



Educational Specifications ■ Alexandria City Public Schools

JUNE 2016

PRE-KINDERGARTEN CENTER



PLANNING CONCEPTS ///

The following sections elaborate on the planning and design concepts for a prototypical Pre-Kindergarten Center with an enrollment of approximately 360 students. ACPS is considering implementing Pre-Kindergarten Centers through tenant fit-outs of commercially-available space in the city. The program expects to grow over time and require additional facilities. These facilities will be distributed across the city to serve its growing population. Current planning anticipates an initial facility of approximately 20 classrooms to serve the immediate need for early childhood education space. Over the next five years, separate stand-alone facilities may be established to provide a majority of the City's growing early childhood needs. Architects and designers should be mindful that the following sections are a guideline and a tool to advance the design of a Pre-Kindergarten Center. These rules should be vetted throughout the schematic design phase by coordinating with the professional planning staff of ACPS and its stakeholders.

capacity

Every school project begins with establishing the number of students who will be served when the project is complete or the 'capacity'. Capacity is the primary driver in determining the number, type, and size of the spaces in the new or modernized building.

For the purposes of this planning document, this educational specification assumes Pre-Kindergarten Center capacities will range between 320 and 400 students. This prototype is based on a 20-classroom or 400-student facility, for illustration only. Other Pre-Kindergarten Centers, located in Richmond, serve between 275 and 850 students.

Simply defined, school capacity is a product of the number of classrooms at a school and the student stations assigned to each room type. Only classrooms that are 600 square feet or more with a teacher and students regularly assigned to the space count toward full-time capacity. For early childhood education, small instructional spaces and specialized labs including art, music, or resource are not part of the capacity calculation. It is possible for a school's capacity to change in minor ways from year to year based on average class sizes (determined by the budget) or changes in the number and type of programs.

Currently, the ACPS early childhood budgeted class size cap is not to exceed 16 students in Virginia Preschool Initiative ('VPI') classrooms without permission from the superintendent. The maximum class size in VPI classes is 18 students, with permission. Head Start requires that no more than 17 students be present in double-session classes and no more than 20 students be present in regular-session classes.

Figure 3.1 on the opposite page identifies class sizes for school divisions surrounding the City of Alexandria in addition to those recommended by the code of Virginia. The classroom size limits enunciated by the ACPS school board are generally in line with the regional averages.

Regional Benchmarks //

Class size caps establish a maximum desirable class size but the average class size in ACPS is lower. The lower class sizes are more in keeping with the division's long-range policies and goals.

FIG. 3.0 // **CLASS SIZE**

ROOM TYPE	RANGE OF CLASS SIZE	TARGET FOR PLANNING
VPI	16-18	16
Head Start	17-20	18
Specialized Instruction	6-12	10

FIG. 3.1 // **REGIONAL BENCHMARKS**

SPACE	ENROLLMENT			RECOMMENDED / AVERAGE CLASS SIZE PER GRADE								
	Pre-K (total) ¹	H.S. ²	K-5th ¹	Pre-K	H.S.	VPI	K	1	2	3	4	5
Arlington ⁴	987	204	12,577	23	20	18	24	24	26	26	27	27
Fairfax ⁵	3,506	1,635	83,624	NP	20	18	22	21	21	21	23	23
Loudoun ⁶	1,052	109	34,919	NP	20	18	22	22	22	22	22	22
Prince William ⁷	1,205	397	40,057	NP	20	18	24	24	24	24	25	25
District of Columbia ⁸	5,615	5,952	22,116	18	20	---	20	20	20	23	23	23
Average	2,473	1,659	38,659	21	20	18	22	22	23	23	24	24
United States ⁹	1,336,000	824,947	22,909,000	22	20	---	22	22	22	22	22	22
Alexandria	275	-----	7,918	18	20	16	20	22	22	24	24	24

Note: Pre-K numbers from the Department of Education include students enrolled in Virginia Preschool Initiative (VPI) classes. They do not include Head Start students, unless those students are enrolled in the public school district as part of their Head Start program.

¹Virginia Department of Education Fall Membership Data, 2015-2016

²Office of Head Start - Program Information Report (PIR) Enrollment Statistics Report - 2015

³Virginia Preschool Initiative Guidelines for the Virginia Preschool Initiative Application, 2016-2017

⁴<http://www.apsva.us/cms/lib2/VA01000586/Centricity/Domain/11/2014-15%20class%20size%20report.pdf>

⁵Fairfax County Public Schools Capacity and Utilization Dashboard, <http://www.fcps.edu/fts/dashboard/presentation1.html>

⁶Loudoun County Public Schools FY 16 Appropriated Budgets

⁷<http://www.fcps.edu/fts/budget/wabe/2014.pdf>

⁸Orr Elementary School Educational Specifications, September 2015

⁹National Center for Education Statistics, Projections of Educational Statistics to 2022 (2011), Schools and Staffing Survey (2011)

For the purposes of planning, the following class sizes should be used to calculate a planning capacity. It is important to size all classrooms to accommodate the maximum number of students even if the average is used for capacity planning. This allows for program flexibility and interchangeable uses year to year.

Once a capacity is proposed, many other areas of the building are sized to support the enrollment. The number of small group rooms, art and music labs, and support staff offices are based on staffing formulas. The size of the core areas such as library, dining and food services, physical education facilities, and site amenities are based on local and national benchmarks related to size.

The following chart (FIG.3.2) summarizes the breakdown of the proposed capacity for a prototype 360-student Pre-Kindergarten Center. The balance of this document outlines

the spaces for this sample prototype.

Per the Guidelines for School Facilities in Virginia’s Public Schools, the goal of the optional guidelines developed by the Virginia Department of Education is:

“... to provide recommendations that will help local school divisions ensure that their school sites and facilities support the principles of good teaching and learning and promote sound educational programs.”

The guidelines developed here by the project team respond to or exceed the Virginia State guidelines and recommendations. It is the responsibility of the architect to ensure the plans meet or exceed the current state guidelines at the time of actual project design in the event the state guidelines have changed and this document has not yet been updated to reflect those changes.

CORE ACADEMIC TOTAL	# OF CLASSROOMS	CAPACITY	TOTAL
Outdoor Area (when available)	1	0	0
Shared Classroom Toilet	12	0	0
Shared Classroom Storage	12	0	0
Shared Student Project Storage	4	0	0
Resource Classroom	3	0	0
Sensory Classroom	1	0	0
Workroom/Teacher Office	2	0	0
Pre-Kindergarten Classroom	20	18	360
Multipurpose/ELA	2	0	0
Total			360

FIG. 3.2 // **CLASSROOM CAPACITY**



Educational Specifications ■ Alexandria City Public Schools

JULY 2014

ELEMENTARY SCHOOL



PLANNING CONCEPTS ///

The following section provides executive summary level descriptions of the capacity analysis and planning concepts of each program space within an ACPS school facility. Detailed descriptions of each space are included later in the document.

capacity

Every school project begins with establishing the number of students that will be served when the project is complete or the 'capacity'. Capacity is the primary driver in determining the number, type, and size of the spaces in the new or modernized building.

There is no ideal school size. Schools in ACPS range from 373 students at Cora Kelly Elementary School to 874 students at John Adams Elementary School. Though the division does not have a preferred school size, for the purposes of planning, this educational specification assumes that school capacities will range between 450 students and 800 students. **This prototype is based on 700 students for illustration only.** Nationally, the average school size is 600 (540 in Virginia) with smaller schools in urban cores. The Division has been provided with an active, editable spreadsheet that will allow planners and architects to develop facilities lists for a range of schools based on the capacity and unique program needs in real time.

Simply defined, school capacity is a product of the number of classrooms at a school and the student stations assigned to each room type. Only classrooms that are 600 square feet or more with a teacher and students regularly assigned to the space are counted toward full time capacity. For elementary

schools, small instructional spaces and specialized labs including art, music, or resource are not part of the capacity calculation. It is possible for a school's capacity to change in minor ways from year to year based on average class sizes (determined by the budget) or changes in the number and type of programs.

Currently, the ACPS budgeted class size caps range from 22 in kindergarten to 26 in 5th grade. Figure 3.1 on the following page identifies class sizes for school divisions surrounding the City of Alexandria in addition to those recommended by the code of Virginia. The classroom size limits enunciated by the ACPS School Board are generally in line with the regional averages.

Class size caps establish a maximum desirable class size but the average class size in ACPS is lower. By applying actual school staffing to the current enrollment it can be determined that for most ACPS schools, class sizes range from 20- 24 in grades kindergarten through 5th grade. The lower class sizes are more in keeping with the division's long range policies and goals. For the purposes of planning the following class sizes will be used to calculate a 'design' capacity. It is important to size all classrooms to accommodate the maximum number of students even if the average is used for capacity planning.

Once a capacity is proposed, many other areas of the building are sized to support the enrollment. The number of small group rooms, art and music labs, and support staff offices are based on staffing formulas. The size of the core areas such as media center, dining and food services,

FIG. 3.0 // **CLASS SIZE**

ROOM TYPE	RANGE OF CLASS SIZE	TARGET FOR PLANNING
Pre-K	16-20	18
Kindergarten	20-22	20
Primary Grades	22-24	22
Intermediate	24-26	24
Special Needs	6-12	10

FIG. 3.1 // **REGIONAL BENCHMARKS**

SPACE	ENROLLMENT						RECOMMENDED OR AVERAGE CLASS SIZE PER GRADE								SF / STUDENT	
	K-5	6-8	Pre-K	HS	VPI	PS	K	1	2	3	4	5	6	7		8
Arlington ₁	13,277	4,860			544		24	24	25	25	27	27				118/ES 157/MS
Fairfax ₂	98,264	27,872					22	22	22	21	22	22	23			
Loudoun ₃	33,574	16,512		99		620	22	22	22	22	22	22	21.6	22	22	
Prince William ₄	39,538	19,473				505	23.8	23.3	23.3	23.3	23.3	23.3	30.3	30	30	
District of Columbia ₅	21,348	7,018	3,368			2,197										
Code of Virginia ₆							24	24	24	24	25	25	25			
Average	41,200	15,147	3,368	99	544	1,107	23	23	23	23	23	23	25	26	26	
United States ₇	pk-8 2009 avg	34,418					23.7	23.7	23.7	23.7	23.7	23.7	23.7	24	24	
Alexandria ₈	7,616	2,597					22	24	24	26	26	26				

*Code of Virginia 22.1-253.14:2 C states: "24 to one in kindergarten with no class being larger than 29 students; if the average daily membership in any kindergarten class exceeds 24 pupils, a full-time teacher's aide shall be assigned to the class; (ii) 24 to one in grades one, two, and three in any kindergarten class exceeds 24 pupils, a full-time teacher's aide shall be assigned to the class; (ii) 24 to one in grades one, two, and three with no class being larger than 30 students; (iii) 25 to one in grades four through six with no class being larger than 35 students."

1- www.apsva.us
 2- www.fcps.edu/fts/dashboard/
 3- www.lcps.org
 4- pwcs.schoolfusion.us
 5- dcps.dc.gov
 6- www.doe.virginia.gov
 7- nces.ed.gov
 8- www.acps.k12.va.us

physical education facilities, and site amenities are based on local and national benchmarks related to size.

The following chart (figure 3.2) summarizes the breakdown of the proposed capacity for a prototype 700 student elementary school. The balance of this document outlines the spaces for this sample prototype

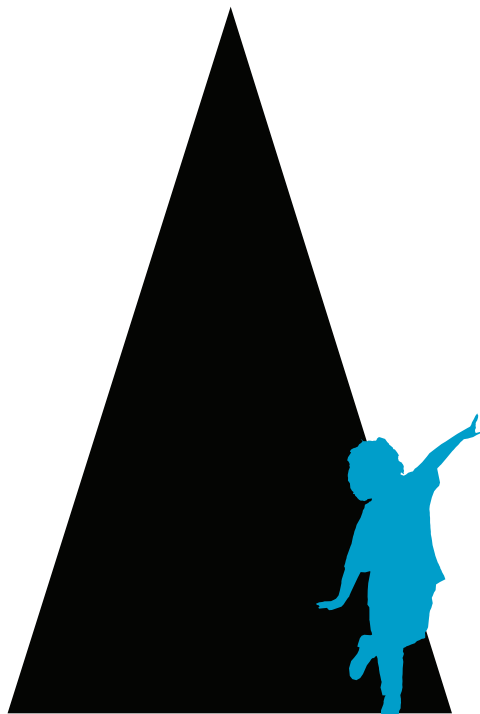
Per the Guidelines for School Facilities in Virginia’s Public School, the goal of the optional guidelines developed by the Virginia Department of Education is

“ ... to provide recommendations that will help local school divisions ensure that their school sites and facilities support the principles of good teaching and learning and promote sound educational programs. ”

The guidelines developed here by the project team respond to or exceed the Virginia State guidelines and recommendations. It is the responsibility of the architect to ensure their plans meet or exceed the current state guidelines at the time of actual project design in the event the state guidelines has changed and this document has not yet been updated to reflect those changes

GRADE	# OF CLASSROOMS	CAPACITY	TOTAL
Pre-K / Pre-S	5	18	90
Kindergarten	5	20	100
Grade 1	5	22	110
Grade 2	5	22	110
Grade 3	4	25	100
Grade 4	4	25	100
Grade 5	4	25	100
Total	32		710

FIG. 3.2 // **CLASSROOM CAPACITY**



Educational Specifications ■ Alexandria City Public Schools

JULY 2014

MIDDLE SCHOOL



PLANNING CONCEPTS ///

The following section provides executive summary level descriptions of the capacity analysis and planning concepts of each program space within an ACPS school facility. Detailed descriptions of each space are included later in the document.

capacity

Every school project begins with establishing the number of students that will be served when the project is complete or the 'capacity'. Capacity is the primary driver in determining the number, type, and size of the spaces in the new or modernized building.

Middle school capacities in Virginia typically range between 600 and 900 students. For the purposes of planning, this educational specification is based on a capacity of 1200 students due to the current and projected sizes of Alexandria's middle schools. This prototype for illustration only. The Division has been provided with an active, editable spreadsheet that will allow planners and architects to develop facilities lists for a range of schools based on the capacity and unique program needs in real time.

Simply defined, middle school capacity is a product of the number of classrooms at a school and the student stations assigned to each room type. Only classrooms that are 600 square feet or more with a teacher and students regularly assigned to the space are counted toward full time capacity.

By applying actual school staffing to the current enrollment it can be determined that for most ACPS schools, class sizes range from 20 in the core classes to 25 in the encore and

physical education classes through the middle school grades. This is somewhat lower than State of Virginia guideline which is an average of 25:1 across all subjects.

In recent years ACPS, concerned about the size of its middle schools but having inherited large school buildings, has operated multiple schools inside one middle school building. In 2013, for example, Hammond Middle School housed three separate schools of equal size. Classrooms and administration were separated by wing and/or floor, while core spaces were separated by time allotment. Beginning in 2014, all middle school buildings will be operated in a more traditional grade level multi-team environment. In this setting teams of teachers (English, Math, social studies, and science) together teach the same group of students (100-110). The team usually has the same planning period so they can collaborate and create an interdisciplinary curriculum customized to their students' needs. This strategy, which has proven effective for adolescents, makes it difficult to 'float' teachers. Most teachers in this setting have their own classrooms all periods of the day. However, since teachers usually teach 5 out of 7 periods (plan one and lunch one), the overall utilization of the building in any given period is 71-80%. For this educational specification maximum capacity will be factored at 80% utilization.

Once a capacity is proposed, many other areas of the building are sized to support the enrollment. The number of small group rooms, art and music labs, and support staff offices are based on staffing formulas. The size of the core areas such as media center, dining and food services,

physical education facilities, and site amenities are based on local and national benchmarks related to size.

The following chart (figure 3.2) summarizes the breakdown of the proposed capacity for a prototype 1200 student middle school. The balance of this document outlines the spaces for this sample prototype.

Per the Guidelines for School Facilities in Virginia’s Public School, the goal of the optional guidelines developed by the Virginia Department of Education is

“ ... to provide recommendations that will help local school divisions ensure that their school sites and facilities support the principles of good teaching and learning and promote sound educational programs. ”

The guidelines developed here by Studio27, Brailsford & Dunlavey, and Alexandria City Public Schools respond to or exceed the Virginia State guidelines and recommendations. It is the responsibility of the architect to ensure their plans meet or exceed the current state guidelines at the time of actual project design in the event the state guidelines have changed and this document has not yet been updated to reflect those changes

GRADE	# OF CLASSROOMS	CAPACITY	TOTAL
Academic Classrooms (four teams per grade)	36	20	720
Science	12	20	240
Foreign Language / Electives	7	20	140
CTE	3	20	60
Visual Art	1	25	25
Performing Arts (Music Drama)	4	25	100
Physical Education	7	25	175
Special / Alternative (Reading, ELL)	3	15	45
Total	73		1505
@ 80% Utilization			1208

FIG. 3.2 // **CLASSROOM CAPACITY**

program area summaries

The following section provides executive level narrative summaries of the core program space areas. Detailed descriptions of each space within a program area is provided later in this document.

Main Office-Reception/Administration/Student Services //

As students, families and other visitors enter an ACPS building, it is important that they are greeted with an inviting and well-organized front office suite. The primary administrative offices, guidance services, and adult restrooms should be located in this centralized area at the main entrance to the school.

Visitor parking should be located by the front door. Signage and building design should clearly indicate the school entrance. Immediately upon entry, visitors should be directed to the Welcome Center/main office. For security reasons, no visitor should be able to enter the classroom areas without being checked through the reception area. See Security section for additional suggestions.

A digital information kiosk in the lobby may provide real-time data on the school's administrative and building operations. This may include information on the buildings energy use, water use, and the latest recycling rates.

Health Services //

Health Services will be located near the main entrance to the school. Health Services is responsible for providing health related amenities to all students and staff. The space should be organized to provide appropriate space for:

- health screenings
- illness or injury treatment
- meetings and trainings
- prescription medication storage and distribution
- secure records keeping
- private consultations
- rest and recovery units
- waiting area.

In addition these basic elements, middle school health centers should include space to support provide partner/provider operated activities such as:

- full medical evaluations
- full laboratory services
- dental services
- radiology services
- pharmaceutical services.

Cooperative and collaborative wellness centers are desired and operated through community partnerships.

If the school division elects to provide a school based health center (SBHC), the architect should work with the division's officials to ensure full space programming requirements are met according to federal regulatory standards. This center should be adjacent to the school clinic but implementation of a full SBHC will require significant advance coordination by ACPS.

Core Instructional Spaces //

The basic organizational structure of the school should reflect a cluster concept and should consist of general

High School Educational Specifications for

**Alexandria City Public Schools
1600 Student Capacity Prototype**

FINAL | Jan. 2017

AREA	Quantity of High Schools	Largest	Smallest	Average	Ideal
Arlington County ¹	4	2,193	108	1,445	2,200*
Fairfax County ²	25	2,782	1,755	2,190	2,500
Loudoun County ³	9	2,157	960	1,531	1,800
Prince William ⁴	11	2,897	941	2,305	2,800
Prince George's ⁵	22	2,573	775	1,543	1,700
Montgomery ⁶	15	2,790	1,202	1,790	1,500
District of Columbia ⁷	28	1,696	146	496	NP
Average	16	2,441	841	1,614	2,083
USA	26,407	9,010	NP	854	-
Alexandria	1				1,600

Notes:

np = not provided

High Schools include comprehensive public schools serving grades 9-12

**In Arlington, 2,200 students is the maximum high school facility size*

Sources:

High school enrollment information is from National Center for Education Statistics Common Core Data.

¹*Arlington Facilities and Student Accommodation Plan, FY 2016-25*

²*Fairfax County Public Schools Strategic Facilities Plan, 2012*

³*Loudoun County Public Schools FY 2016 - FY 2020 Capital Improvement Plan*

⁴*Prince William County Public Schools - Regulations*

⁵*Prince George's County Public Schools Educational Specification Prototypes, 2015*

⁶*Montgomery County Public Schools Educational Facilities Master Plan and FY 2015-2020 Capital Improvement Program*

FIGURE 5: Regional Benchmarks

In alignment with other school systems in the region, high schools in the ACPS system will have a student capacity no smaller than 1,400 and no larger than 1,800. For the purposes of planning, this educational specification is illustrative of a 1,600-student school and intended to be a planning tool. The ACPS Division has an active, editable spreadsheet that will allow planners and architects to develop facility needs for a range of schools based on the capacity and program desires at the time of planning a new high school facility.

Simply defined, high school capacity is a product of the number of classrooms at a school and the student stations assigned to each room type. Only classrooms that are 600 square feet or more with a teacher and students regularly assigned to the space count toward full-time capacity. Capacity-driving classrooms generally include spaces such as core instruction, art classrooms, music classrooms, science and lab classrooms, gymnasiums, performing art spaces, CTE spaces, and resource rooms. Due to year-over-year changes in classroom use, it is possible for a school's capacity to change in minor ways each year. Other factors such as the ACPS Division-defined planning caps (determined by the budget) also impact the overall capacity of the facility.

By applying actual school staffing to the current enrollment it can be determined that for the ACPS high school, class sizes range from 25 to 30 students in all core classes, with a range of 30 to 35 in the encore and physical education classes. This is in alignment with the Virginia Board of Education Standards of Quality guidelines:² However, class size caps are often used to further advance educational outcomes, and ACPS desires to maintain average class sizes near 25 students per class in core academics.

The current high school operates on a block schedule with alternating classes every other day. This unique block schedule allows students to take 3.5 classes a day, where the first class of the day is half the length of a regular class and repeats each day of the week. Teachers usually teach six out of seven periods of the day, giving the building a utilization of approximately 86%. For this educational specification, the maximum capacity will be factored at 86% utilization and at this rate, the facility will have space to accept for future growth without being too large to support the current population.

For the purposes of planning, the following class sizes should be used to calculate a planning capacity. It is important to size all classrooms to accommodate the maximum number of students indicated rather than the target that is used for capacity planning. This allows for program flexibility and interchangeable uses year to year.

Once a capacity is proposed, many other areas of the building are sized to support the enrollment based on ratios and national benchmarking best practices. The number of small group rooms, art rooms, music labs, and support staff offices is based on student-to-teacher ratios. The size of the core areas such as library, dining and food services, physical education facilities, and site amenities is based on local and national benchmarks as they relate to size. The balance of this document outlines the functionality and program of spaces for this sample prototype.

Per the Guidelines for School Facilities in Virginia's Public Schools, the goal of the optional guidelines developed by the Virginia Department of Education is:

"...to provide recommendations that will help local school Divisions ensure that their school sites and facilities support the principles of good teaching and learning and promote sound educational programs."

The guidelines developed here by the project team respond to, or exceed, the Virginia State guidelines and recommendations. It is the responsibility of the architect to ensure the plans meet or exceed the current state

² <http://www.doe.virginia.gov/boe/quality/>

guidelines at the time of actual project design in the event the state guidelines have changed and this document has not yet been updated to reflect those changes.

Core Academic Spaces	Number of Classrooms	Capacity	Total
English	11	25	275
Math	11	25	275
Science Labs	11	25	275
Social Sciences	11	25	275
Economics	3	25	75
World Language	6	25	150
PE (Full Court Gym, Aux. Gym, & Fitness)	3	30	90
Health	3	30	90
Human Growth & Development	3	30	90
Fine Arts (3D, 2D)	3	25	75
CTE	4	30	120
Other CTE Rooms	4	30	120
Electives	0	30	0
		73	Building Capacity
		*Student Capacity	
			1910
			1662

*Student Capacity assumes an efficiency rate of 87% or one planning period out of seven periods, per classroom

Room Type	Class Size Range	Target for Planning
Core Capacity	25 - 30	25
Electives/CTE	25 - 35	30
Specialized Instr.	6 - 12	10

FIGURE 6: Class Size and Classroom Capacity

PROGRAM AREA SUMMARIES

The following section provides executive level narrative summaries of the core program space areas.

MAIN OFFICE-RECEPTION / ADMINISTRATION / STUDENT SERVICES