

3 Establish Standards

Prior to the study team's assessment of the elementary and middle schools, standards were developed for:

- Facility, including building material, systems and site
- Educational specifications for elementary, middle and pre-school

The standards developed served two purposes:

- A comparison benchmark for assessment of the existing buildings
- A guide for future space planning by the Newton School Department

Facility Standards

Facility standards were developed to reflect the preferred materials and systems to be used at Newton's schools. The School Committee, Superintendent, and individuals from Newton Public Buildings Department and the School Facilities Department were involved in setting the standards for Newton. Preliminary standards were reviewed and revised to ensure conformance to current Newton School Department preferences. The materials and systems specified for Newton school buildings should be durable, easy to maintain, provide energy efficient performance, and be environmentally conscience. The standards for exterior and interior materials, building systems, and site requirements provide a baseline of information to guide future building and renovation projects.

Exterior and interior materials:

- Roof system
- Exterior walls
- Windows, exterior doors and hardware
- Interior walls
- Flooring and ceilings
- Interior doors, hardware and glazing
- Casework and lockers
- Window treatment
- Visual display boards
- Toilet room

Building systems:

- Fire protection
- Plumbing
- Heating, ventilation and air conditioning
- Electrical distribution and emergency service
- Fire alarm, lighting, intercom, etc.

Site requirements:

- Parking and circulation
- Recreation
- Planting
- Security

See **Volume II, Appendix A** for the detailed Elementary and Middle School Standards for Facility, Systems and Site.

Educational Specifications

Educational specifications were developed to reflect Newton's current educational programs and to provide a benchmark to assess the existing school spaces. The educational specifications are comprised of required program spaces, the quantity of spaces and the sizes (square feet) of each space. The School Committee, Superintendent, and key educators were involved in developing the specifications. The educational space standards are based on

the Massachusetts School Building Authority’s educational specifications and Newton’s inclusive program requirements.

Elementary School Educational Specifications

In developing the elementary school specifications, our point of departure has been the document entitled *Educational Program Space Standards and Guidelines: Appendix 1 – Prototype Elementary School Program*, issued in draft form by the Massachusetts School Building Authority on May 19, 2006. This document contains Elementary School Program Guidelines for a prototypical school housing 300 students and a prototypical school housing 600 students that can be summarized as follows:

	300 Students	600 Students
Pre-Kindergarten & Kindergarten	1200 sf each	1200 sf each
Core Classrooms	950 sf each	950 sf each
Self-contained SPED Classroom	950 sf each	950 sf each
SPED Small Group/Resource Room	500 sf each	500 sf each
Art (including storage and workroom)	1150 sf	2300 sf
Music (including practice and ensemble)	1350 sf	2700 sf
Media Center / Library	2020 sf	3310 sf
Gymnasium (including storage & office)	6300 sf	6300 sf
Cafeteria/Multi-purpose Room	2250 sf	4500 sf
Stage	1000 sf	1000 sf
Chair/Table Storage	200 sf	300 sf
Food Prep/Kitchen	1600 sf	1900 sf
Staff Lunch Room	200 sf	300 sf
Teachers Workroom/Lounge	300 sf	450 sf
General Office	1500 sf	1600 sf
Nurse/Health	510 sf	510 sf
Guidance	185 sf	335 sf
General Storage (Books)	400 sf	600 sf
Custodial/Maintenance	1500 sf	1600 sf

These Program Guidelines were discussed with the Long-Range Facilities Study Steering Committee in the light of certain Newton School Committee policies, specifically:

- Elementary school size of no greater than 500 students
- Dedicated After School Classroom in each school
- Food preparation facilities in each school
- Resource Center and a Learning Center for Speech & Language in each school
- Offices and related spaces to house special programs:
 - Reach Program
 - ELL Program
 - Mentor Program
 - Occupational and Physical Therapy Programs
 - Autism Therapy and Observation Program
 - ABA (“Safe Room”) Program
 - School Psychologist
 - MCAS Testing.

In addition, it was felt that the age of the Newton Elementary School plant made it somewhat unrealistic to judge the existing school facilities against these theoretical educational guidelines without making allowance for the fact that very few of Newton’s core classrooms contain 950 sf and none of Newton’s elementary gymnasias come close to the 6300 sf shown in the MSBA guidelines.

The Massachusetts School Building Authority has developed a variable GROSS square foot per student standard that is intended to accommodate the differing needs and economies of scale in smaller and larger enrollment facilities. Gross square feet include the entire building, i.e. walls, corridors, toilets and the program spaces. These standards are reflective of realistic and contemporary educational program goals and are based upon the summation of square foot allocations for each itemized educational space. For the purposes of this study, they can be summarized as follows:

For any school of less than 300 students	180 gsf per student
For a school of approximately 400 students	170 gsf per student
For a school of approximately 500 students	158 gsf per student

In this regard, it is worth noting that these space standards assume a net-to-gross multiple of 1.50, resulting in the following NET square feet per pupil. Net square feet include only the program spaces.

For any school of less than 300 students	120 nsf per student
For a school of approximately 400 students	113 nsf per student
For a school of approximately 500 students	105 nsf per student

We believe that the educational adequacy of Newton’s elementary schools can better be established on the basis of the NET square feet per student rather than the GROSS area per student, primarily due to the fact that few if any of Newton’s elementary schools are as efficient as the suggested net-to-gross multiple would imply.

These discussions led to the development of prototypical educational specifications for Newton’s elementary schools that differ slightly from the MSBA guidelines shown above:

- Core classrooms in existing elementary schools shall be considered acceptable if they contain at least 800 net square feet. For new schools or additions to existing schools, core classrooms shall have at least 850 net square feet.
- For the purposes of establishing the long-range educational adequacy of Newton’s 15 existing elementary schools, it was agreed that modular classrooms, regardless of age or current condition, would not be considered educationally acceptable.
- The recommended size for a gymnasium should be 3000 nsf in a school housing less than 300 students; 4000 nsf in a school housing 400 students and 5000 nsf in a school housing 500 students.
- All schools should have a Cafeteria/Multi-purpose room with Stage ranging from a total square footage of 3000 nsf for schools housing less than 300 students to 3750 nsf for schools housing approximately 500 students.
- Each school should have dedicated Art and Music rooms, with the required storage. The minimum size should be 1150 nsf and these should be increased up to a total of 2100 nsf for Art and 2300 nsf for Music in schools housing approximately 500 students
- Each school should have a dedicated After School Home Base with office and storage facilities. The minimum size should be 1000 nsf and the maximum size should be 1450 nsf.
- With regard to SPED requirements, all schools should have adequate office, meeting and storage space for the following programs and services: Learning Center, Literacy Center, ELL Program, OT/PT Program, Speech and Language Program, the School Psychologist, the School Social Worker, and other special programs as needed.

Newton has various sized elementary schools; in an effort to accommodate this three educational specifications were developed. “Two Unit” refers to two classrooms per grade; “Three Unit” refers to three classrooms per grade, and so on. The preliminary Newton elementary educational specifications may be summarized as follows:

Description of Spaces	Two Unit (252 students)	Three Unit (350 students)	Four Unit (460 students)
Core Classrooms	12 – 10,500	18 – 15,750	24 – 21,000
Art Rooms (including storage, etc.)	1,150	1,150	2,100
Music Facilities	1,150	1,350	2,300
After School	1,100	1,250	1,450
Learning Center/ Speech & Language	650	650	650
Resource Center/ Literacy/Reading	650	1,300	2,250
Media Center/Library	1,500	2,000	2,500
Gymnasium (including storage)	3,450	4,450	5,400
OT/PT	650	750	750
Food Prep/Kitchen	750	1,000	1,450
Cafeteria (including storage)	2,250	2,500	2,750
Stage	750	750	1,000
Staff Lunch Room	200	200	250
Teachers Workroom/Lounge	350	350	400
General Office	1,235	1,235	1,505
Nurse’s Office/Health	400	400	510
Guidance/Psychologist, etc.	2,235	2,385	2,410
Custodian/Maintenance/Storage	<u>2,400</u>	<u>2,500</u>	<u>2,700</u>
Total Net Area	31,370	39,970	51,375
Gross Area @ 1.50 Net-to-Gross Multiple	47,055	59,955	77,063
Gross Area Per Pupil	187	171	168
Net Area Per Pupil	124.5	114	112

See **Appendix B in Volume II** of this report for the detailed Preliminary Elementary Educational Specifications. They remain “preliminary” for further discussion and development by the full School Committee, the School Department and Newton educators.

Middle School Educational Specifications

In developing a set of middle school specifications that would allow us to evaluate the educational adequacy of Newton's four existing middle schools relative to their current enrollments and also provide a suggested program of spaces for any possible new construction at the middle school level, we utilized the *Junior High and Middle School Program Guidelines* developed by the Massachusetts School Building Authority and presented in draft form on May 19, 2006. These may be summarized as follows:

Description of Spaces	400 Students	750 Students
Core Classrooms	13 - 12,850	25 - 24,750
Science Laboratories + Prep Rooms	3 - 3,760	6 - 7,440
Art Rooms (including storage, etc.)	1,350	2,250
Music Facilities	1,700	1,700
Technical Classrooms	1,200	2,400
Technical Shops	2,000	4,000
SPED Classrooms	4 - 3,800	7 - 6,650
SPED Small Group Rooms	3 - 1,680	6 - 3,300
Media Center/Library	2,680	4,700
Gymnasium (including storage)	6,150	6,150
Ancillary PE Space	2,250	2,250
Food Prep/Kitchen	1,700	2,050
Cafeteria	2,680	5,000
Stage	1,600	1,600
Chair/Table/Equipment Storage	200	300
Staff Lunch Room	200	300
Teachers Workroom/Lounge	300	450
General Office	1,920	2,170
Nurse's Office/Health	510	510
Guidance	450	750
Custodian/Maintenance/Storage	<u>1,975</u>	<u>2,275</u>
Total Net Area	50,955	81,295
Gross Area @ 1.50 Net-to-Gross Multiple	76,433	121,943
Gross Area Per Pupil	191	162
Net Area Per Pupil	127.5	108

See **Appendix C in Volume II** of this report for detailed Preliminary Middle Educational Specifications.

From the summaries below, Newton's four existing middle schools compare very favorably to these recently promulgated State guidelines. This is likely due to the ages of these four buildings and the fact that Brown and Day were renovated in 1997, the same year that Oak Hill was expanded and converted from an elementary school to a middle school. Both Day and Brown have previously accommodated significantly higher enrollments than at present, specifically during the 4 years between 1994-1998 after the 6th grade was moved into the middle school system and before Oak Hill opened as a middle school.

	Bigelow Middle 495 Students	Oak Hill Middle 567 Students
Total Net Area	62,014	64,828
Actual Gross Area	92,500	93,463
Gross Area Per Pupil	187	165
Net Area Per Pupil	125	114

	Brown Middle 662 Students	Day Middle 747 Students
Total Net Area	93,459	103,609
Actual Gross Area	146,000	145,600
Gross Area Per Pupil	221	195
Net Area Per Pupil	141	139

These numbers clearly show that Brown and Day exceed the State guidelines for Gross Area Per Pupil and Net Area Per Pupil by a significant amount, indicating that both of these facilities can accommodate additional capacity. Theoretically, Brown and Day should be able to accommodate approximately 850 students. Indeed, there were over 900 students at Brown between 1994 -1998 and Day’s enrollment was 855 as recently as 2001.

Bigelow would appear to be right at a recommended capacity of 500 students and Oak Hill, which has almost exactly the same gross and net area, is already over-crowded at 567 students. Given that 672 middle school students are expected at Oak Hill in 2011, there should be no surprise that the Principal at Oak Hill is already worried about severe overcrowding in the next five years.

To sum up our educational analysis of the four existing middle schools, the four middle schools are better able to provide the necessary educational space than many of the elementary schools in the City. Day and Brown have the capacity to handle 100-200 more students than are currently enrolled and Bigelow is at capacity. Oak Hill, given that its current enrollment is expected to grow by approximately 100 students over the next 5 years, is a concern. From an educational standpoint, Oak Hill is the only middle school in need of additional space.

Educational Specifications for the Integrated Pre-School Program

The Newton Public School system is a large urban/suburban school district known for its excellence in the education of general and special education students, particularly for its successful commitment to the philosophy of inclusion. Newton provides both inclusion programming and Applied Behavioral Analysis (ABA) self-contained models of instruction for students with Autism Spectrum Disorder (ASD) from Preschool-age 22. The ABA classrooms are in limited buildings as they are considered system-wide programs: preschool ABA classrooms are at the Educational Center at 100 Walnut Street; elementary ABA classrooms are at Countryside and middle school ABA classrooms are at Brown Middle. In addition, there is consensus that there are more challenging students in the Newton Public Schools (not just those with ASD) now who would have been enrolled in out of district placements in prior years.

Newton's city-wide Pre-school Program is one of the jewels of its public school system. We were witness to a recent presentation by the Pre-school Director and her staff to the Newton School Committee at which several parents gave moving testimony as to how this program has prepared their children for entrance into the regular elementary school program. There is ample evidence that the demand for access to the Pre-school Program is increasing. There is equally ample evidence that the Pre-school Program is not housed adequately at present - currently, the Pre-school Program is split between classrooms on the lowest level of the Educational Center and in the Lincoln-Eliot School - and that a consolidated Pre-school facility, either in its own building or in a separate wing of a larger school facility, should be an important part of any program of improvements to the Newton Public School plant.

Conversations with the Coordinator of the Pre-school Program led to the development of a theoretical educational specification for an Integrated Pre-School to accommodate 276 students. This would include 184 students with disabilities and 92 students without disabilities. There would be 30 full-time equivalent staff and 22 full-time-equivalent aides (total staff would be approximately 70). The required spaces would be as listed below:

Description of Spaces	Unit Size	Total Area
Classrooms	12 @ 640	7,680
Motor Clinic	4 @ 600	2,400
Speech & Language	6 @ 150	900
Offices	7 @ 150	1,050
Teachers' Room		750
Work Room		500
Conference Room		250
Gymnasium		2,500
Gym Storage		250
Cafetorium		1,500
Kitchen		550
Parent Waiting Area		350
Reception		210
Secretary		200
Principal		250
Mail Room		100
Duplicating Room		100
Records Room		100
Nurse's Office		200
Changing Room		60
Shower/Exam Room		100
Total Net Area		20,000
Gross Area@ 1.50 Net-to Gross		30,000

There are several existing small elementary schools with classrooms that are undersized for the regular elementary school program that could, if properly renovated, become the home of the Pre-school Program. However, given Newton's preference for maintaining the neighborhood elementary school concept and for keeping the size of its elementary schools below a maximum of 500 students, it is highly unlikely that any of the existing elementary facilities would be available to house the Pre-school Program. As will be seen in the discussion of System-wide Options in Section 6 of this Report, the most likely home for a consolidated Integrated Pre-School Program would be in expanded space at the Educational Center (as part of a renovation of this facility into an elementary and pre-school facility) or in a discreet wing of a new middle school facility.