Maine Department of Education

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PUBLIC SCHOOL STANDARDS & GUIDELINES

For New School Construction & Major Renovation Projects

MAINE DEPARTMENT OF EDUCATION

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INTRODUCTION

Introduction

Purpose and Context

This document, developed by the Maine Department of Education (Maine DOE) with input from experienced design professionals, provides guidance for school districts and architects planning new public school construction or major renovations. Under Maine's Essential Programs and Services (EPS) model, Maine DOE typically funds a significant portion of the debt service for approved capital projects. However, districts with higher property valuations may be required to contribute a greater share. We strongly recommend that districts confirm their specific financial responsibilities with Maine DOE's finance office before beginning the Major Capital process.

Despite declining statewide enrollment, many existing schools no longer meet today's educational needs. Outdated facilities often fall short in safety, energy efficiency, code compliance, and flexibility. Renovation or replacement is frequently more cost-effective than continued maintenance.

Because resources are limited, Maine DOE prioritizes practical, cost-effective, and high-quality designs. Expensive or premium features that fall outside these guidelines are considered a local responsibility and must be funded without State support.

Public schools receiving state funding for new construction or renovation projects are required to adhere to these documents in their planning and design. Locally funded projects are also encouraged to use these guidelines and worksheets to help guide their projects.

Guiding Principles

In preparing these standards and guidelines, Maine DOE considered the following objectives:

- Long-term operating costs
- Flexibility for future programs
- Ease of maintenance
- Support for phased expansion or renewal

Collaboration and Flexibility

We recognize that no two schools are exactly alike. Each project is shaped by its educational mission, organizational structure, and site conditions. This document aims to balance standardization and flexibility by outlining requirements and best practices, while allowing for local customization.

Districts that choose to exceed size standards or include additional premium features must fund those enhancements locally. Premium features may improve quality or aesthetics, but will not be subsidized by Maine DOE.

Our shared goal is to build flexible, future-ready schools that serve the evolving needs of Maine's students and communities.

These guidelines will be used by Maine DOE reviewers during the design and approval process. We encourage open discussion to ensure the final design reflects the unique needs and opportunities of each project.

Innovation & Life-Cycle Thinking

Embracing New Technologies

As materials and building technologies continue to evolve, Maine DOE welcomes discussions with design teams about new methods, systems, and approaches that improve performance or efficiency.

Life-Cycle Costing

We require design teams to go beyond initial costs and consider total life-cycle value. This includes:

- Energy efficiency, including energy modeling
- Operational and maintenance costs
- Equipment lifespan and replacement cycles
- Environmental impact and recyclability

Maine DOE hopes this document supports the creation of high-performing, cost-effective, and sustainable schools across Maine. For questions, contact the Director of School Facilities.

SECTION I.
THE DESIGN PROCESS

Overview

State-funded school construction projects begin with a pre-design conference hosted by Maine DOE. This meeting brings together the school unit, architects, engineers, and Maine DOE's School Facilities Team. It must take place before any educational programming or design begins.

Maine DOE promotes an integrated design process—one that aligns local goals with state requirements from the very beginning. This collaborative approach helps ensure a smooth process, with fewer surprises, delays, or misalignments.

Working Together

Successful projects require strong partnerships between local districts and the Maine DOE. Independent decision-making by either party can lead to confusion or delays. A cooperative process improves clarity, trust, and project outcomes.

Before the Pre-Design Conference

To be ready for the pre-design conference, districts must complete the following:

- Initial meeting with Maine DOE
- Formation of a local building committee
- Architect selection
- A 10-year enrollment study
- Educational specifications
- Review of Maine DOE Capital Project publications

Pre-Design Conference Agenda (Required)

Topics to be covered include:

- Educational program goals and space needs
- Target grade levels and enrollment numbers
- Maine DOE's standards and timeline
- Budget considerations, including "State/Local" and "Local Only" costs
- Goals for energy performance and building sustainability

- Overview of value engineering and life-cycle analysis
- Maine DOE expectations for design reviews, approvals, and ongoing involvement

Architects and engineers should also explore ways to simplify construction, reduce costs, and increase efficiency through smart design choices and clear project schedules.

SECTION II.
HIGH PERFORMANCE PRINCIPLES

Overview

The Maine DOE promotes high performance schools—facilities that are energy-efficient, environmentally responsible, and supportive of student health and success. These schools make smart use of resources and reflect a strong commitment to the long-term well-being of both students and communities.

Design priorities include:

- Low-impact site design
- Energy and water efficiency
- Safe, healthy indoor environments
- Waste reduction
- Smart operations and community engagement

These principles are reflected in both required and premium strategies throughout this document. Additional design resources are provided at the end of this section.

Key Focus Areas

1. Integrated Design

High performance schools start with collaboration. An integrated design process includes all project stakeholders from the earliest stages and uses a whole-systems approach—recognizing that building systems are interrelated and should work in harmony.

Best Practices:

- Define sustainability goals with the owner early
- Conduct team-wide meetings at each project phase
- Discuss high performance strategies at every design meeting
- Factor life-cycle and operational costs into decision-making

2. Health & Comfort

Research shows that physical learning environments affect student performance and well-being. High performance schools prioritize:

- Fresh air and ventilation

- Access to daylight and outdoor views
- Acoustical comfort and thermal control
- Use of non-toxic materials
- Space design that supports physical and emotional wellness

Schools that adopt these features often see:

- Better academic outcomes
- Fewer absences
- Improved staff retention and satisfaction

3. Resource Efficiency & Demand Reduction

These buildings are designed to use less—less energy, water, and materials—while delivering more in terms of performance. Emphasis is placed on:

- High-efficiency HVAC systems and envelopes
- Water-conserving fixtures
- Daylight and occupancy sensors
- Renewable energy integration
- Durable, energy-saving equipment

Energy modeling and system commissioning help verify that buildings perform as designed and provide tools for ongoing optimization. Smart decisions made early—like integrating daylighting with HVAC design—can lead to both energy and cost savings

High Performance Certifications

While Maine DOE supports the principles of certification systems, it does not fund costs associated with third-party certifications. Districts may pursue these options locally:

Optional Strategies

- LEED for Schools or NE-CHPS certification
- Educational Displays showcasing sustainability features
- Carbon Footprint Reporting and greenhouse gas reduction planning
- Climate Action Plans that engage students and the community
- Performance Benchmarking using tools like Energy Star Portfolio Manager

Codes and References For High Performance Principles

- Version 3.0 NE CHPS (Northeast Collaborative for High Performance Schools) Criteria for New Construction and Renovations, NEEP, 2013 (free download), www.chps.net/dev/Drupal/node/35
- Regional Operations & Maintenance Guide for High Performance Schools and Public Buildings in the Northeast and Mid-Atlantic, NEEP, 2013 (free download), www.neep.org/public-policy/energy-efficient-buildings/high-performance-public-buildings/Regional-O&M-Guide
- LEED Reference Guide for Building Design and Construction (includes LEED for Schools), USGBC, v3 2009 and v4 2013
- LEED Reference Guide for Green Building Operations & Maintenance, USGBC, v3 2009 and v4 2013
- Advanced Buildings New Construction Guide, New Buildings Institute, Inc., 2013
- The Integrative Design Guide to Green Building, by 7group and Bill Reed, 2009
- Northeast Energy Efficiency Partnership, www.neep.org
- Collaborative for High Performance Schools, www.chps.net
- United States Green Building Council (USGBC), www.usgbc.org
- Maine Advanced Buildings, Efficiency Maine, www.efficiencymaine.com/at-work/maine-advance- buildings
- The Center for Green Schools, www.centerforgreenschools.org
- EPA High Performance Schools, www.epa.gov/iaq/schooldesign/highperformance.html
- Clean Air-Cool Planet campus carbon calculator, http://campuscarbon.com
- US EPA Energy Star Portfolio Manager, www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/use-portfolio-manager

SECTION III.
SCHOOL SAFETY AND SECURITY

Overview

Recent tragedies at schools around the country have reinforced the need for designs to keep students and staff safe in our public schools. School safety experts and educational facility planners have been working together to develop recommendations that cover the outside and inside of school buildings.

Maine DOE encourages school districts to consider student safety as one of the most important criteria when designing or renovating schools.

General Building Safety and Security Planning Principles

Required

- Create safety design committee with representation from the school administration, school resource officer, public safety, and others to consult with during the planning of the school. Discussion topics should include strategies for the design of the school site and building, and how they support community and district safety policies.
- Design the building so it can be locked down into separate security zones, preferably at internal firewalls requiring rated steel fire doors.
- Separate entrances in public after-hours spaces (gym, fitness, etc.) and have separation from rest of school.
- Provide a secure steel service door at the kitchen entrance with a proximity reader and a means of identifying visitors without opening the door.
- Provide locked, secure chemical storage areas that are not accessible to students or visitors.
- Provide laminated security glass at remote exterior doors with narrow vision panels and sidelights.
- Provide steel frame doors with no glass vision panels at remote, unsupervised exterior doors.
- Reduce the number of exterior doors that need to be supervised or checked for security and safety purposes.
- Provide exterior doors that require ingress such as those convenient to playgrounds and playfields with proximity card readers in cases requiring “reverse evacuation.”
- System to monitor all exterior doors to report when doors have been opened or left ajar.

- Plan the kitchen/cafeteria, library, and athletic/gymnasium areas with at least one designated emergency safe room with failsafe communication system.

Recommended

- Consider putting fire-rated doors on electric hold opens and having them tied into the emergency security notification system that allows the main office to release fire doors for lockdown. Provide continuous hinge on fire-rated doors on hold-opens.

Premium

- Ballistic rating other than at main vestibule and administrative office.
- Electronic access control at locations other than noted exterior doors and interior security zone.

Main Entrance, Security Vestibule, and Main Administrative Office

Required

- Provide a single point of entry for all students and visitors that is easily identifiable from the main approach to the school.
- Provide a locked security vestibule at the main entrance that allows visitors to enter the vestibule and be identified by the main office before they are approved for entrance into the school. The interior bank of the doors of the vestibule should be equipped with one electronic strike that allows the door to be unlocked electronically by main office personnel after visitors have been approved for entrance. Ensure that doors are equipped with interlocking door controller technology where interior doors and exterior doors cannot be opened at the same time.
- Provide proximity card readers for staff at the main entrance, kitchen entrance, and at least one other staff entrance.
- Provide video cameras in the ceiling of the security vestibule and directly inside of the vestibule doors so that visitors can be photographed on video loops for later review.
- Provide security cameras at the main entrance and other remote locations around the school. Video systems should be capable of being reviewed for live on-demand broadcasting as well as a minimum thirty-day archival library system.
- Provide a security window in the main entrance vestibule to enable main office personnel to maintain clear vision within the vestibule, and to greet visitors for security screening.
- Locate the main office directly adjacent to the vestibule to allow for visitor recognition and sign-in. Design the barrier between main vestibule and main office to have ballistic rating.
- Locate the main office door adjacent to the security vestibule lobby so office personnel can maintain visual supervision while visitors come in to sign the visitor log.
- Provide hidden electronic security panic button system for all admin that can send a signal to police or emergency responders when a crisis is developing at the school.
- Provide a minimum of two locations for interior intercom and exterior public address system. The second location should be designated as a “safe room.”

- Design main offices with a second means of exit, either directly outdoors or into a more remote hallway.

Recommended—None Noted

Premium—None Noted

Safety and Security for Classrooms

Required

- Provide heavy duty, commercial-grade classroom security function lock set with lock indicator where the door can be quickly locked by the teacher from the inside at all classrooms, office, and educational space doors.
- Provide small vision panels with laminated security glass in classroom doors, away from lock set.
- Provide a phone and two-way intercom system in every classroom.

Recommended

- Consider designating areas not visible from outside the classroom with change in floor color or pattern.
- For classrooms with small toilet rooms, consider constructing with concrete block to provide a more secure safe zone.

Premium—None Noted

SECTION IV.
SITE PLANNING

Overview

Selected sites should be affordable, easily developed, and close to commercial-grade utilities. Sites requiring extensive earthwork, long driveways, or environmental challenges should be avoided. Schools should not be located directly on state highways with high speeds or heavy traffic.

Site Safety

Required

- Conduct a safety meeting with local officials, including fire, police, planning, and code enforcement in the initial stages of site design prior to site approval.
- Maintain clear and unobstructed sight lines from the main entrance for security and safety.
- Protect front entrances and other major doors used on a regular basis throughout the school day with bollards or other barriers.
- Provide emergency vehicle access to all areas of the site, including playgrounds and fields.
- Provide secondary access to the site for emergency vehicles.
- Separate bus loop and parent drop-off areas and install fencing or guardrails to limit pedestrian circulation to designated crosswalks and sidewalks.
- Provide safe access for pedestrian and bicycle circulation from site entrances to the main building entrance and consider keeping pedestrian paths away from automobiles.
- Provide safe, clearly marked pedestrian crosswalks through the site.
- Locate play areas away from vehicle circulation and parking areas. Provide accessible pedestrian pathways to playgrounds and athletic fields that avoid vehicular traffic.
- Provide chain link fencing at the perimeter of playgrounds as required.
- Provide chain link fencing at Pre-K, early childhood, and other safety locations as required.
- Avoid sidewalks that link to high-speed roads and highways.
- Provide clear vehicular circulation patterns and signage. Provide stop signs and speed tables.
- Provide lighting at all parking areas, and building perimeter.
- Locate oil, propane, and gasoline tanks below ground. Small propane tanks serving kitchen or science room equipment may be located above ground and protected with fencing, berms, and bollards.

- Separate service vehicles from bus and parent drop-off areas.

Recommended

- Consider how an emergency evacuation will be conducted. Consider bus loading areas and staging areas.

Premium

- Decorative or bollard lighting.

Site Layout

Required

- Select the building site to minimize environmental impact and encourage a simple, straightforward construction process.
- Identify where building expansion can occur.
- Confirm location of any Land Water Conservation Fund (LWCF) grant or other site development restrictions.
- Conduct a Phase I Environmental Assessment (and Phase II if necessary based on Phase I) to identify hazardous materials.
- Orient the main entrance to face east or south. Avoid north-facing entrances.
- Orient the building design to maximize natural daylighting and avoid glare in classrooms and other occupied spaces.
- Locate kitchen delivery areas, school maintenance, delivery, and dumpsters away from the main building entrance or student activity areas.
- Enclose dumpsters with an 8 feet high chain link fence set on a concrete slab with steel bollard bumpers. Provide a 12 feet long reinforced concrete pad on the loading side of the dumpster.
- Keep building ventilation intakes away from vehicle exhaust and other sources of air pollution. Consider the site's prevailing winds when locating intake and exhaust equipment.
- Design the radii of turns to accommodate emergency vehicles and buses.
- Design to accommodate trailer truck deliveries.
- Minimize islands and other obstructions in parking areas, except where needed for circulation control, to accommodate snow removal and storage.
- Avoid locating light pole foundations within parking areas when possible. Concrete pole bases shall be 36 inches high to limit damage.
- Install speed control measures at long straightaways and other areas.
- State support for parking will be limited to:
    - Elementary and Middle Schools: Full Time Equivalent (FTE) staff plus 1 visitor parking space for every 20 students, up to a maximum of 35 visitor spaces.
    - High Schools: FTE staff plus 25% of student body.

- Locate ADA parking spaces and ADA loading zones near the main and frequently used entrances.

Recommended

- Consider designating parking spaces near the main entrance for carpool and low-emitting vehicles.
- Consider electric vehicle charging stations, if desired (maximum of two).

Premium

- Costs for off-site road and sidewalk improvements mandated by local planning boards will be considered a local project expense.
- Utility off-site connection/infrastructure utility extensions.
- Additional parking and locally mandated parking above the standards.
- Charging stations in excess of two.
- Perimeter fencing, decorative fencing, and any fencing higher than 4' (except at dumpster, propane, stormwater detention, or basketball).
- Outdoor storage buildings.
- Outdoor classroom structures.
- Decorative lighting.

Site Landscaping and Materials

Required

- Maine DOE-funded plantings budget will be limited to 0.05% of the building construction cost.
- Provide native, water conserving plants.
- Plant trees of a reasonable size and caliper.
- Locate trees away from the building to provide a minimum of 12 feet of clearance from the drip line of a fully grown tree.
- Provide light colored paving at the main and frequently used entrances to the building.
- Specify granite curbing at the bus and parent drop-offs and other vehicle contact areas.
- Specify slip-formed monolithic concrete at other areas. Avoid bituminous curbing except in low-slope "Cape-Cod" curbing applications.
- Specify heavy-duty bituminous pavement at bus and service drives.

Recommended

- Prioritize the location of plantings at the main entrance and as buffering for paved areas and walks, and along public building façades.

Premium

- Annual plantings.
- Buffering plantings required by local authorities.
- Decorative benches and elements.
- Granite or stone benches or patios.
- Chain link fence coatings and screen slats.
- Non-native plantings or trees.
- Concrete, asphalt, brick, or stone pavers.
- Concrete walks other than 100 feet from the primary entrance.
- Granite curbing at areas other than bus and parent drop-offs.
- Heavy-duty pavement other than at loading dock, service drives, bus loops, and dumpsters.
- Porous drainage pavement.
- Bioswale stormwater treatment features.
- Radiant sidewalk and parking snow melt systems.
- Planting and garden beds.
- School sign.

Playgrounds and Fields

Required

- State support for play areas and PE fields will be limited to:
  - Grades Pre-K to 5: A hard play area, a soft play area, and all-purpose field; sizes proportional to student population; Pre-K to have its own play area.
  - Grades 6 to 12: A hard play area and an all-purpose PE field; sizes proportional to student population.
- Athletic fields are only state-supported if existing fields are displaced by a new building or addition. Field design shall conform with National Federation of State High School Associations (NFSHSA)–Court and Field Diagram Guide.
- Consult ASTM (American Society of Testing Materials) standards, the U.S. Consumer Product Safety Commission (CPSC) Public Playground Safety Handbook, and ADA accessibility standards in the design of play areas.
- Maintain playground equipment budgets based on 0.4% of building construction cost. Schools of less than 300 students will be addressed on a case-by-case basis. Budget based on the following:
  - Provide drainage for play areas to prevent ponding.
  - Specify surfaces and play equipment for soft play areas that meet ADA and OSHA standards.
  - 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.

Recommended

- Consider bike racks at the main entrances to the building.
- Consider subsurface drainage systems under soft play areas for wet sites.

Premium

- Athletic fields other than those stated above.
- Play areas that exceed the Maine DOE's minimum standards.
- Empty conduit for future power to the athletic fields.
- Bike trails or exercise trails.
- Bleachers, lighting, concession stands, irrigation systems, press boxes, scoreboards, and drinking fountains.
- Irrigation systems.

SECTION V.
BUILDING EXTERIOR ENVELOPE

Overview

The overall building design, footprint, configuration, and structural grid must be simple and straightforward, without complex geometries. Multi-level buildings to reduce the overall footprint and to decrease the exterior surface and roof area are preferred. Interior and exterior walls should be straight, with no curves. Avoid complex configurations with unnecessary corners and changes of materials.

Roofs

Required

- Design low pitch roof systems (flat roof system) for primary roof structures.
- Specify durable roofing materials for all roofs. Low-pitched roofs should be black EPDM or similar. Specify roofs with extended warranties with 20-year life. Avoid the use of scuppers except as code-required overflow drains. Do not specify residential materials and gutters.
- Avoid discharging water, snow, and ice along the face of any wall. Stormwater and snow melt should be kept away from all entrances, sidewalks, and roadways.
- Design roof drainage “space” systems to prevent water from sheeting down across the face of exterior walls or splashing against exterior walls at grade level.
- Avoid complex and multiple roof levels in the building design.
- Minimize roof penetrations through the membrane. Utilize horizontal penetrations where possible.
- Design required roof hatches for maintenance large enough to accommodate individuals equipped with full emergency gear or service personnel with supplies and toolboxes.
- Design roof access with regular stairways or alternating tread stairs, not by ship’s ladders or exterior roof ladders.

Recommended

- Consider fall protection including roof tie-offs and guards to allow for equipment servicing.

Premium

- “Green” roofs designed to maintain plant materials.
- Occupiable roofs or rooftop outdoor classrooms.

- Pitched roofs.
- White or other colored roofs.

Building Foundations

Building foundations should be designed by a structural engineer with the footing design based upon a licensed geotechnical engineer's recommendations.

Required

- Design the perimeter drainage system at the footings to keep ponded water away from the foundation. Follow recommendations of the geotechnical consultant.
- Do not locate building on soils with high water tables, exceptionally high seasonal water tables, or on soils known to contain springs. Provide a vapor barrier at the first-floor foundation and concrete slab. Specify a vapor barrier system with taped joints and chemical adherence to the foundation wall.
- Terminate all exterior wall flashing and weeps above the finish ground level.
- Design all exterior entry slabs to resist frost heaving. Provide full-deep frost wall foundations where necessary to prevent frost heaving.
- Provide exterior waterproofing on the foundation and footing and exterior side of all concrete walls that enclose space below the finish grade level. This includes occupied space as well as below-grade mechanical, shafts, and storage spaces.
- Use radon-resistant new construction techniques consistent with rules adopted by the Department of Health and Human Services, EPA, or the ANSI/AARST national standards. Provide a passive radon venting system for all portions of a slab-on-grade. The system should be convertible in the future to a fan-run system, if necessary. Architects and engineers should be familiar with the radon potential of the rock and soils on the building site and take readings of radon levels in nearby buildings.

Recommended

- Wherever possible, provide a minimum of 12 inches of grade difference between the finished floor slab and the finished exterior grade.

Premium

- Granite or stone foundations.
- Precast concrete foundations.

Building Entrances

Required

- Install exterior rain canopies at the main entrance and secondary exterior doors that are expected to have high usage.
- Use walk-off mat systems that can be removed and cleaned in all entry vestibules.

- Use walk-off rain mats directly inside of all vestibule doors leading down the main hallways for a minimum of 20 feet.
- Specify all systems and hardware to be commercial grade; residential grade is not acceptable.
- Reference ***Section III: School Safety and Security*** for further requirements and recommendations.
- Simple exposed structure at canopies and vestibules.

Recommended—None Noted

Premium

- Non-standard door series.
- Doors higher than 84 inches or wider than 36 inches.
- Stainless steel doors or frames.
- Pivot hinges, sliders, or revolving doors.
- Electric door openers, other than at required ADA entrances.
- Depressed exterior walk-off grates.
- Snow melt systems.
- Complex ceiling finishes, features, or skylights at canopies and vestibules.

Exterior Walls

Materials used for exterior enclosures shall be of commercial grade intended to have a minimum of a 50-year or longer life cycle. Products should be able to handle heavy use. Products that require sealants or paints are strongly discouraged. The designer should select products that will result in low maintenance and reduced replacement expenses for the building owner.

Required

- Specify steel stud or concrete masonry unit (CMU) as backup for veneer brick.
- Design exterior masonry walls with impervious flashing and weep holes at the base of the wall and over openings such as louvers, windows, and doors.
- Do not specify masonry that requires paint or sealers to prevent water intrusion.
- Specify other exterior materials of high durability, low maintenance, and an expected life span of 50 years.
- Specify weep holes at the base of masonry walls to be 8-12 inches above finish grade, unobstructed, with weep vents.
- Design exterior walls with a continuous water drainage plane that redirects rainwater to the outdoors.
- Seal the drainage plane with a continuous air barrier system where thickness can be monitored and verified.

- Specify locally-manufactured masonry products that are “severe-weather”-rated (SW) with simple, cost-effective detailing and patterns.
- Design flashing details as per Sheet Metal and Air Conditioning Contractors’ National Association (SMACNA) flashing recommendations to prevent water infiltration into the wall.
- Design simple, cost-effective galvanized steel, concrete, or masonry lintels.
- Do not use paper or organic products that support mold growth when wet in any exterior wall assemblies.
- Avoid brick or porous materials at sills or exterior openings.

Recommended

- Consider light control devices at exterior windows on south oriented walls.
- Consider Severe Weather Brick (SW) manufactured in Maine or within 300 miles.
- Consider Ground Face Block.
- Consider 24 gauge uninsulated metal siding such as flat, box rib, standing seam, or square edge corrugated.

Premium

- Cladding materials in excess of four unique types that differ in material or color.
- Premium cladding materials that are more expensive than common SW brick. This may include the following:
  - Brick and masonry products sourced farther than 300 miles from the State of Maine.
  - Brick patterns beyond running, stack, and soldier.
  - Glazed Bricks.
  - Cast-Stone.
  - Precast Concrete.
  - “Architectural” Finish Cast-In-Place Concrete.
  - Natural Stone.
  - Lead-Coated Copper.
  - Stainless Steel.
  - Zinc.
  - Ceramic, Porcelain, Glass Or Other Tile Products.
  - Phenolic Resin Aluminum Skin Panels.
  - Enamel Panels Or Other Manufactured Curtain Wall Products.
  - Composite Stone Veneer Cladding.
  - Channel Glass Façades.
  - Butt-Glazing Silicon Glass Systems.

- Metal Panel Siding.
- Formed Metal Wall Panel Siding.
- Phenolic Composite Wall Panels.
- Insulated Factory Sandwich Wall Panels.
- Plastic Siding.
- Fiber-Cement Siding.

Doors And Windows

Required

- Specify commercial-grade windows rated with pre-finished exterior surfaces.
- Specify windows constructed with thermally broken frames to reduce heat loss and prevent thermal conduction.
- Specify single-hung windows with window screens where operable windows are required.
- Specify windows with sub-frame construction for efficiency and to resist water penetration.
- Specify thermally broken aluminum windows, aluminum clad wood windows, and storefront systems for large expanses of glass.
- Conduct life cycle analysis and collect detailed warranty information on vinyl, vinyl-clad, and fiberglass clad windows to be reviewed before being approved by Maine DOE.
- Specify galvanized hollow metal or factory finished aluminum exterior doors and frames.
- Specify Grade 5 exterior door hardware with stainless steel components and no plastic components in hinges, locks, panic hardware, or lever handles.
- Specify doors with welded metal frames in all new construction. “Knock-down” frames are discouraged and only permitted with written approval.
- Specify 42-inch-wide service doors at limited locations only when functionally necessary.
- Install permanent numbers on the exterior and interior of each door. Number all exterior doors and windows sequentially in accordance with the local Authority Having Jurisdiction preference.
- Reference ***Section III: School Safety and Security*** for further requirements and recommendations.

Recommended

- Consider high performance glazing to reduce cooling requirements.

Premium

- Stainless steel, mahogany, teak, or exotic hardwood windows, skylights, or doors.
- Triple-glazed windows.
- Casement and awning windows. Casement and awning windows must not be oversized and must be easily opened.

- Bullet-proof or laminated glass, except where identified in ***Section III: School Safety and Security***.
- Non-standard and special sized or shaped doors and windows.
- Circular, arched, or complex windows.
- Silicone glazing systems, butt glazing systems, or double wall glazing systems.
- Non-standard colors or finishes, requiring manufacturer's premium cost.
- Interior overhead doors.
- Channel Glass wall systems.
- Specialty fire separation doors, such as "Won-Door."

SECTION VI.
INTERIORS: DESIGN AND PRODUCTS

Overview

Every school plan should be a reflection of the Maine DOE Space Allocation Guidelines, as well as the school district's educational specifications and pedagogy. The opportunity to redesign or design new school buildings is often a once-in-a-lifetime experience for teachers, school boards, and the local community. Serious consideration should be given to a comprehensive educational visioning process at local expense that reviews current state- of-the-art thinking and considers which educational strategies are most appropriate for the school's age group and local community values. Learning spaces should support traditional as well as expeditionary and "virtual" learning experiences.

Because education is constantly changing, school buildings should be designed to be as flexible as possible to accommodate future learning styles and technology. Building designs must allow for simple, low-cost expansion.

Designs should emphasize multi-functioning rooms to maximize daily use and minimize underutilized spaces. Plans should be organized to support small and large group activities.

Maine DOE Table of Maximum Dimensions

Costs related to exceeding the dimensions in this table will be a 100% " Local" expense.

ROOM TYPE	GRADES PK-5	GRADES 6-8	GRADES 9-12
Entry Vestibules			
Finish ceiling height	9'-4"	9'-4"	9'-4"
Underside of structural deck	13'-0"	13'-0"	13'-0"
Lobby			
Finish ceiling height	12'-0"	12'-0"	12'-0"
Underside of structural deck	16'-0"	16'-0"	16'-0"

ROOM TYPE	GRADES PK-5	GRADES 6-8	GRADES 9-12
Performance Space (Auditorium)			
Seat count	Premium	Premium	1/3 of Population
Finish ceiling height			22'-0"
Underside of structural deck			28'-0"
Balcony seat count			Local Cost
Performance Space (Forum or Lecture)			
Seat count	Premium	Premium	1/3 of Population
Finish ceiling height			20'-0"
Underside of structural deck			26'-0"
Stage/Performance Platform			
Underside of structural deck	15'-0"	15'-0"	28'-0"
Proscenium width	25'-0"	25'-0"	50'-0"
Proscenium height	12'-0"	12'-0"	20'-0"
Cafeteria			
Finish ceiling height	12'-0"	12'-0"	15'-0"
Underside of structural deck	15'-0"	15'-0"	18'-0"
Kitchen			
Finish ceiling height	10'-0"	10'-0"	10'-0"
Gymnasium			
Underside of truss	20'-0" (PK-3: 18'-0")	22'-0"	25'-0"
Underside of structural deck	25'-0" (PK-3: 22'-0")	25'-0"	30'-0"
Additional PE Instructional Space			
Finish ceiling height	13'-0"	14'-0"	14'-0"
Underside of structural deck	13'-0"	17'-0"	17'-0"

ROOM TYPE	GRADES PK-5	GRADES 6-8	GRADES 9-12
Locker Rooms			
Finish ceiling height	Premium	9'-4"	9'-4"
Ceiling type		GWB	GWB
Underside of structural deck		13'4"	13'-4"
Fitness and Cardio Rooms			
Finish ceiling height	Premium	Premium	9'-4"
Underside of structural deck			13'-4"
Athletic and Storage Rooms			
Finish ceiling height	13'-4"	13'-4"	13'-4"
Ceiling type	Exposed	Exposed	Exposed
Library/Learning Commons			
Finish ceiling height	10'-0"	10'-0"	12'-0"
Underside of structural deck	13'-0"	13'-0"	15'-0"
Corridors			
Finish ceiling height	9'-0"	9'-0"	9'-4"
Width	8'-0" Clear Width	8'-0" Clear Width	8'-0" Clear Width
Wall finish	RWP on GWB to 48"	RWP on GWB to 48"	RWP on GWB to 48"
Art Room			
Finish ceiling height	ACT or Exposed	ACT or Exposed	ACT or Exposed
Underside of structural deck	13'-0"	13'-0"	13'-0"
Music Room			
Finish ceiling height	10'-0"	10'-0"	10'-0"
Underside of structural deck	13'-0"	13'-0"	13'-0"
Band Room (Orchestral/Choral)			
Finish ceiling height	Premium	12'-0"	15'-0"
Underside of structural deck		15'-0"	20'-0"

ROOM TYPE	GRADES PK-5	GRADES 6-8	GRADES 9-12
Typical Classroom			
Finish ceiling height	9'-0"	9'-0"	9'-0"
Underside of structural deck	13'-0"	13'-0"	13'-0”
Typical Floor To Floor Height			
Floor to floor height	13'-4"	13'-4"	13'-4"
Student Hallway Bathroom			
Wet walls/tile height	48" at Wet Wall	60" at Wet Wall	60" at Wet Wall
Finish ceiling height	9'-0"	9'-0"	9'-0" GWB
Adult Bathroom			
Wet walls/tile height	48" at Wet Wall	48" at Wet Wall	48" at Wet Wall
Finish ceiling height	9'-0"	9’-0”	9'-0"
Classroom Bathroom			
Wet walls/tile height	48" at Wet Wall	48" at Wet Wall	48" at Wet Wall
Finish ceiling height	9'-0"	9'-0"	9'-0"
Storage Rooms			
Underside of structural deck	13'-0"	13'-0"	13'-0"
Ceiling type	Open Exposed	Open Exposed	Open Exposed

General (Applicable to All Areas, Unless Noted Otherwise)

Required

- Design spaces to support Educational Specifications and to conform to the Space Allocation Guidelines.
- Design interior walls, ceilings, and flooring to be simple and straightforward.
- Interior walls should be straight with no curves.
- Specify sinks and counter tops with post-formed backsplash and front edge.
- Reference ***Section III: School Safety and Security*** of this document for further requirements and recommendations.
- Provide 2x4 ACT ceiling at classrooms and 2x2 at lobbies.
- Provide appropriate acoustical absorption in rooms with open ceiling structure.

Recommended—None Noted

Premium

- Complex floor patterns involving curves, cuts, and small tiles.
- Elaborate, expensive, curved or complex walls, ceilings, windows, and arches.
- Building plans with more than one elevator.
- Stairways not required by code.
- Monumental/community stairs.
- Complex ceilings with multiple levels and decorative soffits.
- Wood or metal slat ceilings.
- Plaster or fiberglass shaped ceiling planes.
- ACT ceiling trims other than 15/16" grid profiles.
- 2x2 ACT ceiling anywhere, other than at lobby ceilings.
- Tegular ceiling.
- Decorative or expensive non-standard ceiling tiles or ceiling systems such as metal or wood slat ceilings.
- Decorative wall lights.
- Interior channel glass wall systems or glass block walls.
- Architectural resin panels.
- Operable partitions or large sliding doors.
- Wall paneling or wallpaper.
- Display cases in excess of 96 square feet.
- Solid wood cabinets or wood veneer cabinets.

- Decorative wall sconces.
- Architectural woodwork such as picture rails, wainscoting, crown molding, or paneling.
- Signage and graphics beyond room names and ADA requirements.
- Ceramic tile or wainscoting material over masonry block.
- Premium counter materials that may include the following:
  - Solid vinyl.
  - Polycarbonate.
  - Solid surface.
  - Recycled paper.
  - Recycled glass.
  - Stone.
  - Epoxy (except for High School Science rooms).
- Premium flooring materials that may include the following:
  - Rubber.
  - Sheet products such as Marmoleum or linoleum.
  - Cork.
  - Bamboo.
  - Wood.
  - Polished & Waxed Concrete slabs or tiles.
  - Granite, Slate or other natural stone products.
  - Terrazzo Tile or cast-in-place.
  - LVT, HVT, or Quartz tile except as approved in specific rooms.
  - 2x2 ACT Ceiling Tile, except as permitted in Corridors, Lobbies, Offices, Cafeterias, Conference rooms, and Performance Spaces.
  - Painted Gyp Wall Board ceilings except as approved for toilet rooms and specific spaces by Maine DOE.
- Reference ***Section VI: Interiors: Equipment and Furnishings, Part A*** for additional requirements and recommendations.

Clinic

Required

- School health facilities should adequately provide for privacy and include consideration of projected school enrollment and make-up of student population.
- Locate nurse space in a quiet area, easily accessible to all areas of the building, including the administrative offices.
- Nurse space should be accessible for disabled, with doors leading to main office, outer hallway, and/or outside for emergency transport.
- Provide lockable wall and base cabinets for storage of medications, supplies, and equipment. Avoid storage of medications in cabinets with glass doors since they provide visual access and can be tampered with.
- Provide floor to ceiling closet for storage of large equipment.
- Provide refrigerator of adequate size for storing medications and snacks for students with special needs.
- Provide a waiting and triage area with four chairs for approximately every 300 students.
- Provide a desk area with access to student records, telephone, and computer.
- Provide an isolation area with cot and chair for students with potentially infectious problems or who need privacy.
- Provide sink outside the bathroom to allow for administration of medication, washing hands, and first aid.

Recommended—None Noted

- Consider an outside window for natural light and ventilation.

Premium—None Noted

Classrooms

Required

- Reference ***Section III: School Safety and Security*** for further requirements and recommendations.
- Design classroom walls to the underside of the deck for smoke and acoustical performance.
- Provide toilet rooms in the classrooms for Pre-K, K, and 1st Grade.
- Provide casework, such as bookcases and teacher storage closets.
- Provide a simple, straightforward lighting plan that provides appropriate light levels on white boards and does not interfere with instructional video displays.
- Provide technology plan that supports the defined educational specifications.

Recommended

- Specify paperless and water-resistant materials, such as sheet rock, for wet walls.
- Consider classroom cubbies for coats, hats, and boots in grades Pre-K through 1st Grade.

Premium

- Casework in excess of (2) wardrobes of 3 feet x 7 feet, and 28 linear feet of base storage units.
- Sinks in classrooms for higher than 1st Grade.
- Decorative or specialty lighting other than standard classroom lights.
- Sliding doors, operable, or demountable wall systems.
- Radiant floor heating for grade levels, other than Grades Pre-K-1st Grade.
- Floor products other than VCT or carpet.
- More than one ventilation hood with integrated fire suppression system per school at a classroom cooking station, if required by the educational program.

Science Classrooms or Labs

Required

- Equip to serve only the science program for which the room is designed.
- Design to allow for adult supervision throughout the room.
- Provide deluge showers, eye wash stations, and emergency shut-off equipment where required for safety.
- In chemistry labs where corrosive chemicals will be used:
  - Specify appropriate chemical-resistant casework and counter tops, fume hoods, acid neutralization tanks, and plumbing that will prevent injury, material degradation, or wastewater contamination.
  - Design appropriate safety equipment into the room and design appropriate prep rooms with lockable storage and fireproof, chemical-resistant cabinets.
- Provide appropriately designed tables and counter tops for computer use with experiments.
- Design to maximize shared amenities such as fume hoods, prep rooms, and storage.

Recommended—None Noted

Premium

- Compressed air.
- Gas.
- Fume hoods at rooms other than chemistry.
- Epoxy sinks other than in High School chemistry rooms.

Art Rooms

Required

- Provide exhaust for kiln room.
- Design for abundant natural lighting with preferred north orientation.

Recommended

- Consider concrete or floor materials that can resist paint, markers, and other art materials.
- Consider cleanable and stain resistant room finishes.
- Consider multiple station student cleanup sinks.

Premium

- Decorative or special track lighting.
- Excessive custom casework for student art project storage.
- Dark rooms.

Library/Learning Commons

Required

- Design the library for adult supervision throughout the space.
- Specify carpeted floor and acoustical ceiling.

Recommended

- Consider movable shelving for maximum flexibility.

Premium

- Space required for non-school, town-owned library functions.
- Intricate architectural woodworking, paneling, and custom millwork.
- Custom ceilings, soffits, skylights, or other monumental architectural features.
- Custom display cases within the library/learning commons.

Gymnasium

Required

- Locate gymnasiums adjacent to or with easy access to exterior playfields and parking lots for public events.
- Locate door swings, equipment, and other items so they do not become dangerous obstructions to running students playing within the space.
- Provide public toilet areas near the gymnasium.

- Do not place drinking fountains/water bottle filling stations in gymnasiums.
- Specify synthetic sports floors.
- Provide concrete slab and foundation moisture protection below gymnasium flooring in compliance with manufacturer's requirements.
- Provide lighting that can resist damage from thrown objects.
- Provide safety and security cages around light switches, thermostats, sensors, sprinkler heads, etc.
- Limit wall padding to main competition court at basketball backstops only:
  - Grades Pre-K-5: Limit padding to 15 linear feet on each end of court, under basket.
  - Grades 6-12: Limit padding to 20 linear feet on each end of court, under basket.
- Provide enough sound absorbing material to allow for good voice recognition, and appropriate sound amplification for group presentations.

Recommended

- Consider gymnasiums as possible multi-functioning and multipurpose spaces.
- Consider sports net dividers to maximize class use of gyms.
- Locate bleachers near gymnasium doors, when possible.
- Consider synthetic sports flooring or grade level-appropriate hardwood floor systems.

Premium

- Climbing walls.
- Floor painting other than simple, straightforward markings for volleyball and basketball.
- School names, mascots, or logos.
- Movable bleacher systems designed to be relocated throughout the room.
- Large, tall, electric operable divider systems.
- Specialty equipment other than basketball and volleyball supports or tie-downs.
- Batting cages.
- Platforms for broadcasting games and events.
- Hardwood athletic flooring and dehumidification systems.
- More than one scoreboard at Middle and High Schools.
- Elementary School scoreboards.
- Athletic trainer rooms.
- Fitness room area beyond PE fitness (High School only).
- Officials' changing rooms.
- Walking tracks.
- Acoustic clouds or fabric wrapped acoustic panels.

Music Rooms

Required

- Design music rooms to prevent noise from leaking into adjacent spaces and floors.
- Design walls and floors to prevent noise through ceilings or structural elements.
- Tune High School band rooms with sound absorbing materials and acoustic mass to prevent sound transmission.
- Tune High School choral spaces to help amplify the human voice without the use of amplification systems.
- Specify washable hard surface floors in band rooms.
- Provide sink for instrument washing in band rooms.
- Provide vision glass in sound rated doors.
- Design level floors to allow for portable risers.
- Design door configurations to allow for the easy movement of large instruments.
- Design for convenient access to stage/performance platform or other performance areas.

Recommended

- Consider locating required drinking fountain/bottle filling station in proximity to choral room.
- Consider safe, secure storage for musical instruments.

Premium

- Natural hardwood paneling or woodwork used as acoustic baffles, reflectors, and reverberation panels.
- Specialty acoustic paneling or products other than tectum at Elementary and Middle School.
- Specialty flooring.
- Television, media, or acoustic recording studios or services.
- Prefabricated practice rooms.
- Amplification systems within music rooms.
- Acoustic clouds.
- Fabric-wrapped acoustic panels.
- Acoustic Panels other than cementitious wood fiber over fiberglass batts.

Assembly Space (High School)

Required—None Noted

Recommended

- Provide dressing rooms and storage rooms, only if academic theater programs exist as part of the High School curriculum.
- Locate the control booth for visual supervision of the stage/performance platform and for video and audio recording of performances (High School).
- Allowable finishes:
  - Design interior walls, ceilings, and flooring to be simple and straightforward.
  - Interior walls should be straight with no curves.
  - Provide appropriate acoustic absorption.
- Provide a simple, straightforward downlighting that provides appropriate light levels for multiple uses.

Premium

- Auditorium.
- Additional area, volume, and seating beyond the Space Allocation Guidelines.
- Orchestra pits.
- Professional theatrical lighting systems.
- Theater balconies or spectator boxes.
- Elevators dedicated to serving just the assembly/performance space.
- Special curved plaster wall or ceiling assemblies designed for acoustic balancing.
- Decorative wood paneling, wallpaper, and murals.
- Scenery.
- Green Rooms.

Stage/Performance Platform

Required—None Noted

Recommended

- Elementary:
  - Main curtain and valence.
  - Projection screen.
  - One downstage (FOH) lighting position the width of the proscenium, with simple track lighting fixtures.

- Middle School/Pre-K-8:
  - Main curtain and valence.
  - Cyclorama.
  - Projection Screen.
  - 1 Downstage (FOH) lighting position the width of the proscenium.
  - 1 stage electric lighting position.
  - Lighting instruments to be purchased with local funding or from the Technology Budget.
- High School:
  - Main curtain and valence.
  - 1 Border (Masking) each side of stage.
  - Cyclorama.
  - Projection Screen.
  - 1 Downstage (FOH) lighting position the width of the proscenium.
  - 3 stage electric lighting positions.
  - Lighting instruments to be purchased with local funding or from the Technology Budget.

Premium

- Fly galleries or stage/performance platform ceilings higher than 28 feet.
- Stage/performance platform gridirons, side galleries, boom lighting, pin rails, or catwalks over stage/performance platforms.
- Proscenium openings wider than 60 feet, higher than 20 feet.
- Under-stage/performance platform storage.
- Orchestra pits.
- Professional theatrical lighting systems.
- Additional stage/performance platform curtains.

Cafeteria

Required

- Design cafeterias to ensure smooth flow of students from the hallway into the serving area, through the dining area into the dish return area.
- Design to allow for adult supervision throughout the room.
- Provide bathrooms and custodial closets adjacent to or near the cafeteria.
- Locate hand sinks in the cafeteria for student and staff use, preferably where students enter the cafeteria.

- Design ceilings with simple volumes and finishes.
- Provide an economical AV system for group instruction and public uses.
- Specify hard, washable, durable wall and floor finishes.

Recommended

- Consider wall finishes such as concrete block, ceramic tile, epoxy paint on moisture resistant drywall, etc.
- Consider floor finishes such as quartz tile or durable sheet goods capable of greater impact resistance.

Premium

- Decorative soffits.
- Remote distributed dining spaces.
- Outdoor dining patio.
- Built-in cafeteria seating.
- Complicated and unusual ceiling designs including multiple levels and large skylights.
- Non-standard ceiling materials other than quality ACT acoustic ceilings or gypsum drywall.
- Unusual and complicated lighting systems such as non-standard pendant lighting.
- Architectural woodwork paneling, hardwood trim, wallpaper, ceramic tile, or specialty murals.
- Floor finishes other than those described as required and recommended.
- Operable room dividers or custom-designed sliding doors.
- Floor Products other than Quartz tile, Porcelain tile, quarry tile, or durable welded sheet goods.

Kitchen

Required

- Design the kitchen to meet Maine Food Code (Chapter 200) for school commercial kitchen standards.
- Submit kitchen plans to Maine DOE's inspection program, as well as Health and Human Services.
- Design kitchen to allow food service staff visibility into the cafeteria.
- Provide a small, secure kitchen office work area.
- Locate kitchens with easy access to the outdoors and a secure outdoor delivery entrance.
- Design kitchens to be secured from other areas of the building.
- Provide staff toilets and lockers away from food preparation areas.
- Locate kitchens with easy access to dumpsters and compactors.

- Locate custodial rooms near the kitchen and outdoor service area.
- Provide a separate dishwashing area with stainless steel trim and sink access from the cafeteria area for student and staff drop-off of dirty dishes.
- Specify hard, washable, durable wall finishes such as epoxy-painted concrete block or fiber-reinforced plastic (FRP) panels or other approved material.
- Specify washable, durable ceiling finishes such as moisture-resistant gypsum wallboard or approved commercial kitchen ceiling material.
- Specify hard, washable, durable, slip-resistant floor finishes such as quarry tile or other approved floors suitable for commercial cooking kitchens.
- Avoid electrical floor outlets.
- Provide a lockable dry goods stockroom.
- Provide lockable refrigeration and freezer compartments.
- Protect delivery at-grade loading areas inside and outside with durable construction and bollards.

Recommended

- Review kitchen plans with the Maine Department of Education Child Nutrition.
- Consider providing a locked vestibule, if necessary, for off-hour deliveries.

Premium

- Loading docks with associated retaining walls, drainage, and grading.
- Floor products other than quarry tile, poured epoxy, or welded resilient sheet goods.

Stairwells

Required

- Construct stairways of masonry unless otherwise approved.
- Provide handrails, guards, and non-slip treads and landings, as required by code.
- Minimize stairwells in the building design to only those required by code.

Recommended—None Noted

Premium

- Extensive exterior wall glazing.
- Complicated or expensive guardrail systems.
- Custom terrazzo treads, landings, or pavers.
- All costs related to monumental/community stairs or communicating stairs.

Corridors and Lobbies

Required

- Specify durable finishes.
- Do not install electrical panels in corridors.
- Design corridors that are easily observable by administrators and teachers, for security reasons.
- Reference ***Section III: School Safety and Security*** for further requirements and recommendations.

Recommended

- Design classroom area corridors not to exceed 8 foot clear width.
- Evaluate the need for lockers in grades 3-12.

Premium

- Lockers for Pre-K-2nd grade (does not include in-classroom cubbies).
- Locker base other than standard CMU or wood.
- Decorative soffits and ceiling details.
- Architectural woodwork and paneling including hardwood chair rails, picture rails, crown moldings, or cove ceiling trim.
- Extensive glass applications.
- Decorative masonry or ceramic tile wainscoting.
- Manufactured tackable wall product in excess of 64 square feet per 10 classrooms.
- Benches in excess of 25 linear feet.
- Floor Products in Corridors other than Quartz Tile, VCT, HVT, or LVT.
- Quarry Tile, Porcelain Tile, Quartz tile , VCT, HVT, or LVT permitted in Lobbies.
- For corridor walls any product other than epoxy paint or welded seam PVC sheets (to a maximum height of 48 inches).

Custodial and Storage Spaces

Required

- Locate custodial and building storage spaces to serve multiple sections of the building.
- Provide custodial spaces on each floor of multi-story buildings.
- Provide central building storage near a truck unloading area.
- Specify durable, washable finishes, such as FRP, concrete floors, and epoxy paint.
- Provide full height walls to the underside of the deck in all custodial and chemical storage areas.

Recommended—None Noted

Premium

- Floor products other than sealed concrete hardener.

Toilet Rooms

Required

- Design toilet rooms to allow for increased supervision to reduce problem behaviors such as vandalism or bullying.
- Specify ceramic tile or heavy, commercial-grade, welded, seamless, uric-acid-resistant flooring for multi-user toilet rooms.
- Provide floor drains and sloping floors in all multi-user toilet rooms.
- Specify masonry block with epoxy-painted finish or moisture resistant drywall with tile wainscoting (coordinate with device locations).
- Specify solid gypsum wallboard ceilings with locked, tamper-proof access panels for valves and mechanical control systems at Middle and High Schools.
- Specify ceiling braced toilet partition stalls with triangular cross-brace members for durability.

Recommended

- Consider hands-free fixtures in all toilet rooms.
- Consider dark-colored grouts with quarry or ceramic tile.

Premium

- Stainless steel or stone partitions.
- Custom fixtures, faucets, or accessories.
- Custom-designed fixtures or hardware.
- Tile product applied on walls other than wet walls.
- Tile product applied above heights specified in Maine DOE table of maximum dimensions.
- For single classroom bathrooms, any floor product other than seamless sheet vinyl.

Building Maintenance Storage Areas

Required

- Combustible fluids and equipment should be separated according to code requirements.

Recommended

- Consider concrete block construction for heavy duty storage rooms.
- Consider concrete with natural hardeners.

Premium

- Finishes other than simple, durable, and easily-maintained.
- Floors other than concrete or VCT.

Mechanical Rooms

Required

- Design mechanical rooms to properly isolate sound, vibration, and odors from the rest of the school.
- Locate mechanical rooms so they can be accessed via hallways, stairways, or alternating stair treads so filters and equipment can be easily replaced.

Recommended

- Recommend locating mechanical rooms centrally to reduce piping and ductwork runs.

Premium

- Finishes other than simple, durable, and easily-maintained.

Interiors: Equipment and Furnishings

Modern school design requires detailed coordination between the building shell and built-in furnishings and technology. This section outlines the built-in components installed by general contractors and the movable furnishings and technology provided and installed by other vendors prior to occupancy of the building.

This section contains two parts: Part A covers built-in furnishings and equipment to be installed by the general contractor as part of the base building. Part B describes loose furniture and equipment purchased separately and installed by independent installers or school department personnel.

Part A: Built-In Equipment and Furnishings

The total of Part A building built-in equipment and architectural woodwork should not exceed 6.0% of the building construction cost for all school types. For Maine DOE-supported schools, architects provide a detailed breakdown.

Finish Carpentry And Architectural Woodwork (Division 6)

School designers shall prepare concept designs and estimates of probable cost that follow traditional CSI formats. During concept design, they shall identify Division 6 costs for finish carpentry and architectural woodwork that shall include cabinetry, built-in shelving, and science casework. The estimates should include finish carpentry such as wood or laminated windowsills, built-in benches, wood and laminate wall panel and trims, as well as fiber-reinforced plastic (FRP) panels and trim.

Required

- Specify finish carpentry and architectural woodwork not to exceed 2.0% of the building-only construction budget (excluding site), except by permission of Maine DOE.

- Specify durable and easily washable casework. Preferred casework is plastic laminate over stable substrate with 4 mil. polyvinyl chloride (PVC) edge banding. Self-edging is discouraged.
- Limit wood veneer paneling and solid wood trim, where approved, to birch, oak, or maple.

Recommended—None Noted

Premium

- Solid wood or wood veneer cabinetry, casework, or shelving.
- Wood veneer paneling and solid wood trim in species other than birch, oak, or maple.
- Solid surfacing material at windowsills.
- Paneling or cabinetry incorporating glass tiles or decorative clear plastic sheets with graphics.
- Chair rails, crown moldings, or picture rails.
- Solid surface counter tops such as Corian, solid vinyl, or polycarbonate.
- Recycled glass counter tops.
- Renewable products such as bamboo, wheat board, or recycled laminated wood.
- Wood panel doors taller than 84 inches.

Building Specialties (Division 10)

Building specialties include toilets, urinals, shower partitions, mailbox systems, marker boards and tack boards, student or athletic lockers, locker benches, vocational lockers, interior building signage for directions, ADA identification, bulletin boards and directories, fire extinguishers and fire extinguisher cabinets, shower and cubicle curtains and tracks, operable walls, shower curtain rods and accessories, wall mirrors, toilet accessories, exterior sun screens, and interior light shelves.

Required or Recommended

- Specify specialties not to exceed 2.0% of the total building-only budget (excluding site work) except by permission of Maine DOE.

Premium Products

- Stainless steel bathroom and shower partitions.
- Hardwood or hardwood veneer lockers.
- Motorized or operable exterior sunscreens or sunshades.
- Interior light shelves, other than on the south side.
- Operable partitions in classrooms.
- Motorized, operable partitions in gyms or cafeterias.

Built-In Equipment and Furnishings (Division 11 & 12)

Fixed building equipment includes equipment and appliances for the commercial kitchen, staff room, culinary arts and family consumer classrooms, and science classrooms. Fixed equipment also includes such gym equipment as basketball backstops, wall pads, volleyball nets and sleeve, one (1) scoreboard, and electric gymnasium mesh divider curtains, washer and dryer units, and projection screens.

Built-in furnishings includes entry mats, recessed vestibule grids and walk-off mats, and window treatments such as roller shades, mini-blinds, and sunscreen roll shades. Fixed furnishings shall also include fixed auditorium and lecture seating, gymnasium bleachers, stage/performance platform curtains and backdrops, and TV studio green screens.

Required

- Specify built-in equipment and furnishings not to exceed 2.0% of the building-only budget (excluding site costs) except by permission of Maine DOE.

Recommended—None Noted

Premium

- Electric operating projection screens in any location other than an assembly space (High School).
- Electric operating window treatment shades or sunscreens.
- Stainless steel exterior sunshades or sunscreens.

Part B: Movable Equipment and Technology

Equipment and technology lists and cost must be approved by the Maine DOE. Movable equipment costs will not exceed 4.0% of building-only construction costs (excluding site) in a project budget. Movable equipment is purchased separately from the general contract and can be installed by independent vendors or school department personnel. Movable equipment falls into three categories as follows:

- Movable furniture and equipment.
- Outdoor site furnishings and equipment.
- Technology equipment.

Movable Equipment Examples

- **Movable furnishings and equipment** shall include interior maintenance equipment for facility managers and custodians, tables, desks, chairs, file cabinets, conference tables, indoor athletic equipment, movable carts, library shelving and library systems, instructor tables, conference tables, storage cabinets, art room equipment, consumer science equipment, music tables, chairs and music stands, movable storage cabinets, and vocational school lab equipment.
- **Outdoor site equipment** shall include site maintenance equipment, movable physical education equipment, and other outdoor equipment approved by Maine DOE.

- **Technology** includes phone system devices and phone servers, computers, network equipment and software, including servers, routers, switches and wireless equipment systems, digital video projectors, interactive presentation devices (including interactive white boards), enhanced auditory systems, video storage, video monitors, distribution equipment, and specialized systems such as 3D printers, cameras, measuring and recording devices, and digital signage display systems.
- Refer to State Board of Education's Chapter 61-Section 10 for further definition and requirements.

Required—None Noted

Recommended—None Noted

Premium

- Theatrical equipment such as sound boards, light boards, video and auditory recording devices, and video transmission systems.
- Outdoor sports equipment.

SECTION VII.
HVAC AND PLUMBING

Overview

The building's HVAC and plumbing systems are to be designed to conserve energy, reduce water usage, lower operating costs, and provide occupant comfort. The systems should be durable, expandable, and easily maintained. Life cycle considerations should balance initial construction costs with lower long-term maintenance and operating costs.

Plumbing

Required

- Provide water saving fixtures in all bathrooms.
- Provide hot and cold water, floor-mounted service sinks and proper chemical storage in custodial spaces.
- Provide fixtures that are durable and easily maintained.
- Pitch all slabs to floor drains.
- Avoid locating floor and roof drains over electrical and data system equipment.
- Provide emergency eyewash, shower units, floor drains, and sloped slabs when required by Occupational Safety and Health Administration (OSHA) in science rooms, art rooms, shop and maintenance spaces, or where chemicals are used.
- Provide tamper-proof hose bibs located near maintenance area, front door, playgrounds, and courtyards.
- Provide one solids interceptor (plaster trap) per art room.
- Provide grease traps at kitchens.
- Specify recirculating or heat trace domestic hot water supplies on supply mains.
- Specify insulated roof drain sumps and condensate drain piping to prevent condensation from forming inside the building.
- Locate plumbing vents away from roof edges, operable windows, snow drift locations, and air intakes.
- Provide radon mitigation following ANSI/AARST National Radon Standards.
- Provide water bottle filling stations: one for every 200 people projected to occupy the building upon completion of the project; one for every floor or wing; and a minimum of one station located near a cafeteria, gymnasium, outdoor recreation space, or other high traffic area.

Recommended

- Consider providing automatic controls at sinks and toilets.
- Consider appropriate water supply and floor drains in building maintenance area.
- Specify insulated or cast-iron sanitary drain piping to eliminate noise in occupied spaces.

Premium

- Non-standard fixtures, faucets, or radiators.
- Colored plumbing fixtures.
- Solar domestic hot water systems.
- Gray water and rainwater systems.
- Clean agent extinguishing systems for server rooms.
- Floor drains other than in multi-user toilet rooms, showers, kitchens, emergency shower stations, building maintenance area, and wet custodial rooms.

HVAC

Required

- Integrate incentive programs into building design and provide summary to Maine DOE, detailing budget implications.
- Use energy modeling during the design phase for system selection and building configuration.
- Design the building Site Energy Use Intensity to a maximum of 40.0 (ASHRAE Climate Zone 6A) with the following parameters:
  - Applies to buildings partially cooled or fully cooled.
  - Occupancy is modeled as full use from September 1st to June 30th and from 7:00 am to 5:00 pm.
- Compile a comprehensive life cycle analysis that addresses the initial cost of the systems, annual operating cost, maintenance costs, and replacement costs.
- Owner to hire an independent testing and balancing consultant.
- Require manufacturer warranties on boilers and major equipment.
  - Leakage and Materials: 10 years from date of Substantial Completion.
  - Heat Exchanger Damaged by Thermal Stress and Corrosion: Five years from date of Substantial Completion.
- Control indoor air quality during construction to prevent dust in ductwork and equipment.
- Provide air conditioning (cooling) to spaces used year-round.
- Cluster spaces to be cooled to maximize efficiency and lower first construction costs.
- Control solar heat gain with sun shades, glazing materials, and/or design orientation on the south elevation.
- Ensure educational spaces are not impacted by transfer of noise or vibrations from mechanical rooms.

- Provide Minimum Efficiency Reporting Value (MERV) 13 filters, MERV 11 minimum if higher-rated filters are not provided by the unit manufacturer.
- Locate air handling equipment in mechanical rooms or penthouses, not on roofs.
- Avoid fin tube radiation at floor level in toilet rooms.
- Avoid fin tube radiation in stairwells.
- Provide proper ventilation and exhaust system for all areas where chemicals are stored and used.
- Design air intake to prevent wind-driven snow and rain from entering the building or any part of the HVAC system.

Recommended

- Consider systems that provide both heating and cooling.
- Locate louvers at least 8 feet above grade for safety and security, and keep plantings away from louvers.
- Locate intake louvers away from sources of air pollution such as buses, exhaust vents, kitchens, and shop spaces.
- Consider prevailing winds, dark-colored roofs, and exhaust equipment when designing intake systems.

Premium

- Air conditioning for areas other than those listed above.
- Dehumidification systems.
- Raised floor distribution systems for HVAC.
- Geothermal heating and cooling systems.
- Exterior solar control devices on elevations other than 15 degrees from true south.

SECTION VIII.
ELECTRICAL AND DATA/ TECHNOLOGY SYSTEMS

Overview

Building systems shall be energy efficient to reduce initial construction costs as well as long-term energy consumption and operating costs.

General Electrical and Data

Required

- Integrate incentive programs into building design and provide summary to Maine DOE, detailing budget implications.
- Provide site lighting with zero cut-off fixtures.
- Provide indoor and outdoor speakers at playgrounds.
- Track whole-building energy use.
- Daylight modeling during concept design.
- Provide occupancy sensors in occupied rooms.
- Provide light foot-candle levels as recommended by the Illuminating Engineering Society of North America (IES).
- Locate electrical distribution and breaker panels in locked electrical closets or service/mechanical areas.
- Separate electrical and IT communication closets from custodial and storage spaces.

Recommended

- Consider daylighting integrated with lighting controls and occupancy sensors.
- Consider direct/indirect fixtures in classrooms.
- Consider task lighting at instructional area wall surfaces.

Premium

- Generator beyond code-required critical emergency systems, security, data, and refrigerated food storage.
- Expensive, decorative, or custom light fixtures.
- Decorative wall sconces.

- Photovoltaic arrays or systems.
- Electrical wind generators.
- Raised floor raceway systems.

Security Systems

Required

- Provide surveillance cameras at least at all major entry points, corridors, and stairwells.
- Install door status and intrusion monitoring and access control systems at exterior doors.
- Provide intercom and door release systems at the main entries, as well as those frequently used by staff, students, and delivery personnel.
- Provide hidden electronic security panic button system for all admin that can send a signal to police or emergency responders when a crisis is developing at the school. Locate at main office and at least one more location.

Recommended

- Consider an emergency generator to support critical systems only.

Premium

- Interior cameras that exceed the ratio of 1 camera per 5,000 square feet.
- Exterior cameras beyond surveillance of staff/student parking areas.

Building Technology Infrastructure

Reference Part B: Movable Equipment and Technology in *Section VI: Interiors: Design and Products* for guidelines on equipment.

Required

- At Concept Approval, District to prepare a narrative outlining the required elements of the District's technology needs.
- During Design Development, develop a comprehensive technology plan with District technology staff and architect, including but not limited to, the following:
  - Network map.
  - Hard wired data ports.
  - Wireless access points.
  - Instructional technology devices and device charging systems.
  - Network devices.
  - Access control.
  - Communication (intercom, phone, etc.).

- Security Systems.
- Backup power supply (redundancy requirements).

Recommended—None Noted

Premium

- Flat screens in excess of those in lobbies, cafeteria, and other approved locations.
- Prohibited substance detection.

SECTION IX.
BUILDING COMMISSIONING

Overview

Owner may hire a third-party commissioning agent or independent testing agency for quality control. Commissioning agents should be integrated into the project around 75% design and remain involved at a regular intervals as appropriate to their scope.

Required—None Noted

Recommended

- Mechanical Systems:
  - Hot Water Heating Systems.
  - Chilled Water Cooling Systems.
  - Geothermal Water Systems.
  - Central Air Systems.
  - Exhaust Systems.
  - Kitchen Hoods.
  - Variable Refrigerant Flow (VRF) or Variable Refrigerant Volume (VRV) Systems.
  - Automatic Temperature Controls.
  - Energy Management Systems.
- Building Envelope (Independent Testing Agency for Owner or specified as Contractor requirement):
  - Air Infiltration and Water Barrier Systems.
  - Window System Installations and Flashings.

Premium

- Building Envelope:
  - Building Envelope Services by Commissioning Agent.
  - Enhanced Commissioning.
  - Roofing Systems.
  - Wall Testing.

- Electrical Systems:
  - Lighting Controls.
  - Daylight Harvesting.
  - Occupancy Sensors.
  - Timing Switches.
  - Emergency Generator.
  - Automatic Transfer.
  - UPS / Emergency Lighting.
  - Owner Metering Systems.
  - Access Control.
  - Lock-Down System.
- Plumbing Systems:
  - Domestic Hot Water Systems.
  - Piping System Distribution.
  - Compressed Air.
  - Natural Gas System.
  - Thermostatic Mixing Devices.
  - Emergency Safety Stations.

SECTION X.
PROJECT BUDGET WORKBOOK

Overview

During the Concept Design phase, establish the parameters of the project budget workbook, including defining state/local and local only expenses.

Local Only Expenses

- Local options and items identified as Premium for New Construction and Site Work.
- Land purchase costs exceeding Chapter 61 requirements.
- Closing costs, broker costs, and title insurance.
- Moveable equipment (both equipment and technology items) that were not approved, located in Local Only program areas, and amounts exceeding State support that were not preapproved.
- Legal preliminary advice.
- Legal contract reviews.
- Miscellaneous unapproved legal costs.
- Referendum printings, websites, reproductions, and marketing costs.
- Percent for Art costs exceeding $50,000.
- Owner's Reserve for miscellaneous Local Only items.
- Moving and storage expenses including supplies not related to renovation projects.
- Local Only change orders including A/E fees.
- A/E participation at additional building committee meetings beyond regular design scope.
- A/E participation at public informational meetings (other than straw polls).
- Wetland studies and vernal pool assessments at sites other than the highest ranked location for project development.
- Local third-party reviews.
- Local approvals, permits, and fees.
- Planning Board or Municipal Requirements (sidewalks, paths, trails, granite curbing, traffic lights, intersection improvements).
- Local Impact Fees (Sewer, Water, Zoning, Growth).

- Local project management.
- Shared costs proportional to Local Only program items – Moveable Equipment, Efficiency Maine Credits, Project Contingency, A/E Full-Service Agreement, Construction Testing, Clerk of the Works, Commissioning.
- Utility costs such as propane, oil, electricity, water, and sewer not included in the general contractor base bid.
- Extended warranties.
- Computer software, supplies, and associated warranties.
- Supplies including flags, first aid kits, brooms, buckets, shovels, hard hats, balloons, food, paper products.
- Professional/aerial photography.
- Training and in-service costs.
- Restocking fees for supplies and equipment.
- All line-item cost overruns (unless previously approved by the Maine DOE).
- Finance charges on late invoice payments.
- Maintenance and service contracts.
- Clerk of the Works mileage and cell phone.
- Plaques.

SECTION XI.
CODES AND REFERENCES

Overview

Major capital school projects are required to comply with current Maine DOE rules and regulations as well as local, state, and federal rules and codes.

The attached list is not intended to be exhaustive or to include all codes and regulations required for public school buildings. Designers and owners are responsible for determining what standards and codes are required.

References and Standards

- State Board of Education Rules for Major Capital School Construction Projects, Chapter 61
- Maine Department of Education Space Allocation Guidelines
- Maine Department of Education flowchart and current School Construction Project Workbook for new school construction and major renovation projects
- NFPA 101 Life Safety Code, NFPA 1 Fire Code, and National Fire Protection Assoc. (NFPA) 13 Sprinkler Code as administered by the State Fire Marshal's Office
- International Building Code (IBC)
- Maine Uniform Building and Energy Code (MUBEC)
- International Energy Conservation Code (IECC) as required by MUBEC
- American Society of Heating and Air-Conditioning Engineers (ASHRAE)
- ASHRAE 90.1 as required by MUBEC
- ASHRAE 62.1
- ANSI-ASA ST.60-2010 American National Standard for Acoustic Performance Criteria, design requirements and guidelines for schools
- Underwriter's Laboratory Fire Resistance Directory
- National Electrical Code
- Maine State Plumbing Code
- Maine State Elevator and Hoist Way Code
- All other cross referenced and required industry standards and codes as required by the State of Maine and local jurisdictions governing public school buildings
- Northeast Collaborative for High Performance Schools (NE-CHPS)

- School district librarians and design guidelines developed by the Maine Library Association. www.maslibraries.org/Maine-School-Library-Standards Maine Association of School Libraries, Maine School Library Standards (2017)
- NEASC (New England Association of Schools and Colleges) standards for High School libraries, Click on accreditation standards- the library program falls under school resources for student learning.
- AASL Standards for the 21st Century Learner.
- U. S. Green Building Council (Leadership in Energy and Environmental Design [LEED]).
- BirdSafe Maine Architecture Guidelines.
- Federal EdTech Plan (Digital and Design Divide).
- CISA Safety Standards.
- TIA/EIA Standards (568- Telecommunications for Commercial Buildings)

Maine Department of Education
Office of School Facilities
www.maine.gov/doe/schools/facilities/mcscp
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