

**SBA Policy and Procedures**  
**APPENDIX I**

## ARCHITECTURAL/ENGINEERING & CONSTRUCTION REGULATIONS

**THE FOLLOWING INFORMATION PROVIDES INSTRUCTION AND DIRECTION WITH REGARDS TO PROJECT DEVELOPMENT THROUGH CLOSEOUT. DEVIATION FROM REQUIREMENTS MUST BE APPROVED BY THE SBA.**

### **I. PROJECT AND DESIGN SERVICES**

- A. Application for Project Approval (WVDE/SBA P-1 Report – Rev. 12/11/91)

This report is to be submitted twice by the county, initially with the blueprints when they are submitted to the SDE and the SBA for review, and a final WVDE P-1 is to be submitted to the SDE and the SBA at the completion of the project with a WVDE BP-13-A or SBA Form 139 completion report.

- B. Procurement of Architectural/Engineering and Construction Management Services

State agencies and their political subdivisions are required to comply with Article 1, Chapter 5G of the West Virginia Code regarding Procurement of Architectural, Engineering and Construction Management Services. All grant recipients are required to submit to the SBA office staff the names of the firms being considered to perform architectural, engineering design, or, if required, construction management or construction analyst services on all projects where budget is fully or partially funded by the SBA. Unless, otherwise authorized by the Authority, the architectural, engineering and construction management services shall be performed by companies within the State of West Virginia and must be licensed to perform the desired services in the State of West Virginia. In order to fully comply with this requirement, the following procedures must be followed:

- Submit the list of firms showing interest in performing design or construction management services to the SBA office staff upon receipt for review and approval prior to developing the “short” list for interviews.
- Submit the “short” list of at least three firms, two of which must be West Virginia resident firms, being considered to be the most qualified for the services required to the SBA office staff for review, prior to interviewing the firms.
- Architectural and Engineering firms being considered for the building design, must be informed at the time of their interview that the SBA requires that the work pertaining to each professional design discipline, i.e.: Architectural, Mechanical, Electrical, Civil and Structural be performed by a certified and

licensed individual of that discipline. Architectural firms will submit the firm names and certificates of each individual design discipline in their project interview. Performance of this work by individuals licensed in the appropriate discipline will be verified by submission of bid and design documents to the SBA that have stamped A/E seals on those sections pertaining to that discipline.

- Once the interviews have been conducted, the firms shall be ranked in order of preference. The preferred list shall be forwarded to the SBA office staff for review and approval, prior to further negotiation or recommendation to the local board of education or governing body making final approval.
  
- Additionally, the SBA requires that engineering design professionals performing services on all SBA funded projects meet the following criteria:
  1. The engineer of record must be a registrant in good standing with the State of West Virginia Board of Professional Engineers,
  2. The designer must be a registered professional engineer, licensed in the State of West Virginia in a specific engineering discipline,
  3. The engineer must be trained and registered in the specific discipline associated with the work being designed, and place his/her seal only on engineering designs for their specific discipline(s),
  4. The engineer shall only place their seal on plans for school projects that were prepared by him/her or under his/her direct supervision, and
  5. The engineering firm must be registered to conduct business in the State of West Virginia and hold a certificate of authorization from the West Virginia Board of Professional Engineers.

Upon request, grant recipients may be required to submit qualification information from each of the firms being considered to the SBA.

The SBA encourages the use of standard AIA construction documents and agreements. Utilization of a Construction Manager or Construction Analyst may be required by the School Building Authority on a project by project basis.

*Add the following to AIA B101, Article 3.6.2.1 and Article 4.3.3:*

The architectural firm may utilize a Construction Administrator for project oversight and to attend all construction progress meetings, however, the Project Architect and Engineer responsible for the design shall be present at the project site to attend a minimum of one project meeting per month. This person must have authority to render decisions on the project in order to avoid unnecessary delays.

*Add the following to AIA B101, Article 12:*

Construction projects funded by the School Building Authority, beginning in April 2015, will be designed and constructed using the Building Information Modeling (BIM) delivery method.

C. Design Fees

Design fees shall be calculated based on a percentage of the construction cost. Construction costs are calculated based on the lowest acceptable qualified bid(s) for constructing the building. Basic design fees shall include all services necessary to complete the project including, but not limited to architectural, plumbing, electrical, mechanical and civil engineering, as well as construction administration through project completion. Additional services must be approved by the SBA. The cost for alternative designs that are not constructed shall be borne by the grant recipient unless approved by the SBA. Construction costs does not include fees for the construction manager, clerk-of-the-works, construction analyst (paid for under additional services), legal fees, site acquisition or other project cost not directly associated with the construction of the building. Architect and engineering fees may also be applied to the cost of furniture and equipment only if the architect prepares the contract documents and administers the contract for the installation of the furniture and equipment. Maximum SBA reimbursement for architectural and engineering fees will be in accordance with the most current SBA fee schedule (SBA Form 175). The educational agency may agree to pay fees in excess of the maximum SBA amount; however, the additional cost for these fees will be the responsibility of the educational agency. Reimbursable expenses for document printing and distribution for agency approval shall be paid from grant funds as a direct cost plus reasonable and customary overhead and profit.

D. Architectural and Engineering Fees

The SBA fee schedule must be used for all projects when SBA funding is provided. Grant recipients must use Standard AIA agreements and contract document forms or request SBA approval to use alternative agreements. Architectural and Engineering (A&E) fees are established by the SBA and should be considered as the maximum allowable to receive SBA reimbursement. Should the grant recipients choose to exceed the SBA maximum allowable design service fees, the difference in cost will be the responsibility of the grant recipient.

SBA reimbursements of A&E design service fees shall be based on a percentage of the actual construction cost for contracts awarded. Fees associated with alternative designs not awarded will be the responsibility of the grant recipient

and paid as additional services by the grant recipient. Fixed fees based on percentages of the construction cost will be calculated using the most current SBA approved fee schedule times the actual construction cost. For purposes of calculating design service fees based on a percentage of the construction cost, construction costs include the value of construction contracts awarded construction and the cost of furniture and equipment where the architect provided professional services associated with the preparation of bidding documents for the furniture and equipment. A&E fees relating to construction change orders shall be calculated at the same percentage established for the project based on the approved construction budget once established under Section H (Fees Relating to Change Orders). Incidental reimbursable expenses for surveys or other pre-approved project expenses may also be paid from project funds. A stipulated sum design service contract may also be used with the approval of the SBA office. Stipulated sum fees would be based on an amount agreed upon by both parties for professional services regardless of the construction cost.

*Revise AIA, B101, Article 6.1 to read as follows:*

Construction costs do not include costs associated for a construction manager, clerk-of-the-works, construction analyst, licenses, permits, B&O taxes and change orders caused by A&E errors and omissions or change orders which do not require the services of the A&E firm. Fees associated with construction change orders will be reviewed by the SBA and the owner and additional professional service fees will be paid based on services required to effectuate the construction change.

E. Fee Modifications

Consideration will be given to modifying the SBA fee structure if a particular project is considerably more complex or if the project requires substantially more special consultants to complete. Fee modifications will be negotiated during the A & E procurement process and approved by the SBA before design service contracts are executed.

F. Multiple Prime Contracting Fees

The Basic Service Fee schedule may be adjusted for multiple prime construction contracts at the discretion of the SBA. Compensation for additional services for multiple prime construction contract administration shall be negotiated based on the number and complexity of the contracts. The maximum SBA reimbursement for compensation for administration of multiple prime contracts shall not exceed the SBA A&E fee schedule amounts without approval of the SBA.

G. Prototypical School Design Fees

The West Virginia Legislature encourages the use of prototypical designs where possible in West Virginia public schools. Where SBA funding is provided, county boards of education shall consider prototypical school designs. Design service fees will be adjusted when prototypical designs are used. A&E fees are negotiable and will be based on services required. The basic service fee for an original design shall be 100% of the maximum allowable based on the SBA fee schedule.

Should the county board elect to use a prototype school design, 100% of the negotiated percentage fee will be applied to the cost of the site preparation and improvements required to adapt the site to accommodate a prototypical school design, for bidding and negotiations and for construction administration services. The design service fee for the reuse of an original design may not be greater than 40% of the design service phases of the original school designs. A&E fees for projects where substantial portions of the design are duplicated from previously designed projects will be adjusted based on the percentage of design duplication. For prototypical school projects, the total fee shall never exceed the maximum allowable fee percentage for the project had the prototypical design not been used.

H. A&E Fees Relating to Change Orders

*Add the following to AIA B 101, Article 11.3, Items 1-4:*

Fee adjustments for owner requested change orders, or change orders intended to improve overall quality of the facility will be considered. Compensation will be based on the amount of design, coordination and/or construction administration required to effectuate the change. Fee adjustments must be approved by the SBA. A&E fees for change orders not requiring design changes should be negotiated as an additional service and reimbursed on an hourly basis.

A&E fee modifications for change orders for new construction that requires construction document amendments due to design deficiencies will be reviewed on an individual basis by the owner and the SBA and fee adjustments considered if construction has not taken place in the affected area. The owner will pay for the required labor and material cost to effectuate the change. The A&E fee will only be adjusted based on A&E services required to effectuate the change in the scope of work.

A&E fee modifications for change orders on new construction that requires construction document amendments due to items of work inadvertently omitted from construction documents where the construction has taken place in the affected area and demolition is required will be reviewed on an individual basis by the owner and the SBA. If it is determined that the problem should have been resolved by the A&E firm within the building design, the owner will pay for the required change order and the A&E firm will be back-charged for the change including any demolition and replacement costs plus contractor overhead and

profit. The owner will deduct any added value construction received as a result of the change from the amount the A&E firm is being back-charged.

*Add the following to AIA B 101, Article 12:*

A&E fee modifications for change orders on renovation and addition projects will be addressed on an individual project basis. If construction changes are required due to owner requested changes, incorrect as-built information or if it is determined by the owner and the SBA that a condition has occurred that could not have been foreseen by the A&E firm, the A&E firm will be compensated for the design modification based on the additional services required to effectuate the change in work.

If the SBA or owner assigns a construction manager (CM) or construction analyst (CA) to a project, CM and/or CA review comments relative to the clarity of the design intent shall be incorporated into the documents by the A/E unless the A/E determines that the clarifications conflict with applicable codes or standards. The A/E will notify the owner and SBA of comments not being incorporated into the documents. However, should clarification comments not being incorporated into the document result in construction change orders, the SBA will not provide funding for the change order.

I. Reimbursable Expenses

All design and construction service costs for the project shall be included in the basic service agreement including the cost of design, redesign (with exception of owner requested design changes after approval is granted to proceed into the construction document phase), construction administration and other project development costs. The county board will reimburse the A&E firm for the cost of review and bidding document printing and distribution to perspective bidders and approval agencies.

*Add the following to AIA B101, Article 12:*

J. Additional Services Special consultants required by the A&E firm for complex projects will be paid as an additional service by the grant recipient. Special consultants must be approved by the owner and the SBA prior to their use. HVAC Testing, Adjusting and Balancing services shall be contracted directly to the county board. Geotechnical services shall also be contracted directly to the county board (or other grant recipients) unless SBA approval is granted to contract this service to the A & E firm.

Specialty consultants used by the A & E Firm for the development of project drawings and/or specifications shall not bid on any portion of the construction project. Consultants found to be submitting bids on such projects will be disqualified.

## **II. PROJECT REQUIREMENTS**

### **A. Building Component Requirements**

Every effort must be made to plan and design schools with quality HVAC systems and low maintenance hard surface finishes. The SBA Quality and Performance Standards must also be incorporated, where applicable, into building design criteria for all projects approved after June 2008. Deviations from these standards must be approved by the SBA. With this in mind, design architects and engineers must consider various prioritized options within the building design that address the following:

1. Quality HVAC systems must be installed in all schools. These systems must be capable of providing efficient, long term climate control, complying with the minimum standards established by the SBA performance criteria. Buildings must also be designed with durable, low maintenance building finishes;
2. The HVAC Testing, Adjusting and Balancing (TAB) agent shall be certified according to the procedures contained in the associated air balance council (AABC) national standards, the national environmental balancing bureau (NEBB) procedural standards or the environmental engineering consultants (EEC) standards for testing, adjusting and balancing. The TAB agent shall directly represent and is under direct contract with the building owner and shall coordinate scheduling of TAB start up and completion work with the mechanical contractor, mechanical engineer, SBA, architect and construction manager, where applicable and paid from available project funds.
3. SBA or local funds will not be used to construct building square footage that will result in the inefficient use of the facility in sacrifice of a quality HVAC system or building finishes;
4. Once the square footage of the building academic and support spaces has been approved by the SBA, first consideration must be given to quality HVAC systems and building finishes. If local funds are proposed at any time throughout the project development, these funds and their intended use must be identified and approved by the SBA, and;
5. HVAC control systems shall be bid on a performance based specification, identifying at least three acceptable manufacturers, who are capable of meeting the specification. HVAC contractors shall solicit proposals from these manufacturers as the basis for their bid. Should the local Board of Education desire a specific control system, manufacturer or integration of

other building systems with the HVAC controls, these systems shall be bid as alternates and any additional costs associated shall be borne by the County.

6. Additional SBA funding for project overruns will only be considered if Items D 1-5 are satisfied and additional funds are required in order to award the basic bid to the lowest qualified bidder(s).

*Add the following to AIA B101, Article 12:*

#### Building Component Requirements – Safe School Design

The SBA recognizes the need to incorporate safe school design into West Virginia's new schools. Wherever possible, designers should incorporate safe schools through environmental design philosophies into the new school designs. Crime Prevention through Environmental Design (CPTED) concepts should be included in the school design and a CPTED Analysis should be incorporated into the school planning process. Additionally, educational agencies shall consider security within the facility and work with local law enforcement agencies during the building design process to incorporate local school access safety plan concepts into the new school design. Minimally, the following should be considered:

1. Limit the number of buildings within the design to one building, if possible.
2. Minimize unsupervised entrances into the building. Unsupervised entrances should be locked and equipped with emergency exiting hardware only.
3. Limit site access and if possible, provide a security person at the site entrance.
4. Provide drop-off and pick-up lanes for school bus use only.
5. Minimize the number of driveways and parking areas students cross to enter or leave the school campus.
6. Provide interior building security that would allow classroom areas to be closed and locked off from gym areas and other areas of the facility being used during off school hours.
7. Minimize areas of the building and campus that cannot be easily supervised by administration and staff (i.e., alcoves, recesses in walls, short perpendicular corridors into classrooms).
8. Place elementary student lockers in classroom, where feasible, so that access can be monitored by staff. Locker locations should always be placed close to supervision and designed for easy surveillance.
9. Provide for two-way communication within student occupied areas of the building. Include the ability to communicate outside the school should telephone service be interrupted.
10. Install basic security systems throughout the facility and appropriate video monitoring in non-supervised and high student concentration areas.
11. Provide adequate exterior lighting including parking lot lighting.

12. Landscaping should consist of small shrubs below three feet and large trees that keep the visual zone between three feet and six feet unimpaired. Note: Grant recipients and school planners shall work cooperatively with the State Office of Homeland Security (OHS) and other public safety agencies during the planning and design phases of all projects. At the conclusion of all new school projects and projects that alter the building square footage or layout, the grant recipient/architect shall provide the OHS an electronic copy of the building design that complies with the requirements of the SBA school access safety provision and the most current OHS school access safety submission requirements.

B. Disqualification of Contractors/ Probationary Contractors

Construction contractors or subcontractors on probationary status or who have had a contract terminated for just cause as described in the AIA Document A201 or A201/CMA General Conditions Article 14, Section 14.2 will be prohibited from bidding projects funded by the School Building Authority for a minimum of one year and pending review of the SBA thereafter. The architect/engineer shall secure a list of probationary contractors from the SBA prior to issuing bidding documents and contractors on SBA probation shall not be issued bidding documents.

C. Construction Project Development

Renovation and addition projects typically evolve from conceptual ideas derived from county curriculum and facilities personnel. Programmatic information is provided through the educational specifications to the architect/engineer who develops graphic illustrations that show general space relationships and curricular areas. The architect develops these ideas into a complete set of construction project documents by utilizing the following phases:

- Site Feasibility Study
- Planning/Educational Specifications
- Schematic Design Phase
- Design Development Phase
- Construction Document Phase
- Bidding and Negotiation Phase
- Construction Phase

It is extremely important that all requirements of each project development phase be met before proceeding to the next phase. To avoid cost overruns and possible redesign cost, project costs must be monitored during the schematic design, design development and construction document phases. All contractual agreements with architects/engineers or construction managers must include language that requires the architect/engineers or construction managers to submit all planning and project design information and estimates of probable cost to the

School Building Authority and the county board of education for approval. The School Building Authority, the county board of education, the curriculum and facilities planning team and the architect should be in agreement before proceeding from one phase to the next.

- The design includes all curricular and facilities requirements proposed by the planning team and the School Building Authority or an explanation as to why these requirements are not being provided;
- The project as designed can be constructed within the budget provided by the county board;
- And the project is being constructed on an approved site for which a clear and free deed is held by the grantee. The use of leased properties must receive prior approval of the SBA.

D. Construction Project Submission, Delays and SBA Review

All construction projects funded by the School Building Authority are required to be submitted for review to the School Building Authority staff. A 14 day review period shall be included in each phase of the project development schedule for SBA review of planning, schematic, design development and construction documents. Project documentation as required by Form SBA 176 A-E of the School Building Authority Policy and Procedure Handbook must be submitted. Minimally, the School Building Authority must review and approve the site feasibility study, educational specifications, schematic drawings, design development documents and final construction documents as they are developed. Estimates of probable cost must be submitted with each phase of the project approval process. Educational specifications must be submitted with schematic designs for SBA review. Specific requirements regarding the project educational specification can be found in Appendix I. A formal site feasibility study must be prepared by the project architect/engineer before proceeding with the purchase of any site for construction. Consideration must be given to all factors identified in State Board Policy 6200 “Handbook on Planning School Facilities”, Chapter 2. The site feasibility study must include all site development costs for each site being considered. The site feasibility study along with the recommendation for the preferred site must be submitted to the SBA for approval before proceeding with the acquisition of any site.

Projects shall not be advertised for bid or construction started until after the School Building Authority staff has reviewed the submitted documents and the School Building Authority review comments have been satisfactorily addressed. A revised set of bidding documents must be submitted to the SBA office along with assurances that review comments have been addressed within the final documents. Additionally, SBA submission requirements are included on the school construction project development flow chart.

E. Real Estate Acquisitions Using School Building Authority Funds

In order to maximize the limited amount of School Building Authority funding for the construction of educational facilities, the School Building Authority has taken the following action:

- The Authority will not approve any Grants which include the funding of real estate acquisitions with grant proceeds.
- The Authority will not approve amendments to any Grants which include the funding of real estate acquisitions with grant proceeds.

F. Clerk-of-the-Works Requirements

The educational agency shall be required to employ a clerk-of-the-works to monitor all construction projects in excess of \$250,000 unless waived by the SBA, or an SBA approved construction management method is being utilized. Candidates for construction managers and clerk-of-the-works shall be submitted for SBA review prior to final selection by the educational agency. A clerk-of-the-works employed by the county through contracted services shall minimally be paid an amount equal to the basic hourly prevailing wage rate of a Journeyman Carpenter as determined by the West Virginia Department of Labor for the project location. The actual time the clerk-of-the-works begins to perform the duties may vary according to the project and the timing of the award of the construction contract. However, the clerk-of-the-works must be given sufficient time to acquaint themselves with the total scope of the project in order to be an effective part of the construction team.

The School Building Authority requires that the clerk-of-the-works be hired at the same time the project is let for bids. If delays are anticipated in the award of the bid or actual construction/renovation is not scheduled to begin immediately, the clerk-of-the-works must be hired prior to beginning construction and be provided with adequate time to become familiar with the project scope and to be prepared to assist with the project as soon as bids are received and the construction contract is executed. During the bidding process it is conceivable that the clerk-of-the-works may not be required to perform his duties full time.

Realizing that there are various types of projects requiring the appropriate construction review documentation, the responsibilities of the clerk-of-the-works will vary with the scope of each project. The clerk-of-the-works shall not circumvent or eliminate the normal construction responsibilities of the architect/engineer or contractor. However, when applicable, the clerk-of-the-works can be a vital member of the project team and can assist in the project observation and documentation process. A construction analyst, if required by the SBA, shall be utilized during the design phases of a project.

G. Mandatory Pre-Bid Conference

So that bidding information is properly conveyed to all bidders and to clarify questions and the intent of the bidding requirement, contractors shall be required to attend mandatory pre-bid conferences. Bidding documents shall notice all bidders of this requirement and include language making this requirement a prerequisite to bidding the project. The requirements for having the pre-bid meeting may be waived by the SBA for special circumstances conditioned upon a written request to the SBA by the design professional. All substantive pre-bid questions shall be addressed at the pre-bid meeting and if the bidding documents do not clarify the questions, a project addendum will be circulated to all bidders.

#### H. Construction Project Bid Coordination and Reporting

Construction bid dates must be coordinated through the SBA office. Project architects/engineers must contact the SBA office and identify the proposed bid date desired. The SBA office will coordinate the most appropriate bid date after considering other construction project bidding schedules. Every effort must be made to prevent similar construction projects from being bid in the same week and within the same region of the state to allow for maximum participation of bidders.

Once released for bid by the SBA, bids shall be advertised in accordance with Chapter 59-3-1 of WV Code as a legal advertisement in a qualified newspaper occurring within a period of 14 consecutive days with at least an interval of 6 full days between the date of the first and second publications. However, unless waived by the SBA, **NO** bid opening date shall be scheduled less than 21 days after the first publication date.

The School Building Authority is tracking construction square footage costs for total projects and various building components. Project bid tabulation documents are required to be faxed immediately to the School Building Authority office within 2 hours after construction bid openings are concluded. The tabulation sheet should be self-explanatory and include explanations of base bid pricing and all alternates being requested. The normal bid tabulation sheet prepared at the conclusion of the bid for county staff is acceptable. The bid tabulation must accompany the list of subcontractors and major equipment and material suppliers list (SBA Form 123) from the apparent low bidder(s) also required to be forwarded to the School Building Authority Office within two (2) hours of the conclusion of the bid opening. **Bid openings shall not be scheduled after 1:30 p.m.**, so that bidding information can be transmitted to the School Building Authority office the same business day. No construction contract shall be awarded without the School Building Authority review and approval of the construction bid and the contractor being recommended for the award. The School Building Authority will review the required post-bid documentation of the apparent low bidder(s) during the 72 hours immediately following the bid

opening. During this timeframe the School Building Authority will not discuss bid results with bidding contractors until all documentation has been reviewed.

I. Contractor Evaluation (SBA 124)

The School Building Authority requires the Owner to do evaluations of all prime contractors performing work on School Building Authority projects. This information must be submitted to the SBA at the completion of each project as a part of the project closeout information and accompany the final contractor pay application. Our goal is to have each contractor's overall work performance evaluated and document a history of excellent, average or poor performance on several projects. This information will also be made available upon request to all grant recipients.

J. Architect/Engineer Evaluation (SBA 138)

The School Building Authority requires the Owner to do evaluations of all architects performing work on School Building Authority projects. This information must be submitted with the project closeout information provided to the SBA when final payment is requested by the grant recipient. The goal is to have each architect's overall work performance evaluated and document a history of excellent, average or poor performance on several projects. This information will also be made available upon request to all grant recipients.

K. Construction Observation Report (SBA 113)

Construction Observation Reports are required to be completed by the clerk-of-the-works or the project administrator to record the current status of construction projects. This report may also be used by project architect/engineers, if desirable. The timelines of the Project Observation Reports can be established by the project administrator and must be sent to the SBA office for review and approval.

L. Certificate of Project Completion (WVDE BP-13-A, Rev. 10/94)

A Certificate of Project Completion is submitted to the West Virginia Department of Education and the School Building Authority upon completion of each contract in order to effectuate a close-out. The BP-13-A or SBA Form 139 for Multiple Prime Project reports must be submitted to the SBA prior to the request for final payment. The grant recipient shall arrange an inspection tour with the appropriate officials including the School Building Authority field representative. No occupation of a new facility or renovated facility shall occur until a Certificate of Occupancy is provided by the fire marshal and the SBA provides notification approving the date the building is to be occupied. The county board of education (or building owner) must provide the SBA a copy of the Certificate of Substantial Completion indicating the building has been declared substantially complete and

suitable for the owner to occupy along with a request for a SBA walk-thru for permission to occupy the facility. The School Building Authority will retain five percent (5%) of the project cost until the completion report is executed including final inspection by the School Building Authority. The School Building Authority will provide the county board (or building owner) a list of required project closeout requirements when the project is 95% complete.

M. Reference to West Virginia Jobs Act and Employment Reporting

1. Any plan, specification and invitation to bid prepared by any architect or engineer shall make reference to the West Virginia Contractor Licensing Act informing any prospective bidder that contractor's license number must be included on any bid submission.
2. Grant recipients shall require their project architect to include language within all bidding documents that require all prime contractors and subcontractors that have employees on school property to provide assurances that all employees are in compliance with WV Code, Chapter 21, Article 1B and SBA Policy with regards to verifying legal employment status of all workers and with regards to registration of sexual offenders. (See SBA Forms 180,181, 182)

N. Semi-Proprietary Specifications

1. To encourage competitive bidding, the project specifications shall specify not less than three products, materials or equipment that meets the requirements of the specifications. The product, material or equipment used shall comply with the contract requirements.
2. In certain instances, a single product may be the only one that will comply with the specific design/function requirement.

O. Project Job Signs and Building Plaques

All SBA funded projects and major improvement funded projects shall have project job signs erected at the construction site. Project signs must be visible and readable from highways. Specific information will be provided by the SBA to be included on the sign. Additional project information may be required or desirable. A sample of a typical project sign is provided within this document for both "Needs" (SBA 168) and "MIP" (SBA 169) funded projects. Construction details are provided within the contract documents.

Upon completion of any major SBA funded project of \$1 million or more, the architect shall design a building plaque for display in a prominent public area of the school. See the typical SBA project plaque design:

- (1) The name of the Governor;

- (2) The names of the President of the Senate and the Speaker of the House;
- (3) The members of the SBA;
- (4) The superintendent of schools, and
- (5) The members of the local board.

The SBA will be contacted for appropriate information to be included and final approval of the plaque design before its production. An example of a typical project plaque is included within this document. (SBA 170)

P. Heat, Ventilating and Air-Conditioning Test, Adjusting and Balancing Requirement

1. The HVAC Testing, Adjusting and Balancing (TAB) agent shall be certified according to the procedures contained in the Associated Air Balance Council National Standards, the National Environmental Balancing Bureau procedural standards or the Environmental Engineering Consultants standards for testing, adjusting and balancing. The TAB agent shall be under direct contract with and directly represent the building owner. The TAB contractor shall coordinate the earliest start date as well as partial and final completion schedule for each area of the building with the mechanical contractor and provide this information to the owner, architect and SBA. The TAB contractor shall complete the testing, adjusting and balancing in each area of the building within 30 days of the earliest start date. The owner will consider the start and completion dates prior to the award of the contract and award the contract based on the cost proposal and completion schedule. The successful TAB contractor shall provide two weeks advance notice to the mechanical contractor, owner, architect and SBA prior to each area being tested.

Q. Asbestos Abatement Requirements (If Required)

1. Contractor/vendors must show proof of having successfully completed an EPA approved training course. All certification must be current.
2. Contractor/workers must be licensed by the State of West Virginia to perform any or all types of asbestos inspection, project designing, management planning, contracting, abatement, supervision of abatement and air monitoring.
3. All contractors/vendors performing work using School Building Authority funding shall comply with all applicable codes and standards including but not limited to the requirement of:

Environmental Protection Agency (EPA)  
Occupational Safety and Health Administration (OSHA)  
Environmental Protection Agency Worker Protection Laws

National Emission Standards for Hazardous Air Pollutants (NESHAP)  
Asbestos Hazard Emergency Response Act (AHERA)  
West Virginia Department of Health  
West Virginia Department of Natural Resources  
West Virginia Air Pollution Control Commission

4. At the completion of all asbestos abatement projects and before final payment will be processed by the SBA, the local board of education, the abatement designer and abatement contractor must provide written assurances that all abatement work has been performed in accordance with all applicable codes. All AHERA required close-out documentation must be on file at the owner's office and must be made available to the SBA for review.

R. Project Close-out

1. The SBA shall be notified of the dates and time of substantial and final completion walk-through inspections by the grant recipient. An SBA representative will participate in the walk-thru and will accept or reject the contract as completed. A completed WVDE BP-13-A or when required and SBA Form 139 will be forwarded to the State Department of Education and the SBA when all punch list items have been satisfactorily addressed and the contract is complete. The local board project representative shall also submit a completed Contractor and Architect Evaluation Forms (SBA Form 124). Final payment for the contract will then be processed.
2. Provide at Project Close-out the following documentation, but not limited to:
  - (a) Confirmation of Receiving Operation and Maintenance Manuals and As-Built Drawings and Specifications
  - (b) SBA Certificate of Project Completion – For lump sum projects use “WVDE BP-13-A” and for multiple prime contract projects use “SBA 139.” Both of these forms are found in the SBA Guidelines and Procedures Handbook (Appendix L). These Forms should be filled out and signed by the local board of education then forwarded to the contractor and the architect and engineer for signing
  - (c) Contractor Evaluation Form (SBA 124)
  - (d) Architect/Engineer Evaluation form (SBA 138)
  - (e) SBA Certificate of Occupancy
  - (f) Notification of 11<sup>th</sup> month walkthrough date
  - (g) Electronic & Hard copy of diagrammatic floor plan of new or renovated schools. Provide the following items:
    1. One line drawing of floor plans including only diagrammatic walls, exiting, doors and windows, existing school
    2. One line drawing with all school access safety data (submit electronic file to Office of Homeland Security)

- 3. One line drawing including only walls, doors, windows, room number/names and color coded HVAC zones with multi-zone equipment located in the HVAC zone
- (h) Provide a Final TAB report
- (i) Provide Final Commissioning Report when applicable

### **III. CONTRACT DOCUMENT FORM REQUIREMENTS**

The following information shall be included in the project manual for all projects funded in whole or in part by the SBA. The SBA also requires all referenced documents to be bound within the contract documents project manual and revised or updated documents must be approved by the SBA. The SBA encourages the use of standard AIA forms when possible including but not limited to the following:

#### **A. CONTRACT DOCUMENT REQUIREMENTS GENERAL REQUIREMENTS**

- Construction Drawings
- Project Manual
- General and Special Conditions
- Invitation to Bid
- Instructions to Bidders
- Bid Proposal Form
- Bid Bond (AIA A310)
- Insurance Requirements
- Performance Bond and Payment Bond
- Contractor's Qualification Statement (SBA 105)

#### **B. CONTRACT FORMS**

- General Conditions of the Contract for Construction (AIA A201)
- Standard Form of Agreement Between Owner and Contractor Where Basis of Payment is a Stipulated Sum (AIA A101)
- General Conditions of the Contract for Construction Manager – Adviser Edition (AIA A201/CMA)
- Standard Form of Agreement Between Owner and Contractor – Stipulated Sum, Construction Manager – Adviser Edition (AIA A101/CMA)
- General Conditions of the Contract for Construction, Construction Manager as Adviser Edition, where applicable (AIA A232)
- Performance Bond and Payment Bond (AIA A312)
- Instructions to Bidders (AIA A701)
- Change Order (AIA G701)
- Change Order, Construction Manager – Adviser Edition, where applicable (AIA G701/CMA)
- Application and Certificate for Payment (AIA G702)

Application and Certificate for Payment, Construction Management –  
 Adviser Edition, where applicable (AIA G702/CMA)  
 Continuation Sheet (AIA G703)  
 Certificate of Substantial Completion (AIA G704)  
 Certificate of Substantial Completion, Construction Manager – Adviser  
 Edition, where applicable (AIA G704/CMA)  
 Builders Risk Insurance Certificate, where applicable (Acord Form 24)  
 Certificate of Insurance (G715) (Acord Form 25)  
 SBA Policy and Procedures  
     Part 1 – Supplemental Instructions to Bidders  
     Part 2 – Supplemental General Conditions  
 Contractor’s Affidavit of Payment of Debts and Claims (AIA G706)  
 Contractor’s Affidavit of Release of Liens (AIA G706A)  
 Consent of Surety to Final Payment (AIA G707)  
 Consent of Surety to Reduction in or Partial Release of Retainage (AIA  
 G707A)  
 Proposal Request (AIA G709)  
 Architect’s Supplemental Instructions (AIA G710)  
 Construction Change Authorization (AIA G714)  
 Construction Change Directive, Construction Manager-Adviser Edition,  
 where applicable (AIA G714/CMA)  
 Certificate for In-State Contractor Preference (if preference given)  
 Contractor’s Qualification Statement and Contractor Financial Statement  
 (SBA 105 and 105A)  
 List of Subcontractors and Major Equipment/Materials Suppliers (SBA  
 123) Verification of HVAC Training (SBA 159)  
 Certificate of Project Completion (BP-13A)  
 Certificate of Project Completion – Multiple Prime Projects (SBA 139)  
 Affidavit of Debt Paid (SBA 177)  
 Prime Contractor’s Certification of Worker Compliance with WV Code  
 and SBA Policy (SBA 181)  
 Subcontractor’s Certification of Worker Compliance with WV Code and  
 SBA Policy (SBA 182)  
 SBA Bid Checklist (SBA 183)  
 Certification of Receipt of Addenda (SBA 184)  
 State of West Virginia Purchasing Affidavit (SBA 185)  
 Monthly Anticipated Adverse Weather Delays (SBA 186)  
 School Building Authority Construction (CPM) Schedule (SBA 187)  
 Drug Free Workplace Conformance Affidavit (SBA 188)

## PROFESSIONAL SERVICES OF THE CONSTRUCTION ANALYST

The following is a description of the professional services of the Construction Analyst. The Construction Analyst (CA) will be assigned to select projects by the SBA as projects are approved. The Construction Analyst will act as the owner and SBA representative and provide services as described in the SBA/CA task order agreement .

Generally, the Construction Analyst advises the owner, SBA, and architect at the beginning of the design development phases and these services continue through the construction document phase of the project. The CA will provide constructability and document coordination review comments as they relate to the clarity of the documents and estimates of probable cost.

The Construction Analyst does not assume responsibilities for the design or methods and means for the construction of the facility and does not assume responsibilities assigned to the architect/engineer or contractors performing work on the project. However, the Construction Analyst review comments shall be incorporated in the documents by the A/E unless the A/E determines the clarification will change the design intent or conflict with applicable codes or standards. Should owner, SBA and CA clarification comments not incorporated into the documents result in a construction change order, the SBA will not provide funding for the change order.

The Construction Analyst will provide an estimate of the cost of their service at the schematic design phase of the project. The architect/engineer shall provide the Construction Analyst a copy of the schematic design document information and include all SBA submission requirements (SBA Form 176b). The CA will base the cost of services on the scope of work shown on the schematic design. The grant recipient and SBA will approve the cost of the CA services and the grant recipient will issue a purchase order for services described in the task order agreement.

The CA will then review and provide services for the design development and bidding document phase of the project. The architect, grant recipient and the SBA will work cooperatively to design the school within the funding available. The process will be as follows:

- Construction Analyst assigned to an approved project
- Architect/Engineer provides CA with schematic design for cost of services quotation
- Cost for services negotiated and grant recipient issues purchase order to the assigned CA for services (SBA will reimburse for cost of services based on the project percentage breakdown in grant contract)
- CA provides design development documents for review comments
- Grant recipient, SBA, A/E and CA review and reconcile design development comments
- A/E provides CA construction documents for review comments
- Grant recipient, SBA, A/E and CA review and reconcile construction document comments. Reconciliation is achieved when all parties agree that the estimate is within 2% of each parties estimate or agreement is reached that no further scope of work can be reasonably accomplished and additional funding will be committed to the project if the

deficit becomes a reality after the bids are received. Projects with budget differences greater than 2% may only move forward with owner and SBA approval.

- Project proceed to the bidding stage based on agreements reached by all parties regarding design and project cost

Once bids are received and a construction contract is awarded, the construction analyst contract for services on the specific project is terminated. Please review the SBA Quality and Performance Standards for additional construction analyst information and requirements.

## PROFESSIONAL SERVICES OF THE CONSTRUCTION MANAGER

The SBA will review each approved project and determine the project management team for each project. This process will be concluded when each project is approved by the Authority. The Construction Manager (CM) shall be hired in accordance with the procedures in Chapter 5G of the West Virginia Code. The CM will be a professional service and must be in place prior to the conceptual stage of the building design. The Construction Manager will be contracted directly to the owner and represents the owner and SBA interests on the project. The AIA Standard Form of Agreement Between the Owner and Construction Manager shall be used. The SBA may require supplemental conditions to the standard agreement and any modifications to the CM or architects contract will be communicated to all parties prior to the execution of the contract.

Generally, the Construction Manager advises the owner and architect through all design phases with regard to site suitability, design constructability, document coordination and cost estimating. During the bidding and construction phase, the CM provides professional services with regards to bid package configuration scheduling and construction administration.

The Construction Manager does not assume responsibilities for the design or methods and means for the construction of the facility and does not assume responsibilities assigned to the architect/engineer or contractors performing work on the project.

The Construction Manager will provide preconstruction and construction services as per the AIA C132-2009, or latest approved edition, as negotiated for the individual project conditions. The contract shall include provisions for preconstruction document review that will provide, but not limited to, constructability comments, document coordination and estimates of probable cost for all phases of the building design. Any and all documentation or comments provided by the Construction Manager relating to constructability reviews, document coordination and estimates of probable cost for all phases of the building design shall be directed to the Owner by the Construction Manager.

The architect/engineer (A/E) shall submit the design documents to the CM, the owner and the SBA for review comments as required in SBA policy and the design contract. All CM and owner/SBA comments must be satisfactorily addressed by the A/E to assure the project is moving forward with all parties clearly understanding the project scope and cost. All parties will work cooperatively to reconcile the estimate of probable cost. Reconciliation will have been achieved when all parties agree that the estimate is within 2% of each parties estimate or agreement is reached that no further scope of work can be reasonably accomplished and additional funding will be committed to the project if the deficit becomes a reality after bids are received. Projects with budget differences greater than 2% may only move forward with owner and SBA approval. CM review comments relative to the **clarity of the design intent** shall be incorporated into the documents by the A/E unless the A/E determines that the clarifications will change the design intent of the project or conflict with applicable codes or standards. The A/E will notify the owner and SBA of comments not being incorporated into the documents. However, should clarification comments not incorporated into the document result in construction change orders, the SBA will not provide funding for the change order.

## DUTIES AND RESPONSIBILITIES OF THE CLERK-OF-THE-WORKS

- a. Observe the quality and progress of the construction to determine in general that it is proceeding in accordance with the Contract Documents. Notify the Owner, Architect/Engineer and School Building Authority project representative immediately if, in the Clerk-of-the-Works opinion, work does not conform with the Contract Documents or requires special investigation by the Owner, Architect/Engineer or Contractor.
- b. Monitor the construction progress and assist in the preparation of progress reports required by the Owner or School Building Authority.
- c. Review Contract Documents with the Contractor's superintendent so as to have a complete understanding of the scope of the project.
- d. Consider the Contractor's suggestions and recommendations, evaluate them, discuss them with the Architect/Engineer, Owner and the School Building Authority's representative and assist the Architect/Engineer when applicable in making a final decision.
- e. Attend project meetings as the Owner's representative and report to the Owner in writing on the proceedings.
- f. Observe tests required by the Contract Documents. Review testing invoices, if any, to be paid by the Owner.
- g. Maintain records at the construction site or as directed by the Owner in an orderly manner in accordance with the Owner's and School Building Authority's procedures. Include correspondence where applicable, such as Contract Documents, Change Orders, Construction Change Authorizations, Architect's/Engineer's Supplemental Instructions, reports of site conferences, Shop Drawings, Product Data, Samples, supplementary drawings, color schedules, requests for payment, names and addresses of contractors, subcontractors and principal material suppliers.
- h. Keep a log book containing project progress and reports and submit reports on the progress of the Contractor's work to the Owner, and the School Building Authority's project representative. The log must contain activities related to the project, weather conditions, nature and location of work being performed. The Project Architect/Engineer will provide Observation Construction Reports documenting his site visits.
- i. When applicable, provide assistance to the Architect/Engineer upon request in reviewing Shop Drawings, Product Data and Samples.

- j. When applicable, observe the Contractor's Record Drawings at intervals appropriate to the stage of construction and notify the Owner and Architect/Engineer of any apparent failure by the Contractor to maintain up-to-date records.
- k. Review Applications for Payment submitted by the Contractor with the Architect/Engineer and assist in making recommendations for disposition.
- l. When applicable, assist the Architect/Engineer in reviewing the list of items to be completed or corrected with is submitted by the Contractor with a request for issuance of a Certificate of Substantial Completion. When applicable, assist the Architect/Engineer in reviewing the documentation and record documents to be furnished to the Owner by the Contractor at Substantial Completion, and verify that the Contractor has met the requirements of the Contract Documents for training the Owner's personnel in the operation and maintenance of all building equipment and systems.
- m. When applicable, assist the Architect/Engineer in final inspection of the work. Assist the Architect/Engineer in reviewing the documentation and record documents to be furnished to the Owner by the Contractor upon completion of the work.
- n. Assist the Owner on small projects by observing the construction and reporting progress and quality of work being performed by the Contractor. At no time shall the Clerk-of-the-Works assume responsibilities of the Architect/Engineer, Architect/Engineers representative or the Contractor in charge of the construction.

# School Building Authority of West Virginia

## EDUCATIONAL SPECIFICATIONS

By constructing educational specifications, the learning activities, the number, groupings and nature of the people involved, the spatial relationships between sections of the facility, the interrelationships of instructional programs with each other as well as non-instructional spaces and the major furniture/equipment needs of the new facility can be defined and more easily understood. Each Ed Spec Committee must consist of representatives from the educational profession, individuals from the community and the architectural design staff selected by the board of education.

When specifications are agreed upon and committed to a written document, the architect is provided the greatest opportunity to design a school that more nearly meets the needs of the educational program and facilitates the activities that will be occurring in the spaces. To that end, and to more readily value the scope of the project, it is essential that an educational specifications document accompany the schematic drawings submitted to the SBA for review prior to approval by the local board of education.\*

To be consistent and assist in understanding the issues to be included in the educational specifications, the following outline is provided but should not be considered inclusive should other issues be of concern to you and your planning committees.

### I. Introduction

A short synopsis describing the configuration of the educational structure, the projected number of students, site location, availability of site utilities, existing availability of ancillary facilities and spaces (i.e., athletic, etc.) and proposed statistics for the new construction.

### II. The Community

A brief description of the community, its history, specific cultural distinctions and maps showing geographic characteristics, attendance areas (present and proposed) and the site location.

### III. The Educational Plan

The educational plan can be subdivided into two general areas:

A. Curriculum Plan – States the schools philosophy, educational goals and objectives of the program. This should clarify important issues and priorities for consideration in the planning of the new facility.

B. Support Plan – Provides staffing information including teachers, instructional aides, food service personnel, counselors, custodial staff, and administrative staff including principals, assistant principals, department heads, etc.

C. Technology Component (where applicable) – If technology is used to support the curriculum delivery, provide specific details regarding how the technology will be

used for each curricular area and/or administrative area in the new school. The technology plan shall comply with state and county adopted standards.

**IV. Building Space Requirements**

The utilization of space is extremely important. The SBA requires a minimum 85% utilization of newly constructed schools or schools where building additions are being proposed. In order to assist in developing Section IV, Worksheet #1, which compiles data from the calculation of spaces for the new facility, must be completed and incorporated into Section IV.

The final number of allowable classrooms and the square footage for any facility that incorporates SBA funds will be determined by the SBA staff upon consideration of the program needs, building utilization rates, maximization of multi-use spaces in the design and the potential construction of the project within the allocated funds available.

In order to assure appropriate spaces and utilizations for the projected enrollment, room numbers and labels should be assigned to instructional areas on the schematic drawings and a model student schedule developed using Worksheet #2 to locate students and staff within the facility during each of the instructional periods of the day.

The following formula is to be utilized to determine the maximum number of classrooms that may be considered in each curricular area: The following example assumes a middle school math program for 300 students, a six period academic day (excludes planning periods), a maximum of 25 students, and calculated as a semester class where full credit is achievable for the class:

---

***FORMULA FOR DETERMINING TEACHING STATIONS PER SUBJECT AREA\*\****

<i>Number of students Enrolled in subject</i>	<i>x</i>	<i>Number of periods per week in subject</i>		<i>= 1500</i>	
<u>(300)</u>		<u>(5)</u>		<u>      </u>	
				<i>Number of teaching</i>	<i>= 2</i>
				<i>=</i>	<i>stations for this</i>
<u>(25)</u>		<u>(30)</u>		<u>      </u>	<i>subject area</i>
<i>Maximum class size (see reference sheet)</i>	<i>x</i>	<i>Maximum number of periods per week (every period, every day)</i>		<i>= 750</i>	

---

**V. Space Allocations**

This section describes the instructional areas (general classrooms, PE areas, tech. ed. labs, science areas, consumer and homemaking areas, special education spaces, administrative offices, etc.). Middle/Junior and High School departmentalization, specialization of spaces, electives and scheduling are factors to be considered in determining then number of teaching stations. The maximum number of teaching stations may be determined by applying the formula provided in Section IV to each subject area. The following description of each subject area is needed and should include:

- A. Goals – What are the objectives to be accomplished in the area.
- B. Space Required – Submit the calculations from the formula in Section IV to identify the number of spaces needed in this subject area and complete Worksheet #1, attached. Teacher planning areas must be provided in building design allowing maximum use of teaching stations.
- C. Planned Activities – Include specific actions to be performed in an area such as paint, read, science experiments, audio visual presentation, telecommunications, robotics lab, multiple use areas, etc.
- D. Number of Users – Determine the number of administrators, teachers, aides and pupils to use the area at any one time.
- E. Group Usages – Identify if the area is to be used for large or small group instruction, individual student work, team teaching, multiple usage, etc.
- F. Spatial Requirements – Identify the spatial relationships of any one space to other areas of the facility whether inside or outside – near to or away from, convenient to media center (as with language arts areas), capability for combining or subdividing areas, the frequency of such adjustments and the square footage needed to do so, etc. Bubble diagrams should be used to show interrelationships of spaces.
- G. Support Facilities – Spaces that allow the area to meet its goal: shared storage areas, teacher preparation areas, student work/storage areas, conference rooms, etc.
- H. Environmental Considerations – Acoustical, Visual, Thermal, Climatic and Aesthetic considerations that enhance the practical usage of the specific space.
- I. Utility Needs – Utilities needed in the specific area including: water, electrical, toilets, 3-phase power, gas, vacuum capability, telephone, technology wiring, etc.
- J. Storage – More specific direction as to the cubic feet of storage needed in the specific area. Generally, this denotes built-in storage areas and closets.
- K. Display Areas – Chalkboards, bulletin boards, display cases (linear feet).
- L. Furniture and Equipment – Quantities and types of items to be used in each area.
- M. Technology – Specific needs of each space to accommodate the technological delivery system/network incorporated into the facility.

- N. Other – Identify any other specific information essential to each specific area including communications, security, special ventilation requirements and any county adopted design standards..

VI. Technology Plan

A technical plan for delivery of media, voice, data, graphics, text and telecommunications throughout the school includes a description of the instructional and administrative objectives, the technical structure needed to facilitate the system, the equipment needed to implement the system and the physical/design requirements for incorporating the system into the construction of the facility. The school technology delivery plan shall be based on the technology standards developed for the administration and instructional delivery in new schools. A detailed technology plan shall be developed specific to the project as a part of the educational specifications. The technology plan will identify how technology will be used and how it will support the curriculum delivery model. The plan shall be developed in conjunction with the WV Department of Education Office of Technology and shall:

- A. Identify current and proposed technology needs
- B. Establish technology integration strategies
- C. Identify ideal implementation strategies for every academic and administrative space
- D. Establish a process for tracking, servicing and updating technology equipment
- E. Identify security protocol and permissions strategies
- F. Outline staff development relating to the use of technology
- G. Identify the infrastructure needs based on the curriculum and instruction programming and match the technology with the skill sets the students are supposed to obtain from the instruction
- H. Provide the design engineer specific technology needs including backbone requirements that will allow the design of the power and support infrastructure for the schools technology equipment

The technology plan will be developed in accordance with SBA Policy and WV Department of Education Curriculum and Technology guidelines. The plan shall be submitted to the SBA for approval with design development documents. SBA funding to support the technology infrastructure will be conditioned upon SBA approval of the technology plan.

## VII. Design Criteria and General Architectural Considerations

This section should regard the total school complex but may be specified in distinct areas or regard special concerns. Following are some suggested considerations:

- A. Health and safety
- B. Quality of building systems and components
- C. Economies to be attained – instructional, operational, maintenance
- D. Flexibility and multi-use of spaces
- E. Efficient circulation patterns
- F. Community use considerations
- G. Communication systems – may be incorporated into the Technology Plan
- H. Accessibility
- I. Building Security and School Access Safety
- J. Student Supervision

## VIII. Educational Specifications Committee Page

A signature page for members comprising the Ed. Spec. committee will be included. Names will be organized by the group each individual represents, i.e., teachers, administrators, parents, community leaders, design professional, etc.

---

***\*Architects – Please be advised that an SBA review will not occur without submittal of the program of spaces and the preliminary educational specifications with schematic drawings and the final educational specification and technology plan submission with the design development submission. Continued development of the building design beyond without written approval of the SBA is at the fiscal risk of the designer and the grant recipient.***

**\*\*Bibliography:**

- A. Conrad, MJ., *A Manual for Determining the Operating Capacity of Secondary Schools*. Bureau of Educational Research and Service, OSU.
- B. Castaldi, Basil, *The Castaldi Nomogram*. The New England School Development Council.
- C. CEFPI, Phoenix, AZ, *A Guide for Planning Educational Facilities*.