

# **Guidelines for School Facilities In Virginia's Public Schools**

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Office of Support Services

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**(General comments made in sections are in italics.)**

### **ACKNOWLEDGEMENTS (New Section)**

The Virginia Department of Education deeply appreciates the contributions of all team members who helped in writing and editing the Guidelines for School Facilities in Virginia’s Public Schools and their organizations for allowing them to devote time to update this document.

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## **FOREWORD**

### **VIRGINIA PUBLIC SCHOOL FACILITIES GUIDELINES**

The Virginia Construction Code (Part I of the Virginia Uniform Statewide Building Code) regulates the general health, safety, and welfare of building occupants of public educational facilities in Virginia. The federal Americans with Disabilities Act (ADA) addresses accessibility issues in public school sites and buildings, new or renovated, as well as all educational programs, activities, or services offered. The Virginia Construction Code does not offer any design guidance to school planners and educators on how to meet their program needs.

Various requirements contained in the *Regulations Establishing Standards for Accrediting Public Schools in Virginia* and in the *Standards of Quality*, such as required program offerings, pupil-teacher ratios/maximum class sizes, and administrative staffing, provide minimum standards for school facilities design. The *Guidelines for School Facilities in Virginia's Public Schools* are intended to provide more detailed guidance for the planning and design of public school facilities, the erection of, or addition to public school building governing the instructional operational, health and maintenance of school facilities not addressed in the Virginia Uniform Statewide Building Code. This guidance includes recommendations that will help ensure that school environments are designed to be both secure and safe for students and staff.

The issues involved in planning and providing adequate and safe school facilities for Virginia's public school students are complex and merit careful study and thoughtful consideration. It is the responsibility of the local school division to develop an educational program and to determine school facility needs in the form of an architectural program. To plan and construct school buildings that meet today's educational needs, and that are safe, economical to build and maintain, and are flexible in their program uses, is an extremely difficult task. The choices of school design, materials, types and number of spaces required to meet the educational program rests with the local school division.

The *Guidelines for School Facilities in Virginia's Public Schools* were developed in a cooperative effort between the Virginia Department of Education, and school division facilities directors from across Virginia. The goal was to provide recommendations that will help local school divisions ensure that their school sites and facilities support the principles of good teaching, learning and promoting sound educational programs. The recommendations contained in these guidelines should be considered as a tool when planning school facilities projects. *These guidelines define the minimum standard that all schools in Virginia should meet, and are a design starting point for school facility planners, architects, and local school divisions. School facility planners and local school divisions are encouraged to adapt these recommendations as needed to meet the needs of a school's educational programs.*

## **LEGAL AUTHORITY (NEW SECTION)**

### **A. Code of Virginia**

#### **§22.1-135.1. Portable water; lead testing**

Each local school board shall develop and implement a plan to test and, if necessary, remediate potable water from sources identified by the U.S. Environmental Protection Agency as high priority for testing, including bubbler-style and cooler-style drinking fountains, cafeteria or kitchen taps, classroom combination sinks and drinking fountains, and sinks known to be or visibly used for consumption. Such plan shall be consistent with guidance published by the U.S. Environmental Protection Agency or the Department of Health. The local school board shall give priority in the testing plan to schools whose school building was constructed, in whole or in part, before 1986. Each local school board shall submit such testing plan and report the results of any such test to the Department of Health. Each local school board shall take all steps necessary to notify parents if testing results indicate lead contamination that exceeds 10 parts per billion.

**§22.1-138. Minimum standards for public school buildings.**

- A. The Board of Education shall prescribe by regulation minimum standards for the erection of or addition to public school buildings governing instructional, operational, health and maintenance facilities where these are not specifically addressed in the Uniform Statewide Building Code.
- B. By July 1, 1994, every school building in operation in the Commonwealth shall be tested for radon pursuant to procedures established by the United States Environmental Protection Agency (EPA) for radon measurements in schools.

School buildings and additions opened for operation after July 1, 1994, shall be tested for radon pursuant to such EPA procedures and regulations prescribed by the Board of Education pursuant to subsection A of this section. Each school shall maintain files of its radon test results and make such files available for review. The division superintendent shall report radon test results to the Department of Health.

- C. Each school board shall, in consultation with the local building official and the state or local fire marshal, develop a procurement plan to ensure that all security enhancements to public school buildings are in compliance with the Uniform Statewide Building Code (§ [36-97](#) et seq.) and Statewide Fire Prevention Code (§ [27-94](#) et seq.).
- D. No school employee shall open or close an electronic room partition in any school building unless (i) no student is present in such building, (ii)(a) no student is present in the room or area in which such partition is located and (b) such room or area is locked or otherwise inaccessible to students, or (iii) such partition includes a safety sensor that automatically stops the partition when a body passes between the leading edge and a wall, an opposing partition, or the stacking area.



- E. Any annual safety review or exercise for school employees in a local school division shall include information and demonstrations, as appropriate, regarding the provisions of subsection
- F. The Department of Education shall make available to each school board model safety guidance regarding the operation of electronic room partitions.

**§22.1-138.1. School maintenance program established.**

In compliance with the provisions of the appropriation act relating to the maintenance supplement program and with such funds as are appropriated for such purpose, each school board shall establish a program for ongoing school maintenance needs.

**§22.1-140. Plans for buildings to be approved by division superintendent.**

No public school building or addition or alteration thereto, for either permanent or temporary use, shall be advertised for bid, contracted for, erected, or otherwise acquired until the plans and specifications therefor (i) have been approved in writing by the division superintendent; (ii) are accompanied by a statement by an architect or professional engineer licensed by the Board for Architects, Professional Engineers, Land Surveyors, Certified Interior Designers and Landscape Architects that such plans and specifications are, in his professional opinion and belief, in compliance with the regulations of the Board of Education and the Uniform Statewide Building Code; and (iii) have been reviewed by an individual or entity with professional expertise in building security and crime prevention through building design. The division superintendent's approval, architect's or engineer's statement, and a copy of the final plans and specifications shall be submitted to the Superintendent of Public Instruction.

**§ 22.1-141.1. Standards for buildings and facilities.**

It is the intent of the General Assembly that new public school buildings and facilities and improvements and renovations to existing public school buildings and facilities be designed, constructed, maintained, and operated to generate more electricity than consumed and that such energy-positive building design be based on industry standards (i) contained in the design guide of the American Society of Heating, Refrigeration and

Air-Conditioning Engineers (ASHRAE), entitled "Achieving Zero Energy—Advanced Energy Design Guide for K-12 School Buildings," dated February 1, 2018, and any subsequent updates or (ii) similar industry standards.

## DEFINITIONS

The following words and terms, when used in these guidelines, shall be defined as mentioned below unless the context clearly indicates otherwise.

**Alteration** - Changes to a school facility covered under the Virginia Construction Code. This would include projects such as the replacement of a HVAC, electrical, or plumbing system.

Routine maintenance projects such as re-roofing, repairs or the replacement of individual building components, painting, or finishes are not considered to be a building alteration project.

**Final plans and specifications** - Complete set of contract documents including bidding requirements, contract documents, technical specifications, plans, and addenda which depict the scope of the project. The documents shall bear the Virginia seal and signature of the responsible licensed design professional. Incomplete plans and specifications shall not be considered “final” as referenced in §22.1-140 of the *Code of Virginia*.

**Gross area** - Total enclosed floor area of a building measured from the outside surface of the exterior walls.

**High Performance facility** - School facility that goes beyond the minimum building code and standard practices to provide an energy, water, and resource efficient building; provides a healthy indoor environment; is cost effective to operate and maintain; and, is sustainably designed to enhance learning and protect the natural environment.

**Net floor area of general spaces** – Area derived by multiplying the inside dimensions of the general space, excluding general storage, space for special equipment, stage, or auxiliary rooms.

**Net floor area or square footage of the classroom** - Area derived by multiplying the inside dimensions of the classroom space including all features such as garment storage, teacher's storage, shelving, work counters, vestibule, and incidental partitions, but excluding walls and toilet rooms.

**Zero Energy Schools** - public school buildings that are designed, constructed, maintained, and operated to generate more energy than consumed on an annual basis.

**Recommendations** - Suggested best practices that may be used in the planning and construction of public school buildings.

**Regulations** - Mandatory requirements adopted by the Virginia Board of Education or any other state or federal agency.

**School** - Educational facility that has one or more of the following program levels:

- Elementary School – a school with grades kindergarten through five.
- Middle School – a school with grades six through eight.
- High School – a school with grades nine through 12.
- Combined School – a school that contains any combination of, or all, of the grade levels from kindergarten through 12.
- Career & Technical – a school offering a sequence of courses directly related to the preparation of students in current or emerging occupations that leads to postsecondary education and/or employment.
- Special Education – a school offering instruction to students identified as having disabilities.
- Alternative – a school offering instruction to students who have been expelled or suspended on a long-term basis, are returning from juvenile correction centers or have a pending violation of a school board policy.
- Preschool – a school offering early childhood instruction to pre-kindergarten students.

**School site number** - Number assigned by the Virginia Department of Education (VDOE) to a given parcel of land to be occupied for educational purposes by a school division.

**School project number** - Number derived from the school site number and assigned by VDOE for new construction work or renovations.

**State operating capacity for schools** - Student capacity based upon the total number of core subject classrooms in a school building and the pupil-teacher ratio and class size maximums of each classroom space as per the Standards of Quality, *Code of Virginia*, §22.1-252-13.2., including self-contained special education classrooms. However, resource classrooms are not counted.

**Supplemental classrooms** - Facilities to temporarily house students. The use of such facilities should be scheduled to terminate when the housing needs of students are met through new construction.

**Usable site** - That portion of the site that can be developed for school use and may be used for future additions, outdoor instruction, physical education, outdoor circulation, parking, bus loading, sewage disposal or treatment plants where necessary, and storm water retention and treatment.

### **Net –Zero Energy Standards for new school construction and renovation projects**

#### **(NEW SECTION)**

It is recommended that public school buildings and facilities be designed, constructed, renovated, maintained, renovated, and operated to generate more energy than consumed. Design strategies to achieve net zero schools include the following:

- A) Meeting the American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE) guidelines entitled "Achieving Zero Energy—Advanced Energy Design Guide for K-12 School Buildings"
- B) Orientation/Massing of buildings.
- C) Proper design of the building envelope including thermal performance, airtightness, window/wall ratio and exterior shading
- D) Daylighting as an integral part of lighting design.
- E) Energy efficient HVAC systems and HVAC controls to support energy positive buildings
- F) Electrical lighting and controls to promote energy efficiency.
- G) Metering and sub-metering of systems to track key performance metrics
- H) Occupant behavior and plug load management strategies.
- I) Mechanical, electrical, plumbing, and envelope systems commissioning
- J) Use of renewable energy (solar, wind, and other natural renewable sources) to generate more electricity than consumed in the operation of the building.

## PLANNING A SCHOOL CONSTRUCTION PROJECT

### A. General

School divisions should strive to provide adequate educational facilities that support the educational program. Professional design and construction services should be procured as set forth in the *Code of Virginia*. Project delivery methods and the types of contracts to be used are determined by the school division.

### B. Recognize and Define Present and Long-Term Land and Facility Needs

It is a good practice for school divisions to develop long-range capital improvement plans for their school building facilities. Long range school facility plans need to be studied and updated on a three year or longer cycle. These plans would examine the utilization of existing school facilities, school building operating capacities, current grade structures, and current student attendance zones. Such planning provides school divisions a framework for developing policies on future expenditures for new construction or maintenance of school buildings based upon their condition, age, and ability to meet the functional demands of educational programs.

School divisions determine the number of schools to be operated and the grade structure to be housed in each school facility. The predominant grade structure consists of an elementary, middle, and high school. Other grade structures used depend on the educational program adopted by the school division. School divisions need to continually examine school size and grade structure that will best serve their community. For optimum utilization and operational efficiencies local school divisions are encouraged to consider the following organizational model for long range planning needs.

	Grades	Size
Elementary Schools	PK, K – 5	400 – 600 students
Middle Schools	6 – 8	600 – 900 students
High Schools	9 – 12	900 – 1,200 students

(See Appendices C, D, E prototypical space programs)

The size and grade structure of public school buildings are influenced by factors such as: resources, enrollment, attendance zones, transportation routes, operating capacity, age, condition of existing schools, and educational programs.

**C. Community Involvement**

School divisions may involve the local community in their facility planning process. Such community involvement may provide the school divisions with valuable input in developing a facility master plan.

A visioning process using a trained facilitator may help bring various local groups to consensus and meet the planning goals as established by the school division. This process should be open to all interested groups committed to improving the educational opportunities of all students within the school division.

**D. Develop the Educational Program and Building Project**

School divisions should prepare an educational program based upon their educational goals and philosophy. The educational program should be used to develop a set of specifications that will help the design professionals in preparing an architectural program. These specifications would consider the number of students to be served, types of spaces needed, and the building use.

**E. Site Selection**

The School Site Considerations section provides direction for adequate site acreage. The location of the buildings and athletic fields should take into consideration parking, circulation, bus drop-off, and security for after-hour athletic events.

When selecting a site, consider the following factors: location, zoning, transportation, utility access, wetlands, storm water run-off control, enrollment, safety and security of students.

## **F. Project Scope, Budget, Timeline and Project Delivery Methods**

### **1. Project Scope**

Construction project scope is defined as the work required to be performed to deliver a project as outlined in the construction bid documents. These documents would include all of the Owner's agreed upon deliverables of the project.

### **2. Project Budget**

Project budget is defined as the cost to renovate or construct a facility, and may include the purchasing of land for a new school. The budget must also include funds for the hiring of design professionals, the financing for construction, any additional site development costs, and costs for furnishings, fixtures, and equipment that are typically not included in the construction contract.

### **3. Project Timeline**

The project timeline is defined as the estimated time to complete a school construction project as outlined in the table in Section I. This may vary according to the type and size of school under construction.

### **4. Project Delivery Methods**

The following project delivery methods are options that a school division may choose when deciding to design and build a school.

- a. Public-Private Education Facilities and Infrastructure Act of 2002 (PPEA)**

The Public Private Education Act of 2002 (PPEA) provides school divisions an alternative school construction delivery process. Public school divisions must adopt guidelines to accept unsolicited proposals or to advertise for solicited proposals.

In the PPEA process, a team consisting of a developer, contractor, architect, and other professionals can propose to design, build, and finance public school facilities. For more detailed information regarding the PPEA process, go to the following Web sites:

<http://dls.virginia.gov/commissions/ppe.htm>,

<http://dls.virginia.gov/groups/ppea/SB1153/FinalChecklist.pdf>.

The project notification process to VDOE for PPEA projects is the same as other school construction projects.

**b. Construction Administration (CA)**

A Construction Administration contract with the Owner generally includes inspection of the work, coordinating testing services contracts procured by the Owner, reviewing change orders, scheduling submittals from the Contractor, and providing other construction period services for the benefit of the Owner. The Construction Administrator is the entity responsible to the Owner for providing these services to assure compliance with the contract documents, but is not responsible under the CA Contract for providing the work. The Owner may use an employee to perform construction administration services. This differs from the construction administration services required under the A/E contract.

**c. Construction Management at Risk (CM at Risk)**

Under this method, the Owner typically selects a CM at Risk firm. As the design progresses, the CM at Risk provides construction management services, such as constructability reviews of the design, construction scheduling, and project cost estimates to the Owner. Typically during the design stage, the Owner and CM at Risk will negotiate a guaranteed maximum price (GMP) for the project as provided in the contract and provide full construction services to the Owner. The Construction Manager at Risk has direct responsibility and liability to the Owner for



performing the construction work, including the work of the project subcontractors, as described by the contract documents.

**d. Construction Management – Agency**

This project delivery method is often confused with Construction Management At-Risk. The construction manager acts as the Owner's representative in the planning, design, and construction of the project in Construction Management - Agency. The Construction Management-Agency serves the Owner in an advisory capacity only and is not contracted to design or construct the project. The Construction Management-Agency has a fiduciary responsibility to the Owner and, therefore, assumes no financial risk for the construction project.

**e. Design-Build (DB)**

Design-Build (DB) is a contract between a public body (Owner) and another party who agrees to both design and build the structure described in the contract.

**f. Design-Bid-Build (DBB)**

This construction process typically involves three phases: designing, bidding and building. These phases run sequentially – a designer prepares a fully detailed design for the project, construction bids are solicited on the bidding documents, and a contractor is selected. The contractor has no involvement until the contract is awarded.

**G. Public Notice of the Construction Project to the School Board**

Public notice shall be provided formally to the local school board. This includes the project scope, written documentation, all reports, and a reasonable timetable regarding the construction project.

**H. Fund the Project**

The funding of the project should be finalized prior to proceeding into the design phase. The time required for funding approval may take a year or longer.

**I. Project Timeline**

Item	Time Frame
Select an architect, engineer, construction manager or PPEA team	6 months
Design and prepare contract documents	12 - 18 months
Bid the project	2 - 3 Months
Award and execute the construction contract	18 - 36 months
<b>Total Timeframe</b>	<b>3 to 5 years approximately</b>

**a. 6 months - Select an Architect, Engineer, Construction Manager or PPEA Team**

Plans for new schools, alterations, renovations, or additions to existing school facilities are to be prepared by licensed architects. When the work is essentially engineering, plans may be prepared by licensed professional engineers. The license issued by the Department of Professional and Occupational Regulation shall be current.

The selection of design professionals may be done by issuing a Request for Proposal (RFP), for design services and conducting interviews. Prepare a timetable for design and construction.

**b. 12 – 18 months - Design the Project**

Pursuant to school board policy, notify the architect or design construction team to proceed with the project design and work through each design phase (Preliminary Design, Design Development, and Construction Documents) as described in the contract. It is important that the school division/Owner stays engaged in the entire design and construction process.

**c. 2 – 3 months - Bid the Project**

Advertise and bid the project in compliance with applicable public procurement laws and requirements. The bid documents include, but are not limited to, design drawings, project specifications, and procurement terms and conditions.

Receive and analyze bids; check for errors and omissions, responsiveness, responsibility; and bid bonds as required by the project specifications and state law.

**d. 18 – 36 months - Award and Execute the Construction Contract**

The school board should consider the bids and award the contract required under Virginia procurement laws. Notice to proceed should be issued as soon as contract is awarded and construction begins.

**e. Construction Supervision**

During construction provide daily supervision, including on-site and administrative supervision, by a qualified construction representative to protect the Owner's interest at all times during construction.

**f. Permanent Project Documentation**

Receive all project documentation. These may include the following: as built drawings, operating manuals, guaranties, warranties, radon test results, and a written statement from the contractor or the architect of record that no asbestos building materials were used during construction. Other records to be retained include, but are not limited to, contract documents, change orders, pay records, environmental assessments, and geotechnical reports. These documents must be retained and stored in a safe place where they will not be damaged or lost. Retain both print and electronic copies of as built plans and specifications received from the contractor and architect.

**J. DOE Submittals**

**a. Project Notice to the Virginia Department of Education**

School divisions shall give notice of their school construction projects to the Office of Support Services using the School Building Construction and Renovation (SBCR-SSWS) electronic system. The Virginia Department of Education (VDOE) will assign a school project number.

**b. Contract Documents Approval Process**

After School Board approval, submit bid documents to the local building code official, Health Department, other regulatory bodies and to VDOE in accordance with the *Code of Virginia*, § 22.1-140.

**K. Accessibility**

New school construction or alteration of existing school facilities shall be accessible as set forth in the Americans with Disabilities Act (ADA). Construction or alterations must be in compliance with the most current version of the ADA Standards.

**L. Additional Planning Strategies**

In the design of High Performance schools, consider best practices in the following components of a facility:

- a. Site selection and development – Use native trees and shrubs and minimize disturbance to natural habitats
- b. Water efficiency – Have a natural rain water collection system for non-potable use
- c. Energy efficiency – Maximize use of natural light, building orientation, and select energy efficient building systems and fixtures
- d. Building materials and resource selection and use
- e. Indoor environmental quality
- f. Recycling of construction waste and building materials
- g. Consideration of the life cycle cost of materials and systems

*School boards are encouraged to design, renovate and build new school building facilities to meet High Performance energy certification programs such as Leadership in Energy and Environmental Design (LEED), or other recognized energy efficiency programs.*

*Establish a vision that the building should be a teaching tool. The building and site can be used as a type of classroom, and teachers can develop curriculum to illustrate a wide spectrum of environmental, scientific, mathematical, and social issues.*

*The High Performance elements of the school can distinguish it from other buildings in the community. Through the use of signage and educational programs, these High Performance elements can demonstrate to the community that this is an environmentally responsible building.*

*High Performance school buildings can support a school's mission by contributing to the following key benefits: improved student performance, increased average daily attendance, increased teacher satisfaction and retention, reduced operating costs, reduced exposure to environmentally related sicknesses, a positive influence on the environment.*

*Consideration should be given to the building systems efficiencies and setting environmental design goals for achieving verifiable High Performance buildings that would reduce energy costs.*

*Life Cycle Cost Analysis should be conducted during the design development of a school construction project to assess the total cost of facility ownership over time. Consider initial design and construction costs; operating costs for energy, water, other utilities and personnel; and maintenance, repair and replacement costs. Life Cycle Cost Analysis impacts every system in a school and can optimize the integrated performance of all systems and thereby reduce a school's cost to the community. This will allow evaluation of "first cost" to "life cycle cost" when implementing a high performance design strategy as a long-term community investment.*

*Additional information can be obtained from the US Green Building Council "LEED" Leadership in Energy and Environment Design Web site at <http://www.usgbc.org/LEED>, the Green Building Initiative Web site <http://www.thegbi.org> and the Virginia Collaborative for High Performance Schools "VA-CHPS" Web site: <http://www.chps.net/dev/Drupal/node/622>*

## **Safety and Security Design Considerations (NEW SECTION)**

### **Design Strategies**

It is recommended when planning for new construction or for renovation of an existing school the design should include strategies that provide natural surveillance, natural access controls and territorial reinforcement. These strategies provide the ability to observe any intruders and help reduce the opportunity for school violence and crime in both the school building and on the school site.

Natural surveillance occurs when the school design uses physical features and activities that maximize the visibility of a school space and its users. Natural design features would include:

1. Consider using curved streets to provide multiple points of view and increase natural surveillance from additional pedestrian traffic.
2. Locate windows to enable surveillance of sidewalks and parking areas
3. Design security vestibules that are open and transparent at the school main entrance.
4. Use a lighting design that will not create blind spots.
5. Ensure that hallways, stairs entrances and parking areas are well lit.
6. Consider use of technology equipment such as security video cameras to enhance surveillance measures both inside and outside the school building. Security video camera systems should be focused on building entrances and areas where staff visual surveillance cannot always be provided.
7. Design interior school building hallways and corridors to provide a clear line of sight for better visual surveillance.

## **Access Control.**

This limits the opportunity for school violence and crime by differentiating between private and public spaces. This is best achieved by placing school building entrances and exits, lighting and landscape in such a way as to directly control and limit access into the building. The following measures will also assist with enhancing access control:

1. As allowed by the building code, limit the number of school entrances and exits to both the school building and the school site.
2. Design the structure and building circulation pattern in ways to direct visitors to designated points of entry.
3. Use building signage to direct visitors to entrance areas.
4. Clearly display designated building entrance IDs to direct emergency responders.
5. Consider use of fencing and gates on the school site to control access onto the site.
6. Eliminate design features, such as outside ladders, that may provide access to roofs or upper levels to the school building. Use only interior ladders to the roof or others levels in the school building.
7. Use low bushes or plants beneath ground level windows, to discourage access into the building.

### **A. Use of technology for School Security**

Implement strategies using technology tools to enhance school security design strategies. Use security equipment to secure the school's main entrances and other points of access into the building including: electronic access control systems, surveillance cameras, security scanning equipment, security door hardware, hurricane or ballistic security window film, visitor identification badging system, security lighting systems and motion sensor lights.

Consider providing other additional security equipment throughout the school building including: intercom systems, classrooms security door lock hardware, security panic systems, security lighting, and an uninterrupted power supply system to power to all security systems in the event of a power failure.

### **B. School Security Spaces**

1. Secure School Entry Vestibule - In every new school or renovation project provide a secure vestibule at the main entrance. Install security equipment to allow the school administration staff to control access into the school building at the main entrances.
2. School Security Officer: In every new or school renovation project provide a security office located at the main entrance or near the school's administration offices. This space can be enclosed with transparent partitions with a view of the main entrance and hallways, or it can be an open desk area with a 360 degree viewing range. The

location of the school security office should provide it a direct line of sight to the entrance doors and entry vestibule to see visitors coming into or leaving the school building.

3. In larger schools that have more than one school security officer consider adding a second security office at a strategic secondary location such as the bus, student, or staff parking entrance.

## **SCHOOL SITE CONSIDERATIONS**

### **A. Site Ownership/Control**

It is recommended that the local governing body or the local school board hold title to an adequate site; be in the process of acquiring sufficient land to meet the recommendations on school sites; or have a legal written agreement with the owner to use the site for educational purposes and development. The total usable acreage should be in reasonable compliance with the recommendations for new school sites.

### **B. Size of New School Site**

The following minimum usable site sizes are recommended:

		<b>Additional Acreage Per 100</b>
<b>School Type</b>	<b>Minimum Basic Acreage *</b>	<b>Pupils in Ultimate Enrollment **</b>
Primary or Elementary	5	1
Middle School, Intermediate Jr. High	15	1



Senior High or Combined School	20	1
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\* The acreage refers to usable land that can be developed

\*\* Additional acreage should be purchased to account for areas that cannot be built upon, such as wetlands, setback, easements and steep slopes.

*If on-site wells for water or drain fields for sewer are required, additional acreage may be needed. Additional acreage should be considered due to new storm water regulations and water retention requirements. After-hour athletic programs, middle and high schools may require additional parking. Additional site acreage may be needed for day care buses and parent drop-off areas.*

Other considerations recommended to evaluate existing or potential school sites are:

1. Adequate site acreage to allow separation of pedestrian, bus, and car traffic
2. Adequate site acreage to meet the needs of the outdoor physical education program
3. Adequate road frontage and ease of access
4. Availability of utilities
5. Proximity to noise and other pollution sources (airport, traffic, industrial)
6. The shape of the site, topography, and soil conditions
7. Adequate perimeter road circulation for emergency response vehicles
8. Location of new schools in neighborhoods to promote students walking or riding bicycles safely to school. When developing a new school site or altering an existing site the design should include features that encourage pedestrian or bicycle access to and from the school site.
9. Location of schools near electric power transmission lines or other environmental hazards should be avoided.

*When developing a new school site or altering an existing site the design should include features that encourage pedestrian or bicycle access to and from the school site.*

*Adequate acreage will allow the physical education program to have a variety of outdoor activities and also provide adequate parking.*

*To support physical activity and play, paved outdoor areas are essential at all elementary grade levels; the types and number of outside fields depends on the size and grade structure of the school as well as the physical education program of the school.*

*On-site parking needs have increased. Adequate parking for the staff and an additional 10 to 20 percent parking space for visitors, and student parking to accommodate one-third of the student enrollment should be provided.*

### **C. Size of Existing School Sites**

When permanent additions are made to an existing school facility, it is recommended that the minimum usable area of the site be in reasonable compliance with the recommendations for new school sites.

### **D. Vehicular Site Circulation**

Driveways intended for buses, parent drop-off, and service traffic should be separated wherever possible. It is recommended that driveways and adjacent improvements be arranged to provide a safe driving view on the site and on the approach to and exit from the site.

### **E. Development for Physical Education**

It is recommended that the site have areas that can be developed to provide the minimum number of play areas required for physical education as indicated.

### Recommended Outside Play Areas

Elementary School	Size	Number of Students		
		up to 399	400-599	600-above
Multiuse (Hard Surface)	100 ft. x 120 ft.	1	2	2
Fitness Development Fenced Equipment Area (PK-1)	100 ft. x 120 ft.	1	1	1
Fitness Development Equipment Area (2-5)	100 ft. x 120 ft.	1	1	1
Multiuse Field Play Area	180 ft. x 140 ft.	1	1	2
NOTE: A gymnasium may substitute for one multiuse (hard surface) play area				
Middle School	Size	Number of Students		
		up to 599	600-899	900-above
Hard Surface	100 ft. x 120 ft.	1	2	2
Fitness Development Equipment Area	100 ft. x 150 ft.	1	1	1
Field Game Areas	200 ft. x 400 ft.	2	2	3
High School	Size	Number of Students		
		up to 899	900-1199	1200-above
Hard Surface	100 ft. x 120 ft.	1	1	2
Fitness Development Equipment Area	100 ft. x 180 ft.	1	1	1

Track (standard size)	200 ft. x 590 ft.	1	1	1
Field Game Areas	200 ft. x 400 ft.	2	3	3
Tennis Courts	60 ft. x 120 ft.	6	6	6

**F. Playgrounds**

It is recommended that both non-structured play areas and play equipment areas be provided on elementary school playgrounds. All play equipment and surfacing materials should meet the guidelines recommended by the United States Consumer Product Safety Commission’s “Handbook for Public Playground Safety”

<http://www.cpsc.gov/pagefiles/122149/325.pdf>

*Consideration should be given to designing the outdoor learning environment to support the classroom learning.*

*Playgrounds for different age groups should be separated and play equipment sized accordingly. Consider providing play areas for non-structured play by means of landscaping.*

*It is desirable to have a fence surrounding all play areas for security, and if the security fence height exceeds 32 inches consider providing a latch type gate and not a locking type.*

**G. Site and Playground Accessibility**

Walkways and pathways to and from the school building to playgrounds and other areas of after-school activities on the school grounds must be accessible as set forth in the Americans with Disabilities Act, and construction or alterations must be in compliance with the most current version of the ADA Standards.

**CLASSROOMS**

**A. Number and Priority of Classrooms**

The number of classrooms required in any school is determined by projected enrollment and the pupil/teacher ratios established by the local school board. When providing classrooms by new construction or alteration in elementary schools, each grade level, beginning with pre-kindergarten, should be provided with sufficient rooms designed for its use before rooms are provided for the next higher grade level.

**B. General Classroom Floor Areas**

The minimum net floor areas for classrooms, including all features such as garment storage, teachers' storage, shelving, work counters, vestibules, and incidental partitions, but excluding classroom toilet and general storage rooms, should be as indicated below:

Pre-Kindergarten, Kindergarten, Grade 1	975 square feet
Grades 2 – 5	800 square feet
Grades 6 – 12	700 square feet

**C. Classroom Geometry**

The length of classrooms should be no more than 1.5 times the width, unless program functions indicate otherwise. The minimum ceiling height for any classroom should be nine feet.

**D. Classroom Floor Area for Self-Contained Special Education Rooms**

The minimum net floor areas for special education classrooms including all features of the self-contained classrooms such as garment storage, teachers' storage, shelving, work counters, vestibules and incidental partitions, but excluding classroom toilet rooms, should be as indicated below:

1. Resource, consultation, evaluation and/or itinerant rooms with six students maximum should be 400 square feet (i.e., speech-language therapy, small group specialized intervention services). Add 50 square feet for each additional student.
  
2. Rooms used for consultation and/or evaluation for physical and/or occupational therapy services need additional space for specialized equipment and should be 800 square feet.
  
3. Self-contained classrooms should be 750 square feet with 10 students maximum.
  
4. Preschool classrooms and Multiple Disabilities (MD), Orthopedic Impairment (OI), and Intellectual Disability (ID) classrooms should have toilets.

### **Size of Special Education Classrooms**

<b>Classroom Type</b>	<b>Class Size (Average)</b>	<b>Minimum Room Sizes (Sq. ft.)</b>	
		<b>Secondary</b>	<b>Elementary</b>
Orthopedic Impairment (OI)	10	720	840
Intellectual Disability (ID)	10	600	630
Emotional Disability (ED)	10	550	550
Learning Disability (LD)	10	550	480
Hearing Impairment (HI)	10	550	700
Multiple Disabilities (MD)	8	720	840

Autism	8	550	600
Deaf-Blindness	8	550	600
Resource	8 - 10	200	550
Early Childhood Special Education (Preschool)	8		600
NOTE: Each classroom should have 25 sq. ft. of storage space.			

*Recommended practices for classrooms for students who are deaf or hard of hearing are available in the Virginia Department of Education's Guidelines for Working with Students who are Deaf or Hard of Hearing in Virginia Public Schools at web site:*

*[https://www.doe.virginia.gov/special\\_ed/disabilities/sensory\\_disabilities/hearing\\_impairment/guidelines\\_working\\_with\\_deaf.docx](https://www.doe.virginia.gov/special_ed/disabilities/sensory_disabilities/hearing_impairment/guidelines_working_with_deaf.docx)*

*Recommended practices for classrooms for students with blindness, visual impairment, or who are deaf-blind are available from the Virginia Department for Blind and Vision Impaired by contacting the education program specialist at the web site: <http://www.vdbvi.org>.*

*For special education classrooms where students are using a wheelchair and/or adaptive equipment, additional square footage should be considered to avoid obstruction while navigating the classroom as independently as possible.*

#### **E. Location of Elementary Classrooms**

It is recommended that classrooms for pre-kindergarten, kindergarten, grade 1 and self-contained special education rooms in elementary schools be located on the floor of exit discharge.

## **F. Storage**

In pre-kindergarten, kindergarten, and grade 1, hanging and shelf storage facilities for each pupil's clothing and books should be provided in the classroom.

In grades 2-5, hanging and shelf storage facilities for each pupil's clothing and books should be provided in or adjacent to the classrooms.

Cabinets in classrooms should have open and lockable storage. Wall units should have open shelving for books, and cabinets with doors.

1. Pre-kindergarten through third-grade classrooms: 30 linear feet.
2. All other classrooms and teaching stations: 20 linear feet.

Locked teacher storage with space for garments and space for shelving should be provided for each teacher in the classroom or in the teacher's office.

All self-contained classrooms should have access to 12 square feet of storage area for general equipment storage. This space is to be included in the total classroom area requirements and may be open or closed.

## **G. Display and Marker Boards**

Common area displays

Enclosed display cases should be provided in common areas.

Surface display hardware should be provided in corridors and common areas as allowed by the local fire marshal.



The minimum length of display and marker boards or white boards in general classroom areas should be as follows:

<b>Grade</b>	<b>Display</b>	<b>Marker</b>	<b>Mounting Heights - Floor to Bottom of Marker/Chalk rail</b>
PreK-K Grades	20 ft.	8 ft.	24 inches
1st - 2nd grades	20 ft.	8 ft.	24 inches
3rd - 5th grades	16 ft.	16 ft.	28 inches
6th - 9th grades	12 ft.	16 ft.	36 inches
9th - 12th grades	12 ft.	16 ft.	36 inches

(See Appendix B)

Display and marker boards should be a minimum of 42 inches in height.

Other screens mounted for audio-visual devices shall be positioned as needed in the room.

*Consider a second exit from classrooms where practical for school safety and fire egress.*

*Classrooms should be equipped with a two-way communication system for both informational and emergency use.*

*All classrooms should be equipped with computers, or conduits and data ports, for future installation.*

## **H. Pre-Kindergarten and After School Programs**

Licensed pre-kindergarten before- and after-school programs and operated on public school property are classified as “Licensed Child Day Centers.” The Virginia Department of Social Services administers the minimum standards for licensed child day centers. These requirements can be found on the Web site at <http://www.dss.virginia.gov> under the tab Children-“Child Care Facilities”, and

[https://www.dss.virginia.gov/files/division/licensing/cdc/intro\\_page/code\\_regulations/regulations/final\\_cdc\\_reg.pdf](https://www.dss.virginia.gov/files/division/licensing/cdc/intro_page/code_regulations/regulations/final_cdc_reg.pdf)

### **ADMINISTRATIVE UNIT AND HEALTH CLINIC**

#### **A. Administrative Unit**

The location of a school’s administration unit should serve as a secure point of entry for visitors into the school building. A secure entry vestibule should be used to process all visitors before they enter the school building.

Consider locating offices with frequent student/parent interaction within the confines of the school administration area.

In new schools and/or schools where the administrative unit is being altered, the following spaces should be provided:

1. General Office with clerical workstations
2. Finance Office
3. Waiting Room
4. Principal’s Office
5. Assistant Principal’s Office(s)
6. Guidance Office(s)
7. General Storage for supplies and books
8. Workroom

9. Coat Closet
10. Staff Toilet(s)
11. Fire Resistive Record Storage
12. Conference Room
13. Secure Storage Area
14. Other administrative spaces typically provided are office and storage rooms for PTA, Community Recreation, and Safety Security Officers

*School administrative areas should be located adjacent to main building entries to provide good visual surveillance of the entrance doors.*

*Providing two unisex toilet rooms is recommended for the administrative unit.*

*Provide office spaces for other student services such as Psychologist, Social Worker, Speech Therapist, and other health professionals. Student offices may be needed for student publications, student government, and clubs.*

*Doors to all administrative offices should have a view panel for security.*

## **B. Health Clinic**

In new schools and schools where the health unit is being altered, health service facilities should be provided as follows:

1. Examining room, with private access to an accessible toilet for persons with disabilities.
2. Cot area adjacent and directly accessible from the examining room. Cots should be adjacent to nurse's desk, located with direct line of sight from nurse's station and have curtains for privacy.

3. Separate cot areas for boys and girls in middle and high schools.
4. Nurse work area with space for desk, chair, file, phone, and other equipment.
5. Private office for consultation.
6. Enough space to accommodate eye screening, twenty-two feet in length, Clinic corridors may be used for this purpose.
7. Locked cabinet and refrigeration for medicines.
8. Nonabsorbent, nonslip floor in all clinic areas.
9. Lavatory with gooseneck faucet with aerator, wrist handles, and grid drain; a sink in a separate area from toilet; accessories should include liquid soap and paper towel dispensers.
10. Adjustable changing table within the accessible restroom area.
11. Accessible shower for all students.

### **C. Record Storage**

Provide fire resistive student record storage to meet one of the following standards:

1. A portable record protection cabinet shall be an Underwriter's labeled Class C, one hour rating.
2. A built-in records file room constructed in accordance with the provisions of NFPA (National Fire Protection Agency) 232-2012 "Standard for the Protection of Records." Walls, floor and ceiling construction must protect records for two hours, except the door shall be a fire door with a Class B label, 1 ½ hour fire resistance rating.

## **SCIENCE**

**A. Science Laboratory/Rooms**

Secondary level science labs should provide 45 square feet per student for labs, and provide 60 square feet per student for a combined lecture and lab space.

Science laboratory classrooms should have 24 student workstations, and science teachers should have their own workspace apart from classroom preparation space.

*For more detailed information regarding science facilities, see the National Clearinghouse for Educational Facilities website: <http://www.ncef.org> and the National Science Teachers Association website: <http://www.nsta.org>.*

*For a complete list of science safety equipment and specific storage requirements for chemicals as well as other safety recommendations for science labs, the “Safety in Science Teaching” December 2000 manual from the Virginia Department of Education should be referenced. The web address for the manual is: [http://www.doe.virginia.gov/instruction/science/middle/safety\\_science\\_teaching.pdf](http://www.doe.virginia.gov/instruction/science/middle/safety_science_teaching.pdf).*

**B Preparation/Storage Room**

Where provided, a preparation room should meet the following floor areas:

A single laboratory	200 square feet
Two laboratories	300 square feet

**C. Demonstration Desk**

Each laboratory and each science classroom should be provided with an instructor's or demonstration desk with acid resistant top, sink, and utility connections. When laboratory work only is planned in a science classroom, the demonstration desk may be omitted.

**D. Safety**

All laboratories should be equipped with fume hoods where flammable, toxic vapors or airborne particulates are generated. For most labs a low-volume exhaust fan controlled by the teacher is recommended.

Eye wash facilities, fire blanket, and safety deluge shower with floor drain, portable ABC rated fire extinguishers, and master shutoff controls for gas and electricity should be provided in all laboratories and adjacent prep rooms.

All science laboratories should provide a cabinet for safety goggles for eye protection as required by Occupational Safety and Health Administration (OSHA) and state code.

**E. Gas Outlets**

Gas outlets should be placed in science rooms where required by the program.

Consider locating a master gas shut-off control in a secure and easily accessible area.

**F. Accessible Workstation**

Each science laboratory should have at least one fixed or portable workstation that provides access for students with disabilities.

**G. Exhaust Ventilation**

All areas should be adequately ventilated so that exposure to hazardous or toxic materials is eliminated.

Hoods shall exhaust directly to the outside and should be located away from building air-intake or other openings.

## **MUSIC, VISUAL ARTS, THEATRE ARTS, AND DANCE ARTS**

### **A. Band/Orchestra Room**

The band room should provide a minimum of 20 square feet per member in the largest band group and a minimum ceiling height of 12 feet 6 inches. A secure storage space of 250 square feet should be provided for elementary and middle schools and 475 square feet for high schools.

Provide an oversized door or pair of doors with a removable center stylus into the music classroom and instrument storage room. Risers if used should be portable for use on the stage or in other spaces as well.

*In new schools and in schools where music, visual arts and theatre arts facilities are being altered, music, art, and theatre spaces should be provided in accordance with recommendations from the following: National Art Education Associations, National Dance Education Organization and National Association for Music Education.*

*For more detailed information regarding music, visual arts, theatre arts and dance arts, go to the following Web sites:*

*<http://www.arteducators.org>, <http://www.ndeo.org/> and <http://www.nafme.org>.*

*Consider using vinyl tile flooring in band rooms for cleanliness; carpets are often soiled by human salivation with instrument use and may need to be replaced often. Provide a laundry sink for cleaning of band instruments.*

*Music teachers may prefer a flat floor for flexibility and use in the music program.*

**B. Choral Room**

The choral room should be at least 15 square feet per member based upon the largest choral class, and the minimum ceiling height should be 10 feet. A secure storage space of 200 square feet should be provided.

**C. Band/Orchestra, Choral Room Geometry**

The design of music rooms should consider acoustics requirements by using splayed walls, special surfaces, shapes, or treatments to improve sound in the room and limit sound outside the room.

**D. Visual Arts Room**

The visual arts room should be at least 45 square feet per student, excluding storage and kiln rooms. A secure storage space of 350 square feet should be provided for elementary visual arts rooms and 400 square feet for middle and high schools. This space should include a lockable room for supplies and equipment. Visual arts rooms should be provided with display boards for two-dimensional works of art and shelving for display of three-dimensional works of art.

Kilns should be exhaust ventilated directly to the outside.

Visual arts rooms need at least one acid resistant sink with heavy duty drain and a clay or plaster trap to prevent clogging.

It is recommended that visual arts classrooms have windows and direct access to an outdoor art patio.

**E. Photography Darkroom**



Photography rooms should be 340 square feet, with functions broken down as follows: 100 square feet for film developing and chemical mixing, 180 square feet for darkroom printing, and 60 square feet for finishing.

## **F. Theatre Arts**

The instructional area for K-12 theatre arts should provide a minimum of 1,800 square feet with a minimum ceiling height of 10 ft. for performance space. In middle and high schools this space should be provided if a black box theatre area or performance hall facility is not available.

In a Theatre Arts classroom, provide an open space which is carpeted and acoustically treated with a raised platform and simple individually controlled directional lighting.

The theatre arts room should provide adequate storage space for all technology and audio and video equipment. Separate scenic, properties, costume storage space, and workshop areas should be considered for middle and high schools.

## **G. Dance Arts**

For elementary and middle school dance arts rooms, the instructional area should provide a minimum of 1,700 square feet with a minimum ceiling height of 10 ft. and 100 square feet of secure storage space.

For high school dance arts rooms, the instructional area should provide a minimum of 1,800 to 2,000 square feet with a minimum ceiling height of 10 ft., an office, and 100 square feet of secure storage space.

The dance arts classroom should be an unobstructed space with a sprung wood or resilient wood floor.

*Concrete, tile, wood-over-concrete, and wood-over-tile floors are not recommended due to the potential for injury from falls or repetitive jumping. Shatter-proof mirrors should be mounted on at least one wall. The classroom should be soundproofed and located so that classroom noise can be isolated from the rest of the school.*

## **H. Auditorium**

Where an auditorium is provided, the following guidelines are recommended:

<b>Grades</b>	<b>Seating Capacity</b>	<b>Stage Square Footage</b>
K - 5	Fixed seating not recommended; locate stage in cafeteria or gym	1,200 square feet
6 - 8	Fixed seat auditorium optional for 1/4 - 1/3 Average Daily Membership (ADM) or use gym or cafeteria	1,200 - 3,000 square feet
9 - 12	1/3 to 1/2 ADM (8 square feet per seat)	3,000 - 5,000 square feet

*If a high school auditorium is provided, it should be located adjacent to instrumental, vocal choral, and theatre arts classrooms. This will allow these spaces to serve as staging, green rooms, dressing, and set-up areas for performances. Provide for a minimum seating of one grade level (class ADM x 8 sq. ft.) plus 4,000 square feet minimum for the stage, storage, and small lobby. Generous side stage areas are encouraged for props and scene storage. Fly lofts and orchestra pits are strongly discouraged for safety reasons. As an alternative for orchestra pits, provide several rows of removable seats at the front of the auditorium. Overhead or oversized doors from a loading area to the stage, scene storage, and workshop areas should be provided.*

*In lieu of a separate control booth for sound and lights, provisions may be made to set up control boards in the middle of the seating area. Stage lighting needs will vary; therefore, consider minimal lighting, with circuits and grid for installation of retail units. Provide electrical needs to support the theatre arts program.*

## **CAREER AND TECHNICAL EDUCATION (NEW SECTION)**

### **A. General**

Career and Technical Education (CTE) programs are designed to prepare students for postsecondary vocational education and employment. These programs housed in middle and high schools provide foundational knowledge and skills as per the United States Department of Education's career clusters and career pathways. Programs and courses offered in middle schools are exploratory. CTE classrooms and laboratories are often larger than general classrooms and are extensively equipped and therefore, more expensive to build than regular classrooms. Spaces should be designed to be flexible for changing educational needs.

### **B. CTE Classroom Recommendations**

The ceiling heights in career and technical education laboratories and hands-on classrooms should not be less than twelve feet.

Tools and equipment that are hazardous to a user's safety should have centralized shutoff devices.

Electric outlets for tools shall be protected by GFI.

All equipment shall meet the safety requirements of the Environmental Protection Agency (EPA) and Occupational Safety and Health Act (OSHA).

Dust producing areas such as raw material processing shall be physically separated from any program area that may produce ignitions such as welding or metal grinding.

Secure storage shall be provided for potentially hazardous tools and materials.

*In high schools provide meeting rooms, office, and storage space for the following programs: Agriculture Education, Business and Information Technology, Family and Consumer Sciences, Marketing, Technology Education, and Trade and Industrial Education.*

**C. Guidelines for CTE Spaces**

**Career and Technical Education Spaces**

<b>Middle School</b>	<b>Grades 6 - 8 Exploratory Programs</b>
Agriculture Education	1,400 - 1,800 sq. ft. (could also include Greenhouse 1,400 - 1,800 sq. ft.)
Business & Information Technology	1,000 - 1,400 sq. ft.
Family and Consumer Sciences	1,400 - 1,800 sq. ft .
Technology Education	1,400 - 1,800 sq. ft.
<b>High School</b>	<b>Grades 9 - 12 Programs and Courses</b>
Agriculture Education	2,200 - 2,600 sq. ft. (Could also include Greenhouse 1,400 -1,800 sq. ft)
Business and Information Technology	1,000 - 1,400 sq. ft.
Career Connections	1,000 - 1,400 sq. ft.
Family and Consumer Sciences -Could Include:	2,200 - 2,600 sq. ft.
Early Childhood Education and Services	2,200 - 2,600 sq. ft.
Culinary Arts, Food Sciences & Hospitality	2,200 - 2,600 sq. ft.
Fashion Interior Design	2,200 - 2,600 sq. ft.

Health and Medical Sciences	2,400 - 2,800 sq. ft.
Marketing	1,000 - 1,400 sq. ft.
Technology Education	2,400 - 2,800 sq. ft.
Technical Drawing and Design	1,400 - 1,800 sq. ft.
Trade and Industrial Education - Could Include:	
Automotive Services, Aviation, Construction Services, Machining, Manufacturing, Industrial Maintenance (each)	2,400 - 2,800 sq. ft.
TV and Media Production, Graphic Communications and Printing, Welding, Electricity, HVAC (each)	2,000 - 2,200 sq. ft.
Cosmetology, Barbering	1,600 - 1,800 sq. ft.
NOTE: Generally, Trade and Industrial Education laboratories will have an auxiliary instructional area included in the above values.	

## HEALTH AND PHYSICAL EDUCATION

### A. Gymnasiums

Gymnasiums should have the following minimum clear dimensions:

Elementary School (where provided)	42 ft. x 74 ft. court (54 ft. x 90 ft. with safety zone*) ceiling height 20 ft. clear
Secondary School	50 ft. x 84 ft. court (62 ft. x 100 ft. with safety zone*)

ceiling height 22 ft. clear
-----------------------------

\* Safety Zone – Minimum clear floor dimensions do not include space for bleachers or retractable bleachers, but provide a safety zone of 6 ft. on each side and 8 ft. on each end of court.

*Floor coverings should be selected that will be appropriate to the use of the space. In elementary schools, where shared use spaces such as the auditorium (gymnasium) are the normal practice, consider high density carpeting or cushion-backed play surfaces instead of vinyl composition tile or terrazzo. Secondary school programs such as weight lifting or wrestling should consider high density rubber flooring in the spaces to be used for the program.*

*Community use of gymnasiums and outdoor fields are common in elementary, middle and high schools. If this is a planned consideration, a small office should be considered for use by the partnering local parks and recreation department.*

## **B. Locker and Shower Rooms in Secondary Schools**

Locker rooms should be provided with the following:

1. One locker for each student scheduled for physical education
2. Fifteen square feet per pupil, based on the largest scheduled class
3. Complete privacy against visibility from the outside
4. Convenient access from lockers to the gymnasium
5. Non-absorbent, non-slip floors in all areas
6. Janitor's closet in or convenient to all locker rooms
7. Separate private showers with enclosed dressing rooms, and small bench and clothes hooks
8. Increase visual control from staff offices to lockers and dressing rooms for safety

9. Laundry rooms with space for washer and dryer

All shower rooms should be provided with the following:

1. Private showers
2. Two handicapped accessible shower stalls
3. Team locker rooms with six showers
4. Shower room finishes such as nonskid floors and moisture resistant surfaces

### **C. Team Rooms at High Schools**

Team rooms for high schools should be provided with the following:

1. Complete privacy against visibility from the outside
2. Nonabsorbent, nonslip floor in all areas
3. Janitor's closet in or convenient to the team room
4. Team room office for coaches
5. Lockable coat storage closet

### **D. Physical Education Staff Offices for Elementary Schools**

An office adjacent to a gymnasium should be provided for the teacher. The office should have a view window to the instructional area and should be sized to accommodate a desk, chair, file cabinets and single side chair.

### **E. Physical Education Staff Offices for Secondary Schools**

Staff offices should be provided with the following:

1. Separate office for male and female staffs
2. View windows from staff offices to the dressing rooms; room design configured to restrict line of sight when office door is open
3. Toilet and shower in each office with nonabsorbent, nonslip floors
4. Lockable coat storage closet in each office

**F. Storage for Physical Education Equipment**

Interior storage for equipment should be provided as follows:

1. Elementary School – minimum 300 square feet
2. Middle School – minimum 600 square feet
3. High School – minimum 800 square feet adjacent to the gymnasium

NOTE: Consider providing additional storage for Parks and Recreation.

Outside storage of field equipment

1. Middle School – minimum 250 square feet.
2. High School – minimum 500 square feet.

**LIBRARY MEDIA CENTER**

**A. Library Media Center**

In new schools, and existing schools where the library media centers are to be renovated, library facilities should include a reading room, book shelving space, seating, workroom, and other rooms as needed.



*It is best if a school's media center is located on the ground floor convenient to all learning areas of the school.*

*Additional information regarding library media centers is available at the American Library Association web site: <http://www.ala.org>.*

## **B. Reading Rooms**

Reading rooms should be provided based upon enrollment and grade structure, in accordance with the following recommendations:

1. Elementary reading rooms should have a gross floor area of at least 750 square feet, plus 2 square feet times the total enrollment.
2. Middle and high school reading rooms should have a gross floor area of at least 1,000 square feet, plus 3 square feet times the total enrollment.

*Elementary schools should have a group storytelling area. Storytelling pits are discouraged due to inflexibility, safety and ADA concerns.*

## **C. Book Shelving**

Book shelving capacity in elementary schools should provide for a minimum collection of 10 books per pupil, at not more than 9 books per lineal foot of shelf, plus shelving for periodicals. Middle and high schools with enrollments in excess of 1,500 students should provide at least 15,000 books, at not more than eight books per linear foot of shelf, plus display space for periodicals.

Books available in electronic format may be counted for up to 25 percent of the number of books required for the school. In determining the number of books available in electronic format, the same title should be counted only once.

Provide shelving arrangement for ease of supervision and clear line of sight from circulation desk.

All library book shelving should be provided with backs, regardless of location. Perimeter book shelves should be secured to walls.

**D. Seating Capacity**

Seating should be provided for a minimum of 30 students to a maximum of 60 students at the elementary school level. Secondary schools should consider seating, formal and informal, sufficient to allow up to 3 classrooms of students to use the media center at one time.

**E. Staff Workroom**

A workroom of at least 200 square feet should be provided adjacent to the reading room. It should have a work counter, sink, storage cabinet, shelving, and view window into the reading room.

**F. Other Rooms**

Where required by the program, additional rooms should be provided for the following functions:

1. Conference room - 120 sq. ft.
2. Distance learning - 120 sq. ft.
3. Computer network server - 100 sq. ft.
4. Communicating/Television studio room - 48 sq. ft.
5. Librarian office - 120 sq. ft.
6. Electronic/software storage room - 150 sq. ft.
7. STEM Project spaces - 500-750 sq. ft.
8. School Technology Specialist - 120 sq. ft.

**G. Technology Support**

Provide sufficient electrical outlets to allow for use of electronic digital resources that may not be a permanent part of the media center’s collection of equipment, such as devices under a school division’s “Bring Your Own Device” program.

*Hard-wired as well as wireless internet connectivity should be provided throughout the media center with sufficient stations to accommodate at least a single classroom of students whether spread around the space or concentrated as a lab setting.*

## SCHOOL CAFETERIA

### A. Dining Room Size

In determining dining room floor area, first determine the number of seats needed based on total enrollment. Typically, a schedule that provides for three cafeteria seating periods makes the best use of cafeteria space. The dining room size is determined by dividing school enrollment by the number of lunch seatings times the square footage per pupil indicated in the table below.

**Dining Room Square Footage Guide by Table Type**

Grades	Rectangular Tables with Attached Seats	Rectangular Tables with Stacking Chairs	Round Tables with Stacking Chairs
K-5	8-10 square feet per student	10-11 square feet per student	11-14 square feet per student
6-8	9-11 square feet per student	11-14 square feet per student	11-14 square feet per student
9-12	11 square feet per student	11-14 square feet per student	11-14 square feet per student

### Recommended Dining Room Ceiling Height

Size of Dining Room	Ceiling Height
Under 3,000 square feet	12 feet
Over 3,000 square feet	14 feet

Strong consideration should be given to providing sound attenuation measures in the dining room.

*More information can be obtained from the Institute of Child Nutrition Web site:*

<https://theicn.org/>

#### **B. Serving Areas**

Cafeteria serving areas should be provided at 20 to 25 percent of the dining room floor area.

#### **C. Kitchen Layout Design**

The general kitchen layout design should include the loading dock, receiving area, storage area for recycling materials, space for food preparation, serving lines, food and nonfood storage areas, employees' lockers, staff toilet facilities, and all other equipment.

The minimum total area of the general kitchen should be in accordance with the following formula: 1,000 square feet, plus one square foot times the total enrollment.

### **Kitchen Square Footage (SF) Requirement for all Spaces**

Space	Meals Served Per Day				
	200-400	400-600	600-800	800-1,200	1,200-1,500
Receiving	50-60	60-75	75-85	85-100	100-125
Can Wash/Dry	50-75	75-100	100-125	125-150	150-160
Toilets/Lockers	200	200	200	225	250
Janitor & Chemical/ Soap Storage	50-60	60-75	75-85	85-100	100-125
Offices	50-80	80-100	100-120	120-150	150-160
Dry Storage	200-300	300-400	400-500	500-600	600-700
Refrigerated/Storage	130-200	200-300	300-400	400-600	600-750
Preparation/Cooking	500-600	600-700	700-800	800-1,000	1,000-1,250
Pot & Pan Washing	75-85	85-100	100-110	110-125	125-150
Holding & Serving	250-400	400-800	800-1,200	1,200-1,400	1,400-1,800
Dining	800-1,600	1,600-2,400	2,400-3,200	3,200-3,600	3,600-4,500
Dish/Tray Washing	100-150	150-200	200-250	250-350	350-400

*Food service equipment not readily movable (on casters or rollers) should have a minimum clearance of six inches to allow for cleaning. To provide service access, when the equipment is eight feet or more in length a space of 18 inches from walls and other equipment should be provided.*

*Air conditioning is generally cost prohibitive for the general kitchen areas. Use of spot cooling at work stations as well as cooling of the service lines and manager's office are measures commonly utilized to address worker comfort.*

*Due to the early reporting time of workers, consideration should be given to providing well-lighted parking areas adjacent to the personnel entrance to the kitchen.*

**D. Kitchen Office**

The office should have view window(s) to exit(s) and preparation area.

**E. Service Entrance**

A separate service entrance should be provided for kitchens that prepare 100 or more meals per day.

**F. Refrigerator/Freezer**

The doors of all walk-in refrigerators or freezers should have door hardware that allows opening from the inside.

*Floor trenches are recommended in front of cooler and freezer doors for drainage of liquid spills.*

**G. Can Washing Provisions**

A frost-free hose bib near the kitchen trash removal area should be provided.

Provide for the drainage of waste water from can washing to go into the sanitary sewer system.

## H. Trash and Recycled Material Storage

A secure trash and recycled material storage space should be provided unless a dumpster is used. Staff should have easy access to recycling and waste dumpsters' areas.

*Make provisions for dumpster washing. A dumpster pad of adequate size and facilities for cleaning should be provided. When a dumpster is to be cleaned on-site, waste water should be discharged to the sanitary sewer system. An approved contracting service that has cleaning facilities may be accepted.*

## I. Mop Closet

A mop closet with service sink or receptor should be convenient to the kitchen.

# CIRCULATION AND HARDWARE

## A. Corridors

Major circulation in corridors should not be less than 8 feet clear when measured wall-to-wall. Where lockers are located in corridors, the clear width should be measured from the edge of open locker doors.

### Corridor Guidelines

Elementary Schools	8 feet
Middle Schools	10 feet
High Schools	10 feet

*Corridors that are both wide and provide good sightlines for visual supervision will enhance school safety and security.*

*Locker commons areas can improve the overall security of schools. Locker commons areas should be designed as a student social center. Typically, these areas are located at major corridor intersections. Lockers in these common areas are generally half-high and have countertops. Two tier lockers should not be considered since they are too small for books, and coats, and can cause conflicts when students have to get to both levels at the same time.*

## **B. Interior Stairways**

In addition to the building code requirements, consider circulation efficiency during times of peak foot traffic in the planning of interior stair locations.

Stairs should not be less than 48 inches wide clear (handrail to handrail).

## **C. Stair Handrails**

Elementary schools should have double handrails where handrails are required by the building code. These handrails shall be mounted, as measured vertically at 26 inches and 34 inches above the tread.

## **D. School Doors**

All exterior doorways should be protected by a canopy or a recess of not less than three feet in depth.

All exterior double doors should be separated by removable mullions to facilitate movement of oversized equipment.



Provide vision panels on all doors in instructional and office spaces.

School building doors should remain locked from the outside at all times when school is in session. Provide electronic access control through intercom or push button systems on selected doors to be used as access doors during school hours.

#### **E. Door Hardware**

All classroom and teacher workroom doors shall have hardware that will ensure the door is locked from outside the room at all times.

Continuous hinges should be considered for any door utilizing a door closer or located in a high traffic area.

Wall mounted knob bumpers should be utilized where possible instead of floor mounted bumpers.

*Consider surface mount closers in all applications.*

*Standardize door hardware to minimize the number of keys required school-wide.*

## **ACOUSTICS**

#### **A. Noise Reduction**

In new construction, remodeling or renovations of existing media center, cafeterias, corridors, and large group spaces, including gymnasiums, one of the following acoustical treatments should be provided.

1. Treat the entire ceiling with acoustical material having a noise reduction coefficient (NRC) of not less than 0.70.
2. Reduce background noise contribution from mechanical equipment to levels less than 45 decibels.
3. Design walls and floors to have a sound transmittance coefficient (STC) as recommended by the current American National Standards Institute (ANSI) Standard S12.60.

*When designing school layouts, isolate classrooms and libraries from unwanted noise originating from the cafeteria, auditorium, music rooms, and shop areas.*

## **B. Sound Enhancement**

Consider sound enhancement (voice amplification) in all instructional areas which would include wireless microphones and speakers.

## **C. Music Rooms**

Sound insulation should be provided in music rooms so that normal rehearsal room sound will not produce a noise level of more than 35 decibels in adjacent occupied spaces.

*When planning band, choral, and other music rooms, consider splaying or angling walls. This will help to provide better acoustics. Music room walls should be extended to the underside of the immediate floor or room deck above. This will prevent sound from traveling from music rooms to adjacent spaces.*

## **D. Special Education**

A dedicated room for speech training and hearing testing should be isolated from

## **VENTILATION**

### **A. Occupancy Load**

For the purpose of providing ventilation and outside air to general classroom spaces, the occupancy for each space should be determined, based on the maximum occupant load of 26 (25 students plus one teacher).

The occupant load for assembly or educational areas with permanent fixed seating should be determined by the actual number of seats.

Two levels of ventilation should be provided for periods of low occupancy and high occupancy in the following school areas: gymnasiums, multipurpose rooms, auditoriums, libraries, and cafeterias.

### **B. Relief Ventilation**

Relief ventilation equal to a minimum 90 percent of the outside air requirements should be provided in each space of air handling system.

### **C. Minimum Ventilation**

Janitors' closets and all uniform/costume storage rooms shall be ventilated to prevent migration of odors and excessive humidity.

### **D. Exhaust Fume Hoods**

Exhaust fume hoods to the outdoors should be provided with hood face velocity and minimum transport velocity as indicated in the following areas:

Space	Face Velocity	Transport Velocity
Science Labs	100 fpm *	-----
Kitchen range		
Paint booths		
Ventilated welding booth	100 fpm	
Woodworking dust exhaust		

\* Fpm – feet per minute

*A school's heating, ventilation, and air conditioning (HVAC) system is the most important internal system in a school facility. This system is the major energy user in a school and may also impact learning or comfort of the building occupants. Thoughtful planning must go into the selection of the HVAC system, and a design professional should be consulted as to the type of system to be selected and its eventual design. First cost, operating cost, ease of operation, quietness of operation, as well as system maintenance are all major factors to be considered in the selection of any system. Major systems likely to be considered are:*

*Oil or natural gas-fired boiler systems*

*Four (4) pipe chilled water/hot water systems*

*Air cooled chillers systems*

*Air handling units (AHUs) separate zone systems*

*Water Source/Ground Source heat pumps*

*Spaces where separate systems should be considered are the library and administration office areas that typically operate during the summer when other areas of the school building are closed. Main head-end rooms for computer equipment often generate excessive heat and these spaces must have a separate system to be cooled year round.*

*Whenever possible, equipment should be floor mounted and in a separate mechanical room. Boiler rooms should be located at or above ground level, and avoid placing air handling equipment in boiler rooms whenever possible. The use of a certified air balancing contractor is recommended to balance system air and water flow rates.*

*Construction specifications should require a building commissioning program that would help ensure good indoor air quality and good energy-efficiency from a building HVAC system.*

*Consider high-efficiency air filters to enhance indoor air quality.*

## **TOILET AND PLUMBING FIXTURES**

### **A. Classroom Toilets for Pre-Kindergarten, Kindergarten, and First Grade**

Except as provided in B, each classroom designed for pre-kindergarten, kindergarten, or first-grade pupils should have at least one toilet room, connected to the classroom.

Supplemental classrooms used for the following programs should have an accessible self-contained toilet.

1. Pre-kindergarten
2. Kindergarten

3. Grade 1
4. Self-contained special education

**B. Shared Classroom Toilets for Pre-Kindergarten, Kindergarten, and First Grade**

Individual classroom toilets may be omitted when toilets for pre-kindergarten, kindergarten, and first grade are grouped together so that adequate supervision can be provided without leaving the instructional area.

**C. General Use Instructional Toilets**

General toilet rooms should be provided on each floor of the building and should be located within 200 feet of the most remotely located instructional space. When considering group or gang type toilet rooms where a large number of plumbing fixtures is required, five is the recommended number of flushing fixtures per toilet room. It is preferable that the number of toilet rooms be increased rather than increase the number of fixtures in one room. Locate toilet facilities near cafeterias, gymnasiums, and auditoriums. These toilet rooms should be sized to accommodate the larger of the spaces to be served.

**D. Physical Education Dressing Room Toilets**

A toilet with lavatory should be provided for pupils in each dressing or locker room of the physical education department. It should not be directly connected to the shower area. Modesty features for users should be considered when designing shower rooms.

**E. Staff/Public Toilets**

Provide adequate accessible toilets for staff and/or public.

**F. Health Clinic**

The health clinic should be directly accessible to a toilet. Consideration should be given to providing an accessible shower in the clinic.

### **G. Privacy in Toilet Rooms**

Toilet rooms with two or more toilets should have the doors, windows, mirrors, and fixtures arranged to ensure privacy.

### **H. Toilet Room Finishes and Accessories**

All general toilets for pupils, staff, or public use should have impervious floors, toilet partitions and walls to a minimum of five feet above the finished floor.

Toilet room accessories should include:

1. A soap dispenser convenient to each lavatory
2. A toilet paper dispenser for each water closet
3. Mirrors mounted other than over the lavatories (except in private toilet) should be considered
4. A shelf in secondary school toilets for books and other articles
5. Paper towel dispenser or electric hand driers convenient to lavatories
6. Floor drains in all toilet rooms.

### **I. Domestic Hot Water System**

All hot water supply systems should be equipped with automatic temperature controls capable of adjustments to deliver domestic hot water between 85<sup>0</sup> F and 110<sup>0</sup> F to all laboratories and sinks.

Kitchen equipment may require hotter water temperatures as per the manufacturer's specifications.

Provide accessible cut-off valves to each major wing of the building and in the hallway ceiling plenum outside group toilet facilities when designing water supply systems for schools.

*Hot water should be provided to the following spaces: art rooms, photographic darkrooms, and classrooms for self-contained special education children. A point of use electric hot water heater is sufficient for single room applications. Hot water temperature should be set at a maximum of 110° F to prevent scalding.*

*Verify that the site and construction record drawings are up-to-date with the exact locations of all underground water and sewer lines indicated. When water is supplied to buildings such as concession stands, stadium toilets, and field houses, water supply piping should be sloped to a cut-off or waste valve drainage point to simplify winterization.*

*Plumbing specifications should require testing of all water and gas systems by a qualified commissioning agent to ensure the good working order of the systems.*

## **J. Fixtures**

Lavatories or wash fountains should be provided in the following locations:

1. General toilet rooms
2. Classroom toilets
3. In or adjacent to toilets in physical education locker rooms, kitchens, and clinics
4. Shops with one washing position per 10 students

Work sinks should be provided, where applicable, in the following locations:

1. Pre-kindergarten through first grade classrooms



2. Special education classrooms
3. Science classrooms/labs
4. Art/photo labs (provide plaster traps)
5. Vocational labs
6. Media center staff workrooms
7. Kitchen
8. Band rooms

**K. Drinking Fountains/Coolers**

Accessible fountains/coolers should be provided in high traffic areas such as public corridors, lobbies, gymnasiums, multipurpose rooms, music rooms, dining rooms, and adjacent to auditoriums.

Consider water resistant/slip resistant floors around drinking fountains.

Mounting Heights. Drinking fountains/coolers should be mounted in accordance with the most current version of the Americans with Disabilities Act.

**L. Shower Temperature**

Hot water to showers should be provided at 85<sup>0</sup> F to 110<sup>0</sup> F. Controls should be provided to ensure that water temperature does not exceed 110<sup>0</sup> F.

(See Appendix B for mounting heights for all plumbing fixtures.)

**LIGHTING**

**A. Illumination Levels**

Minimum illumination levels, as indicated below, should be provided and maintained at task level. Illumination levels are given in footcandles (FC). Task level is defined as thirty (30) inches above the finish floor. All illumination levels should be an average maintained footcandle level.

<b>Illumination Levels</b>				
<b>Space</b>	<b>Footcandles</b>		<b>Space</b>	<b>Footcandles</b>
Classrooms	50		Gymnasium *	30 – 50
Media Center	50		Lockers	10 – 20
AV Distribution Room	50		Lobbies	10 – 15
Offices	30 -50		Toilets	5 – 10
Business	50		Corridors	10 - 15
Studio	50		Kitchen	60 - 70
Science Labs	50		Dining *	20 - 50
Electrical Rooms	30		Auditoriums	10 - 30
Mechanical Room	30 - 40		Storerooms	20 - 30
Computer Labs	30			

\* If the dining room or gymnasium spaces are to be used for SAT testing, then 40 to 50 footcandles is recommended.

## **B. Lamps**

High efficiency fluorescent or LED lighting should be installed wherever incandescent fixtures have been used in the past to illuminate a school building. Generally, fluorescent lamps of the T-8 and T-5 variety and electronic ballast should be used in classroom and lab spaces.

*Light-emitting diode (LED) exit light fixtures are recommended due to low operational cost and long lamp life especially in areas difficult to service.*

*Consideration should be given to utilizing LED or other emerging technology for general lighting. Fixture selection should be guided by Color Rendering Index (CRI) of 80, a Kelvin rating of 4,000 to 5,000 and meeting the FC ratings as shown in the table above.*

*In performing arts, fine arts or other spaces where color perception is important, provide incandescent, LED, or other light with appropriate Color Rendering Index (CRI).*

### **C. Indirect Luminaries**

Indirect luminaries in classrooms or libraries are permitted, as long as footcandles and energy standards are being met.

### **D. Lighting Controls**

Dual switching is required by the International Energy Conservation Code (IECC). For all indoor and outdoor lighting provide readily visible accessible and clearly labeled switches for manual control of lighting.

Automatic energy management system control should be considered for school buildings and campus lighting.

Motion detectors, vacancy sensors and lighting level controls should be considered and used to turn off lights, or lower lighting levels.

## **TECHNOLOGY**

**A. General**

In new schools, additions, renovations and supplemental classrooms, infrastructure that supports the transmission of voice video and data through hardwiring or wireless technology should be provided. Consideration should be given for flexibility and evolving technology.

Smaller wiring closets with fewer connections may need space for a mounting board on a wall for punch down blocks and hubs. Large wiring closets serving more connections will require space for floor-mounted racks, for front and rear access, as well as servers and cross connections to telephone service.

<b>Spaces</b>	<b>Square Footage</b>
K - 5 Computer Classroom	800 Sq. Ft.
6 - 8 Business Information Technology	1200 Sq. Ft.
9 - 12 Business Information Technology	1200 Sq. Ft.
Main Head-End Room	450 - 800 Sq. Ft.
Wiring Closet	15 - 120 Sq. Ft.

In order to reduce the glare on smart boards, classroom lighting should be designed to provide multiple lighting levels, so that overhead lighting may be reduced when smart boards are operational.

*Many school systems are moving away from computer labs and are placing computers in general classrooms or are providing personal computers to individual students. This has significant impact on the school building in terms of the additional demand for electrical power and higher air conditioning loads.*

*The main head-end room contains the main connections to the outside, as well as the network hubs, wireless devices, routers and file servers that make up the network. Data racks are typically centrally located. Space should be provided for Information Technology (IT) personnel within or adjacent to the head-end room.*

*Consider providing supplemental cooling, independent of the main HVAC system for periods when the building is in holiday setback or summer operation.*

*Technology should support current student testing requirements relative to use of computers and networks.*

*For more detailed information regarding technology guidelines go to the Virginia Department of Education's SOL Technology Initiative, Architectural Guidelines for High School Readiness:  
[http://www.doe.virginia.gov/support/technology/edtech\\_plan/guidelines\\_resources/edtech\\_guidelines.pdf](http://www.doe.virginia.gov/support/technology/edtech_plan/guidelines_resources/edtech_guidelines.pdf).*

## ELECTRONIC ROOM PARTITIONS (NEW SECTION)

The Virginia Department of Education (VDOE) has developed the following guidelines for the operation of electronic room partitions and recommends that the following safety steps be practiced by school division staff when operating electronic partitions installed in a public school:

1. School divisions shall post near each operable partition instructions on safety. This notice should include the following:
  - a. Only appropriately trained staff may operate this partition.
  - b. Control stations must be attended by staff members while the partition is in motion.
  - c. Staff members must stand on opposite sides of the partition during stacking or extending procedure.
  - d. Students must not be in the room while the partition is in motion.

2. The VDOE also advises school divisions that when new electronic room partitions are installed in a school, the contractor should be required to conduct safety training for staff on the safe operation of the partitions and provide operation manuals of the product.

In schools where electronic room partitions have been installed, school divisions should conduct an annual safety review of the partitions, provide their staff with information about the safety requirements to be practiced in the areas surrounding the partitions, and the safety measures to be practiced while operating the partitions as well as provide a demonstration, as appropriate, on the safe and proper operation of the electronic room partitions.

VDOE is also including below model safety guidance on the safe use and operation of movable electronic room partitions based on the master specifications and industry standards for folding partitions.

### **Model Safety Guidance for Operating Electronic Room Partitions:**

**A. Location of Remote-Control Stations:** Install a two-position, low-voltage key switch to arm the system to control activation of the operator motor that enables movement of the electronic partition. The operator motor control shall consist of two stations with extend and retract constant-pressure push-button switches. Switches shall be of the low voltage type, wired in series, and located on opposite sides and ends of the partition.

### **B. Obstruction-Detection Devices:**

Equip each motorized operable electronic partition with an automatic safety sensor device that causes the operator motor to immediately shut off if the device detects an obstruction.

Types of Obstruction-Detection Devices include:

1. **Partition Panel Sensor Edge:** Provide a contact-pressure-sensitive safety edge along the leading edge of the partition.
2. **Sensor Mat:** Place an electrically operated, contact-weight-sensitive safety mat in storage pocket area to detect any obstruction in this area.
3. **Infrared Sensor System:** Install an Infrared Sensor System designed to detect an obstruction in the partition's path and sound an audible alarm prior to the obstruction causing object coming in contact with the partition.

**C. Limit Switches:** Provide adjustable limit switches, interlocked with the motor controls and set to automatically stop the operable panel partition at both the fully extended and fully stacked positions.

**D. Emergency Release Mechanism:** Provide a quick disconnect-release electric-motor drive system permitting manual operation in event of operating failure.

**E. Electric Interlock:** Equip each motorized operable panel partition with electric interlocks at locations indicated by the manufacturer to prevent operation of the panel partition inside the storage pocket doors.

## **MAINTENANCE AND CUSTODIAL FACILITIES**

### **A. Primary Custodial Area**

The primary custodial area, including offices, should be located near receiving and shipping spaces and be isolated from students. Custodial rooms should include sinks for cleaning and maintenance of the school building.

The school layout can dictate the location and number of janitors' closets needed in a school building. In general a janitors' closet and sink should be provided for each 10,000 square feet of floor area of the school building and be centrally located in the area served.

It is recommended that janitors' closets be located between a pair of general toilets to be convenient for toilet maintenance and to store supplies needed.

Janitors' closets with a sink should be provided for spaces such as gymnasiums, auditoriums, shops and multi-purpose rooms, where special maintenance equipment and supplies are used.

Janitors' closets should contain a mop sink, hot and cold water faucet, mop hangers, hose and hose bracket and sufficient floor area for storage of work carts. A single ground fault interrupt (GFI) duplex outlet within the space is advisable.

Consider providing space for storing large equipment such as flooring machines.

Consider lockable storage areas for products such as toilet paper, hand towels, trash liners, cleaning chemicals and custodial carts.

### **B. Maintenance Storage**

Consider providing dedicated space for secure storage of building plans, specifications, and operation and maintenance manuals. These should be easily accessible in cases of emergency.

Provide sufficient space within the maintenance storage area for maintenance materials and equipment.

The storage space for lawn maintenance equipment and combustible materials must be well ventilated. A separate facility outside the main building is required for the storage of combustibles.

Maintenance and custodial closets need to be well ventilated. Connection of the space to an exhaust system is advisable.

### **C. Roof Access**

Each low pitch or flat roof surface 12 feet or more above ground should be accessible from within the building by means of a permanent roof hatch and ships ladder or stairs. Changes in roof levels should also be accessible by steps or ladder if the level change exceeds 36 inches.

*To provide better health and environmental quality of school facilities, school boards are encouraged to support the use of green cleaning methods and products that promote better human health and environmental quality. Green cleaning products and techniques avoid the use of products that contain toxic chemicals which may emit organic compounds that can be harmful to health. Products that are labelled low or zero in volatile organic compounds (VOC) are safer to use in the school environment.*

*For more detailed information regarding green cleaning, see the Green Clean Schools web site: <http://greencleanschools.org/resources/steps/>.*



## **UNIVERSAL WASTE MANAGEMENT (NEW SECTION)**

### **A. General**

Universal waste management includes waste disposal, recycling, and composting. Successful implementation of these practices will help improve the environment and may reduce the cost of waste disposal. Since waste management needs will vary, it is necessary to coordinate your school's needs to the program being implemented. To meet the waste management requirements within a school, the volume of and types of solid waste being collected and separated must be determined.

Include the recycling vendor, waste hauling contractor, or the school's recycling team, custodial, kitchen, and administrative staffs in preparing the recycling program.

For more detailed information regarding recycling programs, see the Virginia Department of Education's Superintendent's Memo web site:

[http://www.doe.virginia.gov/administrators/superintendents\\_memos/2010/012-10.shtml](http://www.doe.virginia.gov/administrators/superintendents_memos/2010/012-10.shtml).

## **SUPPLEMENTAL CLASSROOMS**

### **A. General**

Industrialized buildings used for supplemental classrooms must meet the current Virginia Construction Code.

Stand-alone factory built modular units are considered as supplemental classrooms. When one or more supplemental units are connected by enclosed corridors, lobbies, or vestibules, such structures shall no longer be considered as stand-alone supplemental classrooms.

Safety and security shall be considered in the design and layout of remote buildings.

Instructions for high wind events, security shutdowns, and other situations for which safety and security procedures for remote buildings may differ from the procedures for the main buildings(s), shall be posted within each occupied room or remote buildings.

It is recommended that a two-way intercom system or a telephone be provided between the supplemental units and main office for communications and security and safety of all occupants. Computer and other technology support should also be provided to supplemental classrooms.

When submitting plans to the local building official for approval, a site plan may be required to show the location of the unit(s) with setback dimensions from the existing building indicated. Proposed location of electric lines, plumbing, telephone and electronic systems should be shown. The ADA accessible pathway and ADA ramp should be indicated on the site plan. A foundation plan showing footing, piers, and the location of the tie-downs for wind anchorage should be provided to the local building inspector. Fossil fuel devices should not be used to heat supplemental classroom units.

## **B. Supplemental Classrooms – Industrialized Buildings Regulations**

The Board of Housing and Community Development has been granted the authority to promulgate rules and regulations under § 36-73 of the *Code of Virginia* that governs the purchase and use of industrialized buildings or manufactured modular units as supplemental classrooms on school sites. The state regulations that establish the standards for construction and installation of industrialized buildings are called Industrialized Building Safety Regulations (IBSR) (13 VAC 5-91); the IBSR requires all industrialized buildings to comply with the Virginia Construction Code.

## **C. Bidding Requirements**

The bid package to procure supplemental units should include design criteria as indicated below. All procurement shall be made in accordance with the Virginia Public Procurement Act.

The following items should be included in any request for proposals when advertising to bid for supplemental classroom units:

1. Provide minimum ventilation as per the current Virginia Mechanical Code.
2. Provide light levels of 50 footcandles at task level in the supplemental classrooms.
3. Provide convenient electrical duplex outlets spaced a minimum of 12 feet along all outside walls.
4. The ceiling height should be 8 feet with no columns in the classroom space. The outside width of the unit should be 24 feet.

To obtain more information regarding Industrialized Buildings “IB”, go to:

<https://www.dhcd.virginia.gov/ib#:~:text=The%20IBSR%20provides%20for%20the,duct%20work%20to%20mention%20a%20few.>

**D. Design Criteria**

The dimensions of the unit should meet the following minimums: outside width of 24 feet for classrooms greater than 400 square feet and 12 feet for classrooms equal or less than 400 square feet, clear ceiling height eight feet with no columns in the classroom space.

Net classroom floor areas should be as follows:

Pre-Kindergarten, Kindergarten, Grade 1	975 square feet (excluding toilet)
Grades 2 – 5	800 square feet
Grades 6 – 12	700 square feet
Self-Contained classrooms (10 students maximum)	750 square feet (excluding toilet)

Equipment in supplemental classrooms should be provided in the manufacturer’s contract or by the school division as follows:

1. Bookshelving: Pre-kindergarten through first grade, minimum 30 linear feet; all other classrooms 20 linear feet
2. General shelf storage and hanging space for pupils’ clothing for grades pre-kindergarten through 5<sup>th</sup> grade
3. Locked teacher storage at all grades
4. Room darkening equipment on windows

The minimum lengths of display and marker boards or white boards in relocatable classroom areas should be as follows:

<b>Grade</b>	<b>Display</b>	<b>Marker</b>	<b>Mounting Heights – Floor to Bottom of Marker/Chalkrail</b>
PreK - K Grades	20 ft.	8 ft.	24 inches
1st - 2nd grades	20 ft.	8 ft.	24 inches
3rd - 5th grades	16 ft.	16 ft.	28 inches
6th – 8th grades	12 ft.	16 ft.	36 inches
9th - 12th grades	12 ft.	16 ft.	36 inches

Display and marker boards should be a minimum of 42 inches in height.

**E. Virginia Registration**

All supplemental classrooms to be used by a school division shall be labeled and registered as defined in the Virginia Industrialized Building Safety Regulations of the Virginia Construction Code and shall display the following:

1. A label identifying the compliance assurance agency
2. A permanent manufacturer's data plate
3. A Virginia registration seal with serial number

**F. Certificate of Occupancy**

All supplemental classrooms shall obtain a certificate of occupancy from the local building inspector. Support details and tie-down anchorage shall be in accordance with the Virginia Industrialized Building Safety Regulations.

**G. Asbestos Statement**

The supplemental unit manufacturer is required to submit to the school division a signed statement that no asbestos-containing building material (ACBM) was used in the manufacture of the unit.

**H. Travel Distance to Toilets**

The travel distance from the most remote point of the supplemental classroom to the nearest general toilet should not exceed 300 feet.

**I. Accessibility**

Where new supplemental classrooms are provided or existing units relocated, these units are required to meet the minimum accessibility standards for new construction as set forth in the Americans with Disabilities Act Accessibility Guidelines, (ADAAG).

## **OUTDOOR SCHOOL FACILITIES (NEW SECTION)**

### **A. General**

Outdoor maintenance and school athletic programs typically require additional support buildings and specialized construction on school sites. These buildings or structures may include, but are not limited to, the following:

1. Maintenance equipment storage buildings
2. Bleachers
3. Ticket booths
4. Concessions
5. Stadium restrooms
6. Weight rooms
7. Field houses
8. Driver education ranges
9. Press boxes
10. Observation platforms
11. Dugouts

Other standalone structures on school sites may include outdoor open air (amphitheater) classrooms, shelters, and greenhouses.

### **B. Design and Construction**

#### **Structures**

1. School officials shall insure that all construction, including athletic support structures or facilities on school property shall be designed and permits issued as required by the Virginia Construction Code. The design and construction of outdoor facilities are also regulated by the American's with Disabilities Act (ADA) and Title IX.
2. Consideration should be given to separate home and visitor restrooms for large stadiums. Restrooms should be located in areas with good lighting and where they can be easily supervised by the security staff.
3. The type of food being prepared in concession buildings should be coordinated with the local Health Inspector to avoid any possible conflict of the building being classified as a commercial kitchen.

## **Facilities**

1. Athletic facilities may include tracks, artificial turf or natural grass playing fields for specific sports, and the necessary equipment associated with operating those fields.
2. Playing fields should be designed by Landscape Architects, Engineers or other certified designers licensed in the Commonwealth of Virginia.
3. Sufficient space shall be allocated to safely conduct specific sport activities as well as accommodate spectators and all traffic.
4. If facilities will be used at night, site lighting should be considered at a light level appropriate to the use.
5. Provide underground irrigation systems for grass fields installed by vendors specializing in those systems, meeting plumbing code requirements.
6. In artificial turf fields, provide in-ground hose bibs to facilitate wetting the playing surface, meeting plumbing code requirements.
7. Additional acreage may be necessary when planning the water drainage for the athletic complex.
8. Provide grounds keeping or sport specific equipment storage out of the weather. The location of this storage should be central, but unobtrusive, to the facilities on which the equipment will be used.
9. Tracks should be designed in compliance with all Virginia High School League (VHSL) requirements. Competition track and field surfaces are typically synthetic materials on top of various layers of support and drainage materials. Design of these surfaces should be done by firms specializing in this work and licensed in the Commonwealth of Virginia.

### **C. Outdoor Bleachers and Grandstands**

Pre-engineered or custom designed outdoor bleachers and grandstands that are to remain permanently on a school site must be designed by a Virginia licensed architect or engineer, be in compliance with the ADA, and be submitted to the local building official for approval.

*Storage or maintenance equipment buildings that will house combustible fuel, equipment which uses combustible fuel, or any hazardous substance shall have adequate ventilation.*

## **FINAL DRAWINGS AND SPECIFICATIONS**

**A. Final Submittal**

Prior to advertising school construction projects for bid, the following items shall be submitted to the Virginia Department of Education, Office of Support Services, as required by the *Code of Virginia*, §22.1-140:

1. Project notice in the state VDOE, SBCR-SSWS system for assignment of a project number.
2. One hard copy set of the final plans and specifications. Half size prints may be submitted.
3. Written approval of plans and specifications by the division superintendent.
4. Statement from architect or engineer which states that plans and specifications are, in his professional opinion and belief, in compliance with the regulations of the Board of Education and the Virginia Construction Code.
5. Two “pdf” electronic versions of the plans and specifications each on standard compact discs.

**CONSTRUCTION SUPERVISION**

**A. Architect and Engineer Supervision**

In bid-build projects, design build projects, construction management-at-risk, or PPEA agreement projects, a professional architect or engineer’s supervision of the construction project should be included in the general conditions of the contract. The scope and the extent of their construction supervision services should be detailed under the terms of their contract.

**B. Owner’s Construction Representative**

The periodic supervision and interpretation of the plans and specifications usually furnished by the architect does not provide for the daily inspection of construction that fully protects the owner’s interest. Well-qualified individuals should be hired, by and on behalf of the owner, to administer both contract and construction administration. The



role and duties of this Owner's agent should be detailed and well defined in general or special conditions of the construction contract agreement.

Adequate observation monitoring of building construction by a qualified representative should be provided to protect the Owner's interest during construction. Consider specialist observers working under the direction of the Owner's representative. Continuous on-site observation of all construction activity is advisable.

The Owner's construction representative should monitor all construction activities, notify architect or Owner if work does not conform to contract documents, attend meetings, observe tests and inspections, maintain job site records, and provide documentation on behalf of the Owner. The Owner's construction representative is prohibited from interpreting plans and specifications or issuing any orders which alter the contract amount, unless specifically authorized by the Architect or lead design professional and approved by the owner.

The standard form of agreement between Owner and architect/engineer of record should be not considered as providing full-time, continuous monitoring of the project, unless such monitoring is specifically included.

## **SCHOOL CONSTRUCTION COST DATA**

### **A. School Construction Cost Data**

Upon execution of the construction contract, the school division shall provide to the Office of Support Services the project construction cost data, using the School Building Construction Renovation (SBCR-SSWS) electronic tracking system to file this information. Upon acceptance of the cost data by the Virginia Department of Education, Office of Support Services, the project will be closed.

## **APPENDIX A**

### **ACRONYMS (NEW SECTION)**

Below is a listing of acronyms with their definitions that are used in the guideline document.

<b>ACBM</b>	Asbestos Containing Building Material
<b>ADA</b>	Americans with Disabilities Act
<b>ADAAG</b>	Americans with Disabilities Act Accessibility Guidelines
<b>ADM</b>	Average Daily Membership
<b>A/E</b>	The design professional of record (architect or engineer)
<b>AFF</b>	Above Finished Floor
<b>AHU</b>	Air Handling Unit
<b>ANSI</b>	American National Standards Institute, Incorporated
<b>CA</b>	Construction Administration
<b>CD</b>	Compact Disc
<b>CM</b>	Construction Management
<b>CRI</b>	Color Rendering Index
<b>CTE</b>	Career and Technical Education
<b>DB</b>	Design Build
<b>DBB</b>	Design Bid Build

<b>DOE</b>	Department of Education
<b>EWC</b>	Electric Water Closet (drinking fountain)
<b>EPA</b>	Environmental Protection Agency
<b>F</b>	Fahrenheit
<b>FC</b>	Foot Candle
<b>FPM</b>	Feet per Minute
<b>GFI</b>	Ground fault Interrupt
<b>GMP</b>	Guaranteed Maximum Price
<b>HVAC</b>	Heating, ventilation and air conditioning
<b>IBSR</b>	Industrialized Building Safety Regulations
<b>ID</b>	Intellectual Disability
<b>IECC</b>	International Energy Conservation Code
<b>IT</b>	Information Technology
<b>LED</b>	Light Emitting Diode
<b>LEED</b>	Leadership in Energy and Environmental Design (LEED)
<b>MD</b>	Multiple Disabilities
<b>NEC</b>	National Electrical Code, (NFPA 70)
<b>NFPA</b>	National Fire Protection Association
<b>NRC</b>	Noise Reduction Coefficient
<b>OI</b>	Orthopedic Impairment
<b>OSHA</b>	Occupational Safety and Health Administration
<b>PPEA</b>	Public-Private Educational Act
<b>PTA</b>	Parent Teacher Association
<b>RFP</b>	Request for Proposal
<b>SBCR-SSWS</b>	School Building Construction Renovation (construction tracking) in Single Sign on for Web Systems
<b>SAT</b>	Scholastic Aptitude Test
<b>SF</b>	Square Feet
<b>SOL</b>	Standards of Learning

<b>STC</b>	Sound Transmittance Coefficient
<b>STEM</b>	Science, Technology, Engineering, and Mathematic
<b>VA-CHPS</b>	Virginia Collaborative for High Performance Schools
<b>UL</b>	Underwriters Laboratories
<b>VCP</b>	Visual Comfort Probability
<b>VDOE</b>	Virginia Department of Education
<b>VHSL</b>	Virginia High School League
<b>VOC</b>	Volatile Organic Compound

## APPENDIX B

### Recommended Equipment Mounting Heights

		Mounting Height
<b>Lavatories</b>	<b>Grades PK (Preschool), K, 1, 2, 3, 4, 5, 6</b>	(Measured from floor to top of rim) 27 inches
	Accessible	30 inches
	<b>Grades 7, 8, 9, 10, 11, 12</b>	31 inches
	Accessible	34 inches
Max (29 inches clear knee space at rim by 8 inches deep, minimum 27 inches clear to bottom of bowl)		
<b>Urinals</b>	<b>Grades PK, K, 1, 2, ,3, 4, 5, 6</b>	(Measured from floor to top of rim) 17 inches
	(centerline of flush valve 11.5" from top of urinal) Accessible	

	<b>Grades 7, 8, 9, 10, 11, 12 and Adults</b> (centerline of flush valve 11.5" from top of urinal)  Accessible (rim height A.F.F.)	24 inches   17 inches max.
<b>Water Closets</b>	<b>Grades PK, K, 1, 2, 3, 4, 5, 6</b> (centerline of flush valve 26" A.F.F.)  Accessible  <b>Grades 7, 8, 9, 10, 11, 12 and Adults</b> (centerline of flush valve 29" A.F.F.)  Accessible	(Measured from floor to top of rim)  15 inches  15 inches  15 inches  18 inches
<b>Drinking Fountains, EWC's</b>	<b>Grades PK, 1, 2, 3, 4, 5, 6</b>  Accessible (24" clear knee space)  <b>Grades 7, 8, 9, 10, 11, 12, and Adults</b>  Accessible (27" clear knee space)	(Measured from floor to spout)  28 inches 30 inches  42 inches 36 inches

### Recommended Equipment Mounting Heights

		Mounting Height
<b>Shower Heads</b>	<b>All Grades – Boys</b>  <b>All Grades – Girls</b>  <b>Adults</b>	(Measured from floor to head)  72 inches 66 inches 72 inches
<b>Computer Counters</b>	<b>Grades PK, K, 1, 2, 3, 4, 5, 6</b>	(Measured from floor to top)  24 inches

	<b>Grades 4, 5, 6</b> <b>Grades 7, 8, 9, 10, 11, 12, and Adults</b> Accessible	27 inches 30 inches 34 inches
<b>Countertops</b>	<b>Grades PK, K, 1, 2, 3</b> <b>Grades 4, 5, 6</b> Accessible sink tops (Grades PK, K - 6) serving classroom toilets (24" clear knee space) <b>Grades 7, 8, 9, 10, 11, 12, and Adults</b> Accessible	(Base cabinets with or without sinks measured from floor to top) 24 inches 27 inches 30 inches 36 inches 34 inches
<b>Accessible Grab Bars</b>	<b>Grades PK, K, 1, 2, 3, 4, 5, 6</b> <b>Grades 7, 8, 9, 10, 11, 12, and Adults</b>	(Measured from floor to top line of bar) 27 inches 36 inches
<b>Handrails</b>	<b>All grades and adults (including adult accessible)</b> <b>Grades PK, 1, 2, 3, 4, 5, 6 (child accessible)</b>	(Measured from ramp or stair nosing to top of gripping surface) 34 inches 25 inches)
<b>Paper Towel Dispensers</b>	<b>All grades and adults</b>	(Measured from floor to towel slot) 40 inches
<b>Toilet Paper Holders</b>	<b>All grades and adults</b>	(Measured from floor to centerline of roll) 20 inches

## Recommended Equipment Mounting Heights

		Mounting Height
<b>Warm Air Hair Dryers</b>	<b>All grades and adults</b>	(Measured from floor to centerline of push button switch)  40 inches
<b>Soap Dispensers</b>	<b>Grades PK, K, 1, 2, 3, 4, 5, 6</b> <b>Grades 7, 8, 9, 10, 11, 12 and Adults</b>	(Measured from floor to bottom of dispenser)  36 inches  40 inches
<b>Feminine Napkin Dispensers</b>	<b>Secondary grades and adults</b>	(Measured from floor to coin slot)  40 inches
<b>Feminine Napkin Dispensers</b>	<b>Secondary grades and adults</b>	(Measured from floor to top of unit)  34 inches
<b>Mirrors</b>	<b>Grades PK, K, 1, 2, 3, 4, 5, 6</b> <b>Grades 7, 8, 9, 10, 11, 12 and adults</b>	(Measured from floor to bottom of mirror)  30 inches  40 inches
<b>Fire Extinguishers</b>	<b>All grades and adults</b>	(Measured from floor to top of cabinet)  56 inches
<b>Pencil Sharpener Blocks</b>	<b>Grades PK, K, 1, 2, 3</b> <b>Grades 4, 5, 6</b>	(Measured from floor to top of 8" x 8" wood block)  32 inches  38 inches
<b>Corridor Tack Strips</b>	(2) strips - 6' 8" A.F.F. and 4'8" A.F.F.  Stop strips 36" from door/window frames  Maximum strip length 25'. Provide 10' break between strips.	

<b>Markerboards &amp; Tackboards</b>		(Measured from floor to bottom of board)
	<b>Grades PK, K, 1, 2, 3</b>	24 inches
	<b>Grades 4, 5,6</b>	28 inches
	<b>Grades 7, 8, 9, 10, 11, 12, and adults</b>	36 inches

<b>Door Hardware</b>	<b>Grades PK, K, 1, 2, 3, 4, 5, 6</b>	(Measured from floor to centerline of hardware)
	Push Plates	42 inches
	Pull Handles	42 inches
	Levers	36 inches
	Panic Exit (centerline of push bar)	36 inches
	Deadlocks, maximum	48 inches
	<b>Grades 7, 8, 9, 10, 11, 12 and adults</b>	
	Push Plates	50 inches
	Pull Handles	42 inches
	Levers	36 inches
	Panic Exit (centerline of push bar)	40 inches
	Deadlocks, maximum	48 inches
<b>CCMS Sensors</b>	<b>All Occupied Spaces</b>	(Measured from floor to centerline of box) 5 Feet, 6 inches





## Recommended Equipment Mounting Heights

		<b>Mounting Height</b>
<b>Thermostats</b>	<b>All Occupied Spaces</b>	(Measured from floor to centerline of box) 4 feet 0 inches
<b>Conv. Receptacles</b>	General Areas Special areas as required/check with Owner	(Measured from floor to bottom of box) 1 foot, 4 inches
<b>Clock Outlets</b>	<b>General Areas</b> from ceiling to top of box Special areas as required/check with Owner	6 inches
<b>Light Switches</b>	<b>All Areas</b>	(Measured from floor to top of box) 4 feet 0 inches
<b>Fire Alarm Pull Switches</b>	<b>All Areas</b>	(Measured from floor to top of box) 4 feet 0 inches
<b>Fire Alarm Bells/Horns</b>	<b>All Areas</b> A.F.F. (or 6" below ceiling, whichever is lower)	(Measured from floor to top of box) 6 feet 8 inches
<b>Intercom Speakers</b>	General Areas Special areas as required/check with Owner	Flush with ceiling
<b>TV Outlets</b>	General Areas TV/VCR Fixed TV/VCR on cart Special Areas as required/check with Owner	(Measured from floor to bottom of box) 1 foot, 4 inches 1 foot 0 inches Below ceiling 5 feet 0 inches

<b>Telecommunications</b>	(Measured from floor to bottom of box)	1 foot 4 inches
<b>Sound System Call Switches</b>	(Measured from floor to top of box)	4 feet 0 inches
<b>Smoke/Heat Detector</b>	General Areas Special areas as required/check with Owner	Ceiling

## Recommended Equipment Mounting Heights

		<b>Mounting Height</b>
<b>Library Shelving</b>		(Measured from floor to top)
	<b>Grades PK, K, 1, 2, 3, 4, 5, 6</b>	
	Check-out desk	32 inches H
	Easy books 13" deep	42 inches H
	Reference 13" deep	48 inches H
	Free standing 13" deep	48 inches H
	Wall shelving 13" deep	72 inches H
	<b>Grades 7, 8, 9, 10, 11, 12, and adults</b>	
	Check-out desk	39 inches H
	Wall shelving 13" deep	42 inches H
	Reference 13" deep	48 inches H
Free standing 13" deep	48 inches H	
36" wide path minimum		
<b>Kitchen Serving Lines</b>	Elementary School Finish Floor to Tray Slide (27" clear to underside of tray slide)	28 inches min.
	Minimum width	36 inches

PREVIOUS APPENDIX B- REVISED AND NOW APPENDIX C

Prototype Elementary School Capacity Total Core Classrooms (includes self-contained sp-ed)			A 494 23			B 606 28			C 768 35			D 938 43			E 1,050 48		
		Sq. Ft.	Rooms	Pupils	Sq. Ft.	Rooms	Pupils	Sq. Ft.	Rooms	Pupils	Sq. Ft.	Rooms	Pupils	Sq. Ft.	Rooms	Pupils	Sq. Ft.
PTR Classroom																	
8/1 PKH*	@	975	1	8	975	1	8	975	1	8	975	1	8	975	1	8	975
15/1 PK*	@	975	2	32	1,950	3	48	2,925	4	64	3,900	5	80	4,875	6	96	5,850
24/1 K*	@	975	3	72	2,925	4	96	3,900	5	120	4,875	6	144	5,850	7	168	6,825
24/1 1st*	@	975	3	72	2,925	4	96	3,900	5	120	4,875	6	144	5,850	7	168	6,825
24/1 2nd	@	800	3	72	2,400	4	96	3,200	5	120	4,000	6	144	4,800	7	168	5,600
24/1 3rd	@	800	3	72	2,400	4	96	3,200	5	120	4,000	6	144	4,800	7	168	5,600
25/1 4th	@	800	3	75	2,400	3	75	2,400	4	100	3,200	5	125	4,000	5	125	4,000
25/1 5th	@	800	3	75	2,400	3	75	2,400	4	100	3,200	5	125	4,000	5	125	4,000
8/1 Sped self-contained	@	800	2	16	1,600	2	16	1,600	2	16	1,600	3	24	2,400	3	24	2,400
<b>Subtotal</b>			<b>23</b>		<b>494</b>	<b>28</b>		<b>606</b>	<b>35</b>		<b>768</b>	<b>43</b>		<b>938</b>	<b>48</b>		<b>1,050</b>
<b>Administrative core facilities:</b>					Sq. Ft.			Sq. Ft.			Sq. Ft.			Sq. Ft.			Sq. Ft.
Principal's office					200			200			200			200			200
Assistant principal's office								150			150			150			150
Secretary's office					100			100			100			100			100
Guidance office(s)			1		100	1		100	2		200	2		200	2		200
Waiting area					300			300			300			300			300
Books, Supplies, Storage					500			500			600			600			700
Student record storage					200			200			200			200			200
Health Unit					300			300			300			300			300
General office toilet, closet					100			100			100			100			100
Teacher's workroom					200			300			350			400			400
Teacher's lounge					150			200			250			300			350
General conference room					200			200			200			200			200
Inherent office(s)			1		100	1		100	2		200	2		200	2		200
Technology Resource			1		100	1		100	1		100	2		200	2		200
Finance Office			1		100	1		100	1		100	2		200	2		200
Records Vault			1		100	1		100	1		100	1		100	1		100
<b>Subtotal</b>					<b>2,400</b>			<b>2,650</b>			<b>3,300</b>			<b>3,700</b>			<b>3,900</b>
<b>Auxiliary Support Facilities**</b>					Sq. Ft.			Sq. Ft.			Sq. Ft.			Sq. Ft.			Sq. Ft.
Librarian's office					100			100			150			200			200
Reading room (750 + 2 sq. ft x total enrollment)					1,594			1,870			2,046			2,438			2,514
Staff library workroom					200			200			200			200			200
Multiuse library room, AV Tech					120			120			150			150			150
Audio-visual storage					150			150			200			200			200
Dining room, three settings (1/3 enrollment x 12 sq. ft.)					1,688			2,040			2,592			3,176			3,528
Table chair storage					400			500			600			700			800
Stage					1,700			1,700			1,700			1,700			1,700
Kitchen, service area (1000 + 1 sq. ft. x total enrollment + 80 sq. ft. office)					1,502			1,590			1,728			1,874			1,962
Technology support room					100			100			200			200			200
Computer classroom(s)			1		800	1		800	1		800	2		1,600	2		1,600
<b>Subtotal</b>					<b>8,354</b>			<b>9,170</b>			<b>10,366</b>			<b>12,438</b>			<b>13,054</b>
<b>Resource Rooms:</b>					Sq. Ft.			Sq. Ft.			Sq. Ft.			Sq. Ft.			Sq. Ft.
Gymnasium (45' x 70')					3,150			3,150			3,150			3,150			3,150
PE Toilet					300			300			300			300			300
PE office w/toilet					250			250			250			250			250
Sped Resource	@	400	2		800	3		1,200	4		1,600	5		2,000	6		2,400
Art classrooms	@	1200	1		1,200	1		1,200	1		1,200	2		2,400	2		2,400
Music classrooms	@	1000	1		1,000	1		1,000	1		1,000	2		2,000	2		2,000
Team planning rooms	@	300	3		900	4		1,200									
Team planning rooms	@	400							5		2,000	6		2,400	7		2,800
Resource rooms	@	500	2		1,000	3		1,500	3		1,500	3		1,500	5		2,500
<b>Subtotal</b>					<b>8,600</b>			<b>9,800</b>			<b>11,000</b>			<b>14,000</b>			<b>15,800</b>
<b>All Subtotals:</b>					<b>39,329</b>			<b>46,120</b>			<b>55,291</b>			<b>67,688</b>			<b>74,829</b>
Halls, toilets, HVAC @ 35%					13,765			16,142			19,352			23,691			26,190
<b>GRAND TOTAL</b>					<b>53,094</b>			<b>62,262</b>			<b>74,643</b>			<b>91,379</b>			<b>101,019</b>
Square Feet per student					107			103			97			97			96

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Footnotes: \* PKH, PK, K & 1st grade classrooms, spec. ed self-contained would need to include a toilet (50 sq. ft.)  
 \*\* Other spaces to be considered are individual grade meeting rooms @ 1800 sq. ft. each; parent resource/PTA room @ 2100 sq. ft, parks & recreation office w/toilet @ 250 sq. ft, remedial resource room @ 400 sq. ft.



Principal's office				200			200			200			200			200
Assistant principal's office				---			---			150			150			150
Secretaries office				100			100			100			100			100
Guidance office(s)		1		100	1		100	2		200	2		200	2		200
Waiting area				200			250			300			300			300
Books, supplies, storage				300			400			500			600			700
Student record storage				200			200			200			200			200
Health unit				250			250			300			300			300
General office toilet, closet				100			100			100			100			100
Teachers' workroom				200			250			300			350			400
Teachers' lounge				150			200			250			300			350
General conference room				200			200			200			200			200
Itinerant office(s)		1		100	1		100	2		200	2		200	2		200
Technology resource office(s)		1		100	1		100	1		100	2		200	2		200
<b>Subtotal</b>				<b>2,200</b>			<b>2,450</b>			<b>3,100</b>			<b>3,400</b>			<b>3,600</b>
<b>Auxiliary Support Facilities **</b>																
Librarians office				100			100			150			200			200
Reading room (750 + 2 sq. ft. x total enrollment)				1,594			1,770			2046			2338			2514
Staff, library workroom				200			200			200			200			200
Multiuse library room, AV Tech				120			120			150			150			150





Halls, toilets, HVAC @ 35%				14,08 9				16,39 6				19,64 1				23,89 2			26,35 6	
<b>Grand Total</b>				54,34 3				63,24 1				75,75 7				92,15 5			101,6 60	
<b>Sq. feet per student</b>				129				124				117				116			115	

Footnotes: \* PKH, PK, K & 1st grade classrooms, special education self-contained includes a toilet (50 sq. ft.)

\*\* Other spaces to be considered are individual grade meeting rooms @ 1800 sq. ft. ea.,

Parent resource/PTA room @ 2100 sq. ft., parks & recreation office w/toilet @ 250 sq. ft.,

Remedial resource room @ 400 sq. ft.

Additional square footage should be added to address specialized educational pedagogy such as STEM performing arts etc.

**Recommended Prototypical Space program for  
Virginia Middle Schools**  
(Note: Smaller pupil teacher ratios may require more rooms)

Max. Students per grade		100	150	200	300	400
School Size		300	450	600	900	1,200
Teaching Stations (Core Subjects)		12	21	24	39	51
	Sq. Ft.	Sq. Ft.	Sq. Ft.	Sq. Ft.	Sq. Ft.	Sq. Ft.
<b>Classrooms</b>						
6th Grade Rooms	700 (3)	2,100 (5)	3,500 (6)	4,200 (10)	7,000 (13)	9,100 (13)
7th Grade Rooms	700 (3)	2,100 (5)	3,500 (6)	4,200 (10)	7,000 (13)	9,100 (13)
8th Grade Rooms	700 (3)	2,100 (5)	3,500 (6)	4,200 (10)	7,000 (13)	9,100 (13)
Science Rooms	1,200 (3)	3,600 (5)	7,200 (6)	7,200 (9)	10,800 (12)	14,400 (12)
<b>Subtotal</b>		<b>9,900</b>	<b>17,700</b>	<b>19,800</b>	<b>31,800</b>	<b>41,700</b>
<b>Additional Instructional Spaces</b>						
Health Classrooms	800	800	800 (2)	1,600 (2)	1,600 (3)	2,400 (3)
Art Lab	1,200	1,200	1,200	1,200	1,200	1,200
Darkroom	--	--	--	--	800	800
Vocal Music Classroom		1,000	1,000	1,000	1,200	1,200
Instrumental Band Classroom		--	--	1,200	1,200	1,200
Exploratory Lab	1,600	1,600	1,600	1,600	1,600	1,600
Business/computer	800 (3)	2,400 (3)	2,400 (3)	2,400 (3)	2,400 (3)	2,400 (3)
Self-contained Special Ed				500 (3)	2,250 (4)	3,000 (4)
Resource Classroom (ESL Reading)				300 (6)	3,000 (9)	4,500 (9)
Life Management				600	1,600	1,600
<b>Subtotal</b>				<b>100</b>	<b>16,850</b>	<b>19,900</b>
<b>Administrative Core Facilities</b>						
Principal's Office				200	200	200
Assistant Principal's Office(s)				150 (1)	150 (2)	300 (2)
Secretary's Office(s)				100 (2)	200 (2)	200 (2)
Guidance office(s)				200	200	200
Waiting Area				200	200	200
Books, Supplies, Storage				700	700	700
Student Record Storage				200	200	200
Health Unit				200	200	200
General Office Toilet, Closet				100	100	100
Teacher Workroom		200	250	300	300	300
Teacher Team Planning Rooms		600	800	1,000	1,000	1,000
Teacher Lounge		250	300	300	300	300
General Conference Room		200	200	200	200	200
Technology Resource	100 (1)	100	100 (2)	200 (2)	200 (2)	200 (2)
Finance office	100 (1)	100	100 (2)	200 (2)	200 (2)	200 (2)
Records Vault	100 (1)	100	100 (1)	100 (1)	100 (1)	150 (1)
<b>Subtotal</b>		<b>3,250</b>	<b>3,800</b>	<b>4,600</b>	<b>5,250</b>	<b>5,900</b>
<b>Auxiliary Support Facilities</b>						
Dining Room (3) Seating		1,200	1,800	2,400	3,600	4,800
Kitchen Serving Areas		1300	1,500	1,700	2,100	2,300
Table/Chair Storage		400	600	800	1,000	1,200
Librarian's Office(s)	150 (1)	150 (1)	150 (1)	150 (2)	300 (2)	300 (2)
Staff, Library Workroom		200	200	300	300	300
Library Reading Room (1000 x 3 sq. ft. x enrollment)		1,900	2,350	2,800	3,200	4,600
Library Multiuse/Electronic Classroom		120	120	150	150	200
Audio-Visual Storage		150	200	300	400	500
Gymnasium		8,000	10,000	10,000	10,000	12,000
Stage		1,200	1,200	1,200	1,200	1,200
Auxiliary Gymnasium		--	--	--	5,000	5,000
Locker/Shower/Dressing	1,500 (2)	3,000 (2)	3,000 (2)	3,000 (2)	3,000 (2)	3,000 (2)
Physical Education Offices	100 (1)	100 (2)	200 (2)	200 (4)	400 (4)	400 (4)
Physical Education Storage (Interior)		600	600	600	600	600
Physical Education Storage (Outside)		250	250	250	250	250
<b>Subtotal</b>		<b>18,570</b>	<b>22,170</b>	<b>23,850</b>	<b>31,500</b>	<b>36,650</b>
<b>TOTAL</b>		<b>42,570</b>	<b>55,770</b>	<b>63,350</b>	<b>85,400</b>	<b>104,150</b>
Halls, Toilets, HVAC @ 38%		16,177	21,193	24,073	32,452	39,577
<b>Grand Total</b>		<b>58,747</b>	<b>76,963</b>	<b>87,423</b>	<b>117,852</b>	<b>143,727</b>
Sq. Ft.		196	171	146	131	120

**VOID**

**PREVIOUS APPENDIX C-  
REVISED AND NOW  
APPENDIX D**

## APPENDIX D

### Recommended Prototypical Space Program for Virginia Middle Schools

Average 25 students per classroom									
Max. Students per grade			100		150		200		300
School Size			300		525		600		900
Teaching Stations			12		21		24		39
	Sq. Ft.		Total Sq. Ft.		Total Sq. Ft.		Total Sq. Ft.		Total Sq. Ft.
<b>Classrooms (core)</b>									
6th grade rooms	700	(3 )	2,100	(5 )	3,500	(6 )	4,200	(1 0)	7,000 (1 3)
7th grade rooms	700	(3 )	2,100	(5 )	3,500	(6 )	4,200	(1 0)	7,000 (1 3)
8th grade rooms	700	(3 )	2,100	(5 )	3,500	(6 )	4,200	(1 0)	7,000 (1 3)
Science rooms	1,200	(3 )	3,600	(6 )	7,200	(6 )	7,200	(9)	10,800 (1 2)
<b>Subtotal (core rooms)</b>			<b>9,900</b>		<b>17,700</b>		<b>19,800</b>		<b>31,800</b>
<b>Classrooms (general) where provide in the educational program</b>									
Health classrooms	800		800		800	(2 )	1,600	(2)	1,600 (3)
Art lab	1,200		1,200		1,200		1,200		1,200
Darkroom			---		---		---		340
Vocal music classroom			1,000		1,000		1,000		1,200
Instrumental band classroom			---		---		1,200		1,200
Technology Education	1,600		1,600		1,600		1,600	(2)	3,200 (2)
Business Information Technology	1,200		1,200		1,200		1,200	(2)	2,400 (2)
Agricultural Education	1,600		1,600		1,600		1,600	(2)	3,200 (2)
Greenhouse	1,600		1,600		1,600		1,600	(2)	3,200 (2)
Family and Consumer Science	1,600		1,600		1,600		1,600	(2)	3,200 (2)
Self-contained special education	750		750	(2 )	1,500	(2 )	1,500	(3)	2,250 (4)

Resource classroom	400	(3 )	1,200	(4 )	1,600	(6 )	2,400	(6)	2,400	(9)
<b>Subtotal (general classroom)</b>			<b>12,550</b>		<b>13,700</b>		<b>16,500</b>		<b>25,390</b>	
<b>Administrative core facilities</b>										
Principal's office			200		200		200		200	
Assistant principal's office(s)	150						150	(1)	150	(2)
Secretaries office(s)	100		100		100		100	(2)	200	(2)
Guidance office(s)	100		100	(2 )	200	(2 )	200	(2)	200	(3)
Waiting area			200		250		300		400	
Books, supplies, storage			500		600		700		800	
Student record storage			200		200		200		200	
Health unit			300		300		300		300	
General office toilet, closet			100		100		100		100	
Teacher workroom			200		250		300		350	
Teacher team planning rooms			600		800		1,000		1,200	
Teacher lounge			250		300		350		400	
General conference room			200		200		200		250	
Technology Resource	100	(1 )	100	(1 )	100	(2 )	200	(2)	200	(2)
<b>Subtotal</b>			<b>3,050</b>		<b>3,600</b>		<b>4,300</b>		<b>4,950</b>	
<b>Auxiliary support facilities</b>										
Dining room (3) seating (1/3 enrollment x 12 sq.ft.)			1,200		1,800		2,400		3,600	
Kitchen and serving areas			1,300		1,500		1,700		2,100	
Table chair storage			400		600		800		1,000	
Librarian's office(s)	150	(1 )	150	(1 )	150	(1 )	150	(2)	300	(2)
Staff, library work room			200		200		300		300	
Library reading room (1000 sq. ft + 3X enrollment)			1,900		2,575		2,800		3,700	
Library multiuse/electronic classroom			120		120		150		150	
Audio visual storage			150		200		300		400	
Gymtorium			8,000		10,000		10,000		10,000	
Stage			1,200		1,200		1,200		1,200	
Auxiliary gymnasium			---		---		---		5,000	
Locker/shower/dressing	1,500	(2 )	3,000	(2 )	3,000	(2 )	3,000	(2)	3,000	(2)

Physical education offices	100	(1)	100	(2)	200	(2)	200	(4)	400	(4)
Physical education storage (interior)			600		600		600		600	
Physical education storage (outside)			250		250		250		250	
<b>Subtotal</b>			<b>18,570</b>		<b>22,395</b>		<b>23,850</b>		<b>32,000</b>	
<b>Total page 1 &amp; 2</b>			<b>44,070</b>		<b>57,395</b>		<b>64,450</b>		<b>94,140</b>	
Halls, toilets, HVAC @ 38%			16,747		21,810		24,491		35,773	
<b>Grand total</b>			<b>60,817</b>		<b>79,205</b>		<b>88,941</b>		<b>129,913</b>	
<b>Sq. ft. per student</b>			<b>203</b>		<b>151</b>		<b>148</b>		<b>144</b>	

Footnotes: Additional square footage should be added to address specialized educational pedagogy such as STEM performing arts, etc.

**Recommended Prototypical Space program for  
Virginia Middle Schools**  
(Note: Smaller pupil teacher ratios may require more rooms)

Max. Students per grade		100	150	200	300	400
School Size		300	450	600	900	1,200
Teaching Stations (Core Subjects)		12	21	24	39	51
	Sq. Ft.	Sq. Ft.	Sq. Ft.	Sq. Ft.	Sq. Ft.	Sq. Ft.
<b>Classrooms</b>						
6th Grade Rooms	700 (3)	2,100 (5)	3,500 (6)	4,200 (10)	7,000 (13)	9,100 (13)
7th Grade Rooms	700 (3)	2,100 (5)	3,500 (6)	4,200 (10)	7,000 (13)	9,100 (13)
8th Grade Rooms	700 (3)	2,100 (5)	3,500 (6)	4,200 (10)	7,000 (13)	9,100 (13)
Science Rooms	1,200 (3)	3,600 (5)	7,200 (6)	7,200 (9)	10,800 (12)	14,400 (12)
<b>Subtotal</b>		9,900	17,700	19,800	31,800	41,700
<b>Additional Instructional Spaces</b>						
Health Classrooms	800	800	800 (2)	1,600 (2)	1,600 (3)	2,400 (3)
Art Lab	1,200	1,200	1,200	1,200	1,200	1,200
Darkroom		--	--	--	800	800
Vocal Music Classroom		1,000	1,000	1,000	1,200	1,200
Instrumental Band Classroom		--	--	1,200	1,200	1,200
Exploratory Lab	1,600	1,600	1,600	1,600	1,600	1,600
Business/computer	800 (3)	2,400 (3)	2,400 (3)	2,400 (3)	2,400 (3)	2,400 (3)
Self-contained Special Ed	750	750 (2)	1,500 (2)	1,500 (3)	2,250 (4)	3,000 (4)
Resource Classroom (ESL Reading, Testing)			1,000 (6)	3,000 (6)	3,000 (9)	4,500 (9)
Life Management					1,600	1,600
<b>Subtotal</b>					16,850	19,900
<b>Administrative Core Facilities</b>						
Principal's Office					200	200
Assistant Principal's Office(s)					150 (2)	300 (2)
Secretary's Office(s)					200 (2)	200 (2)
Guidance office(s)					200 (3)	300 (3)
Waiting Area					400	400
Books, Supplies, Storage					800	900
Student Record Storage					200	200
Health Unit					300	300
General Office Toilet, Closet					100	100
Teacher Workroom		200	250	300	350	400
Teacher Team Planning Rooms		600	800	1,000	1,200	1,400
Teacher Lounge				150	400	450
General Conference Room				200	250	250
Technology Resource				200 (2)	200 (2)	200 (2)
Finance office				200 (2)	200 (2)	200 (2)
Records Vault				200 (1)	100 (1)	150 (1)
<b>Subtotal</b>					600	5,250
<b>Auxiliary Support Facilities</b>						
Dining Room (3) Seating					400	4,800
Kitchen Serving Areas					700	2,300
Table/Chair Storage					300	1,000
Librarian's Office(s)					150 (2)	300 (2)
Staff, Library Workroom					300	300
Library Reading Room (1000 x 3 sq. ft. x enrollment)		1,900	2,350	2,800	3,200	4,600
Library Multiuse/Electronic Classroom		120	120	150	150	200
Audio-Visual Storage		150	200	300	400	500
Gymnasium		8,000	10,000	10,000	10,000	12,000
Stage		1,200	1,200	1,200	1,200	1,200
Auxiliary Gymnasium		--	--	--	5,000	5,000
Locker/Shower/Dressing	1,500 (2)	3,000 (2)	3,000 (2)	3,000 (2)	3,000 (2)	3,000 (2)
Physical Education Offices	100 (1)	100 (2)	200 (2)	200 (4)	400 (4)	400 (4)
Physical Education Storage (Interior)		600	600	600	600	600
Physical Education Storage (Outside)		250	250	250	250	250
<b>Subtotal</b>		18,570	22,170	23,850	31,500	36,650
<b>TOTAL</b>		42,570	55,770	63,350	85,400	104,150
Halls, Toilets, HVAC @ 38%		16,177	21,193	24,073	32,452	39,577
<b>Grand Total</b>		58,747	76,963	87,423	117,852	143,727
Sq. Ft.		196	171	146	131	120

**VOID**

**PREVIOUS APPENDIX C-  
REVISED AND NOW  
APPENDIX D**

## Appendix D

### Recommended Prototypical Space Program for Virginia High Schools (Continued)

Average 25 students per classroom Max. Students Per Grade School Size Teaching Stations (Core subjects based on seven periods)		150	225	300	375	450	525
	Sq. Ft.	Sq. Ft.	Sq. Ft.	Sq. Ft.	Sq. Ft.	Sq. Ft.	Sq. Ft.
<b>Administrative Core Facilities</b>							
Principal's Office	200 (1)	200 (1)	200 (1)	200 (1)	200 (1)	200 (1)	200 (1)
Principal's Secretary	100 (1)	100 (1)	100 (1)	100 (1)	100 (1)	100 (1)	100 (1)
Assistant Principal's Office(s)	150 (1)	150 (1)	150 (1)	150 (2)	300 (3)	450 (3)	450 (3)
Secretaries Office(s)	60 (1)	60 (2)	120 (2)	120 (3)	180 (3)	180 (4)	240 (4)
Guidance Offices(s)	100 (2)	200 (3)	300 (4)	400 (5)	500 (6)	600 (6)	600 (6)
General Waiting Reception		200	300	400	500	600	700
Career Center		200	300	400	400	400	500
Guidance Reception		100	150	200	250	250	250
Technology Resource	100 (1)	100 (2)	200 (2)	200 (3)	300 (3)	300 (3)	300 (3)
Mailroom		200	250	250	250	250	300
Books, Supplies, Storage					800	900	1,000
Vault Record Storage					200 (1)	200 (1)	200 (1)
Health Suite					550	550	600
General Office Toilet(s)/closet					150 (2)	150 (2)	150 (2)
Workroom					300	300	350
Teacher Team Planning Rooms					1,200 (3)	1,200 (3)	1,200 (3)
Teacher Lounge					300	350	400
General Conference Room					250	250	250
Student Commons					2,000	2,000	2,000
<b>Subtotal (Administrative Core)</b>					<b>8,730</b>	<b>9,230</b>	<b>9,790</b>
<b>Exceptional Education</b>							
Exception Classrooms					3,750 (6)	4,500 (6)	4,500 (6)
Resource Classrooms	400 (1)	400 (1)	400 (1)	400 (2)	800 (2)	800 (2)	800 (2)
Testing room (Special Ed Only)	100 (1)	100 (1)	100 (1)	100 (1)	100 (1)	100 (1)	100 (1)
Psychologist Office	100 (1)	100 (1)	100 (1)	100 (1)	100 (1)	100 (1)	100 (1)
Itinerant Offices	100 (2)	200 (2)	200 (3)	300 (4)	400 (5)	500 (6)	600 (6)
Conference Room	150 (1)	150 (1)	150 (1)	150 (1)	150 (1)	150 (1)	150 (1)
<b>Subtotal (Exceptional Education)</b>		<b>2,450</b>	<b>3,200</b>	<b>4,050</b>	<b>5,300</b>	<b>6,150</b>	<b>6,250</b>
<b>Auxiliary Support Facilities</b>							
Technology Support Room		300	300	300	400	400	400
Dining Room (3) Seatings		2,400	3,600	4,800	6,000	7,200	8,400
Kitchen Serving Areas		1,700	2,100	2,300	2,500	2,700	2,900
Librarians' Office(s)	150 (1)	150 (2)	300 (2)	300 (2)	300 (2)	300 (2)	300 (2)
Staff, Library Workroom		200	200	300	300	300	300
Reading Room (1,000 x 3 sq. ft. x enrollment)		2,800	3,700	4,600	5,500	6,400	7,300
Library Multiuse/electronic Classroom		120	120	150	150	200	200
Audiovisual Storage		150	200	300	400	500	600
Gymnasium		10,000	10,000	10,000	10,000	10,000	16,000
Auxiliary Gymnasium		0	0	0	5,000	5,000	5,000
Locker/Shower/Dressing	2,500 (2)	5,000 (2)	5,000 (2)	5,000 (2)	5,000 (2)	5,000 (2)	5,000 (2)
Physical Education Offices	100 (2)	200 (2)	200 (4)	400 (4)	400 (4)	400 (4)	400 (4)
Physical Education Storage (Interior)		800	800	800	800	800	800
Physical Education Storage (Outside)		250	250	250	250	250	250
* Auditorium		5,200	5,800	6,400	7,000	7,600	8,200
Stage		2,000	2,000	2,000	2,000	2,000	2,000
<b>Subtotal</b>		<b>31,270</b>	<b>34,570</b>	<b>37,900</b>	<b>46,000</b>	<b>49,050</b>	<b>58,050</b>
<b>Total Page 1 &amp; 2</b>		<b>77,430</b>	<b>92,940</b>	<b>115,720</b>	<b>136,530</b>	<b>154,530</b>	<b>175,940</b>
Halls, Toilets, HVAC @ 38%		29,423	35,317	43,974	51,881	58,721	66,857
<b>Grand Total</b>		<b>106,853</b>	<b>128,257</b>	<b>159,694</b>	<b>188,411</b>	<b>213,251</b>	<b>242,797</b>
<b>Sq. Ft. Per Student</b>		<b>178</b>	<b>143</b>	<b>133</b>	<b>126</b>	<b>118</b>	<b>116</b>



**Footnotes:**

\* Size of auditorium equals students in one grade level times eight sq. ft. per student plus 4,000 sq. ft. for dressing rooms, storage & lobby.

## APPENDIX E

### Recommended Prototypical Space Program for Virginia High Schools

Average 25 students per classroom													
Max. Students per grade			150		225		300		375		450		525
School Size			600		900		1200		1500		1800		2100
Teaching Stations			17		23		33		37		44		52
	Sq. Ft.		Total Sq. Ft.		Total Sq. Ft.		Total Sq. Ft.		Total Sq. Ft.		Total Sq. Ft.		Total Sq. Ft.
<b>Classrooms (core - based on 7 periods)</b>													
English classrooms	700	( 4 )	2,800	( 6 )	4,200	( 8 )	5,600	( 9 )	6,300	(1 1)	7,700	(1 3)	9,100
Math classrooms	700	( 3 )	2,100	( 4 )	2,800	( 6 )	4,200	( 7 )	4,900	(8 )	5,600	(9 )	6,300
Social S. classrooms	700	( 3 )	2,100	( 4 )	2,800	( 6 )	4,200	( 7 )	4,900	(8 )	5,600	(9 )	6,300
Foreign language classroom	700	( 2 )	1,400	( 3 )	2,100	( 4 )	2,800	( 5 )	3,500	(5 )	3,500	(6 )	4,200
Science/lab classrooms	140 0	( 3 )	4,200	( 4 )	5,600	( 6 )	8,400	( 6 )	8,400	(8 )	11,200	(1 0)	14,000
Resource classrooms	750	( 2 )	1,500	( 2 )	1,500	( 3 )	2,250	( 3 )	2,250	(4 )	3,000	(5 )	3,750
<b>Subtotal (core rooms)</b>			<b>14,100</b>		<b>19,000</b>		<b>27,450</b>		<b>30,250</b>		<b>36,600</b>		<b>43,650</b>
<b>Classrooms (where provided in the educational program)</b>													
Health classrooms	800	( 1 )	800	( 1 )	800	( 2 )	1,600	( 2 )	1,600	(3 )	2,400	(4 )	3,200
2D-Art lab	140 0	( 1 )	1,400	( 1 )	1,400	( 1 )	1,400		1,400		1,400		1,400
3D-Art lab	140 0	0	0	0	0	( 1 )	1,400		1,400		1,400		1,400



Art storage and kiln room	400	( 1 )	400	( 1 )	400	( 1 )	400	400	400	400	
Art classroom	700	0	0	0	0	0	---	700	700	700	
Darkroom	340	0	0	0	0	0	---	340	340	340	
Vocal music classroom	100 0		1,000		1,000		1,000	1,200	1,200	1,400	
Vocal music storage	200		200		200		200	200	250	300	
Drama classroom	180 0	0	0	0	0	( 1 )	1,800	1,800	1,800	1,800	
Instrumental band classroom	160 0		1,600		1,600		1,800	1,800	1,800	2,000	
Band storage	475		475		475		475	475	500	500	
Technology Education	260 0	( 1 )	2,600	( 2 )	5,200	( 2 )	5,200	( 2 )	(3 )	(3 )	7,800
Business Information Technology	120 0	( 1 )	1,200	( 1 )	1,200	( 1 )	1,200	( 2 )	(2 )	(2 )	2,400
Agricultural Education	240 0	( 1 )	2,400	( 2 )	4,800	( 2 )	4,800	( 2 )	(2 )	(2 )	4,800
Greenhouse	160 0	( 1 )	1,600	( 1 )	1,600	( 1 )	1,600	( 1 )	(2 )	(2 )	3,200
Career Connections	120 0	( 1 )	1,200	( 1 )	1,200	( 1 )	1,200	( 1 )	(1 )	(2 )	2,400
Family Consumer Sciences	240 0	( 1 )	2,400	( 2 )	4,800	( 2 )	4,800	( 2 )	(2 )	(2 )	4,800
Early Childhood Education	240 0	( 1 )	2,400	( 2 )	4,800	( 2 )	4,800	( 2 )	(2 )	(2 )	4,800
Culinary Arts	240 0	( 1 )	2,400	( 2 )	4,800	( 2 )	4,800	( 2 )	(2 )	(2 )	4,800
Fashion and Interior Design	240 0	( 1 )	2,400	( 1 )	2,400	( 1 )	2,400	( 2 )	(2 )	(2 )	4,800
Health and Medical Sciences	260 0	( 1 )	2,600	( 1 )	2,600	( 1 )	2,600	( 2 )	(2 )	(2 )	5,200
Marketing	120 0	( 1 )	1,200	( 1 )	1,200	( 1 )	1,200	( 1 )	(2 )	(2 )	2,400

Technical Drawing and Design	160	( 1 )	1,600	( 1 )	1,600	( 1 )	1,600	( 1 )	1,600	(2 )	3,200	(2 )	3,200
Trade and Industrial Education	260	( 1 )	2,600	( 1 )	2,600	( 1 )	2,600	( 2 )	5,200	(2 )	5,200	(2 )	5,200
Communications, Welding, Elec.	210	( 1 )	2,100	( 1 )	2,100	( 1 )	2,100	( 2 )	4,200	(2 )	4,200	(2 )	4,200
Cosmetology	170	( 1 )	1,700	( 1 )	1,700	( 1 )	1,700	( 1 )	1,700	(1 )	1,700	(1 )	1,700
Speech classroom	400	( 1 )	400	( 1 )	400	( 1 )	400	( 1 )	400		400		400
Math lab	600	( 1 )	600	( 1 )	600	( 1 )	600	( 1 )	600		600		600
Reading lab/ESL lab	600	( 1 )	600	( 2 )	1,200	( 2 )	1,200	( 3 )	1,800	(3 )	1,800	(4 )	2,400
In-school suspension classroom	600		600		600		600		600		600		600
<b>Subtotal (general classrooms)</b>			<b>38,475</b>		<b>51,275</b>		<b>55,475</b>		<b>68,215</b>		<b>76,090</b>		<b>79,140</b>
<b>Administrative core facilities</b>													
Principal's office	200	( 1 )	200	( 1 )	200	( 1 )	200	( 1 )	200	(1 )	200	(1 )	200
Principal's Secretary	100	( 1 )	100	( 1 )	100	( 1 )	100	( 1 )	100	(1 )	100	(1 )	100
Assistant Principal's office(s)	150	( 1 )	150	( 1 )	150	( 1 )	150	( 2 )	300	(3 )	450	(3 )	450
Secretaries office(s)	60	( 1 )	60	( 2 )	120	( 2 )	120	( 3 )	180	(3 )	180	(4 )	240
Guidance office(s)	100	( 2 )	200	( 3 )	300	( 4 )	400	( 5 )	500	(6 )	600	(6 )	600
General Waiting Reception			200		300		400		500		600		700
Career Center			200		300		400		400		400		500
Guidance Reception			100		150		200		250		250		250
Technology Resource	100	( 1 )	100	( 2 )	200	( 2 )	200	( 3 )	300	(3 )	300	(3 )	300

Mailroom			200		250		250		250		250		300
Books, supplies, storage			500		600		700		800		900		1,000
Vault record storage	200	( 1 )	200	( 1 )	200	( 1 )	200	( 1 )	200	(1 )	200	(1 )	200
Health suite			500		500		500		550		550		600
General office toilet(s)/closet			100		100	( 2 )	150	( 2 )	150	(2 )	150	(2 )	150
Workroom			200		250		300		300		300		350
Teacher team planning rooms		( 3 )	400	( 3 )	600	( 3 )	800	( 3 )	1,000	(3 )	1,200	(3 )	1,400
Teacher lounge			150		200		250		300		350		400
General conference room			200		200		200		250		250		250
Student commons			1,500		1,500		2,000		2,000		2,000		2,000
<b>Subtotal (Administrative Core)</b>			<b>5,260</b>		<b>6,220</b>		<b>7,520</b>		<b>8,530</b>		<b>9,230</b>		<b>9,990</b>
<b>Special Education</b>													
Self-contained special education classrooms	750	( 2 )	1,500	( 3 )	2,250	( 4 )	3,000	( 5 )	3,750	(6 )	4,500	(6 )	4,500
Resource classrooms	400	( 1 )	400	( 1 )	400	( 1 )	400	( 2 )	800	(2 )	800	(2 )	800
Testing room	100	( 1 )	100	( 1 )	100	( 1 )	100	( 1 )	100	(1 )	100	(1 )	100
Psychologist office	100	( 1 )	100	( 1 )	100	( 1 )	100	( 1 )	100	(1 )	100	(1 )	100
itinerant offices	100	( 2 )	200	( 2 )	200	( 3 )	300	( 4 )	400	(5 )	500	(6 )	600
Conference room	150	( 1 )	150	( 1 )	150	( 1 )	150	( 1 )	150	(1 )	150	(1 )	150
<b>Subtotal (Special Education)</b>			<b>2,450</b>		<b>3,200</b>		<b>4,050</b>		<b>5,300</b>		<b>6,150</b>		<b>6,250</b>
<b>Auxiliary support facilities</b>													
Technology main head-end room			600		600		600		700		700		700
Dining room (3) seatings			2,400		3,600		4,800		6,000		7,200		8,400

Kitchen and serving areas (1/3 enrollment x 12 sq.ft.)			1,700	2,100	2,300	2,500	2,700	2,900	
Librarian office(s)	150	( 1 )	150	( 2 )	300	( 2 )	300	( 2 )	300
Staff, library work room			200	200	300	300	300	300	
Reading room (1000 SF + 3 x enrollment)			2,800	3,700	4,600	5,500	6,400	7,300	
Library multiuse/electronic classroom			120	120	150	150	200	200	
Audio visual storage			150	200	300	400	500	600	
Gymnasium			10,000	10,000	10,000	10,000	10,000	16,000	
Auxiliary gymnasium			---	---	---	5,000	5,000	5,000	
Locker/shower/dressing	250 0	( 2 )	5,000	( 2 )	5,000	( 2 )	5,000	( 2 )	5,000
Physical education offices	100	( 2 )	200	( 2 )	400	( 4 )	400	( 4 )	400
Physical education storage (interior)	800		800	800	800	800	800	800	
Physical education storage (outside)	500		500	500	500	500	500	500	
* Auditorium			1,200	1,800	2,400	3,000	3,600	4,200	
* Stage storage lobby dressing rooms	400 0		4,000	4,000	4,000	4,000	4,000	4,000	
<b>Subtotal</b>			<b>29,820</b>	<b>33,120</b>	<b>36,450</b>	<b>44,550</b>	<b>47,600</b>	<b>56,600</b>	
<b>Total page 1 &amp; 2</b>			<b>90,105</b>	<b>112,815</b>	<b>130,945</b>	<b>156,845</b>	<b>175,670</b>	<b>195,630</b>	
Halls, toilets, HVAC @ 38%			34,240	42,870	49,759	59,601	66,755	74,339	
<b>Grand total</b>			<b>124,345</b>	<b>155,685</b>	<b>180,704</b>	<b>216,446</b>	<b>242,425</b>	<b>269,969</b>	
<b>Sq. ft. per student</b>			<b>207</b>	<b>173</b>	<b>151</b>	<b>144</b>	<b>135</b>	<b>129</b>	

FOOTNOTES

\* Total size of the auditorium equals students in one grade level times eight square feet per student plus 4000 square feet for storage, dressing rooms, storage and lobby.

Additional square footage should be added to address specialized educational pedagogy such as STEM performing arts etc.

## Appendix D

### Recommended Prototypical Space Program for Virginia High Schools

Average 25 students per classroom			150		225		300		375		450		525	
Max. Students Per Grade			150		225		300		375		450		525	
School Size			600		900		1,200		1,500		1,800		2,100	
Teaching Stations (Core subjects based on seven periods)			17		23		33		38		44		52	
									Sq. Ft.		Sq. Ft.		Sq. Ft.	
<b>Classrooms</b>	PREVIOUS APPENDIX D- REVISED AND NOW APPENDIX E													
English Classrooms	(9)	6,300	(11)	7,700	(13)	9,100								
Math Classrooms	(7)	4,900	(8)	5,600	(9)	6,300								
Social S. Classrooms	(7)	4,900	(8)	5,600	(9)	6,300								
Foreign Language Classrooms	(5)	3,500	(5)	3,500	(6)	4,200								
Science Rooms	(6)	8,400	(8)	11,200	(10)	14,000								
Resource Classrooms (ESL, Reading, Testing)	(3)	2,100	(4)	2,800	(5)	3,500								
<b>Subtotal</b>		<b>30,100</b>		<b>36,400</b>		<b>43,400</b>								
<b>Additional Instructional Spaces</b>	VOID													
Health Classrooms	800	(1)	800	(1)	800	(2)	1,600	(2)	1,600	(3)	2,400	(4)	3,200	
2D-Art Lab	1,400	(1)	1,400	(1)	1,400	(1)	1,400	(1)	1,400	(1)	1,400	(1)	1,400	
3D-Art Lab	1,400		0		0	(1)	1,400	(1)	1,400	(1)	1,400	(1)	1,400	
Art Storage and Kiln Room									400	(1)	400	(1)	400	
Art Classroom									700		700		700	
Darkroom									750		750		750	
Vocal Music Classroom									1,200		1,200		1,400	
Vocal Music Storage									200		250		300	
Drama Classroom									1,000	(1)	1,000	(1)	1,000	
Instrumental Band Classroom									1,800		1,800		2,000	
Band Storage									450		500		500	
Business Classroom									1,800	(3)	2,700	(4)	3,600	
Business Office & Storage	250	(1)	250	(1)	250	(1)	250		250		250		250	
Keyboarding	1,200	(1)	1,200	(1)	1,200	(2)	2,400	(2)	2,400	(3)	3,600	(3)	3,600	
Distributive Ed. Classroom	750	(1)	750	(1)	750	(1)	750	(2)	1,500	(2)	1,500	(2)	1,500	
Home Economics Classroom/lab			1,500		1,500		1,500		2,500		2,500		2,500	
Home Economics Office	150	(1)	150	(1)	150	(1)	150	(1)	150	(1)	150	(1)	150	
Health occupations	1,500		0		0	(1)	1,500	(1)	1,500	(1)	1,500	(1)	1,500	
Marketing Education			0		0		1,000		1,200		1,200		1,200	
Communication Labs (drf/photo)			1,500		2,000		2,000		2,500		3,000		3,000	
Production Shop			2,000		2,500		3,000		3,000		3,500		3,500	
Power and Energy			0		2,000		2,500		2,500		2,500		2,500	
Vocational Lab/Classroom			2,000		2,500		3,000		3,000		3,500		3,500	
Exploratory Lab	1,600	(2)	3,200	(2)	3,200	(2)	3,200	(3)	4,800	(4)	6,400	(4)	6,400	
Computer Lab	800	(1)	800	(1)	800	(1)	800	(2)	1,600	(2)	1,600	(3)	2,400	
Self-Contained Special Ed.	750	(1)	750	(2)	1,500	(2)	1,500	(3)	2,250	(4)	3,000	(5)	3,750	
Resource Classrooms (ESL, Reading, Testing)	450	(2)	900	(2)	900	(3)	1,350	(3)	1,350	(4)	1,800	(5)	2,250	
Speech Classroom	200	(1)	200	(1)	200		200		200		200		200	
Math Lab	600	(1)	600	(1)	600		600		600		600		600	
Reading Lab/ESL Lab	600	(1)	600	(2)	1,200	(2)	1,200	(3)	1,800	(3)	1,800	(4)	2,400	
In-School Suspension Classroom	600	(1)	600	(1)	600	(1)	600		600		600		600	
<b>Subtotal (General Classrooms)</b>			<b>23,650</b>		<b>29,450</b>		<b>38,550</b>		<b>46,400</b>		<b>53,700</b>		<b>58,450</b>	

## Appendix D

### Recommended Prototypical Space Program for Virginia High Schools (Continued)

Average 25 students per classroom Max. Students Per Grade School Size Teaching Stations (Core subjects based on seven periods)		150	225	300	375	450	525
	Sq. Ft.	Sq. Ft.	Sq. Ft.	Sq. Ft.	Sq. Ft.	Sq. Ft.	Sq. Ft.
<b>Administrative Core Facilities</b>							
Principal's Office	200 (1)	200 (1)	200 (1)	200 (1)	200 (1)	200 (1)	200 (1)
Principal's Secretary	100 (1)	100 (1)	100 (1)	100 (1)	100 (1)	100 (1)	100 (1)
Assistant Principal's Office(s)	150 (1)	150 (1)	150 (1)	150 (2)	300 (3)	450 (3)	450 (3)
Secretaries Office(s)	60 (1)	60 (2)	120 (2)	120 (3)	180 (3)	180 (4)	240 (4)
Guidance Offices(s)	100 (2)	200 (3)	300 (4)	400 (5)	500 (6)	600 (6)	600 (6)
General Waiting Reception		200	300	400	500	600	700
Career Center		200	300	400	400	400	500
Guidance Reception		100	150	200	250	250	250
Technology Resource						300 (3)	300 (3)
Mailroom						250	300
Books, Supplies, Storage						900	1,000
Vault Record Storage						200 (1)	200 (1)
Health Suite						550	600
General Office Toilet(s)/closet						150 (2)	150 (2)
Workroom						300	350
Teacher Team Planning Rooms						1,200 (3)	1,200 (3)
Teacher Lounge						350	400
General Conference Room						250	250
Student Commons						2,000	2,000
<b>Subtotal (Administrative Core)</b>						<b>9,230</b>	<b>9,790</b>
<b>Exceptional Education</b>							
Exception Classrooms						4,500 (6)	4,500 (6)
Resource Classrooms						800 (2)	800 (2)
Testing room (Special Ed Only)						100 (1)	100 (1)
Psychologist Office						100 (1)	100 (1)
Itinerant Offices	100 (2)	200 (2)	200 (3)	300 (4)	400 (5)	500 (6)	600 (6)
Conference Room	150 (1)	150 (1)	150 (1)	150 (1)	150 (1)	150 (1)	150 (1)
<b>Subtotal (Exceptional Education)</b>		<b>2,450</b>	<b>3,200</b>	<b>4,050</b>	<b>5,300</b>	<b>6,150</b>	<b>6,250</b>
<b>Auxiliary Support Facilities</b>							
Technology Support Room		300	300	300	400	400	400
Dining Room (3) Seatings		2,400	3,600	4,800	6,000	7,200	8,400
Kitchen Serving Areas		1,700	2,100	2,300	2,500	2,700	2,900
Librarians' Office(s)	150 (1)	150 (2)	300 (2)	300 (2)	300 (2)	300 (2)	300 (2)
Staff, Library Workroom		200	200	300	300	300	300
Reading Room (1,000 x 3 sq. ft. x enrollment)		2,800	3,700	4,600	5,500	6,400	7,300
Library Multiuse/electronic Classroom		120	120	150	150	200	200
Audiovisual Storage		150	200	300	400	500	600
Gymnasium		10,000	10,000	10,000	10,000	10,000	16,000
Auxiliary Gymnasium		0	0	0	5,000	5,000	5,000
Locker/Shower/Dressing	2,500 (2)	5,000 (2)	5,000 (2)	5,000 (2)	5,000 (2)	5,000 (2)	5,000 (2)
Physical Education Offices	100 (2)	200 (2)	200 (4)	400 (4)	400 (4)	400 (4)	400 (4)
Physical Education Storage (Interior)		800	800	800	800	800	800
Physical Education Storage (Outside)		250	250	250	250	250	250
* Auditorium		5,200	5,800	6,400	7,000	7,600	8,200
Stage		2,000	2,000	2,000	2,000	2,000	2,000
<b>Subtotal</b>		<b>31,270</b>	<b>34,570</b>	<b>37,900</b>	<b>46,000</b>	<b>49,050</b>	<b>58,050</b>
<b>Total Page 1 &amp; 2</b>		<b>77,430</b>	<b>92,940</b>	<b>115,720</b>	<b>136,530</b>	<b>154,530</b>	<b>175,940</b>
Halls, Toilets, HVAC @ 38%		29,423	35,317	43,974	51,881	58,721	66,857
<b>Grand Total</b>		<b>106,853</b>	<b>128,257</b>	<b>159,694</b>	<b>188,411</b>	<b>213,251</b>	<b>242,797</b>
<b>Sq. Ft. Per Student</b>		<b>178</b>	<b>143</b>	<b>133</b>	<b>126</b>	<b>118</b>	<b>116</b>

VOID

**Footnotes:**

\* Size of auditorium equals students in one grade level times eight sq. ft. per student plus 4,000 sq. ft. for dressing rooms, storage & lobby.

## **APPENDIX F**

VIRGINIA DEPARTMENT OF EDUCATION ELEMENTARY SCHOOL CAPACITY WORKSHEET - revised 03/29/18

Division:		Plan Control No.:	
School:		(VDOE office use only)	
Site Size:		School Project No.:	

	No. of Teaching Stations	Capacity based on SOA* Recommended Class Size			Capacity based on Division PTR***	
		Students per Teaching Station	Capacity	Per Teaching Station	Capacity	
<b>Permanent Spaces</b>						
Pre-Kindergarten Classrooms:**	0	x 18	0	x 18	0	
Kindergarten Classrooms:	0	x 24	0	x 18	0	
First - Third Grade Classrooms:	0	x 24	0	x 20	0	
Fourth - Fifth Grade Classrooms:	0	x 25	0	x 22	0	
Self-Contained Exceptional Children Classrooms:	0	x 8	0	x 8	0	
Other (specify)		x		x		
<b>Non Capacity Spaces</b>						
Art Classrooms:	0					
Music Classrooms:	0					
Resource (Pull-Out Program) Classrooms:	0					
Gym - Multipurpose Rooms: (OT/PT/FITNESS)	0					
Science/Computer rooms:	0					
Other (Specify) - Multipurpose	0					
			Maximum Capacity		Maximum Capacity	
	TOTAL		0		0	
			Additional Capacity		Additional Capacity	
Number of Relocatable Classrooms:	0	x 25	0	x		

\* Standards of Accreditation  
 \*\* Number of Students per teaching station not covered by SOA  
 \*\*\* Pupil Teacher Ratio



VIRGINIA ELEMENTARY SCHOOL CAPACITY WORKSHEET

Division: \_\_\_\_\_  
 School: \_\_\_\_\_  
 Site Size: \_\_\_\_\_

Plan Control No.: \_\_\_\_\_  
 School Project No.: \_\_\_\_\_

	No. of Teaching Stations	SOQ Maximum Capacity		Division Operating Capacity	
		Per Teaching Station	Capacity	Per Teaching Station	Capacity
<u>Permanent Spaces</u>					
Pre-Kindergarten Classrooms:	_____	x 18	_____ 0	x _____	_____ 0
Kindergarten Classrooms:	_____	x 24	_____ 0	x _____	_____ 0
First - Third Grade Classrooms:	_____	x 24	_____ 0	x _____	_____ 0
Fourth - Fifth Grade Classrooms:	_____	x 25	_____ 0	x _____	_____ 0
Self-Contained Exceptional Children Classrooms:	_____	x 8	_____ 0	x _____	_____ 0
Other (specify) _____	_____	x _____	_____ 0	x _____	_____ 0
<u>Non Capacity Spaces</u>					
Art Classrooms:	_____				
Music Classrooms:	_____				
Resource (Pull-Out Program) Classrooms:	_____				
Gym - Multipurpose Rooms:	_____				
Science/Computer rooms:	_____				
Other (Specify) _____	_____				
TOTAL	_____ 0				
			Maximum Capacity _____ 0		Maximum Capacity _____ 0
			Additional Capacity _____ 0		Additional Capacity _____ 0
Relocatable Classrooms:	_____	x 25	_____ 0	x _____	_____ 0

VOID

VIRGINIA DEPARTMENT OF EDUCATION MIDDLE SCHOOL CAPACITY WORKSHEET - revised 03/29/18

Division:  Plan Control No.:   
 School:  (VDOE office use only)  
 Site Size:  School Project No.:

	No. of Teaching Stations	Capacity based on SOA* Recommended Class Size		Capacity based on Division PTR**	
		Per Teaching Station	Capacity	Per Teaching Station	Capacity
<b>Permanent Spaces</b>					
English Classrooms:	<input type="text"/>	x 24	<input type="text"/> 0	x <input type="text"/>	<input type="text"/> 0
Homeroom Classrooms: (Social Studies, Math, or Science)	<input type="text"/>	x 25	<input type="text"/> 0	x <input type="text"/>	<input type="text"/> 0
Self-Contained Exceptional Children Classrooms:	<input type="text"/>	x 8	<input type="text"/> 0	x <input type="text"/>	<input type="text"/> 0
Other (specify)	<input type="text"/>	x	<input type="text"/> 0	x <input type="text"/>	<input type="text"/> 0
<b>Non Capacity Spaces</b>					
Art Classrooms:	<input type="text"/>				
Chorus/Band/Music Classrooms:	<input type="text"/>				
Resource (Pull-Out Program) Classrooms:	<input type="text"/>				
PE/Gym/Health/Multipurpose Rooms:	<input type="text"/>				
Exploratory Career Classrooms/Labs:	<input type="text"/>				
Computer Rooms:	<input type="text"/>				
			Maximum Capacity		Maximum Capacity
	TOTAL	<input type="text"/> 0	<input type="text"/> 0	<input type="text"/>	<input type="text"/> 0
			Additional Capacity		Additional Capacity
Relocatable Classrooms:	<input type="text"/>	x 25	<input type="text"/> 0	x <input type="text"/>	<input type="text"/> 0

\* Standards of Accreditation  
 \*\* Pupil Teacher Ratio

VIRGINIA DEPARTMENT OF EDUCATION MIDDLE SCHOOL CAPACITY WORKSHEET

Division:   
 School:   
 Site Size:

Plan Control No.:   
 (VDOE office use only)  
 School Project No.:

**Permanent Spaces**

English Classrooms:   
 Homeroom Classrooms:  
 (Social Studies, Math, or Science)   
 Self-Contained Exceptional Children Classrooms:   
 Other (specify) \_\_\_\_\_

**Non Capacity Spaces**

Art Classrooms:   
 Chorus/Band/Music Classrooms:   
 Resource (Pull-Out Program) Classrooms:   
 PE/Gym/Health/Multipurpose Rooms:   
 Exploratory Career Classrooms/Labs:   
 Computer Rooms:

TOTAL

Relocatable Classrooms:

Capacity based on SOA* Recommended Class Size	
No. of Teaching Stations	Per Teaching Station Capacity
x <input type="text"/>	24 <u>0</u>
x <input type="text"/>	25 <u>0</u>
x <input type="text"/>	8 <u>0</u>
x <input type="text"/>	<input type="text"/> <u>0</u>
<b>VOID</b>	
Maximum Capacity <input type="text"/> 0	
Additional Capacity <input type="text"/> 0	
x <input type="text"/>	25 <input type="text"/> 0

Capacity based on Division PTR**	
No. of Teaching Stations	Per Teaching Station Capacity
x <input type="text"/>	<input type="text"/> 0
x <input type="text"/>	<input type="text"/> 0
x <input type="text"/>	<input type="text"/> 0
x <input type="text"/>	<input type="text"/> 0
<b>VOID</b>	
Maximum Capacity <input type="text"/> 0	
Additional Capacity <input type="text"/> 0	
x <input type="text"/>	<input type="text"/> 0

\* Standards of Accreditation  
 \*\* Pupil Teacher Ratio

VIRGINIA DEPARTMENT OF EDUCATION HIGH SCHOOL CAPACITY WORKSHEET - revised 03/29/18

Division:		Plan Control No.:	
School:		(VDOE office use only)	
Site Size:		School Project No.:	

	No. of Teaching Stations	Capacity based on SOA* Recommended Class Size		Capacity based on Division PTR**	
		Per Teaching Station	Capacity	Per Teaching Station	Capacity
<b>Permanent Spaces</b>					
Academic Classrooms: (Foreign Language, Social Studies, Math, Science)		x 25	0	x	0
English Classrooms:		x 24	0	x	0
Arts Education Classrooms: (Visual Arts, Drama)		x 24	0	x	0
Business/Office Education Classrooms: (Typing/Keyboard, Computer App., Business, etc)		x 25	0	x	0
Music Classrooms: (Band, Chorus, Music)		x 30	0	x	0
Health Classrooms:		x 30	0	x	0
Main Gym: (Counts as 2 Teaching Stations)		x 30	0	x	0
Auxiliary Gym: (Counts as 1 Teaching Station)		x 25	0	x	0
Service/Marketing Classrooms/Labs: (Consumer/Health Occup., Teen Living, Marketing)		x 20	0	x	0
Vocational Education Lab: (Do not count associated classrooms)		x 20	0	x	0
Self-Contained Exceptional Student Classrooms:		x 8	0	x	0
Other (specify)		x	0	x	0
<b>Non Capacity Spaces</b>					
Resource (Pull-Out Programs) Classrooms:			Maximum Capacity		Maximum Capacity
In-school Susp., Extra-Curric. Rooms:			0		0
Weight, Wrestling Rooms:			Maximum Operating Capacity		Maximum Operating Capacity
Classrooms use with a Vocational Lab:					
		x 90%	0	x 90%	0
<b>TOTAL</b>					
			Additional Capacity		Additional Capacity
Relocatable Classrooms:	2	x 25	50	x	0

\* Standards of Accreditation  
 \*\* Pupil Teacher Ratio

VIRGINIA HIGH SCHOOL CAPACITY WORKSHEET

Division:   
 School:   
 Site Size:

Plan Control No.:   
 School Project No.:

Permanent Spaces	No. of Teaching Stations	SOQ Maximum Capacity			Division Operating Capacity		
			Per Teaching Station	Capacity		Per Teaching Station	Capacity
Academic Classrooms: (Foreign Language, Social Studies, Math, Science)	<input type="text"/>	x	25	<input type="text"/> 0	x	<input type="text"/> 0	
English Classrooms:	<input type="text"/>	x	24	<input type="text"/> 0	x	<input type="text"/> 0	
Arts Education Classrooms: (Visual Arts, Drama)	<input type="text"/>	x	24	<input type="text"/> 0	x	<input type="text"/> 0	
Business/Office Education Classrooms: (Typing/Keyboard, Computer App., Business, etc)	<input type="text"/>	x	25	<input type="text"/> 0	x	<input type="text"/> 0	
Music Classrooms: (Band, Chorus, Music)	<input type="text"/>	x	30	<input type="text"/> 0	x	<input type="text"/> 0	
Health Classrooms:	<input type="text"/>	x	30	<input type="text"/> 0	x	<input type="text"/> 0	
Main Gym: (Counts as 2 Teaching Stations)	<input type="text"/>	x	30	<input type="text"/> 0	x	<input type="text"/> 0	
Auxiliary Gym: (Counts as 1 Teaching Station)	<input type="text"/>	x	25	<input type="text"/> 0	x	<input type="text"/> 0	
Service/Marketing Classrooms/Labs: (Consumer/Health Occup., Teen Living, Marketing)	<input type="text"/>	x	20	<input type="text"/> 0	x	<input type="text"/> 0	
Vocational Education Lab: (Do not count associated classrooms)	<input type="text"/>	x	20	<input type="text"/> 0	x	<input type="text"/> 0	
Self-Contained Exceptional Student Classrooms:	<input type="text"/>	x	8	<input type="text"/> 0	x	<input type="text"/> 0	
Other (specify) _____	<input type="text"/>	x	<input type="text"/>	<input type="text"/> 0	x	<input type="text"/> 0	
<b>Non Capacity Spaces</b>							
Resource (Pull-Out Programs) Classrooms:	<input type="text"/>			Maximum Capacity <input type="text"/>			
In-school Susp., Extra-Curric. Rooms:	<input type="text"/>						
Weight, Wrestling Rooms:	<input type="text"/>			Maximum Operating Capacity <input type="text"/>			
Classrooms use with a Vocational Lab:	<input type="text"/>				Operating Capacity <input type="text"/>		
TOTAL	<input type="text"/> 0	x	90%	<input type="text"/> 0	<input type="text"/> 0		
				Additional Capacity <input type="text"/>			
Relocatable Classrooms:	<input type="text"/>	x	25	<input type="text"/> 0	x	<input type="text"/> 0	

**VOID**

## APPENDIX I

### WEB LINKS:

#### State WEB Links:

Public Private Education Act <http://dls.virginia.gov/commissions/ppe.htm>,

<http://dls.virginia.gov/groups/ppea/SB1153/FinalChecklist.pdf>

Virginia Collaborative for High Performance Schools VA-CHPS

<http://www.chps.net/dev/Drupal/node/622>

<http://www.chps.net/virginia>

Virginia Department for Blind and Vision Impaired <http://www.vdbvi.org>

Virginia Department of Social Services <http://www.dss.virginia.gov>

Virginia Child Care Facilities

[https://www.dss.virginia.gov/files/division/licensing/cdc/intro\\_page/code\\_regulations/regulations/final\\_cdc\\_reg.pdf](https://www.dss.virginia.gov/files/division/licensing/cdc/intro_page/code_regulations/regulations/final_cdc_reg.pdf)

VDOE Safety in Science Teaching

[http://www.doe.virginia.gov/instruction/science/middle/safety\\_science\\_teaching.pdf](http://www.doe.virginia.gov/instruction/science/middle/safety_science_teaching.pdf)

VDOE SOL Technology Initiative, Architectural Guidelines for High School Readiness

[http://www.doe.virginia.gov/support/technology/edtech\\_plan/guidelines\\_resources/edtech\\_guidelines.pdf](http://www.doe.virginia.gov/support/technology/edtech_plan/guidelines_resources/edtech_guidelines.pdf)

*VDOE Guidelines for Working with Students who are Deaf or Hard of Hearing*

[https://www.doe.virginia.gov/special\\_ed/disabilities/sensory\\_disabilities/hearing\\_impairment/](https://www.doe.virginia.gov/special_ed/disabilities/sensory_disabilities/hearing_impairment/)

VDOE Recycling Memo

[http://www.doe.virginia.gov/administrators/superintendents\\_memos/2010/012-10.shtml](http://www.doe.virginia.gov/administrators/superintendents_memos/2010/012-10.shtml)

VDOE Required Reporting of Radon Test Results Memo

[http://www.doe.virginia.gov/administrators/superintendents\\_memos/2014/131-14.shtml](http://www.doe.virginia.gov/administrators/superintendents_memos/2014/131-14.shtml)

Industrialized Building Safety Regulations IBSR

<https://www.dhcd.virginia.gov/ib#:~:text=The%20IBSR%20provides%20for%20the,ductwork%20to%20mention%20a%20few.>

**National WEB Links:**

US Green Building Council LEED <http://www.usgbc.org/LEED>

Green Building Initiative <http://www.thegbi.org>

Green Clean Schools <http://greencleanschools.org/resources/steps/>

National Clearing House for Educational Facilities  
<https://www2.ed.gov/programs/edfacclearinghouse/index.html>

National Science Teachers Association <http://www.nsta.org>

Art <http://www.arteducators.org>

Dance <http://www.ndeo.org/>

Music <http://www.nafme.org/>

American Library Association <http://www.ala.org>

Institute of Child Nutrition <http://www.theicn.org/>

United States Consumer Product Safety Commission's "Handbook for Public Playground Safety"  
<https://www.ihs.gov/HeadStart/documents/HandbookforPlaygroundSafety.pdf>

Crime Prevention Through Environmental Design (CEPTD)  
<http://www.cpted.net/>

VIRGINIA DEPARTMENT OF EDUCATION  
OFFICE OF SUPPORT SERVICES  
CONSTRUCTION COST DATA FORM

School Name: \_\_\_\_\_

School Division: \_\_\_\_\_

Architect: \_\_\_\_\_

School Project No. \_\_\_\_\_

Address: \_\_\_\_\_

**GENERAL CONTRACT INFORMATION**

General Contractor: \_\_\_\_\_

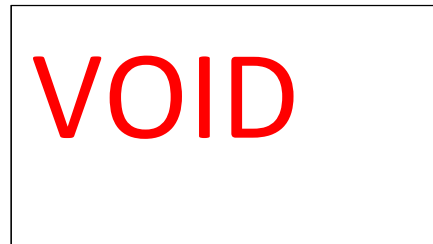
Contract Award Date: \_\_\_\_\_

Project Deliver Method (Check One)     Design/Bid/Build     PPEA/Design Build     CM not at Risk     CM at Risk

Project will be LEED certified     Yes     No    If, yes, level of LEED certification \_\_\_\_\_

1. Building Cost Award amount less site development cost) \$ \_\_\_\_\_
2. Site Development cost (Excluding any special water or sewer treatment plants, or off-site and road systems) \$ \_\_\_\_\_
3. Special Site development costs (Including those excluded in 2 above.) \$ \_\_\_\_\_
4. Cost items not included above but awarded under separate contract. (Fixed equipment, technology, etc.) \$ \_\_\_\_\_
5. TOTAL SCHOOL CONSTRUCTION COST (Does not include fees, land cost, or loose equipment/furniture.) \$ \_\_\_\_\_
6. Gross Building Square Foot Area: \_\_\_\_\_ s.f.
7. Building Square Foot Cost: (1 divided by 6) \$ \_\_\_\_\_ s.f.
8. Building and Site Development Cost: (5 divided by 6) \$ \_\_\_\_\_ s.f.
9. List alternatives accepted by number & brief description, use back if necessary.

**PROJECT COMMENTS** (brief description or other special design features or conditions to be noted)



**OTHER PROJECT INFORMATION**

Architects/engineer design fee: \_\_\_\_\_ %    OR    \$ \_\_\_\_\_

Site cost if available: \$ \_\_\_\_\_    Total number of acres: \_\_\_\_\_

Cost Form Prepared by: \_\_\_\_\_

Date: \_\_\_\_\_

Phone Number: \_\_\_\_\_

PLEASE RETURN TWO COPIES TO:  
[Hunter.Barnes@doe.virginia.gov](mailto:Hunter.Barnes@doe.virginia.gov)

Virginia Department of Education  
P. O. Box 2120  
Richmond, VA 23218-2120  
Phone: 804-225-2035  
Fax: 804-530-4519



**APPENDIX J**

**TOTAL CAPITAL OUTLAY SUMMATION**

**1. Construction Contract Summary**

**Bid Award Date:** \_\_\_\_\_

**Alternates Accepted:** (No's \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_)

**Architect/Engineer of Record:** \_\_\_\_\_

**Building Cost** \$ \_\_\_\_\_

**Change Orders** \$ \_\_\_\_\_

**Built-in Equipment** \$ \_\_\_\_\_

**Utilities** \$ \_\_\_\_\_

**Site Work** \$ \_\_\_\_\_

**Total Construction contract** \$ \_\_\_\_\_

**2. Other Project cost**

**Site Cost** \$ \_\_\_\_\_

**A/E Fees** \$ \_\_\_\_\_

**Owner test fees, permits, insurance** \$ \_\_\_\_\_

**Loose Furniture** \$ \_\_\_\_\_

**Special Equipment** \$ \_\_\_\_\_

**Inspection & Clerk of Work Fees** \$ \_\_\_\_\_

**Construction Management Fees** \$ \_\_\_\_\_

**Other** \$ \_\_\_\_\_

\_\_\_\_\_ **Total Other Project Costs** \_\_\_\_\_ \$ \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ **Total cost of project** \_\_\_\_\_ \$ \_\_\_\_\_

\_\_\_\_\_ **(Total Items 1 & 2)** \_\_\_\_\_

**Return 1 copy to:**

\_\_\_\_\_ **Hunter L. Barnes, Architectural Consultant**

**Office of Support Services**

\_\_\_\_\_ **Department of Education**

\_\_\_\_\_ **P. O. Box 2120**

\_\_\_\_\_ **Richmond, VA 23218-2120**

**Do not write below this line — for Support Services only**

**Literary Loan No.** \_\_\_\_\_ **Computer Entry** \_\_\_\_\_

**Literary Loan Amt.** \_\_\_\_\_ **Cost Data Status** \_\_\_\_\_

**School Plant No.** \_\_\_\_\_ **Micro Film Status** \_\_\_\_\_

**Plan Control No.** \_\_\_\_\_

\_\_\_\_\_ **new construction** \_\_\_\_\_ **new addition** \_\_\_\_\_ **renovation work**

**Total Cost** \$ \_\_\_\_\_ **Cost per square foot** \$ \_\_\_\_\_

**Total No. of Students** \_\_\_\_\_ **Cost per student** \$ \_\_\_\_\_

\_\_\_\_\_

**Total gross square feet** \_\_\_\_\_

Appendix K

**Public Private Education Act of 2002 (PPEA)**

- A. ~~The Public Private Education Act of 2002 (PPEA) is state legislation that allows school divisions an alternative school construction delivery process. In this process, a developer, contractor and an architect team through a design-build process, can design, build, and finance public school facilities. Public school divisions must adopt Implementation Guidelines in order to accept Unsolicited proposals or to advertise for Solicited Proposals. For more detailed information regarding the PPEA process, go to the following Web address: <http://dls.state.va.us/PPEA.htm>.~~
- B. ~~These school design guidelines, project notice and final plan submittal requirements for PPEA school construction projects are identical to project design under the traditional design, bid-build delivery method process. Typically under the PPEA, projects are often fast-tracked, with site construction and building foundation construction proceeding prior to completion of the finished construction documents. For fast tracked PPEA projects, it is recommended that architects submit plans and building programs to the Office of Support Services at the Virginia Department of Education at the design develop stage for a preliminary review.~~

## Appendix L

### **Design-Build/Construction Management Contracts**

~~§ 2.2-4308. Design-build or construction management contracts for public bodies other than the Commonwealth; eligibility requirements; award of contract; records to be kept.~~

~~A. While the competitive sealed bid process remains the preferred method of construction procurement for public bodies in the Commonwealth, any public body other than the Commonwealth may enter into a contract for construction on a fixed price or not-to-exceed price design-build or construction management basis provided the public body complies with the requirements of this section and has implemented procedures consistent with the procedures adopted by the Secretary of Administration for utilizing design-build or construction management contracts.~~

~~Prior to making a determination as to the use of design-build or construction management for a specific construction project, the public body shall have in its employ or under contract a licensed architect or engineer with professional competence appropriate to the project who shall advise the public body regarding the use of design-build or construction management for that project and who shall assist the public body with the preparation of the Request for Proposal and the evaluation of such proposals.~~

~~Prior to issuing a Request for Proposal for any design-build or construction management contract for a specific construction project, the public body shall:~~

~~1. Have adopted, by ordinance or resolution, written procedures governing the selection, evaluation and award of design-build and construction management contracts. Such procedures shall be consistent with those described in this chapter for the procurement of nonprofessional services through competitive negotiation. Such procedures shall also require Requests for Proposals to include and define the criteria of such construction project in areas such as site plans; floor plans; exterior elevations; basic building envelope materials; fire protection information plans; structural, mechanical (HVAC), and electrical systems; and special telecommunications; and may define such other requirements as the public body determines appropriate for that particular construction project. Such procedures for:~~

~~a. Design-build construction projects shall include a two-step competitive negotiation process consistent with the standards established by the Division of Engineering and Buildings of the Department of General Services for state agencies.~~

~~b. Construction management projects shall include selection procedures and required construction management contract terms consistent with the procedures as adopted by the Secretary of Administration.~~

~~2. Have documented in writing that for a specific construction project (i) a design-build or construction management contract is more advantageous than a competitive sealed bid construction contract; (ii) there is a benefit to the public body by using a design-build or construction management contract; and (iii) competitive sealed bidding is not practical or fiscally advantageous.~~

~~B. The contract shall be awarded to the fully qualified offeror who submits an acceptable proposal determined to be the best value in response to the Request for Proposal.~~

~~(1996, c. [962](#), § 11-41.2:2; 2000, c. [29](#); 2001, c. [844](#); 2004, c. [706](#); 2006, c. [510](#); 2011, cc. [594](#), [681](#).)~~