GUIDELINES FOR SCHOOL FACILITIES IN VIRGINIA'S PUBLIC SCHOOLS

VIRGINIA DEPARTMENT OF EDUCATION
VIRGINIA IS FOR LEARNERS
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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.

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LEGAL AUTHORITY

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 SCHOOLS

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.

School	Grade	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.

E. 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.

F. 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.

G. 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.

H. 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
Total Timeframe	**3 to 5 years approximately**

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.

I. 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.

J. 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.

K. 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

A. 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.

B. 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.

C. 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.

D. 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:

School Type	Minimum Basic Acreage *	Additional Acreage Per 100 Pupils in Ultimate Enrollment **
Primary or Elementary	5	1
Middle School, Intermediate Jr. High	15	1
Senior High or Combined School	20	1

* 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)**	**Number of Students (400-599)**	**Number of Students (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 399)**	**Number of Students (400-599)**	**Number of Students (600-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 399)	Number of Students (400-599)	Number of Students (600-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:

Grade	Square Feet
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

Classroom Type	Class Size (Average)	Minimum Room Sizes (Sq. ft.) Secondary	Minimum Room Sizes (Sq. ft.) Elementary
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

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:

Grade	Display	Marker	Mounting Heights - Floor to Bottom of Marker/Chalk rail
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

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
10. Include liquid soap and paper towel dispensers.
11. Adjustable changing table within the accessible restroom area.
12. 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 web site: 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.

B PREPARATION/STORAGE ROOM

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

Laboratory	Size
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:

Grades	Seating Capacity	Stage Square Footage
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

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

Middle School Grades 6 - 8 Exploratory Programs	**Size**
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.

High School Grades 9 - 12 Programs and Courses	**Size**
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.

High School Grades 9 - 12 Programs and Courses	Size
Trade and Industrial Education - Could Include: Automotive Services, Aviation, Construction Services, Machining, Manufacturing, Industrial Maintenance (each)	2,400 - 2,800 sq. ft.

HEALTH AND PHYSICAL EDUCATION

A. GYMNASIUMS

Gymnasiums should have the following minimum clear dimensions:

School Type	Dimensions
Elementary School (where provided)	42 ft. x 74 ft. court
Elementary School (where provided)	(54 ft. x 90 ft. with safety zone*)
Elementary School (where provided)	ceiling height 20 ft. clear
Secondary School	50 ft. x 84 ft. court
Secondary School	(62 ft. x 100 ft. with safety zone*)
Secondary School	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 (gymnatorium) 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	200-400 Meals Served Per Day	400-600 Meals Served Per Day	600-800 Meals Served Per Day	800-1,200 Meals Served Per Day	1,200-1,500 Meals Served Per Day
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

School	Distance
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	--	500 fpm
Paint booths	100-200 fpm	1000-2000 fpm
Ventilated welding booth	100 fpm	2000 – 2500 fpm
Woodworking dust exhaust	--	3500 – 4000 fpm

* 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

The design of a school's HVAC system must meet the current American Society of Heating, Refridgerating, and Air-Conditioning Engineers (ASHRAE) standards. http://www.ashrae.org

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 85^0 F and 110^0 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 85^0 F to 110^0 F. Controls should be provided to ensure that water temperature does not exceed 110^0 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.

Illumination Levels

Space	Footcandles	Space	Footcandles
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.

Spaces	Square Footage
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.

ELECTRONIC ROOM PARTITIONS

A. GENERAL

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.

B. 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.

C: 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.

D. 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.

E. EMERGENCY RELEASE MECHANISM:

Provide a quick disconnect-release electric-motor drive system permitting manual operation in event of operating failure.

F. 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

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.

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,ductwork%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:

Classrooms	Square Feet
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 5th 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:

Grade	Display	Marker	Mounting Heights – Floor to Bottom of Marker/Chalkrail
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

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

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

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

Acronym	Definition
EPA	Environmental Protection Agency
F	Fahrenheit
FC	Foot Candle
FPM	Feet per Minute
GFI	Ground fault Interrupt
GMP	Guaranteed Maximum Price
HVAC	Heating, ventilation and air conditioning
IBSR	Industrialized Building Safety Regulations
ID	Intellectual Disability
IECC	International Energy Conservation Code
IT	Information Technology
LED	Light Emitting Diode
LEED	Leadership in Energy and Environmental Design (LEED)
MD	Multiple Disabilities
NEC	National Electrical Code, (NFPA 70)
NFPA	National Fire Protection Association
NRC	Noise Reduction Coefficient
OI	Orthopedic Impairment
OSHA	Occupational Safety and Health Administration
PPEA	Public-Private Educational Act
PTA	Parent Teacher Association
RFP	Request for Proposal

Acronym	Definition
SBCR-SSWS	School Building Construction Renovation (construction tracking) in Single Sign on for Web Systems
SAT	Scholastic Aptitude Test
SF	Square Feet
SOL	Standards of Learning
STC	Sound Transmittance Coefficient
STEM	Science, Technology, Engineering, and Mathematic
VA-CHPS	Virginia Collaborative for High Performance Schools
UL	Underwriters Laboratories
VCP	Visual Comfort Probability
VDOE	Virginia Department of Education
VHSL	Virginia High School League
VOC	Volatile Organic Compound

APPENDIX B: RECOMMENDED EQUIPMENT MOUNTING HEIGHTS

Equipment Type	School Grade Levels	Minimum Mounting Height Requirements	Accessible Mounting Height Requirements	Notes
Lavatories (Primary)	Grades PK (Preschool), K, 1, 2, 3, 4, 5, 6	27 in.	30 in.	Measured from floor to top of rim.
Lavatories (Secondary)	Grades 7, 8, 9, 10, 11, 12	31 in.	34 in.	Measured from floor to top of rim. Max 29 inches clear knee space at rim by 8 inches deep, minimum 27 inches clear to bottom of bowl
Urinals (Primary)	Grades PK, K, 1, 2, ,3, 4, 5, 6	17 in.		Measured from floor to top of rim. Centerline of flush valve 11.5" from top of urinal.
Urinals (Secondary)	Grades 7, 8, 9, 10, 11, 12 and Adults	24 in.	17 in. (rim height A.F.F)	Measured from floor to top of rim. Centerline of flush valve 11.5" from top of urinal.
Water Closets (Primary)	Grades PK (Preschool), K, 1, 2, 3, 4, 5, 6	15 in.	15 in.	Measured from floor to top of rim. Centerline of flush valve 26" A.F.F.)
Water Closets (Secondary)	Grades 7, 8, 9, 10, 11, 12	15 in.	18 in.	Measured from floor to top of rim. Centerline of flush valve 29" A.F.F.)
Drinking Fountains, EWC's (Primary)	Grades PK (Preschool), K, 1, 2, 3, 4, 5, 6	28 in.	30 in.	Measured from floor to spout. 24 inches clear knee space.
Drinking Fountains, EWC's (Secondary)	Grades 7, 8, 9, 10, 11, 12	42 in.	36 in.	Measured from floor to spout. 27 inches clear knee space.
Shower Heads (Boys)	All Grades - Boys	72 in.		Measured from floor to head.
Shower Heads (Girls)	All Grades - Girls	66 in.		Measured from floor to head.
Shower Heads (Adults)	All Grades - Adults	72 in.		Measured from floor to head.
Computer Counters (Grades PK-6)	Grades PK (Preschool), K, 1, 2, 3, 4, 5, 6	24 in.		Measured from floor to top.

Equipment Type	School Grade Levels	Minimum Mounting Height Requirements	Accessible Mounting Height Requirements	Notes
Computer Counters (Grades 4-6)	Grades 4, 5, 6	27 in.		Measured from floor to top.
Computer Counters (Grades 7 - Adults)	Grades 7, 8, 9, 10, 11, 12 and Adults	30 in.	34 in.	Measured from floor to top.
Countertops (Grades PK-6)	Grades PK (Preschool), K, 1, 2, 3, 4, 5, 6	24 in.	30 in.	Base cabinets with or without sinks measured from floor to top.
Countertops (Grades 4-6)	Grades 4, 5, 6	27 in.	30 in.	"Base cabinets with or without sinks measured from floor to top. Accessible sink tops (Grades PK, K - 6) serving classroom toilets (24"" clear knee space) "
Countertops (Grades 7 - Adults)	Grades 7, 8, 9, 10, 11, 12 and Adults	36 in.	34 in.	Base cabinets with or without sinks measured from floor to top.
Accessible Grab Bars (Grades PK-6)	Grades PK (Preschool), K, 1, 2, 3, 4, 5, 6		27 in.	Measured from floor to top line of bar.
Accessible Grab Bars (Grades 7 - Adults)	Grades 7, 8, 9, 10, 11, 12 and Adults		36 in.	Measured from floor to top line of bar.
Handrails (All Child to Adutls)	All Grades and Adults	34 in.		Measured from ramp or stair nosing to top of gripping surface.
Handrails (Child Accessible)	Grades PK, 1, 2, 3, 4, 5, 6 (child accessible)		25 in.	Measured from ramp or stair nosing to top of gripping surface.
Paper Towel Dispenser	All Grades and Adults	40 in.		Measured from floor to towel slot.
Toilet Paper Holders	All Grades and Adults	20 in.		Measured from floor to centerline roll.
Warm Air Hair Dryers	All Grades and Adults	40 in.		Measured from floor to centerline of push button switch.
Soap Dispensers (Grades PK-6)	Grades PK (Preschool), K, 1, 2, 3, 4, 5, 6	36 in.		Measured from floor to bottom of dispenser.

Equipment Type	School Grade Levels	Minimum Mounting Height Requirements	Accessible Mounting Height Requirements	Notes
Soap Dispensers (Grades 7 - Adults)	Grades 7, 8, 9, 10, 11, 12 and Adults	40 in.		Measured from floor to bottom of dispenser.
Feminine Napkin Dispensers (Coin Slot)	Secondary Grades and Adults	40 in.		Measured from floor to coin slot.
Feminine Napkin Dispensers (Unit)	Secondary Grades and Adults	34 in.		Measured from floor to top of unit.
Mirrors (Grades PK-6)	Grades PK (Preschool), K, 1, 2, 3, 4, 5, 6	30 in.		Meaured from floor to bottom of mirror.
Mirrors (Grades 7 - Adults)	Grades 7, 8, 9, 10, 11, 12 and Adults	40 in.		Meaured from floor to bottom of mirror.
Fire Extinguishers	All Grades and Adults	56 in.		Measured from floor to top of cabinet.
Pencil Sharpener Blocks (Grades PK -3)	Grades PK, K, 1, 2, 3	32 in.		Measured from floor to top of 8 inch x 8 inch block.
Pencil Sharpener Blocks (Grades 4-6)	Grades 4, 5, 6	38 in.		Measured from floor to top of 8 inch x 8 inch block.
Cooridor Tack Strips		(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."
Markerboard & Tackboards (Grades PK-3)	Grades PK, K, 1, 2, 3	24 in.		Measured from floor to bottom of board.
Markerboard & Tackboards (Grades 4-6)	Grades 4, 5, 6	28 in.		Measured from floor to bottom of board.
Markerboard & Tackboards (Grades 7-Adults)	Grades 7, 8, 9, 10, 11, 12 and Adults	36 in.		Measured from floor to bottom of board.

Equipment Type	School Grade Levels	Minimum Mounting Height Requirements	Accessible Mounting Height Requirements	Notes
Door Hardware - Push Plate (Primary)	Grades PK (Preschool), K, 1, 2, 3, 4, 5, 6	42 in.		Measured from floor to centerline of hardware.
Door Hardware - Pull Handles (Primary)	Grades PK (Preschool), K, 1, 2, 3, 4, 5, 6	42 in.		Measured from floor to centerline of hardware.
Door Hardware - Levers (Primary)	Grades PK (Preschool), K, 1, 2, 3, 4, 5, 6	36 in.		Measured from floor to centerline of hardware.
Door Hardware - Panic Exit (Primary)	Grades PK (Preschool), K, 1, 2, 3, 4, 5, 6	36 in.		Measured from floor to centerline of pushbar.
Door Hardware - Deadlocks Maximum (Primary)	Grades PK (Preschool), K, 1, 2, 3, 4, 5, 6	48 in.		Measured from floor to centerline of hardware.
Door Hardware - Push Plate (Secondary)	Grades 7, 8, 9, 10, 11, 12 and Adults	50 in.		Measured from floor to centerline of hardware.
Door Hardware - Pull Handles (Secondary)	Grades 7, 8, 9, 10, 11, 12 and Adults	42 in.		Measured from floor to centerline of hardware.
Door Hardware - Levers (Secondary)	Grades 7, 8, 9, 10, 11, 12 and Adults	36 in.		Measured from floor to centerline of hardware.
Door Hardware - Panic Exit (Secondary)	Grades 7, 8, 9, 10, 11, 12 and Adults	40 in.		Measured from floor to centerline of pushbar.
Door Hardware - Deadlocks Maximum (Secondary)	Grades 7, 8, 9, 10, 11, 12 and Adults	48 in.		Measured from floor to centerline of hardware.
CCMS Sensors	All Occupied Spaces	5 feet 6 inches		Measured from floor to centerline of box.

Equipment Type	School Grade Levels	Minimum Mounting Height Requirements	Accessible Mounting Height Requirements	Notes
Thermostats	All Occupied Spaces	4 feet 0 inches		Measured from floor to centerline of box.
Conv. Receptacles	General Areas	1 foot, 4 inches		Measured from floor to centerline of box. Special areas as required/check with Owner.
Clock Outlets	General Areas	6 inches		Measured from ceiling to top of box. Special areas as required/check with Owner
Light Switches	All Areas	4 feet 0 inches		Measured from floor to top of box.
Fire Alarm Pull Switches	All Areas	4 feet 0 inches		Measured from floor to top of box.
Fire Alarm Bells/ Horns	All Areas	6 feet 8 inches		Measured from floor to top of box. A.F.F. (or 6 inches below ceiling, whichever is lower)
Intercom Speakers	General Areas	Flush with Ceiling		Special areas as required/check with Owner
TV Outlets (General Areas)	General Areas	1 foot, 4 inches		Measured from floor to bottom of Box. Special areas as required/check with Owner
TV Outlets (TV/VCR Fixed)		1 foot, 0 inches		Measured from below Ceiling to bottom of box. Special areas as required/check with Owner
TV Outlets (TV/VCR on Cart)		5 feet 0 inches		Measured from floor to bottom of box. Special areas as required/check with Owner
Telecommunications		1 foot, 4 inches		Measured from floor to bottom of box.
Sound System Call Switches		4 feet 0 inches		Measured from floor to top of box.
Smoke/Heat Detector		Ceiling		Special areas as required/check with Owner
Library Shelving - Checkout Desk (Primary)	Grades PK (Preschool), K, 1, 2, 3, 4, 5, 6	32 in.		Measured from floor to top.
Library Shelving - Easy Books 13" Deep (Primary)	Grades PK (Preschool), K, 1, 2, 3, 4, 5, 6	42 in.		Measured from floor to top.

Equipment Type	School Grade Levels	Minimum Mounting Height Requirements	Accessible Mounting Height Requirements	Notes
Library Shelving - Reference 13" Deep (Primary)	Grades PK (Preschool), K, 1, 2, 3, 4, 5, 6	48 in.		Measured from floor to top.
Library Shelving - Free Standing 13" Deep (Primary)	Grades PK (Preschool), K, 1, 2, 3, 4, 5, 6	48 in.		Measured from floor to top.
Library Shelving - Wall Shelving 13" Deep (Primary)	Grades PK (Preschool), K, 1, 2, 3, 4, 5, 6	72 in.		Measured from floor to top.
Library Shelving - Checkout Desk (Secondary)	Grades 7, 8, 9, 10, 11, 12 and Adults	39 in.		Measured from floor to top.
Library Shelving - Reference 13" Deep (Secondary)	Grades 7, 8, 9, 10, 11, 12 and Adults	42 in.		Measured from floor to top.
Library Shelving - Free Standing 13" Deep (Secondary)	Grades 7, 8, 9, 10, 11, 12 and Adults	48 in.		Measured from floor to top.
Library Shelving - Wall Shelving 13" Deep (Secondary)	Grades 7, 8, 9, 10, 11, 12 and Adults	48 in.		Measured from floor to top.
Library Shelving - Path Minimum (Secondary)	Grades 7, 8, 9, 10, 11, 12 and Adults	36 in.		Measured from floor to top.
Kitchen Serving Lines (Height)		28 in.		Elementary School Finish Floor to Tray Slide (27" clear to underside of tray slide)
Kitchen Serving Lines (Width)		36 in.		Minimum width

APPENDIX C: RECOMMENDED PROTOTYPICAL SPACE PROGRAM FOR VIRGINIA ELEMENTARY SCHOOLS

(INCLUDES SELF-CONTAINED SPECIAL EDUCATION)

Table Notes:

- * PKH, PK, K & lst 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.
- -- Indicates a cell with no value.

TYPE A CAPACITY

- School capacity of 494
- 25 Total Classrooms (including self-contained Special Ed)

TYPE B CAPACITY

- School capacity of 606
- 31 Total Classrooms (including self-contained Special Ed)

TYPE C CAPACITY

- School capacity of 768
- 38 Total Classrooms (including self-contained Special Ed)

TYPE D CAPACITY

- School capacity of 938
- 46 Total Classrooms (including self-contained Special Ed)

TYPE E CAPACITY

- School capacity of 1050
- 53 Total Classrooms (including self-contained Special Ed)

School Room	Category Type	Schools PTR	Schools PTR Square Foot	Type A Capacity (494) # of Rooms	Type A Capacity (494) Pupils	Type A Capacity (494) Total Square Feet	Type B Capacity (606) # of Rooms	Type B Capacity (606) Pupils	Type B Capacity (606) Total Square Feet	Type C Capacity (768) # of Rooms	Type C Capacity (768) Pupils	Type C Capacity (768) Total Square Feet	Type D Capacity (938) # of Rooms	Type D Capacity (938) Pupils	Type D Capacity (938) Total Square Feet	Type E Capacity (1,050) # of Rooms	Type E Capacity (1,050) Pupils	Type E Capacity (1,050) Total Square Feet
Pre-K Headstart	Core Classroom	8/1	840	1	8	840	1	8	840	1	8	840	1	8	840	1	8	840
Pre-K	Core Classroom	16/1	975	2	32	1,950	3	48	2,925	4	64	3,900	5	80	4,875	6	96	5,850
K	Core Classroom	24/1	975	3	72	2,925	4	96	3,900	5	120	4,875	6	144	5,850	7	168	6,825
1st	Core Classroom	24/1	975	3	72	2,925	4	96	3,900	5	120	4,875	6	144	5,850	7	168	6,825
2nd	Core Classroom	24/1	800	3	72	2,400	4	96	3,200	5	120	4,000	6	144	4,800	7	168	5,600
3rd	Core Classroom	24/1	800	3	72	2,400	4	96	3,200	5	120	4,000	6	144	4,800	7	168	5,600
4th	Core Classroom	25/1	800	3	75	2,400	3	75	2,400	4	100	3,200	5	125	4,000	5	125	4,000
5th	Core Classroom	25/1	800	3	75	2,400	3	75	2,400	4	100	3,200	5	125	4,000	5	125	4,000
SPED self-contained	Classroom	8/1	750	2	16	1,500	2	16	1,500	2	16	1,500	3	24	2,250	3	24	2,250
12/1 Resource (ESL)	Classroom	12/1	400	2	12	800	3	18	1,200	3	18	1,200	3	18	1,200	5	20	2,000
Subtotal for All Classrooms	**--**	**--**	**--**	**25**	**494**	**20,540**	**31**	**606**	**25,465**	**38**	**768**	**31,590**	**46**	**938**	**38,465**	**53**	**1,050**	**43,790**
Principal's office	Admin Core Facilities	--	--	--	--	200	--	--	ALL	--	--	200	--	--	200	--	--	200
Assistant Principal's office	Admin Core Facilities	--	--	--	--	--	--	--	--	--	--	150	--	--	150	--	--	150
Secretaries Office	Admin Core Facilities	--	--	--	--	100	--	--	100	--	--	100	--	--	100	--	--	100
Guidance office(s)	Admin Core Facilities	--	--	--	1	100	--	1	100	--	2	200	--	2	200	--	2	200
Waiting area	Admin Core Facilities	--	--	--	--	200	--	--	250	--	--	300	--	--	300	--	--	300
Books, supplies, storage	Admin Core Facilities	--	--	--	--	300	--	--	400	--	--	500	--	--	600	--	--	700
Student record storage	Admin Core Facilities	--	--	--	--	200	--	--	200	--	--	200	--	--	200	--	--	200

School Room	Category Type	Schools PTR	Schools PTR Square Foot	Type A Capacity (494) # of Rooms	Type A Capacity (494) Pupils	Type A Capacity (494) Total Square Feet	Type B Capacity (606) # of Rooms	Type B Capacity (606) Pupils	Type B Capacity (606) Total Square Feet	Type C Capacity (768) # of Rooms	Type C Capacity (768) Pupils	Type C Capacity (768) Total Square Feet	Type D Capacity (938) # of Rooms	Type D Capacity (938) Pupils	Type D Capacity (938) Total Square Feet	Type E Capacity (1,050) # of Rooms	Type E Capacity (1,050) Pupils	Type E Capacity (1,050) Total Square Feet
Health unit	Admin Core Facilities	--	--	--	--	250	--	--	250	--	--	300	--	--	300	--	--	300
General office toilet, closet	Admin Core Facilities	--	--	--	--	100	--	--	100	--	--	100	--	--	100	--	--	100
Teachers' workroom	Admin Core Facilities	--	--	--	--	200	--	--	250	--	--	300	--	--	350	--	--	400
Teachers' lounge	Admin Core Facilities	--	--	--	--	150	--	--	200	--	--	250	--	--	300	--	--	350
General conference room	Admin Core Facilities	--	--	--	--	200	--	--	200	--	--	200	--	--	200	--	--	200
Itinerant office(s)	Admin Core Facilities	--	--	--	1	100	--	1	100	--	2	200	--	2	200	--	2	200
Technology resource office(s)	Admin Core Facilities	--	--	--	1	100	--	1	100	--	1	100	--	2	200	--	2	200
Subtotal for Admin Core Facilities	**--**	**--**	**--**	**--**	**--**	**2,200**	**--**	**--**	**2,450**	**--**	**--**	**3,100**	**--**	**--**	**3,400**	**--**	**--**	**3,600**
Librarians office	Auxillary Support Services	--	--	--	--	100	--	--	100	--	--	150	--	--	200	--	--	200
Reading room (750 + 2 sq. ft. x total enrollment)	Auxillary Support Services	--	--	--	--	1,594	--	--	1,770	--	--	2,046	--	--	2,338	--	--	2,514
Staff, library workroom	Auxillary Support Services	--	--	--	--	200	--	--	200	--	--	200	--	--	200	--	--	200
Multiuse library room, AV Tech	Auxillary Support Services	--	--	--	--	120	--	--	120	--	--	150	--	--	150	--	--	150
Audio visual storage	Auxillary Support Services	--	--	--	--	150	--	--	150	--	--	200	--	--	200	--	--	200
Technology head-end room	Auxillary Support Services	--	--	--	--	450	--	--	450	--	--	550	--	--	550	--	--	550

School Room	Category Type	Schools PTR	Schools PTR Square Foot	Type A Capacity (494) # of Rooms	Type A Capacity (494) Pupils	Type A Capacity (494) Total Square Feet	Type B Capacity (606) # of Rooms	Type B Capacity (606) Pupils	Type B Capacity (606) Total Square Feet	Type C Capacity (768) # of Rooms	Type C Capacity (768) Pupils	Type C Capacity (768) Total Square Feet	Type D Capacity (938) # of Rooms	Type D Capacity (938) Pupils	Type D Capacity (938) Total Square Feet	Type E Capacity (1,050) # of Rooms	Type E Capacity (1,050) Pupils	Type E Capacity (1,050) Total Square Feet
Computer classroom(s)	Auxillary Support Services	--	--	--	--	800	--	1	800	--	1	800	--	--	1600	--	--	1600
Dining room, three settings (1/3 enrollment x 12 sq.ft.)	Auxillary Support Services	--	--	--	--	1,688	--	--	2,040	--	--	2,592	--	--	3,176	--	--	3,528
Table chair storage	Auxillary Support Services	--	--	--	--	400	--	--	500	--	--	600	--	--	700	--	--	800
Stage	Auxillary Support Services	--	--	--	--	1,200	--	--	1,200	--	--	1,200	--	--	1,200	--	--	1,200
Kitchen, service area (1000 + 1 sq. ft. x total enrollment + 80 sq. ft. office)	Auxillary Support Services	--	--	--	--	1,502	--	--	1,590	--	--	1,728	--	--	1,874	--	--	1,962
Subtotal for Auxilliary Support Services	**--**	**--**	**--**	**--**	**--**	**8,204**	**--**	**--**	**8,920**	**--**	**--**	**10,216**	**--**	**--**	**12,188**	**--**	**--**	**12,904**
Gymnasium (54' x 90')	Resource Rooms	--	--	--	--	4,860	--	--	4,860	--	--	4,860	--	--	4,860	--	--	4,860
PE Storage	Resource Rooms	--	--	--	--	300	--	--	300	--	--	300	--	--	300	--	--	300
PE office w/toilet	Resource Rooms	--	--	--	--	250	--	--	250	--	--	250	--	--	250	--	--	250
SPED Resource	Resource Rooms	--	--	400	2	800	400	2	1,200	400	4	1,600	400	5	2,000	400	6	2,400
Art classrooms	Resource Rooms	--	--	1200	1	1,200	1200	1	1,200	1200	1	1,200	1200	2	2,400	1200	2	2,400
Music classrooms	Resource Rooms	--	--	1000	1	1,000	1000	1	1,000	1000	1	1,000	1000	2	2,000	1000	2	2,000
Team planning rooms	Resource Rooms	--	--	300	3	900	300	3	1,200	300	--	0	300	--	0	300	--	0
Team planning rooms	Resource Rooms	--	--	400	--	0	400	--	0	400	5	2,000	400	6	2,400	400	7	2,800
Subtotal for Resource Rooms	**--**	**--**	**--**	**--**	**--**	**9,310**	**--**	**--**	**10,010**	**--**	**--**	**11,210**	**--**	**--**	**14,210**	**--**	**--**	**15,010**
Subtotal for All Rooms	**--**	**--**	**--**	**--**	**--**	**40,254**	**--**	**--**	**46,845**	**--**	**--**	**56,116**	**--**	**--**	**68,263**	**--**	**--**	**75,304**
Halls, Toilets, HVAC @ 35%	--	--	--	--	--	14,089	--	--	16,396	--	--	19,641	--	--	23,892	--	--	26,356
GRAND TOTAL	**--**	**--**	**--**	**--**	**--**	**54,343**	**--**	**--**	**63,241**	**--**	**--**	**75,757**	**--**	**--**	**92,155**	**--**	**--**	**101,660**
Square feet per student	--	--	--	--	--	129	--	--	124	--	--	117	--	--	116	--	--	115

APPENDIX D: RECOMMENDED PROTOTYPICAL SPACE PROGRAM FOR VIRGINIA MIDDLE SCHOOLS

Table Notes:

- Additional square footage should be added to address specialized educational pedagogy such as STEM performing arts, etc.
- -- Indicates a cell with no value.

TYPE A CAPACITY

- Using the average of 25 students per classroom
- 100 max students per grade
- 300 Students for a school size
- 12 teaching stations available

TYPE B CAPACITY

- Using the average of 25 students per classroom
- 150 max students per grade
- 525 students for a school size
- 21 teaching stations available

TYPE C CAPACITY

- Using the average of 25 students per classroom
- 200 max students per grade
- 600 students for a school size
- 24 teaching stations available

TYPE D CAPACITY

- Using the average of 25 students per classroom
- 300 max students per grade
- 900 students for a school size
- 39 teaching stations available

School Room	Category Type	Room Square Foot	Type A Capacity (300) # of Rooms	Type A Capacity (300) Total Square Feet	Type B Capacity (525) # of Rooms	Type B Capacity (525) Total Square Feet	Type C Capacity (600) # of Rooms	Type C Capacity (600) Total Square Feet	Type D Capacity (900) # of Rooms	Type D Capacity (900) Total Square Feet
6th grade rooms	Core Classrooms	700	3	2,100	5	3,500	6	4,200	10	7,000
7th grade rooms	Core Classrooms	700	3	2,100	5	3,500	6	4,200	10	7,000
8th grade rooms	Core Classrooms	700	3	2,100	5	3,500	6	4,200	10	7,000
Science rooms	Core Classrooms	1,200	3	3,600	6	7,200	6	7,200	9	10,800
Subtotal of Core Classrooms	--	--	--	**9,900**	--	**17,700**	--	**19,800**	--	**31,800**
Health classrooms	General Classrooms	800	--	800	--	800	2	1,600	2	1,600
Art lab	General Classrooms	1,200	--	1,200	--	1,200	--	1,200	--	1,200
Darkroom	General Classrooms	--	--	--	--	--	--	--	--	340
Vocal music classroom	General Classrooms	--	--	1,000	--	1,000	--	1,000	--	1,200
Instrumental band classroom	General Classrooms	--	--	--	--	--	--	1,200	--	1,200
Technology Education	General Classrooms	1,600	--	1,600	--	1,600	--	1,600	2	3,200
Business Information Technology	General Classrooms	1,200	--	1,200	--	1,200	--	1,200	2	2,400
Agricultural Education	General Classrooms	1,600	--	1,600	--	1,600	--	1,600	2	3,200
Greenhouse	General Classrooms	1,600	--	1,600	--	1,600	--	1,600	2	3,200
Family and Consumer Science	General Classrooms	1,600	--	1,600	--	1,600	--	1,600	2	3,200
Self-contained special education	General Classrooms	750	--	750	2	1,500	2	1,500	3	2,250
Resource classroom	General Classrooms	400	3	1,200	4	1,600	6	2,400	6	2,400
Subtotal of General Classrooms	--	--	--	**12,550**	--	**13,700**	--	**16,500**	--	**25,390**
Principal's office	Administrative Core Facilities	--	--	200	--	200	--	200	--	200
Assistant principal's office(s)	Administrative Core Facilities	150	--	--	--	--	--	150	1	150
Secretaries office(s)	Administrative Core Facilities	100	--	100	--	100	--	100	2	200
Guidance office(s)	Administrative Core Facilities	100	--	100	2	200	2	200	2	200
Waiting area	Administrative Core Facilities	--	--	200	--	250	--	300	--	400
Books, supplies, storage	Administrative Core Facilities	--	--	500	--	600	--	700	--	800
Student record storage	Administrative Core Facilities	--	--	200	--	200	--	200	--	200
Health unit	Administrative Core Facilities	--	--	300	--	300	--	300	--	300
General office toilet, closet	Administrative Core Facilities	--	--	100	--	100	--	100	--	100
Teacher workroom	Administrative Core Facilities	--	--	200	--	250	--	300	--	350
Teacher team planning rooms	Administrative Core Facilities	--	--	600	--	800	--	1,000	--	1,200
Teacher lounge	Administrative Core Facilities	--	--	250	--	300	--	350	--	400
General conference room	Administrative Core Facilities	--	--	200	--	200	--	200	--	250
Technology Resource	Administrative Core Facilities	100	1	100	1	100	2	200	2	200
Subtotal of Administrative Core Facilities	--	--	--	**3,050**	--	**3,600**	--	**4,300**	--	**4,950**
Dining room (3) seating (1/3 enrollment x 12 sq.ft.)	Auxilliary Support Facilities	--	--	1,200	--	1,800	--	2,400	--	1,200
Kitchen and serving areas	Auxilliary Support Facilities	--	--	1,300	--	1,500	--	1,700	--	1,300
Table chair storage	Auxilliary Support Facilities	--	--	400	--	600	--	800	--	400
Librarian's office(s)	Auxilliary Support Facilities	150	1	150	1	150	1	150	2	150

School Room	Category Type	Room Square Foot	Type A Capacity (300) # of Rooms	Type A Capacity (300) Total Square Feet	Type B Capacity (525) # of Rooms	Type B Capacity (525) Total Square Feet	Type C Capacity (600) # of Rooms	Type C Capacity (600) Total Square Feet	Type D Capacity (900) # of Rooms	Type D Capacity (900) Total Square Feet
Staff, library work room	Auxilliary Support Facilities	--	--	200	--	200	--	300	--	200
Library reading room (1000 sq. ft + 3X enrollment)	Auxilliary Support Facilities	--	--	1,900	--	2,575	--	2,800	--	1,900
Library multiuse/electronic classroom	Auxilliary Support Facilities	--	--	120	--	120	--	150	--	120
Audio visual storage	Auxilliary Support Facilities	--	--	150	--	200	--	300	--	150
Gymtorium	Auxilliary Support Facilities	--	--	8,000	--	10,000	--	10,000	--	8,000
Stage	Auxilliary Support Facilities	--	--	1,200	--	1,200	--	1,200	--	1,200
Auxiliary gymnasium	Auxilliary Support Facilities	--	--	---	--	---	--	--	--	---
Locker/shower/dressing	Auxilliary Support Facilities	1,500	2	3,000	2	3,000	2	3,000	2	3,000
Physical education offices	Auxilliary Support Facilities	100	1	100	2	200	2	200	4	100
Physical education storage (interior)	Auxilliary Support Facilities	--	--	600	--	600	--	600	--	600
Physical education storage (outside)	Auxilliary Support Facilities	--	--	250	--	250	--	250	--	250
Subtotal of Auxilliary Support Facilities	**--**	**--**	**--**	**18,570**	**--**	**22,395**	**--**	**23,850**	**--**	**32,000**
All Subtotals	**--**	**--**	**--**	**44,070**	**--**	**57,395**	**--**	**64,450**	**--**	**94,140**
Halls, toilets, HVAC @ 38%	--	--	--	16,747	--	21,810	--	24,491	--	35,773
GRAND TOTAL	**--**	**--**	**--**	**60,817**	**--**	**79,205**	**--**	**88,941**	**--**	**129,913**
Sq. Ft. per student.				**203**		**151**		**148**		**144**

APPENDIX E: RECOMMENDED PROTOTYPICAL SPACE PROGRAM FOR VIRGINIA HIGH SCHOOLS

Table Notes:

- 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.
- -- Indicates a cell with no value.

TYPE ACAPACITY

- Using the average of 25 students per classroom
- 150 max students per grade
- 600 Students for a school size
- 17 teaching stations available

TYPE B CAPACITY

- Using the average of 25 students per classroom
- 225 max students per grade
- 900 Students for a school size
- 23 teaching stations available

TYPE C CAPACITY

- Using the average of 25 students per classroom
- 300 max students per grade
- 1200 Students for a school size
- 33 teaching stations available

TYPE D CAPACITY

- Using the average of 25 students per classroom
- 375 max students per grade
- 1500 Students for a school size
- 37 teaching stations available

TYPE E CAPACITY

- Using the average of 25 students per classroom
- 450 max students per grade
- 1800 Students for a school size
- 44 teaching stations available

TYPE F CAPACITY

- Using the average of 25 students per classroom
- 525 max students per grade
- 2100 Students for a school size
- 52 teaching stations available

School Room	Category Type	Room Square Feet	Type A Capacity (600) # of Rooms	Type A Capacity (600) Total Square Feet	Type B Capacity (900) # of Rooms	Type B Capacity (900) Total Square Feet	Type C Capacity (1,200) # of Rooms	Type C Capacity (1,200) Total Square Feet	Type D Capacity (1,500) # of Rooms	Type D Capacity (1,500) Total Square Feet	Type E Capacity (1,800) # of Rooms	Type E Capacity (1,800) Total Square Feet	Type F Capacity (2,100) # of Rooms	Type F Capacity (2,100) Total Square Feet
English classrooms	Core Classrooms	700	4	2,800	6	4,200	8	5,600	9	6,300	11	7,700	13	9,100
Math classrooms	Core Classrooms	700	3	2,100	4	2,800	6	4,200	7	4,900	8	5,600	-9	6,300
Social S. classrooms	Core Classrooms	700	3	2,100	4	2,800	6	4,200	7	4,900	8	5,600	-9	6,300
Foreign language classroom	Core Classrooms	700	2	1,400	3	2,100	4	2,800	5	3,500	5	3,500	-6	4,200
Science/lab classrooms	Core Classrooms	1400	3	4,200	4	5,600	6	8,400	6	8,400	8	11,200	-10	14,000
Resource classrooms	Core Classrooms	750	2	1,500	2	1,500	3	2,250	3	2,250	4	3,000	-5	3,750
Subtotal of Core Classrooms	--	--	--	**14,100**	--	**19,000**	--	**27,450**	--	**30,250**	--	**36,600**	--	**43,650**
Health classrooms	General Classrooms	800	1	800	1	800	2	1,600	2	1,600	3	2,400	4	3,200
2D-Art lab	General Classrooms	1400	1	1,400	1	1,400	1	1,400	--	1,400	--	1,400	--	1,400
3D-Art lab	General Classrooms	1400	0	0	0	0	1	1,400	--	1,400	--	1,400	--	1,400
Art storage and kiln room	General Classrooms	400	1	400	1	400	1	400	--	400	--	400	--	400
Art classroom	General Classrooms	700	0	0	0	0	0	--	--	700	--	700	--	700
Darkroom	General Classrooms	340	0	0	0	0	0	--	--	340	--	340	--	340
Vocal music classroom	General Classrooms	1,000	--	1,000	--	1,000	--	1,000	--	1,200	--	1,200	--	1,400
Vocal music storage	General Classrooms	200	--	200	--	200	--	200	--	200	--	250	--	300
Drama classroom	General Classrooms	1800	0	0	0	0	1	1,800	--	1,800	--	1,800	--	1,800
Instrumental band classroom	General Classrooms	1600	--	1,600	--	1,600	--	1,800	--	1,800	--	1,800	--	2,000
Band storage	General Classrooms	475	--	475	--	475	--	475	--	475	--	500	--	500
Technology Education	General Classrooms	2600	1	2,600	2	5,200	2	5,200	2	5,200	3	7,800	3	7,800
Business Information Technology	General Classrooms	1200	1	1,200	1	1,200	1	1,200	2	2,400	2	2,400	2	2,400
Agricultural Education	General Classrooms	2400	1	2,400	2	4,800	2	4,800	2	4,800	2	4,800	2	4,800
Greenhouse	General Classrooms	1600	1	1,600	1	1,600	1	1,600	1	1,600	2	3,200	2	3,200
Career Connections	General Classrooms	1200	1	1,200	1	1,200	1	1,200	1	1,200	1	1,200	2	2,400
Family Consumer Sciences	General Classrooms	2400	1	2,400	2	4,800	2	4,800	2	4,800	2	4,800	2	4,800
Early Childhood Education	General Classrooms	2400	1	2,400	2	4,800	2	4,800	2	4,800	2	4,800	2	4,800
Culinary Arts	General Classrooms	2400	1	2,400	2	4,800	2	4,800	2	4,800	2	4,800	2	4,800
Fashion and Interor Design	General Classrooms	2400	1	2,400	1	2,400	1	2,400	2	4,800	2	4,800	2	4,800
Health and Medical Sciences	General Classrooms	2600	1	2,600	1	2,600	1	2,600	2	5,200	2	5,200	2	5,200
Marketing	General Classrooms	1200	1	1,200	1	1,200	1	1,200	1	1,200	2	2,400	2	2,400
Technical Drawing and Design	General Classrooms	1600	1	1,600	1	1,600	1	1,600	1	1,600	2	3,200	2	3,200
Trade and Industrial Education	General Classrooms	2600	1	2,600	1	2,600	1	2,600	2	5,200	2	5,200	2	5,200
Communications, Welding, Elec.	General Classrooms	2100	1	2,100	1	2,100	1	2,100	2	4,200	2	4,200	2	4,200
Cosmetology	General Classrooms	1700	1	1,700	1	1,700	1	1,700	1	1,700	1	1,700	1	1,700
Speech classroom	General Classrooms	400	1	400	1	400	--	400	--	400	--	400	--	400
Math lab	General Classrooms	600	1	600	1	600	--	600	--	600	--	600	--	600
Reading lab/ESL lab	General Classrooms	600	1	600	2	1,200	2	1,200	3	1,800	-3	1,800	4	2,400
In-school suspension classroom	General Classrooms	600	--	600	--	600	--	600	--	600	--	600	--	600

School Room	Category Type	Room Square Feet	Type A Capacity (600) # of Rooms	Type A Capacity (600) Total Square Feet	Type B Capacity (900) # of Rooms	Type B Capacity (900) Total Square Feet	Type C Capacity (1,200) # of Rooms	Type C Capacity (1,200) Total Square Feet	Type D Capacity (1,500) # of Rooms	Type D Capacity (1,500) Total Square Feet	Type E Capacity (1,800) # of Rooms	Type E Capacity (1,800) Total Square Feet	Type F Capacity (2,100) # of Rooms	Type F Capacity (2,100) Total Square Feet
Subtotal of General Classrooms	--	--	--	**38,475**	--	**51,275**	--	**55,475**	--	**68,215**	--	**76,090**	--	**79,140**
Principal's office	Administrative Core Facilities	200	1	200	1	200	1	200	1	200	1	200	1	200
Principal's Secretary	Administrative Core Facilities	100	1	100	1	100	1	100	1	100	1	100	1	100
Assistant Principal's office(s)	Administrative Core Facilities	150	1	150	1	150	1	150	2	300	3	450	3	450
Secretaries office(s)	Administrative Core Facilities	60	1	60	2	120	2	120	3	180	3	180	4	240
Guidance office(s)	Administrative Core Facilities	100	2	200	3	300	4	400	5	500	6	600	6	600
General Waiting Reception	Administrative Core Facilities	--	--	200	--	300	--	400	--	500	--	600	--	700
Career Center	Administrative Core Facilities	--	--	200	--	300	--	400	--	400	--	400	--	500
Guidance Reception	Administrative Core Facilities	--	--	100	--	150	--	200	--	250	--	250	--	250
Technology Resource	Administrative Core Facilities	100	1	100	2	200	2	200	3	300	3	300	3	300
Mailroom	Administrative Core Facilities	--	--	200	--	250	--	250	--	250	--	250	--	300
Books, supplies, storage	Administrative Core Facilities	--	--	500	--	600	--	700	--	800	--	900	--	1,000
Vault record storage	Administrative Core Facilities	200	1	200	1	200	1	200	1	200	1	200	1	200
Health suite	Administrative Core Facilities	--	--	500	--	500	--	500	--	550	--	550	--	600
General office toilet(s)/closet	Administrative Core Facilities	--	--	100	--	100	2	150	2	150	2	150	2	150
Workroom	Administrative Core Facilities	--	--	200	--	250	--	300	--	300	--	300	--	350
Teacher team planning rooms	Administrative Core Facilities	--	3	400	3	600	3	800	3	1,000	3	1,200	3	1,400
Teacher lounge	Administrative Core Facilities	--	--	150	--	200	--	250	--	300	--	350	--	400
General conference room	Administrative Core Facilities	--	--	200	--	200	--	200	--	250	--	250	--	250
Student commons	Administrative Core Facilities	--	--	1,500	--	1,500	--	2,000	--	2,000	--	2,000	--	2,000
Subtotal of Administrative Core Facilities	--	--	--	**5,260**	--	**6,220**	--	**7,520**	--	**8,530**	--	**9,230**	--	**9,990**
Self-contained special education classrooms	Special Education Classrooms	750	2	1,500	3	2,250	4	3,000	5	3,750	6	4,500	6	4,500
Resource classrooms	Special Education Classrooms	400	1	400	1	400	1	400	2	800	2	800	2	800
Testing room	Special Education Classrooms	100	1	100	1	100	1	100	--	100	1	100	1	100
Psychologist office	Special Education Classrooms	100	1	100	1	100	1	100	1	100	1	100	1	100
itinerant offices	Special Education Classrooms	100	2	200	2	200	3	300	4	400	5	500	6	600
Conference room	Special Education Classrooms	150	1	150	1	150	1	150	1	150	1	150	1	150
Subtotal for Special Education Classrooms	--	--	--	**2,450**	--	**3,200**	--	**4,050**	--	**5,300**	--	**6,150**	--	**6,250**
Technology main head-end room	Auxillary Support Facilities	--	--	600	--	600	--	600	--	700	--	700	--	700
Dining room (3) seatings	Auxillary Support Facilities	--	--	2,400	--	3,600	--	4,800	--	6,000	--	7,200	--	8,400
Kitchen and serving areas (1/3 enrollment x 12 sq.ft.)	Auxillary Support Facilities	--	--	1,700	--	2,100	--	2,300	--	2,500	--	2,700	--	2,900
Librarian office(s)	Auxillary Support Facilities	150	1	150	2	300	2	300	2	300	2	300	2	300
Staff, library work room	Auxillary Support Facilities	--	--	200	--	200	--	300	--	300	--	300	--	300
Reading room (1000 SF + 3 x enrollment)	Auxillary Support Facilities	--	--	2,800	--	3,700	--	4,600	--	5,500	--	6,400	--	7,300
Library multiuse/electronic classroom	Auxillary Support Facilities	--	--	120	--	120	--	150	--	150	--	200	--	200
Audio visual storage	Auxillary Support Facilities	--	--	150	--	200	--	300	--	400	--	500	--	600

School Room	Category Type	Room Square Feet	Type A Capacity (600) # of Rooms	Type A Capacity (600) Total Square Feet	Type B Capacity (900) # of Rooms	Type B Capacity (900) Total Square Feet	Type C Capacity (1,200) # of Rooms	Type C Capacity (1,200) Total Square Feet	Type D Capacity (1,500) # of Rooms	Type D Capacity (1,500) Total Square Feet	Type E Capacity (1,800) # of Rooms	Type E Capacity (1,800) Total Square Feet	Type F Capacity (2,100) # of Rooms	Type F Capacity (2,100) Total Square Feet
Gymnasium	Auxillary Support Facilities	--	--	10,000	--	10,000	--	10,000	--	10,000	--	10,000	--	16,000
Auxiliary gymnasium	Auxillary Support Facilities	--	--	--	--	--	--	--	--	5,000	--	5,000	--	5,000
Locker/shower/dressing	Auxillary Support Facilities	2500	2	5,000	2	5,000	2	5,000	2	5,000	2	5,000	2	5,000
Physical education offices	Auxillary Support Facilities	100	2	200	2	200	4	400	4	400	4	400	4	400
Physical education storage (interior)	Auxillary Support Facilities	800	--	800	--	800	--	800	--	800	--	800	--	800
Physical education storage (outside)	Auxillary Support Facilities	500	--	500	--	500	--	500	--	500	--	500	--	500
* Auditorium	Auxillary Support Facilities	--	--	1,200	--	1,800	--	2,400	--	3,000	--	3,600	--	4,200
* Stage storage lobby dressing rooms	Auxillary Support Facilities	4000	--	4,000	--	4,000	--	4,000	--	4,000	--	4,000	--	4,000
Subtotal for Auxillary Support Facilities	**--**	**--**	**--**	**29,820**	**--**	**33,120**	**--**	**36,450**	**--**	**44,550**	**--**	**47,600**	**--**	**56,600**
All Subtotals	**--**	**--**	**--**	**90,105**	**--**	**112,815**	**--**	**130,945**	**--**	**156,845**	**--**	**175,670**	**--**	**195,630**
Halls, toilets, HVAC @ 38%	--	--	--	34,240	--	42,870	--	49,759	--	59,601	--	66,755	--	74,339
GRAND TOTAL	**--**	**--**	**--**	**124,345**	**--**	**155,685**	**--**	**180,704**	**--**	**216,446**	**--**	**242,425**	**--**	**269,969**
Sq. ft. per student	**--**	**--**	**--**	**207**	**--**	**173**	**--**	**151**	**--**	**144**	**--**	**135**	**--**	**129**

APPENDIX F: ELEMENTARY SCHOOL CAPACITY WORKSHEET

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

Division:
School:
Site Size:

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

Permanent Spaces	No. of Teaching Stations		Capacity based on SOA* Recommended Class Size: Sudents per Teaching Static	Capacity		Capacity based on Division PTR***: Per Teaching Station	Capacity
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		0	x		0
Non Capacity Spaces						TOTAL	0
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			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

APPENDIX G: MIDDLE SCHOOL CAPACITY WORKSHEET

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

Division:
School:
Site Size:

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

Permanent Spaces	No. of Teaching Stations	Capacity based on SOA* Recommended Class Size: Per Teaching Station	Capacity	Capacity based on Division PTR**: Per Teaching Station	Capacity
English Classrooms:		x 24	0	x	0
Homeroom Classrooms: (Social Studies, Math, or Science)		x 25	0	x	0
Self-Contained Exceptional Children Classrooms:		x 8	0	x	0
Other (specify) _____		x	0	x	0
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:					
			Maximum Capacity		Maximum Capacity
TOTAL	0		0		0
			Additional Capacity		Additional Capacity
Relocatable Classrooms:		x 25	0	x	0

* Standards of Accreditation
** Pupil Teacher Ratio

APPENDIX H: HIGH SCHOOL CAPACITY WORKSHEET

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

Division:
School:
Site Size:

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

Permanent Spaces	No. of Teaching Stations		Capacity based on SOA* Recommended Class Size: Per Teaching Station	Capacity		Capacity based on Division PTR**: Per Teaching Station	Capacity
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
Non Capacity Spaces							
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
TOTAL							
				Additional Capacity			Additional Capacity
Relocatable Classrooms:	2	x	25	50	x		0

* Standards of Accreditation
** Pupil Teacher Ratio

APPENDIX I: WEB LINKS

Resource	Link
Americans with Disabilities Act	http://www.access-board.gov http://www.ada.gov/
	http://www.arteducators.org/

State Web Links:

Resource	Link
Asbestos Management	http://www.epa.gov/asbestos/pubs/asbestos_in_schools.html
Building Code	http://www.dhcd.virginia.gov/StateBuildingCodesandRegulations/PDFs/2009/Code%20-%20VCC.pdf
Code of Virginia	http://leg1.state.va.us/000/src.htm http://www.ndeo.org/ http://www.thegbi.org
Illuminating Engineering Society	http://www.iesna.org http://www.dhcd.virginia.gov/StateBuildingCodesandRegulations/PDFs/2009/Code%20-%20IBSR.pdf
Library	http://www.ala.org/ http://musiced.nafme.org/
Facilities Clearinghouse	http://www.ncef.org/
Science Teachers Association	http://www.nsta.org
Public Private Education Act	http://dls.state.va.us/PPEA.htm http://dls.virginia.gov/commissions/ppe.htm
School Food	http://www.nfsmi.org
Technology	http://www.doe.virginia.gov/support/technology/edtech_plan/guidelines_resources/edtech_guidelines.pdf http://dls.virginia.gov/groups/ppea/SB1153/FinalChecklist.pdf http://www.usgbc.org/LEED

Resource	Link
Child Care Facilities	http://www.dss.virginia.gov
Public Procurement Act	http://www.eva.state.va.us/dps/Manuals/docs/vppa.htm
Virginia Collaborative for High Performance Schools	http://www.chps.net/virginia
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
VDOE Safety in Science Teaching	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
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/
VDOE Recycling Memo	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
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:

Resource	Link
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

Resource	Link
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/

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