STATE OF DELAWARE

SCHOOL CONSTRUCTION
TECHNICAL ASSISTANCE MANUAL

DEPARTMENT OF EDUCATION

DOVER, DELAWARE

2017

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Section 1: General Information

1.1 Authority

The authority of the Department of Education for the issuing of this manual, and thus setting criteria, standards and regulations dealing with school plant planning, maintenance and construction, is found in 14 Del. Code §§121, 122, 2002 and 29 Del. Code §§7509-7511, 7518.

1.2 Scope

This School Construction Technical Assistance Manual relates to all public school facilities whether occupied by children or not. It also relates to all public school facilities constructed in any part with state funds or constructed on state property.

1.3 Interpretation

In the event of a question of interpretation of any of the standards or regulations presented by this manual, the same shall be determined by the Department of Education. All references to laws and statutes are current with the preparation of this manual. Where laws or statutes are changed or revised, the latest published version shall apply.

1.4 Responsibility of Local Boards of Education

The responsibilities of the local Board of Education concerning its district's school construction projects are specified in 29 Del. Code §§7519 and 7520. It is also responsible, along with the school administration, to develop and maintain long-range plans concerning school facilities.

1.5 Responsibility of Architects and Engineers

The responsibility for the design of a school building construction project is that of the architect and/or engineer retained by the local Board of Education. They are also responsible for ensuring that their plans and specifications conform to applicable state, county, city, and local code, rules and regulations, and that all permits and approvals are obtained.

1.6 Who May Prepare Plans

All plans and specifications for school building construction projects must be prepared by an architect or engineer registered to practice in the State of Delaware and within the limits covered by such registration. Each page of the plans and the title page of the specifications shall bear the seal and signature of the architect and/or engineer who prepared them. The local Board of Education should make certain before hiring an architectural or engineering firm that a Delaware registered architect or engineer is on the staff of the firm so that the above requirement can be met.

1.7 Procedure for Hiring Architects/Engineers

29 Del. C., Chapter 69, Subchapter V, outlines the professional service procurement process that shall be followed in the selection and hiring of an architect and/or engineering firm.

1.8 Designation of Spaces

Typical capacity ratings are based on the designation of spaces as specified on the approved floor plans of the school facility. Permanent changes in the use and/or arrangement of spaces that directly/indirectly affect the life, health, and safety of the students, or affect the capacity of the building, shall not be made without the review and approval of the Office of Capital Projects Management prior to implementation. Local school districts shall be responsible for compliance with appropriate Building Officials and Code Administrators International, Inc. (BOCA), life safety, fire, Americans with Disabilities Act (ADA), codes.

Local school districts shall be responsible to assure that appropriate regulatory agencies review and approve construction plans that permanently change or modify the use and/or arrangement of space in accordance with Delaware Code.

1.9 Assistance in Planning and Construction

Department of Education staff is available to local school districts for assistance in the formulation of both short- and long-range facility plans and construction implementation. Assistance is also available on specific projects within those plans. Districts with limited resources are encouraged to contact the Delaware Department of Education for this assistance.

1.10 Summary of Steps in the Major Capital Improvement Process

A. District recognition and justification of capital improvement need *(throughout the current fiscal year).*

B. Submission to Department of Education for consideration and inclusion in following year's Capital Budget request *(no later than August 31 of each year).*
   - District develops and submits to the Department of Education detailed capital improvement plan (Certificate of Necessity (CN) request) to include the educational scope and desired educational outcomes of the project. Submissions must be approved by the district's school board.

C. Analysis and ranking of all submissions by Department of Education *(September of each year)*
   Ranking Order:
   Priority Number 1:
   - Projects intended to address documented patterns of continued student population growth;
   - Projects addressing serious life, health, safety and/or code violations.

   Priority Number 2:

- Projects for which a functional building and/or program exists but the project is intended to improve and/or enhance service delivery.

Priority Number 3:

- Projects intended to improve facility aesthetics, or building project or program enhancement not related to life, health, safety code violations.

**Priority classification is subject to change*

D. Inclusion in the Department of Education's Three-Year Major Capital Improvement Program and presentation to the Office of Management and Budget *(By October 15th of each year)*.

E. Department of Education issuance of a Certificate of Necessity *(Late October of each fiscal year)*

- District potential site selection, review through the State of Delaware – Office of State Planning Coordination's Preliminary Land Use Service (PLUS) process, approval in accordance with 29 Del C. Chapter 75, Section 7525 districts are encouraged to submit multiple potential sites for PLUS review prior to submitting its CN request.
- Districts shall engage regulatory agencies to include, but not limited to, DelDOT, DNREC, county, city/town/municipality as early in the site selection stage as possible to make a more informed decision about school site selection.
- Should the desired site be considered a challenging site regarding the cost to develop it, the district shall engage the services of a civil engineer prior to final CN issuance to perform necessary site analysis in sufficient detail as requested by the Department of Education (DOE) to support increases to the standard school square foot construction formula in effect at the time. The cost of this site analysis may be reimbursed by the project once funds are appropriated to the project. In the absence of such detailed site analysis by a civil engineering firm, the DOE standard square foot construction formula shall apply.

F. Districts hold referendum *(may be held any time after issuance of a Certificate of Necessity)*.

G. District site selection, based on results of State of Delaware PLUS process, review and approval and in accordance with 29 Del C. Chapter 75, Section 7525 and final site acquisition.

H. District selects architect/engineer in accordance with 29 Del. C., Chapter 69, Subchapter V

I. Districts develop educational specifications and obtain approval of same from the Department of Education.

J. District prepares and submits for approval to the Department of Education schematic design drawings detailing the architectural scope of the project. District shall also submit to the Department of Education lifecycle costing analyses pursuant to 29 Del. C. § 6909A as early in the design process as feasible, preferably at the schematic design stage.

K. District prepares and submits design development drawings to the Department of Education and Office of Management and Budget's Facilities Management for approval.

L. District prepares and submits to the Department of Education and Office of Management and Budget's Facilities Management final construction drawings and specifications for approval. Such final construction drawings and specifications are intended to provide construction contractors and/or managers with the detailed plans and specifications needed regarding construction methods, materials and systems so that a reasonable expectation of performance is assured.

M. Districts shall maintain copies of approvals from required local and state agencies in the local school district construction files.

N. Districts are authorized to advertise, receive bids and award a contract in accordance with 29 Del C. Chapter 69, Subchapter IV for construction of major capital improvement project(s), by majority vote of the local school board, once the following conditions are satisfied:

1. All aforementioned Department of Education approvals have been issued;
2. All relevant regulatory state and local agency approvals/authorizations have been received by the district and are on file within the district;
3. The project has received authorization in the State of Delaware Bond and Capital Improvements Act.

1.11 **School Construction Contractual Documents**

All school districts that receive state funds for major capital construction projects shall use standard bid and contract documents developed by the Office of Management and Budget's Facilities Management. School districts may enhance the standard bid and contract documents with additional contractual or project-specific requirements as long as the enhancements do not diminish and are not in conflict with the provisions of the standard documents.

The Department of Education, in consultation with the Office of Management and Budget's Facilities Management, shall approve any modifications or changes to the provisions of the standard bid and contract documents before a school district may use or enhance the modified documents.

Section 2: Major Capital Improvement Programs

2.1 401 Major Capital Improvement Programs

Section 3: School Construction Formula

3.1 **General Information**

Pursuant to 14 Del. Code §2002, the following guide for space allowance has been developed. The space allowances shown on the formulas for high schools (Section 3.5), middle schools (Section 3.4), and elementary schools (Section 3.3), are suggested as guides for planning purposes when a school is built and shall be limiting only in the total square feet for a building. Flexibility within the total square footage will be permitted providing the district can demonstrate that the kinds and amounts of space planned will house the

educational program and required number of pupils for that building and facilitate the learning process.

3.2 **Building which exceeds the School Construction Formula -**
Nothing in the Delaware Statutes or this manual prohibits a school district from constructing a facility that exceeds the standard school construction formula. However, the cost of the additional square footage is the sole responsibility of the local district.

3.3 **Funding Based on State School Construction Formula -**
The dollar amount provided for a school construction project is determined by the square footage allocated by the school construction formula times a cost per square foot. Calculation of total funding is (cost per square foot) X (square feet allocated by formula). Except for site acquisition, the cost per square foot is an all-inclusive or "turn-key figure." It is expected to cover fees, construction cost, site development, furniture and equipment.

3.4 School Construction Formula - Elementary School

Item	#	480	#	600	#	720	#	840
Kindergarten @ 1300	3	3,900	5	6,500	6	7,800	7	9,100
Classrooms @ 1100	18	19,800	22	24,200	26	28,600	31	34,100
Gym / Cafeteria	1	8,000		10,000		10,000		10,000
Library / Media Center	1	2,000		2,600		2,600		2,600
Administration	1	2,000		2,400		2,400		2,400
Student. Serv. @ 10% of classrooms 150	2	300	3	450	3	450	4	600
Health / Nurse	1	800		900		900		900
Music	1	1,000		1,400		1,400		1,400
Art	1	1,000		1,200		1,200		1,200
Faculty Work Room	1	360		360		360		360
Faculty Lounge	1	360		360		360		360
Conference	1	300		300		300		300
Systems / Utilities @ 85	20	1,700	25	2,125	30	2,550	35	2,975
Corridors @ 252	20	5,040	25	6,300	30	7,560	35	8,820
Special Education 10% Capacity @ 38	48	1,824	60	2,280	72	2,736	84	3,192
Sub Total		**48,384**		**61,375**		**69,216**		**78,307**
8% Walls & Partitions		3,871		4,910		5,537		6,265
Total		**52,255**		**66,285**		**74,753**		**84,572**
SF / Pupil		**108.86**		**110.48**		**103.82**		**100.68**

Outside Storage for Elementary School 500 SF

3.5 School Construction Formula - Middle School

Item	#	500	#	700	#	1,000	#	1,200	#	1,600
Classrooms @ 900	13	11,700	18	16,200	25	22,500	30	27,000	40	36,000
Physical Education	1	8,000		9,000		11,000		13,000		15,000
Cafeteria	1	3,300		4,900		5,800		6,300		7,000
Library / Media Center	1	2,270		3,370		4,490		5,140		6,440
Administration	1	900		1,900		1,900		2,600		3,400
Student Services @ 10% of classrooms	2	300	2	300	3	450	3	450	4	600
Health / Nurse/Wellness	1	2,200		2,200		2,300		2,400		2,400
Guidance Office	1	650		750		900		1,000		1,250
Tech. Educ./Exploratory	1	9,100		11,700		14,800		17,800		19,400
School Based Alternative	1	1,400		1,600		2,000		3,000		4,000
Science	1	3,860		5,480		7,720		8,840		10,960
Pupil Activities	1	450		900		900		900		900
Teacher Rooms	1	400		700		700		700		700
Auditorium	1	6,825		7,380		8,400		9,450		12,075
Computer Lab	1	900		900		900		900		900
Special Education 5% Capacity @ 38	25	950	35	1,330	50	1,900	60	2,280	80	3,040
Permanent Obstructions @ 80	44	3,520	54	4,320	71	5,680	81	6,480	103	8,240
Sub Total		**56,725**		**72,930**		**92,340**		**108,240**		**132,305**
Toilets, Walls, Storage, Corridors. Utility Rm., & Services @ 33%		18,719		24,067		30,472		35,719		43,661
Total		**75,444**		**96,997**		**122,812**		**143,959**		**175,966**
SF / Pupil		**150.89**		**138.57**		**122.81**		**119.97**		**109.98**

Outside Storage for Middle School 500 SF

3.6 School Construction Formula – High School

Item	#	500	#	700	#	1,000	#	1,200	#	1,600
Classrooms @ 900	13	11,700	18	16,200	25	22,500	30	27,000	40	36,000
Physical Education	1	10,866		10,973		21,409		21,514		25,532
Cafeteria	1	3,300		4,900		5,800		6,300		7,000
Library / Media Center	1	2,500		3,590		4,700		5,300		6,700
Administration	1	900		1,800		1,900		2,500		3,300
Student Services @ 10% of classrooms	2	300	2	300	3	450	3	450	4	600
Health / Nurse/Wellness	1	2,200		2,200		2,300		2,400		2,400
Guidance Office	1	600		750		900		1,050		1,300
Tech. Educ./Exploratory	1	17,970		19,970		24,470		25,870		30,470
School Based Alternative	1	1,400		1,600		2,000		3,000		4,000
Science	1	5,380		7,000		8,840		10,680		13,700
Pupil Activities	1	500		840		840		840		840
Teacher Rooms	1	400		700		700		700		700
Auditorium	1	6,720		8,820		10,500		10,500		13,650
Computer Lab	1	900		900		900		900		900
Special Education (Self Contained)		1,200		2,000		2,400		2,400		3,500
Permanent Obstructions @ 80	43	3,440	53	4,240	69	5,520	79	6,320	100	8,000
Sub Total		**70,276**		**86,783**		**116,129**		**127,724**		**158,592**
Toilets, Walls, Storage, Corridors, Utility Rm., & Services @ 33%		23,191		28,638		38,323		42,149		52,335
Total		**93,467**		**115,421**		**154,452**		**169,873**		**210,927**
SF / Pupil		**186.93**		**164.89**		**154.45**		**141.56**		**131.83**

Outside Storage for High School 750 SF

*Square footage based upon 2007 School Construction Committee Report and Recommendations

3.7 **Determination of Square Footage for School Size Not Listed in Formula**

Not every size school is listed in the school construction formula. The step-by-step method for arriving at square footage authorization for schools not listed is as follows:

1. Find nearest size school in formula (Example: to find size of 900-pupil middle school, nearest size in formula is 1,000-pupil middle school). If desired school is equidistant between two given sizes, use larger size.

2. Find square feet per pupil allowed for that size school (1,000-pupil middle school allows 113 sf per pupil).

3. Find difference between desired size school and listed size school (1000-900 = 100 pupil difference).

4. Multiply difference x square footage allocation (100 pupil difference x 113 sf per pupil = 11,300 sf difference).

5. Add or subtract square footage difference from formula square footage total to calculate size of school needed (113,342 square feet allowed for 1,000-pupil middle - 11,300 square feet calculated in 4 above = 102,043 sf for 900-pupil middle school).

3.8 **Areas Included in Gross Usable Square Footage** –

- Classrooms
- Laboratories
- Health & Music Suite
- Cafeteria
- Kitchen including food storage
- Art rooms
- Music room including practice rooms
- Guidance suites
- Counseling rooms
- General offices
- Pupil activity rooms
- Storage which is part of a classroom
- Physical Education Facilities
    - Including dressing, dryer, shower, and locker rooms
- Shops including office, storage, finishing, tool rooms, and changing rooms
- Teacher work areas
- Common area
- Seminar rooms
- Auditorium
    - Including stage & work rooms, lobby, and storage
- Teacher lounges
- Activity
- Portable classrooms

3.9 **Area Excluded from Gross Usable Square Footage –**

- Corridors
- Restrooms
- Receiving rooms
- School storage rooms
- Boiler rooms
- Custodial closets
- General storage rooms
- Garages (unless part of shop)
- Walkways which are completely enclosed

3.10 **Areas Not Counted in Gross Square Footage –**

- Covered walkways
- Crawl space
- Unexcavated space
- Pipe chases
- Portable classrooms
- Mechanical Mezzanines
- Auditorium Flylofts

*Building Quality Schools: Revision to the School Construction Formula and Recommendations on Standards

Section 4: Site Selection

When seeking a school site, districts should consider several factors—size, shape, topography, conditions, safety and access.

4.1 State Strategies for Policies and Spending

The Department of Education complies with the State Strategies for Policies and Spending and, as such, shall not support the construction of schools in areas identified as Level 4 unless extenuating circumstances apply. Districts shall seek to locate new schools in areas identified as Levels 1, 2 or 3 of the State Strategies for Policies and Spending.

http://stateplanning.delaware.gov/strategies/

4.1.1 Site Utilities and Public Facilities

A. The Department of Education supports locating educational facilities on parcels with existing or reasonable access to civil infrastructure to include but not limited to:
   - Roads, pedestrian walkways and shared use paths
   - Waste water/sewerage and domestic water
   - Electric and telecommunications
   - Storm water drainage and conveyance

   Districts shall seek to locate educational facilities on sites with public water and sewer utilities or access to public water and sewer utilities as a first choice with sites requiring on-site facilities being considered only when no reasonable alternative exists.

B. The Department of Education considers proximity and access to basic support services as a high priority.

C. The Department of Education supports locating educational facilities strategically within the geographic region and/or community the facility is intended to serve in order to:
   - Encourage non-student pedestrian access to the educational facility in an effort to reduce vehicle miles traveled to the extent practical;
   - Encourage student pedestrian access to the educational facility to reduce and control the facilities' life-cycle operating costs associated with student transportation, as practicable;
   - Create education campuses by co-locating educational facilities and services in an effort to reduce life-cycle costs as a result of the co-located schools sharing common spaces, facilities and services.

4.1.2 Sea Level Rise Inundation Maps

http://www.dnrec.delaware.gov/pages/slrmaps.aspx

The following are suggested guidelines when evaluating potential sites.

4.2 Size

The suggested minimums school site sizes are:

A. Elementary school – 10-acre base plus one acre per 100 students of school capacity. Example: an elementary school for 720 pupils should have a 17-acre site.

B. **Middle school or junior high school** – 20-acre base plus one acre per 100 students of school capacity. Example: a 1,000-pupil middle school should have a 30-acre site.

C. High school – 30-acre base plus one acre per 100 students of final school capacity. Example: a high school planned with a maximum pupil enrollment of 2,000 students with initial construction housing 1,200 students should have a 50-acre site.

D. Combined site –Campus arrangements involving more than one grade level of school buildings shall be on a site selected to fit the needs of the highest grade level. Example: a combination elementary and middle school for 400 elementary and 400 middle school pupils should be on a 28-acre site.

4.3 School Sites Restricted in Size

In certain cases, it may be necessary to locate educational facilities on a site that is smaller than the optimal site size as guidance suggests above. In such cases, school districts are authorized to use such sites provided that the district can prove that the restricted size site can accommodate the educational and civil needs and requirements of the construction project.

4.4 District Potential Site Review

Potential educational facility sites shall be reviewed through the State of Delaware PLUS process and approved in accordance with 29 Del C. Chapter 75, Section 7525. Districts are encouraged to submit multiple potential sites for PLUS review prior to the CN request.

Districts shall engage regulatory agencies to include but not limited to DelDOT, DNREC, county, city/town/municipality planning and code enforcement officials as early in the site selection stage as possible to make a more informed decision about educational facility site selection. The Office of State Planning Coordination serves as a resource to assist districts in the site selection process. The office can provide site selection mapping (GIS) and professional planning expertise if requested.

Challenging sites can be costly to develop. If the selected site has significant physical, engineering, or environmental challenges, the district shall engage the services of a civil engineer prior to final CN issuance to perform necessary site analysis in sufficient detail as requested by the DOE to support increases to the standard school square foot construction formula in effect at the time. The cost of this site analysis may be reimbursed by the project once funds are appropriated to the project. In the absence of such detailed site analysis by a civil engineering firm, the DOE standard square foot construction formula shall apply.

Specific information needed to support a challenging site square footage construction formula increase may include but not limited to:

- AIA Geotechnical survey and report – possibly to include test borings
- Phase I environmental analysis
- Survey – both boundary and topographical
- Infiltration test in natural drainage areas – possibly to include test borings

- Wetlands Jurisdictional Delineation
- 100- and 500-year flood plains
- Conceptual site design for sites restricted in size or irregularly shaped
- Other pertinent information such as historical survey, protected species survey, etc. as warranted by the circumstances.

Districts and/or their civil engineers must support the decision to select a challenging site if a more economical site is available. The final decision to allow the district to select a challenging site shall be vested with the Department of Education, the Office of Management and Budget, and the Office of State Planning Coordination as per 29 Del. C. Chapter 75 §7525, and shall be based on safety, economic and land availability criteria.

4.5 **Safety**

A prime factor in site selection shall be the safety of the children.

Hazards reduction shall be the emphasis in school site selection, site civil engineering work to include storm water management, utilities, vehicular and pedestrian traffic flow, as well as school layout on the site.

Playground location and designs – age appropriate playground facilities with adequate fall attenuation surfacing shall be designed, constructed and maintained in accordance with CPSC PUB 325 and ASTM Designation F 1487.

Section 5: Plan Preparation and Government Approvals

5.1 **Who May Prepare Plans**

All plans submitted for approval must bear the seal and signature of the preparing Delaware registered architect or professional engineer. Engineers must be certified by the Delaware Association of Professional Engineers to practice in the State of Delaware.

5.2 **Schematic Design Plans**

Approvals required –

(1) Local Board of Education
(2) Department of Education

Schedule for Submission of Schematic Plans –

After approval by the local Board of Education, one (1) copy of the schematic plans shall be submitted to the Department of Education, who will make plans available to the appropriate staff members for review. Schematic plans may be submitted at any time during the month and a minimum of 10 working days are required for review by the Department of Education. The Department of Education will notify the district of approval after the 10-day period.

5.3 **Design Development Plans**

Approvals and reviews required –

A. State Agencies
   (1) Fire Marshal (review/report or review/approval)

(2) Department of Health and Social Services - Division of Public Health, Bureau of Environmental Health, Sanitary Engineering; County Health Unit (Kitchens and Cafeterias)
(3) Office of Management and Budget, Div. Of Facilities Management, Chief of Engineering & Operations (over $500,000 or complex scope) (Review and Approval)
(4) Department of Natural Resources and Environmental Control, Storm Water Management Branch – site plan showing storm water conveyance (Review and Approval)
(5) Department of Transportation (Site plan only showing entrances and exits)
(6) Architectural Accessibility Board (Review and Approval)
(7) Department of Education (Review and Approval)
(8) State Office of Planning Coordination PLUS process as warranted

B. Local Agencies
(1) Appropriate County Planning & Zoning Agencies
(2) County, Planning and Zoning Department approval is needed. It is recommended that the local planning and zoning department be contacted as early as possible in the planning and design stages of a project to secure the necessary approvals and initiate the proper procedures.
(3) Appropriate Incorporated Cities and Town Planning & Zoning Agencies
(4) Many towns and/or cities have code enforcement offices. These towns generally require building and plumbing permits. Approval is required for zoning ordinance, water and sewer code compliance. Site plans must be approved for compliance to local ordinances. Early submission is recommended to local jurisdictions' code compliance offices.
(5) Local Board of Education (Review and Approval)

5.4 Final Construction Plans

Approvals and reviews required –

A. State Agencies
(1) Fire Marshal (Review and Approval).
(2) Department of Health and Social Services - Division of Public Health, Bureau of Environmental Health, Sanitary Engineering; County Health Unit (Kitchens and Cafeterias) (Review and Approval).
(3) Office of Management and Budget, Div. Of Facilities Management, Chief of Engineering & Operations (over $500,000 or complex scope) (Review and Approval).
(4) Department of Natural Resources and Environmental Control, Storm Water Management Branch – site plan showing storm water conveyance (Review and Approval).
(5) Department of Transportation (Site plan only showing entrances and exits).
(6) Architectural Accessibility Board 29 Del. Code §7308 – Submission of Plans (Review and Approval).
(7) Local District Board of Education (Review and Approval).
(8) Department of Education (Review and Approval).
(9) (Department of Technology and Information (Compliance to wiring standards).

B. Local Agencies – Approval process for final plans is same for design development plans.

Schedule for Submission of Final Plans –

Final construction plans must be approved by the Department of Education. Submit one (1) copy of the final plans, specifications. The Department of Education will make the plans available to the appropriate staff members for their review. If the final plans have been substantially changed

from the preliminary plans, the architect will brief the Department of Education. The Department of Education will officially notify the district of approval (also see 29 Del. Code §7518).

5.5 "As-Built" or Record Drawings and Certificate of Occupancy

It is the responsibility of each school district to forward to the Department of State, Division of Historical and Cultural Affairs, Archives Section, a set of archival quality as built/record drawings and the Certificate of Occupancy for all facilities within the district. (29 Del. Code §328 and letter from Chief of Engineering and Operations or proxy, dated 8/23/76). (See Section 2.3 (5) (d))

5.6 Use of a Construction Manager (CM)

Upon approval from the Office of Management and Budget, local school districts may choose to employ construction managers at the local school boards discretion and authority.

A. Construction managers shall be selected in accordance with 29 Del. Code, Chapter 69, §6982 (a) & §6982 (b) as well as other pertinent procurement laws, rules and regulations.
B. In such cases in which a construction manager is to be employed to manage a project or number of projects, the decision to use a construction manager, as well as the construction manager selected to be awarded the management contract, shall be approved and authorized by the local school board with such approval and authorization reflected in board meeting minutes. 29 Del. Code, Chapter 69 §6962 (d)(10)(b)(6).

5.7 Selection of Architect/Engineer Services

Selection shall be made in accordance with 29 Del. Code, Chapter. 69, §6981 & §6982, Professional Services. The Division of Facilities Management Architect and Engineering Fee Schedule shall inform and guide school districts in their negotiation of architectural fees in accordance with 29 Del. C. Chapter 69 Subchapter VI.

5.8 Contract/Bidding Documents

All school districts that receive State funds for major capital construction projects shall use standard bid and contract documents developed by the Office of Management and Budget, Facilities Management. School districts may enhance the standard bid and contract documents with additional contractual or project-specific requirements as long as the enhancements do not diminish and are not in conflict with the provisions of the standard documents.

The Department of Education, in consultation with the Office of Management and Budget, Facilities Management, shall approve any modifications or changes to the provisions of the standard bid and contract documents before a School District may use or enhance the modified documents.

5.8.1 Bidding Procedures

Construction projects shall be bid in accordance with 29 Del. Code, Chapter. 69, Subchapter IV, Public Works Contracting.

5.9 Substantial Completion

The school district shall notify the Department of Education. The State Auditor's Office, the Budget Director, and the State Insurance Coverage Office upon substantial completion. In the

event that a construction manager is employed, ~~a~~ notification of substantial completion shall be required for each prime contract.

5.9.1 **Warranty/Guaranty Pre-Expiration Inspection**

Most warranties/guarantees on construction are limited to two years after acceptance, occupancy or substantial completion. It is advised that districts set up an inspection about one month before warranty/guarantee expiration to identify any covered deficiencies. DOE staff can be made available to assist in this inspection.

Section 6: State Procurement

6.1 Title 29 Del. Code Chapter 69

Section 7: Minor Capital Improvement

7.1 Title 14 Section 405 – Minor Capital Improvement Programs

Section 8: Satellite School Agreement

8.1 Title 14 Education – 400 Construction – 410 Satellite School Agreements

Section 9: Emergency Procedures

9.1 **Emergencies Covered by the State Self Insurance Plan Title 18 Del. Code Chapter 65**

9.2 **Fire, Lightning and Extended Coverage Emergencies**

The following section is written to cover a fire emergency situation but should be utilized in other emergencies covered under the self-insurance plan with the minimal changes necessary to adapt to the nature of the emergency. For example: In the event of a hail storm, the building would not be evacuated but the children should vacate to areas that contain minimal glass.

When a fire occurs in a school facility, the following steps should be followed:

A. Evacuate the building by sounding the local fire alarm.
B. Notify the local fire company.
C. Notify the State Fire Marshal's office.
D. As soon as clearance is given by the fire company, district and fire officials shall conduct a preliminary investigation to determine extent of damage and safety of structure.
E. As soon as the local fire chief and/or fire marshal authorizes the district to do so, the area shall be secured. This may require posting security guards where necessary, roping off unsafe areas, locking any unneeded access doors and whatever other measures are necessary to prevent further damage to the property.
F. The district shall notify the State Insurance Coverage Office immediately in the event of a significant fire or loss. If the fire is of a less serious nature, the State

Insurance Coverage Office can be contacted during the next working day. The district shall also notify the Department of Education of the loss.

Insurance Coverage Office
97 Commerce Way
Suite 201
Dover, Delaware 19904
Office Phone: (302) 739-3651

Office of Capital Projects Management
Department of Education
35 Commerce Way, Suite 1
Dover, DE 19904
Office Phone: (302) 857-3364

G. If necessary, the school district may invoke the emergency contracting provisions as authorized in Title 29, Chapter 69 Subchapter IV, Delaware Code.

H. If the extent of the damage warrants and with the approval of the State Insurance Coverage Office, hire an architect to investigate the extent of the damage and to supervise emergency repairs.

I. With the approval of the State Insurance Coverage Office, contact and hire the necessary craftsmen to make investigations, emergency repairs and demolition.

J. As soon as practical after the emergency repairs have been made, the rebuilding of the facility shall commence. The school district must keep the Delaware Insurance Coverage Office and the Department of Education involved in the rebuilding effort.

9.3 Selection of Architect

If needed, the local Board of Education shall select its architect as provided in Title 29, Chapter 69, Delaware Code and as explained in Section 6 of this manual. The State Insurance Coverage Office requires review and approval of this contract.

9.4 Preparation of Plans and Plan Review

All plans, reviews and approvals for projects which exceed the Minor Capital Improvement Program limit shall follow the procedures outlined in Section 2.0 of this manual except that in each step add the State Insurance Coverage Office to the required approvals. If the anticipated cost is less than the Minor Capital Improvement limit, only the approvals of the final plan by the Office of School Plant Planning & Maintenance, State Insurance Coverage Office and the Division of Facilities Management are required.

9.5 Purchase Order

The purchase order for the general contract must be approved by the State Insurance Coverage Office, which shall collaborate with the Department of Education and the Division of Facilities Management as warranted.

9.6 **Change Orders**

Change orders require only the approval of the State Insurance Coverage Office but will be reviewed by the Department of Education if requested by the State Insurance Coverage Office.

9.7 **General Information Regarding Coverage and Procedures Under the Self Insurance Fund**

A. In general the Self-Insurance Fund will return real property to the condition that existed before the damages or losses were sustained.
B. Equipment items not built into the structure will be adjusted on an actual cash value basis (replacement cost less depreciation). As soon as practical after the damages or losses were sustained, an inventory of damaged and destroyed equipment shall be made.
C. Only state-owned property is covered under this program. Personal property of students and/or staff shall be excluded.
D. Compensation for district employees involved in clean-up, security or repairs shall only be made for hours worked outside of normal working hours and paid on an over-time basis.
E. Proof of expenditure for damages and losses must be presented in order for reimbursement to be made.

9.8 **Boilers and Furnace Explosion**

Boiler and furnace explosion insurance is carried by a commercial company. The amount of coverage provided is $2,000,000 per accident. Insured objects include all boilers, fired pressure vessels, steam cookers and tables, and hot water heaters.

As a list of insured locations must be maintained, it is the responsibility of the local school district to formally notify the State Insurance Coverage Office of all new acquisitions or deletions of state-owned real property that includes such pressure vessels. The district may not be eligible for reimbursement should it suffer a loss as a result of a pressure vessel failure that was not reported to the State Insurance Coverage Office when it was acquired or accepted.

In the event of a claim, please contact:

Insurance Coverage Administrator
Insurance Coverage Office
97 Commerce Way
Suite 201
Dover, Delaware 19904
Office Phone: (302) 739-3651.

Boiler inspections will be provided by the insurer. Requests for inspections or questions concerning inspection recommendations should be directed to the State Insurance Coverage Office at (302) 739-3651.

The insurer should be notified any time that repairs are made that affect the pressure vessel in order to determine if there is any coverage associated with the repairs. Failure to do so may affect the district's eligibility for reimbursement for losses and/or damages due to pressure vessel failure.

Schools and agencies that contract for the construction of buildings are reminded that the contractor should provide boiler coverage until such time as the building is accepted by the State. (State Insurance Department Coverage Office Bulletin No. 9, January 20, 1976)

Section 10 – School Custodians

10.1 Title 14 – 729 School Custodians

Section 11 – Capacity Calculation Procedures

The Department of Education (DOE) completed a statewide facility assessment in early 2002. Part of the facility assessment included the verification of all school floor plans confirming overall construction and space use. The floor plans established through the facility assessment were used to determine new pupil capacities for each school building per district using the DOE school capacity formula. The school capacity formula was originally established in the mid-90s and was later incorporated into a software program that calculates the capacities of schools.

Since the completion of the facility assessment, school districts are required to submit electronic as-built drawings to ABHA Architects for all renovations, additions, or newly constructed school facilities so that the most current floor plans are housed electronically as part of the facility assessment database. Capacity formula parameters applied per building type including recent revisions made in FY 2005, FY 2007, and most recently FY 2017 to address current educational needs are listed below:

Capacity Calculation Effective Through School Year 2017-2018

The formula for **ELEMENTARY SCHOOLS:**

- Established at 22 students per Kindergarten to 3rd grade classroom.*
- Established at 24 students per 4th to 6th grade classroom.
- Standard classroom range is 800 – 1100 square feet (SF) of "useable" space which is equal to total classroom SF – fixed casework / equipment SF.
- Standard classroom capacity is increased or decreased by 1 student for each 30 SF above or below the standard classroom SF range, not to exceed 30 students in a given classroom.
- Kindergarten classrooms are considered "specialized" instructional spaces and are to accommodate a single capacity unit of 22 students regardless of their size.
- The library / media center, gymnasium, and first computer lab are excluded in the capacity calculations.
- Music and Art classrooms are not included in the capacity calculations.
- Classrooms of 500 SF or less are excluded in the capacity calculations and are considered to be used as "Small Group Educational Spaces".
- ES Special Education Deduction applied is 10%

The formula for **MIDDLE SCHOOLS:**

- Established at 23 students per 7th to 8th grade classroom.
- Standard classroom range is 725 – 900 square feet (SF) of "useable" space which is equal to total classroom SF – fixed casework / equipment SF.
- Standard classroom capacity is increased or decreased by 1 student for each 30 SF above or below the standard classroom SF range, not to exceed 30 students in a given classroom.
- The library / media center and first computer lab are excluded in the capacity calculations.
- Gymnasiums are included in the capacity calculations and count as two classroom units totaling 46 students regardless of size.
- Auxiliary gymnasiums are included in the capacity calculations and count as a single classroom unit totaling 23 students regardless of size.
- Music and Art classrooms are included in the capacity calculations and are to accommodate a single capacity unit of 23 students regardless of their size.
- Science Classrooms, Science Labs, Shops, and Home Economics classrooms are considered "specialized" instructional spaces and are to accommodate a single capacity unit of 23 students regardless of their size.
- Classrooms of 500 SF or less are excluded in the capacity calculations and are considered to be used as "Small Group Educational Spaces".
- MS Special Education Deduction is 5%.
- MS Building Utilization Factor is 85%. **

The formula for **HIGH SCHOOLS:**

- Established at 21 students per 9th to 12th grade classroom.
- Standard classroom range is 725 – 900 square feet (SF) of "useable" space which is equal to total classroom SF – fixed casework / equipment SF.
- Standard classroom capacity is increased or decreased by 1 student for each 30 SF above or below the standard classroom SF range, not to exceed 30 students in a given classroom.
- The library / media center and first computer lab are excluded in the capacity calculations.
- Gymnasiums are included in the capacity calculations and count as two classroom units totaling 42 students regardless of size.
- Auxiliary gymnasiums are included in the capacity calculations and count as a single classroom unit totaling 21 students regardless of size.
- Music and Art classrooms are included in the capacity calculations and are to accommodate a single capacity unit of 21 students regardless of their size.
- Science Classrooms, Science Labs, Shops, and Home Economics classrooms are considered "specialized" instructional spaces and are to accommodate a single capacity unit of 21 students regardless of their size.
- Classrooms of 500 SF or less are excluded in the capacity calculations and are considered to be used as "Small Group Educational Spaces".
- HS Special Education Deduction – In alignment with Section 3.0 School Construction Formula Authority Based on DOE Regulations updated in FY' 04-05 as related to the Special Education (Self-Contained) allowance, one or more standard classrooms with the largest capacity will be adjusted to a single capacity unit of 21 students.

HS Student Capacity (Sub-Total)	# of Classrooms w/ Adjusted Capacity
○ 500 – 900 Students	1
○ 1000 – 1599 Students	2
○ 1600 plus Students	3

- HS Building Utilization Factor is 90%. ***

GENERAL NOTES:

1. Provision for programs such as Early Childhood Education / pre-school, Head Start, Family service Centers and other appropriate non-instructional or non-traditional programs will be considered on a case-by-case basis.
2. School capacity calculations are developed based on permanent educational structures and do not include any program capacity derived from portable buildings.

Capacity Calculation Effective Beginning School Year 2018-2019

The formula for elementary schools:

- Established at 22 students per kindergarten to 3rd grade classroom.*
- Established at 24 students per 4th to 6th grade classroom.
- Standard classroom range is 800 – 1100 square feet (SF) of useable space, which is equal to total classroom SF – fixed casework / equipment SF.
- Standard classroom capacity is increased or decreased by 1 student for each 30 SF above or below the standard classroom range
- Kindergarten classrooms are considered specialized instructional spaces and are to accommodate a single capacity unit of 22 students regardless of their size.
- The library / media center, gymnasium, and first computer lab are excluded in the capacity calculations.
- Music and art classrooms are excluded in the capacity calculations.
- Classrooms of 500 SF or less are excluded in the capacity calculations and are considered to be used as “Small Group Educational Spaces”.
- Special education rooms are included at 11 students for grades K-3 and 12 students for grades 4-6.
- ES Building Utilization Factor is 85%

The formula for middle schools:

- Established at 23 students per 7th to 8th grade classroom.
- Standard classroom range is 725 – 900 square feet (SF) of useable space, which is equal to total classroom SF – fixed casework / equipment SF.

- Standard classroom capacity is increased or decreased by 1 student for each 30 SF above or below the standard classroom SF range, not to exceed 30 students in a given classroom.
- The library / media center and first computer lab are included in the capacity calculations.
- Gymnasiums are included in the capacity calculations and count as two classroom units totaling 46 students regardless of size.
- Auxiliary gymnasiums are included in the capacity calculations and count as a single classroom unit totaling 23 students regardless of size.
- Music and art classrooms are included in the capacity calculations and are to accommodate a single capacity unit of 17 students regardless of their size.
- Science classrooms, science labs, and career & technical education classrooms are included and considered specialized instructional spaces and are to accommodate a single capacity unit of 23 students regardless of their size.
- Classrooms of 500 SF or less are excluded in the capacity calculations and are considered to be used as small group educational spaces.
- Special education classrooms are included in the capacity calculation and count as 11 students per classroom
- MS Building Utilization Factor is 85%. **

The formula for high schools:

- Established at 21 students per 9th to 12th grade classroom.
- Standard classroom range is 725 – 900 square feet (SF) of useable space, which is equal to total classroom SF – fixed casework / equipment SF.
- Standard classroom capacity is increased or decreased by 1 student for each 30 SF above or below the standard classroom SF range, not to exceed 30 students in a given classroom.
- The library / media center and first computer lab are included in the capacity calculations.
- Gymnasiums are included in the capacity calculations and count as two classroom units totaling 42 students regardless of size.
- Auxiliary gymnasiums are included in the capacity calculations and count as a single classroom unit totaling 21 students regardless of size.
- Music and art classrooms are included in the capacity calculations and are to accommodate a single capacity unit of 15 students regardless of their size.
- Science classrooms, science labs, and career & technical education classrooms are included and considered specialized instructional spaces and are to accommodate a single capacity unit of 21 students regardless of their size.
- Classrooms of 500 SF or less are excluded in the capacity calculations and are considered to be used as small group educational spaces.
- Special education classrooms are included in the capacity calculation and count as 10 students per classroom.
- HS Building Utilization Factor is 85%. ***

Section 12 – Land Donation Procedures

12.1 **School site donations must be approved in accordance with Title 29, Section 7525, Delaware Code.**

12.2 **State Strategies for Policies and Spending**

The Department of Education complies with the State Strategies for Policies and Spending and, as such, shall not support the construction of schools in areas identified as Level 4 unless extenuating circumstances apply. Districts shall seek to locate new schools in areas identified as Levels 1, 2 or 3 of the State Strategies for Policies and Spending.

12.3 **Site Utilities and Public Facilities**

D. The Department of Education supports districts locating school facilities on parcels with existing or reasonable access to civil infrastructure to include but not limited to:

- Roads, pedestrian walkways and shared use paths
- Waste water/sewerage and domestic water
- Electric, and telecommunications
- Storm water drainage and conveyance

Districts shall seek to locate schools on sites with public water and sewer utilities or access to public water and sewer utilities as a first choice with sites requiring on-site facilities only being considered when no reasonable alternative exists.

E. The Department of Education considers proximity and access to basic support services as a high priority.

F. The Department of Education supports locating school facilities strategically within the geographic region and/or community the facility is intended to serve in order to:

- Encourage non-student pedestrian access to the school facility in an effort to reduce vehicle miles traveled to the extent practical
- Encourage student pedestrian access to the school facility, in order to contain the school's life-cycle operating costs associated with student transportation, as practicable
- Create education campuses by co-locating educational facilities and services in an effort to reduce life-cycle costs as a result of the co-located schools sharing common spaces, facilities and services.

G. Please refer to section 4.0 of this manual for additional site selection information.

Section 13 – Voluntary School Assessment

The Voluntary School Assessment is a mechanism specific to New Castle County developments. The funds generated as a result of the Voluntary School Assessment shall be applied exclusively to offsetting the required local share of major capital construction costs that increase school capacity.

Title 14 – 415 Voluntary School Assessment

Homes in Kent County pay a designated tax based on the assessed value of the home. The below website links directly to the tax schedule, which is updated annually.

Kent County Tax Rate

Homes in Sussex County are not subject to any impact fees.

Section 14 – School Bus Safety Procedures

14.1 Planning School Sites for School Bus Safety

1. In the selection of school sites, the safety of pupils riding school buses shall not be compromised. These vehicles will be forced to utilize the roads in and around the school area. High-density traffic flow near school exits and entrances due to the proximity of freeways, periodic commercial traffic, or commuter traffic from industry should be avoided. It must be recognized in many cases that the area designated for the school site has been selected prior to the hiring of an architect.

2. The location of the school facility on a site should be determined so as to provide safe means of ingress and egress for bus traffic, pedestrian traffic and passenger vehicle traffic. When Boards of Education are considering school sites, access roads serving the school site shall be improved to meet current DelDOT and Fire Marshall requirements. In the event that Boards of Education may have land donated to them that is classified as unsafe for school transportation due to its traffic density, type of terrain, or lack of safe loading and unloading facilities. The cost of eliminating these unsafe conditions may exceed the purchase price of a more desirable parcel of property. In such instance, it might be wiser not to accept the donated land but attempt to secure a site that would provide for the safety of students that would have to be transported to the school for years to come.

3. All school bus traffic should be considered as one-way traffic flow, the service door side of the bus must always open next to the loading and unloading zone.

4. Wherever possible, separation should be maintained between bus traffic and regular vehicular flow as constituted by parent, pupil, service, teacher, and administrative traffic.

5. Fire lanes and access roads shall not be designed and constructed in such a way that students must cross traffic to engage in outside activities or gain access to the school facility.

6. All school bus roads entering into or exiting from state, county or municipally maintained roads shall be designed and constructed to accommodate a typical 72- to 84-passenger school bus. Roadway entrances shall conform to DelDOT entrance specifications. When possible, one way roads should be utilized.

7. Roads within the school site shall have curbing and drainage that complies with DNREC Storm Water Management Branch Storm Water and Sediment Control requirements.

8. To the extent possible, student, teacher, administrative, visitor and parent/guardian parking shall be separated from the loading zone utilized by the school bus.

9. In the construction of parking areas and bus platforms, districts shall reduce or eliminate islands, light poles or other obstructions in the parking areas or bus platforms. Islands, poles and other obstructions can cause issues with collisions but also snow removal.

10. Architects shall consult with the school district administration regarding the following:

a. Total number of pupils and school personnel the school is expected to accommodate.
b. Number of present and projected pupils to be transported.
c. Number of buses that are expected to serve the school.
d. Type of schedule used by the school-
    - Staggered
    - Single (one opening and closing time)
    - Block
e. Extra-curricular activities that would necessitate use of school buses.

11. Where buses are parked on the school grounds, consideration should be given to the reflective surfaces of windows, doors, and windshields in order to prevent undue glare from these parked vehicles being transmitted to the students in the classrooms.

12. School bus loading platforms shall utilize a diagonal bus-parking configuration. In the construction of sidewalks for students walking to school, crosswalks shall not cross in front of buses or bus traffic.

13. In areas that will be constantly utilized by school buses, the type of pavement and base shall be designed to accommodate the loading associated with such school bus traffic.

14. Vehicular traffic should never be required to turn a blind corner on any school site.

15. In the planning of a school and the location of access and service roads, conditions should never be set up that would require school buses to be backed on the school premises.

16. All pupil loading and unloading areas shall be provided for within the school site. If sidewalks are used, sidewalks must be on district property.

17. Whenever possible, parents shall be assigned a separate student pickup point away from the school bus loading areas.

18. ADA accessible bus loading areas and building egress shall be a part of the design of the school.

19. Care should be taken in the planting of trees and shrubbery on the school site so as not to obstruct the vision of the motorist creating a sight distance safety hazard.

20. Where necessary, traffic control devices shall be provided to assist school traffic in entering the regular traffic flow. Such traffic control devices shall conform to the Manual for Uniform Traffic Control Devices (MUTCD).

21. Lack of sidewalks shall not be considered a reason for reduced walkout for students. Sidewalks should be mandatory for all public access roadways.

22. Canopy use for bus loading areas should be considered and must be 12 inches or greater with no projection.

23. Rear bus access to parking area be at least double-width of bus. Front access be double width to accommodate tail swing with buses pulling out.

24. Install guard posts to protect sidewalks in yellow, orange, or even school colors, etc.

25. A lift bus platform would accommodate a bus with a lift deployed that would allow wheelchairs to exit the ramp, stay on a sidewalk, and not cause blockage of pedestrian traffic.

26. Consideration for bus loading zones during emergencies, consideration of distance from the school and safe staging of buses not to hinder emergency or vehicle traffic.

27. Consider break-away gates for exits so vehicles not trapped or in case of accidental closure, the gates would not be an immovable object.

28. All parking areas would use diagonal parking and not bumper-to-bumper, the first bus has to move for all buses to move, breakdown could create serious issues, or fire on a bus would lead to bus catching on fire like dominoes without ability to move the buses out of the area. It also extends the loading and unloading zones beyond visual control of administration.

EVALUATION CHECKLIST FOR SCHOOL BUS DRIVEWAYS IN THE VICINTY OF THE SCHOOL

NAME OF THE SCHOOL_____ DATE_____
LOCATION OF THE SCHOOL_____

	YES	NO	DOES NOT APPLY
1. School loading and unloading areas are provided within the school site.	____	____	_____
2. Each school shall have a loading and unloading area, rather than load or discharge passengers onto the street. On school grounds all other traffic is prohibited in the loading and unloading area during school bus loading and unloading operations.	____	____	_____
3. The driveway leading to and from the loading and unloading area for school buses has a minimum width of 30 feet of paved surface.	____	____	_____
4. If diagonal parking is provided for buses in the loading and unloading area, a minimum width of 60 feet of paved surface is available.	____	____	_____
5. Parking for loading and unloading of children at school is bumper-to-bumper (or diagonal); in either case, the necessity for backing does not exist.	____	____	_____
6. All school buses is not required to back anywhere on school property.	____	____	_____
7. All school bus movement on the school grounds is one-way in a counter-clockwise direction with the bus service door facing the school.	____	____	_____
8. School bus traffic does not completely encircle the school building.	____	____	_____
9. The driver has proper sight distance at all points along the driveway.	____	____	_____

10. Crosswalks for students do not exist within the entrance to the school bus driveway. ____ ____ _____

11. Separation is maintained between school bus traffic and all other traffic such as parent, student, staff, and service personnel. ____ ____ _____

12. Parent pickup/drop-off traffic will not interfere with school bus or other traffic in the event that one has a backup ____ ____ _____

13. Curbing and suitable drainage are provided along driveways used by school buses. ____ ____ _____

14. Curbing and driveway construction comply with State highway specifications ____ ____ _____

15. At ingress and egress areas to the school there is a minimum radius on inner edge of driveway pavement of from 50 to 100 feet. ____ ____ _____

16. Within the school site there is a minimum radius on inner edge of driveway pavement of 60 feet. ____ ____ _____

17. Between reverse curves, at least a 50-foot tangent section is provided. ____ ____ _____

18. At ingress and egress points a maximum grade of 2-percent is adhered to. ____ ____ _____

19. A maximum grade of 5-percent is adhered to on the school bus driveway within the school site. ____ ____ _____

NOTE: A "yes" answer for each of the items indicates a well-planned traffic pattern for school buses.

SIGNATURES:
Person making the report: _____

Supervisor of School Transportation: _____

Additional Resources:

1-National Fire Protection Association

Building Construction and Safety Code

2-Delaware Department of Transportation

Safe Routes to School Program

3-Green Schools National Network

How to become a Green School

4-United States Green Building Council

Leadership in Energy and Environmental Design (LEED) certification

5-National Council on School Facilities

Home

6-Delaware Department of Natural Resources and Environmental Control

Storm water Management

Energy Efficiency

Sea Level Rise

Recycling