. "CD" means compact disc.

22 CAR § 111-1606. Design professional project observation requirements.

(a)(1) The design professional and their consultants shall conduct construction observation visits to the construction site as part of the basic professional services.

(2) Refer to 22 CAR § 111-202.

(3) The design professional shall conduct visits to determine the progress and performance for all capital improvement contracts.

(4) Onsite observations shall concur with the contractor's pay request and shall be submitted in written form with the pay request.

(b) Construction observation of the project by the prime design professional and all consultants at key critical times during construction for that applicable portion of the work for which they are involved shall be as required to observe fulfillment of the construction documents.

(c)(1) Both the design professional and all consultants shall submit a typed construction observation report or summary of any observed construction deficiencies, with follow-up correspondence to the department's project coordinator on Building Authority Division approved forms.

(2) Copies of the design professional's and all consultant's construction observation reports and follow-up correspondence shall:

(A) Also be forwarded to the Construction Section; and

(B) Accompany the contractor's monthly payment request.

(d)(1) The department project coordinator and the design professional shall carefully evaluate the need for more intense project observation than the basic services provide.

(2) This may include projects requiring the installation of underground utilities, the construction of critical concrete structures, and similar projects where the normal course of construction may render critical elements of the project unavailable for inspection due to the placement of finish materials.

(e)(1) On projects where this may result in the inability of the department to accept the project with confidence that the work has been properly installed, the department may desire to require more intense observation by the design professional than would normally be provided by the basic services agreement.

(2) The department shall negotiate the rates for additional observation during the original contract negotiations.

(3) If it becomes necessary to expand the design professional's scope of services by amendment, consult with the division prior to negotiating the amendment.

(f) For instructions regarding construction observation and administration and project closeout requirements, please refer to 22 CAR § 112-501 et seq., and 22 CAR § 112-601 et seq.

Authority. Arkansas Code § 22-2-108.

Subpart 17. Capital Improvement Alternative Delivery Methods

22 CAR § 111-1701. Capital improvement alternative delivery methods generally.

Pursuant to Arkansas Code § 19-4-1415, unless exempted, the Building Authority Division has authority to oversee contracts in the amount of five million dollars

($5,000,000) or more which are not awarded in the traditional design-bid-build method, but rather awarded through negotiations.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-1702. Project criteria.

Refer to 22 CAR § 112-702.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-1703. Selection of design professionals.

(a) The procedures prescribed in 22 CAR § 111-101 shall apply to the selection of design professionals utilized for projects under this section.

(b)(1) Refer to 22 CAR § 111-103(a) and add the following requirement:

(A) The department shall indicate that the contemplated project exceeds five million dollars ($5,000,000) in estimated construction cost, excluding land costs, and that the department intends to utilize a type of negotiated contracting for the construction phase; and

(B) Refer to 22 CAR § 111-103(c).

(2) The draft advertisement shall clearly indicate that the design services required would be utilized on a project that the department intends to award through negotiations in lieu of the traditional design-bid-build process.

(3) The notice shall also indicate that the selected professional will work with the department's contractor in the development of the project budget, construction options, and administrative procedures for managing the project under fast track conditions, if applicable.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-1704. Selection method for design professionals.

(a)(1) Selection of design professionals shall be as prescribed in 22 CAR § 111-107 except that the preselection committee shall consist of five (5) members, three (3) from the department and two (2) from the Building Authority Division.

(2) The Director of the Building Authority Division shall determine the members from the division and the respective department secretary shall determine the members from the department.

(b) Refer to §22 CAR § 112-701 et seq., for the selection of construction managers and contractors.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-1705. Basic services defined.

(a)(1) Refer to 22 CAR § 111-202 for basic services defined.

(2) All services listed shall apply except as follows:

(A) For fast track projects, the schematic design and the design development phases shall be condensed as required to verify the budget estimate via contractor pricing;

(B) Construction documents may be developed in phases as necessary to maintain the project delivery schedule; and

(C) For fast track projects, the design professional shall obtain all as-built information from the contractor and shall compile this information into an accurate set of record drawings and specifications for submittal to the department in printed form and in electronic form.

(b) A copy of these record drawings shall be provided to the Building Authority Division in electronic form only.

Authority. Arkansas Code § 22-2-108.

22 CAR § 111-1706. Project schedule.

(a) Refer to 22 CAR § 111-410 for basic schedule requirements.

(b)(1) For projects utilizing a fast track methodology, the design professional shall assist the agency in developing a request for proposals package to be utilized in the selection process for the contractor or construction manager.

(2) The RFP shall be submitted to the Design Review Section and Construction Section for review and approval prior to issuing to potential contractors.

(3) The requirements of the RFP shall closely match the requirements of a schematic design plan review submittal.

(4) Include appropriate specifications for the desired building materials and equipment.

(c)(1) The department shall submit a schedule of activities listing the proposed milestone submittal dates to the Building Authority Division including but not limited to the following:

(A) Submittal of request to begin selection of the design professional;

(B) Submittal of request to select commissioning agent, if applicable;

(C) Submittal of contractor selection RFQ document for review and approval;

(D) Submittal of design professional services contract for approval;

(E) Submittal of commissioning agent services contract, if applicable;

(F) Submittal of contractor contract;

(G) Submittal of first plan review; and

(H) Beginning date of construction phase and expected duration of construction.

(2) Refer to 22 CAR § 111-1707(e) for submittal schedule requirements using fast track construction.

Authority. Arkansas Code § 22-2-108.

Codification Notes. "RFP" means request for proposals.

"RFQ" means request for qualifications.

22 CAR § 111-1707. Plan review requirements.

(a)(1) All plans shall be submitted to the Building Authority Division for review and approval prior to delivery to the contractor or construction manager for pricing.

(2) Refer to 22 CAR § 111-1501 et seq., for basic plan review submittal requirements.

(b)(1) Projects not utilizing the fast track method shall be submitted to the Design Review Section when the plans and specifications are considered one-hundred-percent complete and ready for bidding or construction.

(2) The design professional shall make schematic design and design development submittals to the department as required to obtain approval by the department to proceed to final construction documents.

(3) The documents will be provided to preselected contractors for preparation of proposals to construct the facility.

(c)(1) For projects utilizing a fast track methodology, the first review submittal shall consist of the documentation normally contained in a schematic design submittal.

(2) This first submittal shall contain sufficient information to adequately describe the scope and materials of the total project design.

(3) If the contract with the contractor has been implemented, a copy of that contract shall also accompany the submittal.

(d)(1) For fast track projects, intermediate submittals shall be made at frequencies necessary to maintain the project schedule and appropriate quality control.

(2) This process may result in multiple partial submittals.

(3) Each partial submittal shall represent one (1) or more discrete portions of the work which can be designed, priced, and constructed independently of other portions without resulting in deconstruction or rework of the portions previously constructed.

(4) These individual packages shall be submitted when the plans and specifications for that element of the work is one-hundred-percent complete.

(e)(1) The department project coordinator shall submit a schedule of the desired submittal review packages with the first review submittal.

(2) The schedule shall indicate the type of submittal package, i.e., site work, the estimated cost of that element of construction, the estimated date of submittal, and the date the contractor will require approved plans in order to maintain the desired construction schedule.

(3) Each submittal package will be labeled with the appropriate title and a volume number beginning with the first submittal which shall be labeled "Comprehensive Schematic Design-Volume 1".

(4) The department shall follow the schedule submitted and approved by the division and shall update the full schedule timelines and cost estimates at each subsequent submittal.

(5) Deviations from the schedule require division approval.

(f)(1) The contractor shall not begin work on a given element of the project until that package of documents has been approved to proceed by the Design Review Section.

(2) The plans and specifications issued to the contractor for construction shall be stamped "Approved for Construction".

(g)(1) At some point in the process of developing the plans and specifications, the contractor must establish a guaranteed maximum price (GMP) for the construction contract.

(2) When that point has been reached, the design professional shall issue a complete set of the documents used to generate that guaranteed price and label the cover as the "GMP Set" along with the issue date.

(3) Copies of this set of documents shall be forwarded to the department project coordinator, the contractor, the Design Review Section, and the Construction Section for record keeping.

(4) These documents will be the basis of reference for all future adjustments in the cost of the contract.

(5) It shall be noted that while changes in the documents may not constitute a change in the GMP, all changes must be documented by change order even if there is no increase or decrease in the contract sum.

(6) Approved plans and specifications must accompany all change orders submitted to the Construction Section.

(7) In addition, a copy of the Design Review Section's approval to proceed letter shall be included with the change order documentation.

Authority. Arkansas Code § 22-2-108.