COMMISSION FOR ARKANSAS PUBLIC SCHOOL ACADEMIC FACILITIES AND TRANSPORTATION RULES GOVERNING THE ACADEMIC FACILITIES PARTNERSHIP PROGRAM

June 23, 2012

1.00 AUTHORITY

1.01 The Commission for Arkansas Public School Academic Facilities and Transportation authority for promulgating these Rules is pursuant to Ark. Code Ann. §§ 6-21-114, 6-20-2507, 6-20-2512 and 25-15-201.

1.02 These Rules shall be known as the Commission for Arkansas Public School Academic Facilities and Transportation Rules Governing the Academic Facilities Partnership Program.

2.00 PURPOSE

2.01 The purpose of these Rules is to establish a process whereby the Arkansas Division of Public School Academic Facilities and Transportation shall provide state financial participation based upon a school district's academic facilities wealth index in the form of cash payments to a school district for eligible new construction projects.

3.00 DEFINITIONS - For the purpose of these Rules, the following terms mean:

3.01 "Academic facility" – A building or space, including related areas such as the physical plant and grounds, where public school students receive instruction that is an integral part of an adequate education as described in Ark. Code Ann. § 6-20-2302.

3.01.1 A public school building or space, including related areas such as the physical plant and grounds, used for an extracurricular activity or an organized physical activity course as defined in Ark. Code Ann. § 6-16-137 shall not be considered an academic facility for the purposes of these Rules to the extent that the building, space, or related area is used for extracurricular activities or organized physical activities courses, except for physical educational training and instruction under Ark. Code Ann. § 6-16-132;

3.01.2 The Division of Public School Academic Facilities and Transportation shall determine the extent to which a building, space, or related area is used for extracurricular activities or organized physical activities courses based on information supplied by the school district and, if necessary, on-site inspection;

3.01.3 Buildings or spaces, including related areas such as the physical plant and grounds, used for pre-kindergarten education shall not be considered academic facilities for purposes of these Rules;

3.01.4 District administration buildings and spaces, including related areas such as the physical plant and grounds, shall not be considered academic facilities for the purpose of these Rules; and

3.01.5 Facilities owned and/or operated by education service cooperatives, leased facilities (other than facilities which are part of a lease purchase agreement), portable buildings, modular buildings and facilities owned by others but occupied by school districts are not considered academic school facilities for purposes of these Rules.

3.02 "Academic Facilities Partnership Program" – The process under which the Arkansas Division of Public School Academic Facilities and Transportation shall provide state financial participation based upon a school district's academic facilities wealth index in the form of cash payments to a school district for eligible new construction projects.

3.03 "Academic facilities wealth index" – A percentage derived from the following computations:

(1) Determine the value of one (1) mill per student in each school district as follows:

(a) Multiply the value of one (1) mill by the total assessed valuation of taxable real, personal, and utility property in the school district as shown by the applicable county assessment for the most recent year; and

(b) Divide the product from (1)(a) above by the greater of the prior year average daily membership of the school district or the prior three-year average of the school district's average daily membership;

(2) Determine student millage rankings by listing the computation under (1) above of this section for each school district from students with the lowest value per mill to students with the highest value per mill;

(3) Allocate the student millage rankings into percentiles with the first percentile containing the one percent (1%) of students with the lowest value per mill and the one-hundredth percentile containing the one percent (1%) of students with the highest value per mill; and

(4) Divide the value of one (1) mill per student in each school district as computed under (1) above by the amount corresponding to the ninety-fifth percentile of the student millage rankings under (3) above.

(5) The percentage derived from the computation under (4) above is the academic facilities wealth index for a school district, which shall be computed annually and used to determine the amount of the school district's share of financial participation in a local academic facilities

project eligible for state financial participation under priorities established by the Division of Public School Academic Facilities and Transportation.

3.04 "Add-ons" - Additional academic areas or spaces which are constructed as a part of or separate additions to an existing academic area or space, and which falls under the definition of "New Construction" contained in Section 3.15 3.17 of these Rules.

3.05 "Arkansas Public School Academic Facilities Manual" – A document which contains uniform standards to guide the planning, design and construction of new academic facilities and additions to existing academic facilities and which is hereby incorporated into and made a part of these Rules, as "Appendix B" to these Rules, as if the Manual was fully set forth herein. The Manual can also be accessed on the Division's website (www.arkansasfacilities.com).

3.06 "Alternative Project" - A project proposed by the Division, that will accomplish creating a safe, dry and healthy atmosphere and meet the suitability need of the school district or individual school facility and is in compliance with the state standards. The state financial participation for the alternative project will be determined in accordance with Sections 3.23, 3.31, 5.02 and 6.03 of these rules. The Division will coordinate the development of the alternative project with the school district.

3.07 "Commission" - The Commission for Arkansas Public School Academic Facilities and Transportation.

3.08 "Configuration (Re-Configuration)" – The systematic grouping of grades as determined by the school district at any school(s) campus. Re-configuration is the process of changing the present school(s) configuration, by the school district, to align a different grade configuration. The configuration or re-configuration is determined by the school district.

3.09 "Consolidation/Annexation Project" –A new, complete school campus or one or more additions to existing campuses for the specific purpose of supporting a voluntary consolidation or annexation petition brought by two or more contiguous districts and approved by the Arkansas State Board of Education pursuant to Ark. Code Ann. § 6-13-1401 et. seq. after March 1, 2010. Consolidation/annexation projects must fulfill the requirements of Section 5.05.4 herein.

3.10 "Construction Cost" – The actual cost of constructing a new facility as defined in Section 3.18 of these Rules. It consists of all construction related costs, both direct and indirect, to include but not be limited to construction contract costs and costs associated with design, advertisement and reimbursable expenses.

3.11 "Conversion Project" – (1) A project that converts existing academic or non-academic space into a missing academic core, special education or student dining component of the POR and the conversion project is part of an add-on project for which the district has applied for partnership assistance. In such conversions, any partnership assistance funding from the state is limited to only that amount of square footage required by the suitability analysis for the add-on project subject to the requirements of Section 4.01 of these Rules. The component shall meet the POR specifications when converting or adding such a space to the district; or (2) A new project that converts existing academic or non-academic space into a missing academic core space only and is in compliance with the POR space requirements. For this type of conversion project, state partnership assistance funding shall only be allowed provided the district has no suitability square footage need and the project is limited to no more than the component number and square footage spaces required in Academic Core of the POR.

3.12 "Division" –The Arkansas Division of Public School Academic Facilities and Transportation.

3.13 "Facility Condition Index" - That particular index obtained by dividing the existing condition costs (that cost to bring a public school academic facility up to current standards) by the facility's replacement cost, using data for such costs available in 2004 or later data if the Division has such data available.

3.14 "Facilities master plan" - A six-year plan developed by a school district that contains enrollment projections for ten (10) years from the date of the plan, the school district's strategy for maintaining, repairing, renovating, and improving through new construction or otherwise the school district's academic facilities and equipment and other information as required by law.

3.15 "Facilities improvement plan" – An improvement plan developed by a school district for a public school or school district identified as being in academic facilities distress, or by a school district which has been notified by the Division of non-participation in the Academic Facilities Partnership Program by failing to apply for state funding for necessary facilities to meet adequacy requirements, that supplements the school district's facilities master plan by:

3.15.1 Identifying specific interventions and actions the public school or school district will undertake in order to correct deficient areas of practice with regard to custodial, maintenance, repair and renovation activities with regard to academic facilities in the school district; and

3.15.2 Describing how the school district will remedy those areas in which the school district is experiencing facilities distress, including the designation of the time period by which the school district will correct all deficiencies that placed the school district in facilities distress status.

3.16 “Local Resources” - Any moneys lawfully generated by a school district for the purpose of funding the school district's share of financial participation in any academic facilities project for which a school district is eligible to receive state financial participation under priorities established by the Division. Also referred to as “raised funds” for the purpose of defining “Self-Funded Project.”

3.17 “New Construction” - Any improvement to an academic facility and, if necessary, related areas such as the physical plant and grounds, that brings the state, condition or efficiency of the academic facility to a state of condition or efficiency better than the academic facility's current condition of completeness or efficiency. “New construction” includes a new addition to an existing facility and construction of a new academic facility.

3.18 “New Facilities” - A new construction project which is neither an addition to, renovation, or conversion of an existing facility; nor a project involving maintenance, renovation, or repair of an existing facility; but is a new addition to a school district’s building inventory.

3.19 “Non-academic facility” –A building or space that is not used for the provision of student instruction that is an integral part of an adequate education as described in Ark. Code Ann. § 6-20-2302. The term “non-academic facility” comprises, but is not limited to, those buildings, spaces and grounds described in Subsections 3.01.1, 3.01.3, 3.01.4 and 3.01.5 of these Rules, or any buildings, spaces or grounds that do not fit the definition of “Academic Facility” set forth in Section 3.01 of these Rules.

3.20 “Prioritization” - That methodology established by the Commission, and set forth in these Rules in Section 5.05, which provides a system of ranking new construction projects and those projects which are not categorized “warm, safe and dry” under Section 5.05 of these Rules submitted for state financial participation in the Partnership Program, in order to comply with Ark. Code Ann. § 6-20-2507 and the necessary and appropriate allocation of limited funding resources.

3.21 “Program of Requirements (POR)” –The requirements that each new construction project which is not a “warm, safe and dry” project is required to adhere to as the established minimum adequate components, and total square footage required in a school construction project as otherwise permitted in Section 4.02 of these Rules for add-on projects and as set forth in the Arkansas Public School Academic Facilities Manual. The POR is hereby incorporated into and made a part of these Rules, as “Appendix C” to these Rules, as if the POR was fully set forth herein.

3.22 “Project” - An undertaking in which a school district engages in:

(a) Maintenance, repair, and renovation activities with regard to an academic facility;

(b) New construction (warm, safe and dry) of an academic facility; or

(c) Any combination of maintenance, repair, and renovation activities with regard to an academic facility and new construction activities with regard to an academic facility.

3.23 Project Cost – A projected construction cost determined by the Division utilizing the specific project cost funding factors stipulated in Ark. Code Ann. § 6-20-2509 and localized to regional cost centers in the state. It serves as the basis for the estimated state financial participation for partnership projects per square foot. The specific project cost funding factors, New Facilities Project Cost Funding Factor and Warm, Safe and Dry (Renovation) and Conversion Project Cost Funding Factor, are defined as set forth in Sections 3.23.1 and 3.23.2 of these Rules. Neither the New Facilities Funding Factor nor the Warm, Safe and Dry (Renovation) and Conversion Project Cost Funding Factor shall include land purchases, mold abatement or removal, environmental clean-up, supersite clean-up, or qualification for LEED or Green Globes certification pursuant to Section 10.0 of these Rules.

(i) The Project Cost for newly constructed academic facilities or additions for which a square foot cost would be applicable to all facets of the construction will be the lesser of either:

(a) The New Facilities Project Cost Funding Factor which shall be that factor established on a regional basis by the Division in effect as of May 1, 2009, and updated annually by the Division in compliance with Ark. Code Ann. § 6-20-2509; plus the appropriate soft cost for demolition costs and/or asbestos abatement in the amount of one (1) percent of the Funding Factor for each category (however, the Funding Factor shall not increase to more than $175.00 per square foot without the approval of the Commission) multiplied by the project approved size in square feet; or

(b) The actual construction cost amount of the project.

(ii) The Project Cost for projects which are building systems or components thereof, not covered in Section 3.23(i) of these Rules (above), will be the lesser of either:

(a) The Warm Safe and Dry (Renovation) and Conversion Project Cost Funding Factor (which shall be that factor established on a regional basis by the Division in effect as of May 1, 2009, and updated annually by the Division in compliance with Ark. Code Ann. § 6-20-2509; plus the appropriate soft cost for demolition costs and/or asbestos abatement in the amount of one (1) percent of the Funding Factor for each category multiplied by the approved unit of measure per project

(however, the Funding Factor shall not increase to more than $175.00 per square foot without the approval of the Commission) multiplied by the project approved size in square feet; or

(b) The actual construction cost of the project.

3.23.1 New Facilities Project Cost Funding Factor – That factor, based upon grade level configuration of the public school academic facility and the proposed enrollment within the facility and regionalized to twelve (12) different areas within the state, which the Division will use to provide a funding amount for construction projects covered by Section 6.03(i) of these Rules on a square foot basis.

3.23.2 Warm, Safe and Dry (Renovation) and Conversion Project Cost Funding Factor - That factor, based upon the amount of square footage contained, the type of conversion of existing space to a different use or the type of item or system renovation regionalized to twelve (12) different areas within the state, which the Division will use to provide a funding amount for construction projects covered by Section 6.03(ii) of these Rules on a square foot basis.

3.24 "Project Funding Cycle" – A two (2) year cycle for which school districts' Partnership Projects submitted by a specified deadline in an even-numbered year are reviewed by the Division for state financial participation by May 1 of the succeeding odd-numbered year.

3.25 "Public School Facility" – Any public school building or space, including related areas such as the physical plant and grounds, that is used for any purpose, including, without limitation:

3.25.1 An extracurricular activity;

3.25.2 An organized physical activity course defined in Ark. Code Ann. § 6-16-137;

3.25.3 Pre-kindergarten education;

3.25.4 District administration; or

3.25.5 Delivery of instruction to public school students that is an integral part of an adequate education as described in Ark. Code Ann. § 6-20-2302.

3.26 "Renovation Project" – A "warm, safe and dry" new construction project addressing a facility system. To receive state financial participation, the project must be a "warm, safe and dry" project.

3.27 "Resolution" – A written document voted upon and approved by at least a majority of a quorum of a school district's Board of Directors at a lawfully

called meeting, which certifies the school district's dedication of local resources to meet the school district's share of financial participation in the new construction project.

3.28 "Schematic Drawing" – A diagram which fully illustrates all of the areas, spaces and dimensions of a new construction project, and meets any additional requirements set forth in Section 7.02(i) of these Rules. The schematic drawing does not have to be prepared by a licensed architect, but must meet the approval of the Division as to the actual detail required.

3.29 "School district" - A geographic area with an elected board of directors that qualifies as a taxing unit for purposes of ad valorem property taxes under Title 26 of the Arkansas Code and which board conducts the daily affairs of public schools under the supervisory authority vested in it by the General Assembly and Title 6 of the Arkansas Code.

3.30 "Self-Funded Project" - A project where the moneys needed to complete the project are one hundred percent (100%) raised and provided by the school district, and that shall be submitted to and approved by the Division upon compliance with state codes and standards. Any project, whether the district requests state financial participation or not, shall meet the standards of the Arkansas Public School Academic Facilities Manual or industrial codes and the Program of Requirements.

3.31 "State financial participation" - The state's share of financial participation in a local academic facilities project eligible for state financial participation according to the prioritization schedule established by the Commission and set forth in Section 5.05 of these Rules.

3.32 "Suitability" – The process undertaken by the Division to determine whether any existing academic facility is eligible for state financial participation for new construction projects, as set forth in Section 5.05 of these Rules. The state financial participation shall be the project cost described in Section 3.23 multiplied by the difference of one hundred percent (100%) minus the school district's wealth index. Except for approved warm, safe and dry projects, only that space total gross square footage required by the POR which is not already deemed available to a school district, whether on an existing campus or a new school campus, shall be determined eligible for state financial participation.

3.32.1 On An Existing Campus:

When a school district is proposing to build an academic facility on an existing campus with existing educational facilities, the Division shall compare the appropriate existing total gross square footage space of the existing facility on the **campus** to the total gross square footage space requirements of the POR for the proposed new school facility based on the projected student enrollment by grade level. After making the comparison, the school will only be deemed to not be suitable and thus eligible for state financial participation on a proposed

facility project for the additional gross square footage space required in the POR not currently available on the school **campus** or on other campuses affected by grade reconfigurations as part of the project. However, the state recognizes that four particular space areas existing in school districts may skew the comparison of existing space to that of the required POR space. Therefore, the Division will not count as existing space that total gross footage area above the required POR standard for the following four areas: Physical Education, Media Center, Student Dining and Performing Arts.

3.32.2 On A New School Campus:

When a school district is proposing to build a new academic facility on a school campus for which the Division determines there are no other currently existing appropriate school facilities or the district is seeking a separate LEA number for the new academic facility, the Division shall compare the total gross square footage required by the POR for the proposed facility for the appropriate student grade population to that currently existing total gross square footage available in the **district** for the appropriate student grade population in their final grade configuration less the gross square footage to be demolished as part of the proposed project. The Division shall also include other campuses and grades affected by grade reconfigurations as part of the project. After making the comparison the school will only be deemed to not be suitable and thus eligible for state financial participation on a proposed facility project for that additional space required in the POR not currently available in the school district for the appropriate student population in their final grade reconfiguration. The State recognizes that four particular space areas existing in the school district may skew the comparison as mentioned above in Section 3.32.1 of these Rules in the "on an existing campus" comparison. As a result, the Division will give the same consideration and not count as existing space that total gross footage area above the required POR standard already existing in the district.

3.32.3 Warm, safe and dry: For new construction projects not requesting additional space or replacement of academic square footage, state financial participation will only be provided for "warm, safe and dry" projects as defined in Section 3.34 of these Rules. Suitability for warm, safe and dry analysis and determination shall be made on a warm, safe and dry project by project basis and shall be determined based on the actual need as determined by the Division using current Facilities Manual standards.

3.33 "Waiver" and "Variance" – The process by which a school district in unusual and limited circumstances may seek a waiver or variance from Sections 4.06, 4.07, 4.09, 7.06 and 7.07 of these Rules as approved by the Division.

3.34 "Warm, safe and dry" – New construction projects that support a facility's needs as they pertain to fire and safety needs, roofing, major plumbing replacements, major electrical replacements, HVAC systems and structural needs. These projects must apply to the entire facility or system or if a separate building the entire building. Fire and safety needs include fire alarms and warning systems and fire prevention systems, but do not include surveillance systems, security systems or closed circuit TV systems. Warm, safe and dry projects do not include asbestos abatement, land purchases, demolition and removal costs of school facility structures, environmental clean-up or supersite clean-up.

4.00 SUBMISSION PROCESS

4.01 All applications for state financial participation under a Project Funding Cycle of this Partnership Program shall be submitted electronically by utilizing the Master Plan Web Tool located on the Division's Internet website http://arkansasfacilities.arkansas.gov/ no later than 4:30 p.m. on March 1 of every even-numbered year.

4.01.1 If, during an even-numbered year, the Arkansas State Board of Education orders the involuntary annexation or consolidation of school districts, the receiving or resulting school district after annexation or consolidation may submit an updated master plan to the Office of the Director of the Division of Public School Academic Facilities and Transportation no later than January 1 of the following odd-numbered year.

4.01.2 If, during an even-numbered year, the Arkansas State Board of Education orders the involuntary annexation or consolidation of school districts, the receiving or resulting school district after annexation or consolidation may submit an application for state financial participation under this Partnership Program to the Office of the Director of the Division of Public School Academic Facilities and Transportation no later than February 1 of the following odd-numbered year.

4.01.3 For the purposes of Section 4.01.1 and 4.01.2, the phrase "involuntary annexation or consolidation" includes annexations or consolidations approved or required by the Arkansas State Board of Education pursuant to Ark. Code Ann. § 6-13-1601 et seq.

4.02 A school district may apply for state financial partnership participation under these Rules for projects that fall under one (1) of the following categories:

- Warm, safe and dry (renovation);
- New facilities;
- Add-ons and/or Conversions; and
- Consolidation/annexation projects.

If the state provides financial participation for an add-on or conversion project, or a consolidation/annexation project that adds space to an existing campus, the district must construct any missing component to the POR specification. The district will have to choose a component contained in the POR it does not have and add it, in the following order:

- Academic Core Areas;
- Special Education;
- Student Dining;
- Administrative

The state will not participate in add-on projects concerning gymnasiums, media centers and/or auditoriums if the district already has this space and is in need (according to the POR) of Academic Core Areas, Special Education or Student Dining Areas.

The state will consider the replacement of demolished space to be a prudent and resourceful expenditure of state funds issue. School districts are encouraged to discuss such issues with the state before entering into demolition projects when the districts will be filing applications for state partnership assistance.

School districts applying for state financial participation for projects that support their Facilities Master Plan shall file applications (and approved schematic drawings) in a format prescribed by the Division and shall list the applications in the district's Facilities Master Plan. No project shall be considered for state financial partnership participation unless it is included in the district's Facilities Master Plan.

4.02.1 The timelines set out in Section 4.01 of these Rules concerning submission of partnership applications with schematic drawings must be complied with.

4.03 Except for those facilities which have FCI of greater than .65, any project that applies for state financial assistance which cannot prove suitability and involves the demolition of space for replacement of the same space will be considered a prudent and resourceful expenditure of state funds issue. To the extent that the school district can show that the facility has a FCI greater than .65 and that the renovation or replacement of the facility represents a prudent and resourceful expenditure of state funds, even though there is no suitability need, the state will consider it a project for state partnership assistance.

4.04 Any submission for state financial participation which does not comply with applicable state laws and these Rules shall be denied by the Division. Any district whose submission is denied by the Division under this Section 4.04 may submit a written appeal of the Division's decision to the Commission.

4.05 In order to apply for state financial participation in a new construction project, a school district shall provide the Division with a detailed narrative, description and justification for the project and evidence of:

4.05.1 Preparation for the new construction project as demonstrated by inclusion of the new construction project in the school district's facilities master plan;

4.05.2 (i) The adoption of a resolution certifying to the Division the school district's dedication of local resources to meet the school district's share of financial participation in the new construction project.

(ii) The resolution shall specify the approximate date that the board of directors of the school district intends to seek elector approval of any bond or tax measures or to apply other local resources to pay the school district's share of financial participation in the new construction project;

4.05.3 (i) The total estimated cost of the new construction project that shall be a minimum of three hundred dollars ($300) per student or one hundred and fifty thousand dollars ($150,000) whichever is less, per campus or district depending upon whether the project is a campus or district project.

(ii) Same system projects may not be combined across multiple facilities (campuses) nor multiple system projects combined to meet the minimum dollar threshold for Partnership Program funding, unless the project is a complete building renovation and replacement for all building systems;

4.05.4 The new construction project's conformance with sound educational practices;

4.05.5 The new construction project's compliance with current academic facilities standards, including, without limitation, appropriate space utilization of the applicable school in the district as determined by the Division;

4.05.6 The allocation of project costs between new construction activities and maintenance, repair, and renovation activities if the new construction project includes improvements that could be classified as maintenance, repair, and renovation;

4.05.7 How the new construction project supports the prudent and resourceful expenditure of state funds and improves the school district's ability to deliver an adequate and equitable education to public school students in the district; and

4.05.8 A statement of the district's intent, if any, to seek incentives for LEED Certification or Green Globes Certification pursuant to Section 10.03 of these Rules.

4.06 All proposed new construction projects shall be in compliance with the standards set forth in the Arkansas Public School Academic Facilities Manual which is attached to these Rules as "Appendix B", as set forth in Section 3.05 of these Rules.

4.06.1 Variances to the Arkansas Public School Academic Facilities Manual standards may be granted by the Division upon the presentation of evidence of existing conditions that makes compliance with applicable standards impractical or unreasonably burdensome, and;

4.06.2 Other conditions determined by the Division as warranting a variance from applicable public school academic facility standards.

4.07 All applications for state financial participation under this Partnership Program for new construction projects which are not considered "warm, safe and dry" projects pursuant to these Rules shall be prepared in accordance with the Program of Requirements except in unusual and limited circumstances (including, but not limited to, the variances set forth in Sections 4.06.1 and 4.06.2 of these Rules) where the Division determines that a waiver of the POR is the only means whereby the district can meet adequacy requirements. The POR is attached to these Rules as "Appendix C", as set forth in Section 3.21 of these Rules. In such instances, a district may submit a request in writing to the Division, signed by the district's Superintendent and President of its Board of Directors, setting forth in detail the circumstances requiring the waiver for the POR. No waiver request shall be deemed granted unless and until an Order to that effect has been signed by the Division.

4.08 A district may request and be granted by the Division a review conference that shall be held within twenty (20) working days after the date of request. The district may be advised through the review conference process by an architectural and engineering firm if the school district pays the cost of the advice from the architectural and engineering firm.

4.08.1 The review conference shall consider the following:

(i) That the proposed project is academic;

(ii) The application of the space calculation to the project agreed upon by the district and the Division;

(iii) The wealth index of the district and the date at which the wealth index will be applied to the partnership project if approved;

(iv) The project cost promulgated by the commission under Ark. Code Ann. §6-20-2509, for the project and the date on which the project cost data will be applied to the partnership project if approved;

(v) A projected amount of state funding based on current application of the wealth index and the project cost promulgated by the commission under Ark. Code Ann. § 6-20-2509, to the planned project for planning purposes to allow a projection of local funding share required.

(vi) The Division shall make a record of the findings of the review conference.

4.09 The minimum requirement set forth in Section 4.05.3 of these rules may be waived by the Division upon a recommendation being made by the Director of the Division to the Commissioners for the Division for the minimum to be waived for cause and a majority of the Commission supports the waiver.

5.00 DIVISION'S EVALUATION AND APPROVAL OF SCHOOL DISTRICT'S APPLICATION

5.01 The Division shall use criteria to evaluate a school district's application for state financial participation in a new construction project, pursuant to Ark. Code Ann. § 6-20-2507, which shall include, without limitation, the following:

5.01.1 How the school district's facilities master plan and current academic facilities do not address the following:

(i) Student health and safety, including, without limitation, but not limited to, critical health and safety needs;

(ii) Compliance with current academic facilities standards, including, without limitation, appropriate space utilization of existing academic facilities in the district;

(iii) Conformance with sound educational practices;

(iv) Curriculum improvement and diversification, including, without limitation, the use of instructional technology, distance learning, and access to advanced courses in science, mathematics, language arts, and social studies;

(v) Multischool, multidistrict, and regional planning to achieve the most effective and efficient instructional delivery system;

(vi) Reasonable travel time and practical means of addressing other demographic considerations; and

(vii) Regularly scheduled maintenance, repair, and renovation;

5.01.2 How the school district's facilities master plan and any new construction project under the facilities master plan address the following:

(i) Student health and safety, including, without limitation, critical health and safety needs;

(ii) Compliance with current academic facilities standards, including, without limitation, appropriate space utilization of existing academic facilities in the district;

(iii) Conformance with sound educational practices;

(iv) Curriculum improvement and diversification, including, without limitation, the use of instructional technology, distance learning, and access to advanced courses in science, mathematics, language arts, and social studies;

(v) Multischool, multidistrict, and regional planning to achieve the most effective and efficient instructional delivery system;

(vi) Reasonable travel time and practical means of addressing other demographic considerations; and

(vii) Regularly scheduled maintenance, repair, and renovation;

5.01.3 How the new construction project supports the prudent and resourceful expenditure of state funds and improves the school district's ability to deliver an adequate and equitable education to public school students in the district;

5.01.4 How the new construction project has been prioritized by the school district; and

5.01.5 The allocation and expenditure of funds in accordance with this subchapter and the Arkansas Public School Academic Facility Program Act, Ark. Code Ann. § 6-21-801 et seq.

5.02 The Project Cost shall be limited to the cost for an alternative project if the Division determines that an alternative project meets facility standards and addresses the suitability and safe, dry and healthy needs expressed by the district in its master plan and project application. The alternative project may consist of replacement of the original facility or component to the original configuration of construction at the most current state standard.

5.03 If a school district should fail to comply with any of the requirements set forth in state law and/or these Rules concerning the Division's evaluation of its

application, the Division and Commission can deny the application for state financial participation.

5.04 (i) The Division shall review all projects submitted to determine their suitability for state financial participation, pursuant to the suitability criteria set forth in Section 3.32 of these Rules.

(ii) No project that is determined by the Division to go beyond "suitable" will be approved for state financial participation.

5.05 Prioritization of Projects: All approved partnership projects for each fiscal year shall be funded according to the following order as funding shall become available:

5.05.1 Warm, safe and dry

All warm, safe and dry new construction projects for which the Commission determines that a school district is currently not in suitable condition shall be entitled to receive state partnership assistance in a ranking of first order prior to any other partnership project. Any and all warm, safe and dry projects for which the Commission determines the district is currently in a suitable condition shall not be entitled to any state partnership assistance for that particular project or part thereof. To the extent there is limited funding available, the warm, safe and dry project shall be prioritized according to the school district's Actual Growth and Wealth Index and the campus or district FCI (depending upon the type of project for which the district applies for state partnership assistance) as is done in Section 3.32.3 of these Rules.

The suitability analysis and determination of warm, safe and dry shall be performed as per Sections 3.32.3 and 3.34 of these Rules.

5.05.2 New Construction – additions to existing facilities or entirely new facilities;

All new construction partnership projects which are approved by the Commission because a school district or campus is currently deemed not suitable shall be ranked and, thus, entitled to receive state partnership assistance in the following order according to the following procedure of ranked order:

First, the Division shall numerically rank all school projects based on a ten (10) year actual growth of student population review with the districts with the greatest percentage of growth being ranked first and districts with the least percentage of student growth ranked last. The growth is measured by showing (on a percentage basis) the student population growth when comparing the three quarter average daily membership of the district ten (10) years ago to the district's three

quarter average daily membership in the previously completed school year. If a district has not been in existence for at least ten (10) school years as a result of the annexation or consolidation of other districts into it or with it, then for any years within the last ten (10) years for which the district was not in existence its three quarter average daily membership shall be the sum of the three quarter average daily membership of those former school districts that now comprise the school district applying for state financial participation.

Second, the Division shall numerically rank all school projects based on the Facility Condition Index (FCI) of the district or campus depending on what type of project is proposed. The projects with the greatest FCI shall be ranked first and in descending order to the projects with the least FCI.

Third, the Division shall numerically rank all school projects based on the Facilities Wealth Index of the school district. The districts with the least Wealth Index shall be ranked first with the districts with the greater Wealth Index numerically ranked last.

Fourth, the Division shall average the numerical Growth, FCI and Wealth Index ranking of each school's project. Once each project is averaged, the Division shall establish a ranked order with the projects with the lowest average score being ranked first and the projects with the highest average score being ranked last.

Any project for which the Commission determines the district or campus is currently suitable shall not be entitled for any state partnership assistance in that year's partnership cycle.

5.05.3 Conversion Projects: Conversion projects will be reviewed against POR requirements to determine compliance with the POR. If the Division determines that the project qualifies for state financial participation, then the project will be subject to the conditions set forth in Sections 4.00 and 5.00 of these Rules.

5.05.4 Consolidation/Annexation Projects

All projects that fall within the definition of "consolidation/annexation project" listed in Section 3.09 above and that meet all of the requirements of this section shall be entitled to apply for state Partnership assistance. To the extent that funding is available, consolidation/annexation projects shall be evaluated and funded based upon the following criteria:

(i) Consolidations or annexations involving school districts that appear on the administrative consolidation list pursuant to Ark. Code Ann. § 6-13-1602 shall not be eligible for partnership funding for consolidation/annexation projects;

(ii) A school district may only apply for state partnership funding for a consolidation/annexation project if the effect of the consolidation/annexation is to create, from two or more contiguous districts, one resulting or receiving district, as those terms are defined by Ark. Code Ann. § 6-13-1401;

(iii) The consolidating or annexing districts must submit to the Division an order from the Arkansas State Board of Education granting approval for the consolidation or annexation;

(iv) The consolidating or annexing districts must submit to the Division all required partnership documentation pertaining to the project;

(v) The consolidating or annexing districts must have the proposed project listed in the district's approved master plan, or in the alternative, submit an amended or new master plan that includes the proposed project;

(vi) The consolidating or annexing districts must apply for partnership funding in accordance with the partnership application procedures contained in this rule;

(vii) The consolidating or annexing districts must provide the names, LEA numbers and locations of all schools to be closed as a result of the consolidation or annexation and the applicable dates of such action when submitting their Master Plan;

(viii) Consolidation/annexation projects for new schools shall not be penalized for current space as set forth in Section 3.32.2 above, nor shall consolidation/annexation projects be subject to the provisions set forth in 5.02 above. The resulting or receiving district must certify to the Division that the district's current available space will either be used for a valid educational purpose or disposed of in a manner authorized by law;

(ix) The Division shall review the proposed consolidation/annexation projects to ensure that the location of the proposed consolidation/annexation projects supports the prudent and resourceful expenditure of state funds;

(x) In addition to the criteria set forth in Section 5.05.4(xi) below, all consolidation/annexation projects containing proposed additions to existing facilities will be evaluated in accordance with Section 3.32.1 above; Except that the Division may consider all school closings in the consolidation-annexation when determining space when available on other campuses;

(xi) "Consolidation/annexation" projects shall be prioritized in accordance with Section 5.05.2 of these rules and as follows:

(a) Growth: Index: For those projects meeting the definition of a "consolidation/annexation" project and which comply with the requirements of this section, the Division will numerically rank the consolidated/annexed school district's growth index at the greater of the following two levels: (1) the past ten years' growth as calculated in 5.05.2 above; or (2) the same growth level assigned to the project of the school district with the greatest growth ranking represented in the same project year for which the consolidation/annexation partnership application is submitted.

(b) Wealth Index: For those projects meeting the definition of a "consolidation/annexation" project and which comply with the requirements of this section, the wealth index used by the Division to calculate the state financial participation of either a new campus or an additional space will be the lowest wealth index of the school districts participating in the consolidation/annexation project. This wealth index will be used only for the first partnership project undertaken by the resulting or receiving school district;

(c) Facility Condition Index: (FCI): For those projects meeting the definition of a "consolidation/annexation" project and which comply with the requirements of this section, the Division will numerically rank the consolidated/annexed school district's project based upon the FCI of the district or campus, as appropriate.

(xii) After completion of the first applicable consolidation/annexation project, the Division will calculate a new wealth index for the resulting or receiving district that will be used to determine the amount of state financial participation in future academic facilities projects undertaken by the resulting or receiving district. These future academic facilities projects will not be evaluated according to the consolidation/annexation project criteria. Instead, the future academic facilities projects will be evaluated as a warm, safe, and dry (renovation) project, a new facility, or as an add-on/conversion project, as applicable;

(xiii) Funds made available to a resulting or receiving district under the consolidation/annexation project process shall be in addition to, not in lieu of, funds made available to the resulting

or receiving district under the Arkansas Department of Education Rules Governing the Distribution of Consolidation/Annexation Incentive Funding.

5.06 If the school district's new construction project or "warm, safe and dry" project is approved for funding in the current funding cycle, then the district must execute the Partnership Agreement attached to these Rules as "Appendix D", as which is hereby incorporated into these Rules as if fully forth herein. If the Partnership Agreement is not executed within the time period set forth in Section 7.06 of these Rules, unless there is an approved waiver, the state's financial participation in part or in whole may be deemed null and void by the Commission.

6.00 AVAILABILITY OF STATE FINANCIAL PARTICIPATION AND TIMELINES

6.01 State financial participation under the academic facilities partnership program is not available until July 1 of each year. The Division shall give priority in state financial participation to school district proposals relating to academic facilities according to the prioritization process set forth in Section 5.05 of these Rules. In allocating funds for state financial participation, the Division shall set aside funds sufficient to pay the incentives set forth in Section 10.0 of these Rules.

6.02 To the extent a district's Partnership Project has been ranked of such low priority and there are not sufficient state funds available to fully fund the district's Partnership Project, the district shall be entitled to the following:

(i) The Division shall consider the district's current application a valid application for the next Partnership Project cycle and will prioritize and fund the application consistent with the prioritization and funding amounts utilized in the next Partnership Project cycle; or

(ii) The district may choose to withdraw its project application prior to the next Partnership Program cycle and reapply for Partnership Project assistance in a subsequent cycle based upon that year's availability of funding pursuant to that cycle's adjusted funding rate and Partnership Program.

6.03 With regard to an academic facilities project for which a school district intends to apply for state financial participation, the Division shall notify the school district of its final decision on the application and the estimated amount of state financial participation in the new construction project no later than May 1 of each odd-numbered year.

The Division's notice of its decision on a school district's application for state financial participation in a new construction project shall include an explanation of the evaluation factors underlying the decision of the Division to provide or not provide state financial participation in support of the new construction project.

(i) Projects, which are newly constructed academic facilities or additions for which a square foot cost would be applicable to all facets of the construction, may qualify for funding in the lesser amount of either option A: which is the dollar amount set by the Division and incorporated herein or otherwise known as New Facilities Project Cost Funding Factor which shall be that factor established on a regional basis by the Division in effect as of May 1, 2009, and updated annually by the Division in compliance with Ark. Code Ann. § 6-20-2509; plus the appropriate soft cost for demolition costs and/or asbestos abatement in the amount of one (1) percent of the Funding Factor for each category multiplied by the approved project square feet multiplied by the difference of one hundred percent (100%) minus the school district's wealth index (however, the Funding Factor shall not increase to more than $175.00 per square foot without the approval of the Commission) or option B: which is the actual construction cost amount multiplied by the difference of one hundred percent (100%) minus the school district's wealth index.

(ii) Projects which are building systems or components thereof, not covered in (i), above may qualify for funding in the lesser amount of either option A: the dollar amount set by the Division and incorporated herein or otherwise known as the warm, safe and dry (Renovation) and Conversion Project Cost Funding Factor (which shall be that factor established on a regional basis by the Division in effect as of May 1, 2009, and updated annually by the Division in compliance with Ark. Code Ann. § 6-20-2509; plus the appropriate soft cost for demolition costs and/or asbestos abatement in the amount of one (1) percent of the Funding Factor of each category multiplied by the approved unit of measure per project multiplied by the difference of one hundred percent (100%) minus the school district's wealth index (however, the Funding Factor shall not increase to more than $175.00 per square foot without the approval of the Commission) or option B: the actual construction cost amount multiplied by the difference of one hundred percent (100%) minus the school district's wealth index.

7.00 AGREEMENT BETWEEN THE DIVISION AND THE SCHOOL DISTRICT CONCERNING STATE FINANCIAL PARTICIPATION

7.01 If the Division determines that the new construction project is eligible for state financial participation, the Division and the school district shall enter into an agreement specifying the terms of the state's financial participation and the conditions that must be satisfied by the school district.

7.02 At a minimum, the agreement shall:

(i) Identify the estimated amount of local financial participation and state financial participation in the new construction project. The estimated amount of the state's financial participation, as stated in the agreement,

will be arrived at after the schematic drawings and any variances to the Arkansas Public School Academic Facilities Manual are considered for new facilities, new additions to facilities or renovations or conversions. Schematic drawings should include as a minimum, single line drawings with dimensions, labeled to identify all spaces in the "footprint" of the entire project. For "warm, safe and dry" projects, the major system components and their location should be identified. The final amount of the State's financial participation will be specified upon receipt of the final contract amount and determined as specified in Section 6.03 of these rules:

(ii) Define the method of and schedule for transferring state financial participation funds to the school district;

(iii) Identify whether the new construction project includes any improvements that are classified as maintenance, repair, and renovation, and how the project costs will be allocated between new construction activities and maintenance, repair, and renovation activities;

(iv) Define the detailed scope of work for which the agreement applies;

(v) Provide that changes to the plans for the new construction project shall be made in consultation with the Division;

(vi) Provide the areas of project responsibility of both parties during the course of the project;

(vii) Provide that the district shall be in compliance with all state laws concerning bidding and construction;

(viii) Provide that the Division or any person acting on behalf of the Division may conduct on-site inspections of the new construction project as frequently as the Division deems necessary to assure the prudent and resourceful expenditure of state funds with regard to public school academic facilities;

(ix) Determine how risk will be allocated between the school district and the state if the new construction project is not completed;

(x) Describe how changes in the school district's wealth index over the course of the new construction project will be treated; and

(xi) Specify that the agreement is void and the state will have no further obligation to provide state funds to the school district for the new construction project that is the subject of the agreement if the school district does not raise local resources and apply local resources toward the new construction project as provided under the agreement.

7.03 The agreement specified above and required by Ark. Code Ann. § 6-20-2507 is attached to these Rules as "Appendix D", as set forth in Section 5.06 of these rules.

7.04 All funding agreements under these Rules are contingent upon the prudent and resourceful expenditure of state funds as determined by the Division.

7.05 Before the district is allowed to proceed and start construction on the project, the district must submit, and the Division must approve, its final plans and complete specifications.

7.06 Within sixty (60) days of the Commission's final approval and funding of the district's partnership project, the agreement referenced in Sections 7.02 and 7.03 of these rules must be executed by the district and the Division. The Division shall have the right to grant a waiver from this provision, if the district has unusual and limited circumstances which prevent it from executing the agreement within the sixty (60) day timeframe.

7.07 If the Partnership Agreement is not executed within the time period set forth in Section 7.06 of these Rules, unless there is an approved waiver request or appeal pending before the Academic Facilities Review Board or Commission, the state's financial participation in whole or in part may be deemed null and void by the Division.

Construction of the project, as evidenced by a signed construction contract, must begin within eighteen (18) months from the date of the final approval of the project by the Commission. The district must obtain the Division's approval of the completion of all district project requirements within four (4) years from the date of final approval of the project by the Commission. For the purposes of this subsection, the phrase "signed construction contract" includes construction management contracts.

A district may request a waiver of timelines in Section 7.07 of these Rules if the district believes it can show unusual and limited circumstances which prevent it from meeting the timelines. State financial participation in a district's project is contingent upon the district meeting all timelines and deadlines set forth in these Rules. Absent an approved appeal or waiver, the Division may render the state's financial participation in a district's project null and void in whole or in part for failure to meet all of the timelines and deadlines set forth in these Rules and may recapture any state partnership funding assistance funds already paid to the district.

7.08 Payment of an incentive awarded pursuant to Section 10.0 of these Rules shall not be made to a district until the new facilities project is completed and the appropriate third-party certification entity or assessor has awarded final certification for the project.

8.00 APPEAL PROCESS

8.01 (i) A school district may appeal any determination of the Division to the Commission pursuant to the Rules Governing Commission Appeals.

(ii) If the district appeals the determination of the Division to the Commission or the Academic Facilities Review Board, the Commission or the Academic Facilities Review Board shall have the authority to fully review all parts of the district's Partnership Project(s) (project) and may approve, deny, reduce or increase the amount of state financial participation in any or all of the appealed project(s).

9.00 DISTRIBUTION AND TRACKING OF STATE FINANCIAL PARTICIPATION

9.01 If a school district qualifies for state financial participation under this section, the Division shall certify the amount of state financial participation to the Commission for oversight purposes. The Commission shall certify the amount to the Arkansas Department of Education for payment.

9.02 The amount of the State Financial Participation under these rules is limited to the amount resulting from the application of the academic facilities wealth index to the project cost promulgated by the Commission to calculate the cost necessary to bring the academic facility into compliance with the Arkansas Public School Academic Facilities Manual under Ark. Code. Ann.§ 6-20-2509, plus any incentives awarded pursuant to Section 10.0 of these Rules.

9.03 The Commission shall certify the amount to the Arkansas Department of Education for payment, less any withholding or reduction imposed by the Commission under Ark. Code Ann. § 6-21-114(d) for a school district's failure to comply with the Commission's insurance requirements.

9.04 For tracking purposes, the school district shall account for the funds received as state financial participation under this section as restricted funds and shall account for the funds in accordance with provisions of law, including, without limitation, the Arkansas Educational Financial Accounting and Reporting Act of 2005, Ark. Code Ann. § 6-20-2201 et seq. and Rules established by the Arkansas State Board of Education and the Commission.

10.00 INCENTIVES FOR "GREEN" FACILITIES

10.01 The purpose of this Section is to encourage school districts to build environmentally-friendly new facilities by offering financial incentives through the Academic Facilities Partnership Program.

10.02 DEFINITIONS - For the purpose of this Section, the following terms mean:

10.02.1.1 "LEED Certification" – Certification of a project by a professional third-party certification entity pursuant to the Leadership in Energy and Environmental Design (LEED) for Schools Rating System developed by the U.S. Green Building Council and administered by the Green Building Certification Institute.

10.02.1.2 "Green Globes Certification" – Certification of a project by a professional third-party assessor pursuant to the Green Globes Rating System developed by the Green Building Initiative.

10.03 A new facilities project shall be eligible for financial incentives under this Section if the school district gives timely notice to the Division of the district's intent to seek LEED certification or Green Globes certification for the project. In its notice, the district shall identify which specific type and level of certification it intends to seek.

10.03.1 For applications filed for the 2011-2013 Project Funding Cycle, notice must be given no later than February 1, 2011.

10.03.2 For all subsequent Project Funding Cycles, notice must be given concurrently with the district's application for state financial participation under Section 4.0 of these Rules.

10.04 A district which completes an eligible new facilities project and successfully obtains LEED certification or Green Globes certification for the project shall be awarded an incentive calculated as a percentage of the amount of state financial participation in the project, as follows:

(i) LEED Certification, Silver: One Percent (1%);

(ii) LEED Certification, Gold: One and One-Half Percent (1.5%);

(iii) LEED Certification, Platinum: Two Percent (2%);

(iv) Green Globes Certification, Two Globes: One Percent (1%);

(v) Green Globes Certification, Three Globes: One and One-Half Percent (1.5%); or

(vi) Green Globes Certification, Four Globes: Two Percent (2%).

10.05 A project shall be eligible for financial incentives under this Section for LEED certification, or for Green Globes certification, but not for both certifications. No project shall be eligible for financial incentives for a level of certification higher than the level identified in the district's application for state financial participation.

10.06 Financial incentives awarded under this Section shall be in addition to the amount of state financial participation calculated under these Rules.

10.07 A district's application or eligibility for financial incentives under this Section shall have no effect on the prioritization of a project under Section 5.05 of these Rules.

INTRODUCTION

Purpose

The intent of Chapter 7 is to provide standards and guidelines necessary to plan, design and construct school facilities throughout the state of Arkansas. The focus is on building systems and materials that will provide buildings that are economical and reflect quality construction, along with mandatory performance standards, additional options and available choices. All items and systems, such as loose furnishings, casework, technology, etc., should be integrated early in the planning phase of the project.

Definitions

The planning and design of school facilities shall be based upon criteria described in Chapter 7 in accordance with the following definitions:

"Standards" – Performance or construction required items for which there is mandatory adherence.

"Guidelines" – Performance or construction items which are recommended, but NOT required.

"Examples" – Typical component(s) of standards or guidelines.

Codes and Standards

Applicable local, state, and international building codes and standards are not repeated in this chapter. It is the responsibility of the Design Professionals to conform to the current codes in their design process. Should the standards contained in this manual be in conflict with international, state, or local codes, the established codes shall prevail. The requirements of ADAAG (Americans with Disabilities Act) should be consulted.

No attempt has been made to provide detailed specifications in Chapter 7. Standards and guidelines are available that allow architects and engineers the flexibility to design to fit the school district needs.

Applicability

The construction and performance standards and guidelines contained herein are applicable to both new construction of public school facilities and renovation of existing public school facilities. Every attempt should be made to apply these standards and guidelines to existing buildings, in gradual steps as funding and other influences allow. (refer to Chapter 1 It may be recognized that some standards may not be compatible with existing facilities in renovation projects nor may it be possible to completely conform a performance or construction standard to new a new facility. It those instances variances to those standards, upon request, may be granted by the Division.

Green Building Design *(optional)*

A strong motive of these building systems standards and guidelines is to promote high performance schools. High performance schools are healthy, comfortable, energy efficient, resource efficient, water efficient, safe, secure, adaptable, and easy to operate and maintain. Designing for high performance goals is a guideline. It is to be considered, but not mandatory.

Commissioning *(optional)*

The commissioning process is a single-point responsibility to make sure that certain systems in a building are functioning and performing according to the design intent. The independent Commissioning Agent goes far beyond the occasional Design Professional job visits during the construction period. Actual tests are performed and components are verified under the guidance of the Commissioning Agent. Several systems can be commissioned, but emphasis in the chapter is to commission the HVAC components.

Definition

Commissioning is the process of ensuring that systems are designed, installed, functionally tested, and capable of being operated and maintained according to the Owner's operational needs.

Application

Commissioning may be applicable to both new facilities and renovation. It is a guideline to be considered, but not mandatory.

Commissioning Authority *(CA)*

The CA is in charge of the commissioning process and is an objective, independent advocate of the Owner.

Commissioning Authority Options

CA can be selected from an independent third party; a mechanical or installing contractor; or a design professional.

Contractor: Desirable when building is small and contractor performs all mechanical work, but a conflict of interest can arise.

Design Professional: Good idea provided that the project specifications detail the requirements. Already familiar with the design intent but may not have day-to-day experience in the process.

How To Select

Use competitive Request for Qualifications (RFQ) and follow a qualification based selection process (QBS).

CA Qualifications

Experience required:

- Designing, specifying, or installing educational building mechanical control systems or general HVAC systems
- Working with project teams and conducting "scoping meetings"
- Building systems start-up, balancing, testing, and troubleshooting
- Commissioning at least two projects involving HVAC and lighting controls
- Writing functional performance-test plans for at least two projects.

Extent of Commissioning

The degree or extent of commissioning for new buildings is recommended for the planning, design, and construction phases. However, involvement can occur only in design, construction, or post-construction phases.

What to Commission

All projects that include controls, EMCS, pneumatic equipment, integrated systems, HVAC-related equipment, and air distribution systems should be commissioned.

Benefits

- Improved performance of building equipment and building systems interactions
- Improved IAQ occupant comfort and productivity
- Decreased potential for building Owner liability related to IAQ
- Reduced operation and maintenance costs
- Maximize energy efficiency
- Provide training for school personnel

Green Building Design *(optional)*

The term “green building” is synonymous with “high-performance building”, ”sustainable design and construction”, as well as other terms that refer to a holistic approach to design and construction. Green building design strives to balance environmental responsibility, resource efficiency, occupant comfort and well-being, and community sensitivity. Green building design includes all players in an integrated development process, from the design team (building owners, architects, engineers, and consultants), to the construction team (materials manufacturers, contractors, and waste haulers), to the maintenance staff and building occupants. The green building process results in a high-quality product that maximizes the owner’s return on investment.

Why Design Green?

The building sector has a tremendous impact on the environment. According to the U.S. Department of Energy (DOE), buildings in the United States consume more than 30% of our total energy and 60% of our electricity annually. Buildings are a major source of pollutants that cause urban air quality problems and contribute to climate change. Buildings produce 35% of the country’s carbon dioxide emissions. Green building practices can substantially reduce the negative environmental impacts associated with these buildings and reverse the trend of unsustainable construction activities. Green design also reduces operating costs, enhances building marketability, potentially increases occupant productivity, and helps create a sustainable community. Green design has environmental, economic, and social elements that benefit all stakeholders, including owners, occupants, and the general public.

Creating High Performance Schools *(optional)*

School districts around the country are finding that smart energy choices can help them save money and provide healthier, more effective learning environments. By incorporating energy improvements into their construction or renovation plans, school can significantly reduce energy consumption and costs. These savings can then be redirected to educational needs such as additional teachers, instructional materials, or new computers.

Establishing High Performance Goals

Cost-effective energy- and resource-efficient schools start with good planning. Working closely with the school’s design and planning staff, the architects and engineers should develop objectives that reflect local conditions and priorities, balance short-term needs and long-term savings, and address environmental issues. Goals can include reducing operating costs; designing building that teach; improving academic performance; protecting the environment; increasing health, safety, and comfort; supporting community values; and considering emerging solutions.

A. Reducing Operating Costs - To ensure that your school is water- and energy-efficient, you must first work with the school system to establish clear consumption goals. Given your climatic region and building type, this “energy budget” must be realistic, and it must be based on the potential of current, proven energy-saving technologies. Many energy- and resource-saving options have very good financial value. Some of these solutions do not add anything to installation costs.

B. Designing Buildings That Teach - When designing the school, consider the importance of incorporating high performance features that can be used for educational purposes. Some high performance features may be harder to rationalize financially, but from an educational standpoint are still important to consider. Solar electric systems (photovoltaics), for example, may have a longer return on investment, but if installed properly, can be a very powerful educational tool.

C. Improving Academic Performance - During the past decade, remarkable studies have indicated a correlation between the way schools are designed and student performances. You can maximize student performance by setting air quality objectives that:
   1. Define a level of indoor air quality desired during occupied times
   2. Place limitations on the use of materials, products, or systems that create indoor air quality problems.
   3. Require monitoring equipment.

   Establishing day lighting objectives will also improve classroom conditions and can help improve performance if you:
   1. Include controlled day lighting in all classrooms, administrative areas, the gymnasium, and other significantly occupied spaces.
   2. Develop intentional visual connections between the indoor and outdoor environment.

D. Protecting Our Environment - High performance school design takes into consideration not only the economic and academic impacts of design, but also environmental impacts. Environmentally sound design elements are those that:
   1. Use renewable energy systems and energy-efficient technologies
   2. Incorporate resource-efficient building products and systems
   3. Promote water-conserving strategies
   4. Use less polluting transportation alternatives
   5. Establish recycling systems
   6. Incorporate environmentally sound site design

E. Designing for Health, Safety, and Comfort - You cannot design a high performance school without including design strategies that address health, safety, and comfort issues. Goals should include objectives that:
   1. Implement day lighting and indoor air quality solutions to make the school a healthier place to teach and learn
   2. Address acoustical and thermal comfort

F. Supporting Community Values
   1. Incorporating high performance strategies in your school's design results in a win-win situation for the community and the school. Through the implementation of energy-savings strategies, the school saves money and taxpayers benefit. Additionally, the energy dollars saved don't leave the immediate region but stay within the community and help to build a stronger local economy. Building to high performance standards implies the purchase of locally manufactured products and the use of local services. This approach is effective because much of the environmental impact associated with materials, products, and equipment purchased for construction involves transportation. The more transportation, the more pollution. Specifying local products benefits the community in the same way that retaining energy dollars helps: it strengthens the local economy.

Green Building Rating System *(optional)*

The Green Building Initiative design program called Green Globes and the program offered by the U.S. Green Building council, LEED (Leadership in Energy and Environmental Design), are green measurement systems designed for rating commercial and institutional buildings. Both address new construction and major renovations. The programs address various environmental categories, typically sustainable sites, water efficiency, energy, indoor environmental quality, and materials and resources. Both are performance oriented systems where points are earned for satisfying performance criteria. Different levels of green building certification are awarded based on the total points earned.

A. Sustainable Sites - Properly chosen and developed site help minimize negative project impacts of the surrounding areas, the project site, and occupants of the project site.

B. Water Efficiency – Reduce quality of water needed for the building and the burden of water from the site on municipal treatment facilities.

C. Energy & Atmosphere – Establish energy efficiency to reduce operational expenses, conserve natural resources, and reduce local and global pollution.

   1. Commissioning and Training – All schools should be commissioned to ensure that the design meets the expectations of the district, and that the school is built as it was designed. Modern schools are complex buildings. Commissioning ensures that all building systems are working properly, and that the school staff knows how to operate and maintain them.

D. Materials & Resources – Reduce the amount of materials needed. Those used should have less environmental impact. More sustainable alternatives exist and should be used as much as possible. Waste from the project should be reduced and managed. It is now possible to recycle, compost, or salvage a majority of construction and demolition waste instead of disposing it in landfills.

E. Indoor Air Quality – Schools must protect student health, and good indoor air quality is essential for healthy schools. Good indoor environmental quality can be managed by controlling the sources of pollutants, ensuring thermal comfort and student connections to the outdoor environment.

   1. Acoustics – If not controlled to appropriate levels, noise from loud ventilation systems, outdoor sources, and neighboring rooms can significantly impeded communication between teachers and students. Young learners, students with hearing difficulties, and those learning English as a second language are particularly vulnerable. Classrooms should be designed to be accessible for all students.

Application

Green building design may be applicable to both new facilities and renovation. It is a guideline to be considered, but not mandatory.

FOUNDATIONS AND FLOOR SLABS AT GRADE

Components

1. Spread footings and wall footings.
2. Trenched footings/turned down footings
3. Drilled piers
4. Reinforced concrete foundation walls
5. Reinforced concrete masonry walls utilizing normal weight masonry units with all cores grouted and reinforced
6. Concrete grade beams
7. Driven piles and pile caps
8. Auger cast piles and pile caps
9. Other systems if recommended and acceptable to the geotechnical engineer and the structural engineer.
10. Where expansive clays are present on the site, the geotechnical investigation is to address such and special foundation and floor slab systems and/or undercutting and backfilling shall be utilized as recommended by the geotechnical engineering investigation.

Standards

1. **Foundations shall be designed by a structural engineer to meet the recommendations given by a geotechnical engineer based upon his geotechnical investigation and report and in accordance with the current state building code.**
2. **Structurally sound**
3. **Deflections and differential movement to be limited to magnitudes compatible with other building components.**
4. **Compatible with soil type**
5. **Water Barrier**
6. **Long life expectancy**
7. **Sub-slab ventilation in areas with radon or potential soil gas submissions. Requirement for such is to be determined by qualified testing agency.**
8. **Concrete minimum compressive strength at 28 days to be as required by structural engineer's design, but shall be no less than the following:**
   - **a. Foundations – 3,000 psi**
   - **b. Floor slabs – 3,000 psi**
   - **c. Precast systems – 5,000 psi Strength of concrete provided is to be tested by independent testing lab, during construction.**
9. **Concrete reinforcing steel shall be a minimum grade 60 and meet the requirements of the current state building code and structural engineer's design.**
10. **Project site concrete mixing shall not be used, unless otherwise approved by an independent testing agency.**
11. **For classrooms and corridor areas, use no less .than a 4" thick concrete slab with 6x6 - W1.4 x W1.4 welded wire fabric.**
12. **Under concrete building slabs, place a minimum 10 mil vapor barrier and compact a minimum of 4" of drainage fill material unless geotechnical engineering investigation recommends otherwise.**

FOUNDATIONS AND FLOOR SLABS AT GRADE

Guidelines

1. Concrete materials, may use 10-20% flyash as replacement, but not addition. Mix design to be done by qualified independent testing agency.
2. Use low and non-toxic form releases.

Examples

1. Masonry veneer cavity walls
2. Masonry veneer and metal framing walls
3. Masonry veneer and wood framing walls
4. Pre-cast concrete insulated panels
5 Metal panel on concrete masonry walls
6 Metal panel on metal framing walls

NOTE: Other types of exterior wall construction may be acceptable if type meets or exceeds the above performance standards criteria. Construction standards following, indicated in bold type, are to be considered mandatory minimum requirements. More stringent requirements shall be used when required by the current state building codes and fire prevention codes.

Standards

1. Impact resistant – must resist breakdown from projectiles
2. Moisture resistant – provide vapor retarder to inside of insulation
3. Thermal resistant – minimum U-factor of 0.074. Consider long-term performance
4. Air Barrier System (Required) Option include:
   a. Self-adhering sheets
   b. Fluid applied membranes
   c. Closed-cell polyurethane insulation
   d. Air barrier transion tape required at masonry control joints
5 Minimum maintenance – no routine applied maintenance
6. Detail roof/wall intersection to provide a continuous air barrier system

Guidelines

1. Economical – consider life cycle evaluation
2. Light-colored exterior walls
3. Preference given to non-combustible materials

MASONRY VENEER CAVITY WALLS

Components

1. Exterior finish
   a. Exterior stone, clay, or concrete masonry units
2. One inch air cavity (two inch recommended)
3. Cavity insulation
   a. Rigid insulation or closed cell polyurethane insulation
4. Air Barrier System (required)
5. Backup material
   a. Concrete masonry unit (normal weight)

Standards

1. **Impact, moisture, and thermal resistant**
2. **Fire resistant**
3. **In-wall flashing – copper fabric laminate; Elastomeric thermoplastic; sheet metal**
4. **Drain cavity with weep holes, 4'0" o.c.**
5. **Steel reinforcement to meet the requirements of the current state building code, including the seismic provisions where applicable**
6. **Rebar shall be minimum grade 60**
7. **Face brick veneer: grade SW**
8. **Concrete masonry: unit compressive strength 1900 psi (13.1 MPa) Use CMU's containing fly ash.**
9. **Insulation: extruded polystyrene board or spray polyurethane foam. Minimum R-value of 10.00.**
10. **For exterior CMU veneer: provide integral water repellent**

Guidelines

1. Use mortar dropping control product to prevent blocking of weep holes
2. For exterior CMU, provide normal weight (CMU) with integral color
3. Thorocoat coating is acceptable

MASONRY VENEER ON METAL FRAMING WALLS

Components

1. Exterior finish
   a. Exterior stone, clay, or concrete masonry units
2. One inch air cavity (two inch recommended)
3. Cavity insulation Extruded polystyrene insulation
   a. Rigid insulation or closed cell extruded polyurethane insulation
   b. Exterior sheathing
4. Bat/blanket insulation with faced membrane
5. Back-up material
   a. Cold formed steel framing system
6. 5/8 inch abuse/moisture/mold resistant gypsum wallboard

Standards

1. Impact, moisture, and thermal resistant
2. In-wall flashing
3. Drain cavity with weep holes, 4'0" o.c.
4. Mill galvanized wall ties
5. Face brick veneer: grade SW
6. Concrete masonry veneer: unit compressive strength 1900 psi (13.1Mpa) Optional use of CMU's containing fly ash. Maximize recycled content. Provide integral color and integral water repellent.
7. Thorocoat is acceptable.
8. Steel framing system
   a. Light gauge steel studs (minimum 22 gauge) or as designed by structural engineer.
   b. Pre-engineered steel framing system as designed by structural engineer.
9. Use minimum R-19 fiberglass insulation. The paper or foil vapor barrier should be anchored to the face of the studs.
10. Insulation could be soybean oil-based polyurethane, open-cell, semi-rigid foam.

Guidelines

1. Maximize recycled content

PRE-CAST CONCRETE – INSULATED SANDWICH WALL

Components

1. Exterior architectural concrete with smooth or exposed aggregate texture finish or thin brick facing.
2. Rigid cavity insulation.
3. Structural concrete backup.
4. Interior finish, if exposed, to be smooth concrete or exposed aggregate concrete or a surface applied smooth or textured finish.

Standards

1. **Impact, moisture, and thermal resistant**
2. **Low maintenance**
3. **Meet ASHRAE 90.1-2007 (or later) and current state energy code requirements**
4. **Use extruded polystyrene or polyisocyanurate insulation**
5. **Use fiber composite or plastic connectors – no metal connectors**
6. **Concrete materials: Portland cement ASTM C 180, Type I or III; Fly ash, ASTM C 618, Class C or F may be substituted for up to 20 percent of total cementitious materials**
7. **Concrete mix: 28 day compressive strength, 5,000 psi minimum**
8. **Interior surface: paint or skim-coat plaster**

METAL PANEL ON METAL FRAMING

Components

1. Exterior finish
   a. Exterior metal wall panel system
2. Weather barrier
3. Extruded – Polystyrene foam sheathing
4. Air barrier system required
5 Batt insulation with vapor barrier
6. Backup materials
   a. Cold-formed metal framing
7. 5/8 inch abuse/moisture/mold resistant gypsum wallboard

Standards

1. Metal wall panel: 0.0269 inches minimum thickness zinc-coated (galvanized) or aluminum-zinc alloy-coated sheet steel; fluoropolymer exterior finish with minimum 20 year finish warranty
2. Low maintenance
3. Moisture and thermal resistant
4. Weather barrier: composite, self-adhesive, rubberized-asphalt compound flashing product
5. Steel framing system:
   a. Steel studs as designed by structural engineer
   b. Pre-engineered steel framing system as designed by structural engineer
6. Provide ASTM C665, Type 1, faced mineral fiber insulation blankets
7. Interior surface: painted, 5/8 inch, Type X gypsum wallboard
8. Insulation could be soybean oil-based polyurethane, open-cell, semi-rigid foam

Guidelines

1. Maximize recycled content

MASONRY VENEER ON WOOD FRAMING WALLS

Components

1. Exterior finish
   a. Exterior stone, clay, or concrete masonry units
2. One inch air cavity (two inch recommended)
3. Cavity insulation extruded polystyrene sheathing
   a. Closed cell
   b. Rigid insulation
4. Bat/blanket insulation with vapor barrier
5. Backup material:
   a. Wood frame system
   b. Heavy timber system
6. 5/8 inch abuse/moisture/mold resistant gypsum wallboard

Standards

1. Impact, moisture, and thermal resistant
2. In-wall flashing
3. Drain cavity with weep holes, 4'0" o.c.
4. Mill galvanized wall ties
5. Face brick veneer: grade SW
6. Concrete masonry veneer: unit compressive strength 1900 psi (13.1Mpa) Optional use of CMU's containing fly ash. Maximize recycled content. Provide integral color and integral water repellant.
7. Wood frame systems or heavy timber systems:
   a. Engineered in strict compliance with requirements of Arkansas State Fire Prevention Code and Building Code.
   b. All lumber used for wood framed wall systems shall be #2 grade, kiln dried Southern Pine; #2 grade, kiln dried, Spruce-Pine-Fir; or #2 grade, Hem-Fir or better.
8. Use minimum R-19 fiberglass insulation. The paper or foil vapor barrier should be anchored to the face of the studs.
9. Insulation could be soybean oil-based polyurethane, open-cell, semi-rigid foam.

Guidelines

1. Maximize recycled content

ROOFING SYSTEMS

Purpose

Examples

1. Shingle roof system
2. Metal roof with blanket insulation
3. Metal roof with rigid insulation
4. Built-up asphalt roof system
5. Single-ply roof system
6. Modified Bitumen roofing system
7. Cold tar roof system

NOTE:

#1: Other types of roof systems may be acceptable if system meets or exceeds the performance standards listed below.

#2: All roof system and products shall be designed in accordance with state fire prevention code and state building code.

Performance Standards

1. **Moisture resistant – integral finishes**
2. **Thermal resistant – minimum U-factor for low-slope roof is 26.0 and steep roof 19.6.**
3. **Positive slope – minimum slope 1/4" in 12", unless specified otherwise.**
4. **Minimal maintenance – upkeep but not continual maintenance**
5. **Wind / weather resistant – meet FM uplift criteria**
6. **Positive drainage to interior drains or exterior sources**
7. **Fire resistive – meet UL class "A"**
8. **"ENERGY STAR" compliant ratings for surface treatments**
9. **Consider "radiant barriers", such as aluminum foil at the ceiling of attics**
10. **Sheet metal flashings shall conform to SMACNA's "Architectural Sheet Metal Manual".**
11. **Pre-Roofing Conference prior to field installation of roofing system.**

SHINGLE ROOF SYSTEMS

Components

1. Asphalt shingles, UL class "A"; ASTM B108 or UL790
2. Roofing accessories:
   a. Felt underlayment
   b. Self-adhering sheet underlayment
3. Vented nailboard insulation: oriented strand board (OSB) or plywood
4. Rigid insulation with vapor barrier on under side: extruded polystyrene or polyisocyanurate board
5. Vapor barrier
6. Structural support: steel deck or cementitious deck; or wood deck (lumber, plywood or oriented strand board, OSB) permitted in accordance with Arkansas State Fire Prevention Code and Building Code.

Performance Standards

1. **Moisture resistant**
2. **Thermal resistant**
3. **"ENERGY STAR": compliant surface treatments**
4. **Maximum industry available material and wind warranty**

Construction Standards

1. **Minimum 3:12 slope**
2. **Fasten shingles to roof sheathing with nails – not staple fasteners.**
3. **Metal drip edge: brake formed sheet metal with at least a 2 inch roof deck flange**
4. **Laminated-Strip Asphalt Shingles: ASTM D3462 laminated, multi-ply overlay construction glass-fiber reinforced, mineral-granule surfaced, self-sealing shingles.**
5. **Felt underlayment 30 pound asphalt-saturated organic felts, non-perforated. Use two layers where slope equals or is less than 4/12.**
6. **Sheet metal flashings conform to SMACNA's "Architectural Sheet Metal" manual. Includes perimeter edge metal; penetration flashings; valley construction; and apron, step, cricket, or back flashings.**

METAL ROOF WITH BLANKET INSULATION

Components

1. Standing seam metal roof panels, minimum 26 gauge
   a. Profile: vertical, rib, seamed joint
   b. Material: aluminum zinc alloy coated steel sheet
   c. Exterior finish: fluoropolymer two-coat finish system 70 percent PDFY resin.
   d. Snow guards: seam mounted, stop or bare type (surface mounted is not acceptable)
2. Insulation: glass fiber blanket with vapor tight edge tabs and facer on under side (Minimum R-19)
3. Galvanized steel purlins
4. Solid substrate with ice/watershield moisture barrier recommended.
5. Structural support:
   a. Steel joist or truss joists
   b. Pre-engineered structural framing system.

Performance Standards

1. **Moisture resistant**
2. **Thermal resistant**
3. **"ENERGY STAR": compliant surface treatments**
4. **Special warranty on panel finishes by manufacturer: 20 years.**
5. **Special weathertightness warranty for standing seam metal roof panels: 20 years.**
6. **System shall have ASTM E 1592-94 wind uplift classification.**
7. **Contractor furnish 2 year guarantee on materials and Workmanship (in accordance with terms and conditions of manufacturer's 20 year weathertightness warranty).**
8. **System shall have ASTM E 1592-94 wind uplift classification.**
9. **No water penetration when tested according to ASTE 1646.**

Construction Standards

1. **Minimum 1:12 slope**
2. **Thermal spacers where panels attach directly to purlins**
3. **Standing seam assembly: factory formed, cap seam assembly designed for concealed mechanical attachment of panels to roof purlins or deck**
4. **Air leakage through assembly of not more than 0.06 CFM/sq.ft. of roof area when tested to ASTM E 1680.**
5. **No water penetration when tested according to ASTM E 1646.**

Guidelines

1. "ENERGY STAR" compliant roof surface recommended

METAL ROOF WITH RIGID INSULATION

Components

1. Standing seam metal roof panels, minimum 26 gauge
   a. Profile: vertical rib, seamed joint
   b. Material: aluminum zinc alloy coated steel sheet
   c. Exterior finish: fluoropolymer two-coat finish system 70 percent PDFV resin.
   d. Snow guards: seam mounted, stop or bar type (surface mounted is not acceptable.)
2. Underlayment (ice and water shield)
3. Nail base Rigid roof insulation – one or two layers
4. Structural support: steel deck or cententitious deck; wood deck (lumber, plywood or oriented strand board, OSB) permitted in accordance with Arkansas State Fire Prevention Code and Building Code.

Performance Standards

1. **Moderate impact resistant**
2. **Moisture resistant**
3. **ENERGY STAR" compliant surface treatment**
4. **Special warranty on panel finishes: 20 years.**
5. **Special weathertightness warranty for standing seam metal roof panels: 20 years.**
6. **Contractor furnish 2 year guarantee on materials workmanship (in accordance with terms and conditions of manufacturer's 20 year weathertightness warranty).**
7. **System shall have ASTM E 1592-94 wind uplift classification**
8. **No water penetration when tested according to ASTM E 1646**

Construction Standards

1. **Minimum 1:12 slope**
2. **Underlayment: self-adhering high temperature sheet: 30 to 40 mils thick**
3. **Standing seam assembly: factory formed, cap seam assembly designed for concealed mechanical attachment of panels to roof purlins or deck**
4. **Air leakage through assembly of not more than 0.06 CFM/sq.ft. of roof area when tested to ASTM E 1680**
5. **Pre-roofing Conference prior to field installation of roofing**

BUILT-UP ASPHALT ROOF SYSTEM

Components

1. Alternating layers of bituminous sheets and viscous bituminous coatings over an insulated deck.

Constructions Standards

1. System description:
   a. BU-I-A-G (4) -A (Built-up membrane over insulated deck using asphalt with glass fiber ply sheets and aggregate surfacing.
   b. BU-I-L-G2 (coated base) (4)-A (built-up roof membrane over insulated deck using cold liquid applied asphalt with ply sheets and aggregate surfacing).
2. Base sheet (recommended by manufacturer)
3. Ply felt: asphalt impregnated, glass fiber felt, complying with ASTM D2178, Type VI or 28 lb. coated base sheets as required by manufacturer to meet warranty requirements.
4. Flashing sheet
   a. SB5 modified asphalt sheet, mineral granule surfaced, ASTM G162 (composite sheet) or ASTM G164 (polyster)
   b. APP modified asphalt sheet, mineral granule surfaced, ASTM G223 (composite)
5. Asphalt materials
   a. Roofing asphalt: Recommended by built-up roofing manufacturer
   b. Cold applied adhesive
6. Auxiliary membrane materials may include: aggregate surfacing; substrate board, vapor retarder; roof coating and/or protective walkways.
7. Polisocyanurate board insulation with a minimum compressive strength of 20 PSI and be faced on both top and bottom.
8. Pre-Roofing Conference prior to field installation of roofing.

Performance Standards

1. Thermal resistant
2. Impact resistant
3. Moisture resistant
4. Manufacturer to provide minimum 15 year warranty
5. Contractor to provide 2 year guarantee warranting the roofing, insulation and flashing.

MODIFIED BITUMINOUS MEMBRANE

Components

1. Roofing system formed with modified bituminous membranes over an insulated deck.

Construction Standards

1. System description – provided one of the following:
- **a. MBA(1)-i-(T,M or L)-G(2)-M or A (modified bitumen APP roofing membrane over insulated deck, mopped or set in cold, liquid-applied adhesive, with glass fiber ply sheet and mineral or aggregate surfacing.**
- **b. MBS (1)-I-(T, M or L)-G(2) M or A (modified bitumen SBS roofing membrane, over insulated deck, mopped or set in cold, liquid-applied adhesive, with glass fiber ply sheet and mineral or aggregate surfacing.**

2. Cap sheet – provide one of the following:
- **a. SBS modified bituminous cap sheet: SBS modified asphalt sheet, smooth surfaced, dusted with fine parting agent on both sides or granular surfaced; suitable for application method specified; manufacturer's standard thickness and weight; for use of reinforcing type as follows:**
  - **i. Use: roof membrane and base flashing**
  - **ii. Reinforcing: composite woven (ASTM G162) and glass fiber mat.**
- **b. APP-Modified cap sheet, smooth surfaced: atactic polyprospolene modified asphalt sheet, smooth surfaced; suitable for application method specified; manufacturer's standard thickness and weight; for use and of reinforcing types as follows:**
  - **i. Use: roof membrane and base flashing**
  - **ii. Reinforcing: composite woven (ASTM G162) and glass fiber mat**

3. Auxiliary membrane materials may include: protective surfacing (aggregate surfacing or roof granules); roofing asphalt (as recommended by system manufacturer); substrate board (if required by design professional or roof manufacturer); cold applied adhesive: vapor retarded (if required by project conditions by design professional or manufacturer; and protective walkway materials recommended by system manufacturer.

4. Base sheet: unperformated, asphalt impregnated and coated glass fiber sheet, dusted with fine mineral surfacing on both sides.

5. Base ply felts: asphalt coated, glass fiber felt, complying with ASTM D2178, Type VI or 28 lb. coated base sheets as required by manufacturer to meet warranty requirements.

6. **Polyiso-cyanurate board insulation with a minimum compressive strength of 20 PSI and be faced with both top and bottom; and provide tapered insulation, preformed saddles, crickets, tapered edge strips and other insulation shapes as required for "positive drainage".**
7. **Insulation accessories as may be recommended by the insulation manufacturer and as compatible with membrane roofing including: fasteners; cold fluid applied adhesive; wood nailer strips; and cover board (perlite insulation board or cellulosic-fiber insulation board).**
8. **Pre-Roofing Conference prior to field installation of roofing.**

Performance Standards

1. **Thermal resistant**
2. **Impact resistant**
3. **Moisture resistant**
4. **Manufacturer to provide a minimum 20 year warranty**
5. **Contractor to provide a minimum 2 year warranty covering the roofing, insulation and flashing.**

OPENINGS

Performance Guidelines

1. Provide uniform light distribution
2. Provide low glare
3. Reduce energy costs
4. Mitigate safety / security concerns
5. Low maintenance
6. Provide day lighting that uses diffused or reflected sunlight
7. Provide windows views to help eye health and help reduce stress
8. Encourage “top lighting” to provide best uniform illumination
9. Consider all academic spaces to have natural daylight
10. Minimize east and west facing glass

Examples

1. View windows
2. “Top lighting” (roof monitors, unit skylights, and tubular skylights)
3. Entrance assemblies
4. Interior and exterior doors

Components

1. View windows
2. Clerestory windows
3. Roof monitors and skylights
4. Entrance assemblies
5. Interior doors
6. Exterior doors

Construction Standards

1. **Air infiltration rate of less than 0.4 CFM/ft performance class AW and grade 65 by AAMA.**
2. **Testing for thermal performance according to AAMA 1503.**
3. **Not less than 26 STC when tested for sound transmission loss according to ASTM A90.**
4. **Operating window sash to be factory glazed.**
5. **Windows to be double glazed and have low emissive coating.**
6. **Glass for exterior doors and sidelights shall comply with state fire prevention codes. Provide vestibule at main entrance.**
7. **In un-rated assemblies, glass for interior doors shall be a minimum of ¼ inch clear tempered.**
8. **Interior wood doors to be solid-core and factory finished.**
9. **Consider selection of interior doors constructed with recycled or recovered content and low VOC (volatile organic compounds) if available.**
10. **Consider selection of interior doors with wood veneers harvested from sustainable forests if available.**
11. **For a high degree of sound isolation on both interior and exterior doors, provide full perimeter gaskets and automatic door bottoms with a neoprene element for acoustical doors and an STC rating appropriate for the intended use.**
12. **On exterior doors, provide full perimeter weather-stripping and thresholds.**
13. **Exterior hollow metal doors shall be insulated.**

INTERIOR PARTITIONS

Performance Standards

1. **Easy to clean materials**
2. **Resistant to moisture or that inhibit the growth of biological contaminants**
3. **Impact resistant materials in high traffic areas**
4. **Durable, long life materials**
5. **Dimensional planning to reduce waste (i.e. 4 ft. by 8 ft. wallboard)**
6. **Use materials that meet industry consensus standards for VOC emissions.**

Guidelines

1. Consider design for disassembly for a product and its parts to be reused, remanufactured, or recycled
2. Good acoustical qualities
3. Consider recycled/recyclable
4. Local (within 500 miles) materials and products where possible
5. Consider renewable materials

Examples

1. Concrete masonry walls (CMU)
2. Glazed tile and ceramic tile
3. Gypsum wallboard
4. Veneer plaster over gypsum wallboard
5. Operable partitions
6. Folding partitions
7. Demountable partitions
8. Wood framing

Examples

1. Concrete masonry walls (CMU)
2. Structural glazed tile walls (CGFU)
3. Ceramic tile (CT)

Performance Standards

1. **Impact resistant**
2. **Easily cleanable & maintainable**
3. **Good acoustic qualities**
4. **Daylight enhancement qualities**

Construction Standards

1. **CMU walls: ASTM C190, 1900 psi compressive strength, normal weight aggregate**
2. **Tooled or struck mortar joints for cleanability. Use Type "S" *m*ortar for loadbearing walls and Type "N" for non-*loadbearing walls.***
3. **Glazed structural clay tile: ASTM C 126, Type I (single-faced units) and Type II (double-faced units)**
4. **Ceramic tile: for materials ANSI A 137.1 "Specifications for Ceramic Tile"; for installation ANSI 108 series and TCA handbook**
5. **Glazed wall tile: 5/16 inch thick, flat tile with cushion edges**
6. **Grout tile using latex Portland cement grout. Exception: use chemical resistant epoxy grout in kitchens**

Examples

1. Metal or wood studs with gypsum wallboard both sides
2. Veneer plaster over gypsum wallboard

Performance Guidelines

1. "Abrasive-resistant" and "high impact" in high traffic areas
2. Economical
3. Relatively easy to move or remove
4. Accommodates periodic finish color changes
5. Good sound barrier with acoustical insulation

Construction Standards

1. **Do not use in exterior walls where threat of moisture and mold might be present**
2. **Sound transmission characteristic: Minimum STC: 41 in academic areas**
3. **Steel framing: comply with ASTM C754 and G40 hot-dip galvanized zinc coating**
4. **Gypsum wallboard: ASTM C36, Type X 5/8 inch thick**
5. **Type X wallboard required at rated partitions**
6. **Moisture resistant wallboard to be used in high moisture areas**
7. **Metal studs: ASTM C645, 20 gauge sheet base metal**
8. **Provide control joints in partitions 30 feet maximum**
9. **Veneer plaster: ASTM C58T consisting of separate base coat and finish coat**
10. **Wood stud grade marked as required by the applicable building code**

Examples

1. Operable partitions
2. Folding partitions
3. Demountable partitions

Performance Standards

1. **Easily moved from opened to closed (stored) position by manual or electrical operating mechanism**
2. **Sound control (STC rating) as required to meet the sound isolation requirements for the functional use of the rooms or spaces to be divided**
3. **Options for tack and marker-board surfaces**
4. **Overhead structural support with minimal deflection as required for functional operation.**
5. **Demountable partitions convenient to disassemble and relocate**

Construction Standards

1. **Manually or electrically operated partitions**
2. **Operable partitions: panels ½ inch gypsum board laminated with 3/16 inch natural cork (STC 47) or steel face sheet (STC 50); Panel finish-vinyl fabric, carpet, tack boards or marker boards; pedestrian pass doors as required**
3. **Accordion folding partitions: steel or aluminum suspension tracks; manually operated; interior 22 gauge steel panels for sound isolation; vinyl coated fabric finish**
4. **Demountable partitions; face panels of gypsum board painted or covered with vinyl; face panels of steel painted or covered with vinyl or plastic laminate; doors and windows available as required**
5. **Non-combustible products that meet rated fire or smoke separation building code requirements**

INTERIOR FLOOR FINISHES

Performance Standards

1. **Water-based coatings and adhesives**
2. **Nontoxic and non-polluting materials (low VOC)**
3. **Resistant to moisture or inhibits the growth of biological contaminants**
4. **Easy to clean with non-polluting maintenance products**
5. **Durable to withstand heavy use without requiring frequent replacement**
6. **Easy to maintain**
7. **Provide moisture testing of concrete floors to meet flooring manufacturer's requirements**

Examples

1 Soft surface flooring
- Resilient
- Carpeting
- Rubber

2 Hard surface flooring
- Tile
- Terrazzo
- Concrete
- Wood
- Resilient
- Rubber
- Resinous
- Hardwood

Construction Guidelines

1. Recycled/recyclable
2. Minimize PVC content

Examples

1. Vinyl composition tile (VCT) and Vinyl enhanced tile (VET)
2. Linoleum and Sheet vinyl
3. Carpet (CAR) and carpet tiles
4. Rubber flooring

Performance Guidelines

1. Easy to clean and maintain
2. Acoustical benefits
3. Physical comfort (cushion)
4. Recycled content/Recyclable
5. Safety for small children
6. Consider meeting Carpet and Rug Institute Green Label Plus criteria
7. Research and use carpet reclamation programs where available for disposal of existing carpet.
8. Minimize PVC content where possible.
9. Review life cycle costs including materials, cleaning and maintenance

Construction Standards

1. **Carpet: minimum recycled content guideline of 25%, minimum 17 ounce face weight.**
2. **Low-VOC emitting materials. Resilient VOC content limited to 340 GM/liter or less**
3. **Maximum acceptable moisture emission rate for concrete sub floors:**
    a. **Carpet and sheet vinyl – 3 lbs/1,000 sq. ft. per 24 hours or less**
    b. **VCT – 5 lbs./1,000 sq.ft.**
5. **Use water-based low VOC adhesives, sealants, and cleaning products**
6. **Sheet vinyl with backing: 0.080 inch thick**
7. **Linoleum: 0.10 inch (2.5mm) minimum thickness.**

Examples

1. Porcelain ceramic tile (CT) with recycled content
2. Quarry tile (QT)
3. Terrazzo tile with recycled content
4. Concrete finish
5. Wood (athletic)
6. Resinous Epoxy

Performance Guidelines

1. Easy to clean and stain resistant
2. Highly durable
3. Reasonably economical based on life-cycle cost analysis
4. Consider finishes and/or materials suitable for use in high traffic areas
5. Wood flooring: Use certified hardwook, slavaged wood and/or laminated or veneered wood products where possible.

Construction Standards

1. **Low-VOC emitting materials: flooring, adhesives, grouts, caulk, or sealants**
2. **Comply with ANSI ceramic tile standard**
3. **Mortars and grouts should be based upon the installation conditions and as recommended by the Tile Council of America.**
4. **Use epoxy-modified grout mixture for high moisture areas**
5. **For concrete floors use two-component, water-based, low odor, dust proofing, color pigmented epoxy sealer, or stain**
6. **Wood gym floors:**
   a. **maximum 4.5 pounds per 1,000 sq.ft. moisture emission in slab**
   b. **two year guarantee**
   c. **second and better grade, maple strip flooring**

WALL & CEILING FINISHES

Examples

1. Paints
2. Stains and transparent finishes
3. Multi-color coatings
4. Vinyl-coated fabric wall covering-PVC free
5. Acoustical wall treatment
6. Abuse-resistant acoustical panels
7. Acoustical Ceilings – recycled/recyclable
8. Metal Ceiling Panels
9. Wood Ceilings

Performance Guidelines

1. Relatively easy to clean with non-polluting materials (Low VOC emitting)
2. Use recycled content products: 100% recycled content paper facing for gypsum board when available
3. Consider initial costs and life cycle costs
4. Consider products that can be repaired or replaced by local persons
5. Specify only composite wood and agrifiber products, or products containing these as substrates, that are third-party certified to comply with formaldehyde emissions requirements in the product's ANSI standard, the Composite Panel Association Environmentally Preferable Product Standard. Or that contain no added urea formaldehyde resins. Do not use in high humidity or wet areas.
6. Consider ease of installation
7. Consider sound absorbing qualities
8. Consider use of locally available materials
9. Take care in delivery, handling, and storage of gypsum board. Prevent moisture damage.
10. Consider reflectance values of walls and ceilings.
11. Consider wall and ceiling products or systems appropriate for specific functional spaces with and acoustical properties.

Examples

1. Paints
2. Stains and transparent finishes
3. Multi-color coatings
4. Vinyl-coated fabric wall coverings-PVC free

Performance Guidelines

1. Use low VOC emitting materials
2. Easy to clean
3. Recycled and recyclable wall coverings
4. Consider light value colors to enhance day-lighting
5. Paints: Consider abrasion resistance; hide ability, odor, overall appearance and application method.

Construction Standards

1. **Use Water-based Acrylic Latex paints in lieu of solvent-based paints on non-metal surfaces.**
2. **Use Alkyd Enamel paints on metal surfaces.**
3. **Apply water-based paints within a temperature range in accordance with the manufacturer's recommendations.**
4. **Vinyl-coated fabric wall covering: total weight minimum 22 oz. /lin.yd.; adhesive VOC content of 50 GM/liter or less**
5. **Provide proper ventilation during application, curing, and occupancy**
6. **Use waterbased epoxy paints in interior areas with high humidity or subjected to surface moisture**

Examples

1. Suspended acoustic ceilings or acoustical panels
2. Sprayed-on acoustical treatment
3. Acoustical wall treatment
4. Abuse-resistant acoustical panels

Performance Guidelines

1. Good sound absorption qualities
2. Consider ceiling tiles that contain a minimum recycled content of 20%
3. Low cost ceiling application
4. Ceiling panels should have a minimum rating NRC 0.65 and CAC 35
5. Ceiling panels shall meet ASTM C 1264 for Class A materials; anti-microbial treatment is optional

Construction Standards

1. **Ceiling suspension system: Conform to ASTM C 635; main and cross runners roll-formed from cold-rolled steel sheet, prepainted. Hot-dip galvanized per ASTM A 653, G30 coating.**
2. **Ceiling panels shall meet ASTM C 1264 for Class A materials.**
3. **Ceiling panels shall have a minimum NRC 0.65 and CAC 35 rating.**
4. **Spray-on acoustical: NRC values per ASTM C423 and a maximum flame spread -15, and smoke developed -0.**
5. **Acoustical wall panels: rigid glass-fiber board and fine-grain cork core faced with fabric.**
6. **Abuse-resistant panels: flame spread less than 25; wood fibers and hydraulic cement binder composition**
7. **Specify low formaldehyde acoustical ceiling panels.**

SPECIALITIES

Performance Guidelines

1. Sturdy, well-constructed
2. Maintenance-free
3. Ability to easily replace damaged components
4. Choose quality manufacturers
5. Wide range of color selections
6. Durable, easy-to-clean finishes
7. Ceiling attachment for toilet partitions
8. Use recycled/recyclable material if available
9. Consider use of materials and products local within 500 miles of project

Examples

1. Visual display boards
2. Metal toilet compartments
3. Plastic toilet compartments
4. Fire extinguishers
5. Wire mesh security partitions
5. Standard lockers
6. Athletic lockers

Examples

1. Chalkboards
2. Marker boards
3 Tackboards
4. Fire extinguishers
5. Wire mesh partitions

Construction Guidelines

1. Chalkboards: .021 inch thick porcelain enamel steel face sheet with matt finish; 3/8 inch particleboard core; .005 inch aluminum foil backing; anodized extruded aluminum trim..
2. Marker boards: Porcelain enamel face sheet with high gloss finish; 3/8 inch particleboard core; .005 inch aluminum foil backing; anodized extruded aluminum trim.
3. Tack boards: factory built, vinyl covered, 3/8 inch industrial grade fiberboard core material; or, vinyl impregnated cork (natural or colors); with anodized extruded aluminum trim.
4. Fire extinguishers: comply with NFPA, the Arkansas Fire Prevention Code and accessibility guidelines (ADAAG) with the type and size selected for use in specific areas.
5. Wire mesh partitions: cold-rolled steel C-section channels for vertical members and steel channels for horizontal frame; 10 gauge steel wire woven into 1-½ inch diamond mesh.

Examples

1. Standard lockers
2. Athletic lockers
3. Metal toilet compartments
4. Plastic toilet compartments

Construction Guidelines

1. Standard lockers: comply with accessibility guidelines (ADAAG); form body from steel sheet; assemble locker units by bolting together; steel frames and doors; recessed handle and latch; baked enamel finish
2. Provide ADA lockers for the physically challenged in physical education area.
3. Athletic lockers: (punched type) 20 gauge sheet steel with diamond shaped perforations for sides; 20 gauge perforated steel doors; and baked enamel finish.
4. Athletic lockers: (expanded metal type) 0.0897 inch expanded metal backs, sides, and doors; baked enamel finish
5. Metal toilet compartments and urinal screens: zinc-coated steel sheet ASTM A 591, Class C consisting of 18 gauge overhead braced pilasters; 20 gauge partition panels with a sound deadening core; 22 gauge doors with stainless steel door hardware; electrostatic and baked enamel paint finish; and polished anodized aluminum rails and mounting brackets. Consider stainless steel finish only in high humidity areas where a corrosive environment exists.
6. Solid plastic toilet compartments: Solid high density polyethylene (HDPE), polypropylene (PP) or solid phenolic core construction not less than 1 inch thick. Recycled content of HDPE to be in range of 20-35%.

EQUIPMENT AND FURNISHINGS

Performance Standards

The K-12 school environment requires special needs for equipment and furnishings. These items must be strong and sturdy to last many decades. Manufacturers must specialize in these areas to meet the broad age range of students. Safety of their products is essential and they must meet standards, codes, and accessibility guidelines.

With casework, environmentally preferable product alternates should be utilized, such as oriented strand board and recycled plastic. Equipment and furnishings must be as maintenance-free as possible and easily cleaned.

Examples

1. Theater and stage equipment
2. Projection screens
3. Athletic equipment
4. Educational casework
5. Science casework
6. Telescoping bleachers

Components

1. Theater and stage equipment
2. Projection screens
3. Athletic equipment

Standards

1. **Material: woven velour fabric.**
2. **Fabrics shall be flame resistant.**
3. **Curtain tracks as recommended by manufacturer**
4. **Stage rigging and fire curtain systems shall meet all fire and life-safety codes and OSHA safety requirements.**

Guidelines

1. Theater-electrically operated projection screen: 3 position control switch with metal device box for flush wall mounting and for connection to 120v, AC power supply; screen same as manual screen
2. Manual, front projection screen: matte white, vinyl coated glass fiber fabric complying with FSGG-5-00172D for Type A screen surface; 80 inches by 60 inches in classrooms
3. Athletic equipment to comply with National Federation of State High School Associations
4. Basketball backboards: 72 inch by 42 inch, ½ inch thick transparent, tempered glass
5. Wall-mounted safety pads: 14 ounce PVC coated polyester or nylon reinforced PVC fabric; pad cover over 2 inches, 6 lb. density polyurethane over composite panel

EDUCATIONAL CASEWORK AND BLEACHERS

Components

1. Educational casework
2. Science casework
3. Telescoping bleachers

Standards

1. **Casework shall conform to ADAGG guidelines and state and local regulations**
2. **Countertops shall not deflect more than ¼ inch when a 100 lb. /ft. load is applied**
3. **Shelving shall be capable of supporting 25 lbs./sq.ft.**
4. **Countertops shall be .048 inch thick plastic laminate conforming to NEAM HG5.**
5. **Exposed surfaces shall be .028 inches thick plastic laminate conforming to NEMA NG5.**
6. **Hardware: conform to ADAAG; standard finish, commercial quality, heavy duty**
7. **Provide five (5) year warranty on casework**
8. **Lab casework: solid wood and plain sliced veneer plywood, or high pressure plastic laminate NEMA LD3**
9. **Countertops: 1 inch thick, epoxy resin and cast epoxy resin sinks**
10. **Locks: cylinder type, 5 disk tumbler mechanism**
11. **Hinges: 5 knuckle with hospital tips, .090 inch steel, 270 degree swing complying with BHMA 156.9, Grade 1**
12. **Telescoping bleachers shall comply with NFPA 102, Chapter 5, "Folding and Telescopic Seating"**
13. **Provide five (5) year warranty for bleachers**

Guidelines

1. Recycled/recyclable
2. Formaldehyde free
3. Local materials (within 500 miles)
4. Low VOC
5. Molded polyethylene plastic seats

PLUMBING DESIGN CRITERIA

General Guidelines

1. This section establishes the minimum design requirements that must be met by the Plumbing Design Professional. Minimum code requirements are the current edition of the Arkansas State Plumbing and Gas Codes. Local codes and standards may take precedence over these requirements provided said codes and standards are considered more stringent.
2. All systems shall be designed in compliance with the current Arkansas Energy Code.

Site Design Parameters Guidelines

1. Determination of the available site services with regard to gas service, sanitary systems, storm water systems, domestic water system, and fire service system is necessary as a part of the site selection process.
2. The building plumbing system design is to be complete to 5 feet outside the perimeter of the building foundation system and shall include all piping, fixtures, appurtenances, and appliances in connection with a supply of water (except for fire sprinkler systems), sanitary drainage or storm drainage facilities within or adjacent to any building, structure, or conveyance on the premises. The connection to a utility water meter or other public water or sewer utility property or other source of water supply or sewage disposal and storm water structures shall be designed by the Site Utility Design Professional from 5 feet outside the perimeter of the building foundation system. Food service grease interceptors, science room acid neutralizing sumps, and gas piping and regulators, shall be designed, in most cases, by the Plumbing Design Professional.
3. The Plumbing Design Professional is required to evaluate the need and method to provide gas service to the building. All natural gas piping systems shall be installed in accordance with the Arkansas Gas Code. If natural gas service is not available, the installation of liquid propane gas should be investigated. The estimated gas loads for operation of the heating water boilers, domestic water heaters, food service equipment, science program usage, and miscellaneous items are obtained from the appropriate disciplines by the Plumbing Design Professional and totaled with the inclusion of a growth or safety factor. Discussion with the local gas company is necessary, both to determine potential service costs and to determine the responsibilities of the building owner and the gas company regarding installation. It is also important to determine the gas pressure requirements for the equipment in the building and communicate this need to the gas company. The Plumbing Design Professional or Site Utility Design Professional shall design the gas service.

Valving Standards

1. **Valves will be installed to isolate individual plumbing fixtures and groups of plumbing fixtures to permit shut down of the fixture or equipment item without affecting the remainder of the building.**
2. **The domestic water system valves shall be bronze construction gate valves or valves with a ball-type conventional port.**
3. **The gas supply to science rooms and art rooms shall have an emergency solenoid-type, automatic shutoff valve with a manual reset. The purpose of the valve is for shut down of the gas in case of an emergency or when the fire alarm system is activated. A solenoid-type, automatic shutoff valve with a manual reset shall be installed to shut the gas off to the appliances under the kitchen hood in the event there is a fire under the hood. The valves are designed normally closed and are held open by an electric solenoid valve. A mushroom-type wall switch shall be located in the room for solenoid activation.**

Hangers Standards

1. **Provide hangers for all horizontal, suspended, domestic, water, gas, sanitary, and storm piping with distances as noted in the state and local codes.**

Identification Guidelines

1. Piping shall be identified in mechanical rooms, unfinished spaces without ceilings, above suspended lay-in acoustical ceilings, and crawl spaces for the type of service and direction of flow. Equipment shall be identified with nameplates.

Testing Guidelines

1. Domestic water, storm and sanitary sewers, and gas piping shall be tested per state and local codes.

Potable Water System Standards

1. **All buildings shall include a potable domestic water system serving all sinks, toilets, showers, food service, custodial needs, hose bibs, HVAC plant systems, and drinking water coolers/fountains. All municipal domestic water entering the building must pass through a reduced pressure backflow preventer to protect the outside water source from contamination in the building. Whenever possible, the backflow device shall be located inside the building. A main pressure-reducing valve is required if the incoming water pressure exceeds 75 psi. All backflow prevention devices shall be installed and maintained in accordance with the**

requirements of the Arkansas Department of Health and/or the municipal water purveyor.

2. **Water distribution throughout the facility will be through piping systems located above ceiling areas and below insulation. Piping installed under slab areas shall be avoided where possible, unless accessible for maintenance on the system.**
3. **Domestic water systems within the building shall be Type K or L copper tubing. The use of polyvinyl chloride, chlorinated polyvinyl chloride, or polybutylene material will not be permitted.**
4. **Water piping and gas piping to island sinks shall be in an accessible trench in the floor with a removable cover.**
5. **The required pressure for operation of the furthest fixture from the incoming service will determine if a pressure booster system will be required. The booster system should be a packaged unit that includes all controls. Provide a constant-speed duplex pump package with bladder-type compression tank to meet the flow requirements. It will be necessary to consider the installation of an emergency power system in order to maintain the operation of the booster system in the event of power outages, if the building is to be used during emergency-type occupancies. Coordination with the Electrical Design Professional will be necessary.**
6. **Insulate the piping to minimum requirements of current Arkansas Energy Code.**

Domestic Water Heater System Standards

1. **A hot water return system with a re-circulating pump shall be required if the building hot water piping is more than 100 feet in length.**
2. **The on/off operation of the 120 and 140 degrees Fahrenheit water circulation pumps shall be controlled by time clock operation and an aquastat.**
3. **Instantaneous water heaters with a storage tank shall be required for high use applications in buildings with kitchens and/or shower room facilities. Tank-type water heaters shall be considered for use in elementary school applications having no dishwasher facilities and no locker rooms.**
4. **The use of thermostatic mixing valves is required to maintain hot water temperature consistent with the plumbing code requirement of a maximum of 110 degrees Fahrenheit water to hand washing sinks and 120 degrees Fahrenheit water to showers. Use a single valve or a high/low valve system based on minimum and maximum flow rates.**
5. **Provide a building-wide hot water system; instantaneous water heater for remote locations.**

Water Conditioning and Softening Systems Guidelines

1. The water shall be tested for quality to determine the makeup of the water including hardness, mineral content, and chemicals. The recommendation for installation of a water conditioning/softening system should be directly related to the results of the water testing. A total hardness of less than 10 grains will not require a softener system.
2. If the grain hardness is above 10 grains per gallon (171 ppm), the water softener shall be sized to reduce the hardness to 10 grains, but never below 6 grains. Soften the hot water only.
3. Review with school personnel before incorporating water softening in the design. A complete water conditioning system, including iron filters, may be necessary in the event the water has high iron content from an on-site well system.

Sanitary Piping System Standards

1. **Piping materials shall include Schedule 40 polyvinyl chloride with solvent joints; cast iron no hub; or cast iron, hub and spigot.**
2. **Fill material around piping below slab shall be compacted granular material to 95 percent-modified proctor. Piping shall not be installed parallel/directly under walls.**
3. **Piping above grade shall be cast iron, no hub with approved hanger spacing or schedule 40 PVC except in any plenum.**
4. **Acid waste piping below grade will be Schedule 40 polypropylene with fusion joints or CPVC with solvent cement joints. All acid waste piping above grade shall be Schedule 40 polypropylene with mechanical joints or CVPC with solvent cement joints. Acid waste piping in plenum applications shall be fire- and smoke-rated. Acid neutralizing sumps shall be located on the exterior of the building with access to grade.**
5. **Provide information to the Site Design Professional as to the depth of the sewer(s) exiting the building. Provide information to the Structural Design Professional as to the location and depths of the sewer in relationship to footings and columns as they pertain to the project.**

Gas Piping Systems Standards

1. **Gas piping shall be Schedule 40 black steel with screw fittings for piping 2 inches or less and welded fittings for piping 2 1/2 inches or larger.**
2. **Gas piping in plenums shall not contain valves or unions.**
3. **A gas regulator shall be provided to maintain the correct inlet pressure to each gas appliance. The inlet and outlet piping to each regulator shall be valved with Arkansas Gas Code approved valves.**
4. **The maximum gas pressure into the building shall be as established by the local gas company. Provide the gas company with the gas load for each appliance, and the minimum and maximum operating pressures for each appliance early in the design process**

5. **Provide a valve and a dirt leg at each appliance connection.**
6. **LP gas piping shall not be concealed.**
7. **Natural gas piping to island sinks shall be in an accessible trench in the floor with a removable cover.**

Roof Drain and Storm Sewer Systems Standards

1. **Piping materials shall include Schedule 40 polyvinyl chloride with solvent joints; cast iron, no hub or cast iron, hub and spigot.**
2. **Fill material around piping below slab shall be compacted granular material to 95 percent-modified proctor. Piping shall not be installed parallel/directly under walls.**
3. **Piping above grade shall be cast iron, no hub, with approved hanger spacing.**
4. **Provide connections to all roof drains.**
5. **Provide information to the Site Design Professional as to the depth of the sewer(s) exiting the building. Provide information to the Structural Design Professional as to the location and depths of the sewer in relationship to footing and column pass as they pertain to the project.**

Plumbing Systems for Food Service Areas Standards

1. **Ware washing system will have a booster heater to provide 180-degree water unless the system utilizes a chemical dishwasher**
2. **Provide 3-compartment sink with 110-degree water.**
3. **Provide a grease interceptor on the sanitary sewer line serving the food service area. The grease interceptor shall be located on the exterior of the building and will be sized for a 500-gallon minimum capacity, constructed of concrete or cast iron with access to grade. Interceptor shall meet the Arkansas Plumbing Code and Local requirements. Locate the interceptor as close to the building as practical.**
4. **Provide 140-degree water to all kitchen equipment except hand washing lavatories and sinks.**

Building Fire Protection Systems Standards

1. **All buildings shall have a complete fire suppression (sprinkler) system throughout in accordance with NFPA 13, 14 and 20 when dictated by the Design Professional. Available static water pressure, residual pressure, and water flow must be evaluated as a part of this determination.**
2. **Installation of a water storage system along with the fire pump installation may be required where insufficient water, flow, and pressure are present.**
3. **A backflow preventer shall be included on all incoming systems.**

Plumbing Fixtures and Specialties Standards

1. **Water closets shall be china, white, hand operated or battery or hardwired infrared flush valve, wall hung or floor mounted, and low water consumption type.**
2. **Urinals shall be china, white, hand operated or battery/ hardwired infrared flush valve, wall hung or floor mounted, and low water consumption type. Waterless urinals are optional.**
3. **Lavatories shall be wall or counter mounted china and shall have cast brass hand operated or battery or hardwired infrared faucet. Temperature control shall be integral with the faucet or remote mixed. (See Domestic Water Heater System Standards)**
4. **Showers shall be low water consumption, pressure-balanced type.**
5. **Drinking water coolers/fountains shall be refrigerated and conform to ADA standards.**
6. **Sinks shall be 18-gauge, 302 or 304 stainless steel.**
7. **Science lab sinks shall be connected with acid-resistant material. The science casework manufacturer shall provide sinks.**
8. **Large group restrooms shall be provided with lavatories or a comparably sized wash fountain with infrared sensing or manual operation.**
9. **All plumbing fixtures and trim designed or designated for use by the handicapped shall meet the Americans with Disabilities Act guidelines.**
10. **Water supply (hot and/or cold) to the lavatories, sinks, and drinking fountains shall have angle stops with loose key handles.**
11. **All lavatories, water closets, and urinals shall have wall carriers.**
12. **Floor drains shall be installed in each restroom (except single person toilet room), locker room, mechanical room, and kitchen area. Provide a sediment bucket in the floor drain if conditions exist where solids may enter the drain.**
13. **Sanitary and storm sewer cleanouts shall be installed at 50 feet on center inside and outside the building, and at changes in direction of 90 degrees or more, at the bottom of vertical risers and as the sewer exits the building.**
14. **Showers shall have a hot and cold, single lever pressure balancing valve with a vandal-resistant head.**
15. **Service sinks shall be floor-mounted, molded stone, 10 inches high, with a wall-mounted faucet, except as provided in Item 21.**
16. **Install a cold water hose bib in each large group restroom, locker room, and mechanical room. The hose bib shall be surface mounted behind a lockable door in restrooms and locker rooms, with access by a removable key handle.**
17. **Reduced pressure backflow preventers are required on the water supplies to each HVAC makeup water system.**

18. **A water pressure reducing station requiring 2 pressure reducing valves sized for 1/3 and 2/3 flows shall maintain the water pressure in the building to a maximum of 75 psi, if the incoming water pressure can exceed 75 psi.**
19. **Clay traps shall be provided in art rooms to prohibit clay and solids from entering the sanitary sewer. The clay trap shall be accessible to clean out the trap.**
20. **Trap primers or trap guards shall be required for all traps inside the building. Trap primers or trap guards shall be accessible for repair.**
21. **Provide floor drain sinks with hinged covers in custodial closets and the main mechanical room for emptying of the power floor cleaning units, where those devices are used.**

SPECIALITIES

Performance Guidelines

1. Sturdy, well-constructed
2. Maintenance-free
3. Ability to easily replace damaged components
4. Choose quality manufacturers
5. Wide range of color selections
6. Durable, easy-to-clean finishes
7. Ceiling attachment for toilet partitions
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Examples

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3. Plastic toilet compartments
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6. Athletic lockers

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Valving Standards

1. **Valves will be installed to isolate individual plumbing fixtures and groups of plumbing fixtures to permit shut down of the fixture or equipment item without affecting the remainder of the building.**
2. **The domestic water system valves shall be bronze construction gate valves or valves with a ball-type conventional port.**
3. **The gas supply to science rooms and art rooms shall have an emergency solenoid-type, automatic shutoff valve with a manual reset. The purpose of the valve is for shut down of the gas in case of an emergency or when the fire alarm system is activated. A solenoid-type, automatic shutoff valve with a manual reset shall be installed to shut the gas off to the appliances under the kitchen hood in the event there is a fire under the hood. The valves are designed normally closed and are held open by an electric solenoid valve. A mushroom-type wall switch shall be located in the room for solenoid activation.**

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requirements of the Arkansas Department of Health and/or the municipal water purveyor.

2. **Water distribution throughout the facility will be through piping systems located above ceiling areas and below insulation. Piping installed under slab areas shall be avoided where possible, unless accessible for maintenance on the system.**
3. **Domestic water systems within the building shall be Type K or L copper tubing. The use of polyvinyl chloride, chlorinated polyvinyl chloride, or polybutylene material will not be permitted.**
4. **Water piping and gas piping to island sinks shall be in an accessible trench in the floor with a removable cover.**
5. **The required pressure for operation of the furthest fixture from the incoming service will determine if a pressure booster system will be required. The booster system should be a packaged unit that includes all controls. Provide a constant-speed duplex pump package with bladder-type compression tank to meet the flow requirements. It will be necessary to consider the installation of an emergency power system in order to maintain the operation of the booster system in the event of power outages, if the building is to be used during emergency-type occupancies. Coordination with the Electrical Design Professional will be necessary.**
6. **Insulate the piping to minimum requirements of current Arkansas Energy Code.**

Domestic Water Heater System Standards

1. **A hot water return system with a re-circulating pump shall be required if the building hot water piping is more than 100 feet in length.**
2. **The on/off operation of the 120 and 140 degrees Fahrenheit water circulation pumps shall be controlled by time clock operation and an aquastat.**
3. **Instantaneous water heaters with a storage tank shall be required for high use applications in buildings with kitchens and/or shower room facilities. Tank-type water heaters shall be considered for use in elementary school applications having no dishwasher facilities and no locker rooms.**
4. **The use of thermostatic mixing valves is required to maintain hot water temperature consistent with the plumbing code requirement of a maximum of 110 degrees Fahrenheit water to hand washing sinks and 120 degrees Fahrenheit water to showers. Use a single valve or a high/low valve system based on minimum and maximum flow rates.**
5. **Provide a building-wide hot water system; instantaneous water heater for remote locations.**

Water Conditioning and Softening Systems Guidelines

1. The water shall be tested for quality to determine the makeup of the water including hardness, mineral content, and chemicals. The recommendation for installation of a water conditioning/softening system should be directly related to the results of the water testing. A total hardness of less than 10 grains will not require a softener system.
2. If the grain hardness is above 10 grains per gallon (171 ppm), the water softener shall be sized to reduce the hardness to 10 grains, but never below 6 grains. Soften the hot water only.
3. Review with school personnel before incorporating water softening in the design. A complete water conditioning system, including iron filters, may be necessary in the event the water has high iron content from an on-site well system.

Sanitary Piping System Standards

1. **Piping materials shall include Schedule 40 polyvinyl chloride with solvent joints; cast iron no hub; or cast iron, hub and spigot.**
2. **Fill material around piping below slab shall be compacted granular material to 95 percent-modified proctor. Piping shall not be installed parallel/directly under walls.**
3. **Piping above grade shall be cast iron, no hub with approved hanger spacing or schedule 40 PVC except in any plenum.**
4. **Acid waste piping below grade will be Schedule 40 polypropylene with fusion joints or CPVC with solvent cement joints. All acid waste piping above grade shall be Schedule 40 polypropylene with mechanical joints or CVPC with solvent cement joints. Acid waste piping in plenum applications shall be fire- and smoke-rated. Acid neutralizing sumps shall be located on the exterior of the building with access to grade.**
5. **Provide information to the Site Design Professional as to the depth of the sewer(s) exiting the building. Provide information to the Structural Design Professional as to the location and depths of the sewer in relationship to footings and columns as they pertain to the project.**

Gas Piping Systems Standards

1. **Gas piping shall be Schedule 40 black steel with screw fittings for piping 2 inches or less and welded fittings for piping 2 1/2 inches or larger.**
2. **Gas piping in plenums shall not contain valves or unions.**
3. **A gas regulator shall be provided to maintain the correct inlet pressure to each gas appliance. The inlet and outlet piping to each regulator shall be valved with Arkansas Gas Code approved valves.**
4. **The maximum gas pressure into the building shall be as established by the local gas company. Provide the gas company with the gas load for each appliance, and the minimum and maximum operating pressures for each appliance early in the design process**

5. **Provide a valve and a dirt leg at each appliance connection.**
6. **LP gas piping shall not be concealed.**
7. **Natural gas piping to island sinks shall be in an accessible trench in the floor with a removable cover.**

Roof Drain and Storm Sewer Systems Standards

1. **Piping materials shall include Schedule 40 polyvinyl chloride with solvent joints; cast iron, no hub or cast iron, hub and spigot.**
2. **Fill material around piping below slab shall be compacted granular material to 95 percent-modified proctor. Piping shall not be installed parallel/directly under walls.**
3. **Piping above grade shall be cast iron, no hub, with approved hanger spacing.**
4. **Provide connections to all roof drains.**
5. **Provide information to the Site Design Professional as to the depth of the sewer(s) exiting the building. Provide information to the Structural Design Professional as to the location and depths of the sewer in relationship to footing and column pass as they pertain to the project.**

Plumbing Systems for Food Service Areas Standards

1. **Ware washing system will have a booster heater to provide 180-degree water unless the system utilizes a chemical dishwasher**
2. **Provide 3-compartment sink with 110-degree water.**
3. **Provide a grease interceptor on the sanitary sewer line serving the food service area. The grease interceptor shall be located on the exterior of the building and will be sized for a 500-gallon minimum capacity, constructed of concrete or cast iron with access to grade. Interceptor shall meet the Arkansas Plumbing Code and Local requirements. Locate the interceptor as close to the building as practical.**
4. **Provide 140-degree water to all kitchen equipment except hand washing lavatories and sinks.**

Building Fire Protection Systems Standards

1. **All buildings shall have a complete fire suppression (sprinkler) system throughout in accordance with NFPA 13, 14 and 20 when dictated by the Design Professional. Available static water pressure, residual pressure, and water flow must be evaluated as a part of this determination.**
2. **Installation of a water storage system along with the fire pump installation may be required where insufficient water, flow, and pressure are present.**
3. **A backflow preventer shall be included on all incoming systems.**

Plumbing Fixtures and Specialties Standards

1. **Water closets shall be china, white, hand operated or battery or hardwired infrared flush valve, wall hung or floor mounted, and low water consumption type.**
2. **Urinals shall be china, white, hand operated or battery/ hardwired infrared flush valve, wall hung or floor mounted, and low water consumption type. Waterless urinals are optional.**
3. **Lavatories shall be wall or counter mounted china and shall have cast brass hand operated or battery or hardwired infrared faucet. Temperature control shall be integral with the faucet or remote mixed. (See Domestic Water Heater System Standards)**
4. **Showers shall be low water consumption, pressure-balanced type.**
5. **Drinking water coolers/fountains shall be refrigerated and conform to ADA standards.**
6. **Sinks shall be 18-gauge, 302 or 304 stainless steel.**
7. **Science lab sinks shall be connected with acid-resistant material. The science casework manufacturer shall provide sinks.**
8. **Large group restrooms shall be provided with lavatories or a comparably sized wash fountain with infrared sensing or manual operation.**
9. **All plumbing fixtures and trim designed or designated for use by the handicapped shall meet the Americans with Disabilities Act guidelines.**
10. **Water supply (hot and/or cold) to the lavatories, sinks, and drinking fountains shall have angle stops with loose key handles.**
11. **All lavatories, water closets, and urinals shall have wall carriers.**
12. **Floor drains shall be installed in each restroom (except single person toilet room), locker room, mechanical room, and kitchen area. Provide a sediment bucket in the floor drain if conditions exist where solids may enter the drain.**
13. **Sanitary and storm sewer cleanouts shall be installed at 50 feet on center inside and outside the building, and at changes in direction of 90 degrees or more, at the bottom of vertical risers and as the sewer exits the building.**
14. **Showers shall have a hot and cold, single lever pressure balancing valve with a vandal-resistant head.**
15. **Service sinks shall be floor-mounted, molded stone, 10 inches high, with a wall-mounted faucet, except as provided in Item 21.**
16. **Install a cold water hose bib in each large group restroom, locker room, and mechanical room. The hose bib shall be surface mounted behind a lockable door in restrooms and locker rooms, with access by a removable key handle.**
17. **Reduced pressure backflow preventers are required on the water supplies to each HVAC makeup water system.**

18. **A water pressure reducing station requiring 2 pressure reducing valves sized for 1/3 and 2/3 flows shall maintain the water pressure in the building to a maximum of 75 psi, if the incoming water pressure can exceed 75 psi.**
19. **Clay traps shall be provided in art rooms to prohibit clay and solids from entering the sanitary sewer. The clay trap shall be accessible to clean out the trap.**
20. **Trap primers or trap guards shall be required for all traps inside the building. Trap primers or trap guards shall be accessible for repair.**
21. **Provide floor drain sinks with hinged covers in custodial closets and the main mechanical room for emptying of the power floor cleaning units, where those devices are used.**

HVAC DESIGN CRITERIA

General Standards

A. The heating, ventilating, and air conditioning system design standards criteria denoted as a part of this Design Manual have been developed or are obtained directly from accepted engineering design references such as the ASHRAE handbooks and standards, the state of Arkansas code references, and good engineering practice. School HVAC system plans and specifications shall be prepared by a licensed professional engineer with a valid Arkansas registration. The HVAC Design Professional should review each requirement and obtain or develop the necessary information for each specific building before proceeding with the systems design.

B. All systems shall be designed in compliance with ASHRAE Standard 90.1 "Energy Standard for Buildings except Low-Rise Residential Buildings", as modified by the Arkansas Energy Code.

C. All HVAC products shall be rated in accordance with the applicable ARI rating program (where rating has been established). or products manufactured in compliance with policies of the Arkansas HVACR Licensing Board and in compliance with Arkansas Law.

D. All new construction shall include air-conditioning except in some physical education and indoor practice facility spaces as hereinafter defined. Variances will be considered by the Division upon request.

System Selection Life Cycle Cost Analysis Guidelines

A. Several HVAC systems are applicable to Arkansas Schools. System selection shall be based on a life cycle cost analysis of a minimum of three alternative systems. This requirement for System Selection Life Cycle Cost Analysis applies to New Construction, including new buildings and additions to existing buildings, and the replacement to upgrade HVAC units in existing buildings when the cumulative cooling tonnage exceeds 16 tons. The Life Cycle Cost Analyses shall be submitted with the project final review documents. This analysis may be considered as an extra service to the design contract.

B. The following are examples of acceptable programs for use in generating a detailed evaluation of proposed heating, ventilating, and air conditioning systems. Further, the building load calculations necessary for the design of each building will require the use of computer-generated data. Equivalent computer programs that are able to generate the necessary data for evaluation of the proposed heating, ventilating, and air conditioning systems and for generation of the building load data will be considered, but must be submitted for approval prior to use.

1. Trane Trace 700 (or the most recent version of Trane Trace).
   a. The Trane Trace 700 program is a PC based program used by the HVAC Design Professional for generation of detailed building system air conditioning loads, energy consumption analysis, and economic analysis. The current version can be obtained from the Trane Company, Customer Direct Service (CDS) Network, La Crosse, WI, (608) 787-2000.

2. Carrier HAP (Or the most recent version of Carrier HAP).
   a. The Carrier Hourly Analysis Program is a PC based program used by the HVAC Design Professional for generation of detailed building system air conditioning loads, energy consumption analysis, and economic analysis. The current version can be obtained by contacting the local Carrier equipment representative or by calling Software Systems Network, Syracuse, NY, (315) 432-7072.
3. DOE-2.E
   a. The DOE-2.E is a detailed energy analysis program developed through the United States Department of Energy. A number of vendors across the country have developed software that operates to meet the intent of the DOE-2.E program.

C. Occupancy loads and schedules will mirror the building usage schedules. Input occupancy shall be calculated at 90 percent of capacity during normal school hours for classroom areas and the administration area. After hours occupancy can be considered negligible in these areas. Activity areas such as gymnasiums should be calculated at no more than 25 percent of the full load capacity during unoccupied operation.

D. Lighting systems shall be consistent throughout the building. The lighting load shall be input for consideration as a cooling load only, and should not be used to credit the winter heating load. Lighting loads shall comply with the Arkansas Energy Code. The HVAC Design Professional shall coordinate and review proposed lighting requirements for each building with the Electrical Design Professional prior to generating a final energy load analysis. Usage of the lighting systems should mirror the occupancy scheduling for each area in the building.

E. Computer locations and expected usage will impact every building designed. All classroom areas will be wired for computers. Include a minimum of 280 watts for each computer station in the building. This load includes the total expected heat gain for a desktop computer and color monitor.

Outdoor Air Design Values Guidelines

A. Summer and winter outside air design values shall be derived from standard ASHRAE compiled weather data located in the latest edition of the ASHRAE Fundamentals Handbook. The city nearest the proposed construction project is to be selected for evaluation. Use the 99.6 percent design values for heating design dry-bulb and the 1 percent design values for cooling design dry-bulb and mean coincidental wet-bulb. To determine the maximum ventilation capacity, use the 1 percent design values for Humidification design dew point and mean coincident dry bulb.

Indoor Air Design Values Guidelines

A. Indoor air temperature design values must reflect the need for energy conservation and shall be in accordance with the Arkansas Mechanical Code and the Arkansas Energy Code.

B. Design shall produce indoor conditions in accordance with ASHRAE Standard 55 “Thermal Environmental Conditions for Human Occupancy”.

C. Night setback controls shall be used for all systems. Winter setback temperature shall be 55 degrees Fahrenheit. The summer setup temperature shall operate as required to maintain a relative humidity in the building area that does not exceed 60 percent. Maintaining humidity levels below 60 percent will result in the periodic operation of the HVAC system during the summer months to reduce the potential for mold and mildew in the building.

Outdoor Air Ventilation Requirements Standards

A. Outdoor ventilation rates shall be calculated for each occupied space and shall conform to the requirements of the Arkansas Mechanical Code minimum ventilation rates. The only exception will be an engineered ventilation system design with written approval of exception by the Arkansas HVACR Board.

B. **Each system shall include controls for a 100 percent economizer cycle to cool the building when dictated by the Arkansas Energy Code.**

C. Energy recovery shall be used as a part of the design for classroom, gymnasium, locker room, and student dining systems to reduce the energy consumption required to provide the necessary outdoor ventilation rates when required by the Arkansas Energy Code.

D. Carbon dioxide levels may be monitored through the direct digital temperature control system for proof of system operation to maintain a carbon dioxide level in the building as recommended by ASHRAE Standard 62. The use of space specific carbon dioxide sensors are recommended for this operation. Return air sensors may be considered when a unit serves multiple spaces provided accurate readings can be obtained. It is not the intention of this guideline to require the use of carbon dioxide sensors for a reduction of outside air quantities below the calculated minimum air flow requirements.

E. Ventilation air <u>MUST</u> be conditioned for temperature and humidity control. Acceptable methods are dedicated OSA units, energy recovery ventilators, hot gas humidity control in packaged units and OSA conditioned in an air handling system.

Temperature Control Systems

A. All temperature control systems installed shall be electronic, direct digital controls. Pneumatic control systems will not be permitted. Each facility will be provided with the means to access the control system software with a desktop or laptop computer. It will be necessary for the HVAC Design Professional to advise the school district of
the options for control and management of the building available through the direct digital control system. Building additions where less than 50% of the square footage is being added to a school campus without a DDC system may use electronic night set back thermostats.

B. Thermostatic zoning shall be developed using good engineering practice. Dissimilar spaces shall not be grouped on the same thermostat. Each classroom shall be an independent zone. Other zones may also be required to be separately thermostatically

controlled. Carefully review space requirements for these requirements. Occupied/unoccupied scheduling shall be based on the associated air handling system. Each thermostat zone associated with digital control shall have a means to override the schedule for temporary occupancy.

C. The direct digital control system shall be capable of performing time of day scheduling, night set-back, holiday scheduling and demand limiting.

D. The ventilation system control shall be set through the central direct digital controller based on global outside air temperature and humidity to maintain indoor relative humidity below 60 percent.

E. The direct digital control system shall be designed to place emergency calls to designated school personnel in the event of equipment failure.

F. Options shall be investigated with each direct digital control system for the operation of exterior, corridor, and restroom lighting systems through the energy management computer.

Interior and Exterior Noise Control Guidelines

A. Interior HVAC acoustic design shall not cause indoor sound levels to exceed NC30. Classrooms and other instructional spaces shall be ducted supply to at least four (4) supply air devices.

B. The location of exterior mechanical equipment shall be reviewed by the Design Professional for its sound impact, both inside and outside the building.

C. Exterior equipment operation shall not cause indoor sound levels to exceed specified levels for the space.

D. Exterior sound levels shall be in compliance with the local governmental ordinances. When these values are not governed, the sound level created by the equipment shall not exceed 70 dB measured at the property line.

Equipment Accessibility Standard

A. Access and service space per mechanical equipment shall be in accordance with the Arkansas Mechanical Code.

Closeout Documents Guidelines

A. O & M Manuals shall be provided in duplicate for the School District. Manuals shall contain approved shop drawings, operations and maintenance instructions and parts manuals for all HVAC equipment.

B. The contractor shall maintain and provide to the School District an accurate set of design plans showing all construction revisions to the design set.

Physical Education and Indoor Practice Facility Guidelines

A. Gymnasiums may be heated and ventilated rather than being provided with mechanical cooling when the HVAC systems are effectively separated from other areas of the building.
B. Indoor Practice Facilities shall be heated and ventilated.
C. Ventilation systems must provide ten air changes per hour in spectator facilities.
D. Ventilation systems must provide five changes per hour in non-spectator spaces.
E. The ventilation must provide intake air near playing floor level and exhaust air at the opposite high wall of the space.
F. Ancillary spaces such as offices and locker rooms shall be served by separate HVAC systems.

Energy Usage Standards

A. All systems shall be designed in compliance with the current ASHRAE Standard 90.1 "Energy Standard for Building Except Low-Rise Residential Buildings", and the energy usage requirements prescribed by the Arkansas Energy Code and the Department of Energy.

Electrical Distribution Standards

A. **Electrical systems distributed throughout the building shall be based upon the 480-volt or 208-volt, three-phase, grounded wye configuration except electrical system extensions in existing buildings may match existing criteria.**

B. Transient voltage surge protection and lightning arrester devices shall be located on main service distribution equipment.

C. Current carrying conductors shall be a minimum No. 12 American Wire Gauge, except for systems wiring such as fire alarm, data, telephone, etc. Conductors shall only be copper Aluminum Stabilloy may be utilized in lieu of copper conductors from the utility transformer to the building main disconnect switch. Terminations must be listed compression connectors using a compatible oxide inhibitor. A school district shall put in place and submit to the division a maintenance plan for annual review of all terminations by qualified personnel. Conductor size No. 12 and No. 10 must be solid type, except where flexibility is required, such as at motors. Conductors larger than No. 10 shall be stranded. Aluminum lugs for terminating copper conductors are acceptable, if labeled for that purpose.

D. Current carrying conductors shall be installed in conduit systems conforming to the National Electrical Code, latest edition.

E. Continuous equipment grounding conductors shall be installed in all circuits bonded to all ground lugs, bussing, switches, receptacles, equipment frames, etc., per the National Electrical Code. The main facility grounding field electrode system to ground shall be 5 ohms or less.

F. Electrical systems main service equipment shall be designed with a minimum 25 percent spare amperage capacity and 20 percent spare space capacity. Panel board loads shall not exceed 75 percent of amperage capacity and each panel shall be provided with a minimum of 6 spare overcurrent protection devices. Provide spare overcurrent protection devices in branch distribution panel boards and main service equipment boards.

G. Electrical energy distribution equipment shall be located in dedicated electrical or mechanical rooms. Main electrical service (switchboards) distribution equipment shall not be located in the main heating or cooling generating room. Branch circuit distribution panel boards recessed in corridor walls will not be acceptable. Provide exterior lockable Main Disconnecting means.

H. Coordinate service entrance requirements with local utility service companies for electrical energy, telephone, and cable television.

I. Dry type transformers shall be NEMA TP-1/TP-2 compliant energy efficient type.

J. **Electrical branch circuits to 5 horsepower, 3-phase, and larger motors for air-handling units, exhaust fans, pumps, chillers, and condensing units shall be provided with phase loss protection. Protection shall prevent equipment from single phasing. Phase loss protection equipment shall be integral to starters or variable frequency drives serving the equipment.**

K. **Voltage drop for feeders between the service entrance equipment and the branch circuit distribution equipment shall conform to the requirements of The Arkansas Energy Code.**

L. **The intent of connecting emergency power to selected components of the HVAC system is to provide an opportunity to limit damage from freezing weather during a power outage of short duration. The following components are not required to be connected to the emergency power source and are optional within budgets:**

1. **Air handling unit pre-heat coil (heating coil)**
2. **Cooling tower basin heaters.**
3. **Chilled water circulating pump, when used for chiller freeze protection.**

Independent, separate raceway, wiring, and transfer switches shall be provided for emergency life safety systems and non-emergency life safety systems.

M. **Consideration to run all branch circuit and feeder conduits within buildings above ceilings and within walls shall be taken. No conduits are permitted in or below slabs unless serving a device or millwork that requires it. Conduit shall be ¾" minimum trade size. MC cable may be used for "lighting whips" of lengths less 6'0". EMT conduit should be used within walls and above ceilings to ease future circuit and technology upgrades.**

N. **PVC conduit is not allowed except for the underground portion of the incoming utility service to the buildings. It must then be encased in 3" of concrete. All elbows and risers to 6" above finished floor in PVC conduit runs must be rigid steel. PVC elbows are not allowed.**

Lighting Standards

A. **Interior instructional spaces shall be artificially illuminated with energy-efficient and high-efficiency fluorescent light fixtures utilizing low harmonic electronic ballasts and low-mercury certified lamps.**

B. **High volume spaces such as gymnasiums, student dining, etc., shall be illuminated with high-efficiency, high-intensity discharge lamp type light fixtures; or, an equal or better energy efficient fluorescent luminaire that maintains or increases light levels. Fluorescent luminaires which are at least as efficient as high-intensity discharge fixtures are recommended over seating areas. Quartz restrike options shall be incorporated into some fixtures to provide an average of 2 foot-candles of illumination during the cool-down/warm-up (restrike) period caused by momentary electrical outages.**

C. **The minimum illumination (foot-candle) levels shall conform to the established Illuminating Engineers Society of N.A. guidelines. See illumination chart at the end of this section. Foot-candle calculation**

shall be developed by using computerized point-by-point analysis of classrooms and other learning spaces. Ceiling, wall, and floor material reflectances shall be verified with the Electrical Design Professional.

D. Emergency means of egress lighting shall be provided per local and NFPA Code requirements. The following areas shall have emergency illumination whether having natural illumination or not:

1. **Exits and exit access corridors**
2. **Small and large assembly areas**
3. **Locker rooms**
4. **Student restrooms**
5. **Main and other dedicated electrical rooms**
6. **Main mechanical room and other mechanical decks**
7. **Emergency power equipment location**
8. **Administration and other building control areas**
9. **Kitchen/student dining**
10. **Interior instructional space**
11. **Rooms with occupant load over 50 people**
12. **Exterior side of exterior exit doors**

Where the total emergency power load exceeds 8 kW, emergency power shall be delivered by on-site, standby power generator. Generators rated 150 kW and below shall use gaseous fuel (if available, large units shall be diesel).

E. Light fixtures shall be controlled by switches on a per room basis where fixtures are located. Circuit breakers will not be acceptable for turning lighting "on" and "off".

F. Exterior parking areas shall be illuminated with high-intensity, discharge lamp type light fixtures.

G. High school student dining area shall be equipped with theatrical type lighting controlled by dimmer banks and control consoles.

H. Computer labs shall be illuminated with fluorescent light fixtures constructed and configured to reduce glare on computer monitors. Minimum Visual Comfort Probability (VCP) in these rooms shall be 80%.

I. Fluorescent lighting in instructional spaces shall be oriented so the long dimension of the fixture is parallel with the chalkboard on the primary instructional wall unless design parameters suggest otherwise. Optionally provide wall wash type fixtures to illuminate white-boards or chalk-boards.

J. Provide site lighting to foot-candle levels recommended by Illuminating Engineering Society of N.A.

K. Light fixtures located in gymnasiums and auxiliary gymnasiums shall be equipped with protective wire guards.

L. Exit signs shall be wall mounted, where possible, in lieu of ceiling mounted and be of the LED type.

M. Art rooms shall be provided with supplemental incandescent track lighting in middle schools and high schools.

N. Walk through fluorescent lighting shall be provided to supplement main lighting in gymnasium and auxiliary gymnasiums to illuminate area to 5 foot-candles. Fixtures shall be vandal-resistant type and protected with wire guards. Mount fixture at same level as high intensity discharge lighting.

O. Options shall be investigated for control of exterior and interior corridor lighting by direct digital control, the energy management system, or occupancy sensors.

P. Interior lighting shall be controlled by occupancy sensors, automatic timed lighting controlled system or a combination of both to comply with ASHRAE 90.1 as required by the Arkansas Energy Code. Exterior lighting shall be controlled by photo sensor or astronomical time clock to comply with ASHRAE 90.1 1 as required by the Arkansas Energy Code to automatically turn lighting off when sufficient daylight is available.

Q. Instructional space lighting shall be configured to provide at least two levels of light. One level shall be configured to darken the area around a video or projection screen.

R. Options shall be investigated for providing non-disruptive day-light harvesting in classrooms and other spaces with natural lighting.

Wiring Devices Standards

A. General purpose use, 120-volt duplex receptacles shall be specification grade, 20 amp standard grounded type.

B. Separate receptacles located within instructional spaces shall be provided for general purpose uses and for computer/video technologies.

C. Instructional spaces shall be provided with a minimum of 8 general use receptacles, as well as double duplex receptacles next to computer/video technologies ports.

D. Each space or room shall be provided with a minimum of one, 120-volt receptacle.

E. General purpose receptacles in corridors shall be spaced a maximum of 50 feet apart.

F. Office areas, conference rooms, and teacher workrooms shall be provided with a minimum of 4 receptacles.

G. Duplex receptacles within 6 feet of plumbing fixture units shall be ground fault protected. These receptacles shall be protected by a local or an integral ground fault device.

H. A maximum of 4 computers shall be on a single 20-amp, 120-volt electrical circuit with a dedicated ground, and neutral. Do not share computer circuit neutrals with other branch circuits.

I. Key-type switches protected with wire guards shall be used to control lighting in gymnasiums, auxiliary gymnasiums, and locker rooms. Non-protected key switches shall be used to control lighting in corridors, large group restrooms, and other public spaces. Instructional type spaces shall be controlled by toggle-type switches.

J. Provide an exterior, weatherproof ground fault protected duplex receptacle outside each main exterior door.

K. Electrical receptacles serving food service equipment not located against walls shall be mounted above the floor line on pedestal-type mountings.

L. Pre-kindergarten/kindergarten classrooms and their auxiliary spaces shall have duplex, tamper-resistant receptacles installed.

M. Receptacles shall be side-wired using pigtails. Back-wiring or thru-wiring on device terminals is not acceptable.

Fire Alarm System Standards

A. Fire alarm systems shall be of addressable type, incorporating activation devices such as pull stations, smoke detectors, flow switches, duct detectors, etc., and audio visual devices such as horns and strobes.

B. System shall comply with the local building code, National Fire Protection Association, and the Americans with Disabilities Act. System shall be in full compliance with IBC and Arkansas Fire Alarm Code.

C. Main control panel shall be located in the administrative area with remote annunciator stations at main entries, conforming to local jurisdiction requirements.

D. Strobe devices shall have their candela light intensity discharge conforming to the Americans with Disabilities Act and local codes.

E. Visual devices shall be located in spaces occupied by students, instructors, and the public. Audible devices shall be located so device delivers sounds levels that are 15 Db over ambient noise levels in areas occupied by students, instructors, or public.

F. System shall be connected electronically by a digital communicator to an independent monitoring agency or company that is not located on building site premises.

G. A manual pull station shall be provided in food service areas, at each exterior door used as means of egress, and at other locations conforming to the National Fire Protection Association, and other local codes.

H. Provide a two-way communication system in spaces designated by the Design Professional as "area for a rescue". Communication system shall conform to the Americans with Disabilities Act.

I. Provide audible alarm devices in high ambient noise areas such as technology production labs, vocal rooms, and instrumental rooms.

J. Protect fire alarm devices located in gymnasiums, auxiliary gymnasiums, and locker rooms with wire guards.

K. Provide duct smoke detectors where required by NFPA 90 A.

L. Smoke detectors shall provide full coverage of all spaces.

Security Systems Standards

A. Within the base building electrical system cost, provide the following basic security system, items B, C, and D.

B. Provide conduit rough-in and wiring only for key pad locations, motion sensors, and control panel.

C. System selection, installation and funding shall be by the school district.

D. A minimum system design shall include door contact switches at exterior doors and motion detectors distributed throughout corridors, administrative areas, and in rooms with 6 computers or more.

Lightning Protection Standards

A. Within the design of the base building electrical system, the Electrical Design Professional has the option of including an Underwriter's Laboratory (UL) listed and certified lightning protection system, where calculations indicate the facility may be at elevated risk. Therefore, where calculations indicate the facility may be at an elevated risk, new school buildings shall be protected but additions to existing schools with no history of damage with similar roof elevations may be omitted.

Technology Electrical Standards

A. Within the base building electrical system cost, provide the following basic Technology rough-ins: (Items B - L). Coordinate the placement of all Technology Conduits, boxes and outlets with the Technology Design Professional.

B. Provide Telecommunications cable tray above corridor ceilings of academic wings.

1. Provide 24" center-hung raceway in main corridors.

2. Provide 18" center-hung raceway in secondary corridors.

3. Cable tray shall connect between all intermediate closets Telecommunication Rooms (TRs) and the Main Cross-connect (MC).

4. Provide continuous bonding conductor (minimum #6 AWG), in accordance with NEC-250 and TIA/EIA-607, in all cable trays and bond to associated Telecommunications Grounding Busbar (TGB).

5. NOTE: Cable "D" devices may be used in lieu of cable trays in both main and secondary corridors, providing they are of sufficient size to clearly distinguish individual runs.

C. Junction boxes used for data/voice/video outlets shall be 2-gang, 3 1/2:" deep boxes and equipped with a minimum of a 1" conduit home run to the associated Telecommunications Cable Tray, except where noted by the Telecommunications Design Professional.

D. Telecommunications Rooms (TRs) shall be provided with a minimum of two (2) 120-volt, 30 Amp circuits for powering rack mounted UPS Units. Quantity and location of circuits will depend upon requirements of Technology Design professional. If the building has a standby Generator, these circuits shall be attached to the standby power. General use receptacles, as well as double duplex receptacles shall be provided next to computer/video technologies ports.

E. Provide power outlets, technology cabling home-run conduits and projector mounting brackets as follows:

1. Provide one (1), 2-gang, 31/2" deep box for Technology use (HI station) and a quad power outlet mounted at 18" below finished ceiling for monitors installed in wall or ceiling mounts.

a. Provide one (1), home run, 1-1/4" conduit from HI Station box to associated instructor LO Station box.

b. Provide one (1), home run, 1" conduit from HI Station box to associated Telecommunications Cable Tray.

2. Provide one 2-gang, 3½" deep box for the instructor's LO station and quad power outlet at 18" AFF.

a. Provide one home run, 1-1/4" conduit from LO Station box to associated monitor HI Station box.

3. For locations with an Overhead Mounted Projector in lieu of a Monitor, provide one (1), 1-gang, 31/2" deep box for Technology use (Projector HI station) and a dual power outlet mounted in a finished ceiling tile, projector bracket in the finished ceiling.

a. Provide one (1), home run, 1-1/4" conduit from Projector HI Station box to associated instructor LO Station box.

b. Provide one (1), home run, 1" conduit from Projector HI Station box to associated Telecommunications Cable Tray.

F. Provide a minimum 4-3/4 inch high center divided surface applied metal raceway in computer labs where equipment is located on perimeter of room.

1. Provide one (1) 1" conduit for every six computer workstation locations stubbed up above the nearest finished ceiling and home run to the Telecommunications cable tray.

G. Provide two (2) 2-gang, 3½" deep boxes for the video projector local inputs, with one on the backside of the proscenium wall and one in the control booth.

1. Provide one home run 1½" conduit from each box to the video projector in the ceiling.

H. Provide a minimum of one 4" conduit for Wide Area Network (WAN) from the Service Provider (SP) Entrance (DEMARC) to the property line.

I. Provide one (1), 4" conduit for cable television (CATV) from the Service Provider (SP) Entrance (DEMARC) to the property line.

J. Provide one (1), 4" conduit for the telephone from the Service Provider (SP) Entrance (DEMARC) to the property line.

K. Provide a minimum of two (2), 4" conduits from the Service Provider Entrance (DEMARC) to the Main Cross-Connect (MC) Telecommunications Room (TR). Conduit runs for fiber optic cable have no more than four 90 degree bends without installations of a pull box. All 90 degree bends are to be wide sweep.

L. Provide one (1), 2" sleeve in all classroom block walls.

Telecommunications Grounding Standards

A. Provide Telecommunications Grounding/Bonding System in accordance with NEC-250 and TIA/EIA-607 using approved Grounding Hardware. CAD Weld Bonding Conductors to Building Steel.

B. Provide Telecommunications Main Grounding Busbar (TMGB), and Grounding Busbar (TGB) in Main Cross-connect (MC) Telecommunications Room (TR).

1. All TMGB and TGB Connections to be made with double-bolted, Compression style, Grounding Lugs.

2. As a minimum, Bond TMGB to following:

a. Building Steel (minimum #2 AWG insulated copper bonding conductor).

b. Main Electrical Service Ground (minimum #2 AWG insulated copper bonding conductor).

c. Local Service Panel Ground (minimum #6 AWG insulated copper bonding conductor).

d. Telecommunications Bonding Backbone (TBB) that connects TMGB to other TGBs (minimum #2 AWG insulated copper bonding conductor).

e. Associated Telecommunications Cable Tray(s) (minimum #6 AWG insulated copper bonding conductor).

f. Telecommunications Conduit(s) Entering TR (minimum #6 AWG insulated copper bonding conductor).

C. Provide Telecommunications Bonding Backbone (TBB) between all TGBs and the TMGB.

1. The TBB shall be a minimum of #2 AWG insulated copper bonding conductor.

2. All TBB Connections to be made with double-bolted, Compression style, Grounding Lugs.

D. As a minimum, the Technology Contractor shall bond the following devices to the associated TMGB and TGBs using a minimum #6 AWG insulated copper bonding conductor using compression style lugs:

1. PABX equipment
2. Equipment racks and cabinets
3. TR cable ladder and tray
4. CATV Equipment
5. Lightning and surge protectors
6. Telecommunications devices
7. Coupled Bonding Conductors (CBCs)
8. Backbone cable shields
9. Telecommunication and fiber cable shields
10. Antenna cable shields
11. Raised floors

Intercom / Bell Systems Guidelines

A. Provide a complete intercom communication system with call stations and speakers in each occupied space and speakers on the building exterior. Speakers shall be located and sufficiently powered to be clearly heard.

B. The intercom system shall be capable of generating various tone signals to be used in special notification situations.

C. Provide Battery Back-up for operation during a power failure.

SCHOOL LIGHTING LEVELS - 2004

ROOM TYPE CLASSIFICATION	2000 IES FOOTCANDLES	RECOMMENDED DESIGN FOOTCANDLES DIRECT LIGHTING(1)	RECOMMENDED DESIGN FOOTCANDLES INDIRECT LIGHTING
ADMINISTRATIVE			
Offices/Receptionist	50	50	40
Storage Rooms	-	25	25
Restrooms	5	25-30	25-30
Conference/Resource Rooms	30-100	50	40
Health Clinic	50	50	40
Teacher Prep/Workroom	50	50	40
CLASSROOMS-GENERAL	30	50	40
Art Rooms/Kiln	50	50	40
Modular Technology Labs	-	50	40
CADD Labs	30	30	30
Industrial Tech/Production Labs	100	60	60
Computer Labs	30	40	40
Graphics Labs	30-100	50	40
Life Skills Labs	50	50	50
Science Labs	50	50	50
Laundry Rooms	-	25	25
Music Rooms	30-50	50	40
Large Group Instruction Rooms	30	50	40
MEDIA CENTER	-	50	40
Active Areas	30 vertical	50	40
Inactive Areas	5 vertical	40	40
ATHLETIC AREAS			
Gymnasium - Elementary School	100	50	-
Gymnasium - Middle School	100	50	-
Gymnasium - High School	100	60	-
Multi-use P.E. Rooms	-	50	-
Locker Rooms	10	25	25
STUDENT DINING			
Assembly	10-20	20	-
Stage/Work Lights	30	20	-
Make-up/Dressing Rooms	30-50	50	-
Theatrical Control Room	10-30	30	-
Equipment room with dimmable incandescent lighting offering 10 foot-candles of illumination.			

SCHOOL LIGHTING LEVELS - 2004

ROOM TYPE CLASSIFICATION	2000 IES FOOTCANDLES	RECOMMENDED DESIGN FOOTCANDLES DIRECT LIGHTING(1)	RECOMMENDED DESIGN FOOTCANDLES INDIRECT LIGHTING
STUDENT DINING	10-50	50	40
Cooking	50	75-80 (2)	-
Food Preparation	50	75-80 (2)	-
Serving Line	50	75-80 (2)	-
Ware Washing	10	75-80 (2)	-
CUSTODIAL CLOSETS	10-30	20-30	-
ELECTRICAL ROOMS	30	20-30	-
MECHANICAL ROOMS	30	30	-
PARKING AREA	.2	1 (3)	-
DRIVEWAYS	.3	.5 (3)	-
CIRCULATION AREAS			
Building Entries	5	5-10 (3)	-
Corridors	5	20	20
Corridors with Lockers	5	20	20
Stairways	5	20	20
(1) Maintenance factor 70% LL/SF = Lamp Lumens per square foot			
(2) Foot-candles shall comply with local health department regulations			
(3) Foot-candles shall conform to page 4200-6			

Outlet Locations

ELECTRICAL OUTLET DEVICE TYPE	Masonry Wall, Base (Starter) Course Height 4 inch | 8 inch Mounting Height Above Floor to Bottom of Outlet (Device) Box	
Receptacle outlets, microphone outlets (jacks), equipment outlets (jacks), television outlets (jacks), portable telephone outlets, computer outlets, etc.		
* General throughout	18"	18"
* Mechanical equipment rooms	52"	48"
* Above counter tops 30"H	36"	40"
36"H	44"	48"
48"H	52"	56"
* Above backsplash top	2" minimum	2" minimum
* Above radiators	6" minimum	6" minimum
* Above or adjacent to lavatories	44"	48"
* Behind domestic refrigerators	52"	56"
* Behind domestic washers and dryers	36"	32"
* Serving domestic dishwashers	2"	2"
* Wall-mounted telephone outlets	44"	48"
* Telephone/video control	44"	48"
Toggle switches	48"	48"
Recessed motor controllers	60"	56"
Electric panels, terminal cabinets, etc., to center of tub or box	50"	48"
Clocks	Near ceiling	Near ceiling
Pull stations (fire alarm)	44"	44"
Volume controls, call-in switches, doorbell buttons	44"	44"
Horn/strobes (fire alarm)	80"	80"

TECHNOLOGY SYSTEMS

General Guidelines

A. A Technology System Plan and Specifications shall be prepared as part of the overall building design process before construction begins in accordance with the latest edition of the Building Industry Consulting Service International (BICSI) Telecommunications Distribution Methods Manual (TDMM). It shall be designed and approved by a Registered Communications Distribution Designer (RCDD).

B. All work shall be performed in accordance with the latest revisions of the following standards and codes:
   1. Uniform Building Code
   2. Local Building Code
   3. Local Electrical Code
   4. National Electrical Code
   5. EIA/TIA-568 Commercial Building Wiring Standards
   6. EIA/TIA-569 Commercial Building Standard for Telecommunication Pathways and Spaces
   7. EIA/TIA J-STD-607-A Commercial Building Grounding/Bonding Requirements Standard

C. A Technology System Plan shall consist of the following minimum Telecommunications Drawings, as required:
   1. Campus or Site Plans, Exterior Pathways, and Inter-Building Backbones
      a. Shows physical and logical connections from the perspective of an entire campus - such as actual building locations, exterior pathways, inter-building backbone cabling on plan view drawings, and major system nodes and related connections on the logical system drawings.
   2. Layout of complete building per floor – Serving Zone Boundaries, Backbone Systems, and Horizontal Pathways.
      a. The drawings should show the complete building layout per floor and indicate location of serving zones, communication equipment rooms, access points, pathways, and other systems that need to be viewed from the complete building perspective.
   3. Serving Zone Drawings – Drop Locations and Cable IDs
      a. The building is divided up by its serving zones. Drawings to indicate drop locations, communication equipment rooms, access points and detail callouts for communication equipment rooms and other congested areas.
   4. Communication Equipment Rooms – Plan Views – Tech and AMEP/Elevations – Racks and Wall Elevation
      a. Detailed look at communication equipment room. Drawings should indicate technology layout (racks, ladderacks, etc.), mechanical/ electrical layout, rack elevation, and backboard elevation.

D. The Technology Design shall include the following components:
   1. Mandatory Systems
      a. Telephone system
      b. Video distribution system
      c. Data / computer network system
      d. Central sound / public address system
      e. Gymnasium sound reinforcement system

f. High school student dining sound reinforcement system
g. Student dining sound reinforcement system
h. Music room sound reinforcement system

2. Optional Systems
   a. Security system

E. The Technology Designer should endeavor to reduce the quantity of Main Cross-Connect Rooms (MCs) by centralizing the MCs and/or using one MC to serve multiple floors or areas. For example, in a 3-story building, place the MC on the second floor and serve the 1st, 2nd, and 3rd floors from the same closet. The Technology Designer shall coordinate the quantity and size of MCs required with the Design Professional.

F. The Technology Designer should endeavor to centralize as many Technology and Control Systems as possible for the district into one school building or Network Operations Center (NOC), and interconnect the buildings and systems via fiber-optic cables whenever economically feasible. Consider using the savings from the centralization of the systems to offset the cost of the inter-building, fiber-optic cabling.

Wiring Standards

A. Media Standards

1. Unshielded twisted pair

a. The minimum standard for horizontal distribution wiring is six (6) cables of category 5e or higher, 4-pair, 24-gauge unshielded twisted pair (UTP) wiring, terminated in each classroom. The standard specifies 100-ohms impedance at one (1) megahertz, satisfying Integrated Services Digital Network (ISDN) and Institute of Electrical and Electronics Engineers (IEEE) 802.3 10BaseT requirements.

b. ***Note: wiring specifications are a minimum of category 5e. When bandwidth is expected to be above category 5e of 1 Gigabit per second (Gb/s or 100 Mhz) then category 6 for up to 10 Gigabit or 200+ Mhz should be used. From a future proofing perspective, it is always better to install the best cabling available. This is because it is so difficult to replace cabling inside walls, in ducts under floors and other difficult places to access. The rationale is that cabling will last at least 10 years and will support at least four to five generations of equipment during that time. If future equipment running at much higher data rates requires better cabling, it will be very expensive to pull out category 5e cabling at a later time to install category 6 cabling.***

2. Fiber optics

a. The media standard for both intra- and inter-building backbones is 62.5/125 micron graded-index multimode optical fiber cable. A minimum of six-fiber strand cable should be installed for each cable run.

Telecommunication Room Wiring Guidelines

1. A telecommunication room (TR) is a local communications equipment room. This should be dedicated space providing a secure environment for the installation and termination of cable network electronics and other telecommunications equipment*, as specified in the ADE IT Security Policy (ITSP), 2B2.*
2. The main cross-connect (MC), the point where the backbones and horizontal distribution facilities intersect, should be located near the center of the area served, preferably in the building core area. Every effort should be made to secure as large an area as possible. When one MC is insufficient to cover a building, additional TRs must be established. The same parameters apply for both TRs and MCs.
3. Locate telecommunication rooms *away* from any sources of electromagnetic interference, such as electrical power-supply transformers, motors, and generators. There should be *no water sources* in this area.
4. There should be one telecommunications room for each 20,000 square feet zone/wing/building section. The recommended minimum closet size is 6 feet by 6 feet. The recommended minimum ceiling height is 8 feet, 6 inches. Closets should be designed with adequate conduit or openings through beams and other obstructions into the accessible ceiling space. Closets should be designed with controls to limit access to authorized personnel only, *as specified in the ADE IT Security Policy (ITSP), 2B2.*
5. The MC contains wiring terminations and communications equipment to serve a building. This equipment may include modular fiber distribution panels, wiring termination panels, telephone systems, concentrators/hubs that connect communication lines, routers that connect users on different networks, CATV (cable television) equipment, and equipment racks.

Telecommunication Room Wiring Standards: Interior Environment

1. **Telecommunication rooms require continuous climate control. Air conditioning should maintain temperature in the range of 65 to 75 degrees Fahrenheit, with relative humidity in the range of 40 to 55 percent. Telecommunication rooms require continuous climate control. Air conditioning should maintain temperature in the range of 64.4 to 80.6 degrees Fahrenheit. Humidity levels should now be measured by dew point and fall within 5.5 degrees Celsius to 15 degrees (41.9 degrees Fahrenheit to 59 degrees).**
2. **Carpet should *not* be installed in closets. Tile or sealed concrete floors will protect equipment from static electricity and dust.**
3. **The major components of the building electrical system should not be co-located in the telecommunications room.**

Closet space should be dedicated to serving telecommunication needs only. **Electrical installations supporting telecommunication functions only should be located in the closet.**

Telecommunication Room Terminations

1. Each TR should contain at least one universal, self-supporting 19-inch data rack. Each rack should be securely mounted to the floor and braced to the wall using a section of cable tray. Racks must be grounded in accordance with National Electrical Code requirements.
2. If fiber optic cable is to be terminated in the closet, attach a fiber optic patch panel to the uppermost part of the data rack. Terminate the fiber optic cable with ST, SC, LC or pre-terminated high capacity MPO type connectors. The maximum optical attenuation for each mated connector pair must not exceed the connector manufacturer's specifications.
3. Terminate category 5e or higher cable on category 5e or higher RJ45 patch panels in all closet locations. All incoming cables should be routed on the tray and neatly dressed down to the patch panels. A cable management panel should be installed directly above and below each patch panel.

Building Wiring Guidelines

1. Student Workstation Wiring
   a. Each classroom should have *at least two* student workstation outlets. Consideration should be given to placing at least one student workstation outlet on each wall in every classroom. A duplex power outlet with ground should be in close proximity to the student workstation outlet. Run two cables of category 5e or higher, 4-pair, unshielded twisted pair from the outlet to the wiring patch panel located in the telecommunication room. The cables must be a *continuous run* and not spliced. The maximum cable length must not exceed 295 feet/90 meters as specified in the EIA/TIA-568 commercial building wiring standard. The maximum allowable horizontal cable distance is 90m of installed cabling, whether fiber or twisted-pair, with 100m of maximum total length including patch cords.
   b. Each outlet must consist of either flush-mounted or surface-mounted, high-quality category 5e or higher RJ45 modular jacks with IDC-style or 110-style wire T568A or B terminations. Consistency must be maintained throughout the installation. Jacks must meet EIA/TIA-568 recommendations for category 5e or higher connecting hardware.

c. Each outlet must be terminated with two individual cables. One outlet allows for voice and the remaining outlet allows for data. The color stripes on each cable should correspond with the color stripes on the edge connector. Faceplates must match the manufacturer for RJ45 outlets at all locations.

2. Teacher Workstation Wiring

a. Each classroom should have one teacher information outlet. A duplex power outlet with ground should be in close proximity to the information outlet.

b. Run two cables of category 5e or higher, 4-pair, unshielded twisted pair from the outlet to the wiring patch panel located in the telecommunication room. The cables must be a *continuous run* and not spliced. The maximum cable length must not exceed 295 feet/90 meters as specified in the EIATIA-568 Commercial Building Wiring Standard. The maximum allowable horizontal cable distance is 90m of installed cabling, whether fiber or twisted-pair, with 100m of maximum total length including patch cords.

c. Each outlet must consist of either flush-mounted or surface-mounted, high-quality category 5e or higher RJ45 modular jacks with IDC-style or 110-style wire T568A or B terminations. Consistency must be maintained throughout the installation. Jacks must meet EIA/TIA-568 recommendations for category 5e or higher connecting hardware.

d. Each outlet must be terminated with two individual cables. One outlet allows for voice and the remaining outlet allows for data. The color stripes on each cable must correspond with the color stripes on the edge connector. Faceplates must match the manufacturer for RJ45 outlets at all locations.

3. Administrative Workstation Wiring

a. Each outlet must be terminated with two individual cables. One outlet allows for voice and the remaining outlet allows for data. The color stripes on each cable must correspond with the color stripes on the edge connector. Faceplates must match the manufacturer for RJ45 outlets at all locations.

D. Campus Backbone Wiring

1. Fiber optic cabling shall be the standard for interconnecting buildings in a campus environment. The fiber optic cable shall contain a minimum of six fiber strands and be placed in conduit. The cable must meet or exceed FDDI ANSI Standard X3T9.5 requirements for 100 Mbps transmission.

Telephone System Standards

A. The telephone system should provide TDM or IP-based voice communications both internally and externally throughout the building and the district.

B. The PABX should be a fully digital, IP-Enabled PABX or an all-IP-Based PABX. The all-IP-Based system should maintain the same

high level of functionality, redundancy, and programmable features as originally specified. Any all-IP system should employ standards-based signaling and instrument powering. All PABX systems should fully support an E911 system.

C. A school telephone system shall be as follows:

1. Provide a 4-pair, minimum Category 5e, CM (CMP where required), UTP cable to all telephone, fax, alarm, elevator, and ancillary voice connections. Provide Multi-Pair, minimum Category 3, CM (CMP where required), UTP, trunk-cables between Telecommunications Rooms and the Main Cross-connect (MC), and between the MC and the Telecommunications Service Entrance Facility (aka DEMARC).

2. The PABX telephone system should provide the capability for a fully digital, non-blocking, voice communications link between all classrooms and offices within the building. A telephone set is not required in each classroom; however, the necessary wiring infrastructure should be installed so as to provide access to the telephone system on an as-needed basis.

3. The PABX telephone system should be capable of inter-operating on a district-wide basis using T-1, PRI, or VOIP trunking between buildings. The PABX system should be connected in order to provide a unified system throughout the district. Trunking should be designed on a P=0.01 basis.

4. Provide telephone jacks and telephones in classrooms, offices, media center, teacher prep areas, workrooms, conference rooms, secretarial areas, telecommunication rooms, elevators, etc., as determined by the district's program needs.

5. Provide fully digital, full-duplex, digital display speakerphones with a minimum of eight (8) programmable function keys in each area where access to the telephone system is needed.

6. Provide a minimum of one fully digital, full-duplex, speakerphone attendant console with multiple programmable function keys and one-touch button calling for all extensions within the building. The attendant console should be located in the main administrative reception area.

7. Provide centralized PABX and phone instrument power with a minimum of four (4) busy-hour standby capabilities for all PABX equipment. IP-based systems should also be provided with four (4) busy-hour standby capabilities for all powered switches or patch panels located in each telecommunications room. Connect the central power supplies to building emergency power when available. All IP instruments and power sources should be IEEE 802.3af compliant.

Telephone System Guidelines

A. Provide personalized programming for each system within the district.
B. Provide personalized training for all users within the district.
C. The entire system shall be grounded and bonded in accordance with the latest EIA/TIA-607 specifications.

Video Distribution System Standards

A. The video delivery system should include a 750 MHz broadband, coaxial-based system for distributing centrally-located RF video programming sources such as CATV, satellite dish programming, etc.

B. The system should provide an extension of the CATV service from the service provider's demarc to the main cross-connect.

C. The system should allow for remote broadband origination of programming via a RF broadband or an MPEG IP connection.

Data / Computer Network System Standards

A. The data network should provide a "high speed" ethernet local area network to all buildings within the district, providing a minimum of 100/1000 Mbps switched ethernet connectivity between all computer devices, such as file servers, printers, etc. The backbone should consist of gigabit ethernet links between the telecommunication rooms and the main cross-connect. Inter-building links should consist of a minimum of two (2) parallel gigabit ethernet circuits arranged in a load-sharing, ethernet trunk with properly programmed VLAN and QoS support.

B. The data network shall consist of the following:

1. A 4-pair, minimum category 5e compliant, CM-rated (CMP where required), UTP horizontal cabling infrastructure, terminated and tested with a level-III cable certification unit, and provided with a manufacturer's 20 year (minimum) lifetime performance-based warranty.

2. A fiber optic-based backbone cabling infrastructure equipped with multi-mode and single-mode fibers between the telecommunication rooms and the main cross-connect. The multi-mode fibers shall be terminated with fusion-spliced, factory-polished, SC pigtails. The single-mode fibers shall be terminated with fusion-spliced, factory-polished, SC pigtails capable of 10 Gbps operation.

3. A minimum of six (6), 4-pair, minimum category 5e compliant, CM (CMP where required) rated, UTP cables from the service entrance facility to the main cross-connect for the extension of special circuits (T-1, PRI, etc.) that are provided by the service provider.

4. A 100-pair, minimum category 3 compliant, CM (CMP where required) rated, multi-pair telecommunications UTP cable from the service entrance facility to the main cross-connect to be used for the extension of voice, fax, and alarm circuits that are provided by the service-provider. Investigate the possibility of making a single process communication cabling "utility" through the building and/or campus. The result will be a design methodology that allows a standardized cabling system to serve all communications needs throughout the process areas.

5. A minimum of six (6), 4-pair, minimum category 5e compliant, CM (CMP where required) rated, UTP cables from the main cross-connect to each telecommunications room for special data circuits.

6. A minimum of one (1), 100-pair, minimum category 3 compliant, CM (CMP where required), UTP cable from the main cross-connect to each telecommunications room for voice circuits. Trunk cables must be sized to accommodate all telephone system requirements.

7. Review the building design and place data faceplates, equipped with a single minimum category 5e compliant, CM (CMP where required) rated, UTP cable from the associated telecommunications room, below ceilings to support the deployment, by the Owner of 802.11a/b/g/n wireless ethernet access points and associated wireless network switching devices and phones. Provide proper spacing for adequate coverage of entire facility. Consult with Owner and consider coverage of selected external areas, playgrounds, entrances, parking lots, commons areas, etc. (via externally mounted antennas). Wireless design shall be based on centralized, IEEE 802.3af compliant power sources.

C. The system should include all jacks, patch panels, patch cords, connectors, labels, designation strips, and equipment cabinets or racks (with associated fans, grounding/bonding, wire-managers, labels, power strips, etc.)

D. The system should include all inter- and intra-building network electronics, including user layer-2 workgroup switches, layer-3 gigabit backbone switches, wireless switches, routers, and file servers.

E. As a minimum, the network may be used to support the following applications on a local and wide area basis:

1. Data networking
2. VoIP telecommunications
3. Wireless access points
4. Video conferencing
5. Video streaming/media retrieval
6. Automation systems
7. Control systems
8. Security systems

F. The network system should also include un-interruptible power supplies (UPS) for all primary components. Provide an SNMP management interface in all UPS units. Provide a minimum of 30 minute (4 hours when used for voice support or security system support) standby power for all network electronics. Connect the UPS units to the building emergency generator when available.

G. Provide all required integration services to setup and program the network (IP addresses, VLANs, routing, wireless surveys, etc.).

H. The entire system shall be grounded and bonded in accordance with the latest EIA/TIA J-STD-607-A specifications.

Central Sound System / Public Address System Standards

A. Provide a building-wide central sound (public address/paging) system providing communications used for "all call" and emergency announcements. This system shall incorporate a master program clock/bell system used to generate tone signals for class change. This system shall be connected to the voice

communication (telephone) system. If telephone sets are not installed in all classrooms, the central sound system shall provide two-way communication with the school administrative office.

B. Provide surge-protected, weatherproof exterior horns protected with wire guards/cages, as required, on the outside of the building at playground and bus drop-off/pick-up locations. Consider easily accessible, internally-mounted volume controls for all external paging horns.

C. Provide wall-mounted type horns protected with wire guards/cages, as required, in gymnasiums, auxiliary gymnasiums, and locker rooms. Non-protected, wall-mounted type horns shall be provided in high school student dining areas, technology production labs, vocal rooms, instrumental rooms, mechanical decks, or other spaces with high ambient noise levels.

D. Instructional spaces shall have speakers recessed in ceiling pads in suspended ceilings. Supply wall-mounted volume controls as required.

Gymnasium Sound Reinforcement System Guidelines

A. Provide a separate sound system in gymnasiums for use during instruction periods, student assemblies, public assemblies, and sporting events.

B. Locate main equipment cabinet directly accessible from the gymnasium for ease of adjusting sound levels.

C. Provide a minimum of 2 combination XLR microphone/auxiliary jacks at opposite ends of space.

D. In buildings where announcements or broadcasts are to be made from bleachers, provide a single microphone and an auxiliary jack in a junction box attached to the bleachers. Provide protective cover plates.

E. Provide a wireless microphone system.

F. Loudspeakers pointed at the bleachers shall provide a maximum 3 decibels difference in sound level across the entire bleacher seating area and 25 decibels over the highest ambient noise level.

G. Provide a feedback elimination system.

H. Provide a portable console/cabinet containing a CD, cassette, and MP3 player unit, mic mixer, mic inputs, and associated audio cables for attaching to the permanently mounted microphone and auxiliary input faceplates.

I. The entire system shall be grounded and bonded in accordance with the latest EIA/TIA-607 specifications.

High School Student Dining Area Sound Reinforcement System Guidelines

A. Provide a separate sound system in high school student dining areas for use during media productions, stage productions, student assemblies, or public assemblies.

B. The system shall be designed for a high degree of intelligibility and a full range of stereo music capabilities.

C. Locate the main equipment cabinet in the main high school student dining area control room. Provide a sound reinforcement mixing station in the control room and at the back of the high school student dining area.

D. Locate the main sound reinforcement speakers in a space so all seats are provided with a high degree of intelligibility for both stereo music and speech. Intelligibility shall be a maximum of 3 decibels over the entire seating area and 25 decibels over the highest ambient noise level.
E. Provide a minimum of 2 microphone outlets at locations in the seating area. Locate a microphone patch panel housing XLR microphone/auxiliary inputs on the stage to serve various microphone stands on stage. Provide for on-stage, monitor speakers connected to central amplifier.
F. Provide separate wireless sound systems for both performers and for attendees requiring assistive listening. The assistive listening system shall conform to the Americans with Disabilities Act guidelines.
G. Install speakers used for monitoring this sound system in ready (green) rooms so performers know when to go on stage. Such rooms may include dressing rooms, music rooms, and instrumental rooms. Consider video monitor jack for video monitoring.
H. Provide a wireless stage manager communication system dedicated for use by sound, lighting, and stage manager personnel.
I. Provide a feedback elimination system.
J. When equipped with an FM tuner, connect to an FM antenna mounted externally to the building.
K. The entire system shall be grounded and bonded in accordance with the latest EIA/TIA-607 specifications.

Student Dining Sound Reinforcement System Guidelines (Cafetoriums only)

A. Provide a separate sound system in the student dining area for use during student assemblies or public assemblies.
B. This system shall be comprised of a permanently mounted cabinet or rack (based on space architecture) for housing production and amplification equipment connected to either ceiling- or wall-mounted speakers conforming to the architecture of the space.
C. Provide a minimum of 2 XLR hanging microphone/auxiliary jacks at opposite ends of space for use.
D. Provide a wireless microphone system located in the rack/cabinet system.
E. Provide a feedback elimination system.
F. When equipped with an FM tuner, connect to an FM antenna mounted externally to the building.
G. The entire system shall be grounded and bonded in accordance with the latest EIA/TIA-607 specifications.

Music Room Sound Reinforcement System Guidelines

A. Provide single (shared) portable sound equipment for the playing and recording of music in the high school instrumental, vocal, and ensemble rooms.
B. Provide the instrumental, vocal, and ensemble rooms with wall-mounted speakers and a minimum of 3 XLR wall-mounted microphone jacks distributed throughout the rooms. Provide a minimum of 2 XLR hanging microphone jacks located on the ceilings.
C. The equipment rack shall be mobile housing amplification equipment.

D. Provide a feedback elimination system.
E. The entire system shall be grounded and bonded in accordance with the latest EIA/TIA-607 specifications.

Security Systems Guidelines *(optional)*

A. Within the building security system allowance designated in Chapter 1, provide as many of the following provisions as possible. The following recommendations represent a reasonable expectation of protection within budget constraints and security needs of the district. The Design Professional should specify the priority security systems to fit the site/building conditions.
    1. The primary security system will be the access control system; consisting of a CPU, software, control modules, wiring, readers, and strikes/locks for selected exterior doors. The remainder of the exterior doors should be equipped with fire panic hardware making them available for emergency exit but not for entry. Remove exterior hardware.
    2. Burglar alarms: Every exterior door is contacted and backup up by motion detection in the corridors to protect the facility from after-hours intrusion and to summon authorities in an emergency situation. Install motion detectors on all floors of the facility in corridors and all rooms with outside access. The alarm system shall be integrated with the building lighting system and shall activate the corridor lights and other selected areas in the event of alarm activation.
    3. CCTV: Provide exterior cameras and adequate cameras in the corridors, plus the head end equipment (digital recorder, monitors, multiplexer, and power).
    4. Pan zoom tilt (PZT) should be considered for external cameras. Mount external cameras in appropriate environmentally controlled enclosure. Mount internal cameras in smoked-dome enclosures.
B. Provide security screens for windows if warranted by the specific project location and exposure.
C. Every system shall be UL approved and monitoring shall be provided at UL approved central station.
D. Every alarm system shall communicate over a dedicated telephone data line.
    1. Alarm system shall have a battery backup (UPS system) for power of at least 4 hours. Provide SNMP management on UPS system and connect to network.
    2. Connect the UPS units to building emergency generator when available.
    3. System shall be programmed to accept individual alarm access codes from authorized employees. Codes are not to be shared.
    4. Each keypad will have a distress code.
    5. The systems will be supervised, i.e., power failure, line cut, and communication failure will signal the monitoring station of the problem.
    6. Every door, hatch or other port of entry will be fitted with an alarm contact.
    7. Each entry point will be backed up by motion detectors.
    8. Panic buttons will be installed at reception areas.

9. An exterior horn and strobe light that signals an alarm break will be part of this system.
10. If equipped, the fire system flow and tamper switches will be tied to an alarm point.
11. The alarm company will provide monthly reports detailing alarm system use, including opening, closing, and alarm conditions.
12. Consideration shall be given to centralizing and integrating the system on a district-wide basis via the wide area network, where available.

E. Minimum Standard: Closed Circuit Television Systems

1. Cameras: All cameras will be color, CCD chip technology. They may be stationary or they may be pan, tilt, or zoom. Those abilities will be designated at the design phase and based on need. All cameras will be equipped with an automatic iris to control light. Compatible lenses specific to each placement and required field of view will be used. Cameras with integral motion detectors are acceptable. Limit internal camera spacing to 150 feet maximum. Provide a dedicated camera for each building entrance. Use appropriate lenses for application.
2. All cameras shall be capable of being viewed and digitally recorded at the same time.
3. Controllers: Should the design call for cameras that can pan, tilt, and zoom, they will require a controller that can move the cameras. The system shall have a battery backup (UPS system) for power of at least 4 hours. Provide SNMP management on UPS system and connect to network. Provide for graceful shutdown of equipment. The controller shall be IP connected to the network and shall permit viewing and control over the network, via PCs. A separate security VLAN shall be established. Connect the central UPS to building emergency generator when available.
4. Recorder: Each recorder shall be digital and provide for up to 60 days of storage. Each recording system shall be equipped with provisions for extracting digital images and transferring to a CD. The recordings shall contain a digitally encoded date and time for each camera. Each recorder shall be equipped with digital image enhancement capabilities. The recorder shall be network connected and shall be capable of being viewed and controlled remotely from a PC workstation over the data network.
5. Motion Detectors: The camera system should be equipped with motion detectors for changing the frame per second recording rate, depending on system set up.
6. Camera Power: All cameras will be powered by low voltage wire and transformers connected to central UPS power with a minimum of 4 hours standby. The wire will be run with the copper video transmission cable. Category 5e, IP, or Baseband video systems are acceptable. In-line or parallel power is acceptable. Cable runs exceeding 500 feet may require the use of fiber optic cable. Exterior installations can have the cable above or below ground. The wire must be tied to a support cable if run above the ground, and every camera should be grounded with surge suppressors for lightning strikes. The lightning protectors shall be properly grounded in accordance with NEC and EIA/TIA-607 and connected to the associated telecommunications grounding bus (TGB).

7. Exterior Housings: Exterior cameras will be placed in climate-controlled and vandal-resistant housings. Exterior cameras will be placed no more than 1,000 feet apart. Exterior camera housings shall be grounded in accordance with NEC and EIA/TIA-607.
8. Monitors: Systems with 4 or fewer cameras will be monitored with a 13-inch (minimum) color monitor. Systems of 5 cameras or more will be monitored with 20-inch color monitors. An additional 20-inch (minimum) color monitor should be mounted on the ceiling at the public entrance to show that cameras are being used in the public areas.
9. Consideration shall be given to integrating the system on district-wide basis via the wide area network.

F. Minimum Standard: Access Control Systems

1. All access control systems should be a minimum of Windows 2000 based or compatible. The system should have the ability to integrate alarms and video signals into one centralized system. The number of doors on the System will vary from building to building; however, a minimum number of doors should be selected for access control devices. All other exterior doors should be equipped with fire panic devices to prevent entry while allowing exit. The system shall have a battery backup (UPS system) for power of at least 4 hours. Provide SNMP management on UPS system and connect to network. Provide for graceful shutdown of equipment. The controller shall be IP-connected to the network and shall permit viewing and control over the network, via PCs. Connect the central power supplies to building emergency power, when available.
2. Card readers should be proximity or biometric readers. Doors protected by access control will open for exit by using a crash bar release. Each of these doors will be monitored via the door alarm contact for being propped or stuck open. In an emergency, the protected doors can be seized allowing exit only.
3. The system will be on a programmed schedule that automatically unlocks the doors for admittance at the start of the day, locks doors (except the main entrance) during class hours, and locks all doors at the close of the day. This will funnel visitors to the front door where they can be observed and controlled.
4. The head-end equipment for the access control system will, ideally, integrate both alarm and video signals. Consideration shall be given to integrating the system on a district-wide basis via the wide area network.

Interactive Classroom Design Guidelines *(optional)*

Videoconferencing classrooms require special attention to ensure that the highest quality sound and visual signals are transmitted and received by participants. The following are recommendations on the building of interactive videoconferencing rooms.

A. Location: A quiet, convenient and central location is best. It should be isolated or separated from the sources of loud outside noise. This minimizes the need for sound isolation treatment. The room should be near an area that allows for direct and indirect supervision of the class

(for monitoring students, security and liability reasons). Access should be suitable for a person with a physical disability. A ground floor location is preferable. Areas to avoid are those that are located near high traffic areas, lifts, plumbing, workshops, and plant rooms. Care should be taken to diminish the sounds from the air conditioning ducts, the gymnasium, band room, shop, or cafeteria.

B. Classroom Size: Classroom size depends on the maximum number of participants you hope to have in your room. We suggest planning for a minimum of 20 participants, but ideally be prepared to accommodate at least 25, with tables and chairs. The space should be approximately 24 feet wide by 30 feet long, with a ceiling of 9 feet minimum, to accommodate compressed interactive equipment along with 20 students, or a majority of the faculty for staff development. For teaching seminar groups involving 100 or more, the system should be placed in a lecture theatre setting. Consideration shall be given for appropriate acoustics.

C. Classroom Shape: To reduce acoustic effects, square rooms should be avoided, if possible. An oblong or irregular shaped room is a better shape, as it does not encourage standing waves (and thus echoes).

D. Physical Layout: Room layout will depend on the number of participants, the available space and the purpose of the room. Layout is a compromise between clear audio, the best viewing of monitors, interaction, and the space available.

E. Acoustics: Audio quality is one of the most critical technical elements in a successful videoconference, and it has implications for the selection and placing of the room, as well as for its construction and treatment. The participants and presenters must hear each other clearly, both locally and remotely, without strain. Some factors influence the quality of the sound in a videoconference; namely, ambient noise, room acoustics and reverberation, and equipment configuration.

1. Acoustic treatment of rooms will need to be executed with materials that satisfy the relevant building regulations, so it is essential that this work be supervised by qualified staff.
2. The internal acoustics of a room are very important. Too much reverberation (echoes in a closed room) will present problems. Rooms should not be too absorbent, as this will present an unnatural and uncomfortable environment for the participants. A room that suffers badly from echoes should have the acoustic treatment applied to the adjacent walls rather than the two opposite ones. This will allow standing waves to be reduced in two dimensions (lengthwise and widthwise).
3. Hard blank walls can be deadened by heavy curtains, which have the added bonus of improving the décor. Carpets and other soft furnishings will improve the acoustics and will generally be more cost-effective than acoustic ceiling tile.

F. Windows: The ideal room has NO windows. Windows always cause problems for television cameras due to the changing light levels. Window Treatments: If windows are unavoidable, heavy curtains or drapes should be applied to improve acoustics.

G. Entrances**:** Entrance at rear of the room is the best option. Access should be suitable for a person with a physical disability.

H. Flooring: There should be carpet on the floor. Carpets and other soft furnishings will improve the acoustics and will generally be more cost-effective than acoustic ceiling tile.

I. Lighting: Fluorescent lighting is the most realistic choice for these rooms. Normal office lighting levels will be adequate, i.e., 500 Lux, and an intermediate or warm fluorescent tube color (equivalent color temperature 3200-4000 Kelvin). There should not be a buzzing sound projected from the lights in the classroom.

1. Install lighting at the front of the room but ensure that it is on a separate switch from the rest of the room lights. As a general practice, it is advised that classroom lighting, even in traditional classrooms, be "zoned" into rows of separately switched lights. These rows should run across the width of the room, not down its length. In this way the front of a room, beside the projection screen, can be darkened to give better contrast to the projected images, but still retain a good level of light over the participant's desks**.**

1.2 Recommend using high efficiency T-8 lamps and electronic ballast along with the use of occupancy light sensors to prevent energy waste in unoccupied areas and/or buildings, along with copy/work rooms, rest rooms, etc.

J. HVAC: The HVAC should be seen – not heard in the classroom. Microphones are sensitive to moving air. The microphone amplifies normal air conditioning and can cause a large amount of background noise in a videoconference. Air conditioning/handling equipment will also require installation by experienced staff to ensure the quality of air is adequate and the temperature, humidity, etc. are of an acceptable standard.

K. Communication: There should be a dedicated phone line and phone in the videoconference room. It is also recommended that there be a FAX line in the room. It is suggested that you have at least one phone and an additional phone line, or jack, in the room for a FAX line or expansion in the future.

L. Computer: Videoconference rooms should have a minimum of four areas to access a computer and the Internet.

M. Electrical: Electrical installations need to comply with current National Electrical Code (NEC) wiring regulations and should be carried out by competent and qualified staff. The equipment used for videoconferencing should be powered from a clean main supply to avoid electrical interference. It should not be on a circuit that is shared by large electrical loads such as plant motors, lifts, workshops, etc.

N. Wiring: To minimize hum pickup, signal cables (i.e. sound and vision) should not be run parallel to main supply cables; this is especially important for microphone cables. Also, do not run over or parallel to lighting ballasts.

1. Several cables should be run from the control desk to the picture monitors and loudspeaker/audio mixer and also to the CODEC, wherever these are situated. Some provision must be made for small ducting or conduit to protect these cables.
2. When cable runs across floor spaces cannot be avoided, some form of protection must be provided. Special rubber cable protectors are available that protect the cables and minimize the risk of tripping.

O. Room Color: Generally high contrast color is desired. Light Blue or light gray is commonly used. Stay away from dark and vivid colors. One recommendation is Periwinkle Blue, or Slate Gray.

P. Furniture**:** Individual sites will have their own preferences for the type of furniture to be installed. Try to avoid bright, reflective surfaces that may cause unwanted highlights in the picture and distract the viewer from the main subject matter.

ARKANSAS SCHOOL FACILITY MANUAL
PROGRAM OF REQUIREMENTS (POR)
SUMMARY AND REQUIRED SPACES

Form Printed
9/21/2011

SCHOOL DISTRICT													
SCHOOL NAME					**USER DOCUMENTATION -**								
PROJECT NAME					RUN BY:								
PROJECT NUMBER					DATE:								
1. NUMBER OF STUDENTS Enter maximum projected number of students during next ten years													
Kindergarten		Grade 7			**2. KITCHEN**		School may have warming kitchen or full service kitchen						
Grade 1		Grade 8			Select from menu below YES or NO if school will have warming kitchen								
Grade 2		Grade 9			Warming Kitchen	NO							
Grade 3		Grade 10			Full Service Kitchen	YES							
Grade 4		Grade 11											
Grade 5		Grade 12			**3. MULTI-STORY SCHOOL**								
Grade 6		**TOTAL**	0		Select from menu if school is multi-story		NO - Single Story						
					4. TOTAL SPACE EXISTING CAMPUS		0	Gross Square Feet					
	TOTAL REQUIRED SPACES			0	Square Feet								
	SUPPORT SPACE ALLOWANCE			0	Square Feet								
	TOTAL REQUIRED + SUPPORT SPACE ALLOWANCE			0	Square Feet		TOTAL SPACES (sum)		0	Square Feet			
	10% CONSTRUCTION FACTOR			0.10			NEW SPACES (sum)		0	Square Feet			
	TOTAL REQUIRED/FUNDED SQUARE FOOTAGE			0	Square Feet								

	REQUIRED SPACES	**STANDARD**	**REQUIRED SPACES**		**NEW SPACES**		**EXISTING SPACES (in their final configuration)**		**TOTAL SPACES (NEW + EXISTING)**		**REQUIRED SPACES CHECK**	
	Space	**SF**	**Qty**	**AREA**	**Qty**	**AREA**	**Qty**	**AREA**	**Qty**	**AREA**	**Qty**	**AREA**
	ACADEMIC CORE											
E-AC-3	Kindergarten Classroom	1000	0	0					0	0	0	0
E-AC-4	Kindergarten Restroom	50	0	0					0	0	0	0
E-AC-5a	Elem Classroom Grades 1-3	850	0	0					0	0	0	0
E-AC-5b	Elem Classroom Grades 4-5	850	0	0					0	0	0	0
M-AC-1a	MS Classroom Grade 6	850	0	0					0	0	0	0
M-AC-1b	MS Classroom Grades 7-8	850	0	0					0	0	0	0
M-WD-1	Workforce Development	1,300	0	0					0	0	0	0
H-AC-1	HS Classroom	850	0	0					0	0	0	0
H-AC-2	Science Clrm/Lab-Gen/Physics	1,440	0	0					0	0	0	0
H-AC-3	Science Clrm/Lab-Chemistry	1,440	0	0					0	0	0	0
H-AC-4	Science Clrm/Lab-Biol/Life Sci	1,440	0	0					0	0	0	0
H-AC-5	Science Prep	300	0	0					0	0	0	0
H-AC-11	Chemical Storage	150	0	0					0	0	0	0
H-AC-12	Multi-Use Room	1,500	0	0					0	0	0	0
H-AC-13	Instructional Multi-Purpose Rm	850	0	0					0	0	0	0
H-AC-8	Project Lab/Classroom	1,100	0	0					0	0	0	0
E-MC-1	Reading Room/Circulation	0	0	0					0	0	0	0
E-MC-4	Computer Lab	900	0	0					0	0	0	0
M/H-MC-1	Reading Room/Circulation	0	0	0					0	0	0	0
M-MC-4	Media Center Computer Lab	900	0	0					0	0	0	0
E-VA-1	Art Room	1200	0	0					0	0	0	0
E-VA-3	Art Material Storage	80	0	0					0	0	0	0
E-AC-10	Fine Arts Instruction Room	1,200	0	0					0	0	0	0
E-AC-11	Fine Arts Instruction Storage	100	0	0					0	0	0	0
M-VA-1	Art Room	1200	0	0					0	0	0	0
H-VA-1	Art Room	1200	0	0					0	0	0	0
M/H-VA-3	Art Material Storage	100	0	0					0	0	0	0
E-MU-1	Music Room	1,200	0	0					0	0	0	0
E-MU-2	Music Storage	100	0	0					0	0	0	0
M-MU-2	Music Storage	100	0	0					0	0	0	0
M/H-MU-1	Instrumental Room	1,400	0	0					0	0	0	0
H-MU-2	Instrument Storage	200	0	0					0	0	0	0
M-MU-8	Vocal Room	1,200	0	0					0	0	0	0
H-MU-8	Vocal Room	1,200	0	0					0	0	0	0
H-MU-9	Vocal Storage	150	0	0					0	0	0	0
E-PE-1	PE Area	2500	0	0					0	0	0	0
M-PE-1	PE Area	4000	0	0					0	0	0	0
H-PE-1	PE Area	6000	0	0					0	0	0	0
H-PE-3	Student Locker Room	400	0	0					0	0	0	0
H-PE-4	Student Restroom/Shower	150	0	0					0	0	0	0
H-WD	Workforce Dev Program One	Varies	0	0	0	0	0	0	0	0		0
H-WD	Workforce Dev Program Two	Varies	0	Varies								
H-WD	Workforce Dev Program Three	Varies	0	Varies								
	SPECIAL EDUCATION											
E/M/H-SE-1	Self-contained Classroom	850	1	850					0	0	-1	-850
E/M/H-SE-2	Workroom/Conference	150	1	150					0	0	-1	-150
E/M/H-SE-3	Restroom/Shower	100	1	100					0	0	-1	-100
E/M/H-SE-4	Special Education/Resource	450	1	450					0	0	-1	-450
E/M/H-SE-5	Speech Therapy	475	1	475					0	0	-1	-475
E/M/H-SE-7	OT/PT	350	1	350					0	0	-1	-350
	ADMINISTRATIVE SPACES											
E/M/H-AD-3	Principal's Office	150	1	150					0	0	-1	-150
E/M/H-AD-4	Assistant Principal's Office	120	0	0					0	0	0	0
E/M/H-AD-11	Guidance Counselor's Office	120	1	120					0	0	-1	-120
E/M/H-AD-15	Health Center	250	1	250					0	0	-1	-250
	PERFORMING ARTS											
H-PA-1	Auditorium	1500	0	0					0	0	0	0
H-PA-3	Stage Area (includes wings)	600	0	0					0	0	0	0

ARKANSAS SCHOOL FACILITY MANUAL
PROGRAM OF REQUIREMENTS (POR)
SUMMARY AND REQUIRED SPACES

SCHOOL DISTRICT	
SCHOOL NAME	
PROJECT NAME	
PROJECT NUMBER	

USER DOCUMENTATION -
RUN BY:
DATE:

		STANDARD	REQUIRED SPACES		NEW SPACES		EXISTING SPACES (in their final configuration)		TOTAL SPACES (NEW + EXISTING)		REQUIRED SPACES CHECK	
	STUDENT DINING											
E/M/H-SD-1	Student Dining	0	1	0					0	0	-1	0
	FOOD SERVICE											
E/M/H-FS-1	Warming Kitchen	0	0	0					0	0	0	0
E/M/H-FS-2	Kitchen (total)	0	1	0								
E/M/H-FS-2a	Preparation Area	0	1	0					0	0	-1	0
E/M/H-FS-2b	Serving Area	0	1	0					0	0	-1	0
E/M/H-FS-2c	Dry Food Storage	0	1	0					0	0	-1	0
E/M/H-FS-2d	Cooler/Freezer	0	1	0					0	0	-1	0
E/M/H-FS-2e	Ware Washing	0	1	0					0	0	-1	0
	BUILDING SERVICES											
E/M/H-CU-1	Workroom	125	1	125					0	0	-1	-125
E/M/H-MultiSt	Vertical Circulation	0	0	0					0	0	0	0
E/M/H-BS-1	Large Group Restrooms	91		91					0	0		-91
E/M/H-BS-2	Custodial Closet	50	1	50					0	0	-1	-50
E/M/H-BS-3	Electrical Closet	50	1	50					0	0	-1	-50
E/M/H-BS-4	Telecommunications Room	64	1	64					0	0	-1	-64
E/M/H-BS-5	Corridors/Circulation	604		604					0	0		-604
E/M/H-BS-6	Mech/Elect Space/Decks	167		167					0	0		-167
E/M/H-BS-7	Storage Area	150	1	150					0	0	-1	-150
E/M/H-BS-8	Central Storage Area	150	1	150					0	0	-1	-150
E/M/H-BS-9	Loading/Receiving Area	100	1	100					0	0	-1	-100
E/M/H-BS-10	Main Cross-connect	150	1	150					0	0	-1	-150

NOTES: PLEASE DESCRIBE 1) ANY CONVERSIONS OF SPACE. FOR EXAMPLE, EXISTING 3,000 SF STUDENT DINING CONVERTED TO THREE 4TH GRADE CLASSROOMS.
2) ANY SHARED SPACES WITH OTHER SCHOOLS.

SUITABILITY ANALYSIS

SUITABILITY ANALYSIS					
BY:	0				
DATE:	1/0/1900				
(CHOOSE CORRECT PROJECT TYPE)					
FOR ADDITION PROJECT	YES				
FOR NEW SCHOOL IN DISTRICT	NO				
SCHOOL DISTRICT		0			
SCHOOL NAME		0			
PROJECT NAME		0			
PROJECT NUMBER		0			
	Existing Size		POR Allowance		Difference
	(GROSS SF)		(SF)		
TOTAL SCHOOL/CAMPUS	0		0		0
SINGLE-PURPOSE AREAS					
Physical Education			0		0
Media Center			0		0
Student Dining			0		0
Performing Arts			0		0
	TOTAL SUITABILITY NEED (GROSS SF)				**0**
	FOR STATE FINANCIAL PARTICIPATION				
NOTES			District Inputs		
			From POR Summary Sheet		
			Suitability Analysis Computes		
			State Participation Area or Excess Area in G		

ARKANSAS SCHOOL FACILITY MANUAL
PROGRAM OF REQUIREMENTS (2009-2011 PARTNERSHIP PROGRAM)
SCHOOL SUPPORT SPACES (NOT REQUIRED)

SCHOOL DISTRICT		0		
SCHOOL NAME		0		
PROJECT NAME		0		
PROJECT NUMBER		0		
	ONLY ENTER NEW SPACES INCLUDED IN THE PROJECT			
	SUPPORT SPACES (NOT REQUIRED)	**SUGGESTED SF**	**Qty**	**AREA**
	ACADEMIC CORE			
E-AC-6	Teacher Prep Area/Workroom	150		
E-AC-7	Individual Restroom	50		
E-AC-8	Instructional Material Storage	100		
E-AC-9	Instructional Multi-purpose	750		
E-MC-2	Media Specialist Office	100		
E-MC-3	Media Center Workroom/Storage	100		
E-MC-5	A/V Storage	50		
E-MC-6	Conference Room	200		
E-VA-2	Kiln/Ceramic Storage	100		
E-PE-2	P. E. Workroom/Storage	100		
M-AC-2	Project Lab/Classroom	1100		
M-AC-3	Teacher Prep Area/Workroom	200		
M-AC-4	Individual Restroom	50		
M-AC-5	Instructional Material Storage	120		
M-AC-6	Small Group Room	150		
M-AC-7	Instructional Multi-purpose Room	800		
M-MC-2	Media Specialist Office	120		
M-MC-3	Media Center Workroom/Storage	150		
M-MC-5	Media Center A/V Storage	80		
M-MC-6	Media Center Conference Room	150		
M-MC-7	Multimedia Production Room	300		
M-VA-2	Kiln/Ceramic Storage	100		
M-MU-3	Music Office	120		
M-MU-4	Music Library	120		
M-WD-2	Workforce Dev Production Lab	1300		
M-WD-3	Workforce Development Storage	150		
M-FCS-1	Life Skills Lab	1100		
M-FCS-2	Life Skills Storage	100		
M-PE-2	P.E./Athletic Office	75		
M-PE-3	Staff Shower	75		
M-PE-4	Student Locker Room	350		
M-PE-5	Student Restroom/Shower	150		
M-PE-6	Physical Education Storage	200		
H-AC-6	Teacher Prep Area/Workroom	300		
H-AC-7	Individual Restroom	50		
H-AC-9	Small Group Room	150		
H-AC-10	Instructional Material Storage	150		
H-MC-2	Media Specialist Office	120		
H-MC-3	Workroom/Storage	150		
H-MC-4	A/V Storage	75		
H-MC-5	Conference Room	250		
H-MC-6	Multimedia Production Room	400		

ARKANSAS SCHOOL FACILITY MANUAL
PROGRAM OF REQUIREMENTS (2009-2011 PARTNERSHIP PROGRAM)
SCHOOL SUPPORT SPACES (NOT REQUIRED)

SCHOOL DISTRICT		0		
SCHOOL NAME		0		
PROJECT NAME		0		
PROJECT NUMBER		0		
	ONLY ENTER NEW SPACES INCLUDED IN THE PROJECT			
	SUPPORT SPACES (NOT REQUIRED)	**SUGGESTED SF**	**Qty**	**AREA**
H-MC-7	Document Storage	60		
H-VA-2	Kiln/Ceramic Storage	100		
H-MU-3	Instrument Repair Room	100		
H-MU-4	Orchestra Storage	100		
H-MU-5	Instrumental Music Library	120		
H-MU-6	Instrumental Office	120		
H-MU-7	Uniform Storage	100		
H-MU-10	Vocal Music Library	120		
H-MU-11	Vocal Office	120		
H-MU-12	Ensemble Room	150		
H-MU-13	Practice Room	80		
H-MU-14	Restroom	50		
H-PE-2	Auxiliary Gymnasium	4,000		
H-PE-5	Physical Education Storage	200		
H-PE-6	P.E./Athletic Office	75		
H-PE-7	Staff Shower	75		
H-PE-8	Athletic Director's Office	120		
H-PE-9	Lobby Services	100		
H-PE-10	Training Room	200		
H-PE-11	Physical Health Classroom	850		
H-PE-12	Multi-use P.E. Room	2,400		
	SPECIAL EDUCATION			
E-SE-6	Storage	80		
M-SE-6	Storage	100		
H-SE-6	Storage	100		
	ADMINISTRATIVE SPACES			
E-AD-1	Reception Area	150		
E-AD-2	Secretarial Area	150		
E-AD-5	Conference Room	150		
E-AD-6	Mail/Work/Copy Room	150		
E-AD-7	Administrative Storage	80		
E-AD-8	Vault/Records Storage	50		
E-AD-9	In-school Suspension	450		
E-AD-10	Restroom	50		
E-AD-12	Guidance Reception	120		
E-AD-13	Guidance Records/Storage	50		
E-AD-14	Parent Center	300		
E-AD-16	Itinerant Personnel Office	100		
E-AD-17	Family Restroom	80		
M-AD-1	Reception Area	150		
M-AD-2	Secretarial Area	150		

ARKANSAS SCHOOL FACILITY MANUAL
PROGRAM OF REQUIREMENTS (2009-2011 PARTNERSHIP PROGRAM)
SCHOOL SUPPORT SPACES (NOT REQUIRED)

SCHOOL DISTRICT		0		
SCHOOL NAME		0		
PROJECT NAME		0		
PROJECT NUMBER		0		
	ONLY ENTER NEW SPACES INCLUDED IN THE PROJECT			
	SUPPORT SPACES (NOT REQUIRED)	**SUGGESTED SF**	**Qty**	**AREA**
M-AD-5	Conference Room	150		
M-AD-6	Mail/Work/Copy Room	150		
M-AD-7	Administrative Storage	75		
M-AD-8	Vault/Records Storage	50		
M-AD-9	In-school Suspension	350		
M-AD-10	Restroom	50		
M-AD-12	Guidance Reception	120		
M-AD-13	Guidance Records/Storage	50		
M-AD-14	Parent Center	400		
M-AD-16	Itinerant Personnel Office	120		
M-AD-17	Family Restroom	80		
H-AD-1	Reception Area	150		
H-AD-2	Secretarial Area	150		
H-AD-5	Conference Room	200		
H-AD-6	Mail/Work/Copy Room	150		
H-AD-7	Administrative Storage	100		
H-AD-8	Vault/Records Storage	50		
H-AD-9	In-school Suspension	450		
H-AD-10	Restroom	50		
H-AD-12	Guidance Records/Storage	80		
H-AD-13	Guid. Conference Rm/Group Procedures Rm	250		
H-AD-14	Guidance Reception and Display Area	120		
H-AD-15	Parent Center	450		
H-AD-17	Itinerant Personnel Office	120		
H-AD-18	Career Center	500		
H-AD-19	Family Restroom	80		
	FOOD SERVICE			
E-SD-2	Stage	900		
E-SD-3	Staff Dining	250		
E-SD-4	Table Storage	200		
E-FS-3	Dietician Office	75		
E-FS-4	Restroom	50		
E-FS-5	Locker Room	100		
M-SD-2	Stage	1000		
M-SD-3	Staff Dining	400		
M-SD-4	Table Storage	200		
M-FS-3	Dietician Office	75		
M-FS-4	Restroom	50		
M-FS-5	Locker Room	50		
H-FS-3	Dietician Office	75		

ARKANSAS SCHOOL FACILITY MANUAL
PROGRAM OF REQUIREMENTS (2009-2011 PARTNERSHIP PROGRAM)
SCHOOL SUPPORT SPACES (NOT REQUIRED)

SCHOOL DISTRICT		0		
SCHOOL NAME		0		
PROJECT NAME		0		
PROJECT NUMBER		0		
	ONLY ENTER NEW SPACES INCLUDED IN THE PROJECT			
	SUPPORT SPACES (NOT REQUIRED)	**SUGGESTED SF**	**Qty**	**AREA**
H-FS-4	Restroom	50		
H-FS-5	Locker Room	125		
	PERFORMING ARTS			
H-PA-2	Orchestra Pit [with cover]	300		
H-PA-4	Scene Shop	400		
H-PA-5	Scene Shop Storage	250		
H-PA-6	Make-up/Dressing Room	100		
H-PA-7	Green Room	300		
H-PA-8	Costume Storage	150		
H-PA-9	Control Room	100		
H-PA-10	Lobby/Concessions/Gallery	200		
H-PA-11	Ticket Booth	80		
H-PA-12	Theatre/Drama Office	100		
H-PA-13	Storage	200		
	BUILDING SERVICES			
E-CU-2	Custodial Office	80		
M-CU-2	Custodial Workroom	63		
H-CU-2	Custodial Workroom	125		
		Total area of support spaces		0

ARKANSAS SCHOOL FACILITY MANUAL
PROGRAM OF REQUIREMENTS (2009-2011 PARTNERSHIP PROGRAM)
WORKFORCE DEVELOPMENT (Required for 9-12)

SCHOOL DISTRICT		0		9-12 schools must provide a minimum of three					
SCHOOL NAME		0		workforce development programs. Each program must					
PROJECT NAME		0		contain at least three course offerings. Allowable					
PROJECT NUMBER		0		workforce total space is shown on Summary sheet.					
			SUGGESTED	**NEW SPACES**		**EXISTING SPACES**		**TOTAL SPACES (NEW + EXISTING)**	
	WORKFORCE DEVELOPMENT		**SIZE**	**Qty**	**AREA**	**Qty**	**AREA**	**Qty**	**AREA**
Agribusiness Systems									
WD-AG-1	Agribusiness Lab		1,200					0	0
Agricultural Power, Structural, & Technical Sys.									
WD-AG-2	Ag Mechanics Lab		3,000					0	0
WD-AG-3	Outdoor Covered Work Area		800					0	0
Agricultural Science - Animal or Plant Sys.									
WD-AG-4	Outdoor Animal Science Lab		1,000					0	0
Horticulture / Plant Systems									
WD-AG-5	Greenhouse		1,800					0	0
WD-AG-6	Cold Frame		800					0	0
WD-AG-7	Shade House		300					0	0
WD-AG-8	Hydroponics Lab		250					0	0
Natural Resources / Environmental Service Sys.									
WD-AG-9	Aquaculture Lab		500					0	0
Related Spaces									
WD-AG-10	Classroom		850					0	0
WD-AG-11	Office		120					0	0
WD-AG-12	Restrooms/Locker Rooms		150					0	0
WD-AG-13	Storage		150					0	0
Business Marketing Management									
WD-BM-1	Management Lab		1,500					0	0
Office Administration									
WD-BM-2	Office Administration Lab		1,500					0	0
Hospitality									
WD-BM-3	Hospitality Lab		1,500					0	0
Lodging									
WD-BM-4	Lodging Lab		1,500					0	0
Desktop Publishing									
WD-BM-5	Desktop Publishing Lab		1,500					0	0
Multimedia									
WD-BM-6	Multimedia Lab		1,500					0	0
Programming									
WD-BM-7	Programming Lab		1,500					0	0
Accounting									
WD-BM-8	Accounting Lab		1,500					0	0
Banking & Finance									
WD-BM-9	Banking & Finance Lab		1,500					0	0
Marketing									
WD-BM-10	Marketing Lab		1,500					0	0
Related Spaces									
WD-BM-11	Classroom		850					0	0
WD-BM-12	Office		120					0	0
WD-BM-13	Storage		100					0	0

ARKANSAS SCHOOL FACILITY MANUAL
PROGRAM OF REQUIREMENTS (2009-2011 PARTNERSHIP PROGRAM)
WORKFORCE DEVELOPMENT (Required for 9-12)

SCHOOL DISTRICT	0
SCHOOL NAME	0
PROJECT NAME	0
PROJECT NUMBER	0

9-12 schools must provide a minimum of three workforce development programs. Each program must contain at least three course offerings. Allowable workforce total space is shown on Summary sheet.

	WORKFORCE DEVELOPMENT	SUGGESTED SIZE	NEW SPACES Qty	NEW SPACES AREA	EXISTING SPACES Qty	EXISTING SPACES AREA	TOTAL SPACES (NEW + EXISTING) Qty	TOTAL SPACES (NEW + EXISTING) AREA
Family & Consumer Sciences								
WD-FCS-1	Family & Consumer Sciences Lab	1,200					0	0
WD-FCS-2	Food Prep Lab (kitchen units)	600					0	0
WD-FCS-3	Sewing Lab	550					0	0
WD-FCS-4	Fitting Room	150					0	0
WD-FCS-5	Laundry	50					0	0
Education & Training								
WD-FCS-6	Education & Training Lab	1,200					0	0
Food Production, Management, & Services								
WD-FCS-7	Food Production, Management, & Services Lab	1,200					0	0
WD-FCS-8	Food Prep Lab (kitchen units)	600					0	0
Facilities Management, Maintenance, & Services								
WD-FCS-9	Facilities Management, Maintenance, & Services L	1,200					0	0
Child Care Guidance, Management, & Services								
WD-FCS-10	Child Care Guidance, Management, & Services La	1,200					0	0
WD-FCS-11	Laundry	50					0	0
Cosmetology								
WD-FCS-12	Cosmetology Lab	2,500					0	0
WD-FCS-13	Cosmetology Clinic Area	1,200					0	0
WD-FCS-14	Cosmetology Instruction Area	275					0	0
Related Spaces								
WD-FCS-15	Classroom	850					0	0
WD-FCS-16	Office	120					0	0
WD-FCS-17	Restrooms	150					0	0
WD-FCS-18	Storage	100					0	0
Architecture and Construction Services								
Construction Technology								
WD-ARC-1	Construction Technology Lab	3,000					0	0
HVACR								
WD-ARC-2	HVACR Lab	3,000					0	0
Related Spaces								
WD-ARC-3	Classroom	850					0	0
WD-ARC-4	Office	120					0	0
WD-ARC-5	Storage	200					0	0
ARTS, AV TECHNOLOGY, & COMMUNICATION SPACES								
Advertising Design								
WD-AV-1	Advertising Design Lab	800					0	0
Career Communications								
WD-AV-2	Career Communications Lab	900					0	0
Commercial Photography								
WD-AV-3	Photography Production Lab	400					0	0
WD-AV-4	Photography Workroom	750					0	0
WD-AV-5	Photography Darkroom	150					0	0
Graphic Communications								
WD-AV-6	Graphic Communication Work Area	1,800					0	0

ARKANSAS SCHOOL FACILITY MANUAL
PROGRAM OF REQUIREMENTS (2009-2011 PARTNERSHIP PROGRAM)
WORKFORCE DEVELOPMENT (Required for 9-12)

SCHOOL DISTRICT	0
SCHOOL NAME	0
PROJECT NAME	0
PROJECT NUMBER	0

9-12 schools must provide a minimum of three workforce development programs. Each program must contain at least three course offerings. Allowable workforce total space is shown on Summary sheet.

			SUGGESTED	NEW SPACES		EXISTING SPACES		TOTAL SPACES (NEW + EXISTING)	
	WORKFORCE DEVELOPMENT		**SIZE**	**Qty**	**AREA**	**Qty**	**AREA**	**Qty**	**AREA**
Performing Arts									
WD-AV-7	Performing Arts Studio		1,800					0	0
WD-AV-8	Dressing Rooms		750					0	0
WD-AV-9	Performing Arts Storage		250					0	0
Radio / TV Broadcasting									
WD-AV-10	Radio / TV Broadcasting Lab		800					0	0
Related Spaces									
WD-AV-11	Classroom		850					0	0
WD-AV-12	Office		120					0	0
WD-AV-13	Storage		200					0	0
Government and Public Education Spaces									
ROTC									
WD-GOV-1	ROTC Lab		3,000					0	0
Related Spaces									
WD-GOV-2	Classroom		850					0	0
WD-GOV-3	Office		120					0	0
WD-GOV-4	Storage		200					0	0
Health Science Spaces									
Medical Professions Education									
WD-HSC-1	Clinic Area		500					0	0
Related Spaces									
WD-HSC-2	Classroom		850					0	0
WD-HSC-3	Office		120					0	0
WD-HSC-4	Storage		200					0	0
Law, Public Safety and Security Spaces									
Criminal Justice									
WD-LAW-1	Criminal Justice Lab (forensics)		1,200					0	0
Related Spaces									
WD-LAW-2	Classroom		850					0	0
WD-LAW-3	Office		120					0	0
WD-LAW-4	Storage		200					0	0
Manufacturing Spaces									
Electronics									
WD-MAN-1	Electronics Lab		2,000					0	0
Furniture Manufacturing									
WD-MAN-2	Furniture Manufacturing Lab		3,000					0	0
Industrial Equipment Maintenance									
WD-MAN-3	Industrial Equipment Lab		3,000					0	0
Machine Tool Technology									
WD-MAN-4	Machine Tool Lab		3,000					0	0
Major Appliance Repair									
WD-MAN-5	Major Appliance Repair Lab		3,000					0	0
Welding									
WD-MAN-6	Welding Lab		3,000					0	0
Related Spaces									
WD-MAN-7	Classroom		750					0	0

ARKANSAS SCHOOL FACILITY MANUAL
PROGRAM OF REQUIREMENTS (2009-2011 PARTNERSHIP PROGRAM)
WORKFORCE DEVELOPMENT (Required for 9-12)

SCHOOL DISTRICT	0
SCHOOL NAME	0
PROJECT NAME	0
PROJECT NUMBER	0

9-12 schools must provide a minimum of three workforce development programs. Each program must contain at least three course offerings. Allowable workforce total space is shown on Summary sheet.

			SUGGESTED	NEW SPACES		EXISTING SPACES		TOTAL SPACES (NEW + EXISTING)	
	WORKFORCE DEVELOPMENT		**SIZE**	**Qty**	**AREA**	**Qty**	**AREA**	**Qty**	**AREA**
WD-MAN-8	Office		120					0	0
WD-MAN-9	Storage		200					0	0
SCIENCE, TECHNOLOGY, ENGINEERING, & MATHEMATICS SPACES									
Drafting & Design									
WD-ENG-1	Drafting & Design Lab		2,000					0	0
Computer Engineering									
WD-ENG-2	Computer Engineering Lab		1,200					0	0
Geospatial Technology (GIS)									
WD-ENG-3	Geospatial Technology (GIS) Lab		1,200					0	0
Pre-Engineering									
WD-ENG-4	Pre-Engineering Lab		1,500					0	0
Related Spaces									
WD-ENG-5	Classroom		750					0	0
WD-ENG-6	Office		120					0	0
WD-ENG-7	Storage		200					0	0
Transportation, Distribution, & Logistics Spaces									
Automotive Collision									
WD-TDL-1	Automotive Collision Repair Lab		4,000					0	0
Automotive Service Technology									
WD-TDL-2	Automotive Service Technology Lab		4,000					0	0
Aviation Mechanics									
WD-TDL-3	Aviation Mechanics Lab		10,000					0	0
WD-TDL-4	Aviation Technology Lab		1,200					0	0
Diesel Mechanics									
WD-TDL-5	Diesel Mechanics Lab		4,000					0	0
Power Equipment Technology									
WD-TDL-6	Power Equipment Technology Lab		3,000					0	0
Related Spaces									
WD-TDL-7	Classroom		750					0	0
WD-TDL-8	Office		120					0	0
WD-TDL-9	Storage		200					0	0
			TOTALS	0	0	0	0	0	0

	REQUIRED SPACES								
		STANDARD SIZE							
	Space	Square Feet		Notes					
	ACADEMIC CORE								
E-AC-3	Kindergarten Classroom	1000		Maximum class size 20 students					
E-AC-4	Kindergarten Restroom	50		One per kindergarten classroom					
E-AC-5a	Elem Classroom Grades 1-3	850		Maximum class size 25 students					
E-AC-5b	Elem Classroom Grades 4-5	850		Maximum class size 28 students					
M-AC-1a	MS Classroom Grade 6	850		Maximum class size 28 students.					
M-AC-1b	MS Classroom Grades 7-8	850		Maximum class size 30 students.					
M-WD-1	Workforce Development	1,300		Two required for 700 or more students.					
H-AC-1	HS Classroom	850		Maximum class size 30 students.					
H-AC-2	Science Clrm/Lab-Gen/Physics	1,440		Minimum one plus one per each 500 students					
H-AC-3	Science Clrm/Lab-Chemistry	1,440		One per each 500 students above 1,000 students.					
H-AC-4	Science Clrm/Lab-Biol/Life Sci	1,440		One minimum to 1000 students. Additional for each 500 above 1000 students.					
H-AC-5	Science Prep	300							
H-AC-11	Chemical Storage	150		One miminum. Two above 1500 students.					
H-AC-12	Multi-Use Room	1,500							
H-AC-13	Instructional Multi-Purpose Rm	850							
H-AC-8	Project Lab/Classroom	1,100		One minimum to 1000 students. Additional for each 500 above 1000 students.					
E-MC-1	Reading Room/Circulation	Computed		10% of the student capacity multiplied by 35 SF per student.					
E-MC-4	Computer Lab	900							
M/H-MC-1	Reading Room/Circulation	Computed		10% of the student capacity multiplied by 40 SF per student.					
M-MC-4	Media Center Computer Lab	900							
E-VA-1	Art Room	1200		Required for 550 or more students.					
E-VA-3	Art Material Storage	80		Required for 550 or more students.					
E-AC-10	Fine Arts Instruction Room	1,200		Substituted for Art and Music Room in ES with less than 550 students					
E-AC-11	Fine Arts Instruction Storage	100		Substituted for Art and Music Storage in ES with less than 550 students					
M-VA-1	Art Room	1200							
H-VA-1	Art Room	1200		Minimum one, plus one for each 500 students					
M/H-VA-3	Art Material Storage	100							
E-MU-1	Music Room	1,200		Required for 550 or more students.					
E-MU-2	Music Storage	100		Required for 550 or more students.					
M-MU-2	Music Storage	100		Required for 550 or more students.					
M/H-MU-1	Instrumental Room	1,400		Minimum one plus additional room for more than 1000 students.					
H-MU-2	Instrument Storage	Computed		Minimum 200 SF. One-half SF per student.					
M-MU-8	Vocal Room	1,200		Required for 700 or more students					
H-MU-8	Vocal Room	1,200		Minimum one for 500 students plus additional room for more than 2000 students.					
H-MU-9	Vocal Storage	150		One per vocal room.					
E-PE-1	PE Area	Computed		10 SF per student. Minimum 2,500 SF, Maximum 10,000 SF.					
M-PE-1	PE Area	Computed		15 SF per student. Minimum 4,000 SF, Maximum 10,000 SF.					
H-PE-1	PE Area	Computed		15 SF per student. Min 6,000 SF, Max 30,000 SF. Includes aux gym above 1000 students.					
H-PE-3	Student Locker Room	Computed		Minimum 2 @ 400 SF. Maximum 6 @ 850 SF.					
H-PE-4	Student Restroom/Shower	Computed		Minimum 2 @ 150 SF. Maximum 6 @ 350 SF.					
H-WD	Workforce Dev Program One	Varies		Total. Minimum 8,000 SF. Maximum 23,000 SF. 15 SF/student.					
H-WD	Workforce Dev Program Two	Varies							
H-WD	Workforce Dev Program Three	Varies							
	SPECIAL EDUCATION								
E/M/H-SE-1	Self-contained Classroom	850		Two required for 1,000 students and above.					
E/M/H-SE-2	Workroom/Conference	150		Two required for 1,000 students and above.					
E/M/H-SE-3	Restroom/Shower	100		Two required for 1,000 students and above.					
E/M/H-SE-4	Special Education/Resource	450		Two required for 1,000 students and above.					
E/M/H-SE-5	Speech Therapy	475		Two required for 1,000 students and above.					
E/M/H-SE-7	OT/PT	350		Two required for 1,000 students and above.					
	ADMINISTRATIVE SPACES								
E/M/H-AD-3	Principal's Office	150							
E/M/H-AD-4	Assistant Principal's Office	120		Required for 500 or more students.					
E/M/H-AD-11	Guidance Counselor's Office	120		Minimum 1. Must maintain ratio of 1:450					
E/M/H-AD-15	Health Center	250							
	PERFORMING ARTS								
H-PA-1	Auditorium	Computed		Minimum 1500 SF. 5 SF per 9-12 student.					
H-PA-3	Stage Area (includes wings)	Computed		Minimum 600 SF. 2 SF per 9-12 student.					
	STUDENT DINING								
E/M/H-SD-1	Student Dining	Computed		One-half of the student capacity multiplied by 15 SF per student.					
	FOOD SERVICE			Only one of the two kitchens is to be used - either E-FS-1 or E-FS-2 - not both.					
E/M/H-FS-1	Warming Kitchen	Computed		2 SF per student.					
E/M/H-FS-2	Kitchen (total)	Computed		Equal to sum of areas for preparation, serving, dry food storage, cooler/freezer, and ware washing.					
E/M/H-FS-2a	Preparation Area	Computed		Student capacity multiplied by 3.5 SF per student multiplied by 36%.					
E/M/H-FS-2b	Serving Area	Computed		Student capacity multiplied by 3.5 SF per student multiplied by 34%.					
E/M/H-FS-2c	Dry Food Storage	Computed		Student capacity multiplied by 3.5 SF per student multiplied by 11%.					
E/M/H-FS-2d	Cooler/Freezer	Computed		Student capacity multiplied by 3.5 SF per student multiplied by 10%.					
E/M/H-FS-2e	Ware Washing	Computed		Student capacity multiplied by 3.5 SF per student multiplied by 9%.					
	BUILDING SERVICES								
E/M/H-CU-1	Workroom	Computed		0.5 SF per student. Minimum 125 SF.					
E/M/H-MultiSt	Vertical Circulation	Computed		Vertical Circulation for Multi-Story Schools					
E/M/H-BS-1	Large Group Restrooms	Computed		Equal to the sum of the program areas, excluding building services, multiplied by 3%.					
E/M/H-BS-2	Custodial Closet	50							
E/M/H-BS-3	Electrical Closet	50							
E/M/H-BS-4	Telecommunications Room	64							
E/M/H-BS-5	Corridors/Circulation	Computed		Equal to the sum of the program areas, excluding building services, multiplied by 20%.					
E/M/H-BS-6	Mech/Elect Space/Decks	Computed		Equal to the sum of the program areas, excluding building services, multiplied by 5.5%.					
E/M/H-BS-7	Storage Area	150							
E/M/H-BS-8	Central Storage Area	150							
E/M/H-BS-9	Loading/Receiving Area	100							
E/M/H-BS-10	Main Cross-connect	150							

Arkansas Division of Public School

Academic Facilities & Transportation

ACADEMIC FACILITIES PARTNERSHIP PROGRAM

September 2011

PROJECT AGREEMENT

(Applicable beginning with Partnership Projects for 2013-2015 Biennium)

Project Name: _____

Project Number: _____

This Project Agreement ("Agreement") is made and entered into by and between the ***Division of Public School Academic Facilities and Transportation*** ("Division") and the _____ ***School District*** ("District"), _____ ***County***, pursuant to A.C.A. § 6-20-2507.

WHEREAS, The Division, created pursuant to Act 1327 of 2005 is a body corporate and politic, an agency of state government and an instrumentality of the State of Arkansas ("State"), performing essential government functions of the State; and

WHEREAS, the District is acting as an agency of state government, performing essential functions of government pursuant to the laws of the State of Arkansas, and

WHEREAS, the District and the Division have approved a Master Facilities Plan describing the classroom facilities needs of the entire student population of the district, and the total budget for the Public School Academic Facilities Project ("Project"); and

WHEREAS, the District and the Division acknowledge that for funding and planning purposes, the Project is anticipated to commence on _____ and be completed on _____.

NOW, THEREFORE, in consideration of the mutual promises herein contained, the District and the Division agree to cooperate in the design, construction and terms described herein and as follows.

I. AGREEMENT APPLICABILITY

This Project Agreement (Agreement) will become effective upon the signing of both parties and be binding on the date signed by the Director of the Division of Public School Academic Facilities. The district certifies that scope planning and financial planning have been completed prior to the project application submission. No additional aspect of the project will proceed prior to the signing of this agreement. By signing, the district certifies that it has not begun the project beyond the steps outlined above. The signing of this agreement certifies that the Commission for Arkansas Public School Academic Facilities and Transportation ("Commission") has approved the project and funding under the Academic Facilities Partnership Program. The district further acknowledges by signing that, should it be determined that the Project began prior to the signing of this agreement, the Commission may exercise one of the following options: (1) Exercise its authority for project disapproval, (2) Declare any project aspects undertaken prior to the signing date ineligible for program funds, or (3) Require the district to modify any plans and or contracts such that they are in conformance with the provisions of this agreement. The district agrees that should any of these options be exercised by the Commission, the agreement will be amended and the State Financial Participation adjusted accordingly. The Commission may also exercise their option to amend the agreement should the plan review or the approval of a variance request by the district cause a change in scope or the final contract price alters the initial State Financial Participation as stated on the agreement.

Furthermore, if construction of the project has not commenced by (enter date 18 months from Commission approval), this agreement is null and void and any monies paid by the state to a district shall be subject to immediate recapture by the state. The parties agree to exercise good faith in the execution of this agreement and the completion of the requirements set forth herein, and that both parties will endeavor to follow and implement the aspects of the program, the district agrees to comply with all timelines and process requirements in the Rules Governing the Partnership Program or be subject to those Commission options referenced above.

II. SCOPE OF THE PROJECT

A. The parties agree that the project shall be described as follows:

1. Campus Name: _____

2. Building Name: _____

If this is a warm, safe and dry project, give complete description of the system, or systems, being replaced in the detailed scopes of steps 3 and 4.

3. District inserts detailed scope of the **total** project here:

a._____

_____

(Do not attach the application as the scope)

b.Total project square feet or appropriate unit :_____

4. District inserts detailed scope of the **funded** portion of work here:

a._____

_____

(Do not attach the application as the scope)

b. Funded project square feet or appropriate unit:_____

B. The division and the district agree that the project will, where applicable, and to the fullest extent possible, comply with the Arkansas Public School Academic Facility Manual and division policies and rules, unless a variance is requested and approved by the Division. The district shall not use any of the project constructed pursuant to this agreement for any purpose other than as an academic facility, as that term is defined in Ark. Code Ann. § 6-20-2502.

C. Total budget for the Project is **($_____).**

State financial participation of the total Project budget shall be: **($_____).**

State "green building incentive:" **($_____).**

Total state financial participation: ($_____).

The District's local share of the total Project budget shall be **($_____),** as set forth in Article IV of this Agreement.

D. The district shall provide to the division, at the time of the signing of this agreement, data on the programmed amounts of budget elements and, at the completion of the project, data on the actual cost of the project programmed elements inclusive of all changes in accordance with Appendix B, Part 1 of this agreement.

III. RESPONSIBILITIES DURING COURSE OF PROJECT

The division and district shall be responsible for the following:

School District	Division
Determination of project Scope (Partnership Project Application)	Review and approval (application review)
Architect/Engineer, Construction Manager (if desired), Construction Contractor selection process	Provide guidance as requested pertaining to procurement laws.
Submittal of project construction drawings in PDF format and full size printed copy (preliminary floor plans for space projects recommended for preliminary review)	Review for conformance with facility manual.
Site selection and request	Provide recommended guidelines contained in the Arkansas Facility Manual
Request for variance consideration of the Arkansas Facility Manual	Division plan review and variance determination
Educational program choices,	Approval in accordance with design and material choices with current state law and Arkansas Facility Manual
Recommend special conditions documents	Provide recommended contract clauses for architect and construction contracts.
Bid procedures	No action
Submission of project approval forms and state reviews	Final project approval
Recommendation of award, notification of bids	No action
Fund management in accordance with Arkansas Department of Education accounting guidelines	Audit option.

Provide Maintenance Plan/Certification	Verify new buildings are in the MAPPS database and the computerized maintenance management system.

A. Any property interest of the State during, and subsequent to construction of the Project, extends only to the extent necessary to facilitate financing the Project. The District will continue to possess all other lawful rights, obligations and interests in the Project.

B. Site Selection: The District shall be solely responsible for all costs associated with the project site, including acquisition, environmental remediation, and unanticipated site conditions.

IV. SCHOOL DISTRICT SHARE OF THE BASIC PROJECT COST

A. The signing of this Agreement will serve as certification by the District that the local share amount listed in Section II has been appropriated, budgeted and made available to support the District's share of this Project. It further certifies that funds are of the type indicated below. The Division reserves the right to audit the funds allocated by the District to the Project Fund or any expenditure related to the Fund or the Project at any time. The method of financial accountability for any project funds will be as established by the Arkansas Department of Education.

B. Funded from bond proceeds: (**$**_____). (The school district is responsible for the administration of the bond sale (if applicable), all necessary notices and cost associated therewith. The proceeds of any such bonds or notes, except any premiums, accrued interest and interest included in the amount of the bonds or notes, shall be used first to retire any bond anticipation notes issued by the District for the Project).

C. Funded from locally donated contributions: ($_____).
(To include letters of credit, moneys donated or contributions spent directly by a third party.)

D. Funded from Grant sources: ($_____).
(Specify origin of Grant and any special conditions that might affect this Project as a result of the grant award.)

E. Funded from operational fund balances: ($_____).
(To include Maintenance Escrow accounts.)

V. STATE SHARE OF PROJECT COST

A. The Division shall certify to the Department of Education the State's portion of the Project cost, to transfer the State's portion of the Project cost, or the applicable portion thereof, which shall then be transferred to the District as may be necessary to pay obligations incurred pursuant to the terms of this Agreement. The District will submit payment requests to the Division, in a format provided in Appendix B. Payment requests for the design contract will be submitted in accordance with the design schedule in the contract. Payments to the district, as state share of the construction

contract, will begin one month after the Notice to Proceed is issued and each month thereafter with the final payment request being made at final Project closeout. This procedure applies to contracts whose duration is greater than six (6) months. Projects under six months duration will be submitted at the conclusion of the project. The Division will make payments to the District, of its prorated share of the project cost, commensurate with the contract invoices.

B. The amount of the state's financial participation for the Project in each fiscal biennium shall be determined by the Division based on the Project's estimated construction schedule. In each subsequent biennium, in order to complete the Project per the construction schedule, the approved Project will have priority for state funds over new Projects for which initial state funding is sought.
C. The State's share of the Project cost is limited to new construction on academic facilities as defined by Arkansas statute. Project funding, if applicable, as may pertain to portions of the scope that are agreed to be maintenance, repair or renovation are the responsibility of the District and will be accounted for separately from Project funds provided pursuant to this Agreement.
D. The total extent of the State's share will be based on the district academic facilities wealth index and basis of state financial participation applicable at the time the Project is approved, as applied by the Rules Governing the Academic Facilities Partnership Program. It will not be adjusted during the duration of the Project except as stated in paragraph I, Applicability.
E. Under no circumstances shall the state's share of project cost exceed the appropriate per square foot funding factor as allowed in the Partnership Rules.

VI. THE PROJECT CONSTRUCTION FUND

A. The District shall identify and describe any fund or account, other than the Project Construction Fund (Fund) that is related to the Project. The District shall include in the Fund, sufficient funds as required by law, for issuance of any contracts during the duration of the project.
B. The District shall be responsible for distributing moneys from the Fund upon receipt and approval of proper invoices.
C. Transactions involving the Fund shall be restricted to: 1) payments for design and project management services, 2) payments to contractors, 3) purchases related to the project, 4) transactions authorized for establishing and administering the investment accounts and construction administration.

   No Fund moneys shall be spent for any items inconsistent with the provisions of the Arkansas School Facility Manual and Division policies, unless a variance is approved by the Division.
D. The District shall not transfer moneys from the Fund, investment earnings credited to the Fund, to any other fund or account except as permitted by this Agreement or with the written approval of the Division.
E. The District shall provide a full accounting of the Fund, upon request of the Division. The Division reserves the right to audit the Fund, or any expenditure related to the Fund or the Project.

F. The contingency reserve portion of the construction budget shall be used to pay only costs resulting from unforeseen job conditions, to comply with rulings regarding building and other codes, to pay costs related to design clarifications or corrections to contract documents, and to pay the cost of settlements and judgments related to the Project, unless otherwise approved by the Division.

G. If the Fund, including all investment earnings credited to the Fund, and any interest earned through completion of the Project, becomes depleted by payments of proper Project costs, the District shall complete the Project, by contributing additional funds. The state share is limited to the state financial participation as stated in the agreement and any amendments.

H. This Agreement is contingent on and subject to the district's ability to raise appropriate local resources. The Agreement may be declared null and void and the State will have no further obligation to provide state funds to the District for the Project that is the subject of this agreement if the District fails to raise local resources and apply local resources toward the Project as provided under this agreement.

VII. CONTRACT ADMINISTRATION

A. The District shall competitively bid, execute and administer contracts for construction on the Project and all other contracts as necessary, in compliance with State of Arkansas bidding procurement laws in place at the time of bid. It further agrees that it will follow all state and local government procurement and construction codes, Division policies and manuals regarding any procurement actions, and administration and execution of design and construction contracts. Both parties further acknowledge that this Agreement is in addition to and not to replace any state annotated codes, policies or rules governing state procurement practices and contract administration.

B. The division may recommend contract formats for projects of varying size and estimated cost.

C. The division may recommend contract clauses for the Architect and the Project Manager. If the District chooses to use its own form of Agreement for the Architect/Engineer or Construction Manager, the District's Agreement may contain the clauses listed, as applicable, in the Architectural Contract Recommendations Document found on the division website.

D. The division may recommend an Invitation for Bids and Special Clauses for use by the District. The Construction Contract Recommendations Document can be found on the Division website. The Standard Conditions of Contracts for Construction in effect at the time of the applicable bid advertisement for the Project shall apply to the Project.

E. Any proposed changes to the plans or scope of the Project that affects the Project budget cost, Project length or facility standards shall be brought to the attention of the Division. The Division reserves the right to conduct on-site inspections of the new construction as frequently as deemed necessary to insure the prudent and resourceful expenditure of state funds.

F. The District will be responsible for all administrative measures of the bidding procedures.

G. Should the Project not be completed, through no fault of the District, the State and the District will share liability and recovered losses and damages to the extent of the Agreement. Should the Project not be completed due to the fault of the District, the State reserves the right to recover its total loss from district financial balances.
H. The Division will make final payment to the District upon receipt of the final invoice submitted to the District by the contracted service provider. Final invoice will indicate: (1) original contract price, (2) changes to cost (3) final contract cost and be certified for payment in accordance with District policy. All pay requests shall be clearly identifiable and chargeable to the project listed in this agreement. Combining projects under one master contract is allowed as long as each project is billed separately.
I. This Agreement will be declared null and void and the State will not have any obligation to provide State funds to the District for the Project, that is the subject of this Agreement, if the District fails to execute this Agreement or if the District fails to adhere to any of the conditions of the Agreement or if the District fails to comply with any and all state laws regarding school construction.

VIII. MAINTENANCE OF COMPLETED FACILITIES

Upon completion of the project, the district will create the preventative maintenance schedules of any new space facility included in the District's overall maintenance plan contained in the district's computerized maintenance management system as required by the Academic Facilities Master Plan prior to final payment by the Division.

X. AGREEMENT CONSIDERATIONS

A. All provisions of this Agreement are contingent upon the district's full compliance with § 6-20-2501 *et. seq*., the Partnership Rules and the Commission's determination the Project continues to be a prudent and resourceful use of state funds, and the ability of the district to meet required times or obtain appropriate waivers and raise specified local resources to support the Project. Any failure of the district in these areas shall be grounds for this Agreement to be deemed null and void by the Commission and for the district to be required to reimburse any partnership funds provided to the district for any partnership project the district failed to maintain compliance on.
B. Nothing in this Agreement shall be construed to waive the provisions of Sovereign Immunity or any other defense or immunity to which the State of Arkansas or its Commissions, Divisions or Agencies may be entitled.
C. All concerns and issues related to this Agreement are governed by the provisions of § 6-20-2501 *et. seq*.
D. If the district appeals the determination of the Division as to a partnership project to the Commission, the Commission shall have the authority to fully review all parts of the district's Partnership Project(s) and may approve, deny, reduce or increase the amount of state financial participation in any or all of the appealed project(s).

In witness whereof, the parties have executed this Agreement on the date(s) set forth below.

By: _____
Superintendent

_____
School District

Date: _____

By: _____
Director, Public School Academic Facilities and Transportation

Date: _____

PSAFT Long Form 1, September 2011

INSTRUCTIONS FOR THE SUBMISSION OF APPENDIX B:

Appendix B: (Part 1), will be submitted initially with the Agreement when forwarded to the Division. It will indicate the elements of the budget amounts for all expected expenditures. It is intended to be a 1 time submittal but may be updated as if new requirements of expense are identified.

Appendix B: (Part 2) will be submitted with each payment request to the state. It will indicate the areas noted and will be accompanied by contract invoices.

Appendix B: (Part 3) will be submitted with each State Payment Request, if required, to provide the change order information.

Arkansas Division of Public School Academic Facilities and Transportation
APPENDIX B (Part 1) Budget

School District _____ **Budget Submitted Date** _____

Project Name _____

Project Number _____

To be submitted with initial Partnership Program Project Agreement

	Initial Budget
Source of Funds	
Bond Proceeds	$
Contributions	$
Grants	$
Operational Funds	$
Stimulus Funds	$
Other Funds	$
School District Share	$
State Share	$
Total Available Funds	**$**
Budget Details	
Project Cost	$
Design	$
Reimbursables	$
CM Fees	$
LFI	$
Furnishings	$
Academic Materials	$
Operational Expenses	$
Site Acquisition	$
Project Total	**$**

Arkansas Division of Public School Academic Facilities and Transportation
APPENDIX B (Part 2) State Payment Request

School District _____ **Payment Request Date** _____

Project Name _____ **Payment Request #** _____

Project Number _____ **Payment Request Period**
From: _____ **To:** _____

Total Project Cost		
Design Fee		**(A)**
Misc. Cost & Fees		**(B)**
Original Contract Sum		**(C)**
Net Change by Change Order		**(D)**
Total Project Cost to Date		**(A+B+C+D)**

Current Billings		
Design Fees Request		**(a)**
Misc. Cost & Fees		**(b)**
Construction Cost Request		**(c)**
Total Completed and Stored to Date		**(a+b+c)**
Retainage to Date	$	
Total Completed Less Retainage	**$**	
Less Previous Billings	$	
Total This Request	**$**	

Name & Title Official Submitting Report ***(Please Print)*** **Signature**

Arkansas Division of Public School Academic Facilities and Transportation
APPENDIX B (Part 3) Change Order *(C/O)* Report

School District _____ **Payment Request Date** _____

Project Name _____ **Payment Request #** _____

Project Number _____ **Payment Request Period**
From: _____ **To:** _____

C/O #	Date	C/O Description	C/O Amount	Meets Facility Manual Standards?	Materially Changes Project Scope?
				Enter Yes or No to each	
1			$		
2			$		
3			$		
4			$		
5			$		
6			$		
7			$		
8			$		
9			$		
10			$		

If more space is needed, continue after end of this sheet

Change Order Summary	Additions	Deductions
Total change(s) approved in previous periods	$	$
Total change order(s) approved this period	$	$
TOTALS	$	$

Net Changes by Change Orders $

Name & Title Official Submitting Report *(Please Print)* **Signature**

Arkansas Division of Public School Academic Facilities and Transportation
APPENDIX B (Part 3) Change Order *(C/O)* Report - Page 2

School District _____ **Payment Request Date** _____

Project Name _____ **Payment Request #** _____

Project Number _____ **Payment Request Period**
From: _____ **To:** _____

C/O #	Date	C/O Description	C/O Amount	Meets Facility Manual Standards?	Materially Changes Project Scope?
				Enter Yes or No to each	
11			$		
12			$		
13			$		
14			$		
15			$		
16			$		
17			$		
18			$		
19			$		
20			$		
21			$		
22			$		
23			$		
24			$		
25			$		

Name & Title Official Submitting Report *(Please Print)* **Signature**