2024 MANUAL FOR PLANNING AND CONSTRUCTION OF SCHOOL BUILDINGS

New Hampshire
Department of Education

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PURPOSE OF THIS MANUAL

The *2024 Manual for Planning and Construction of School Buildings* provides information to assist local school districts and communities in the acquisition of school sites and the planning and design of new schools, additions, and renovations in alignment with the New Hampshire Department of Education's recommendations for school facilities. It replaces the 2006 manual and highlights many changes that have occurred in school building philosophy and construction including technical improvements, environmental and sustainability concerns, health and wellbeing, and safety and security. The manual is designed to provide school boards, building committee, and stakeholders with information on the options that are available to them and the choices that must be made in planning and organizing a construction project**.**

There are many federal laws and regulations and State of New Hampshire statutes and administrative rules which apply to the construction and operation of school buildings. Information in this manual in no way supersedes the requirements of federal laws and regulations or state statutes and administrative rules.

School boards, architects, engineers, and builders are responsible for ensuring that school construction projects meet current federal and state legal requirements. All are advised to discuss requirements with the New Hampshire Department of Education at the beginning of the planning process and throughout design development. Review with representatives of other authorities having jurisdiction over the project is also highly recommended.

By design, the *2024 Manual for Planning and Construction of School Buildings* is a dynamic document that NHED intends to review periodically and modify to adapt to changes in New Hampshire's educational programs and facilities recommendations.

CHAPTER 1: FIRST STEPS

A school construction project typically takes five to ten years. While funding the project and applying for school building aid may be a primary concern among stakeholders, **school districts should anticipate at least two years of assessments and planning** prior to applying for school building aid from the New Hampshire Department of Education. This timeline is designed to help schools and their community stakeholders understand the process.

SCHOOL CONSTRUCTION TIMELINE

YEAR 1

FACILITIES ASSESSMENT

A Facilities Assessment, conducted by an engineer, assesses each part of a building's infrastructure and site, records information on system conditions, code deficiencies, and functional effectiveness, and identifies what needs are being met by the current building. Periodic facilities assessments should be built into the school's existing maintenance plan.

EDUCATION ASSESSMENT

An Educational Assessment evaluates the school's existing educational plan and goals, identifying what educational needs are met by the current facilities.

PLANNING BUDGET

The planning process incurs fees - professional services to analyze existing buildings, preliminary programming and design studies, environmental and geological investigations of building sites, assessing costs for alternatives under consideration, meetings, and reports.

EDUCATIONAL PLANNER

NHED recommends hiring an Educational Planner early in the process to help determine the need for a new or renovated school, and to facilitate future steps.

IDENTIFY STAKEHOLDERS

Schools should be planned by the people who will use them: educators, school board members, parents, students, citizens, senior citizens, and members of civic and business organizations. An outline of stakeholders can be found in Appendix 3.

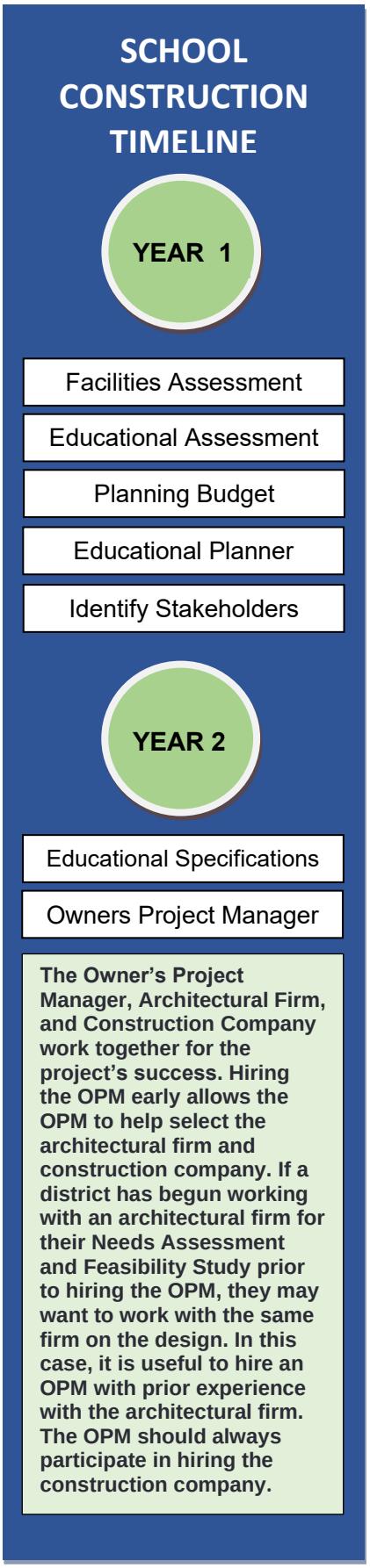
YEAR 2

EDUCATIONAL SPECIFICATIONS

Educational Specifications determine the shape, size, and characteristics of the school. Please see Educational Specifications section below.

OWNERS PROJECT MANAGER (OPM)

The OPM, described in RSA 198:15-c, (III) and required by NHED for school construction projects that use School Building Aid, is hired by the school district to serve as a consultant/advisor to the district to ensure the district's best interests are served. School construction and renovation are specialized types of building projects; select an OPM with school construction experience. See Appendix 4 for details about the OPM's responsibilities.



SELECT ARCHITECTURAL FIRM
A list of architects and contact information provided by NHED can be found HERE.

NEEDS ASSESSMENT
The Needs Assessment is a comprehensive assessment of the current condition of the facility. Detailed requirements of the Needs Assessment are found below.

FEASIBILITY STUDY
The Feasibility Study is a written report that evaluates the physical and programmatic needs of the facility, identifies the best uses of existing buildings, and recommends improvements to maintain and upgrade the existing facility or build a new facility. Steps for creating the Feasibility Study are below.

BUILD NEW OR RENOVATE
Your architectural firm and OPM will analyze whether to build new or renovate based on your educational specifications and the life-cycle costs of the alternatives tempered by non-monetary factors, e.g., the ability of an existing building to support the educational program, historical preservation, reduction of sprawl, preservation of open land. More information can be found in Appendix 5.

LOCAL PROCESS REQUIREMENTS
Each local community has its own required process for approving new building construction. NHED recommends understanding your community's local process requirements early in the planning stage.

YEAR 3

SITE SELECTION
Please see Chapter 3: Site Selection

PLANNING AND SITE DESIGN
Development of preliminary drawings by architect, followed by approval of preliminary drawings by local school board.

BUDGETING
A construction budget template and definitions are found in Appendix 6.

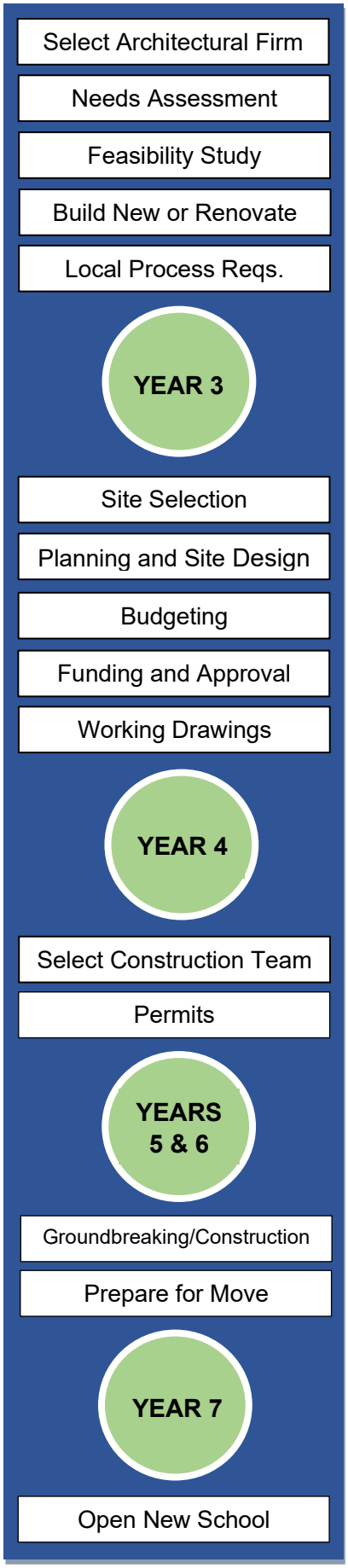
FUNDING AND APPROVAL
Securing local authorization of funds. See information on funding below.

WORKING DRAWINGS
Preparation of working drawings to prepare for construction bidding documents.

YEAR 4

SELECT CONSTRUCTION TEAM
Completion of necessary forms and applications prior to submission of plans for bid. Advertisement of construction documents for bid, receipt and evaluation of bids, award of contract (contractor, construction firm)

PERMITS
Permits needed prior to beginning construction include building, State Fish and Wildlife, Fire Marshall, etc. Your OPM will help you apply for permits early to avoid construction delays.



YEARS 5 & 6

GROUNDBREAKING AND CONSTRUCTION

PREPARE FOR MOVE

YEARS 7

OPEN NEW SCHOOL

Throughout the process, the School District manages continuous communications with the OPM, architect, teachers, staff, students, School Board, local officials, community members, and NHED.

EDUCATIONAL SPECIFICATIONS, NEEDS ASSESSMENT, AND FEASIBILITY STUDY

EDUCATIONAL SPECIFICATIONS

An important step in a school construction project is developing Educational Specifications, a report that describes the facility's anticipated uses and identifies the physical characteristics that are required to house and promote the programmatic needs of the school. Educational Specifications assess educational philosophy, goals, and objectives to identify what facility requirements are needed to improve education within the district. They identify the learning activities to be housed in the school, their spatial requirements, appropriate locations in the building or site, and facilities performance expectations related to educational outcomes. Educational specifications are concerned with the **program and the people to be housed**, not the architectural solutions. NHED has developed State Model Competencies and College and Career Ready Standards to help develop educational specifications.

PURPOSE OF EDUCATIONAL SPECIFICATIONS	• Describe the need and rationale for the project in sufficient detail that the voting public can understand and support it. • Serve as the guiding document for the project by describing the educational program (philosophy, goals, activities, space needs) in sufficient detail so that design professionals can translate the program into a building that meets those needs. • If applying for building aid, provide sufficient information for NHED to evaluate the necessity for the project, the appropriateness of the design to the proposed curriculum and activities, and that N.H. State Minimum Standards for School Approval, found in the NH Code of Administrative Rules Ed 306, are being met or exceeded.
WHO SHOULD WRITE EDUCATIONAL SPECIFICATIONS?	• Educational specifications should be established by the school district with input from the community, educators, the facility manager, school board members, and school administration. • NHED encourages schools to hire and work collaboratively with an Educational Planner to develop Educational Specifications. • Educational Planners are professionals trained in helping schools assess their current and future educational needs. • Educational Specifications shall be approved by the local school board.
WHEN TO WRITE EDUCATIONAL SPECIFICATIONS?	The process for creating Educational Specifications should begin 6-9 months before engaging an architect and beginning the design process. There are five steps to creating educational specifications:

	• Planning and scheduling the work, including meetings with school administration, teachers, school board members, and community members • Identifying facility and program requirements • Drafting the educational specifications • Reviewing and revising the education specifications • Obtaining approval

WHAT TO INCLUDE IN THE EDUCATIONAL SPECIFICATIONS	• The goals and objectives of the project
	• Policies that relate to space needs such as class size limits, grade configurations, and multi-age classrooms
	• The number of people to be housed and how that number was determined
	• A description of the programs to be housed
	• A description of the general facility needs to meet the goals and objectives of the project including:
	  ○ The individual spaces needed in the building and the desired characteristics of each space in general terms
	  ○ The desired adjacencies between spaces
	  ○ Clear objectives and priorities for design elements such as minimum requirements for:
	  • Acoustics
	  • Daylighting
	  • Energy efficiency
	  • Indoor air quality
	  • Thermal and visual comfort
	  • Use of environmentally preferable materials
	  • Siting considerations
	  • Safety and security
	  • Health and well-being
	  • Climate concerns
	  • Accessibility
	  • Technology
	  • Any other factors that the school considers important
	• Other facility characteristics such as limits on exterior glass or glass in high-capacity areas, space needs for check-in procedures, and space needs for voting use or other community use
	• The necessary site considerations

. The National Council of School Facilities website provides several resources and examples of Educational Specifications.

NEEDS ASSESSMENT

The Needs Assessment, a comprehensive assessment of the current condition of the facility, is conducted by a third-party licensed engineer, a licensed architect, or other qualified professional, and includes the facility assessment and educational needs assessment.

PURPOSE OF THE NEEDS ASSESSMENT	The Needs Assessment is used to assess the current condition of the facility.

WHAT IS INCLUDED IN THE NEEDS ASSESSMENT	The Needs Assessment includes, but is not limited to the following:
	• Building envelope and interior spaces
	• Life safety code
	• Building code
	• Mechanical, electrical, plumbing, and structural systems
	• Accessibility
	• Environmental conditions including, but not limited to:
	  ○ Indoor air quality
	  ○ Lighting
	  ○ Acoustics
	  ○ Sanitation
	• Building systems and equipment
	• Safety and security
	
	In addition, the needs assessment should assess:
	• The suitability of the facility to meet the educational needs of the school, as identified in the educational specifications
	• A summary of the space needed
	• The gap between the current state and the desired state of the school's programmatic needs, and the factors that can be attributed to this gap

WHO COMPLETES THE NEEDS ASSESSMENT	The condition of the facility should be assessed by a third-party licensed engineer, a licensed architect, or other qualified professional.

FEASIBILITY STUDY

The Feasibility Study is a written report that evaluates the physical and programmatic needs of the facility, identifies the best uses of existing buildings, and recommends improvements to maintain and upgrade the existing facility or build a new facility, while meeting the school's educational goals. The Feasibility Study should evaluate at least four alternatives, including renovation only, renovation with new construction, new construction only, and no construction at all.

PURPOSE OF THE FEASIBILITY STUDY	A Feasibility Study is used to assess and evaluate the possible alternatives to new construction.

WHAT IS INCLUDED IN THE FEASIBILITY STUDY	The feasibility study should include at least the following four options:
	• Renovation only
	• Renovation with new construction
	• New construction only
	• No construction
	
	The feasibility study includes but is not limited to:
	• A life-cycle cost estimate for each option, considering the following costs:
	  ○ Capital
	  ○ Maintenance
	  ○ Transportation
	  ○ Energy
	  ○ Staff salary and benefits
	  ○ Any other costs associated with the operation and maintenance of the building
	• The pros and cons for each option based on the Educational Specifications and the Needs Assessment

WHAT IS A LIFE-CYCLE COST ANALYSIS?	The initial cost of the building represents a small portion of the total tax dollars that will eventually be spent on the facility. The Life Cycle Cost Analysis calculates the total amount to be spent through the shortest expected lifespan of the building. A Life Cycle Cost Analysis considers costs for construction, energy use, operational costs, maintenance, equipment life, and replacement. Consideration is given to materials that are recyclable and not hazardous to the environment. Additional resources for conducting a Life Cycle Cost analysis can be found at the Life Cycle Assessments and Buildings page on the US Government's Sustainable Facilities Tool site.
WHO COMPLETES THE FEASIBILITY STUDY	The feasibility study must be completed by a licensed architect or other qualified professional.

DETERMINING SCHOOL BUILDING SIZE

NHED's recommendations for school building size are based on many factors including:

- 5-year enrollment projections
- Baseline square footage determined by enrollment projections
- Special education square footage
- Concentration of poverty add-on
- English Language Learner add-on
- Educational Specifications
- Educational Capacity
- Number of classrooms
- Ideal classroom size
- Core spaces

Your architect will provide expert guidance on navigating these factors to determine school size. The section below provides additional information on some of these factors.

BASELINE SQUARE FOOTAGE, SPECIAL EDUCATION SQUARE FOOTAGE, AND POVERTY AND ENGLISH LANGUAGE ADD-ONS

- Detailed information can be found in Ed 321.09 Maximum Sizes for School Buildings. While the stated maximums apply specifically to building state aid eligibility, they provide a useful recommendation for all school construction.

5-YEAR ENROLLMENT PROJECTIONS

- The projected enrollment shall be the maximum published valued in the 5-year projection using a statistically valid process and the most updated birth rates published by the New Hampshire Division of Vital Records Administration in the office of the Secretary of State.

EDUCATIONAL CAPACITY

- The Educational Capacity of a school is the sum of the maximum number of students that can be simultaneously instructed in every educational space of the building.

CLASSROOMS AND CORE SPACES

- The current educational model for middle and high schools, and increasingly, elementary schools, is student-centered, interactive, and exploratory lab settings, combined with small- and large-group activity areas.
- In a typical elementary school, the total area of classrooms represents only about 30% of the total school. In a typical high school, the percentage of the area devoted to classrooms drops to about 25%. The balance is devoted to the cafeteria; support and specialized areas; restrooms; gymnasiums; hallways; and space for the mechanical, electrical and technology systems. Counting only classrooms to determine potential capacity is short-sighted by as much as 75%.
- Detailed space recommendations for elementary classrooms can be found in Chapter 4, for middle and high school classrooms in Chapter 5, and for core and support spaces Chapter 6.

SPACE ALLOCATION

The new rules recognize that each school system is unique and gives school administrators and committees significant freedom in determining how space is allocated. As part of the school construction planning process, all spaces must be identified, their use and capacity determined, and the appropriate amount of space allocated to them. Spaces include classrooms (general, science, visual arts, performing arts), library/media centers, cafeterias/kitchens, gymnasiums, auditoriums, administrative offices, health offices, storage, restrooms, and non-assignable spaces such as corridors, stairways, and elevators.

Guidelines and recommendations for Elementary Schools can be found in Chapter 4, for Middle and High Schools in Chapter 5, for Core and Support Spaces in Chapter 6, and for Library/Media Centers in Chapter 7.

PROJECT BUDGET

The project budget will consist of most, if not all, of the following cost items:

- Studies
- Planning and programming
- Architect and engineering design fees
- Consultants
- Geo-technical testing
- Environmental studies and testing
- Legal reviews
- Permits
- Site acquisition
- Site development
- Construction costs
- Utilities
- Furniture, fixtures, and equipment
- Owners project manager
- Commissioning
- Contingency
- Financing costs

As a general rule of thumb, the hard costs, which include site development and construction, should total about 80 to 85 percent of the total project cost. If hard costs amount to less than 80 percent of the total, the design and administrative costs may be excessive and should be reviewed.

FUNDING

FUNDING THE PLANNING PROCESS

There will be a need to pay for the necessary professional technical services to analyze existing buildings, to prepare preliminary programming and design studies, to conduct environmental and geological investigations of possible building sites, and to develop accurate cost estimates for the alternatives under consideration. Many districts are understandably reluctant to commit funds prior to a bond vote, but projects proposed without adequate planning may result in significant cost overruns or require major reductions in scope to fit within the budget. Without adequately researching and analyzing all feasible alternatives, the district cannot be sure that the proposed project is the best solution.

Possible sources of planning process funding include a direct appropriation specifically for planning and design work, funds from a capital reserve account, and funds from impact fees. Many districts appropriate planning and design funds in one year with the expectation that a project will be proposed in the following year. Sufficient funding should be provided to thoroughly analyze alternatives, to conduct geotechnical investigations and environmental studies of proposed building sites, and to complete at least 50 percent of the design work for any proposed construction.

FUNDING THE CONSTRUCTION PROJECT

There are several methods of financing school construction projects. School boards should choose the plan which is most appropriate for the size and type of building project being proposed and for the financial resources of the district. Each method has certain advantages and disadvantages which are discussed briefly below.

MUNICIPAL BONDS OR NOTES (RSA 33:3)

The most frequently used method of financing a school building project is through municipal bonds or notes. This approach provides for borrowing the money needed for a project while offering the advantage of repaying the loan(s) and financing costs over a longer set period of time. With planning, this type of financing may be obtained when interest rates are favorable, and facilities can be constructed to serve immediate needs.

Bonds or notes may be issued by a municipality for the construction of new facilities or for the renovation, alteration, and enlargement of an existing building. In New Hampshire, municipalities include school districts. Bonds may also be used for the acquisition of land, for planning relative to public facilities, for the purchase of a facility for public use, for the purchase of equipment of a lasting nature, and for the payment of judgments. Bonds or notes may not be issued for the payment of expenses for current maintenance or operation. Municipalities shall not issue bonds payable on demand.

Financing by bonds allows for cost-sharing. For example, with a 20-year bond issue, the costs of the new building are borne proportionately by both present and future taxpayers, i.e., those parents whose children are going to use the building several years after its completion are helping to defray the costs of construction. Other advantages of this method are the stabilization of the local tax rate by consistent payments over a period of years, while normally allowing for the gradual reduction of the district's indebtedness. This permits borrowing for other projects if necessary as well as protecting the district's credit rating while simplifying the yearly budget process through planned annual payments. This method has certain disadvantages with the chief objection being the increased total cost of the project due to interest. Taxpayers may also object to paying for facilities for many years after they have been in use and possibly for funding repairs or additions to the original structure before its debt is completely retired.

More information and Preliminaries to the Issuance of Bonds and Notes can be found in Appendix 7.

THE "PAY-AS-YOU-GO" PLAN

The "pay as you go" method of financing a capital project uses current revenues which are voted annually as the project progresses. A large school system with constant, predictable building needs may choose this type of funding. One advantage of this method is a reduction in the total project cost since no interest is paid. However, most districts, especially small ones, may find that this method imposes too great a burden on the local tax structure, since the "pay-as-you-go" method locks a district into an automatic increase in the local property tax rate (separate and in addition to other school needs) for as many years as it takes to complete the project. Although most districts do not finance major projects in this manner, some capital outlay programs, such as site acquisition, a small building addition or renovations, or the purchase of equipment, may be carried out through annual budget appropriations.

CAPITAL RESERVE FUNDS (RSA 35:1-18)

A third method uses capital reserve funds. Under RSA 35:1 school districts are authorized to establish reserve funds for "the construction, reconstruction, or acquisition of a specific capital improvement or specific items of equipment." By this method certain funds are set aside on a regular basis for future capital improvements and are accumulated until the fund is sufficient to finance them. Expendable Trusts Funds are authorized as well (RSA 198:20-c) and can be used for the acquisition of specific equipment or costs.

As with the "pay-as-you-go" plan, this method does not require the payment of interest and it also has the advantage of investing the funds set aside, thereby earning interest to help offset rising construction costs. However, taxpayers may be unwilling to vote for large sums of money to be placed in a capital reserve fund year after year to finance indefinite building plans.

FEDERAL FUNDING SOURCES

Most federal funding for school infrastructure projects is granted to state agencies and managed through the state. NHED will alert schools about available grants on their website and through weekly email announcements. Please sign up for NHED emails HERE. Current Federal Funding Sources include the following:

- USDA Rural Development Grant Program
- Grants are available each year from the Land and Water Conservation Fund which may be used for construction of athletic facilities or playgrounds that are also used by the community. https://www.nhstateparks.org/about-nh-parks/conservation-fund-grant

STATE FUNDING SOURCES

- The state School Building Aid program may contribute 30% to 60% of the eligible project cost to construct a new school, construct an addition, or substantially renovate an existing facility. These funds are limited to the amount appropriated by the State legislature each year. **See Chapter 9 for more information about applying for School Building Aid.**

ENERGY REBATES AND UTILITY COMPANY PROGRAMS (RSA 374-F)

Through an agreement with the NH Public Utilities Commission, the regulated electric power companies throughout the state collect a small fee from their customers known as the Systems Benefit Charge. The proceeds of those fees are used to fund programs aimed at improving energy efficiency. School districts should contact their utility account representative early in the design process to determine which programs may apply to a particular project. The utility companies will review designs and offer technical advice for improvements. In many cases the utility company will reimburse all or most of the incremental cost for using more efficient equipment or techniques.

NH SAVES https://nhsaves.com/about-nhsaves/	**Contact:** 888-555-0285	NHSaves is a collaboration of New Hampshire's electric and natural gas utilities (NH Electric Coop, Eversource, Liberty Utilities, and Unitil) working together to provide NH customers with information, incentives, and support to save energy, reduce costs, and protect our environment statewide.
NH ELECTRIC COOP https://www.nhec.com/new-equipment-construction/	**Contact:** Joe Lajewski, CEM lajewskij@nhec.com 603-536-8663	NH Electric Co-op offers rebates and incentives to invest in energy efficiency improvements that will save money for years to come. The website includes case studies from NH schools.

EVERSOURCE https://nhsaves.com/new-equipment-construction-for-schools-program/	**Contact:** 866-554-6025	Eversource provides incentives and rebates to offset the upfront costs of new, energy-efficient equipment for public K-12 schools, including: • Lighting and Controls • Motors • HVAC Systems • Chillers • Variable Frequency Drives

PRIVATE GRANTS

- Peaceful Playgrounds provides a list and contact information for private foundations that fund playground equipment and gardens in schools. https://peacefulplaygrounds.com/playground-and-garden-grants/

INDICATORS OF A GOOD PLANNING PROCESS

1. The district has a detailed, comprehensive plan for programs, demographics, and facilities for at least 5 years into the future.

2. The district compiles annual reports for each building that identify space utilization, maintenance costs, energy costs, age of major system components, major component failures, and major repairs or replacements performed in the past year.

3. Plant operations budgets are developed for each building.

4. There is a space utilization audit which shows the current use of every room in every building for every period of every school day as well as use after hours.

5. Facilities planning involves administrators, maintenance directors and representatives of the entire staff.

6. The district has demographic maps showing where each student lives and the attendance boundaries for each school.

7. Five-year enrollment projections are maintained for each school.

8. The district does not rush completion of major construction projects to meet an arbitrary completion date. It is better to be sure that it is built right before opening.

9. The district's long range construction plan is based on careful analysis of population trends, educational requirements, and facility conditions.

10. The district maintains a standing facilities committee.

11. Discussions about proposed construction projects do not begin with the amount of money to be included in the project budget.

12. Equivalent facilities for all students in the district is a planning objective.

13. Capital improvements are a continuous ongoing process in the district.

14. The district does not build additions to old schools again and again without a long-range schematic plan for the final build-out of the old school.

15. The district makes appropriate, economically wise use of buildings that are no longer used as schools.

16. The district has a written policy for use of its facilities by outside groups, requires outside groups to sign a use agreement, and knows the cost of operating the facility for outside groups even if there is no charge for such use.

CASE STUDY: ALLENSTOWN SCHOOL DISTRICT, ALLENSTOWN, NH

Every school building project and timeline is unique, with its own set of circumstances. This brief case study and timeline of the Allenstown School District's construction of a new K-8 school (opened May 2024), is one example of the way a successful school construction project can unfold, the many decisions that need to be made, and the way many elements in this manual are addressed in real-time. The Allenstown School District and its team managed this new school construction project through the Covid pandemic, dealing with shortages, supply chain issues, and unpredictable costs while remaining on time and on budget. Each construction project will have unanticipated challenges, but a strong team will find solutions that fit the project and keep it moving forward.

The school's relationship with the architect, owner's project manager, and construction company is a long relationship. There will be difficult conversations and difficult decisions to make as well as shared successes. Take the time to choose the people and companies who will work best with your community.

-Shannon Kruger, Allenstown Principal

The Allenstown School District timeline is based on building aid regulations in place at the time of construction. The current school building aid deadlines and processes have changed. Please see Chapter 9: School Building Aid for the current guidelines.

ALLENSTOWN SCHOOL DISTRICT SUMMARY OF CIRCUMSTANCES

Allenstown Elementary School (K-5) and Armand R. Dupont Middle School (6-8) were both over 60 years old and in significant need of repair, renovation, and updating. Enrollment in the two schools has consistently been about 350 students for the past several years. Positive developments within Allenstown have fostered growth, making it a desirable community for new families who will want a value-added school program for their children. The district hired Harriman Architects and Engineers Group to conduct a feasibility study and make recommendations on renovating both schools, combining the two schools into one of the existing buildings, or combining the two schools in a new building on a new site.

ALLENSTOWN ELEMENTARY SCHOOL

1962 – Original one-story building
1972 – Additions built for 2nd floor classroom and multipurpose space
1988*– $400K maintenance update to mechanical and electrical systems and new windows
1998 – Addition built for one story kindergarten, art, and support services space
2017 –No large-scale updates have been done in 32 years. Major updates are needed over the next several years; storage and SPED classroom are in poor condition; system and equipment have outlived life expectancy and require upgrades.

ARMAND R. DUPONT MIDDLE SCHOOL (ARD)

1954 – Catholic Church builds community gym
1970s – Church adds school building adjacent to the gym
1988* – School District purchases current ARD building from the Church and builds 4 new classrooms, new kitchen, and makes miscellaneous repairs
2017 - No large-scale updates have been done in 32 years; major fixes are needed: locker room flooding, heating system has forced school cancellations; system and equipment have outlived life expectancy and require upgrades; deficiencies in programming space for Band/Chorus, Family and Consumer Science, Health Science, Technology and Engineering, Foreign Languages, and Athletics.

(*1988, 1.9 million, 15-year bond for renovations to both Allenstown Elementary and Armand R. Dupont)

ALLENSTOWN NEW SCHOOL CONSTRUCTION TIMELINE

LOGISTICS AND ACTIONS	COMMUNICATIONS AND PUBLIC RELATIONS
2017	
Allenstown School Board approves RFP for feasibility study to consolidate Allenstown Elementary School (AES) and Armand R. Dupont Middle School (ARD) into one building. The two schools house approximately 350 students.	Feasibility Study RFP sent out.
March 2018	
District hires Harriman Architects and Engineers Group to conduct feasibility study. Study includes assessments of both buildings and renovation options for AES, renovation or replacement options for ARD, and new K-8 option on a new site.	

November 2018	
Harriman presents feasibility study analysis.	
February 2019	
	Two community listening sessions are held at AES and ARD to get public input on renovation or new building construction options.
April 2019	
Feasibility studies identify topographical challenges to elementary school expansion, do not recommend renovation to Armond R. Dupont due to building condition, and recommend building new K-8 school on a new site.	
June 2019	
Joint Tuition Committee is formed. • Committee reviews option of sending middle school students to Three Rivers School in nearby Pembroke and tours Three Rivers School. • Committee reviews transportation costs. • Committee reviews per pupil costs. New Building and Renovation Committees are formed. • Committees vet four construction firms. • Committees review transportation costs. • Committees investigate land options and costs. • Committees review legislation on building grants and applications.	
April 2020	
District engages HL Turner Architects for three designs: • ARD Renovation • AES Renovation • Brand new K-8 building on new land	
May 2020	
Joint Tuition Committee concludes there is no cost savings or benefit to sending students in grades 6-8 to Three Rivers School. Building capacity limits established by NHED show that Three Rivers School cannot sustain the space requirements for ARD middle school students due to possible Pembroke population growth.	
July 2020	
District applies for Building Aid.	
October 2020	
	Community Forum #1 is held to present final designs.

November 2020	
School Board determines to have K-8 students in one building and moves Building Aid application forward for a December 1 decision.	Community Forum #2 is held to present final designs.
December 2020	
District submits proposed March ballot recommendation for school building construction.	
March 2021	
	The warrant articles for the $32.5 million K-8 School are approved. The town approves a bond of $13 million and anticipates receiving Building Aid.
July 2021	
NHED approves Allentown School District for up to $19.5 million is Building Aid to help build the new school.	Plans announced to break ground in spring 2022. School website begins posting monthly updates.
August 2021	
District hires owners project manager, Gordon Bristol.	
September 2021	
District acquires 59 acres of land. District hires Turner Group Architectural firm and Milestone Engineering and Construction Company as construction manager. Both firms have specialties in school construction.	
October 2021	
Soil engineers and geo-technical specialists test and assess property.	School Board installs signage identifying the new school site. Construction team meets with Fire Chief, Police Chief, Town Administrator, Water Department, Sewer Department, Eversource, Department of Transportation, and abutters. Meetings with academic departments begin.
November 2021	
	OPM arranges meetings with town code enforcement and NHED.
December 2021	
Alternative energy sources researched.	Consultations with NH State Fish and Wildlife and NH State Fire Marshall are held. Entire team (construction, design, school, town/state agencies) does a page-by-page plan review of schematic drawings.
February 2022	
	Plans and associated documents are submitted to the Regional Planning Commission and the Town of Allenstown Planning Committee for an anticipated planning review in April. Site plan updates include researching road signage and grounds signage.

April 2022	
OPM assess pandemic-related supply chain issues and rising costs, and recommends purchasing materials in advance of construction. Materials for school roof, piping for underground water and sewer, and electric utility work are purchased. Eversource begins installing electric line. The well is dug. Tree removal vendor is hired to clear the site.	
May 2022	
Well/water flow tests and water quality tests are conducted. Drawings with 95% completion submitted for review.	May School Board meeting and public information session with drawings are held. Groundbreaking ceremony is attended by staff, students, and key community and project personnel.
June 2022	
Most permits have been received. Wildlife fencing is installed (pre-bulldozer). Utility poles are installed.	Bidding packages are sent out to vendors for remaining construction divisions.
July 2022	
Library vendor for furniture and shelving is secured. Construction is delayed by need to obtain permits for the environmental and wildlife impacts to the site. Construction bids are reviewed. Miscellaneous review and research includes: security upgrades, public address systems, theatre, sound systems in open areas and gym, and cafeteria kitchen equipment bids.	.
August 2022	
Alteration of Terrain permit is received from the Department of Environmental Services. Construction is 100% underway. Team is awaiting protocols for wetlands and vernal pool areas. Safety fencing and signage is installed. The budget is signed. Contract with Milestone is fully signed.	Executive Committee Meeting is held to communicate priorities for projects within the building. School Board is prepared for the Guaranteed Maximum Price agreement between Construction Manager, Milestone, and the district.
September 2022	
Concrete pours begin.	Town relations work continues: construction crew, school administration, and School Board meet with the Allenstown Board of Selectmen to give a progress report and hear any concerns.
October 2022	
Site drainage and detention ponds for stormwater management are installed.	
November 2022	
Multi-tank fire suppression system is installed. Steel construction begins. Base paving is installed at parking lot and main entry to facilitate construction vehicle activity.	
December 2022	
Foundations are approximately 80% complete. Steel erection is 30% complete. Underground utility work is 60% complete. 3 phase electrical power is	Community update and Q&A is held.

brought to the site. Fire suppression cisterns have been installed and are operable for local use. Drainage for catch basins is 80% complete. The well has been drilled, capped, and the pump installed.	
January 2023	
School Board approves moving forward with solar panels. Roofing begins.	School Board meeting and presentation on potential solar panel project is held. Team begins taking drone footage to document the project.
February 2023	
Roof insulation and floor decking is installed. Library furniture arrives (pre-purchased to avoid supply chain issues and rising costs) and is placed in storage. Kitchen furniture and equipment arrives for storage.	
March 2023	
100% of the wall steel is completed. Roof drains and exterior framing continues. Installation of slab floors (concrete) has commenced. The leach field for septic is underway. Bollard placement and security camera placement is determined on the final site plan. Locker needs are determined for proposed population. Construction is on time and on budget.	.
April 2023	
Allenstown Superintendent Peter Warburton passes away. He has been a knowledgeable and inspiring advocate for the new school, and his loss is felt by all. Thanks to his assistance in putting together a great team and plan, the site work is 60% completed and progresses as planned.	
May 2023	
Site work is 80% finished. The mechanical, electrical, and plumbing rough-in are ongoing. Framing is ongoing. Final concrete pour for cafeteria floor is scheduled. All Fish and Wildlife procedures are in place. Exterior metal framing and sprinkler work continue. Masonry work and roofing are ongoing. The fire pump building has arrived and been assembled.	Town leaders are given a tour of the facility.
June 2023	
Project is on time and on budget for March 2024 handover. Siding, trim, drywall, windows, and glazing commence.	
July – December 2023	
Construction transitions to final finishes on the building. 99% of the internal infrastructure is complete. HVAC, electrical, and plumbing installation have begun. Mechanical work continues. Installation of insulated metal panels for exterior of building is ongoing. Interior drywall work is ongoing. Interior painting has commenced. Movers have been scheduled.	Weekly meetings are held to facilitate constant communication and collaboration among the architect, construction company, OPM, School Board, district administration, vendors (by invitation) and community representatives.

January – Marcy 2024	
	Parent Transportation Survey is completed. Bus Routes are reconfigured, presented, and passed by the School Board, and communicated to all families. Staff visit the new school and then participate in a packing day. Parents are offered and participate in a Q & A evening meeting and a follow-up document is sent to all families. Staff and students are given tours.
April 19, 2024	
Final day in the old school buildings.	
April 22, 2024	
Move day, with extended April break for students.	
April 29-May 1	
Staff development days.	.
May 2, 2024	
	Family Night is held at the new school.
May 3, 2024	
First day in the new school.	
May 3 – June 17	
Students and staff finish the school year in the new school, giving the new school a “trial run” and allowing everyone to experience it. Administration and teachers are able to note any adjustments that are needed.	OPM is in communication with district, architect, and construction manager.
June - August	
Any necessary adjustments are made to prepare for the new school year.	

CHAPTER 2: CONSTRUCTION CONTRACTING METHODS AND PROJECT DELIVERY METHODS

There are several types of construction contracts and methods of construction delivery that are used to build schools in New Hampshire. Generally, standard contract documents developed by the American Institute of Architects (AIA) are used. The school district should have an attorney review all contracts. In addition to the contract document, there will be a set of construction drawings and technical specifications that describe the work to be done and the materials to be used. The specifications will normally follow the 50-Division Master Format published by the Construction Specifications Institute (CSI) in 2004.

CONSTRUCTION CONTRACTING METHODS

The cost of construction consists of the costs for labor and materials and the builder's profit and overhead. There is risk involved for both the owner and the builder concerning the builder's ability to perform the work for a given actual cost. The differences between types of contracts primarily lie in who takes the risk, who has to pay for cost over runs, and who keeps the savings if the project costs less than the estimate. In a major construction project, some or all of the different types of contracts may be used. There may be one type of contract between the owner and the primary contractor and different types of contracts between the primary contractor and the sub-contractors.

LUMP SUM (FIXED PRICE)

A lump sum contract is the most basic form of agreement between a supplier of services and a customer. The supplier agrees to provide specified services for a specific price. The receiver agrees to pay the price upon completion of the work or according to a negotiated payment schedule. In developing a lump sum bid, the builder will estimate the costs of labor and materials and add to it a standard amount for overhead and the desired amount of profit. If the actual costs of labor and materials are higher than the builder's estimate, the profit will be reduced. If the actual costs are lower, the builder gets more profit. Either way, the cost to the owner is the same. In practice however, costs that exceed the estimates may lead to disputes over the scope of work or attempts to substitute less expensive materials for those specified.

A lump sum contract is generally a closed-book arrangement, so the contractor does not have to report the cost of labor and materials to the owner. There can be advantages for an owner to enter into a lump sum contract. It is a huge benefit to an owner that the contract is easy to manage.

GMP (GUARANTEED MAXIMUM PRICE)

In a guaranteed maximum price (GMP) contract, the contractor estimates the cost just like in a lump sum bid, but profit is limited to a specified amount. In the event that actual costs are lower than the estimates, the owner keeps the savings. In the event costs are higher, the contractor pays the difference and profit is reduced. Sometime, savings are shared between the owner and the contractor as an incentive to keep costs down. As in a lump sum contract, higher than anticipated costs can lead to disputes. The GMP will only apply to the work specified in the cost estimate. Changes, possibly including unforeseen circumstances, or additional work which the contractor agrees to perform can result in a final payment that is higher than the GMP. School districts should take care that their voters understand that increases are possible, even with a GMP.

A GMP contract is an example of an open book contract in which all of the contractor's costs are transparent to the client. This includes costs for labor, materials, equipment, and other direct costs, as well as indirect costs like markup for overhead and profit.

COST PLUS (NO GUARANTEED MAXIMUM PRICE)

In a cost plus contract the contractor's profit is set at a fixed amount. If actual costs are lower than the estimate, the owner keeps the savings. If actual costs are higher than the estimate, the owner must pay the additional amount. Cost plus contracts are rarely used for school projects because school administrators and school boards rarely have the authority to exceed the amount appropriated for the project. The advantage of a cost plus contract is that, generally speaking, the project will result in the building that was envisioned, even if costs run high. The builder is less likely to cut corners or argue for less expensive materials because their profit is not in jeopardy. By the same token, the builder has little incentive to keep the owner's costs down.

A cost plus contract is also an open book contract in which all of the contractor's costs are transparent to the client. This includes costs for labor, materials, equipment, and other direct costs, as well as indirect costs like markup for overhead and profit.

UNIT PRICE

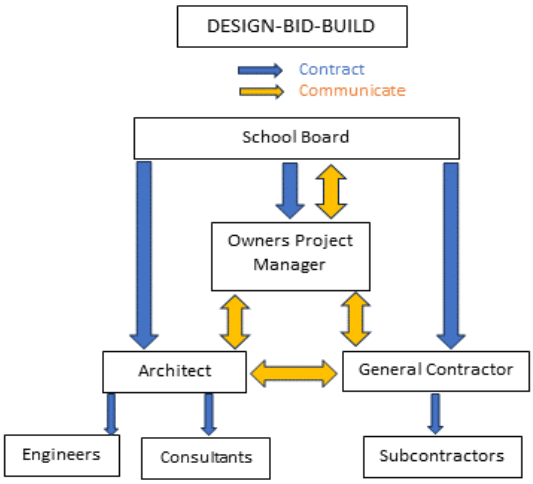
In rare circumstances, a unit price contract may be used. The work to be performed is broken into various parts, usually by construction trade, and a fixed price is established for each unit of work. For example, painting is typically done on a square foot basis. Unit price contracts are seldom used for an entire major construction project, but they may be used for agreements with sub-contractors, or for maintenance and repair work.

CONSTRUCTION DELIVERY METHODS

Construction delivery refers to the relationships between the owner, the builder, and the designer. There are three primary methods used to construct schools in New Hampshire. Each has advantages and disadvantages and should be used only in situations where its advantages can be beneficial.

DESIGN-BID-BUILD

The traditional method of building a school is to have the work designed by a team of architects and engineers and then solicit bids from construction firms. The winning firm becomes the General Contractor, responsible for completion of the project using the firm's own employees, sub-contractors, or a combination of both. Design-Bid-Build is most frequently done using a lump sum bid contract, but guaranteed maximum price is sometimes used.

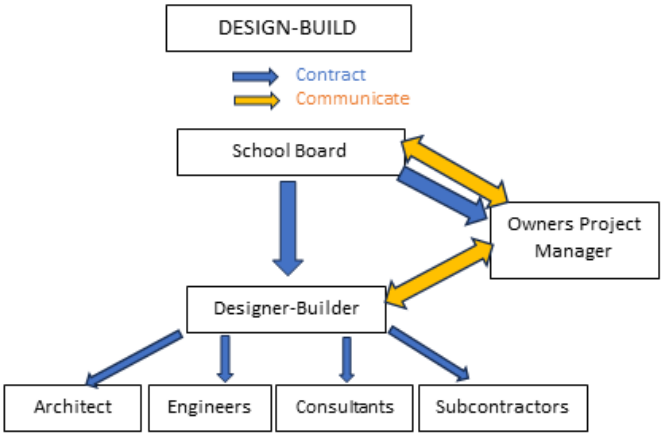


DESIGN-BID-BUILD ADVANTAGES	DESIGN-BID-BUILD DISADVANTAGES
• The method has existed for a long time and is well understood. • The design and construction phases of the project are clear and distinct. • A complete set of design documents is finished before the builder becomes involved.	• Takes the greatest amount of time to complete. • Designers and builders may have difficulty working together if the builder is unable to understand or even unable to build what has been designed. • Sometimes builders will intentionally bid low in order to win the project and then hope to make up the loss in profits through change orders.

• Thorough and complete design documents lessen the chance of misunderstandings. • There is plenty of time to consider alternatives and to complete a thorough integrated design that involves all the occupants and design team members.	• The project costs are unknown until bid, relying on the architect or a third party estimator to predict construction costs during design. • The construction team has no input on phasing, which is determined by the architect or OPM during the design phase.

DESIGN-BUILD

In this process, the owner selects one contractor to both design and build the project. There are firms that specialize in design-build and have their own architects and engineers, but in New Hampshire this process typically means that the owner selects a builder who then hires the design team as required. Saving time is the main advantage of design-build, but that should not be as critical an issue for a school project as cost and construction quality. NHED feels strongly that design-build is not a good method for most school projects.

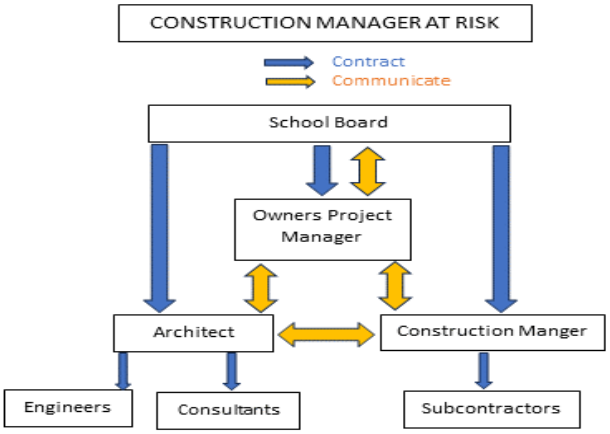


DESIGN-BUILD ADVANTAGES	DESIGN-BUILD DISADVANTAGES
• Because the designers and builders work together from the beginning, the design effort can be substantially reduced, which may reduce design costs. • Time is saved by using a fast-track schedule where the builder begins working on each phase of the construction as soon as the design for that phase is complete. • Ideally the designers complete the next phase just as the builder is ready to start that phase. • It is not necessary to prepare drawings in great detail if the builder already understands what needs to be done. • Design-build works very well when using standard designs that have been built repeatedly.	• Fast track schedules eliminate the possibility of integrated design. • Fast track schedules allow little time to spend with occupants to assess needs in a new facility. • Designers work for the builder, not the owner; the checks and balances that exist in other methods are lost. • The architect and OPM are usually relied upon to track construction progress and ensure the builder follows the plan and codes. The architect cannot objectively fill this role if working for the builder. • Fast track schedules can lead to problems that are difficult and expensive to resolve. • Changes are difficult to implement once construction starts; things move fast and the budget is often inflexible. When an unforeseen situation arises, the only alternative is often a reduction in scope of work, leading to a final product that is less than what was envisioned. • Unforeseen circumstances are difficult to handle. For this reason, design-build is ill suited for renovation projects. • Design-builders do not have to clear every decision with the design team and owner. Unilateral decision making by the builder can lead to a negative outcome.

	• The potential slight savings in design costs have no impact on the costs of labor and materials, which is the largest part of the total construction cost. • The owner and the builder commit to a cost before design is started; there is uncertainty which will have an associated cost that will be included in the builder's bid.

CONSTRUCTION MANAGER AT RISK (CM or CMAR)

Construction Manager at Risk is derivative of the Design-Bid-Build process, but instead of the designer overseeing the design process and construction quality, a construction manager (CM) is hired by the owner to oversee the entire project. Once hired, the CM stands in as the owner's representative and advocate in every step of the construction process from preconstruction to design and bidding, through construction.



The owner will bring the initial design to the construction manager, who will consult with designers to draw up plans and ensure that the design can be built for a reasonable cost and that the builders can understand the design drawings and specifications. This can result in a reduction of the total design effort similar to the design-build process. During the design phase, the CM will work on the owner's behalf to value engineer and find cost-saving opportunities where possible. During the construction phase, the construction manager becomes the prime contractor and awards sub-contracts much like a general contractor in a design-bid-build project. Construction management projects are most frequently done through a guaranteed maximum price contract, but other types may be used.

CMAR ADVANTAGES	CMAR DISADVANTAGES
• The method emphasizes teamwork. • A builder is involved in the design and decision-making process almost from the start. • Process can slightly reduce design costs. • The owner can often be more involved in the selection of sub-contractors if desired. • Fast track schedules are also possible, with all their inherent risks that are described under design-build above. • A construction manager will negotiate the best value for the owner in selecting sub-contractors to keep the owner's costs down. • A construction manager may provide estimating and phasing services throughout the design process, allowing the owner and design team to react and update the design prior to bid.	• The builder must be paid for their participation in the design. • There may be some blurring of the lines of responsibility. • The owner should expect to have more meetings requiring attendance. • There are relatively few true construction managers (as opposed to general contractors) currently working in New Hampshire.

SAFEGUARDING THE PROCESS

INTEGRATED DESIGN

One way to prevent many problems that occur during and after construction is to insist on an integrated design. It is important that the team of architects and engineers coordinate their design efforts and ensure that all elements of the design work together properly for the optimum performance. This coordination is often not possible in fast-track schedules which can lead to suboptimal performance by the final product and result in shortcomings that require costly corrective measures in future years.

VALUE ENGINEERING

The Society of American Value Engineers (SAVE International) defines value engineering as a "function-oriented, systematic, team approach to provide value in a product, system, or service." The goal is to maximize function at the lowest possible cost. True value engineering is a process in which the entire design is reviewed by an independent team of experts who look for opportunities to improve the design for better value. Better value is not synonymous with lower cost. It may be more expensive initially but can result in lower life cycle costs or extend the life of a building component.

INVOLVE BUILDING OCCUPANTS IN THE DESIGN

The staff of the school who will use, operate, and maintain the building must be involved in the design process and must be trained to operate the equipment before the project is complete. Their input, early in the process, can help avoid construction of facilities that do not fulfill the intent.

SELECTION OF CONTRACTORS

The Owner's Project Manager (OPM) and/or the architect should be involved in the RFPs and selection of contractors. New Hampshire law imposes few requirements on school districts concerning the solicitation and hiring of contractors. Unless a local district or municipality has placed restrictions upon itself, the district is essentially free to hire the contractor it chooses using its own criteria for selection. One commonly used method to control quality is to limit bids to a select group of pre-qualified contractors. The OPM and architect can identify contractors who have demonstrated the necessary skills and capacity to do the work. RFPs are then sent to and accepted from only those contractors. All contractors who respond must be treated fairly and equally and you must conduct the process exactly as described in the RFP. Districts along with the OPM should establish criteria on which responses will be judged, publish those criteria in the RFP, and then base selection on those criteria and nothing else. Criteria might include the demonstrated capacity of the company to do the work, past experience on similar projects, safety record, record of completion on time and on budget, number of contractor generated change orders, and similar factors.

COMMISSIONING

Building commissioning is a quality-focused process of verification of building systems and subsystems (mechanical, HVAC, plumbing, electrical, building envelope, renewable energy, lighting, controls, and others) by an independent third party. Commissioned buildings undergo an intensive quality assurance process that begins during design and continues through construction, occupancy, and initial operations. Commissioning ensures that the new building operates as designed and as the owner intended and prepares building staff to operate and maintain building systems and equipment by ensuring that district personnel receive operation and maintenance manuals and training by equipment manufacturers and installation contractors. As commissioning often results in reduced energy consumption, it is typically required for sustainable projects such as LEED (Leadership in Energy and Environmental Design) certified projects.

Commissioning recognizes the integrated nature of all building systems' performance, which impact sustainability, occupant comfort and efficiency. Because all building systems are integrated, a deficiency in one or more components can result in sub-optimal operation and performance among other components adversely affecting operating costs and equipment life.

BENEFITS TO COMMISSIONING
• Construction cost savings • Early detection of potential problems • Improved coordination between design, construction, and occupancy • Fewer system deficiencies at building turnover • Improved system and equipment function • Improved building operation and maintenance • Lower utility bills and operating costs • Better building documentation • Improved indoor environmental quality and occupant comfort

The National Association of State Facilities Administrators (NASFA) recommends budgeting 1.25 to 2.25% of the total construction costs for total building commissioning agent services.

CONTINGENCY BUDGET

Every construction project budget should include some amount to be used to handle unforeseen circumstances. Authority to commit funds from the contingency budget should be held tightly. For new construction, the recommended contingency budget is five percent of the estimated construction cost. For renovation work, ten percent is recommended. Some project teams like to establish a separate contingency budget for the site work since many of the most expensive surprises will be found beneath the surface of the ground once the work begins.

CHANGE ORDERS

A change order is written authorization for making a change in the original drawings, specifications, or contract documents. Change orders may increase or decrease the total project cost. Change orders usually originate in one of the following ways:

1. The owner desires a change in the original conditions of work and requests the contractor, through the architect, to present a quotation on the change. The owner will be responsible for any costs.
2. The contractor or architect may request a change due to additional, less, or different work resulting from conditions not known at the time of bidding. The owner is usually responsible for any costs.
3. The contractor identifies what is believed to be a better or less expensive method to complete a portion of the work and recommends a change. This is sometimes referred to as value engineering, but true value engineering involves a much more thorough analysis by qualified design professionals. The owner is usually responsible for any cost. Savings are sometimes shared with the contractor who recommended the change.
4. An official with proper jurisdiction determines that some aspect of the design or construction is not in compliance with codes or other requirements and directs that a change be made. The owner will be responsible for costs unless the change results from errors or omissions by the designers or if the change results from mistakes made by the builders.

In all cases the architect obtains the necessary quotation for the additional work or allowance for work not done. The architect, in consultation with the engineers, evaluates the impact of the proposed change on the complete design and schedule and recommends approval or disapproval to the owner. The required forms are completed by the architect and signed by both the owner and the contractor. Work involved in any change should not begin without a signed change order.

One way to reduce the number of change orders is to conduct a constructability review near the end of the design phase of the project. Some experts say that this can reduce the number of change orders by 30 percent or more.

PERFORMANCE BOND (RSA 447:16)

Performance bonds are required by RSA 447:16 for construction and/or renovation of public buildings on all contracts of $125,000 or greater ($75,000 or greater for projects in behalf of the state). The construction contract should require that the general contractor, construction manager, or design builder purchase and provide the school district with a performance bond in an amount at least equal to the total value of the contract. This will protect the district in the event the contractor fails to complete the work due to bankruptcy or other reasons.

INSURANCE

Districts should require that projects be covered by builder's risk insurance, general liability and workers compensation insurance, and professional liability insurance. Insurance policies are often the responsibility of the contractor and are part of the cost of construction. Districts might consider purchasing their own policies in order to ensure that they have the coverage they desire and to help reduce costs. Districts' own property and liability insurance policies need to be in effect at the time the certificate of substantial completion is issued.

RETAINAGE

School construction contracts will generally have a payment schedule according to which the school district makes payments to the contractor at various points in the construction process. The points at which payments are to be made are usually upon the completion of particular parts of the construction work. A significant portion of the total payment should be withheld until all work has been completed to the satisfaction of the school district. The amount should be enough to ensure that the district has sufficient funds available to complete the work if the contractor terminates the contract prior to completion. Retaining more than enough to finish the project may be a violation of contract law and may result in a legal challenge by the contractor.

CHAPTER 3: PLANNING AND DESIGN

SITE SELECTION

The site plays an important role in determining how well the final structure will meet the educational, aesthetic, and technical requirements. The site should allow for variations in the size and type of building to be constructed, fulfill the needs of the educational program, and allow for future expansion and potential changes in curriculum or teaching methods. In analyzing the costs, the cost of site development must be included along with the purchase price.

Factors to be used for judging the merits of a site are listed below. The order does not establish importance or priority of each factor.

LOCATION

- Proximity to other school district operated facilities
- Proximity to student population served
- Sites with existing wireless cell phone service
- Sites with public water and sewer, 3-phase power, and fiber optic services
- Consider the following transportation interests:
    - Pedestrian access
    - Bicycle access
    - Vehicular access
    - Emergency vehicle access
    - Community connectivity
    - Access to public transportation
    - Access to major roadways: in a large rural district, it may not be possible to eliminate busing, but a central location, close to the major roadways in the area, can dramatically reduce the transportation requirements.
    - Space for parking facilities
- Codes and zoning
- Adjacent property
- Proximity to current or potential future sources of chemical and noise pollution such as large industrial plants, airports, or major highways
- Impact to surrounding area: residents of a quiet residential neighborhood may not appreciate the addition of a large high school with its heavy traffic and late-night activities. An elementary school in the same neighborhood may be very desirable to the residents.

A location that allows students to bike or walk to school will lower transportation costs and reduce pollution from buses and private automobiles.

SITE QUALITY/CHARACTERISTICS

- Land use – current and historical
- Size
- Topography
- Geological conditions
- Soil characteristics
- Hydrology
- Wildlife and vegetation

- Site preparation requirements
- Easements/rights-of-way/setbacks
- Environmental restrictions/impact
- Natural hazards
- Hazardous materials

STANDARDS FOR ALL PUBLIC SCHOOL CONSTRUCTION PROJECTS

The standards for all school sites are identified in Ed 321.03 and include:

- Provide safe access and sufficient parking, drainage, and security.
- Provide access for emergency vehicles from at least 2 directions unless waived by the local fire chief having jurisdiction for enforcement of the state fire code.
- Constructing in a floodplain is discouraged. If the site is in a floodplain, the school should contact the New Hampshire Department of Environmental Services (NHDES) to best understand the restrictions on developing in a floodplain.
- Prior to acquisition of a site, the school district shall have surveys conducted to ascertain, as much as practicable, that past use of the site has not resulted in conditions hazardous to public health, public safety, or to the environment, or matters of interest for historical preservation under RSA 227-C that cannot be adequately removed, abated, or mitigated.

SITE SIZE

NHED no longer has minimum requirements for site size. However, the following general guidelines will help you determine the appropriate site for your educational needs.

School	Recommended Minimum
Elementary School	Twenty acres of buildable land plus one acre for every 100 students or fraction thereof.
Middle School	Twenty-five acres of buildable land plus one acre for every 100 students or fraction thereof.
High School	Thirty acres of buildable land plus one acre for every 100 students or fraction thereof.

SITE CONSIDERATIONS FOR BUILDING PLACEMENT

- Site should allow orientation of buildings to maximize daylighting and natural ventilation (a north-south orientation for classrooms and other occupied spaces).
- Site should allow orientation of buildings with a major entrance on the south side whenever possible.
- Site should allow for locating kitchen delivery areas, school maintenance, delivery, and dumpsters away from the main building entrance or student activity areas.

SITE CONSIDERATIONS FOR DRAINAGE, STORMWATER, AND RUNOFF

Drainage, stormwater control, erosion control, and pollution management are part of every construction project. Careful site selection and fore knowledge of issues and mitigation procedures will improve site management and keep costs down.

- Plan to reduce impervious surfaces on site and reduce quantity and improve quality of stormwater runoff.
- Identify low-impact rainwater management strategies.
- Plan to control erosion and sedimentation during construction.
- Conform to the best management practices of the US EPA's NPDES (National Pollutant Discharge Elimination System).

- Anticipate designing an on-site drainage system to keep stormwater run-off away from building and to keep grounds, paved areas, and playfields free of standing water.
- Plan the design of paved areas to prevent stormwater and snowmelt from flowing across crosswalks and sidewalks.
- Anticipate designing “open pond” stormwater management systems. Avoid underground stormwater management.

SITE CONSIDERATIONS FOR LANDSCAPING

NATIVE PLANTS AND MAINTENANCE

- Site should allow placement of building and peripheral facilities to disturb as little of the natural setting as possible.
- Designers should choose native vegetation and adaptive plants that do not need permanent irrigation systems.
- Plan for properly placed shade trees that can reduce solar glare into classrooms and can keep cooling costs down.
- Limiting the amount of grass will minimize the amount of fertilizers that are used which saves money and helps protect the environment.

STORMWATER MANAGEMENT

Careful landscaping can help minimize the amount of water that must be captured and may allow the water to run off into drainage swales or other areas acceptable to the Department of Environmental Services, who must approve the drainage plan.

Communities go to considerable expense to treat stormwater from polluted areas such as parking lots and roads, however, much of this water does not require treatment. Storm water can be collected from roofs and other unpolluted areas and used for irrigation of lawns and play fields, for fire protection, or even for flushing toilet fixtures.

CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN (CEPTED)

Safety and security can be improved through environmental design. Crime Prevention through Environmental Design (CEPTED) is a design approach that focuses on improving the safety and security by implementing a physical environment that deters crime. For more information on CEPTED visit: https://rems.ed.gov/docs/CPTEDK12FactSheet_508c.pdf. Please also see Chapter 8: Health, Safety, and Security.

Playgrounds, Outdoor Athletic Facilities, and Parking Facilities are important factors in site planning and design. Please see these sections in Chapter 6: Core and Support Spaces

CHAPTER 4: INSTRUCTIONAL SPACES – ELEMENTARY SCHOOLS

KINDERGARTEN

Kindergarten rooms should provide a minimum of 50 square feet per pupil. With a recommended limit of 20 pupils per group, the minimum size room would be 1000 square feet.

During the 2018 legislative session, RSA 193-E:2-a, which is the Substantive Educational Content of an Adequate Education law, was amended. The amendment adds in a provision specific to the course content and teaching of kindergarten which is structured upon a play-based model. The new section of the law, which has been applicable to all kindergarten instruction since the 2018-2019 school year, is provided in its entirety below:

II-a. Instruction in support of kindergarten standards shall be engaging and shall foster children's development and learning in all domains including physical, social, cognitive, and language. Educators shall create a learning environment that facilitates high quality, child-directed experiences based upon early childhood best teaching practices and play-based learning that comprise movement, creative expression, exploration, socialization, and music. Educators shall develop literacy through guided reading and shall provide unstructured time for the discovery of each child's individual talents, abilities, and needs.

The kindergarten classroom should be designed to support the goal of socializing children and preparing them for formal education through four key components: exploration, movement, expression, and play. The space as a whole should provide a relaxed, homelike atmosphere that provides freedom of movement, space for group activities, and individual places for quiet, personal activities.

GENERAL RECOMMENDATIONS FOR A KINDERGARTEN CLASSROOM

- Furniture and equipment that is child-oriented and child-sized
- Portable or movable furniture that permits immediate and spontaneous changes in the learning situation
- A restroom for each kindergarten room
- Properly controlled heating and ventilation
- Natural light and energy efficient, controllable LED lighting
- Attractively painted, easily cleaned walls
- Pastel colors, notably muted blues and greens, that are calming and can help children focus
- Storage areas, shelves, cubbyholes, and movable shelving that can serve as dividers or partitions
- Carpeting or an area rug on a section of the floor to enhance the homelike atmosphere
- Acoustical surfaces on walls and ceiling to minimize noise
- Simple, natural materials
- Because many activities will take place outdoors, a door that leads directly from the kindergarten classroom to the outside playground

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ELEMENTARY SCHOOLS

GENERAL PURPOSE CLASSROOMS

The majority of classrooms in elementary schools will be the type defined as "General Purpose Classrooms." General purpose classrooms are educational spaces that are intended for the instruction of a group of students, are suitable for teaching a variety of subjects, and require no special permanently installed equipment or unusually large spaces. General purpose classrooms must be adaptable for use by several subjects or several grade levels in the same day.

In elementary schools, instruction in subjects other than art, music, and physical education normally takes place in a general-purpose classroom.

RECOMMENDED CLASSROOM SIZE INCLUDING STORAGE

900 square feet or 36 square feet per student, whichever is greater.

ADDITIONAL RECOMMENDATIONS

- Classroom cubbies for coats, hats, boots, and student supplies for grade levels that are not provided lockers
- Bookcases and teacher storage closets
- Excellent classroom acoustic s
- A lighting plan that provides natural light and appropriate light levels on white boards and does not interfere with projectors or video screens
- A technology plan that includes wireless internet access and shows how technology can be incorporated in the classroom and supports the educational pedagogy
- Classroom doors that are easily lockable from the inside by the teacher but allow egress from the classroom at any time

SCIENCE EDUCATION

Science instruction at the elementary level is usually conducted in a general purpose classroom. General recommendations include:

- Room for students to gather around to observe demonstrations
- Space for elementary-level science equipment such as sand tables, aquariums, and terrariums
- Display cabinets and storage cabinets
- An outdoor classroom or environmental study site on school grounds
- Internet access
- A sink with hot and cold water and GFI protected electrical outlets

ARTS EDUCATION

Elementary school arts education programs may be accommodated within a general use or dedicated arts classroom. Provide one dedicated classroom for each arts subject area staffed with greater than 0.5 full time fine-arts teacher. Provide additional dedicated arts program storage of at least 60 net square feet for each art subject area per facility.

PHYSICAL EDUCATION

At the elementary school level, physical education may be conducted in a gymnasium or in a multi-purpose space that may double as the dining area for the school.

- Physical education facilities in elementary schools are typically designed to allow for multi-use of the space.
- The recommended size is approximately 70’ X 100’ with a minimum of 110 square feet per student.
- A 20’ high ceiling is recommended, although 14’ to 16’ is acceptable.
- Flooring should be resilient flooring, a hard wood gym floor, or special rubberized flooring designed for physical education applications.
- Walls should have a smooth, hard surface.
- Acoustical treatments are necessary to ensure that students can hear other students and the teacher at all times.
- An outdoor area for physical education is strongly recommended. This may include grass playing fields, general purpose fields, an all-weather surface court, or a combination of several types of outdoor surfaces.

- One office should be provided.
- Separate physical education equipment storage should be provided.
- Extracurricular and community use of the physical education spaces may affect the space design, such as providing an official sized basketball court.

Physical Education programs require significant equipment and equipment storage. Include square footage for equipment storage when allocating space for physical education.

SPECIAL EDUCATION

Space shall be provided in every school to meet the unique requirements of special education students and to meet the special education requirements in Ed 1114.

- Consider space needed for speech therapy, physical therapy, occupational therapy, and private counseling.
- Provide a sink and private washroom.
- A room for private meetings with parents and staff should be available. This meeting room should be located adjacent to the main entrance to allow for visitor access while keeping the school secure. This room need not be used exclusively for special education purposes.
- Consider locked, fireproof containers for record storage.
- A private office should be provided for the special education coordinator if there is a position on the school staff.
- Some students with special needs may require one-on-one instruction. Appropriate spaces should be provided to meet these needs.
- Some special education spaces may require a high level of acoustic separation or absorption. Consider engaging an acoustic engineer to review these spaces and performance expectations.

CHAPTER 5: INSTRUCTIONAL SPACES – MIDDLE SCHOOLS AND HIGH SCHOOLS

GUIDELINES FOR ALL CLASSROOMS

- Furniture should be movable to allow for a variety of working arrangements.
- Provide a technology plan that shows how technology can be incorporated in the classroom and how it supports the educational pedagogy for a variety of subjects.
- The lighting plan should provide natural light, appropriate light levels on white boards, and not interfere with monitors or projection screens.
- Ensure reliable wireless internet access.
- Provide sufficient electrical outlets.
- Install classroom doors that are easily lockable from the inside by the teacher but allow egress from the classroom at any time.

GENERAL PURPOSE CLASSROOMS

Many subjects at the middle school and high school level are taught in general purpose classrooms. The recommendations below are for classrooms with 18-25 students. These recommendations may be larger than what is needed for smaller class sizes.

RECOMMENDED MIDDLE SCHOOL CLASSROOM SIZE INCLUDING STORAGE

900 square feet or 36 square feet per student, whichever is greater.

RECOMMENDED HIGH SCHOOL CLASSROOM SIZE INCLUDING STORAGE

800 square feet, or 32 square feet per student, whichever is greater.

ALL GENERAL-PURPOSE CLASSROOM CONSIDERATIONS

- Provide different chair-desk combinations, tables for discussions, areas for small group work and collaborative learning, and areas for large group activities and discussion.
- Room design should allow for sections that can be arranged to provide a reference center, reading table, displays, individualized material kits, etc.
- Provide extra white boards and bulletin boards.
- Provide video projectors and a screen or surface suitable for projection.
- Install a sound system for audio recording or playing.
- Provide a wireless printer.

SCIENCE EDUCATION

At the middle school and high school level, science instruction may be conducted in separate classrooms and laboratories or in a larger room that is both a classroom and a laboratory.

Requirements for all laboratories and classrooms that use hazardous chemicals, Ed 320

All laboratories and combination lab-classrooms shall be operated to reduce potential hazards by providing at least 50 net square feet per pupil for each lab and at least 60 net square feet per pupil for each combination lab-classroom.

Emergency shower and eye wash stations are available in all science labs, automotive shops, and other places where hazardous liquids or open flames are frequently used, and they comply with the American National Standards Institute Z-358.1 Eyewash standards 2014.

Requirements for all laboratories and classrooms that use hazardous chemicals, Ed 320 (continued)

A chemical hygiene plan is required to be submitted to the Department of Education. The plan requires that all flammables be stored in a cabinet that meets NFPA 30, Flammable and Combustible Liquids Code, and all acids be stored in a corrosion-resistant cabinet.

RECOMMENDED CLASSROOM SIZE FOR SCIENCE LABORATORIES AND COMBINATION LAB CLASSROOMS

- 50 net square feet per pupil is required by Ed 320 for separate labs.
- 60 net square feet per pupil is required by Ed 320 for combination lab-classrooms.
- It is recommended that separate labs be at least 900 square feet and that combination lab-classrooms be at least 1250 square feet.
- Maximum of 24 laboratory workstations, at least one of which shall be suitable for students with disabilities and in compliance with RSA 275-C.

ADDITIONAL SCIENCE LABORATORY AND CLASSROOM REQUIREMENTS AND RECOMMENDATIONS

- Laboratories where chemicals or hazardous liquids are to be used must include an emergency eyewash and emergency shower or combination eyewash/shower meeting the requirements of ANSI Z358.1.
- A chemical hygiene plan is required to be submitted to the Department of Education. The plan requires that all flammables be stored in a cabinet that meets NFPA 30, Flammable and Combustible Liquids Code, and all acids be stored in a corrosion-resistant cabinet.
- A class B and a class D fire extinguisher is provided in all chemistry labs.
- A class B fire extinguisher is provided in all other labs.
- An emergency fire blanket is provided in all labs.
- A fume hood must be available in all chemistry labs where experiments or demonstrations with the following characteristics may take place:
    - Using chemicals that are hazardous when inhaled.
    - Conducting experiments or demonstrations with strong exothermic reactions.
    - Using chemicals with high vapor pressures.
    - Working with chemical vapors that are fire hazards.
    - Using chemicals that produce an offensive odor.
- Fume hoods should have an average face velocity of 100 cubic feet per minute (cfm) and must be able to prevent the escape of fumes when the sash is moved.
- The fume hood exhaust must be separate from the building ventilation system.
- Light bulbs in fume hoods must be sealed in vapor proof fixtures.
- Exterior finishes should be chemical resistant epoxy.
- The interior work surface must be watertight and should include a raised edge to contain spills.

STORAGE

- Labs require considerable storage and preparation space, often provided by a shared room between every two labs.
- At least 400 square feet is recommended.
- Chemicals must be stored properly to meet state and federal requirements for storage of hazardous materials.
- Guidance can be provided by the State Fire Marshal’s Office.

DESIGN

While the design of particular facilities will vary depending on the local science curriculum, available resources, and building codes, all school laboratory facilities should provide space for:

- Shared teacher planning
- Preparation of investigations
- Secure storage for laboratory supplies
- A safe learning environment
- Flexible use of space and furnishings to support integration of laboratory experiences with other forms of science instruction.

Combined laboratory-classrooms can support effective laboratory experiences by providing:

- Moveable benches and chairs
- Moveable walls
- Peripheral or central location of facilities
- Wireless internet connections
- Trolleys for computers, fume hoods, or other equipment

Forward-looking laboratory designs maximize use of natural sunlight and provide easy access to outdoor science facilities.

COMPUTER LABORATORIES, COMPUTER SCIENCE, TECHNOLOGY EDUCATION

The New Hampshire Department of Education 2018 Revised Computer Science Standards provide guidelines and expectations for computer literacy and recommend that students take a computer science or technology course each year of middle school and at least one ½ credit (.05) course during high school.

In cases where the school has an integrated and comprehensive technology plan, there may be few differences between a classroom, tech-ed lab, computer lab, business lab, and other classroom areas in a building. If all of the spaces are equipped appropriately, any space can be designated as a computer lab. Portable carts may be used to transport portable devices to classrooms for computer instruction.

RECOMMENDATIONS FOR PURPOSE-BUILT COMPUTER/TECHNOLOGY LABS

- Adequate access to electrical outlets and network connections to ensure flexibility of the space
- Reliable power supply
- Proper cabling of electric wires/power cords away from users' paths to avoid tripping
- Cables and outlets that insulated to avoid electrical shocks
- Dust-free writing boards (e.g., white boards)
- Space as free from dust and moisture as possible
- Good ventilation
- Standard furniture (to minimize limb fatigue and strain injuries) to hold computers and provide collaborative workspace while allowing space for movement
- Increased shelving, cabinets, and storage space
- Independent temperature controls
- Portable and wirelessly networked technology
- Workstations along the perimeter of the room that facilitate the teacher's view of student work as well as allow students to better focus on their own work
- Open tables or workspace for peripheral equipment, such as 3D printers or robotics
- At least one adjustable-height workstation/table
- Keyguards and wrist and forearm rests

- Lighting designed to prevent glare
- Anti-glare screens/light filters for CRT monitors
- Acoustical design that minimizes noise from keyboards and printers

ARTS

RECOMMENDED ART CLASSROOM SIZE

Middle school

- No less than four net square feet per student of the specialty program capacity for arts subjects
- One dedicated classroom for each arts subject area staffed with greater than 0.5 full time fine arts teacher
- Additional 60 net square feet of storage for each arts program subject

High school

- No less than five net square feet per student of the specialty program capacity for arts subjects
- One dedicated classroom for each arts subject area staffed with greater than 0.5 full time fine arts teacher
- Additional 60 net square feet of storage for each arts program subject

VISUAL ARTS

- Learning spaces are best located on the ground floor with access to related curricular areas and convenient entry for delivery purposes.
- If the spaces are to be used after regular school hours, they should be located to permit easy but controlled entry from the outside.
- During school hours, students need ready access to the out-of-doors for sketching, painting, field trips, and other such activities.
- High school visual-arts programs at larger schools or schools with specialty arts programming may justify separate areas for classes such as painting/drawing/printmaking, jewelry/ceramics/sculpture, and photography/filmmaking/digital design.
- Small-scale or limited programs might only require shared use of appropriately sized and equipped space, as long as adequate storage space is provided.
- Art activities are best performed on tables with mar-resistant surfaces.
- Illumination that is glare-free, intense enough for detailed work and that allows true color discrimination is vital.
- Natural light from north-facing windows is ideal.
- Provisions for adjustable spot lighting to highlight still-life setups or wall displays are beneficial for art rooms in the upper grades.
- In schools with enrollments below 500 students, art can be shared with other uses or incorporated into the regular classroom.

PERFORMING ARTS

MUSIC

- Designs should account for acoustics, room size, shape, temperature, and relative humidity.
- Spaces should enhance the quality of sound. Acoustics are critical to the music program and a sound consultant may be helpful.
- Provide teaching spaces for instrumental and vocal instruction on an individual and group basis.
- Provide acoustically treated rehearsal room for individuals and small groups.
- Provide offices for the faculty and staff, some of which may double as studios.
- Provide storage areas to accommodate musical instruments, teaching aids, uniforms, music stands, risers, shells, lights, and other performance apparatuses.
    - These should be located close to areas where the equipment will be used.

    - Storage areas for student instruments work best when designed for flow-through one-way traffic.
- Provide facilities for instrument repair and cleaning that include a sink.
- Determine the appropriate number of spaces needed. Band, orchestra, and chorus programs at larger schools may justify separate areas for each program while small-scale programs might only require shared use of appropriately sized and equipped space, as long as adequate lockable storage space is provided.

THEATER

Guidelines for facilities for theater instruction can be obtained from the American Alliance for Theater and Education, http://www.aate.com. Auditoriums, stages, and theater technology are addressed in Chapter 6: Core and Support Spaces

General Theater Programs

Theater Instructional Space	• General purpose classroom with movable furniture is adequate • Classrooms should be located where full volume rehearsals will not interfere with activities in surrounding rooms
Rehearsal Space	• Full cast rehearsals require a larger more open space. The auditorium stage can be used as rehearsal space.
Theater Technology	• Lighting and sound design can be taught in the stage/auditorium space.

Comprehensive Theater Training Programs

High schools with comprehensive theater training programs may include shop and instructional areas for design and construction of costumes, scenery, and props.

Lighting and Sound Design	• Can be taught in the stage/auditorium space
Costume Design	• Recommended minimum of 650 square feet • Electrical outlets for sewing machines, sergers, irons, etc. • Craft/dirty room for costume crafts that includes sink for dyeing • Laundry facilities • Storage facility for costume stock • Natural lighting if possible and energy efficient LED lighting
Set Design and Construction	• Recommended shop size of 1200 square feet • Set construction shop located near the performance stage with easy access for moving large items • Shop located close to an outside loading/receiving area where materials can be easily delivered into the shop • Sink with hot and cold water • Painting booth • Ventilation hood • Well lighted • Ventilated with an air exchange rate of at least 20 cfm/person • Hard surface floor of concrete or vinyl
Dressing Rooms	• One or two rooms totaling 600 square feet for dressing and makeup • Dressing rooms include toilet facilities or are located adjacent to other washrooms • Mirrors, tables, seating, adequate lighting, and plenty of electrical receptacles

DANCE

- Dance may need to be provided in a shared-use space or multipurpose room.
- Consideration should be given to impact-resilient flooring materials and space to provide sufficient travel distances for combinations of steps.
- Spaces suitable for dance instruction in middle and high school should also include flooring designed to minimize injuries, ballet barres, mirrored surfaces, and sufficient travel distance.
- With consideration for lighting and curtains, such a space may also be used for theater.

PHYSICAL EDUCATION

Physical education at the middle and high school levels is typically conducted in gymnasiums, multi-purpose rooms, and outdoor areas that are designed and constructed for competitive team sports and life-long physical fitness activities.

GYMNASIUM

RECOMMENDED GYMNASIUM SIZE

Middle school

Minimum of 5,200 square feet plus an additional 4 square feet times 40% of the enrollment of the school devoted to bleacher seating. Review the New Hampshire Interscholastic Athletic Association (NHIAA) for standard competition court sizes.

High school

Minimum of 6,500 square feet plus an additional 4 square feet times 40% of the enrollment of the school devoted to bleacher seating. Review the New Hampshire Interscholastic Athletic Association (NHIAA) for standard competition court sizes.

ADDITIONAL GYMNASIUM RECOMMENDATIONS

- Most middle and high schools will have at least one hard wood floor main gymnasium which is marked and equipped for basketball and volleyball.
- Larger schools may have two or three gyms or one large gym that can be divided by moveable walls or screens. Some schools may also have weight training rooms and multipurpose rooms that are available for physical education.
- Often the space is arranged to provide one main court with the bleachers extended and two courts when the bleachers are closed.
- In many schools, the gymnasium serves a variety of purposes including assemblies.
- The regulation size of a high school basketball court is 84 feet long and 50 feet wide, and schools with basketball teams may need a gymnasium that meets that minimum.
- Clearances for basketball courts should be reviewed. The National Federation of State High School Associations recommends a minimum of 3 feet of clearance around the perimeter of the court, with a preference for 10 feet.
- Wall padding should be employed for safety.
- Gymnasiums should be isolated from other classroom areas due to noise considerations.
- Provide acoustical treatments to reduce noise, reverberation, and echoes within the gymnasium. Keep reverberation times in the gym within a range of .8 - 1.5 seconds.
- Provide equal facilities for men and women.
- Provide access and suitability for persons with disabilities.
- Suitable light fixtures that are recessed or shielded should be installed.
- Windows in the gymnasium should be elevated and protected.
- Provide a public address system with provisions for an assistive listening system.
- Provide easily accessible facilities for applying emergency first aid.
- Provide adequate storage space for equipment (recreation mats, chairs, etc.), particularly if the space is to be used for multiple functions.
- Office space should be provided for physical education teachers and coaches.

WEIGHT ROOMS AND FITNESS CENTERS

- A versatile, multi-purposed fitness space to move hundreds of students through during a school day is becoming more relevant in high schools.
- Weight rooms/fitness centers serve the needs of a diverse range of student athletes and also serve all students in physical education classes.
- Recommended size is 10 square feet per student.
- Weight rooms/fitness centers support growing interest in college majors or careers involving physical therapy, kinesiology and exercise science, training and conditioning, physical education, and other related careers.

LOCKER ROOMS

- Sufficient lockers, changing areas, and showers should be provided as required by the physical education curriculum for students in grades 7-12.
- Private shower stalls and changing areas should be provided to safely ensure proper hygiene.
- Floors in shower and drying areas should have slip-resistant floor surfaces.

OUTDOOR FACILITIES

Outdoor facilities for physical education may include multi-use playing fields, tennis courts, and running tracks. The New Hampshire Interscholastic Athletic Association (NHIAA) can provide the latest guidance for the layout and construction of athletic facilities.

- Define the interrelationship between indoor and outdoor facilities.
    - Interscholastic sports and community recreation provide opportunities for partnerships between the LEA, parks and recreation departments, and other local organizations.
    - Because these facilities may be used during non-school hours, considerations should be made for separate entrances, zoning of HVAC systems, location of parking, exterior lighting, storage, location of restrooms, and the ability to access these facilities without accessing the entire building.
- Consider providing outdoor equipment storage accessible from outdoor areas.

Outdoor Athletic Facilities often function as both instructional spaces and support spaces. Please see more detailed information about Outdoor Athletic Facilities planning in Chapter 6: Support Spaces.

SPECIAL EDUCATION

Space shall be provided in every school to meet the unique requirements of special education students.

- The total amount of exclusive use space for special education varies based on the programs provided. Schools should work closely with the school's special education director to get a good understanding of the required services and the space necessary to implement them.
- Consider space for speech therapy, physical therapy, occupational therapy, and private counseling. Physical and occupational therapy may be co-located.
- A sink and private washroom are recommended.
- An area for private meetings with parents and staff should be available. This meeting area should be located adjacent to the main entrance to allow for visitor access while keeping the school secure. This room need not be used exclusively for special education purposes.
- Locked, fireproof containers shall be provided for record storage.
- A private office should be provided for the special education coordinator if there is a position on the school staff.
- A Life Skills area may be provided to teach basic skills for independent living for older students. The area should be equipped with common household furnishings and appliances such as a

stove, clothes washer, clothes dryer, etc. The size of the space and the number of appliances will be based on the estimated number of students who will need this service at any one time.

- Some students with special needs may require one-on-one instruction. An appropriate space should be provided.
- Some special education spaces may require a high level of acoustic separation or absorption. Consider engaging an acoustic engineer to review these spaces and performance expectations.

CHAPTER 6: CORE AND SUPPORT SPACES

Support Spaces in schools serve to accommodate the non-classroom needs of students and staff. Examples of Support Spaces include:

- Administrative space
- Nurse's suite
- Kitchens
- Cafeterias
- Teacher preparation area
- Gym locker rooms
- Team rooms
- Outdoor team athletic facilities
- Storage areas
- Parking
- Restrooms

School planners should be aware of the possibility of multipurpose use of support spaces.

- The cafeteria, gymnasium, and auditorium may be combined in several ways:
  - The cafeteria can serve as a lunchroom and auditorium.
  - The gymnasium can serve as gymnasium and auditorium.
  - The same area can serve all three of the above functions.
  - The auditorium can be combined with a theater.
- Multi-use of support spaces requires careful planning and usually places some restrictions on their adequacy for a specific purpose.

Once the basic function of each support space has been determined, planners should consult the architect to integrate these spaces into the total project.

ADMINISTRATIVE SPACE

All Schools	• A secure entrance that controls the flow, path, and engagement between administrative staff and all visitors.
	• The central administrative office should be centrally located and the only space accessible to the public.
	• Considerations for the central administrative include the following:
	  ○ Filing and storage facilities
	  ○ An intercommunication system within the school
	  ○ Good lighting for all areas
	  ○ Controlled heat, ventilation, and air conditioning for year-round operation
	  ○ Provisions for safeguarding funds, records, etc.
	  ○ Ample electrical outlets for office equipment

Large Schools	• Recommended administrative office space minimum for up to 6 staff members:
	  ○ 1200 square feet
	• Recommended administrative office space minimum for more than 6 staff members:
	  ○ 1200 square feet plus 120 square feet for each additional office space, and

	○ 60 square feet for each additional person in an open office space. • Private offices are recommended for school principal, each assistant principal, and each guidance counselor. ○ Offices for principals, assistant principals, and guidance counselors should be sound-resistant. ○ The principal's office should be large enough for conferences with teachers, students, or administrators. • Administrative space is recommended for chief building maintenance individual, chief food service individual, and each administrative staff person. • Offices and administrative areas should be furnished appropriate to the work performed at that location.
Small Schools	• Private, sound-resistant offices are recommended for school principal, each assistant principal, and each guidance counselor. • In schools where administrators are cross-trained to cover multiple roles, fewer office spaces may be necessary, which can help control costs.

GUIDANCE

School guidance counselors collaborate with teachers, administrators, and staff to develop systems and programs for student success. They work alongside students' families and the larger community to help close the learning gap and provide what is needed for every student, including advocacy, crisis intervention, curriculum development, and assessment.

The role of the school guidance counselor varies significantly between elementary schools, middle schools, and high schools. Space provided should meet the specific needs of the role for each age group.

- Each guidance counselor should have a private office.
  - For elementary schools, provide a minimum of one counselor's office for every 500 students.
  - For middle and high schools, provide a minimum of one counselor's office for every 300 students.
- Provide one waiting room containing a receptionist-secretary area, worktables, shelving for books and bulletins, and filing cabinets.
- Provide conference rooms.
  - A minimum of one conference room is recommended for small schools.
  - Large schools should consider several conference rooms.
  - Conference rooms should be located near the main lobby to allow parents, therapists, or police easy access to attend without disruption of the school day.
- Provide fire-proof storage space for long-term records.
- Provide storage for testing materials, etc.

CONFERENCE/MEETING ROOMS

Conference and meeting rooms should be accessible to the main entrance of the school to allow access for outside visitors while keeping the learning areas of the school secure.

Rooms should be available for small staff meetings or for private meetings with students and parents. There should be at least one conference room with seating for at least ten people in every school. Larger schools should have several meeting rooms conveniently spread around the building.

FACULTY SPACE

Consider the following recommendations for spaces for the faculty:

- Each teacher should be provided with at least 64 square feet of shared administrative space to be used for lesson preparation and grading student work during periods when that teacher is not conducting classroom instruction.
- Shared administrative space should include a desk or other work surface, a seat, and task lighting.
- This space may be within another educational space if that space is exclusively assigned to one teacher.
- Teachers also need a place to consume, and possibly prepare meals. This can also be a place for teachers to relax and socialize during breaks. A teachers' lounge can double as a meeting facility.

SCHOOL HEALTH CENTER

The health center should be located near the guidance office and the administrative office, as close to the main entrance of the school as possible, and easily accessible to students, parents, and school staff. It is recommended that the space be at least 400 square feet and be sufficient size to provide the following:

- Exclusive administrative space for the school nurse, furnished appropriately for the work to be performed, including confidential record storage
- A waiting area
- Space for examining patients that includes a sink with hot and cold water, equipment for vision, hearing, and dental screenings
- Secure dry and refrigerated storage for medications and storage for first aid supplies
- A patient isolation area that includes one cot for every 200 pupils
- A separate restroom that meets current accessibility requirements

AUDITORIUMS AND STAGES

The auditorium and/or theater may serve several functions. It may be used for theater, dance, and music instruction and performance, for community programs and public meetings, or for school assemblies and other large group instructional activities. In smaller schools, the stage/auditorium may be combined with a gymnasium, with bleachers doubling as audience seating.

Professional design and construction guidance should be obtained in planning the stage and auditorium, whether it will be a multipurpose space or used extensively by performing groups. The space will require decisions about lighting systems (stage and auditorium), sound systems, projection systems, acoustical treatment, seating, stage size and backstage areas, and in some cases, orchestra pit, fly space, catwalks, and other features.

The following are some general considerations for theater and auditorium facilities:

- Provide at minimum a basic professional stage curtain, sound system, and theatrical lighting system.
- Design dressing rooms, green rooms, storage rooms, and scenery shops.
- A control booth should be reasonably sized at 10' x 15' and located for visual supervision of the stage and for video and audio recording of performances.
- Specify sealed or painted concrete floors with carpeted aisles.
- Design the auditorium stage and all support areas to be ADA accessible.
- Audience seating should range around 10-12 square feet per seat.

SCHOOL LUNCH FACILITIES

A school lunch facility typically requires two major kinds of space: one for preparation (including receiving, storage, preparation, and cleanup areas) and one for dining.

Consider the following recommendations for the lunch facility space:

- Provide adequate space in the cafeteria to allow each student a minimum of 10 minutes, not including serving time, to sit at a table and consume their meal during a specified lunch period.
- The size of the cafeteria should be based on 12-15 square feet per student for the maximum number of students in any given lunch period.
- The throughput of the serving line or lines should ensure that all students can be served in the allotted time and that no student has to wait for a seat to become vacant before eating.
- The kitchen needs to be of sufficient size to allow the proper installation of all necessary equipment with the necessary spacing between appliances to meet the applicable safety requirements as specified by the manufacturer, the state building code under RSA 155-A, and the New Hampshire Department of Labor.
- Preparation and storage facilities should be located at ground level, adjacent to the dining area, with a separate entrance.
- In large schools, the dining area should be in a relatively central location to minimize the travel distance from educational areas.
- There should be direct access from the kitchen to the loading dock or other delivery area and to the refuse dumpsters.
- Guidelines for the design and construction of kitchens and cafeterias is provided in the National Food Service Management Institute's publication, *Equipment Purchasing and Facility Design for School Nutrition Programs.*

Kitchen facilities of schools that participate in the National School Lunch Program (NSLP) must be equipped to serve food that meets the program's nutrition and food safety standards. Food establishments that sell or serve food to the public must obtain an annual license and be inspected by New Hampshire Department of Health and Human Services (DHHS). If the school is located in one of the self-inspecting municipalities, they need to comply with local food regulations. Contact the Bureau of Food Protection at DHHS for more information.
Additional recommendations for finishes, furnishings and materials for school cafeterias and kitchens can be found in Appendix 8: Recommended Finishes and Materials for School Cafeterias and School Kitchens.

STORAGE FACILITIES

Schools are required to provide enough storage for cleaning supplies, tools, spare parts, unused furniture, equipment not in use, and other like items required for custodial and maintenance activities (Ed 320). In addition to designing to meet this minimum storage requirement, the following list includes other items with storage needs:

- Outer garments, books, and other personal items for the duration of the school day for both staff and students.
- Special clothing for food service workers, custodians, and other staff.
- General office supplies, textbooks, classroom equipment and similar items as required for administrative purposes.
- Athletic equipment, musical instruments, uniforms, and other items of school property used by students or activities.
- Dry and cold food storage, and paper products. The space should be large enough to allow the school to purchase items in bulk.
- Recycling and refuse. Consider the collection schedule when determining the number of dumpsters or other type containers needed.

- Include satellite storage/work areas on each floor for custodial staff and a maintenance room for large buildings.
- A special room or facility should be planned for the storage of flammable materials, such as waxes, paint, etc. This room should also have suitable extinguishers and detectors.
- The service and delivery entrance for should be located near storage areas and should be independent of normal student and faculty traffic. Supplies and materials delivered to the building should not have to be carried too far inside and should not interfere with student traffic.
- Supplies that have multiple uses or that can be used more than once can reduce storage requirements as well as costs and waste.
- Recycling should be practiced to the maximum extent possible, and an adequate number of appropriate recycling containers must be available in areas where recyclable materials will be used.
- Some instructional and support spaces have specific storage facility requirements, and additional information can be found in each section on instructional or support space.

Schools with an athletic program and physical education curriculum should plan for exterior storage of equipment and machines. Many schools find it convenient to have a separate building on the athletic field for storage of instructional equipment as well as mowers and other machines. Convenient location of such storage facilities can reduce the time and effort of instructors and groundskeepers in organizing and carrying out their assignments.

RESTROOMS AND DRINKING FOUNTAINS

Schools must be designed, constructed, and maintained to provide code compliant plumbing systems, including potable water, sanitary sewer and vent, storm drain, and other specialty plumbing systems.

REQUIREMENTS

The design and installation of all plumbing systems shall comply with:

- The state building code under RSA 155-A
- The state fire code under RSA 153:1, VI-a and Saf-Fmo 300, as amended pursuant to RSA 153:5
- The state code for barrier-free design, Abdf 300
- Whenever a school building is designed to allow restricted access to parts of the building such as the gymnasium or the auditorium, a sufficient number of lavatories and toilets or urinals shall be included within the restricted area to accommodate the maximum occupancy of the restricted area in accordance with the state building code under RSA 155-A.
- In new school buildings, every restroom must be ADA compliant. In existing buildings there must be at least one ADA compliant restroom in the building. Preferably, there is at least one on each floor.
- Schools shall install water bottle filling stations in accordance with RSA 200:11-b.
- Where integral to hand washing sinks, receptors for drinking fountains shall be directed to a receptor basin separate from the hand washing sink.
- One drinking fountain or water cooler shall be provided for every 40 students or fraction thereof, unless a larger number is required by the state building code under RSA 155-A, in which case the code requirement shall be met.

RECOMMENDATIONS

- Kindergarten classrooms should have a bathroom in each classroom.

- Elementary schools should have bathrooms close to classroom areas, if not in directly off the classrooms.
- Single-user, all-access/all-gender restrooms should be implemented in multiple locations.
- Touchless features in washrooms aid in providing a sanitary environment.
- Lights should be controlled by vandal resistant occupancy sensors.
- Provide automatic flush valves and sink faucets.
- Hand dryers are sanitary and reduce custodial requirements of paper towel dispensers but increase the use of electricity. Hand dryers can also make pathogens airborne if hands are not sufficiently clean.
- Floor, ceiling, and wall finishes should be moisture resistant.
- Restrooms should be located on main travel routes within the building and in places where supervision is easily provided.
- Emergency shower and eye wash stations shall be provided in all science labs (see Science Education), automotive shops, and other places where hazardous liquids or open flames are frequently used and shall comply with the American National Standards Institute Z-358.1 Eyewash standards 2014.

PLAYGROUNDS

> Any public playground constructed on or after January 1, 2024 shall, in addition to meeting general safety standards and Americans with Disabilities Act standards, include accessible pathways made from resilient solid surface material that is not a loose fill or aggregate, beginning at the entrance of the playground, continuing to each piece of playground equipment, and extending to the playground exit.
>
> RSA 155:83

Elementary schools require sufficient play areas to support daily play time and physical education and other activities. Guidance on the construction of playgrounds can be found in the U.S. Consumer Product Safety Commission's *Public Playground Safety Handbook* and should confirm to ASTM (American Society of Testing Materials) standards.

Playgrounds are required to be ADA compliant as explained in 36 CFR Part 1191, in addition to meeting the requirements of RSA 155:83.

Another source of information is the National Program for Playground Safety located at the University of Northern Iowa, www.playgroundsafety.org

CONSIDERATIONS FOR PLAYGROUNDS

- For Grades Pre-K to 3, provide a hard play area, a soft play area, and an all-purpose field, sizes proportional to student population.
- For Grades 4 to 6, provide a hard play area, a soft play area, an age-appropriate baseball field, and an overlapping all-purpose field, sizes proportional to student population.
- There is a growing interest in the health benefits of natural playgrounds. More information about natural playgrounds can be found at https://www.naturalplaygrounds.com/
- Specify surfaces and play equipment for soft play areas that meet ADA and OSHA standards.
- Provide drainage to prevent ponding.
- Provide subsurface drainage systems under soft play areas.
- Use linear shapes and simple forms at play areas to accommodate snow removal and maintenance.

- Specify playground equipment constructed of durable, weather-resistant, low maintenance materials.
- Consider bike racks at the main entrances to the building.
- Consider security and lighting requirements.

OUTDOOR ATHLETIC FACILITIES

Middle and high schools require athletic facilities to support curricular and co-curricular activities. The National Federation of State High School Associations–Court and Field Diagram Guide and The New Hampshire Interscholastic Athletic Association (NHIAA) can provide the latest guidance for the construction of athletic facilities, including specific field dimensions, surfacing, and layouts. Schools should check with the NHIAA prior to construction of facilities to be used for official competitions to ensure that they meet the minimum requirements.

CONSIDERATIONS FOR OUTDOOR ATHLETIC FACILITIES IN SITE PLANNING

- Grades 6 to 8: A hard play area, a softball field, a baseball field, and an overlapping all-purpose field; sizes proportional to student population
- Grades 9 to 12: A hard play area, a softball field, a baseball field, and an overlapping all-purpose field; sizes proportional to student population
- Practice facilities
- Seating for spectators
- Parking
- Lighting
- Irrigation
- Equipment storage
- Restrooms
- Drinking fountains
- Fencing
- Site restrictions that require the use of one facility for several different sports
- Surfacing of fields, tracks, and tennis courts and subsequent maintenance requirements
- The life safety code requires annual inspections of bleachers by the facility staff and biennial inspection by a licensed engineer, registered architect, or manufacturer's representative. These inspections should be documented.
- Bike racks at the main building entrances
- Security needs and emergency vehicle access

PARKING FACILITIES

A critical component to providing a safe parking lot is to keep school bus access, parent drop-off routes, and delivery routes separate from each other, and separate from access to the parking lots.

- School bus access, parent drop-off routes, and delivery routes should be kept separate from each other and separate from access to parking lots. Many schools prefer to separate staff and student parking as well. Traffic control structures such as islands and barricades can assist in keeping things separate.
- Outside vehicle parking space should be provided for at least 100 percent of the staff and 75 percent of the students eligible to drive a vehicle.
- Additional parking areas should be provided for visitors, parents, and school buses as required.
- Visitor parking should be located close to the main entrance which should be obvious from the parking space or appropriate signage must be installed to guide the visitor to the correct entrance.

- Parking lots must also meet the requirements of the ADA for the number, location, size, and marking of accessible spaces.
- Parking lots and walkways must be properly lighted to provide for the safety of those using them.
- Angled parking is helpful for maintaining traffic flow and can help reduce minor accidents, but it takes approximately seven percent more space than perpendicular parking for the same number of vehicles.
- Spaces should be clearly marked.
- Parking lots are normally surfaced with asphalt. All lots must be designed to drain properly. Snow and ice removal are important considerations.

CHAPTER 7: LIBRARY / MEDIA CENTER

The School Library/Media Centers is an essential component of a school and should reflect the increasing importance and need for library and information skills and resources for students and staff. The library program should drive the size, design, and arrangement of the school library facility. Each school's library is unique, and the size, design, and arrangement of the facility will be determined by factors such as age of students, whether the space includes technology resources, whether it includes a maker space, and whether it is designed to be a learning commons.

With the digitization of content and changes in the way student and teachers engage with material, many school libraries are transforming themselves into learning commons. The National Forum on Information Literacy (2014) provides the following definition of a learning commons: "In 21st-Century Schools, a school library is the physical and virtual learning commons where reading, inquiry, discovery, thinking, imagination, and creativity are central to students' information-to-knowledge journey, and to their personal, social, and cultural growth." Books and printed material still play an important role, but with the availability of digital technologies, the library needs to be more than a place to access materials. It must be a place that encourages participatory learning and developing understanding from many sources. The cubicles and stacks of traditional spaces can hinder group work and collaboration. A learning commons is a designed to be a flexible space with moveable chairs, desks, and often bookshelves. Small rooms can be opened up to allow for group projects. Seating areas may be designed to allow space for casual gathering and brainstorming.

GENERAL GUIDELINES FOR A LIBRARY/MEDIA CENTER/LEARNING COMMONS

General guidelines for a library/media center/learning commons are 10% of the student capacity x 30 square feet.

Other considerations include:

Flexibility	• Furniture should be rearrangeable, for example, light-weight chairs that are easy to move. • Select tables that can be combined to offer seating for larger groups of students. • Provide shelving that is adjustable, and ideally, moveable. • Provide adequate access to power for laptops, projectors, and other electronic devices throughout the space. • Support the widest variety of uses possible, as needed by the school community (classrooms, quiet reading, small group study).
Age group(s)	• Libraries in combined schools (elementary/middle or middle/high school) will need to provide spaces for the needs of different-age learners.
Lighting	• Provide ambient natural light as much as possible. • Provide overhead lighting for general work. • Provide task lighting for smaller tasks. • Ensure that the lighting can be easily changed for various needs. • Windows should have shades or coverings that allow protection from glare, heat/cold filtering and provide darkening for projection needs.
Internet Access	• Provide wireless access throughout. • Provide desktop workstations for use by students who do not have laptops. • Provide computer labs if appropriate
Display Areas	• Design visible and easily accessed exhibits for highlighting new or special groups of reading materials.

	• Design visible and easily accessed exhibits for highlighting student work. • Provide wall-mounted monitors for displaying electronic projects. • Provide bulletin boards and space for posting important school information. • Provide space for special exhibits from outside the school.
Storage	• Books and periodicals • Audio visual materials (DVD, CD, etc.) • Library supplies • Equipment/workstations • Historical/special collections
Safety and Security	• Ensure that there is a clear line of sight to all parts of the room so that staff can supervise, eliminating any blind spots. • Minimize barriers for exiting each space or room to ensure a quick and safe exit in case of an emergency. • Ensure that all exits are appropriately marked and unblocked.
Additional Considerations	• Incorporate makerspaces, tutoring services, and STEM or STEAM activities. • Provide space for student socializing before and after school. • Provide space for Information Technology assistance.

CHAPTER 8: HEALTH, SECURITY, AND SAFETY

Ed 321.10, Minimum Safety Construction Standards for School Building Aid Recipients, establishes minimum best safety and security practices for projects constructed with State School Building Aid. These minimum requirements for school building aid projects also serve as guidance for all school construction.

SCHOOL EXTERIOR, SITE PLANNING, TRAFFIC FLOW

- Install fencing with site security gates at fire lanes to prevent non-authorized vehicles from driving around the sides or back of the building.
- Provide exterior signage at all exterior doors to clearly indicate where the front office is located. The design of the traffic patterns in the parking lot shall be clearly marked to lead a visitor to the main entrance.
- Provide proper staging areas for emergency operations.
- Have traffic flow that separates regular vehicles and bus traffic.
- Provide well lighted parking areas, primary entrance, and pedestrian pathways.
- If supported by the local emergency personnel, provide a secure lockbox in a safe location away from the building, such as near the driveway entrance that allows the school to store entrance keys, access cards, and critical documents such as blueprints, floor plans, pre-fire plans, evacuation procedures, shut-off valve locations, and disclosures of hazardous materials.

LANDSCAPING

Landscaping can impact security. The International Crime Prevention through Environmental Design Association (CEPTED) provides guidance for using urban and architectural design and the management of built and natural environments to reduce victimization, deter offender decisions that precede criminal acts, and build a sense of community. CEPTED has resources designed specifically for schools. Guidance includes:

- Avoid plantings that create a security or visibility issue near entrances.
- Avoid planting shrubs or larger trees where they will block direct observation of playgrounds and parking lots.
- Avoid blocking lines of sight for vehicle and pedestrian traffic.

BUILDING ENTRANCE, EXTERIOR DOORS, WINDOWS

- Install an electronic door locking system that can control access with a proximity reader, or similar, and allows administrators to effectively restrict access remotely.
- Establish a secure and monitored single point of entry.
- Install internal and external cameras as part of a surveillance system that school officials have access to onsite and remotely.
- Equip all exterior emergency egress doors with alerting systems that signals if the doors are opened.
- Label windows and doors with identifiers such as a number or letter that is clearly visible to first responders to assist them to effectively respond to an emergency.
- If the building will be used as a polling place, have a way to secure the offices and classrooms from the voting area.
- Construct a locked security vestibule at the main entrance of the building that allows visitors to enter the vestibule and be identified by the main office before they are approved for entrance into the school.
- At a minimum, installation of security film at least 14 millimeters thick on all exterior door vision panels and sidelites.

ALARM AND COMMUNICATIONS SYSTEMS

- Install a multi-functional alarm system to clearly and quickly inform building occupants how to take action.

- Install a security alarm system that incorporates intrusion detection, access control, video surveillance, and fire alarm testing into one system.
- Install the necessary transmitters, receivers, and repeaters to ensure radio communications by emergency personnel.
- Install a public address (PA) system that can be accessed from inside of the main office, classrooms, and common areas that have the ability to make an all call in the event of an emergency.
    - The PA system shall be interoperable with the first responders' system, if applicable
    - For the PA system to be properly heard, the school shall install interior and exterior speakers.
- Install panic buttons to notify the authorities and put out a message to the rest of the school.
- Install fire doors that are programed to remain locked upon fire alarm activation and power loss, so they allow exiting the building but not entry.

CLASSROOM SPACES

- Install door locking mechanisms on all interior doors to education spaces that students can access such that the door can be locked from both sides and unlocked from inside without a key, tool, or special knowledge.
- Ensure, where possible, that classrooms have an established area that is not readily visible when looking into the classroom from the hallway.

CHAPTER 9: SCHOOL BUILDING AID

This chapter outlines the procedures that school districts must follow to apply for NHED School Building Aid for their construction projects. School Building Aid funds may support 30 - 60% of approved construction costs of new public schools or the substantial renovation of existing schools, according to legal guidelines established under RSA 198:15.

The amount of School Building Aid available each year is determined by state and local funding. School Building Aid is a competitive process.

- All applications are reviewed and ranked.
- Building Aid grant awards are based upon the ranking of the school district's application and the availability of state and local funding.
- With the passage of HB452, Building Aid will become an annual process beginning in FY26, applications for which will be due April 2025.

The school district will need to submit comprehensive information and a number of forms in order apply for School Building Aid. While many of the required documents may be provided by architects, state agencies, banks, and other entities, it is ultimately the responsibility of the school district to ensure that complete and accurate information is provided to the NHED.

The Building Aid planning and application process begins *after* the school district has developed educational specifications, appropriated planning money, appointed a building committee, performed a needs assessment, completed a feasibility report to consider alternatives and 20-year life cycle costs for each alternative, hired a design team, created a conceptual design, and appropriated money for design. Typically, a school district is not ready to apply until they are 1-2 years into the planning process.

REQUIRED SCHOOL BUILDING AID APPLICATION INFORMATION

If the project requires land acquisition, land must be acquired before the time of application or have a legal agreement in place subject to receiving building aid.

- Educational specifications
- Needs assessment
- Feasibility study
- Enrollment study
- Documentation of good maintenance
- Selected architect
- Preliminary plans
- Color coded plan showing the proposed use and size of each space
- Site location information
- Estimated project costs
- Anticipated funding sources
- Documentation that the school board is committed to putting the project forward to vote
- Documentation that the district has reached out to the utility company and are committed to applying for any eligible energy rebates
- Completed Condition Evaluation form (available with the application)
- If the project requires land acquisition, land must be acquired before the time of application or have a legal agreement in place subject to receiving building aid.

The most updated information, as well as application, forms, and resources, can be found on the NHED School Building Aid webpage.

TIMELINE

1-2 Years Prior	School district has developed educational specifications, appropriated planning money, appointed a building committee, performed a needs assessment, completed a feasibility report to consider alternatives and 20-year life cycle costs for each alternative, hired a design team, created a conceptual design, and appropriated money for design.
By April 1	School submits application including preliminary drawings, enrollment projections, and all required forms.
April - October	NHED schedules a site visit to verify ranking.
By October 15	NHED presents ranking decisions to the School Building Authority. School Building Authority verifies NHED ranking and submits ranking to State Board of Education.
By November 15	State Board of Education publishes ranked list. If funding is approved in the State budget, aid will be offered in order of the published list per RSA 198:15.
By December 1	NHED approves project and issues intent to fund letter.
March - April	District votes on project and secures local funding.
By June 1, 12 months following voter approval	Grant Award Notification (GAN) issued along with first payment after submission of: • Proof of voter approval • Proof of funding • Copy of signed contract for construction • Construction plans • Proof of federal/state/local permits necessary to start construction • NHED approval of final budget First payment is in the amount of 80% of the total award.
Once GAN is signed between school district and NHED	School breaks ground after final approval. Owner's project manager manages project throughout.
Upon completion but no later than 5 years from the initial payment	Balance of award paid upon receipt and verification of Notice of Completion and Request for Final Payment form is submitted by the applicant.

SCHOOL BUILDING AID FOR SITES AND SITE DEVELOPMENT

If the project is approved for building aid, the acquisition cost and site development cost is eligible for building aid, up to the limits in Ed 321.

GLOSSARY

A4LE	Association for Learning Environments (formerly CEFPI, Council of Educational Facility Planners International)
ABC	Associated Builders and Contractors, Inc.
ADA	Americans with Disabilities Act
AIA	American Institute of Architects
AGC	Associated General Contractors of America
ANSI	American National Standards Institute
Architectural and Engineering Fees	Expenses that the architect or engineer had to spend money on in order to work on the projects, as well as the customary design services on every project and expenses to augment customary services for a particular project.
As-Built Drawings	The edited design drawings that reflect what has actually been built.
ASHRAE	American Society of Heating, Refrigeration, and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
BOCA	Building Operators and Code Administrators International
BTU	British Thermal Unit (used to measure heat energy)
Buildable land	Land upon which a school building, parking lot, or school playing field can be built. Wetlands, including required setbacks from wetlands; areas with slopes in excess of 60 percent; areas with extensive amounts of bedrock within 6 feet of the surface; and sites known to be contaminated with hazardous materials are not buildable land.
CEFPI	Council of Educational Facilities Planners International
CHPS	Collaborative for High Performance Schools
CFR	Code of Federal Regulations
CM	Construction Manager or Construction Management
Commissioning	A systematic documented process by an independent entity which shall include visual examination and functional performance testing to demonstrate that installed components or systems meet the intent of the original design.
Construction cost	The total cost of labor and materials for the construction of the foundation, erection of the structure, finish work, and the installation of equipment integral to the operation of building systems. Site development costs are not included.
Core Facilities	Spaces in a school facility that: (1) Serve a general function to operate the building; (2) provide the overall academic program; or (3) are used by the majority of students and staff as support space but may occasionally be used as educational space. Typical examples of core space include main administrative offices, libraries, gymnasiums, cafeterias, and kitchens.
Department	The New Hampshire Department of Education.

Design capacity	Maximum number of students intended to be educated in a school building.
Educational capacity	The sum of the maximum number of students that can be simultaneously instructed in every educational space of the building using the minimum space allocations specified in Ed 321.10. In an existing building, educational capacity is measured dimensionally. In a proposed facility, educational capacity is determined by dividing the design capacity by the utilization rate.
Educational Facilities Planner	An Education Facilities Planner facilitates the process of planning, organizing, and developing strategies for the most efficient use of space for new or renovated school construction. More information and a directory of Educational Facilities Planners can be found at the Association for Learning Environments website: https://www.a4le.org/
Educational space	Those parts of a school building to which pupils are assigned for instructional purposes. Educational space includes, but is not limited to, classrooms, laboratories, gymnasiums, libraries, cafeterias, special education space, and administration space.
Educational Specifications	A report that describes the facility's anticipated uses and identifies the specific physical characteristics that will be required to house and promote the programmatic needs of the school.
Emergency Project	A school construction project requiring the replacement of all or a significant portion of a school facility which is declared uninhabitable or is identified as an imminent danger or substantial risk by the state fire marshal or a state or federal agency, and which results from an unanticipated and sudden natural or human disaster.
Feasibility Study	A report completed prior to design that evaluates the physical and programmatic needs of a school's facility, identifies the best uses of existing buildings, and makes recommendations to maintain/upgrade the existing facility or build a new facility, while meeting the school's educational goals.
GC	General Contractor
General purpose classroom	An educational space intended for the instruction of a group of students that is suitable for teaching a variety of subjects and that requires no special permanently installed equipment or unusually large spaces.
GMP	Guaranteed Maximum Price
Gross Square Footage	The total square footage of the school building measured to the outside of the exterior walls.
IAQ	Indoor Air Quality
IBC	International Building Code
ICC	International Code Council
IEQ	Indoor Environmental Quality
IESNA	Illuminating Engineering Society of North America
KWH	Kilowatt hour (used to measure electricity consumption)
LEED	Leadership in Energy and Environmental Design
MERV	Minimum Efficiency Rating Value (For rating air filters)
Moveable Equipment	Equipment, including technology equipment, for a school construction project that supports the educational program. Moveable equipment has an

	expected life of at least five years and is not attached to the building. Another common term is “furniture, fixtures, and equipment” or “FF&E.”
MSDS	Material Safety Data Sheet
Multi-Purpose Space	Areas within a school building that are used at different times for educational purposes and for support purposes.
NEC	National Electric Code
New Construction	Construction works that results in the creation of a new building or additional space in an existing building.
NFPA	National Fire Protection Association
O & M	Operations and Maintenance
Preliminary Design Plans	A set of plans that present the proposed school facility in its earliest stages denoting at a minimum the square footage of each room and the proposed use of each room. Detailed doors, windows, closets, utilities, mechanical functions are not typically shown at this stage.
Project Manager	“Project Manager” as described in RSA 198:15-c, (III). The professional hired by the project owner to serve as a consultant and advisor to the project owner to ensure the project owner’s best interests are carried out. The term also includes “owner’s project manager”
Project Contingency	The project funds that have been set aside or reserved to cover bidding overruns. Construction contingencies are used to cover unforeseen conditions and omissions and miscellaneous project expenditures not part of the initial project budget but necessary to complete the project
Renovation	Work involving upgrades to existing space in a building or conversion of the use of existing space in a building.
RFI	Request for Interest
RFP	Request for Proposal
RSA	Revised Statutes Annotated (Laws of the State of New Hampshire)
School	Any school building included within one of the organizations outlined in RSA 198:15-a, I-a.
School Building Aid	State grants for the payment of a share of the cost for school construction under RSA 198:15-a
SHPO	State Historical Preservation Officer
Substantial renovation	(1) Construction done for the purpose of renewing a building that is valued at an amount greater than 25 percent of the cost to replace the building; (2) To repair and bring the building back to new or good condition; or (3) To prepare space for a new or different use.
Sufficient	An amount of space, time, or material that will enable a particular function to proceed as intended without restriction or impediment from the size or condition of the physical facility, according to variations in enrollment, staffing, program, or level of instruction from one school to another.
Technology Equipment	Equipment needed to operate the school, including servers, printers, cameras, audio visual equipment, copiers, phones, intercoms, and computers. It does not include laptops and computers for students and teachers, office or educational software, or infrastructure items such as network and wireless cabling.

Total cost	The cost of all related land, labor and materials authorized for construction costs.
UFAS	Uniform Federal Accessibility Standards
USGBC	United States Green Building Council
Usable Land	Land upon which a school building, parking lot, on-site traffic circulation and drop-off locations, playgrounds or school playing field can be built.
Utilization rate	The extent to which school buildings are used by comparing actual student enrollment to the educational capacity of the school. Recommended utilization rates are 85% for high schools, 90% for middle schools, and 95% for elementary schools.
Value Engineering	A systematic evaluation procedure directed at analyzing the function of materials, systems, processes, and building equipment for the purpose of achieving required functions at the lowest total cost of ownership.

APPENDIX
Appendix 1 – Laws, Rules, and Codes Pertaining to School Construction

School construction and renovation projects in New Hampshire must meet a variety of laws, rules, and codes administered by a number of state and local agencies. Listed below are the agencies (state and local) designated by statute or administrative rules to ensure that building plans and specifications meet the requirements for approval.

MINIMUM CONSTRUCTION STANDARDS

All NH public schools are required to meet minimum construction standards set forth in NH Department of Education (NHED)'s Administrative Rules. These standards are known as Ed 321 and can be found on the General Court of New Hampshire's website, https://gencourt.state.nh.us/, or by contacting NHED. Ed 321.03 specifically calls out the construction standards required for all public schools.

STATE BUILDING CODE (RSA 155-A)

The State Building Code is revised from time to time but includes various national and international codes, including but not limited to the International Building Code, the International Existing Building Code, the International Plumbing Code, the International Mechanical Code, the International Energy Conservation Code, and the National Electric Code, as well as any approved State amendments to the code. The State Building Code can be found at https://www.gencourt.state.nh.us/rsa/html/XII/155-A/155-A-mrg.htm. The code applies to the construction and renovation of all school buildings. Local code enforcement officials are responsible to ensure code compliance in each municipality. Architects and engineers must certify by placing their stamp on all construction documents that the project is designed to meet minimum code requirements. The construction contractor is ultimately responsible to ensure that minimum code requirements are met. Local communities may adopt additional regulations provided that such regulations are not less stringent than the requirements of the state code.

STATE FIRE CODE (RSA 153:5)

The State Fire Code is a set of standards that the local fire chief and the State Fire Marshal enforce for the purpose of fire prevention and safety. The State Fire Code and its definition can be found at the NH General Court website: https://www.gencourt.state.nh.us/rsa/html/XII/153/153-mrg.htm. The local fire chief is responsible to ensure code compliance in each municipality. Contact your local fire department to find out how to obtain approval. In addition, for public school construction, the State Fire Marshal's Office will need to review and approve all construction and reconstruction projects. Plans are submitted to the Engineering and Plan Review team at https://www.firemarshal.dos.nh.gov/prevention-safety/building-safety-construction/engineering-plan-review.

MUNICIPAL REVIEW AND APPROVAL (RSA 153-A)

The State Building Code requires each municipality to review and approve construction and reconstruction projects. Therefore, each school project will need local approval, which at a minimum includes:

1. Review and acceptance of plans
2. Issuance of a building permit
3. Inspection of the work authorized by the building permit
4. Issuance of a certificate of occupancy for educational use. The certificate of occupancy is often referred to as the CO and is needed prior to student occupancy.

Different municipalities may have additional locally adopted regulations that you must follow. Contact your local town office to find out more.

Appendix 2 – Agencies, Inspectors, and Documents

Most cities and large towns have building inspectors who are responsible for reviewing drawings to ensure conformance with local building requirements. School project planners in such localities should be in contact with these officials early in the process:

STATE AGENCIES

Agency	Required Documents
Department of Education Bureau of School Facilities **For more information, visit the School Building Aid Program, or contact us at (603) 892-8530.**	• For projects that are seeking School Building Aid, applications can be downloaded from the Department's website.
NH State Fire Marshal's Office **For more information contact fmo@dos.nh.gov or (603) (603) 223-4289.**	• Complete set of construction documents including plans for automatic sprinkler systems and fire alarms. • Indicate editions of all codes used and note any relevant exceptions. • Indicate construction type, occupancy loads, area of each story and the perimeter. • Document coordination with local fire department for the location and specification of the fire department connection. • Separate pages indicating fire walls, fire and smoke stops, emergency lighting, and exit lighting. • For sprinklers: all information required by NFPA 13 (edition currently adopted by the State Fire Code.) • For fire alarms: all information required by NFPA 72 (edition currently adopted by the State Fire Code) and list the strobe lumen and decibel level for each device. • Letter from licensed architect certifying that design meets the NH Barrier Free Design Code.
Public Utilities Commission **(603) 271-2431**	• Submit certification, signed by a licensed mechanical engineer, of compliance with the state energy code as specified in the NH Code of Administrative Rules Puc 1803.4.
Department of Environmental Services Asbestos Management & Control **For more information, contact the program coordinator at asbestos@des.nh.gov or (603) 271-4555.**	• For the construction of a new building, submit certification, signed by licensed architect or engineer, that to the best of their knowledge no asbestos containing materials were used in the construction of the project. This letter will serve as your required Asbestos Management Plan (AMP.) • For addition/reconstruction projects, designers should review the AMP before starting the design. Upon completion of the project, submit a letter certifying that no new asbestos containing materials were used in the project, explain any changes to the known existing asbestos containing materials and identify any newly discovered asbestos containing materials, their condition, and treatment. In addition, the AMP must be modified if the project removes, encapsulates, or in any other way affects asbestos remaining in the building.

Department of Environmental Services Drinking Water and Ground Water Bureau (603) 271-2153	• If project involves the installation of a well for potable water, submit application as required by the NH Code of Administrative Rules Env-Dw 406.
Department of Environmental Services Subsurface Systems Bureau (603) 271-3501	• If project involves installation of an onsite sewerage disposal system, submit plans and specifications as required by the NH Code of Administrative Rules Env-Ws 1003.02, signed and stamped by a licensed septic system designer.
Department of Environmental Services Watershed Management (603) 271-1352	• A plan to manage stormwater during and after construction must be submitted and approved. See the NH Code of Administrative Rules Env-Ws 415.

Department of Environmental Services Protected Shoreland (603) 271-3501	• Per RSA 483-B, The Shoreland Water Quality Protection Act (SWQPA), most new construction, excavation, and fill within the protected shoreland requires a Shoreland Permit.
	• The Protected Shoreland includes all lands within 250 feet of the reference line of the following types of waterbodies subject to the SWQPA:
	  • All lakes and ponds greater than 10 acres in size
	  • All 4th order and greater streams and rivers and most designated rivers, including sections less than 4th order
	  • All waters subject to the ebb and flow of the tide
	• See a list of waterbodies subject to the SWQPA here: NHDES Consolidated List of Waterbodies Subject to RSA 483-B, the Shoreland Water Quality Protection Act (SWQPA)
	• Local conservation commissions, as well as local advisory committees will have an opportunity for input.

Department of Environmental Services Wetlands (603) 271-3501	• Per RSA 482-A, **Fill and Dredge in Wetlands**, a permit is required if the construction will impact existing wetlands (freshwater and salt water). • Identification and delineation of wetlands must be made by a properly qualified individual. See NH Code of Administrative Rules Env-Wt 100-800 for specific requirements and permit application instructions. • Local conservation commissions, as well as local advisory committees will have an opportunity for input.
Department of Environmental Services Land Development (603) 271-1370	• Per RSA 485-A:17, Alteration of Terrain, Any person proposing to dredge, excavate, place fill, mine, transport forest products or undertake construction in or on the border of the surface waters of the state, and any person proposing to significantly alter the characteristics of the terrain, in such a manner as to impede the natural runoff or create an unnatural runoff, shall be directly responsible to submit to the department detailed plans concerning such proposal and any additional relevant information requested by the department, at least 30 days prior to undertaking any such activity. • This applies to proposed disturbance of 100,000 square feet or greater of land (50,000 square feet if a portion is located in the shoreland protection area). • Local conservation commissions, as well as local advisory committees will have an opportunity for input.

Department of Environmental Services **Air Resources Division** **(603) 271-1370**	• A permit is required for combustible fuel burning heating plants which release contaminants in excess of state standards. • Installation of air cleaning equipment may be required in exhaust stacks.
Department of Labor **(603) 271-3176**	• The Department of Labor oversees the installation and inspection of boilers and elevators. For additional information, please see https://www.nh.gov/labor/inspection/index.htm and https://www.nh.gov/labor/faq/index.htm. • The department also oversees working conditions, wages, worker safety, and worker's compensation benefits.
Department of Transportation **(603) 271-3734**	• School districts should contact their local highway district office to determine if a new or revised driveway permit is necessary for any project with access to a state highway. • NHDOT may require the completion of a traffic study for any project to determine if increased traffic impacts may require mitigation on the highway, including turn lanes and traffic signals. • District office information may be found at: www.nh.gov/dot/org/operations/highwaymaintenance/index.htm
Department of Natural and Cultural Resources Division of Historical Resources **603-271-3483** **https://www.nh.gov/nhdhr/**	• Consult with the State Historical Preservation Officer/New Hampshire Division of Historical Resources (NHDHR) when a project involves a facility that is fifty years or older or has ground disturbing activities. • Initiate consultation with the NHDHR by submitting a Request for Project Review form according to NHDHR guidelines (https://www.nhdhr.dncr.nh.gov/project-review/project-review-compliance/requests-project-review) • Surveys **may** be required by the NHDHR, including a Phase I Archaeological Survey and/or NH Individual Inventory Form. • A list of qualified archeological and architectural consultants may be found at https://www.nh.gov/nhdhr/consultants_archaeology.html and https://www.nh.gov/nhdhr/review/architectural_history_consultants.htm • In order to avoid adverse effects, renovation work done on a historic structure must conform to the *Secretary of the Interior's Standards for Treatment of Historic Properties.* • Adverse Effects **may** require the development of mitigation measures and the execution of a Memorandum of Agreement

LOCAL AGENCIES

Agency	Required Documents
Local Municipal Building Departments (RSA 155 and RSA 155-A)	RSA 155 provides for permit requirements and inspections by local building inspectors or by the selectmen in towns that do not have building inspectors. Permits may be required for curb cuts for access roads. Traffic impact studies may also be required. RSA 155-A assigns responsibility for enforcement of the State Building Codes to the local authorities

	and authorizes charging of fees for code enforcement activities. Districts are encouraged to involve these local officials early in the planning process to preclude later misunderstandings. Ideally, the building inspector should be a member of the building committee.
Local Planning and Zoning Boards (RSA 674:54)	School districts are required to notify the local planning board, in writing, about planned construction projects. The law requires notification at least 60 days prior to the start of construction, but it should really be done much earlier. The local planning board may hold public hearings on the project, and may issue non-binding comments. Even though the planning board cannot mandate compliance with their directives, school districts should make every effort to resolve differences and to execute projects which fit within the community's overall plan.
Local Conservation Commissions	As stated above, local conservation commissions have an opportunity to provide input to the Department of Environmental Services on applications for wetlands permits. They may request a delay in the approval of permits for up to 60 days in order to hold hearings, conduct research, and prepare their input.

FEDERAL AGENCIES

Agency	**Required Documents**
Federal Agencies	Permits may be required from the U.S. Army Corps of Engineers or the U.S. Environmental Protection Agency (EPA) if projects affect certain wetlands or other protected areas. New Hampshire is one of five states that have not received federal authority to issue construction storm water permits. The permitting authority for storm water discharge from construction sites is the EPA. Additionally, the EPA, Occupational Safety and Health Administration (OSHA), and U.S. Department of Transportation have jurisdiction in the use, storage, transportation, and disposal of hazardous materials, including asbestos and other construction debris. The U.S. Fish & Wildlife Service issues permits for activities that may affect endangered species. The U.S. Departments

	of Labor and Justice may have jurisdiction over working conditions, contractor wage rates, and civil rights matters, including the Americans with Disabilities Act (ADA). The use of federal funds on a project may increase the level of federal oversight. Federal requirements are found in the Code of Federal Regulations (CFR). Much information can also be found on the websites of the various federal departments. Most have regional offices in New England.

BONDS REQUIRED

Performance Bonds (RSA 447:16)	Contractors are required to post a performance bond for all contracts of $125,000 or greater ($75,000 or greater for projects in behalf of the state). The bond must be at least equal to the amount of the contract price or the estimated cost of the work if no aggregate price is agreed upon at the outset.

Appendix 3 – Stakeholders and Participants in the School Construction Planning Process

Schools should be planned by a representative group of the people who will use them, including educators, parents, students, citizens, senior citizens, and members of civic and business organizations, as well as design professionals. The following participants are critical to the planning process:

NEW HAMPSHIRE DEPARTMENT OF EDUCATION (NHED)

The NHED carries out the policies of the State Board of Education and provides services for the school districts. By law, the department is responsible for the examination, review, and approval of the educational programs provided by the district. In addition, NHED requires all buildings be reviewed and approved for operation, at least 60 days prior to student occupancy (Ed 320).

LOCAL SCHOOL BOARD

The district board of education is the corner stone of school organization at the local level. It establishes educational policies pertaining to the local district and is the agency to initiate long-range planning for school needs, as one of its responsibilities is continual evaluation of the educational process of the community. The board performs the following functions with regard to school construction:

- Initiates the process after evaluation of the district's needs.
- Appoints school building committee.
- Works with the administrative and instructional staff, students, and members of the community to establish educational specifications for the project.
- Keeps the public informed of school needs and the progress made on construction.
- Engages professionals, such as an educational consultant, an owner's project manager, and architect.
- Approves school sites, plans, and drawings; evaluates and awards bids; signs contracts; supervises the entire process; and approves the completed project.

SUPERINTENDENT OF SCHOOLS

The Superintendent of Schools is the executive officer of the school board. In a building program it is their duty to provide and coordinate capable assistance and services to the school board. The Superintendent will:

- Utilize the principals, teachers, students, and other staff members in the total building program.
- Provide the school board with facts to assist its members in the multiple decisions a building program entails.
- Convey to the architect a clear, concise statement of the educational specifications to be fulfilled in the building.
- Assist the school board in presenting the program to the public.
- Develop a financial plan for costs of construction, preparing bond issues, operational costs, etc.

SCHOOL BUILDING COMMITTEE

In New Hampshire it is a common practice to appoint a building committee to work with the local school board in a building project. The building committee assists the school board in making long-range plans and assures that these plans are translated into a building program. It should be emphasized that the building committee, except in city districts, works in an advisory role and all plans and specifications for school building must be approved by the school board. Construction in city school districts is done under the direction of a joint building committee (RSA 199:3), chosen in equal numbers by the city council and school board. Selection of school sites must also be approved by the school board (RSA 199:2). In general, the building committee performs the following functions:

- Reviews existing school facilities, reports, and enrollment projections to determine facility shortcomings.
- Assists in the formulation of educational specifications.
- Develops and analyzes alternatives.
- Assists in the selection of school site and architect.
- Makes recommendations to the school board on a course of action.
- Assists the school board in keeping the public informed of the project's progress.
- Boards and Councils may choose to delegate authority to the committee for general oversight of the project including supervision of the owner's project manager and approval of change orders, but responsibility ultimately remains with the school board.

OWNER'S PROJECT MANAGER

An owner's project manager (OPM) operates as part of the project team, but they work under a separate contract held with the owner. Their role is to act on behalf of the owner to oversee the entire project. This can include the planning, design, construction, commissioning, as well as the closeout phases. An OPM reports directly to the owner and always acts on their instructions and in their best interest. As an expert in all areas of design and construction they offer the owner valuable and unbiased advice throughout all stages of a project. If accepting State building aid, New Hampshire law (RSA 198:15-c III.) requires an owner's project manager for any school construction or reconstruction projects over $1,000,000. More information on the roles and responsibilities of an OPM can be found in Appendix 4.

LOCAL FIRE CHIEF, HEALTH OFFICER, AND CODE ENFORCEMENT OFFICER

Under New Hampshire laws, the local fire chief, health officer, and building inspector or code enforcement officer are charged with enforcing the state fire code, health regulations, and building code. These officials should be consulted early in the design process and throughout all phases of the project. It would be helpful to include them on the building committee if they are available to participate. See Appendix 1 for more information on the laws and regulations pertaining to school construction projects.

PLANNING AND ZONING BOARDS

Planning boards and commissions should be involved in planning school building programs. Most importantly, planning for schools cannot be carried on in a vacuum; educational services must be integrated with the full range of public services, with regard to cost and total development of the community. Under RSA 674:54 school districts are required to give written notification to the local planning boards of their intent to undertake a construction project. Planning boards may hold public hearings on the project and may issue nonbinding written comments. Although school districts are not required to follow the recommendations of planning boards, it is a good practice to take the concerns of the planning boards into account and to maintain good working relations with them. Local conservation commissions should also be consulted when planning a school project. The planning board, the regional planning commission, and the State Office of Energy and Planning can provide a wealth of information and technical assistance. Planning boards and agencies are formed to deal with the following, each of which affects the educational system:

- Renewal of urban centers
- Population growth and movement
- Industrialization of the community – potential for fiscal support
- Development of highway systems (local, state, and interstate)
- Availability of land and sizes
- Building codes and zoning regulations
- Community relations

THE SCHOOL STAFF

Teachers, administrators, facility managers, counselors, students, nurses, food service directors, and other non-instructional personnel should be consulted regarding the following aspects of a building program.

- Establishment of educational specifications
- Survey of present and future needs of the district
- Formulation of long-range educational goals
- Advice on features to be included in the building in accordance with latest trends and special needs
- Evaluation of present methods of instruction and recommendations for possible improvements
- Liaison between school and community

THE COMMUNITY AT LARGE

The community should be kept informed at every stage of the project. Articles in the press, direct mailings, availability of school board members and administrative personnel to inform interested citizens, and public information sharing sessions are ways to maintain two-way communication throughout the planning and construction process. Suggestions from the public should always be given consideration by those in charge of planning, and the community should be informed of the attention given these suggestions.

Appendix 4 – Owner's Project Manager – Role and Responsibilities

An owner's project manager (OPM) represents the Owner (e.g. the school district) throughout the project. At a minimum this should include representation during construction, but school districts may find it helpful to hire an OPM to represent them in pre-design and design phases as well. The OPM serves as a liaison consultant and advisor and ensures that the Owner's best interests are carried out.

The following are common roles and responsibilities of the OPM:

Throughout the project:

1. Review project cost estimates.
2. Review invoices.
3. Monitor and track the project budget. Maintain an itemized list of project expenses.
4. Review and monitor project schedule.
5. Coordinate the design review process with the Owner at the end of schematic design, design development, and construction document phases.

Pre-Design Phase:

1. Monitor work of selected firm, as it relates to scope, design, budget, and schedule of the projects.
2. Coordinate site surveys, inspections, soil testing, borings reports, utility service capacity studies, and related information needed for the design of the project.
3. Review the selected design firm's design proposal documents (drawings and specifications) for compliance with project scope, budget, schedule, and regulatory agencies.
4. Review the selected firm's progress documents for completeness.
5. Review the project plans and specifications for the purpose of identifying errors, inconsistencies, ambiguities, conflicts between building systems and Furniture Fixtures & Equipment (FF&E).

Design Phase:

1. Assist project team with approvals from authorities having jurisdiction.
2. Ensure project team is in compliance with local, state and federal regulations.
3. Assist with value engineering as needed.

Construction Phase:

1. Take and maintain or receive from the contractor, photographic records of construction activities and project progress on a regular basis.
2. As requested by the superintendent of schools, prepare and distribute reports to the superintendent of schools from information provided by the architect and the contractor on the project budget, the status of the project schedule, and on general project information.
3. Submit quarterly reports to the superintendent of schools until completion of the project.
4. Work with the assistance of the architect, the contractor, and other consultants, to confirm that all permits necessary for construction of the project are obtained in a timely manner prior to the commencement of applicable construction and shall inform the superintendent of schools of any failure to timely obtain such permits.
5. Coordinate the district's consultants and contractors on the design and purchase of items such as telephone, internet, and furniture.
6. Assist the assigned responsible party of the school in arranging for and overseeing the delivery, storage, protections, and security of any school-purchased materials, systems, and equipment that are part of the project until such items are incorporated into the project.
7. Be present on-site on average 2 to 3 days a week during construction. While on-site, observe the work of contractors and observe the quantity and quality of materials and equipment received and stored on-site to protect the school against defects, deficiencies, noncompliance with the contract documents, or failures of performance by contractors, including recommendations to avoid any potential cost overruns or delays caused by sequencing. The

above shall not relieve the architect of its duties for site observations detailed above and for providing site inspection reports to the superintendent of schools and the OPM.

8. Review the inspection and test reports provided, with the recommendations of the architect, make recommendations to the superintendent of schools and the architect regarding inspection and test results, and maintain copies of all inspection and test results.
9. Confer with the superintendent of schools and the architect in assisting to resolve contractor's suggestions and any problems or concerns that arise on the project.
10. In consultation with the superintendent of schools and the architect, and with the review and written review comments of the architect, evaluate and make recommendations to the superintendent of schools on change orders, including making investigations and recommendations on the value and validity of proposed change orders and discussing proposed change orders with contractors.
11. Assist the architect in the architect's duties to determine whether substantial completion and final completion have been achieved, assist in maximizing warranty deadlines, identify any items remaining to be completed or repaired, regardless of whether the contractor has identified such items, and identify the cost to repair or complete remaining work.
12. Assist the architect in monitoring the contractor's requirements to collect and catalog all operating and instruction manuals for equipment and building systems and submit this information and all warranty documentation to the superintendent of schools.
13. In consultation with the superintendent of schools and assisting the architect, coordinate close-out activities including the completion of deficiencies, submittals of close-out documents, resolution of change orders, and recommendations for payment of retainage.
14. Assist the superintendent of schools to ensure the architect has gathered and submitted to the superintendent of schools all project documentation including files, records, drawings, submittals, samples, and other information in an organized and usable form.
15. Notwithstanding anything to the contrary listed above, assist the superintendent of school to ensure the architect, upon completion of the project, certifies that, to the best of their professional knowledge, the building conforms to the approved plans, specifications, and shop drawings; and
16. Continue to provide all applicable services listed above throughout construction and close-out of the project.

Appendix 5 – Build New or Renovate?

Many New Hampshire communities have school buildings dating to the early 1900s, or earlier, with distinctive architectural features seldom seen in modern structures. These schools are sources of community pride, and their presence provides many residents with memories of their childhood. Inevitably, and rightly, the question of renovating the old school will arise.

There is no rule of thumb that says renovation or new construction is the best choice if specific criteria are met, but it will come down to the answers to a few basic questions:

- What is the general overall condition and structural integrity of the existing building?
- How well does the existing building meet the needs of the current educational programs?
- Is it physically possible to make necessary changes on the existing site, including upgrading for energy efficiency, water efficiency, safety and security, technology, visual/thermal/acoustic comfort, and ADA accessibility?
- Other considerations including
    - Community access
    - Building orientation—solar access
    - Daylighting opportunities (i.e., large windows) and possible barriers (multi-story buildings)
    - Aesthetics
    - Community landmark; historic significance
    - Proximity to residential neighborhoods (potential for walking/bicycling to school)
    - Site preservation vs. disturbance

The choice of renovation or new construction should be based on the life-cycle costs of the alternatives tempered by non-monetary factors such as the ability of an existing building to support the educational program, historical preservation, reduction of sprawl, or preservation of open land.

More information and resources on historic preservation can be found in the *Whole Building Design Guide's* resource on historic preservation.

Each alternative should be evaluated first on the basis of how well it meets the Educational Specifications, and then on an economic basis.

The alternative selected must meet the State's minimum standards for public school approval (Ed 306), school facility approval rules (Ed 320), and school construction standards (Ed 321). Local districts may have other requirements or concerns that need to be met. The alternative selected should offer flexibility for growth and other changes that may occur in the future.

The inherent operational efficiencies of a new facility should be taken into account. An older building may require 15-25% more space to fulfill the same functions as a new facility specifically designed for those functions. New facilities tend to be more energy efficient and easier to maintain than an old building, even one that has had extensive renovations. Typically, a new building will consume 85% or less energy than an older building of the same size, even if the older building's systems are working at maximum efficiency.

A new construction alternative will include analyzing the cost of land and site development, which requires adequate environmental and geotechnical studies. Any changes in transportation costs and the environmental impact of increased motor vehicle transportation must also be included in the analysis of a new building. The result may favor centrally located older schools where students are able to walk or bike from home.

Any analysis of a new building alternative must also include the plan for disposal of the old building and the cost or revenue from doing so. It is a mistake to keep a building that has been replaced unless it is

truly required for an efficient bona fide use, and the budget provides enough funding for necessary repairs and operational costs. Whatever was wrong with the old building which led to the decision to replace it will still be wrong and will cost money to fix. The old building to be retained will need heat, lights, cleaning, and all the other operational services. There must be funds in the district's operating budget to cover these expenses. If the board has to search hard for justification to retain the old building it most likely should be let go.

Appendix 6 – Construction Budget Template and Definitions

Sample Construction Budget Worksheet

The line items below are the expected general costs in all
Limits are only applied to the State portion of the project

		State	Local	Total
A	**SITE COSTS - PURCHASE AND DEVELOPMENT**			
	(State eligible amount limited to appraisal amount, per Ed 321.20 (d))			
A1	Purchase of site and related costs	$0	$0	$0
A2	Site Development costs	$0	$0	$0
	Subtotal	**$0**	**$0**	**$0**
B	**CONSTRUCTION**			
	(State eligible amount not to exceed NHED limits per Ed 321.22)			
B1	Construction Estimate	$0	$0	$0
	Subtotal	**$0**	**$0**	**$0**
C	**ADMINISTRATIVE COSTS**			
	(State eligible amount not to exceed NHED limits per Ed 321.23)			
C1	Moveable Equipment (FF&E), including technology	$0	$0	$0
C2	Advertising and Legal	$0	$0	$0
C3	Project Reserves	NA	$0	$0
C4	Project Contingency	$0	$0	$0
	Subtotal	**$0**	**$0**	**$0**
D	**FEES AND SERVICES**			
	(State eligible amount not to exceed NHED limits per Ed 321.24)			
D1	Architectural and engineering fees	$0	$0	$0
D2	Permitting and approval fees (local permit fees not eligible for State Aid)	$0	$0	$0
D3	Site selection fees (e.g., traffic analyses, environmental reviews, etc.)			
D4	Site survey and site soil fees	$0	$0	$0
D5	Construction testing fees	$0	$0	$0
D6	Owner's Project Manager (OPM) fees *(State eligible amount shall not exceed 1.5%, excluding A1)*	$0	$0	$0
D7	Commissioning fees	$0	$0	$0
D8	Other professional services (include cost estimator, CM, and CM at risk fees only if incurred prior to start of construction, fees incurred after start of construction include under construction costs)	$0	$0	$0
	Subtotal	**$0**	**$0**	**$0**
E	**TOTAL PROJECT COST LESS SITE ACQUISITION COST (A1)**	$0	$0	$0
F	**TOTAL PROJECT COST**	$0	$0	$0

Three Budget Process:

1. Estimated Budget: At the time of application
2. Design & Funding Approal: Before bidding (TA offer to school)
3. Submit final budget to to receive a GAN

DEFINITIONS

1	Purchase of site and related costs	Costs of land purchase, and any legal or administrative costs associated with the site purchase.
2	Site Development costs	Costs related to the development of a site, including work required to prepare the land for construction, work required to bring and connect utility services from the property boundary to the building, and work for onsite utility infrastructure such as power, fuel connections and storage, onsite septic, sewer, data and cabling, and site lighting.
3	Construction Estimate	"Construction Estimate" means the estimated total cost to complete a construction project within a specified project scope.
4	Moveable Equipment	"Moveable Equipment" means equipment, including technology, for a school construction project that supports the educational program. Moveable equipment has an expected life of at least five years and is not attached to the building.
5	Advertising and Legal	Fees paid to attorneys for reviewing contracts, deeds, and other documents, and fees to advertise project notices and documents as legally required.
6	Project Reserves	Costs of special projects that have been identified. Unassigned "local only" funds that are available after the bid opening may be placed in this account and spent at the discretion of the SAU but must be spent on the project.
7	Project Contingency	"Project contingency" means the project funds that have been set aside or reserved to cover bidding overruns. Construction contingencies are used to cover project errors and omissions and miscellaneous project expenditures not part of the initial project budget but necessary to complete the project.
8	Utility Rebates	Cost savings provided by utility providers to customers planning to install new, energy efficient technology equipment or systems. Customers apply for energy rebate programs with their utility providers.
9	Architect / Engineer Basic Services	"Basic Services" means the expenses the design services customary on every project such as architectural, structural, civil, mechanical, and electrical engineering services.
10	Architect / Engineer Additional Services	"Additional Services" means the expenses that are required to augment the Basic Services that are not customary on every project. The need for Additional Services is dependent on the individual project and will change from project to project.
11	Architect / Engineer Reimbursables	"Reimbursables" means the expenses that the architect or engineer had to spend money on in order to work on the project.
12	Permitting & Approvals	Cost of obtaining required permits and approval fees for the construction project.
13	Survey and Soils	Costs related to land surveys conducted on the construction site and site soil testing fees.
14	Construction Testing	"Construction Testing" means testing structural materials used to build new facilities or used to construct additions to an existing facilities.
15	Owner's Representative	"Owner's representative" means the professional that is hired by a project owner to represent him or her throughout the entire process of a development, including site selection, design, entitlements, permitting, and construction. The owner's representative serves as a liaison and ensures that the owner's best interests are carried out.

16	Commissioning	Commissioning means a systematic documented process by an independent entity which shall include visual examination and functional performance testing to demonstrate that installed components or systems meet the intent of the original design.
17	Other Professional Services	Fees paid to design professionals, other than for architectural, engineering, or owner's representative fees, for design work and construction administration, costs of feasibility studies and similar planning activities, costs of geotechnical and environmental site studies.

Appendix 7 – Preliminaries to the Issuance of Notes and Bonds

School boards and building committees should carefully study RSA Chapters 32, 33, 35 when considering a capital project. These chapters outline the legal requirements for financing a project as well as provide information regarding voting, hearings, payments, investments, payments from surplus, appropriations, expenditures, purpose and change of purpose. Legal counsel should be retained early in the process for advice at all stages of a capital project.

The legislature may amend the RSAs at any time, and the details regarding specific procedures will not be included here. This manual provides a guide to the major elements that need to be considered. School boards should maintain communications with NHED in order to become aware of any changes in the legal requirements for passing bond issues.

Bond counsel, who generally represents a financial institution, should be retained to help guide the district through the bond selling process.

STATE GUARANTEE ON BOND ISSUES (RSA 195-C)

RSA 195-C established a School Building Authority whose duty is to consider and investigate applications for a state guarantee for a portion of a bond issue voted for school construction. School boards, superintendents and business administrators should familiarize themselves with the provisions of this RSA. A state guarantee may be granted for up to 75% of the amount of a bond. The state guarantee may result in a reduction of the interest rate on the bond. Generally there is no benefit to a state guarantee unless the state has a higher credit rating than the school district.

DEBT LIMIT OF SCHOOL DISTRICTS AND CITIES

The following information on the debt limits for various types of school districts and on the computation of these limits is critical to determining the amount of a bond issue a district can issue.

a. Per RSA 33:4-a
   - I. Cities shall not incur net indebtedness, except for school purposes, to an amount, at any one time outstanding, exceeding 3 percent of their valuation determined as hereinafter provided.
   - II. Cities shall not incur net indebtedness for school purposes to an amount at any one time outstanding, determined as hereinafter provided, exceeding 7 percent of said valuation. Any debt incurred for school purposes by a city under this or any special statute heretofore or hereafter enacted shall be excluded in determining the borrowing capacity of a city for other than school purposes under the 3 percent limitation in paragraph I.

b. Per RSA 33:4-a
   - I. School districts shall not incur net indebtedness to an amount at any one time outstanding exceeding 7 percent determined as hereinafter provided.

c. Per RSA 195:6
   - I. Cooperative School Districts organized to provide both elementary and secondary schools shall not incur debt that exceeds ten (10) percent of its assessed valuation as last equalized by the commissioner of revenue.
   - II. Grade combinations other than K-12 have limitations as follows:
     1) Elementary grades only: five percent of valuation as last equalized.
     2) Grades nine to twelve only: five percent of valuation as last equalized.
     3) Grades seven to twelve only: six percent of valuation as last equalized.
   - III. No cooperative school district described in this paragraph shall incur indebtedness if it subjects the taxable property of any school district forming a part thereof to debt, when added to the debt of such school district, of more than 10 percent of the total assessed value of such taxable property as last equalized by the commissioner of revenue administration.

d. Per RSA 195-A:7 AREA (Authorized Regional Enrollment Area) receiving districts may borrow money as provided in RSA 33 as amended. “However, in calculating whether it is within its debt limit, there shall be charged thereto an amount no greater than its proportionate share of any such required capital outlay, which shall be the proportion which its then estimated enrollment in the area school to be purchased, constructed or enlarged, bears to the then estimated total enrollment therein as determined by order of the state board.”

There is no provision in the statutes to permit a district to exceed its debt limit. A district may obtain this permission only through a special act of the Legislature.

SCHOOL DISTRICT MEETINGS

Most school districts are required to hold annual or special district meetings where the registered voters of the district make decisions on financial and other matters. For districts which are departments of city governments, these decisions are made by the city councils or boards of aldermen.

A district is authorized to issue bonds and notes only through the vote at an annual or special school district meeting. It is important to observe all legal requirements when holding a school district meeting at which a bond issue is being considered. Failure to strictly follow all legal requirements may invalidate a bond vote and can delay a construction project for an entire year. The timelines for posting notices must be met. The advice of legal counsel is vital to assure proper observance of all technicalities. RSA 197:1-8; RSA 32; RSA 33 should be studied and understood prior to the vote on the issuance on bonds and notes and carefully complied with after the meeting if the vote was successful.

A careful record of the annual or special school district meeting must be kept by the clerk of the school district when a bond or note issue is voted. The permanent record must include copies of the original warrant, the certification of publishing notices in the newspaper for special meetings, and the actual vote count. The total number of votes cast must be recorded, as well as the number voting for and against; according to law a bond issue passes only by the necessary super majority of those voters present and casting ballots. The SAU Administration may assist the School Board Clerk in meeting these responsibilities.

RSA Chapter 40 authorizes two methods for conducting a district meeting, the traditional town meeting method, and the optional form of meeting using the official ballot referenda.

TOWN MEETING FORMAT (RSA 40:4 TO 40:10)

Under the town meeting format, the registered voters of the school district meet at least once a year between March 1 and March 25 at a designated time and place to consider articles developed by the school board. The annual operating budget is always one of the items to be considered at the annual district meeting. Other specific items requiring voter approval may also be presented to the voters including approval for the sale of bonds for construction projects as authorized by RSA 33:3. Special district meetings can be called, for authorized reasons, at any time during the year for consideration of specific items that could not be considered at the annual meeting.

The legal requirements for annual and special school district meetings are summarized as follows:

1. Annual School Meeting
    a. Authorized by RSA 197:1.
    b. Warrant must be posted at the place of meeting and at one other place in the district, 14 days before the day of meeting, not counting the day of posting nor the day of the meeting, but including any Saturdays, Sundays and legal holidays within said period. (RSA 197:7).
    c. The school board must hold a public hearing on bonds in excess of $100,000 at least 15 days, but no more than 60 days, prior to the district meeting (RSA 33:8-a). Notice of the hearing must be published in a newspaper of general circulation at least 7

days before it is held. Whenever possible the governing board shall determine the form of the warrant article after the public hearing.
    d. Budget shall be posted at same time as warrant (RSA 197:5-a). If the District is under municipal budget law, then the budget is prepared by budget committee, and given to school board for posting with warrant (RSA 32:5).
    e. RSA 33:8-a includes requirements for the sequencing of bond articles and the length of time that must be allowed for voting.
    f. A two-thirds vote of those present and voting is required to authorize the issue of serial notes or bonds (RSA 33:8).
2. Special School Meeting
    a. Authorized by RSA 197:2, 3.
    b. Conditions for posting warrant and budgets and public hearings are the same as for an annual meeting.
    c. A two-thirds vote of those present and voting is required for authorization of bonds or serial notes.
    d. No appropriation or authorization of bonds or serial notes shall be made except by ballot. The number of ballots cast at such meeting must be equal in number to at least one-half of all the voters in the district entitled to vote at a regular meeting (RSA 197:3). (Exception – see 3 below).
    e. A copy of the warrant shall, within one week after posting, be published at least once in a newspaper of general circulation in the district (RSA 197:8).
    f. If a checklist was used at the last regular meeting, this list shall be used to ascertain the number of legal voters in the district and such list, corrected according to law, shall be used at the special meeting upon the request of ten legal voters of the district (RSA 197:3).
3. Special School Meeting with same authority as an Annual Meeting.
    a. Authorized by RSA 197:3 in case an emergency arises requiring the immediate expenditure of money
    b. School board must appeal to Superior Court for a special meeting.
    c. Meeting does not require that one-half of the voters be present.

OPTIONAL FORM OF MEETING – OFFICIAL BALLOT REFERENDA (RSA 40:12 TO 40:14)

Districts which have adopted the official ballot method are sometimes referred to as SB2 districts after the 1995 Senate Bill which established this procedure. SB2 districts engage a form of town meeting that has two sessions. The first session (deliberative session) is for explanation, discussion, debate and amendments to the proposed operating budget and warrant articles. The second session (voting session) allows all registered voters to cast an official ballot to pass/fail proposed articles.

For construction bonds, approval is required by three fifths of those voting rather than the two thirds required in the regular town meeting format.

The legal requirements for districts using the official ballot method are as follows:

a. Authorized by RSA 40:13
b. Deliberative session must be held between the first and second Saturdays following the last Monday in January, February, or March
c. Voting must be held on the second Tuesday in March, April, or May based upon the month of the deliberative session.
d. For districts voting in March, notice of budget hearings or bond hearings must be posted by the second Tuesday in January. Budget hearings and bond hearings must be held by the third Tuesday in January. Warrants must be posted and copies available by the last Monday in January.
e. For districts voting in April or May add one or two months to the dates above as appropriate See RSA 40:13 II b and c.
f. A three fifths vote is necessary to authorize the sale of bonds for school construction.

MUNICIPAL BUDGET COMMITTEES AND BOND ISSUES

School boards and officials of districts that are under the Municipal Budget law and expect to vote on a bond issue should be very familiar with Chapter 32 of the statutes. It is advisable to secure legal counsel when voting on a school construction project utilizing a bond issue for financing.

The budget committee must hold a separate hearing on the bond issue in addition to the public hearing required in RSA 33:8a. This hearing must be included as part of the posted budget committee's budget. This is true for a special meeting (RSA 32:6) as well as an annual meeting since the same procedures must be followed by the budget committee for both types of meetings.

ISSUANCE AND SALE OF NOTES AND BONDS

After the school district meeting as authorized the issuance of bonds or notes, the school board should meet as soon as possible to decide on the following:

1. Whether the notes or bonds should be issued immediately or at a later date. Districts are allowed one year to determine the most advantageous time to enter the bond market; however, the bonds or notes must be sold at the end of this period regardless of the then prevailing interest rate.
2. The length of the issue and the borrowing terms.
3. The method for selling the bonds; four common methods of selling bonds are:
    a. Direct sale at a specified interest rate and price to a local bonding house.
    b. Direct sale at a specified interest rate and price to a local banks
    c. Issuance of a call for public bids on the issue.
    d. Selling the bond through the NH Municipal Bond Bank.

Local banks can provide direct assistance with the necessary legal procedures and may offer the advantage of greater familiarity with local conditions.

TIMING OF ISSUES

The bond market is highly competitive. The interest rate level is governed not only by factors of supply and demand prevailing at the time of sale, but also by monetary conditions in the private sector of the economy. Each district's banker or the NH Bond Bank can provide you with up to date information in interest rates.

IMPORTANCE OF LEGAL AND BOND COUNSEL

Legal assistance is an absolute necessity in planning and administrating the bond program. School boards should expect their legal counsel to help in meeting all state and local requirements, while bond counsel must approve the legality of an issue to assure its favorable reception by major bond buyers.

Appendix 8 – Recommended Finishes and Materials for School Cafeterias and Kitchens

RECOMMENDED FINISHES AND MATERIALS FOR SCHOOL CAFETERIAS

Walls	• Smooth, impervious to moisture, washable, durable, vermin proof, metal corner guards, and light colors.
Ceilings	• ACT acoustical ceilings
Floors	• Washable, durable floor finishes
Lighting	• Utilize a mix of direct and indirect lighting. • Overhead lights, such as pendant lights or chandeliers, can provide general illumination, while wall sconces offer a more focused light source.
Furniture	• Select movable furniture for durability and flexibility for a variety of uses.
Hand Sinks	• Hand sinks should be located in the cafeteria for student and staff use, preferably where students enter the cafeteria.
Bathrooms	• Adjacent or near the cafeteria
Custodial Closets	• Adjacent or near the cafeteria
Wireless Technology	• Wireless network capabilities are needed for communication and electronic point-of-service.

RECOMMENDED FINISHES AND MATERIALS FOR SCHOOL KITCHENS

Walls	• Smooth, impervious to moisture, washable, durable, vermin proof, metal corner guards, and light colors.
Ceilings	• Smooth, impervious to moisture, easy to clean, rodent proof, and fire resistant.
Floors	• Non-resilient quarry tile or slip resistant resinous epoxy with recessed floor drains. • Curbs or gutters should surround areas under steamers, kettles and can washing equipment.
Doors/Windows	• Outside doors: Self-closing devices and locks. • Inside Doors: Lock and sound absorbing effect. • Metal door frames. • Walk-in refrigerators and freezers must have locking devices that can be opened from inside. • Screens: Plan screens for all doors and windows • Windows: They should be high enough not to obstruct equipment placement and located for cross ventilation. Louvers rather than windows are recommended for storage areas.
Lighting	• Food preparation areas must be well lit. • Light fixtures should include shatter resistant bulbs.
Ventilation	• Provide for the free circulation of air at the worker's level in all work areas. • Dry storage areas should have outside ventilation, with no sunlight. • Separate ventilation system from the rest of the school

	• Separate temperature control for the kitchen area is desirable. Special wiring and outlets for heavy equipment and spare circuits for additional equipment
Equipment	• The services of a food service consultant are recommended to help ensure that the correct sizes and numbers of appliances are provided. • The equipment must be properly installed according to the manufacturer's instructions and any Department of Labor requirements. • Strict attention must be given to the working space and safety space around each appliance. A recommended list is at the end of this chapter.