FLORIDA DEPARTMENT OF EDUCATION
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Review and Adjustment for Florida's Cost per Student Station

Computation of the Statewide Average Costs Per Student Station for Each Instructional Level

January 1, 2020

Contents

Executive Summary

Section 1013.64(6)(b), Florida Statutes (F.S.), requires the Florida Department of Education (DOE) and Florida Legislative Office of Economic and Demographic Research (EDR) to annually review and adjust the cost per student station associated with school construction and to identify an alternative cost index to forecast future construction costs. This report presents the results of DOE and EDR's collaboration to fulfill this statutory requirement for 2020-21.

DOE and EDR developed model schools using both historical Florida school construction cost data and construction cost estimating software, including data from 2006 through 2018. The models, which were built to meet the Florida Building Code and State Requirements for Education Facilities (SREF), yielded cost estimates to construct elementary, middle and high schools in Florida.

In addition to estimating the present value of construction of typical schools, EDR evaluated various cost indices to use as a replacement for the Consumer Price Index (CPI), which is currently used to forecast construction costs. EDR based its research and recommendations on its 2017 report, prepared pursuant to section 15 of chapter 2016-273, Laws of Florida (L.O.F.). EDR believes that the best replacement index with a readily available 10-year forecast is the IHS Markit's Core Construction index, which measures broad price changes in the construction industry, including producer prices charged to private buyers. This index is one of the indices regularly forecast in the National Economic Estimating Conference (NEEC).

Since 1997, the state of Florida has used the cost per student station unit of analysis to quantify construction costs related to traditional kindergarten through grade 12 school facilities. Maximum cost thresholds have been established to ensure equivalency of costs and standards related to construction for Florida's school population. Periodically, the maximum cost per student station thresholds have been updated, most recently in 2003 and 2006.

Section 23 of chapter 2019-23, L.O.F., eliminated legal and administrative costs, as well as site improvement costs, from the factors used to determine the cost per student station. Four average costs are displayed in this report: (1) the current statutory thresholds; (2) the reported average schools' construction costs; (3) EDR Modeled Schools using RSMeans online; and (4) DOE Modeled schools using *RSMeans 40th Edition, Annual 2019*. A summary of the four costs is shown below.

Summary of Average Cost Results

	2019 Cost Per Student Station	Reported Average Cost Per Student Station from 2006-2019	Percentage Variance from Statute	Unaltered RSMeans Average Cost per Student Station*	Percentage Variance from Statute	DOE RSMeans Average Modeled Cost Per Student Station	Percentage Variance from Statute
Elementary School	$ 20,939	$ 23,922	14.25%	$ 13,993	-33.17%	$ 23,231	10.95%
Middle School	$ 22,267	$ 23,586	5.92%	$ 16,294	-26.82%	$ 25,049	12.49%
High School	$ 28,733	$ 25,673	-10.65%	$ 17,327	-39.70%	$ 31,142	8.39%

* Unaltered RSMeans does not include all SREF Requirements.

Scope

The 2019 Florida Legislature, in section 23 of chapter 2019-23, L.O.F., tasked DOE and EDR to annually review and adjust the cost per student station associated with school construction and to identify an alternative cost index to forecast future construction costs, as follows:

> *The department, in conjunction with the Office of Economic and Demographic Research, shall review and adjust the cost per student station limits to reflect actual construction costs by January 1, 2020, and annually thereafter. The adjusted cost per student station shall be used by the department for computation of the statewide average costs per student station for each instructional level pursuant to paragraph (d). The department shall also collaborate with the Office of Economic and Demographic Research to select an industry-recognized construction index to replace the Consumer Price Index by January 1, 2020, adjusted annually to reflect changes in the construction index.*

This report presents the results of DOE and EDR's collaboration to fulfill this legislative mandate.

Section I: History of Cost per Student Station to Establish Construction Costs

The practice of using the student station unit to determine the cost of construction was first adopted by the Florida Legislature in 1997, and the statutory limits were revised in 2003 and 2006. Section 1013.64(6)(b)1., F.S., requires the thresholds to be adjusted by a cost index so the cost per student station reflects increases or decreases in costs due to inflation over time. DOE, in conjunction with EDR, has maintained the cost thresholds shown in Table 1 below.

Table 1-Average Cost per Student Station - Baseline Limitations over Time

	1997	2003	2006
	Ch. 97-384, L.O.F.	Ch. 2003-391, L.O.F.	Ch. 2006-27, L.O.F.
Elementary Schools	11,600	12,755	17,952
Middle Schools	13,300	14,624	19,386
High Schools	17,600	19,352	25,181

The maximum cost per student station limits were originally set in 1997 at $11,600 for an elementary school, $13,300 for a middle school and $17,600 for a high school. These costs were based on a five-year statewide average school cost in 1996 and adjusted for inflation to the 1997 cost levels, which were adjusted annually by the CPI.[1] The cost per student station was defined to include contract costs, legal and administrative costs, fees of architects and engineers, furniture and equipment, and site improvement. The definition did not include the cost of purchasing or leasing the site for construction.[2]

Prior to 1997, costs were limited by square foot rather than by student station. Construction of new educational facilities was capped at a cost per square foot that could not exceed the most recent five-year statewide average square foot total cost, adjusted for inflation, **and** the most recent Marshall and Swift Construction Cost Index of Florida. [3] Marshall and Swift is an appraisal guide that provides replacement costs and insurable values, while also providing an index of future values.

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[1] Staff Analysis for HB 17-A (Ch. 97-384, L.O.F), December 1997.

[2] Id.

[3] Section 235.216, F.S., 1996

Districts used 1997 baseline limits until the Florida Legislature established new baseline limits in 2003. Also in 2003, the statutory provisions for student station costs were moved from chapter 235, F.S., to chapter 1013, F.S., when the education statutes were rewritten and reorganized.[4]

In 2005, DOE conducted a study on overall inflation of school construction costs, including the CPI and other factors. The study included a survey of four counties with increasing student enrollment in the state from 1997 through 2005 (Brevard, Hillsborough, Sarasota and Orange), all of which reported increased school construction costs ranging from 23 to 32 percent. Because the CPI increased 13 percent over this time, this index alone did not capture the full increases in construction costs. The rising costs of construction in general, as well as the increased construction costs resulting from implementation of the class size amendment, contributed to increased school construction costs.[5] In addition, the class size reduction program essentially required more classrooms to be built for the same number of students, thereby increasing the cost per student station. In 2006, DOE's recommendations for new cost limits were fully adopted in section 9 of chapter 2006-27, L.O.F.

Section 15 of chapter 2016-237, L.O.F., required EDR to study the cost per student station. The resulting report was published in 2017 and can be found at: http://edr.state.fl.us/Content/special-research-projects/education/CostPerStudentStation.pdf.

Recent Changes

As previously mentioned, section 23 of chapter 2019-23, L.O.F., eliminated legal and administrative costs, as well as site improvement costs, from the cost per student station. The cost per student station is now defined by the following factors.

Architect and Engineering Fees

This refers to the cost for professional architectural and engineering services performed in connection with planning, design and construction of the facility. This incorporates all base service and additional authorization services.

Building Contract Cost

This refers to the total cost of building construction within five feet of the building, including all materials and supplies purchased by the district school board. All change order charges known at the time should also be added or deducted from the contract cost. This includes built-in cabinets, mill work and other furniture or equipment permanently fixed or attached to the building as part of building construction, but does not include costs for movable school furniture and equipment.

Furniture and Equipment

These costs refer to all furniture and equipment required to make the facility operational on the first day of school. Such costs include, but are not limited to, student and teacher desks, computer equipment, science and vocational lab equipment, library furniture, audio-visual equipment, library books required to initially stock the media center and other school equipment that a district would normally capitalize, such as copy machines, etc. Equipment costs excluded

[4] Staff Analysis for HB 17-A (Ch. 97-384, L.O.F), December 1997.

[5] Id.

from this definition are items such as interscholastic activity equipment. Additionally, textbooks, consumable supplies and noncapitalized science and vocational lab supplies are excluded from this definition.

A key distinction between built-in equipment and furniture and equipment is that furniture and equipment are noncapitalized assets, whereas the fixed equipment requires installation and can be depreciated with the facility's value.

Prior to the 2019 statutory change, the two cost categories below were included in the cost per student station:

Legal and Administrative

This refers to all legal and administrative fees paid to private attorneys, governmental agencies, and other professionals who are not architects or engineers, for services rendered.

Site Improvement Cost

This refers to the work that must be performed on a site from five feet away from the building to the site boundary. This includes the amount of money spent to finish grading, draining, seeding, planting and preparing the site for use after the building has been constructed. Site improvement also refers to the cost of electrical transformers, sewer lift stations, and water, gas and electric lines from five feet away from the school facility to the source of the utility at the site boundary.

In accordance with s. 1013.64(6)(b)2, F.S., school districts shall maintain accurate documentation related to the costs of all new construction of educational plant space reported to DOE. This data has been collected since 2006.

General Law Amendments Affecting Student Station Costs

Section 23 of chapter 2019-23, L.O.F., eliminated site improvements and legal and administrative fees associated with construction previously attributed to the cost per student station. Other historic legislation that affected student station costs is shown in Appendix A.

Section II: Data

The data used for this report are gathered from three key sources: (1) the cost of construction data for new schools, replacement schools, school additions and remodeled schools from Form FCO 564PS, collected by DOE's fixed capital outlay (FCO) office (Appendix B); (2) data from RSMeans, a cost estimating tool used for construction projects; and (3) data from the NEEC, which is typically held three times a year and used for the state budget and planning process, as provided in s. 216.136, F.S.

Source 1 – DOE Cost of Construction Reports

DOE's FCO Office uses Form FCO 564PS to collect data annually from school districts statewide regarding school construction data by project. The following data are collected:

- Number of Student Stations
- Number of Teacher Stations
- Net Square Feet
- Gross Square Feet
- Number of New Classrooms by Grade Level

- Cost data
  - Included in the Cost per Student Station
    - Architectural and engineering fees
    - Building contract cost
    - Furniture and equipment
  - Not Included in the Cost per Student Station
    - Site improvement cost (incidental to construction)
    - Legal and administrative costs
    - Cost to make as a hurricane shelter and/or hurricane hardened
    - Cost to purchase site
    - Cost to make public utilities available at site
    - Cost to correct site drainage and/or construct a retention area
    - Cost to make public roads accessible
    - Cost to make site free of environmental problems
- Amount of Funds by Fund Source

Table 2 summarizes the annual state average student station costs reported by Florida school districts from 2009 through 2018 using standards from 2008 through 2018. The source data can be found at: http://www.fldoe.org/finance/fco/cost-of-construction/public-schools.stml.

Table 2-Cost per Student Station (pre-2019 statute definition change)

Year	Elementary Schools			Middle Schools			High Schools		
	Average Facility	Average Contract Cost/Student Station	Average Contract Cost/Square Foot	Average Facility	Average Contract Cost/Student Station	Average Contract Cost/Square Foot	Average Facility	Average Contract Cost/Student Station	Average Contract Cost/Square Foot
2009	$ 22,172	$ 14,772	$ 157.06	$ 23,022	$ 18,192	$ 186.12	$ 25,125	$ 20,379	$ 179.11
2010	$ 23,995	$ 18,533	$ 145.92	$ -	$ -	$ -	$ 30,506	$ 23,694	$ 203.82
2011	$ 22,069	$ 16,306	$ 139.97	$ 23,715	$ 19,938	$ 150.39	$ 18,790	$ 16,219	$ 144.34
2012	$ 18,653	$ 15,178	$ 119.90	$ 20,526	$ 17,338	$ 150.43	$ -	$ -	$ -
2013	$ 16,810	$ 13,811	$ 125.16	$ -	$ -	$ -	$ -	$ -	$ -
2014	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2015	$ 16,349	$ 12,346	$ 134.50	$ -	$ -	$ -	$ -	$ -	$ -
2016	$ 19,277	$ 15,054	$ 151.35	$ -	$ -	$ -	$ -	$ -	$ -
2017	$ 25,308	$ 19,655	$ 162.16	$ 21,825	$ 17,102	$ 140.99	$ 24,998	$ 18,812	$ 165.69
2018	$ 29,925	$ 25,461	$ 218.51	$ 28,048	$ 2,030	$ 184.73	$ 28,084	$ 21,255	$ 193.12

* Average includes: Legal and Administrative Costs, Architect/Engineering Fees, Site Improvement Costs, Building Contract Costs and Furniture and Equipment.
Note: Figures are based on new schools constructed using the traditional Design-Bid-Build project delivery method.

Table 3 provides the state average annual cost per student station using standards for 2009 through 2018, as reported by school districts, and adjusted to not include site improvement costs and legal and administrative costs.

Table 3-Adjusted Cost per Student Station (post-2019 statute definition change)

Year	Elementary Schools			Middle Schools			High Schools		
	Average Facility	Average Contract Cost/Student Station (d)	Average Contract Cost/Square Foot	Average Facility	Average Contract Cost/Student Station	Average Contract Cost/Square Foot	Average Facility	Average Contract Cost/Student Station	Average Contract Cost/Square Foot
2009	$ 20,687	$ 14,772	$ 157.06	$ 21,272	$ 18,192	$ 186.12	$ 23,193	$ 20,379	$ 179.11
2010	$ 21,603	$ 18,533	$ 145.92	$ -	$ -	$ -	$ 26,925	$ 23,694	$ 203.82
2011	$ 19,802	$ 16,306	$ 139.97	$ 23,040	$ 19,938	$ 150.39	$ 18,661	$ 16,219	$ 144.34
2012	$ 17,754	$ 15,178	$ 119.90	$ 19,265	$ 17,338	$ 150.43	$ -	$ -	$ -
2013	$ 16,112	$ 13,811	$ 125.16	$ -	$ -	$ -	$ -	$ -	$ -
2014	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2015	$ 14,774	$ 12,346	$ 134.50	$ -	$ -	$ -	$ -	$ -	$ -
2016	$ 17,703	$ 15,054	$ 151.35	$ -	$ -	$ -	$ -	$ -	$ -
2017	$ 23,104	$ 19,655	$ 162.16	$ 20,027	$ 17,102	$ 140.99	$ 21,816	$ 18,812	$ 165.69
2018	$ 28,925	$ 25,461	$ 218.51	$ 23,426	$ 2,030	$ 184.73	$ 25,091	$ 21,255	$ 193.12

* Average includes: Architect/Engineering Fees, Building Contract Costs and Furniture and Equipment.
Note: Figures are based on new schools constructed using the traditional Design-Bid-Build project delivery method.

An analysis of historic data indicated that site improvement costs and legal and administrative costs accounted for 7.85 percent of costs at the elementary school-level, 9.37 percent of costs at the middle school-level and 9.92 percent of costs at the high school-level. Because the cost per student station historically included legal and administrative costs and site improvement costs, to compare such costs to the new DOE prototypes, cost per student station levels were adjusted to exclude these costs, as shown in Table 4.

Table 4-Adjustment of Current Statutory Cost per Student Station to Exclude Administrative and Legal and Site Improvement Costs
January 2019 Costs

	Elementary School Student Station Cost	Middle School Student Station Cost	High School Student Station Cost
Current Statute	$ 22,760	$ 24,578	$ 31,925
Legal and Administrative Costs	0.93%	0.16%	0.30%
Site Improvement Costs	6.92%	9.21%	9.62%
Current Statute (Less Legal and Administrative and Site Improvement Costs)	$ 20,973	$ 22,275	$ 28,758

DOE's collected cost of construction reports indicate that, on average, about 84.5 percent of the total facility costs were construction, 7 percent were architectural and engineering fees and 8.5 percent were furniture and equipment, after the administrative and legal and site improvement costs were removed.

Source 2 – RSMeans Construction Cost Estimates

RSMeans data, produced by the Gordian Group, is one of North America's leading sources of construction cost information used by owners, developers, architects, engineers and contractors to build competitive cost estimates and control construction costs. DOE used costs from the *RSMeans 40th Edition*, *Annual 2019*, primarily from the Assemblies Section. EDR used data and building models from the online version of RSMeans, the RSMeans Online Square Foot Estimator. The data in RSMeans is collected nationally and updated online quarterly. For this report, the January 2019 costs were used to build the school models. In addition, the January 2019 release of the *RSMeans Construction Cost Indexes* book was used for the national 30-city average construction cost index (not limited to school construction) and the indices for six

Florida cities. The national and Florida indices were used to develop a Florida-specific index and a ratio of national to Florida construction costs.

Source 3 – National Economic Estimating Conference
The NEEC adopts a consensus forecast for key economic variables. Currently, the CPI forecast from the NEEC is used to adjust the statutory cost per student station. This report evaluates a number of construction price indices to use as an alternative to the CPI for forecasting price changes over time affecting the student station cost.

Section III: Methodology

Method 1
EDR used the web-based RSMeans Online (www.rsmeansonline.com) standard national models in its 2017 report. The standard models, representing typical national building practices, were slightly modified to include only SREF-compliant building frames (excluding wood materials). EDR used the following assumptions shown in Table 5 for school models in the 2017 report and applied the same assumptions for the update within this report.

Table 5-EDR Assumptions for School Construction Models

School Type	Building Size	Stories	Perimeter	Student
Elementary	74,000	1	2,100	800
Middle	135,000	2-3	2,140	1,300
High	200,000	2-3	3,120	2,000

EDR updated the costs of the models with SREF-compliant building frames, as developed in its 2017 report. EDR included architectural costs in this update, but these costs were excluded in 2017. Table 6 shows the average construction cost per square foot of six building models for each type of school, as well as the minimum and the maximum costs of these six models. The costs were adjusted from national to Florida costs by a factor of 0.84, signifying that construction costs in Florida are 84 percent of national construction costs or 16 percent lower than national construction costs.

Table 6-EDR Configuration
Florida New School Construction Cost Estimates,
INCLUDING Architectural Costs
(Florida SREF-Compliant Structure Types Only) 2019
($/square foot)

School Type	RSMeans Models		
	6-Model	Lowest Cost	Highest Cost
Elementary	139.43	122.05	170.90
Middle	144.61	129.22	170.09
High	159.70	140.33	191.14

Source: RSMeans, RSMeans Online, Square Foot Models, Building Construction Cost Data, January 2019. Copyright RSMeans LLC, Rockland, MA 781-422-5000; All rights reserved.

Includes a Florida average adjustment factor of 0.84, calculated by EDR.

Standard model building exterior walls were substituted for wall types that exclude all wood material to comply with SREF.

Table 7 shows the conversion of the average costs per square foot, estimated by EDR, to a cost per student station. Since the standard RSMeans models only include some furniture that is permanently affixed to the building, EDR added 8.5 percent to the cost to align it with the statutory definition of cost per student station. EDR then used its assumptions for school size and student stations to calculate a cost per student station by type of school.

Table 7-Florida New School Construction Cost Estimates,
Including Architectural Costs
(Florida SREF-Compliant Structure Types Only) 2019

School Type	RS Means Models		
	Elementary	Middle	High
RSMeans cost per square foot	139.43	144.61	159.70
Adjustment for furniture and equipment (8.5%)	151.28	156.90	173.27
School Size in square feet	74,000	135,000	200,000
Total cost of a school	11,194,692	21,181,631	34,654,250
Student Stations (EDR assumptions)	800	1,300	2,000
Cost per Student Station	13,993	16,294	17,327

Local building code enhancements will be an additional cost to districts because the facilities may need additional structural considerations for wind loading, even if they are not designated hurricane shelters.

Method 2

DOE and EDR elected to use RSMeans to develop cost estimates by type of school. As a starting point, EDR produced 15 versions of the standard models for each school type (elementary, middle, and high) – six standard models, three standard models with an alternate SREF compliant building frame, and six green models, for a total of 45 versions. DOE reviewed these models to determine which would most closely match Florida's building code, SREF and typical district building practices. This review enabled DOE to select one model for each school type as a starting point. The online software system allows for

component swapping, such that DOE was able to customize and substitute components to design the most optimal school models that reflect Florida's Building Code, SREF and district building conventions.

Tables 8 and 9 display the historical average and median square footages of new facilities completed by year and type of school, based on DOE's Cost of Construction reports. The average and median square footages exclude one school considered by DOE to be a small, specialty school.

Table 8-Average Sizes of New Public Schools (Not including covered Walks or Play Areas)

	2009	# of Schools	2010	# of Schools	2011	# of Schools	2012	# of Schools	2013	# of Schools	2014	# of Schools	2015	# of Schools	2016	# of Schools	2017	# of Schools	2018	# of Schools	Average School Size	# of Schools
Elementary	114,978	18	110,663	6	99,237	4	107,551	5	102,387	5			79,980	3	103,226	4	100,209	4	105,142	3	106,718	52
Middle	155,362	4			148,640	2	166,889	2									177,054	3	185,960	1	164,136	12
High	244,104	7	326,130	4	133,777	6											289,409	2	344,553	1	236,964	20

Table 9-Median Sizes of New Public Schools (Not including covered Walks or Play Areas)

	2009	# of Schools	2010	# of Schools	2011	# of Schools	2012	# of Schools	2013	# of Schools	2014	# of Schools	2015	# of Schools	2016	# of Schools	2017	# of Schools	2018	# of Schools	Median School Size	# of Schools
Elementary	114,721	18	114,184	6	98,604	4	111,422	5	106,569	5			80,481	3	93,104	4	100,517	4	109,308	3	106,214	52
Middle	159,557	4			148,640	2	166,889	2									180,396	3	185,960	1	166,889	12
High	232,684	7	319,278	4	130,680	6											289,409	2	344,553	1	238,633	20

DOE used the Cost of Construction Reports to establish basic assumptions regarding the size of schools and how large districts tend to build typical school facilities. Each model was constructed to resemble an average school for elementary, middle and high schools as shown in Table 10.

Table 10-Typical Facility Parameters

School Type	OEF Assumptions			
	Building	Students	Stories	Perimeter
Elementary	110,000	900	1	3,200
Middle	170,000	1,250	1	4,945
High	240,000	1,500	2	3,500

Based on SREF and the provided data, a typical elementary school would be expected to be one story and 110,000 gross square feet (GSF) and house 900 students. Middle schools and high schools could be multi-story facilities to minimize construction costs, facility operations and site development costs; however, six of the last 10 middle schools built in Florida from 2007 to 2018 have been single story, and modeling for

this report is based on a single-story middle school model. A typical middle school would be expected to be 170,000 GSF and house 1,250 students. Middle schools differ from elementary schools because they have more specialized areas, such as science labs and a gymnasium. A typical high school would be expected to be 240,000 GSF and house 1,500 students. High schools further differ from middle and elementary schools because they contain even more specialized space, with more robust science labs and performance venues. Although there will be variation among districts, Table 10 above shows the average parameters of a typical Florida school.

DOE Modeling

Florida school construction is guided by three major authorities. The Florida Building Code governs all construction in the state and is administered by the Florida Building Commission at the Florida Department of Business and Professional Regulation.[6] Another regulatory authority for construction is the Florida Fire Prevention Code, which is administered by the Division of State Fire Marshal, Florida Department of Financial Services.[7] The third major authority governing school construction in the state is SREF, which is maintained by DOE.[8] The requirements of the three authorities tend to increase the cost of construction in the state relative to national averages.

DOE reviewed materials and quantity specifications for 45 standard RSMeans models provided by EDR. These standard RSMeans models reflect typical national building practices by type of school (e.g., building frame, school size, interior components). RSMeans bases these models on actual construction practices and costs collected nationwide, combined with RSMeans engineering expertise. After review, DOE determined that the standard models currently did not precisely reflect Florida's most recent school construction practices. Therefore, DOE customized the models using both district conventions and DOE's licensed architectural and engineering expertise regarding Florida school facility construction. In addition, DOE's Office of Educational Facilities ensured that the models met Florida's building code, SREF and accommodated Florida's class size limits. Appendix C illustrates the RSMeans model developed for a typical elementary school in Florida, while Appendix D shows the RSMeans model crafted for a typical middle school in Florida. Appendix E displays the RSMeans model fashioned for a typical high school in Florida.

In choosing the components for the model schools, DOE attempted to balance upfront costs, maintenance costs, durability and longevity. Generally, low upfront costs require higher maintenance and upkeep costs, while high upfront costs equate to lower maintenance and upkeep costs. While building the RSMeans models, DOE looked at typical specifications submitted by districts to develop a balanced approach.

All components in Appendices C-E were selected with a 50-year lifecycle, consistent with s. 1013.64, F.S. For example, rigid structural metal selected for the school models provided a lower upfront cost than concrete, with minimal maintenance costs when protected from the elements. Furthermore, in the selection of the envelope of the building, the DOE model considered both wind-loading and maintenance. In accordance with the Florida Building Code, specific wind-load requirements are based on geographic location and building type, which influenced the selection of material and design of the models selected.

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[6] See https://www.floridabuilding.org/c/default.aspx

[7] See https://www.myfloridacfo.com/Division/SFM/BFP/FloridaFirePreventionCodePage.htm

[8] See http://www.fldoe.org/finance/edual-facilities/sref/

The models were not built to meet public shelter or hurricane hardening requirements since these costs are outside of the student station costs.[9]

Also considering the lifecycle costs, brick veneer was selected as the exterior finish due to its minimal maintenance costs and wide availability in Florida. Brick has a further advantage as a material because of its inherent protection from windborne debris. Though concrete masonry units (CMU) also provide protection from windborne debris, maintenance costs are much higher, as district operational staff must paint or seal surfaces to prevent moisture from permeating the porous faces. Metal roofing, fascia and soffits were also selected for each model, as the metal surfaces provide the most maintenance-free system, longest life span and protection in high-wind areas around the state.

For the interior of the model schools, CMU corridor walls were chosen over light gauge metal studs and gypsum board face for the corridor walls along classrooms. Although a higher upfront cost, the benefits of reduced maintenance due to increased durability, noise transfer baffling between halls and rooms, and increased wall strength for security purposes, outweigh the higher upfront costs.

Finish materials selected were standard vinyl composition tiles in corridors and public areas, with carpet in classrooms and offices for reduced noise. Ceramic tile was proposed for group restroom floors and walls because of durability and the ease of cleaning. Standard materials were selected in ceilings, mechanical systems, electrical and plumbing.

DOE and EDR chose to develop the three models addressed above using national construction costs. Following the methodology in EDR's 2017 report, the national costs per square foot estimates were adjusted to Florida-specific construction cost levels shown below in Table 11 by developing an average of RSMeans' six-city Florida cost indices.

Table 11-Regional Cost Factors for Florida

RSMeans 2019 Construction Cost Index for Six Florida Cities

Year	Ft. Lauderdale	Jacksonville	Miami	Orlando	Tallahassee	Tampa	Florida Average
2019	84.2%	83.4%	83.7%	84.7%	83.7%	84.5%	84.0%

Using RSMeans' January 2019 costs and DOE's assumptions shown in Table 10, DOE estimated costs per square foot by type of school. These costs were then adjusted by a factor of 0.84 to reflect the lower construction costs in Florida relative to the national average. Since RSMeans only includes capitalized fixed furniture and equipment, the costs were increased by 8.5 percent to include noncapitalized furniture and equipment necessary for the building's operation (e.g., books, desks). Table 12 displays the resulting cost per student station.

[9] See https://www.flrules.org/

Table 12-DOE Model Results

		Elementary Schools	Middle Schools	High Schools
	Gross Square Feet	110,000	170,000	240,000
	Students	900	1,250	1,500
RSMeans Cost Per Square Foot*		$ 208.55	$ 202.09	$ 213.56
RS Means Florida Factor	84%	$ 175.18	$ 169.76	$ 179.39
Furniture Fixtures and Equipment	8.5%	$ 190.07	$ 184.18	$ 194.64
Total Modeled School Cost		$ 20,907,971.70	$ 31,311,420.42	$ 46,713,260.16
Conversion to Cost per Student Station		$ 23,231.08	$ 25,049.14	$ 31,142.17

*As shown in Appendices C, D, and E

The new DOE model baseline cost per student station is slightly higher for elementary, middle and high schools (11 percent, 12 percent and 8 percent, respectively) compared to the 2006 statutory baseline adjusted for 2019 law changes, as shown in Table 13.

Table 13-Florida Student Station Costs as of January 2019

	Cost of Elementary School Student Station	Cost of Middle School Student Station	Cost of High School Student Station
Current Statute (less administrative and legal and site improvement costs)	$ 20,973	$ 22,275	$ 28,758
New DOE Prototypes	$ 23,231	$ 25,049	$ 31,142
New DOE prototypes, percentage of the current statute	111%	112%	108%

Cost Comparisons of Method 1 and Method 2

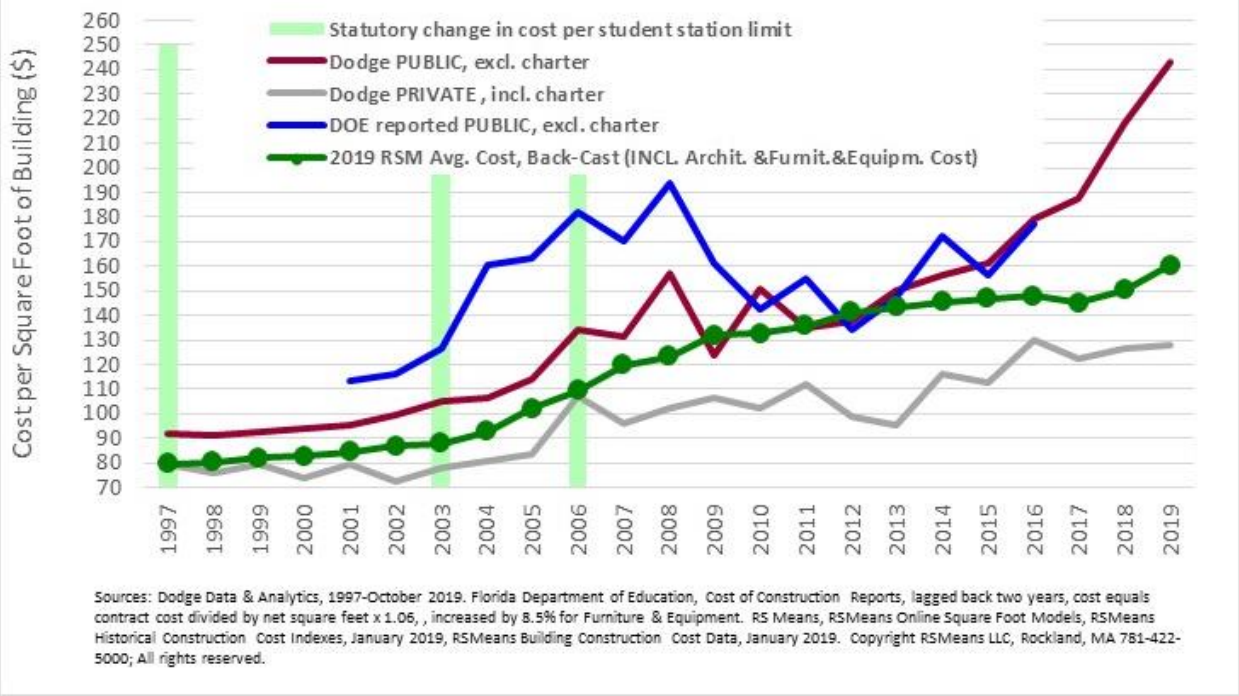
Chart 1 on the following page was updated from EDR's 2017 report to include DOE cost of construction reports through 2018 and Dodge data through October 2019. The RSMeans data was increased by 8.5 percent to include furniture and equipment costs in 2019 and was back-cast using the RSMeans historical index, following the 2017 report methodology.

The cost of construction reported by DOE was lagged by two years to make it comparable to the reporting convention used by Dodge which is a data and analytics index that uses national regional and local data to provide construction costs forecasts. For example, data reported to DOE as completed in 2010 was shifted back two years to be shown as year 2008 in the chart. Dodge reports data at the time of contract signing, while DOE reports the data as of the year of completion. Since the approximate time from the contract signing to completion is assumed to take two years, DOE's reports were adjusted so both sources reflected a similar set of schools. In the process of lagging DOE's data, no inflationary adjustment was made to account for the differences in prices over time.

The updated chart shows an increasing divergence between private school and public school construction costs seen in the Dodge data. The back-cast RSMeans average construction cost tracks Dodge public school costs from 2009 to 2013; however, since 2013, it aligns more closely with the Dodge private school

construction cost. Assuming that both public and private schools comply with the Florida Building Code, the divergence in costs may be due to other reasons, such as SREF and other factors. For example, the Florida Building Code considers public schools either Type III or IV buildings, while private schools are typically Type II buildings (the higher the number, the higher the building standard and cost).

Chart 1-Florida New K-12 School Average Construction Cost by Owner Type



Sources: Dodge Data & Analytics, 1997-October 2019. Florida Department of Education, Cost of Construction Reports, lagged back two years, cost equals contract cost divided by net square feet x 1.06, , increased by 8.5% for Furniture & Equipment. RS Means, RSMeans Online Square Foot Models, RSMeans Historical Construction Cost Indexes, January 2019, RSMeans Building Construction Cost Data, January 2019. Copyright RSMeans LLC, Rockland, MA 781-422-5000; All rights reserved.

Several differences exist between the new DOE models and the EDR models. As discussed above, the new DOE models were built to meet SREF and the Florida Building Code requirements for public schools, while the EDR models reflect typical building practices nationally. Due to the varying requirements, the new DOE models excluded all wood components throughout the building, while the EDR models excluded wood materials from the exterior building frame. Furthermore, the new DOE models included a higher electrical and plumbing capacity than the standard RSMeans models used by EDR. DOE's review of the RSMeans standard models determined that the latter did not provide adequate service in accordance with the National Electrical Code and best practices for Florida school districts (for plumbing). Additionally, the DOE model uses a 3,000 psi soil bearing pressure, as required by the Florida Building Code, whereas the RSMeans standard model is based on a soil bearing pressure of 6,000 psi. The new DOE models also included additional windows to comply with s. 1013.44, F.S., which requires more windows than included in the standard RSMeans models. Further model differences are shown in Table 14.

Table 14-RSMeans Model Comparison

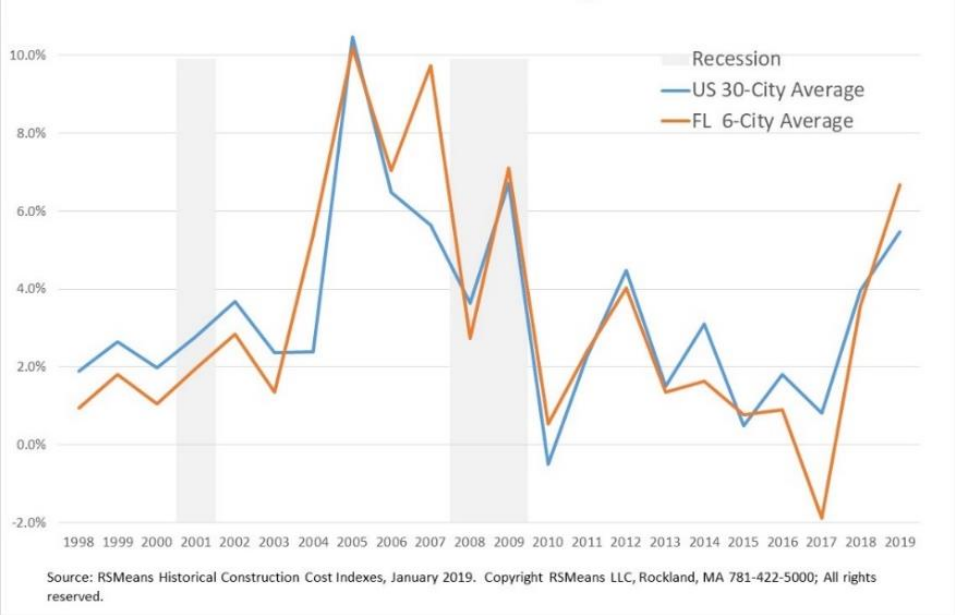
	Standard RSMeans Online Model	DOE RSMeans Model	Reason for the Change
Wood	Excluded from the exterior building frame	Excluded from the entire school	SREF does not permit wood
Electrical Service	2000 Amp Service	6000 Amp Service	National Electric Code
Generator	Included	Excluded	Not required unless the school is a shelter
Plumbing	Standard Allocation	Additional Restrooms	Class Size Amendment
Windows	Standard Allocation	Additional Windows	s. 1013.44, F.S.
Classroom Cabinetry	Not Specified in the Model	Included	District Best Practices
Autitorum Seating	Not Specified in the Model	Included	Florida Building Code
Increased Gymansium Seating	15 Row Component	30 Row Component	SREF
Library Carrels and Shelving	Not Specified in the Model	Included	SREF
Window Blinds	Not Specified in the Model	Included	SREF
Stage Curtains	Not Specified in the Model	Included	Florida Fire Prevention Code
Stage Lighting	Not Specified in the Model	Included	Florida Building Code
Kitchen Walk-in Coolers	Not Specified in the Model	Included	Needed for both cold and frozen food storage
Kitchen Fire Suppression System	Not Specified in the Model	Included	Florida Fire Prevention Code
Corridor Walls	Gypsum	CMU and related foundation	Added safety and lifecycle
Structural Foundation	6,000 psi national average soil bearing pressure design	3,000 psi Florida specific soil bearing pressure design	Florida Building Code

Construction Index Options

Currently, the CPI is used to forecast the cost per student station by month. There are more appropriate indices to measure changes in construction costs. EDR recommends using a forecast of national general construction costs similar to the forecasts adopted by the NEEC. A forecast period of 10 years is recommended in order to accommodate long-range facilities planning.

EDR develops a wide range of economic forecasts as part of the estimating conference process. In this regard, EDR has access to multiple price change forecasts for different sectors of the economy. However, these forecasts are all national, and Florida-specific forecasts are currently not available. Historical construction costs from RSMeans for the United States and Florida exhibit similar growth patterns. In the absence of Florida-specific forecasts for construction cost growth rates, national growth rates appear to be acceptable proxies at present, shown in Chart 2 on the following page.

Chart 2-RSMeans 30-City National Index and Florida 6-City Average Annual Percentage Change

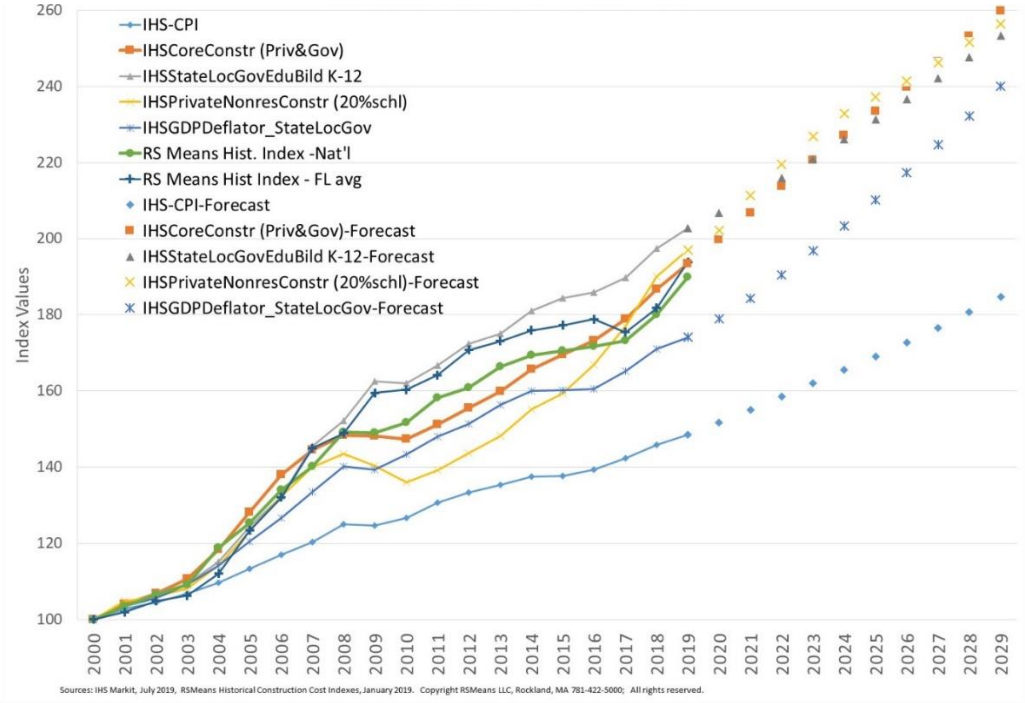


To develop the graph in Chart 3, EDR used the available history and forecasts for several national indices from 2000 to 2029 adopted by the NEEC held in July 2019. The indices labeled "IHS" are developed by a forecaster currently used by the state of Florida as part of the national economic estimating conference process. The historical data for these indices are based on data from the U.S. Department of Commerce, Bureau of Economic Analysis (BEA) and are used in the computation of Gross Domestic Product in the National Income and Product Accounts. Currently, these are chained price indices with a base year of 2012. BEA, in turn, uses as inputs the respective Producer Price Indices for private or government fixed investment produced by the U.S. Department of Labor, Bureau of Labor Statistics.

From the available alternatives, EDR narrowed the list to the following: (1) Core construction index, measuring general price changes in both private and public construction; (2) State and local government investment in K-12 educational buildings that specifically measures price changes in public school construction; (3) Private nonresidential construction index, which EDR uses as a proxy for private school construction price changes, although only 20 percent of the index represents school construction; and (4) Gross Domestic Product (GDP) deflator for state and local government consumption. For comparison, EDR plots two indices from RSMeans. The RSMeans indices are only historical, and no forecast is provided by the vendor.[10] EDR also includes the CPI, which is currently used to index the cost per student station. The indices shown in the following chart are all made equal to 100 in 2000 and grown by their respective growth rates.

[10] In forecasting "option 2," EDR presents its own forecast of one of RSMeans indices.

Chart 3-National Price Indices, Historical and Forecasts Rebased to Year 2000=100



Over the past 19 years, the CPI has had one of the slowest growth rates, and the State and Local Government Investment in Educational Buildings K-12 has had the fastest growth rate since 2007. The actual growth rates are shown in the following chart. The growth in the "price" of government investment in K-12 educational facilities might be due not only to external market factors, such as the price of construction materials (exogenous to the system of school construction), but also due to endogenous factors, such as changing school or community wants/wishes, responses to litigation, and changes in the structural requirements for facilities (public shelters, class size, safety, hygiene, air quality, energy efficiency, etc.).

In other words, the price changes reflect not only the change in price of an identical "basket" of school construction materials, but also significant changes in the relative importance of the components in the "basket" or overall new components. EDR is unable to determine to what extent the growth in the "price" of government investment in K-12 educational buildings is due to exogenous versus endogenous factors. Even though the investment in K-12 educational buildings index is national, U.S. Government Accountability Office and National Center for Education Statistics reports indicate that all of the above-referenced drivers have been affecting school construction nationally.

The annual historical and forecast growth rates for the indices graphed in Chart 3 are displayed in the following Chart 4.

Chart 4-National Price Indices, Growth Rates, Historical and Forecasts

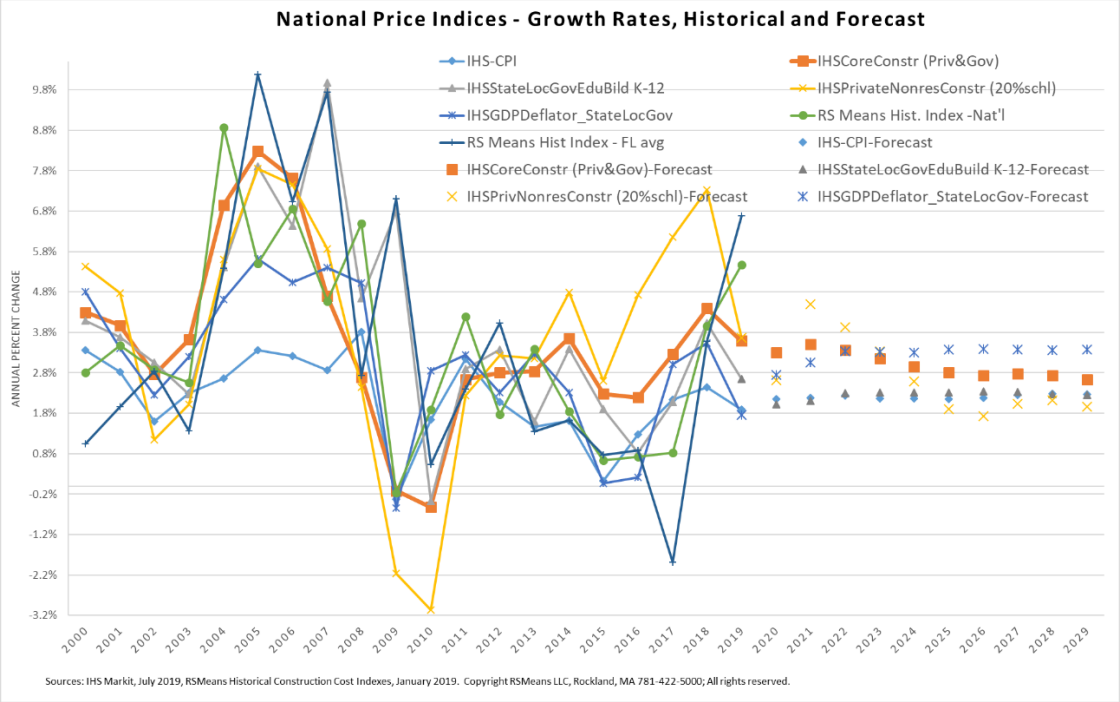


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Table 15 provides historical and forecast growth rates for the indices listed in Charts 3 and 4.

Table 15-Index Comparison

Year	IHS CPI	IHS Core Construction (Private and Government)	IHS State and Local Government Investment in Education Buildings (K-12)	IHS Private Nonresidential Construction (20% Schools)	IHS GDP Deflator for State and Local Government Consumption	RSMeans Historical Index - National	RSMeans Historical Index - FL Average
2000	3.4%	4.3%	4.1%	5.4%	4.8%	2.8%	1.0%
2001	2.8%	4.0%	3.7%	4.8%	3.4%	3.5%	2.0%
2002	1.6%	2.8%	3.1%	1.1%	2.2%	2.9%	2.8%
2003	2.3%	3.6%	2.3%	2.0%	3.2%	2.6%	1.4%
2004	2.7%	6.9%	5.4%	5.6%	4.6%	8.9%	5.4%
2005	3.4%	8.3%	7.9%	7.8%	5.6%	5.5%	10.2%
2006	3.2%	7.6%	6.4%	7.5%	5.0%	6.9%	7.0%
2007	2.9%	4.7%	10.0%	5.9%	5.4%	4.6%	9.7%
2008	3.8%	2.7%	4.6%	2.4%	5.0%	6.5%	2.7%
2009	-0.3%	-0.1%	6.8%	-2.2%	-0.6%	-0.2%	7.1%
2010	1.6%	-0.5%	-0.4%	-3.1%	2.8%	1.9%	0.5%
2011	3.1%	2.6%	2.9%	2.2%	3.2%	4.2%	2.4%
2012	2.1%	2.8%	3.4%	3.2%	2.3%	1.8%	4.0%
2013	1.5%	2.8%	1.6%	3.2%	3.3%	3.4%	1.3%
2014	1.6%	3.7%	3.4%	4.8%	2.3%	1.8%	1.6%
2015	0.1%	2.3%	1.9%	2.6%	0.1%	0.6%	0.8%
2016	1.3%	2.2%	0.8%	4.7%	0.2%	0.7%	0.9%
2017	2.1%	3.3%	2.1%	6.2%	3.0%	0.8%	-1.9%
2018	2.4%	4.4%	4.0%	7.3%	3.5%	4.0%	3.6%
2019	1.9%	3.6%	2.6%	3.7%	1.8%	5.5%	6.7%
FORECAST							
2020	1.9%	3.6%	2.6%	3.7%	1.8%		
2021	2.2%	3.3%	2.0%	2.6%	2.8%		
2022	2.2%	3.5%	2.1%	4.5%	3.1%		
2023	2.2%	3.4%	2.3%	3.9%	3.3%		
2024	2.2%	3.2%	2.3%	3.3%	3.3%		
2025	2.2%	3.0%	2.3%	2.6%	3.3%		
2026	2.2%	2.8%	2.3%	1.9%	3.4%		
2027	2.2%	2.7%	2.3%	1.7%	3.4%		
2028	2.2%	2.8%	2.3%	2.0%	3.4%		
2029	2.3%	2.7%	2.3%	2.1%	3.4%		

Sources: HIS Markit, July 2019, RSMeans Historical Construction Cost Inexes, January 2019.

EDR sees the goal of forecasting the cost per square foot as an attempt to account for changes in exogenous factors only. In addition, EDR assumes that a construction-focused index, rather than a general consumer driven price index, would better forecast expected changes in the future. Based on these criteria, as recommended in EDR's 2017 report, EDR believes that the best index with a readily available 10-year forecast would be the IHS Markit's Core Construction index, which measures broad price changes in the entire construction industry, including producer prices charged to private buyers.

Applying the Core Construction Index to the Florida average cost per square foot produces the following 10-year forecast. Using this forecast implies that the cost per square foot will increase by 3.3 percent each year (compound annual growth rate) from 2019 to 2023 and by 2.8 percent each year (compound annual growth rate) from 2023 to 2029. This means that the cost per square foot will increase by 14 percent from 2019 to 2023 and by 34 percent (3 percent compound annual growth rate) from 2019 to 2029. EDR's forecast also assumes that the relative costs among elementary, middle, and high schools will remain the same over the forecast period. However, any regulatory changes in the requirements for the three types of schools may render both the base year cost estimate and the relative prices among the school types obsolete.

Table 16-IHS Markit Core Construction Projected Index

Note: Starting Costs per square foot in 2019 include architectural costs.

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
IHS Markit Core Construction Index	124.39	128.5	133	137.48	141.82	146.01	150.1	154.19	158.48	162.81	167.1
Annual Percentage Change		3.30%	3.50%	3.40%	3.20%	3.00%	2.80%	2.70%	2.80%	2.70%	2.60%

Source: IHS Markit, July 2019.

The Charts 5, 6 and 7 on the following pages indicate the cost per student station variance for elementary, middle and high schools depending on indexing methodology.

Chart 5- Cost per Student Station Projected Growth-Elementary School

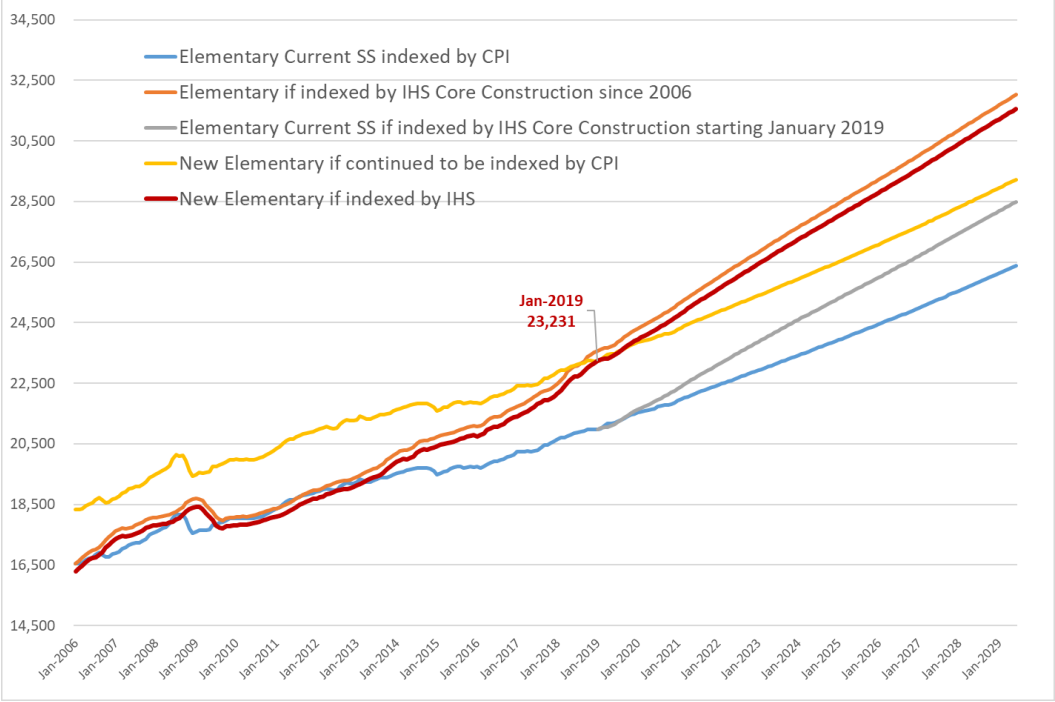


Chart 6-Cost per Student Station Projected Growth-Middle School

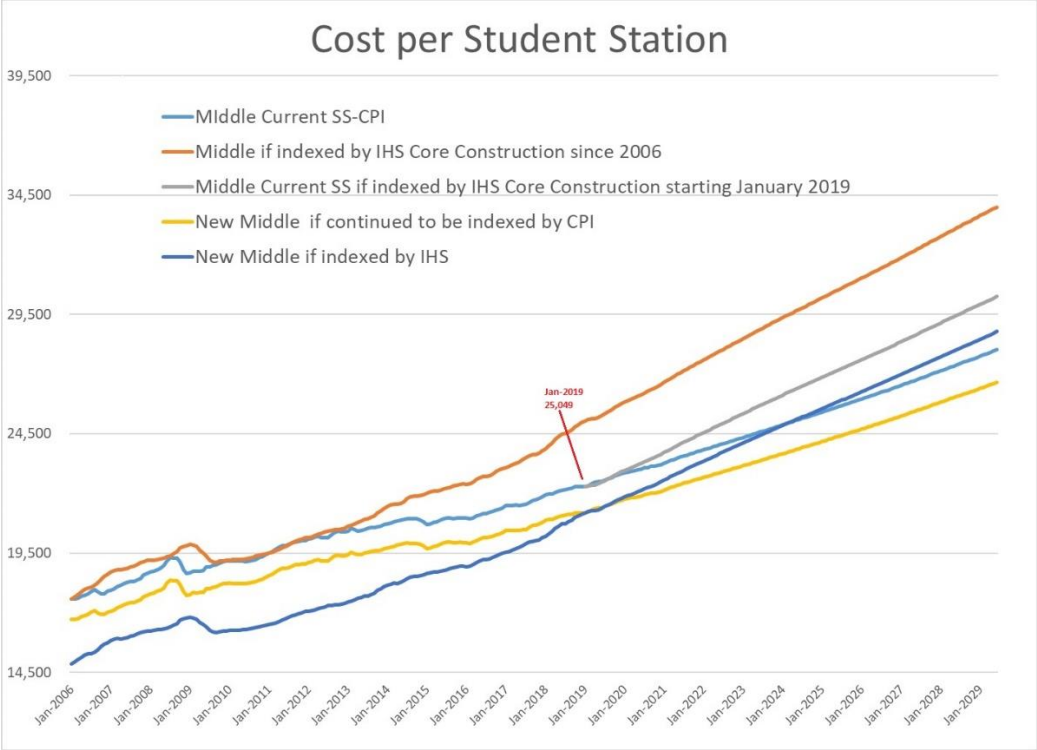
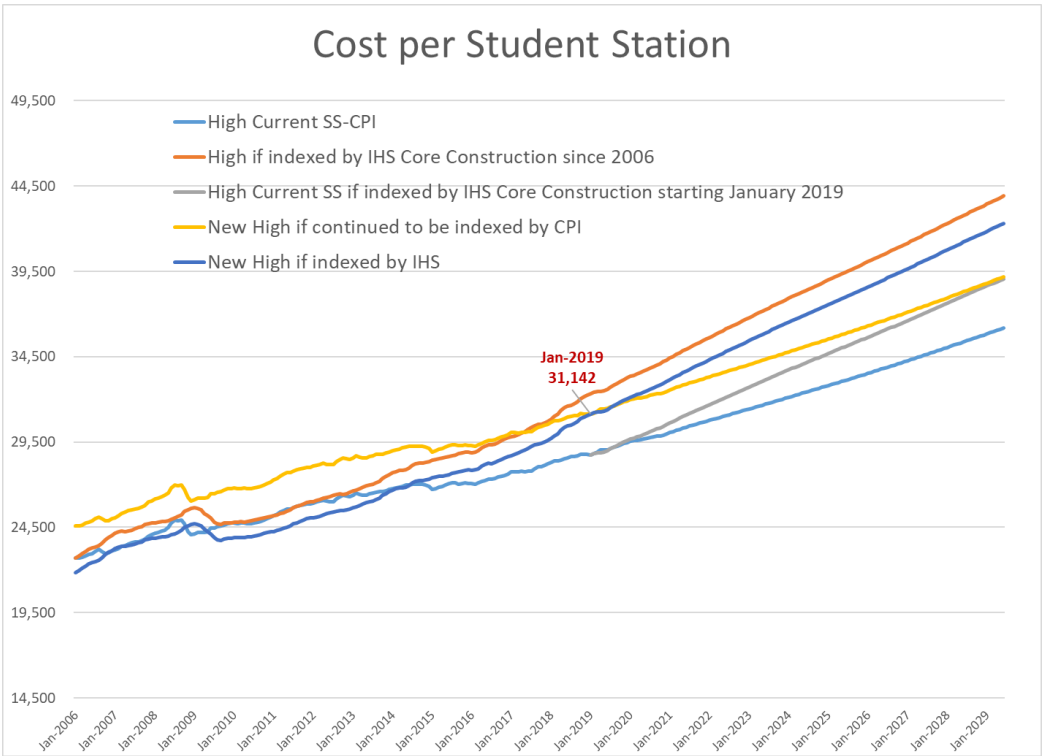


Chart 7-Cost per Student Station Projected Growth-High School



Indexing methodology for the IHS Core Construction Index is provided in Table 17.

Table 17-IHS Core Construction Index – Fiscal Year Average (Unrounded)

Year	IHS Core Construction Index	Annual Percent Change	Indexed to 2006=100	Student Station Factors based on Index 2006=100	Indexed to 2019=100	Student Station Factors based on Index 2019=100
2000	63.0	4.1%	73.3	0.733	51.4	0.514
2001	65.5	4.0%	76.2	0.762	53.5	0.535
2002	67.9	3.7%	79.1	0.791	55.5	0.555
2003	70.0	3.0%	81.5	0.815	57.2	0.572
2004	73.0	4.2%	84.9	0.849	59.6	0.596
2005	79.2	8.6%	92.2	0.922	64.7	0.647
2006	85.9	8.4%	100.0	1.000	70.2	0.702
2007	91.1	6.1%	106.1	1.061	74.4	0.744
2008	94.0	3.2%	109.4	1.094	76.8	0.768
2009	96.4	2.5%	112.2	1.122	78.8	0.788
2010	94.2	-2.3%	109.7	1.097	77.0	0.770
2011	95.8	1.7%	111.5	1.115	78.2	0.782
2012	98.8	3.2%	115.0	1.150	80.7	0.807
2013	101.2	2.4%	117.8	1.178	82.7	0.827
2014	104.8	3.5%	122.0	1.220	85.6	0.856
2015	107.9	3.0%	125.7	1.257	88.2	0.882
2016	110.1	2.0%	128.1	1.281	89.9	0.899
2017	113.1	2.8%	131.7	1.317	92.4	0.924
2018	117.4	3.8%	136.7	1.367	95.9	0.959
2019	122.4	4.3%	142.5	1.425	100.0	1.000
2020	126.5	3.3%	147.2	1.472	103.3	1.033
2021	130.7	3.3%	152.1	1.521	106.8	1.068
2022	135.3	3.5%	157.5	1.575	110.5	1.105
2023	139.7	3.2%	162.6	1.626	114.1	1.141
2024	143.9	3.1%	167.6	1.676	117.6	1.176
2025	148.1	2.9%	172.4	1.724	121.0	1.210
2026	152.1	2.7%	177.1	1.771	124.3	1.243
2027	156.3	2.8%	182.0	1.820	127.7	1.277
2028	160.6	2.8%	187.0	1.870	131.3	1.313
2029	165.0	2.7%	192.1	1.921	134.8	1.348

Shaded years indicate forecast values.

Section IV: Summary and Next Steps

Average Cost for Student Station by Instruction Level

The analysis compared four average costs for student station by instructional level. These costs are summarized in Table 18.

Table 18-Comparisons of Average Construction Costs

	2019 Cost Per Student Station	Reported Average Cost Per Student Station from 2006-2019	Percentage Variance from Statute	Unaltered RSMeans Average Cost per Student Station*	Percentage Variance from Statute	DOE RSMeans Average Modeled Cost Per Student Station	Percentage Variance from Statute
Elementary School	$ 20,939	$ 23,922	14.25%	$ 13,993	-33.17%	$ 23,231	10.95%
Middle School	$ 22,267	$ 23,586	5.92%	$ 16,294	-26.82%	$ 25,049	12.49%
High School	$ 28,733	$ 25,673	-10.65%	$ 17,327	-39.70%	$ 31,142	8.39%

* Unaltered RSMeans does not include all SREF Requirements.

Annual Review

Section 1013.64(6)(b), F.S., instructs DOE and EDR to review annually the average cost for student station by instruction level. This may entail a review of DOE's Cost of Construction Report, DOE customized and standard RSMeans models, and cost of school construction activity within the state.

Construction Index

If the CPI is to be replaced by the Core Construction Index, EDR recommends that the Core Construction Index be expressly adopted by the NEEC. Currently, the index is available in the NEEC database for use in the state budgeting and planning process, but it is not expressly discussed at the NEEC. EDR will publish the Cost per Student Station and adjustment factors on an annual basis (January 1) in accordance with s. 1013.64(6)(b), F.S.

Periodic Cost Benchmarking

Several key components of EDR's overall proposal should be reviewed periodically to ensure they continue to reflect market conditions.

- RSMeans building models. The RSMeans standard and customized building models used by EDR and DOE reflect current building practices in 2019; however, building standards change over time as new materials and building practices are available. The frequency of review may not be as time-sensitive in Florida as elsewhere due to the rigorous regulatory environment that exists here, but the review itself is still recommended.[11]
- RSMeans Florida price index. A periodic review of the RSMeans city construction cost indices is suggested to determine if there is a need to update EDR's approach to the national adjustment or a Florida specific cost adjustment.
- IHS Markit price indices. A periodic review of the selected forecasting price index should be performed to ensure it still reflects the intent of EDR's cost adjustment method.

[11] As discussed previously, new building materials and techniques that appear to gain wide market acceptance nationally may not be used at all in Florida due to SREF requirements (further details are available in Appendix F).

Appendix A: Summary of Relevant Constitutional Provisions and Statutory Changes

Section 3, chapter 97-265, L.O.F., established an incentive program for districts that fall below the average cost adjusted annually by the Marshall and Swift Construction Cost Index.

Section 9, chapter 97-384, L.O.F., established student station maximums for award eligibility for the incentive program and amended the annual adjustment to the CPI.

Section 861, chapter 2002-387, L.O.F., established provisions relating to the construction cost maximums for school district capital projects.

Section 26, chapter 2003-391, L.O.F., modified provisions relating to the cost per student station.

Section 9, chapter 2006-27, L.O.F., modified the construction cost maximums for school district capital outlay projects.

Section 15, chapter 2016-237, L.O.F., required the school districts to maintain accurate documentation relating to student station costs; required the Auditor General to review such documentation; required sanctions for school districts that exceed certain construction cost maximums; and required the Office of Economic and Demographic Research to conduct a study, in consultation with the DOE, on cost per student station amounts.

Section 32, chapter 2017-116, L.O.F., provided an exception to the construction cost maximums, for construction projects with design contracts executed before July 1, 2017.

Section 31, chapter 2018-3, L.O.F., provided an exception to the construction cost maximums, for security related provisions below 2 percent per student station.

Section 23, chapter 2019-23, L.O.F., removed the 2 percent maximum for the security related provisions exception to the construction cost maximums and deleted site improvement and legal and administrative costs from the cost per student station.

Appendix B: FCO 564 Form

FLORIDA DEPARTMENT OF EDUCATION
FIXED CAPITAL OUTLAY OFFICE
COST OF CONSTRUCTION REPORT - PUBLIC SCHOOLS
(Instructions Attached)

Complete the following information and e-mail form to:
askfco@fldoe.org
Florida Department of Education
Fixed Capital Outlay Office
325 West Gaines Street, Room 1222
Tallahassee, Florida 32399-0400
850-245-9865; FAX: 850-245-9378

DATE SUBMITTED:
CALENDAR YEAR:
PREPARED BY:
PHONE:
EMAIL:

STEP 1: SCHOOL INFORMATION

DISTRICT NAME:
SCHOOL NAME:
DISTRICT NUMBER:
FACILITY(FISH)#:

STEP 2: CONSTRUCTION PROJECT INFORMATION (New or Replacement Schools and Additions Only)

REUSE OF PLANS..... PROTOTYPE DESIGN BUILD..... HURRICANE SHELTER.....
TYPE OF PROJECT (Select One)..... New or replacement school.... Addition to existing school.....
TYPE OF ADDITION (gym, classrooms, media, etc).....
PHASE III PLAN APPROVAL DATE..... CONTRACT AWARD DATE.....
CERTIFICATE OF OCCUPANCY DATE ISSUED.....

STEP 3: NEW CONSTRUCTION BASELINE DATA	**AMOUNT**
1. Number of Student Stations	
2. Number of Teacher Stations	
3. Net Square Feet	
4. Gross Square Feet	
5 . # of new classrooms assigned capacity....K-5..... 6-8..... 9-12..... **Total**.....	-
6. Cost Data	
a. **Legal and administrative cost** ..... This refers to all legal and administrative fees paid to private attorneys, governmental agencies and other professionals who are not architects or engineers, for services rendered (e.g., recording fees, doc stamps, clerk-of-the-works).	
b. **Architect / Engineering fees** ..... This refers to the cost for professional architectural and engineering services performed in connection with planning, design and construction of the facility. Incorporate all base service and additional authorization services.	
c. **Site improvement cost (incidental to construction)** ..... This refers to the work that must be performed on a site from five feet away from building to site boundary. This includes the amount spent for finish grading, draining, seeding, planting and preparing the site for use after the building has been constructed. Site improvement also refers to the cost of electrical transformers, sewer lift stations, and water, gas and electric lines from five feet away from the school facility to the source of the utility at the site boundary.	

d. **Building contract cost** .....

This refers to the total cost of building construction within five feet of building, including all materials and supplies purchased by the district school board. All change order charges known at the time should also be added or deducted from the contract cost. Include built-in cabinets, mill work and other furniture or equipment permanently fixed or attached to the building as part of building construction. Do not include costs for movable school furniture and equipment.

e. **Furniture and equipment** .....

These costs refer to all furniture and equipment required to make the facility operational on the first day of school. This includes, but is not limited to, student and teacher desks, computer equipment, science and vocational lab equipment, library furniture, audio-visual equipment, library books required to initially stock the media center and other school equipment that a district would normally capitalize, such as copy machines, etc. Equipment costs excluded from this definition are items such as interscholastic activity equipment (i.e., football or band uniforms). Additionally, textbooks, consumable supplies and noncapitalized science and vocational lab supplies are excluded from this definition.

f. **Cost to make as hurricane shelter and/or hurricane hardened** .....

This refers to the additional cost incurred as a result of mandatory hurricane shelter and/or hurricane hardening requirements due to location and designation by the Division of Emergency Management. Note: This amount should be deducted from Building Cost (Item d).

g. **Cost to purchase site** .....

This is the cost to purchase the site. If the site is an existing site, enter the cost of the site when originally purchased. If the site was donated, enter zero ("0").

h. **Cost to make public utilities available at site** .....

This is the cost to bring water, sewer, power, gas and telephone services to the site boundary and includes on-site water and on-site sewage treatment plants.

i. **Cost to correct site drainage and/or construct a retention area** .....

This refers to the additional cost incurred as a result of mandatory permits and/or inspections required by federal, state or local agencies such as the Environmental Protection Agency, Department of Environmental Protection and water management districts, including local and state concurrency requirements to accommodate drainage problems at the site.

j. **Cost to make public roads accessible** .....

This is the cost to make the site accessible to the public, which may require sidewalks, additional turn lanes, traffic lights or other requirements.

k. **Cost to make site free of environmental problems** .....

This refers to fees or additional costs incurred as a result of mandatory permits and/or inspections required by federal, state or local agencies such as the Environmental Protection Agency, Department of Environmental Protection and water management districts, including local and state concurrency requirements.

l. **Cost to make facility safe** .....

This refers to the costs for securing entries, checkpoint construction, lighting specifically designed for entry point security, security cameras, automatic locks and locking devices, electronic security systems, fencing designed to prevent intruder entry into a building, bullet-proof glass, or other capital construction items approved by the school safety specialist to ensure building security for new educational, auxiliary, or ancillary facilities. Costs for these items must be below 2 percent per student station.

FLORIDA DEPARTMENT OF EDUCATION
FIXED CAPITAL OUTLAY OFFICE
COST OF CONSTRUCTION REPORT - PUBLIC SCHOOLS

7. Educational Facility Cost (sum of lines 6a-6e)	-
8. Cost per Student Station (divide line 7 by line 1)	-
9 . Cost per Teacher Station (divide line 7 by line 2)	-
10. Educational Plant Total Cost (sum of lines 6a-6l) (All plant-related costs)	-

STEP 4: SOURCE OF FUNDS	AMOUNT
Code#	
1._____ PECO/Sum of the Year's Digits (Maintenance) [s.1013.64(1), F.S.]	
2._____ PECO/Special Facility Construction [s.1013.64(2), F.S.]	
3._____ PECO/New Construction Allocation [s.1013.64(3), F.S]	
4._____ Classrooms First (Lottery) [s.1013.68, F.S]	
5._____ Classrooms For Kids [s.1013.735, F.S]	
6._____ District Effort Recognition [s.1013.736, F.S.]	
7._____ Cooperative Use Facilities [s.1013.52, F.S]	
8._____ Cooperative Career and Tech. Ed. Facilities [s.1013.75, F.S.]	
9._____ Specific Line Item Appropriation	
10._____ CO & DS (MVLR Flow-Through)	
11._____ SBE Bond (COBI)	
12._____ Other State Funds (Specify)	
13._____ Loan s.1011.14, F.S	
14._____ Loan s.1011.15, F.S.	
15._____ Local Bond Proceeds	
16._____ District School Tax Revenue (discretionary millage) [s.1011.71(2), F.S.]	
17._____ Lease Purchase (COPs) [s.1013.15(4)(a), F.S.]	
18._____ Other Local Funds (Specify)	
19._____ Federal Funds (Specify)	
20._____ Local Government Infrastructure Surtax [s.212.055(2), F.S]	
21._____ School Capital Outlay Surtax [s.212.055(6), F.S]	
****TOTAL (must equal Educational Plant Total Cost)	$0

I certify that all of the data and statements included in this report are, to the best of my knowledge and belief, true complete and correct.

School District Official **(Type your name)** Telephone Number (**with area code**)

Appendix C: RSMeans Elementary School Model

RSMeans data from GORDIAN

Square Foot Cost Estimate Report		Date:	12/2/2019
Estimate Name:	El-test		
Building Type:	School, Elementary, 1 Story with Brick & CMU Walls / Rigid Steel		
Location:	NATIONAL AVERAGE		
Story Count:	1		
Story Height (L.F.):	15.00		
Floor Area (S.F.):	110000		
Labor Type:	OPN		
Basement Included:	No		
Data Release:	Year 2019	Costs are derived from a building model with basic components. Scope differences and market conditions can cause costs to vary significantly.	
Cost Per Square Foot:	$208.55		
Building Cost:	$22,940,015		

			ELEMENTARY SCHOOL		
		% of Total	Assembly Cost per S.F.	Assembly Cost	
A	**Substructure**	**6.98%**	**$10.89**	**$1,197,864**	
A1010	**Standard Foundations**		**$4.78**	**$525,704**	
A10101051560	Foundation wall, CIP, 4' wall height, direct chute, .148 CY/LF, 7.2 PLF, 12" thick		$2.69	$296,000	$92.50/LF for 3,200 LF
A10101102100	Strip footing, concrete, unreinforced, load 2.6 KLF, soil bearing capacity 3 KSF, 8" deep x 16" wide		$0.27	$30,000	$20/L.F. for 1,500 L.F.
A10101102500	Strip footing, concrete, reinforced, load 5.1 KLF, soil bearing capacity 3 KSF, 12" deep x 24" wide		$1.28	$140,480	$43.90/LF for 3,200 LF
A10102107350	Spread footings, 3000 PSI concrete, load 100K, soil bearing capacity 3 KSF, 6' - 0" square x 14" deep		$0.54	$59,224	$673/ea. for 88
A1030	**Slab on Grade**		**$5.87**	**$645,700**	
A10301202240	Slab on grade, 4" thick, non industrial, reinforced		$5.87	$645,700	$5.87/sq.ft. for 110,000 sq.ft.
A2010	**Basement Excavation**		**$0.24**	**$26,460**	
A20101105740	Excavate and fill, 30,000 SF, 4' deep, sand, gravel, or common earth, on site storage		$0.24	$26,460	$0.18/sq.ft. for 147,000 sq.ft.
B	**Shell**	**42.44%**	**$66.18**	**$7,279,736**	
B1010	**Floor Construction**		**$0.35**	**$38,500**	
B10107203650	Fireproofing, gypsum board, 1/2" fire rated, 1" thick, 10" steel column, 3 hour rating, 17 PLF		$0.35	$38,500	$38.50/LF for 1,000 LF
B1020	**Roof Construction**		**$11.87**	**$1,305,430**	
B10201124500	Roof, steel joists, beams, 1.5" 22 ga metal deck, on columns, 30'x30' bay, 28" deep, 40 PSF superimposed load, 62 PSF total load		$10.26	$1,128,120	$9.48/sq.ft. for 110,000 sq.ft. plus perimeter times 3
B10201124600	Roof, steel joists, beams, 1.5" 22 ga metal deck, on columns, 30'x30' bay, 28" deep, 40 PSF superimposed load, 62 PSF total load, add for column		$1.61	$177,310	$1.49/sq.ft. for 110,000 sq.ft. plus perimeter times 3
B2010	**Exterior Walls**		**$13.52**	**$1,486,800**	
B20101321240	Brick wall, composite double wythe, standard face/CMU back-up, 8" thick, styrofoam core fill		$13.52	$1,486,800	$35.40/sq.ft. for perimeter times 14
B2020	**Exterior Windows**		**$2.58**	**$284,236**	
B20201067250	Windows, aluminum, single hung, insulated glass, 3'-4" x 5'		$1.37	$150,236	$529/unit for 284 units
B20202101700	Aluminum flush tube frame, for insulating glass, 2" x 4-1/2", 5'x6' opening, no intermediate horizontals		$0.46	$51,004	$30.45/sq.ft. for 1,675 sq.ft. opening
B20202201700	Glazing panel, insulating, 1" thick units, 2 lites, light and heat reflective glass, tinted		$0.75	$82,996	$49.55/sq.ft. for 1,675 sq.ft. opening
B2030	**Exterior Doors**		**$1.74**	**$191,300**	
B20301106950	Door, aluminum & glass, with transom, narrow stile, double door, hardware, 6'-0" x 10'-0" opening		$1.20	$132,300	$7,350 per opening for 18 doors
B20302203450	Door, steel 18 gauge, hollow metal, 1 door with frame, no label, 3'-0" x 7'-0" opening		$0.54	$59,000	$2,950 per opening for 20 steel Doors
B3010	**Roof Coverings**		**$36.12**	**$3,973,470**	
B30101356100	Formed roofing, zinc-copper alloy, standing seam, 2-1/2" min slope, .032" thick, 1.39 PSF		$29.29	$3,221,830	$27.35/sq.ft. for 110,000 sq.ft. plus 7,800 sq.ft. overhang
B30103202700	Insulation, rigid, roof deck, extruded polystyrene, 40 PSI compressive strength, 4" thick, R20		$4.52	$497,116	$4.22/sq.ft. for 110,000 sq.ft. plus 7,800 sq.ft. overhang
B30104201700	Roof edges, aluminum, painted, .050" thick, 6" face		$0.93	$101,775	$29.50/LF for 3,450 LF
B30104300050	Flashing, aluminum, no backing sides, .032"		$0.16	$17,484	$5.64/sq.ft. for 3,100 sq.ft.
B30104304200	Base flashing, neoprene, 1/16" thick, counter flashing		$0.87	$95,760	$5.04/sq.ft. for 19,000 sq.ft.

	B30106100200	Gutters, box, aluminum, .032" thick, 5", enameled finish		$0.20	$22,216	$9.83/LF for 2,260 LF
	B30106200250	Downspout, aluminum, rectangular, 3" x 4", enameled, .024" thick		$0.16	$17,289	$7.65/LF for 2,260 LF
C		**Interiors**	**14.18%**	**$22.12**	**$2,432,796**	
C1010		**Partitions**		**$5.54**	**$609,448**	
	C10101022000	Concrete block (CMU) partition, regular weight, hollow, 8" thick, no finish		$2.98	$327,700	$11.30sq.ft. for 29,000 sq.ft.
	C10101265425	Metal partition, 5/8"fire rated gypsum board face, no base,3 - 5/8" @ 24" OC framing, same opposite face, sound attenuation insulation		$1.50	$165,480	$1.97/sq.ft for 84,000 sq.ft.
	C10101280880	Fiberglass insulation, 3-1/2"		$0.45	$49,858	$0.98/sq.ft. for 50,875 sq.ft.
	C10101280649	Furring 1 side only, steel channels, 1-1/2", 24" OC		$0.60	$66,410	$2.29/sq.ft. for 29,000 sq.ft.
C1020		**Interior Doors**		**$1.25**	**$136,950**	
	C10201022600	Single leaf, wood, hollow metal, comm. Quality, 3'-0"x7'-0"x1-3/8"		$1.25	$136,950	$1,245/opening for 110 doors
C1030		**Fittings**		**$4.44**	**$488,128**	
	C10301100710	Toilet partitions, cubicles, floor mounted, phenolic		$0.26	$28,971	$999/partition for 29 partitions
	C10305200240	Chalkboards, liquid chalk type, aluminum frame & chalktrough		$0.68	$74,907	$18.27/sq.ft. for 4,100 sq.ft. (82 sq.ft./classroom for 50 classrooms)
	C10308300180	Cabinets, school, counter, metal, 84" high		$3.49	$384,250	$768.50/LF for 500 sq.ft. (10.5LF/classroom for 50 classrooms)
C3010		**Wall Finishes**		**$1.32**	**$144,830**	
	C30102300120	Painting, interior on plaster and drywall, walls & ceilings, roller work, primer & 1 coat		$0.61	$67,000	$0.67/sq.ft. for 100,000 sq.ft.
	C30102300300	Painting, masonry or concrete, latex, brushwork, primer & 1 coat		$0.27	$29,400	$1.40/sq.ft. for 21,000 sq.ft.
	C30102300340	Painting, masonry or concrete, latex, brushwork, addition for block filler		$0.29	$32,130	$1.53/sq.ft. for 21,000 sq.ft.
	C30102301940	Ceramic tile, thin set, 4-1/4" x 4-1/4"		$0.15	$16,300	$8.15/sq.ft. for 2,000 sq.ft.
C3020		**Floor Finishes**		**$3.42**	**$376,720**	
	C30204100140	Carpet, tufted, nylon, roll goods, 12' wide, 26 oz		$1.89	$207,450	$4.61/sq.ft. for 45,000 sq.ft.
	C30204101600	Vinyl, composition tile, maximum		$0.89	$97,750	$3.91/sq.ft. for 25,000 sq.ft.
	C30204101760	Tile, porcelain type, maximum		$0.65	$71,520	$14.90/sq.ft. for 4,800 sq.ft.
C3030		**Ceiling Finishes**		**$6.15**	**$676,720**	
	C30302106100	Acoustic ceilings, 3/4" fiberglass board, 24" x 24" tile, tee grid, suspended support		$6.15	$676,720	$7.69/sq.ft. for 80% of 110,000 sq.ft.
D		**Services**	**32.76%**	**$51.08**	**$5,618,502**	
D2010		**Plumbing Fixtures**		**$3.28**	**$360,835**	
	D20101102080	Water closet, vitreous china, bowl only with flush valve, wall hung		$1.85	$203,000	$3,500 ea. - use 58 ea.
	D20103101920	Lavatory w/trim, vanity top, vitreous china, 20" x 16"		$0.04	$4,050	$1,350 ea. - use 3 ea.
	D20103102120	Lavatory w/trim, wall hung, PE on CI, 20" x 18"		$0.77	$84,500	$1,690 ea. - use 50 ea.
	D20104102000	Kitchen sink w/trim, countertop, stainless steel, 43" x 22" double bowl		$0.07	$7,695	$2,565 ea. - use 3 ea.
	D20104301840	Lab sink w/trim, polyethylene, single bowl, flanged, 23-1/2" x 20-1/2" OD		$0.06	$6,840	$1,710 ea. - use 4 ea.
	D20104404340	Service sink w/trim, PE on CI,wall hung w/rim guard, 24" x 20"		$0.29	$31,800	$3,975 ea. - use 8 ea.
	D20107101680	Shower, stall, baked enamel, terrazzo receptor, 36" square		$0.03	$2,900	$2,900 ea. - use 1 ea.
	D20108201920	Water cooler, electric, wall hung, wheelchair type, 7.5 GPH		$0.18	$20,050	$2,005 ea. - use 10 ea.
D2020		**Domestic Water Distribution**		**$0.69**	**$75,950**	
	D20202501780	Gas fired water heater, commercial, 100< F rise, 75.5 MBH input, 63 GPH		$0.55	$60,800	$7,600 ea. - use 8 ea.
	D20202501980	Gas fired water heater, commercial, 100< F rise, 155 MBH input, 150 GPH		$0.14	$15,150	$15,150 ea. - use 1 ea.
D2090				**$3.35**	**$368,774**	
	D20908101280	Copper tubing 1"		$0.32	$35,197	$25.45 /LF - 1,383 L.F. (hot water distribution)
	D20908101300	Copper tubing 1-1/4"		$0.26	$29,122	$25.84 /LF - 1,127 L.F. (cold water secondary distribution)

	D20908101340	Copper tubing 2"		$0.50	$55,145	$37.90 /LF - 1,455 L.F. (cold water primary distribution)
	D20908101380	Copper tubing 3"		$0.39	$43,000	$86.00/LF - 500 L.F. (main building supply line)
	D20908102820	Plastic PVC, Schedule 40, 1-1/2"		$0.43	$47,680	$29.80/LF - 1,600 L.F. (vents)
	D20908102850	Plastic PVC, Schedule 40, 4"		$0.95	$105,000	$40.00/LF - 2,625 L.F. (secondary building waste line)
	D20908102890	Plastic PVC, Schedule 40, 6"		$0.25	$27,350	$54.70/LF - 500 L.F. (main building waste line)
	D20908104200	Galvanized pipe 1/2"		$0.15	$16,430	$16.43 /LF - 1,000 L.F. (building secondary gas distribution)
	D20908104230	Galvanized pipe 1"		$0.09	$9,850	$19.70/LF - 500 L.F. (building main gas distribution line)
D3020		**Heat Generating Systems**		**$7.00**	**$770,308**	
	D30201081480	Heating systems, CI boiler, gas, terminal unit heaters, 5,032 MBH, 67,100 SF bldg		$7.00	$770,308	$8.20 for 67,100 sq.ft. - times 1.4 for 110,000 sq.ft.
D3030		**Cooling Generating Systems**		**$13.09**	**$1,440,000**	
	D30301154600	Packaged chiller, water cooled, with fan coil unit, schools and colleges, 60,000 SF, 230.00 ton		$13.09	$1,440,000	$16.00 sq.ft. for 60,000 sq.ft. - use 1.5 for 110,000 sq.ft.
D4010		**Sprinklers**		**$2.97**	**$326,700**	
	D40104100640	Wet pipe sprinkler systems, steel, light hazard, 1 floor, 50,000 SF		$2.97	$326,700	$2.97/sq.ft. for 50,000 sq.ft.
D4020		**Standpipes**		**$0.15**	**$16,400**	
	D40203101580	Wet standpipe risers, class III, steel, black, sch 40, 6" diam pipe, 1 floor		$0.15	$16,400	$16,400/floor, first floor
D4090		**Other Fire Protection Systems**		**$0.04**	**$4,312**	
	D40909200840	Average FM200 system, maximum		$0.04	$4,312	$3.92/cu.ft. - for 1,100 cu.ft.
D5010		**Electrical Service/Distribution**		**$4.81**	**$529,420**	
	D50101301150	Underground service installation, includes excavation, backfill, and compaction, 100' length, 4' depth, 3 phase, 4 wire, 277/480 volts, 1600 A w/groundfault switchboard		$1.07	$117,600	$84,000 for 2,000 Amp. Service, need 1.4 for 3,000 Amp. Service.
	D50102300520	Feeder installation 600 V, including RGS conduit and XHHW wire, 1600 A		$1.27	$139,160	$497/LF - use 200 ft. - use 1.4 for 3,000 Amps.
	D50102400600	Switchgear installation, incl switchboard, panels & circuit breaker, 277/480 V, 1600 A		$0.76	$83,160	$59,400/ 2000 amp. - use 1.4 for 3,000 amps.
	D50102505020	Panelboard, 4 wire w/conductor & conduit, NEHB, 277/480 V, 225 A, 1 stories, 25' horizontal		$1.72	$189,500	$9,475 ea. (use 20 panels)
D5020		**Lighting and Branch Wiring**		**$10.50**	**$1,155,000**	
	D50201100520	Receptacles incl plate, box, conduit, wire, 10 per 1000 SF, 1.2 watts per SF		$3.21	$353,100	$3.21/sq.ft.
	D50201300320	Wall switches, 2.5 per 1000 SF		$0.60	$66,000	$0.60/sq.ft.
	D50201350320	Miscellaneous power, 1.2 watts		$0.36	$39,600	$0.36/sq.ft.
	D50201400280	Central air conditioning power, 4 watts		$0.64	$70,400	$0.64/sq.ft.
	D50202100520	Fluorescent fixtures recess mounted in ceiling, 1.6 watt per SF, 40 FC, 10 fixtures @32watt per 1000 SF		$5.69	$625,900	$5.69/sq.ft.
D5030		**Communications and Security**		**$5.19**	**$570,803**	
	D50309100456	Communication and alarm systems, fire detection, addressable, 100 detectors, includes outlets, boxes, conduit and wire		$0.66	$72,180	$80,200/100 detectors - use 90 detectors
	D50309100462	Fire alarm command center, addressable with voice, excl. wire & conduit		$0.12	$12,675	$12,675/ea. - use 1
	D50309100640	Communication and alarm systems, includes outlets, boxes, conduit and wire, intercom systems, 100 stations		$1.13	$124,650	$138,500/100 stations - use 90 stations
	D50309100840	Communication and alarm systems, includes outlets, boxes, conduit and wire, master clock systems,50 rooms		$1.62	$178,698	$102,700 for 50 rooms
	D50309200106	Internet wiring, 6 data/voice outlets per 1000 S.F.		$1.66	$182,600	$1.66/sq.ft. for 110,000 sq.ft.
E		**Equipment & Furnishings**	**3.63%**	**$5.66**	**$622,516**	
E1020		**Institutional Equipment**		**$4.02**	**$442,414**	
	E10202100120	Architectural equipment, library equipment, carrels, hardwood, deluxe		$0.04	$3,862	$1,931/ea. - use 2 ea.
	E10207200100	Architectural equipment, laboratory equipment, counter tops, acid proof, economy		$0.63	$69,250	$69.25/sq.ft. - use 1,000 sq.ft.
	E10207300110	Architectural equipment, laboratory equipment, cabinets, wall, open		$0.16	$17,052	$304.50/LF - use 56 LF

	E10207300120	Architectural equipment, laboratory equipment, cabinets, base, drawer units		$3.20	$352,250	$704.50/LF - use 500 LF
E1090		**Other Equipment**		**$0.71**	**$77,692**	
	E10903500220	Architectural equipment, kitchen equipment, range hood, including CO2 system, gas stove		$0.11	$12,220	Gas Stove $3,055/ea. (4 units)
	E10903600120	Special construction, refrigerators, prefabricated, walk-in, 7'-6" high, 12' x 20'		$0.60	$65,472	$136.40/sq.ft. - use 2
E2010		**Fixed Furnishings**		**$0.93**	**$102,410**	
	E20103200140	Furnishings, blinds, interior, vertical, PVC or cloth, T & B track, deluxe		$0.93	$102,410	$21.56/sq.ft. - use 4,750 sq.ft. (16.7 sq.ft./window, 284 windows)
F		**Special Construction**	**0.00%**	**$0.00**	**$0.00**	
G		**Building Sitework**	**0.00%**	**$0.00**	**$0.00**	
Subtotal				**$155.92**	**$17,151,413**	
Contractor Fees (General Conditions, Overhead, Profit)				**$38.98**	**$4,287,853**	
Architectural Fees				**$13.64**	**$1,500,749**	
User Fees				**$0.00**	**$0**	
Total Building Cost				**$208.55**	**$22,940,015**	

Appendix D: Middle School Model

RSMeans data from GORDIAN

Square Foot Cost Estimate Report		Date:	12/2/2019
Estimate Name:	Mid-test		
Building Type:	School, Jr High, 1 Story with Brick & CMU Walls / Rigid Steel		
Location:	NATIONAL AVERAGE		
Story Count:	1		
Story Height (L.F.):	15.00		
Floor Area (S.F.):	170,000		
Labor Type:	OPN		
Basement Included:	No		
Data Release:	Year 2019	Costs are derived from a building model with basic components. Scope differences and market conditions can cause costs to vary significantly.	
Cost Per Square Foot:	$202.09		
Building Cost:	$34,354,656		

			MIDDLE SCHOOL		
			% of Total	Assembly Cost per S.F.	Assembly Cost	
A		**Substructure**	**7.21%**	**$10.89**	**$1,851,219**	
A1010		**Standard Foundations**		**$4.78**	**$812,426**	
	A10101051560	Foundation wall, CIP, 4' wall height, direct chute, .148 CY/LF, 7.2 PLF, 12" thick		$2.69	$457,413	$92.50/LF for 4,945 LF
	A10101102100	Strip footing, concrete, unreinforced, load 2.6 KLF, soil bearing capacity 3 KSF, 8" deep x 16" wide		$0.27	$46,400	$20/L.F. for 2,320 L.F.
	A10101102500	Strip footing, concrete, reinforced, load 5.1 KLF, soil bearing capacity 3 KSF, 12" deep x 24" wide		$1.28	$217,086	$43.90/LF for 4,945 LF
	A10102107350	Spread footings, 3000 PSI concrete, load 100K, soil bearing capacity 3 KSF, 6' - 0" square x 14" deep		$0.54	$91,528	$673/ea. for 136
A1030		**Slab on Grade**		**$5.87**	**$997,900**	
	A10301202240	Slab on grade, 4" thick, non industrial, reinforced		$5.87	$997,900	$5.87/sq.ft. for 170,000 sq.ft.
A2010		**Basement Excavation**		**$0.24**	**$40,893**	
	A20101105740	Excavate and fill, 30,000 SF, 4' deep, sand, gravel, or common earth, on site storage		$0.24	$40,893	$0.18/sq.ft. for 227,182 sq.ft.
B		**Shell**	**39.52%**	**$59.71**	**$10,150,287**	
B1010		**Floor Construction**		**$0.84**	**$142,835**	
	B10107203650	Fireproofing, gypsum board, 1/2" fire rated, 1" thick, 10" steel column, 3 hour rating, 17 PLF		$0.84	$142,835	$38.50/LF for 3,710 LF
B1020		**Roof Construction**		**$11.55**	**$1,963,630**	
	B10201124500	Roof, steel joists, beams, 1.5" 22 ga metal deck, on columns, 30'x30' bay, 28" deep, 40 PSF superimposed load, 62 PSF total load		$9.98	$1,696,920	$9.48/sq.ft. for 170,000 sq.ft. plus perimeter times 3
	B10201124600	Roof, steel joists, beams, 1.5" 22 ga metal deck, on columns, 30'x30' bay, 28" deep, 40 PSF superimposed load, 62 PSF total load, add for column		$1.57	$266,710	$1.49/sq.ft. for 170,000 sq.ft. plus perimeter times 3
B2010		**Exterior Walls**		**$17.49**	**$2,973,600**	
	B20101321240	Brick wall, composite double wythe, standard face/CMU back-up, 8" thick, styrofoam core fill		$17.49	$2,973,600	$35.40/sq.ft. for perimeter times 28
B2020		**Exterior Windows**		**$2.76**	**$468,927**	
	B20201067250	Windows, aluminum, single hung, insulated glass, 3'-4" x 5'		$1.44	$244,927	$529/unit for 463 units
	B20202101700	Aluminum flush tube frame, for insulating glass, 2" x 4-1/2", 5'x6' opening, no intermediate horizontals		$0.50	$85,260	$30.45/sq.ft. for 2,800 sq.ft. opening
	B20202201700	Glazing panel, insulating, 1" thick units, 2 lites, light and heat reflective glass, tinted		$0.82	$138,740	$49.55/sq.ft. for 2,800 sq.ft. opening
B2030		**Exterior Doors**		**$1.30**	**$220,750**	
	B20301106950	Door, aluminum & glass, with transom, narrow stile, double door, hardware, 6'-0" x 10'-0" opening		$0.86	$147,000	$7,350 per opening for 20 doors
	B20302203450	Door, steel 18 gauge, hollow metal, 1 door with frame, no label, 3'-0" x 7'-0" opening		$0.43	$73,750	$2,950 per opening for 25 steel Doors
B3010		**Roof Coverings**		**$25.77**	**$4,380,545**	
	B30101356100	Formed roofing, zinc-copper alloy, standing seam, 2-1/2" min slope, .032" thick, 1.39 PSF		$19.15	$3,254,650	$27.35/sq.ft. for 170,000 sq.ft. plus 9,000 sq.ft. overhang
	B30103202700	Insulation, rigid, roof deck, extruded polystyrene, 40 PSI compressive strength, 4" thick, R20		$4.44	$755,380	$4.22/sq.ft. for 170,000 sq.ft. plus 9,000 sq.ft. overhang
	B30104201700	Roof edges, aluminum, duranodic, .050" thick, 6" face		$0.83	$141,600	$29.50/LF for 4,800 LF
	B30104300050	Flashing, aluminum, no backing sides, .032"		$0.12	$19,740	$5.64/sq.ft. for 3,500 sq.ft.

	B30104304200	Base flashing, neoprene, 1/16" thick, counter flashing		$0.87	$147,995 $5.04/sq.ft. for 29,364 sq.ft.
	B30106100200	Gutters, box, aluminum, .032" thick, 5", enameled finish		$0.20	$34,405 $9.83/LF for 3,500 LF
	B30106200250	Downspout, aluminum, rectangular, 3" x 4", enameled, .024" thick		$0.16	$26,775 $7.65/LF for 3,500 LF
C		**Interiors**	**17.14%**	**$25.90**	**$4,402,822**
C1010		**Partitions**		**$6.09**	**$1,034,803**
	C10101022000	Concrete block (CMU) partition, regular weight, hollow, 8" thick, no finish		$3.06	$519,800 $11.30sq.ft. for 46,000 sq.ft.
	C10101265425	Metal partition, 5/8"fire rated gypsum board face, no base,3 - 5/8" @ 24" OC framing, same opposite face, sound attenuation insulation		$1.97	$334,900 $1.97/sq.ft for 170,000 sq.ft.
	C10101280880	Fiberglass insulation, 3-1/2"		$0.45	$77,053 $0.98/sq.ft. for 78,625 sq.ft.
	C10101280649	Furring 1 side only, steel channels, 1-1/2", 24" OC		$0.61	$103,050 $2.29/sq.ft. for 45,000 sq.ft.
C1020		**Interior Doors**		**$1.32**	**$224,100**
	C10201022600	Single leaf, wood, hollow metal, comm. Quality, 3'-0"x7'-0"x1-3/8"		$1.32	$224,100 $1,245/opening for 180 doors
C1030		**Fittings**		**$7.26**	**$1,234,140**
	C10301100710	Toilet partitions, cubicles, floor mounted, phenolic		$0.17	$28,971 $999/partition for 29 partitions
	C10303100220	Lockers,2- tier, std. duty, knock down construction		$1.00	$169,500 $113.00/locker for 1,500 lockers
	C10303100230	Lockers, two tier, set up		$1.22	$208,125 $138.75/locker for 1,500 lockers
	C10305200240	Chalkboards, liquid chalk type, aluminum frame & chalktrough		$0.93	$158,949 $18.27/sq.ft. for 8,700 sq.ft. (150 sq.ft./classroom for 58 classrooms)
	C10308300180	Cabinets, school, counter, metal, 84" high		$3.93	$668,595 $768.50/LF for 870 sq.ft. (15LF/classroom for 58 classrooms)
C2010		**Stair Construction**		**$0.75**	**$127,000**
	C20101100720	Stairs, steel, pan tread for conc in-fill, picket rail,12 risers w/ landing		$0.75	$127,000 $12,700/flight for 10 flights
C3010		**Wall Finishes**		**$1.33**	**$225,374**
	C30102300120	Painting, interior on plaster and drywall, walls & ceilings, roller work, primer & 1 coat		$0.62	$105,860 $0.67/sq.ft. for 158,000 sq.ft.
	C30102300300	Painting, masonry or concrete, latex, brushwork, primer & 1 coat		$0.26	$44,800 $1.40/sq.ft. for 32,000 sq.ft.
	C30102300340	Painting, masonry or concrete, latex, brushwork, addition for block filler		$0.29	$48,960 $1.53/sq.ft. for 32,000 sq.ft.
	C30102301940	Ceramic tile, thin set, 4-1/4" x 4-1/4"		$0.15	$25,754 $8.15/sq.ft. for 3,160 sq.ft.
C3020		**Floor Finishes**		**$3.39**	**$576,930**
	C30204100140	Carpet, tufted, nylon, roll goods, 12' wide, 26 oz		$1.87	$318,090 $4.61/sq.ft. for 69,000 sq.ft.
	C30204101600	Vinyl, composition tile, maximum		$0.87	$148,580 $3.91/sq.ft. for 38,000 sq.ft.
	C30204101760	Tile, porcelain type, maximum		$0.65	$110,260 $14.90/sq.ft. for 7,400 sq.ft.
C3030		**Ceiling Finishes**		**$5.77**	**$980,475**
	C30302106100	Acoustic ceilings, 3/4" fiberglass board, 24" x 24" tile, tee grid, suspended support		$5.77	$980,475 $7.69/sq.ft. for 75% of 170,000 sq.ft.
D		**Services**	**33.23%**	**$50.21**	**$8,536,542**
D2010		**Plumbing Fixtures**		**$1.54**	**$261,905**
	D20101102080	Water closet, vitreous china, bowl only with flush valve, wall hung		$0.72	$122,500 $3,500 ea. - use 35 ea.
	D20103101920	Lavatory w/trim, vanity top, vitreous china, 20" x 16"		$0.17	$28,350 $1,350 ea. - use 21 ea.
	D20103102120	Lavatory w/trim, wall hung, PE on CI, 20" x 18"		$0.09	$15,210 $1,690 ea. - use 9 ea.
	D20104102000	Kitchen sink w/trim, countertop, stainless steel, 43" x 22" double bowl		$0.05	$7,695 $2,565 ea. - use 3 ea.
	D20104301840	Lab sink w/trim, polyethylene, single bowl, flanged, 23-1/2" x 20-1/2" OD		$0.05	$8,550 $1,710 ea. - use 5 ea.
	D20104404340	Service sink w/trim, PE on CI,wall hung w/rim guard, 24" x 20"		$0.26	$43,725 $3,975 ea. - use 11 ea.
	D20107101680	Shower, stall, baked enamel, terrazzo receptor, 36" square		$0.03	$5,800 $2,900 ea. - use 2 ea.
	D20108201920	Water cooler, electric, wall hung, wheelchair type, 7.5 GPH		$0.18	$30,075 $2,005 ea. - use 15 ea.
D2020		**Domestic Water Distribution**		**$0.58**	**$98,750**
	D20202501780	Gas fired water heater, commercial, 100< F rise, 75.5 MBH input, 63 GPH		$0.49	$83,600 $7,600 ea. - use 11 ea.

	D20202501980	Gas fired water heater, commercial, 100< F rise, 155 MBH input, 150 GPH	$0.09	$15,150	$15,150 ea. - use 1 ea.
D2090			**$2.19**	**$371,528**	
	D20908101280	Copper tubing 1"	$0.15	$25,450	$25.45 /LF - 1,000 L.F. (hot water distribution)
	D20908101300	Copper tubing 1-1/4"	$0.22	$37,056	$30.25 /LF - 1,225 L.F. (cold water secondary distribution)
	D20908101340	Copper tubing 2"	$0.34	$58,140	$48.45 /LF - 1,200 L.F. (cold water primary distribution)
	D20908101380	Copper tubing 3"	$0.25	$43,000	$86.00/LF - 500 L.F. (main building supply line)
	D20908104200	Galvanized pipe 1/2"	$0.14	$23,002	$16.43 /LF - 1,400 L.F. (building secondary gas distribution)
	D20908104230	Galvanized pipe 1"	$0.06	$9,850	$19.70/LF - 500 L.F. (building main gas distribution line)
	D20908102820	Plastic PVC, Schedule 40, 1-1/2"	$0.28	$47,680	$29.80/LF - 1,600 L.F. (vents)
	D20908102850	Plastic PVC, Schedule 40, 4"	$0.59	$100,000	$40.00/LF - 2,500 L.F. (secondary building waste line)
	D20908102890	Plastic PVC, Schedule 40, 6"	$0.16	$27,350	$54.70/LF - 500 L.F. (main building waste line)
D3020		**Heat Generating Systems**	**$8.09**	**$1,375,550**	
	D30201081480	Heating systems, CI boiler, gas, terminal unit heaters, 5,032 MBH, 67,100 SF bldg	$8.09	$1,375,550	$8.20 for 67,100 sq.ft. - times 2.5 for 170,000 sq.ft.
D3030		**Cooling Generating Systems**	**$15.81**	**$2,688,000**	
	D30301154600	Packaged chiller, water cooled, with fan coil unit, schools and colleges, 60,000 SF, 230.00 ton	$15.81	$2,688,000	$16 sq.ft. for 60,000 sq.ft. - use 2.8 for 170,000 sq.ft.
D4010		**Sprinklers**	**$2.97**	**$504,900**	
	D40104100640	Wet pipe sprinkler systems, steel, light hazard, 1 floor, 50,000 SF	$2.97	$504,900	$2.97/sq.ft. for 50,000 sq.ft. - use 3.4 for 170,000 sq.ft.
D4020		**Standpipes**	**$0.39**	**$65,600**	
	D40203101580	Wet standpipe risers, class III, steel, black, sch 40, 6" diam pipe, 1 floor	$0.39	$65,600	$16,400/floor, first floor
D4090		**Other Fire Protection Systems**	**$0.04**	**$6,664**	
	D40909200840	Average FM200 system, maximum	$0.04	$6,664	$3.92/cu.ft. - for 1,700 cu.ft.
D5010		**Electrical Service/Distribution**	**$4.24**	**$721,290**	
	D50101301050	Underground service installation, includes excavation, backfill, and compaction, 100' length, 4' depth, 3 phase, 4 wire, 277/480 volts, 2000 A, groundfault switchboard	$0.89	$151,200	$84,000 for 2,000 Amp. Service, need 1.8 for 4,000 Amp. Service.
	D50102300560	Feeder installation 600 V, including RGS conduit and XHHW wire, 2000 A	$1.05	$178,920	$497/LF - use 200 ft. - use 1.8 for 4,000 Amps.
	D50102400620	Switchgear installation, incl switchboard, panels & circuit breaker, 277/480 V, 2000 A	$0.63	$106,920	$59,400/ 2,000 amp. - use 1.8 for 4000 amps.
	D50102505020	Panelboard, 4 wire w/conductor & conduit, NEHB, 277/480 V, 225 A, 1 stories, 25' horizontal	$1.67	$284,250	$9,475 ea. (use 30 panels)
D5020		**Lighting and Branch Wiring**	**$10.50**	**$1,785,000**	
	D50201100520	Receptacles incl plate, box, conduit, wire, 10 per 1000 SF, 1.2 watts per SF	$3.21	$545,700	$3.21 sq.ft. - for 170,000 sq.ft.
	D50201300320	Wall switches, 2.5 per 1000 SF	$0.60	$102,000	$0.60 sq.ft. - for 170,000 sq.ft.
	D50201350320	Miscellaneous power, 1.2 watts	$0.36	$61,200	$0.36/sq.ft. - for 170,000 sq.ft.
	D50201400280	Central air conditioning power, 4 watts	$0.64	$108,800	$0.64/sq.ft. - for 170,000 sq.ft.
	D50202100520	Fluorescent fixtures recess mounted in ceiling, 1.6 watt per SF, 40 FC, 10 fixtures @32watt per 1000 SF	$5.69	$967,300	$5.69/sq.ft. - for 170,000 sq.ft.
D5030		**Communications and Security**	**$3.87**	**$657,355**	
	D50309100456	Communication and alarm systems, fire detection, addressable, 100 detectors, includes outlets, boxes, conduit and wire	$0.47	$80,200	$80,200/100 detectors - use 100 detectors
	D50309100462	Fire alarm command center, addressable with voice, excl. wire & conduit	$0.07	$12,675	$12,675/ea. - use 1
	D50309100640	Communication and alarm systems, includes outlets, boxes, conduit and wire, intercom systems, 100 stations	$0.81	$138,500	$138,500/100 stations - use 100 stations
	D50309100840	Communication and alarm systems, includes outlets, boxes, conduit and wire, master clock systems, 50 rooms	$0.85	$143,780	$102,700 for 50 rooms - use 1.4 for 70 rooms
	D50309200106	Internet wiring, 6 data/voice outlets per 1000 S.F.	$1.66	$282,200	$1.66/sq.ft. - for 170,000 sq.ft.

E		**Equipment & Furnishings**	**2.90%**	**$4.38**	**$744,855**	
E1020		**Institutional Equipment**		**$1.52**	**$257,675**	
	E10202100120	Architectural equipment, library equipment, carrels, hardwood, deluxe		$0.05	$7,724	$1,931/ea. - use 4 ea.
	E10207200100	Architectural equipment, laboratory equipment, counter tops, acid proof, economy		$0.07	$12,050	$69.25/sq.ft. - use 174 sq.ft.
	E10207300110	Architectural equipment, laboratory equipment, cabinets, wall, open		$1.04	$176,610	$304.50/LF - use 580 LF
	E10207300120	Architectural equipment, laboratory equipment, cabinets, base, drawer units		$0.36	$61,292	$704.50/LF - use 87 LF
E1090		**Other Equipment**		**$1.88**	**$319,012**	
	E10903500220	Architectural equipment, kitchen equipment, range hood, including CO2 system, gas stove		$0.11	$18,330	Gas Stove $3,055/ea. (6 units)
	E10903600120	Special construction, refrigerators, prefabricated, walk-in, 7'-6" high, 12' x 20'		$0.39	$65,472	$136.40/sq.ft. - use 2
	E10906100120	Architectural equipment, school equipment basketball backstops, suspended type, electrically operated		$0.35	$58,800	$9,800 ea. - use 6
	E10906100130	Architectural equipment, school equipment bleachers-telescoping, manual operation, 15 tier, economy (per seat)		$0.99	$169,000	$169/seat - use 1,000 seats
	E10906100170	Architectural equipment, school equipment, scoreboards, basketball, 1 side, economy		$0.04	$7,410	$3,705 ea. - use 2
E2010		**Fixed Furnishings**		**$0.99**	**$168,168**	
	E20103200140	Furnishings, blinds, interior, vertical, PVC or cloth, T & B track, deluxe		$0.99	$168,168	$21.56/sq.ft. - use 7,800 sq.ft. (16.7 sq.ft./window, 463 windows)
F		**Special Construction**	**0.00%**	**$0.00**	**$0.00**	
G		**Building Sitework**	**0.00%**	**$0.00**	**$0.00**	
Subtotal				**$151.09**	**$25,685,724**	
Contractor Fees (General Conditions, Overhead, Profit)				**$37.77**	**$6,421,431**	
Architectural Fees				**$13.22**	**$2,247,501**	
User Fees				**$0.00**	**$0**	
Total Building Cost				**$202.09**	**$34,354,656**	

Appendix E: RSMeans High School Model

RSMeans data from GORDIAN

Square Foot Cost Estimate Report		Date:	12/2/2019
Estimate Name:	High-test		
Building Type:	School, High, 2-3 Story with Brick & CMU Walls / Rigid Steel		
Location:	NATIONAL AVERAGE		
Story Count:	2		
Story Height (L.F.):	15.00		
Floor Area (S.F.):	240,000		
Labor Type:	OPN		
Basement Included:	No		
Data Release:	Year 2019		
Cost Per Square Foot:	$213.56		
Building Cost:	$51,004,668		

			HIGH SCHOOL		
		% of Total	Assembly Cost per S.F.	Assembly Cost	
A	**Substructure**	**4.16%**	**$6.61**	**$1,585,614**	
A1010	Standard Foundations		**$3.55**	**$852,414**	
A10101051560	Foundation wall, CIP, 4' wall height, direct chute, .148 CY/LF, 7.2 PLF, 12" thick		$1.35	$323,750	$92.50/LF for 3,500 LF
A10101102500	Strip footing, concrete, reinforced, load 5.1 KLF, soil bearing capacity 3 KSF, 12" deep x 24" wide		$0.41	$99,214	$43.90/LF for 2,260 LF
A10101103300	Strip footing, concrete, reinforced, load 9.3 KLF, soil bearing capacity 3 KSF, 12" deep x 40" wide		$0.82	$197,750	$56.50/LF for 3,500 LF
A10102107650	Spread footings, 3000 PSI concrete, load 200K, soil bearing capacity 3 KSF, 8' -6" square x 20" deep		$0.97	$231,700	140 @ $1655.00 ea.
A1030	**Slab on Grade**		**$2.94**	**$704,400**	
A10301202240	Slab on grade, 4" thick, non industrial, reinforced		$2.94	$704,400	$5.87/sq.ft. for 120,000 sq.ft.
A2010	**Basement Excavation**		**$0.12**	**$28,800**	
A20101105740	Excavate and fill, 30,000 SF, 4' deep, sand, gravel, or common earth, on site storage		$0.12	$28,800	$0.18/SQ.FT. FOR 160,000 sq.ft.
B	**Shell**	**35.23%**	**$56.76**	**$13,434,196**	
B1010	**Floor Construction**		**$11.56**	**$2,775,200**	
B10102417800	W beam x girder, 30'x30' bay, 3 intermediate beams, 75 PSF superimposed load, 30" deep, fireproofing .715 SF/SF, 138 PSF total load		$10.28	$2,466,000	$20.55 sq.ft. for 120,000 sq.ft.
B10102506800	Floor, concrete, slab form, open web bar joist @ 2' OC, on W beam and column, 30'x30' bay, 32" deep, 75 PSF superimposed load, 120 PSF total load, for columns add		$0.78	$186,000	$1.55/sq.ft. for 120,000 sq.ft.
B10107203650	Fireproofing, gypsum board, 1/2" fire rated, 1 layer, 1" thick, 10" steel column, 3 hour rating, 17 PLF		$0.51	$123,200	$38.50/LF for 3,200 LF
B1020	**Roof Construction**		**$5.96**	**$1,431,585**	
B10201124500	Roof, steel joists, beams, 1.5" 22 ga metal deck, on columns, 30'x30' bay, 28" deep, 40 PSF superimposed load, 62 PSF total load		$5.15	$1,237,140	$9.48/sq.ft. for 120,000 sq.ft. plus perimeter times 3
B10201124600	Roof, steel joists, beams, 1.5" 22 ga metal deck, on columns, 30'x30' bay, 28" deep, 40 PSF superimposed load, 62 PSF total load, add for column		$0.81	$194,445	$1.49/sq.ft. for 120,000 sq.ft. plus perimeter times 3
B2010	**Exterior Walls**		**$14.46**	**$3,469,200**	
B20101321240	Brick wall, composite double wythe, standard face/CMU back-up, 8" thick, styrofoam core fill		$14.46	$3,469,200	$35.40/sq.ft. for perimeter times 28
B2020	**Exterior Windows**		**$5.28**	**$1,079,975**	
B20201067250	Windows, aluminum, single hung, insulated glass, 3'-4" x 5'		$1.44	$158,700	$529/unit for 654 units
B20202101700	Aluminum flush tube frame, for insulating glass, 2" x 4-1/2", 5'x6' opening, no intermediate horizontals		$0.53	$127,890	$30.45/sq.ft. for 4,200 sq.ft. opening
B20202201100	Glazing panel, insulating, 1/2" thick, 2 lites 1/8" float glass, tinted		$2.44	$585,275	$28.55/sq.ft. for 20,500 sq.ft.
B20202201700	Glazing panel, insulating, 1" thick units, 2 lites, light and heat reflective glass, tinted		$0.87	$208,110	$49.55/sq.ft. for 4,200 sq.ft. opening
B2030	**Exterior Doors**		**$0.92**	**$220,750**	

	B20301106950	Door, aluminum & glass, with transom, narrow stile, double door, hardware, 6'-0" x 10'-0" opening	$0.61	$147,000	$7,350 per opening for 20 doors
	B20302203450	Door, steel 18 gauge, hollow metal, 1 door with frame, no label, 3'-0" x 7'-0" opening	$0.31	$73,750	$2,950 per opening for 25 steel Doors
B3010		Roof Coverings	$18.48	$4,434,141	
	B30101356100	Formed roofing, zinc-copper alloy, standing seam, 2-1/2" min slope, .032" thick, 1.39 PSF	$14.87	$3,569,175	$27.35/sq.ft. for 120,000 sq.ft. plus 10,500 sq.ft. overhang
	B30103202700	Insulation, rigid, roof deck, extruded polystyrene, 40 PSI compressive strength, 4" thick, R20	$2.29	$550,710	$4.22/sq.ft. for 120,000 sq.ft. plus 10,500 sq.ft. overhang
	B30104201700	Roof edges, aluminum, duranodic, .050" thick, 6" face	$0.54	$129,800	$29.50/LF for 4,400 LF
	B30104300050	Flashing, aluminum, no backing sides, .032"	$0.08	$18,048	$5.64/sq.ft. for 3,200 sq.ft.
	B30104304200	Base flashing, neoprene, 1/16" thick, counter flashing	$0.50	$120,960	$5.04/sq.ft. for 24,000 sq.ft.
	B30106100200	Gutters, box, aluminum, .032" thick, 5", enameled finish	$0.11	$25,558	$9.83/LF for 2,600 LF
	B30106200250	Downspout, aluminum, rectangular, 3" x 4", enameled, .024" thick	$0.08	$19,890	$7.65/LF for 2,600 LF
B3010		Roof Coverings	$0.10	$23,345	
	B30202103000	Smoke hatch, unlabeled, double leaf, low profile, aluminum cover, 4' x 8', 359 lbs, not incl hand winch operator	$0.10	$23,345	$3,335.00/opening - use 7 openings
C		**Interiors**	**15.08%**	**$23.97**	**$5,751,909**
C1010		Partitions	$6.09	$1,461,564	
	C10101022000	Concrete block (CMU) partition, regular weight, hollow, 8" thick, no finish	$3.06	$734,500	$11.30sq.ft. for 65,000 sq.ft.
	C10101265425	Metal partition, 5/8"fire rated gypsum board face, no base,3 - 5/8" @ 24" OC framing, same opposite face, sound attenuation insulation	$1.97	$472,800	$1.97/sq.ft for 240,000 sq.ft.
	C10101280880	Fiberglass insulation, 3-1/2"	$0.45	$108,780	$0.98/sq.ft. for 111,000 sq.ft.
	C10101280649	Furring 1 side only, steel channels, 1-1/2", 24" OC	$0.61	$145,484	$2.29/sq.ft. for 63,530 sq.ft.
C1020		Interior Doors	$1.30	$311,250	
	C10201022600	Single leaf, wood, hollow metal, comm. Quality, 3'-0"x7'-0"x1-3/8"	$1.30	$311,250	$1,245/opening for 250 doors
C1030		Fittings	$6.66	$1,597,517	
	C10301100710	Toilet partitions, cubicles, floor mounted, phenolic	$0.12	$28,971	$999/partition for 29 partitions
	C10303100220	Lockers,2- tier, std. duty, knock down construction	$1.17	$281,370	$113.00/locker for 2,490 lockers
	C10303100230	Lockers, two tier, set up	$1.44	$345,488	$138.75/locker for 2,490 lockers
	C10305200240	Chalkboards, liquid chalk type, aluminum frame & chalktrough	$0.75	$180,873	$18.27/sq.ft. for 9,900 sq.ft. (150 sq.ft./classroom for 66 classrooms)
	C10308300180	Cabinets, school, counter, metal, 84" high	$3.17	$760,815	$768.50/LF for 990 sq.ft. (15LF/classroom for 66 classrooms)
C2010		Stair Construction	$0.74	$177,800	
	C20101100720	Stairs, steel, pan tread for conc in-fill, picket rail,12 risers w/ landing	$0.74	$177,800	$12,700/flight for 14 flights
C3010		Wall Finishes	$1.33	$318,235	
	C30102300120	Painting, interior on plaster and drywall, walls & ceilings, roller work, primer & 1 coat	$0.62	$149,450	$0.67/sq.ft. for 223,060 sq.ft.
	C30102300300	Painting, masonry or concrete, latex, brushwork, primer & 1 coat	$0.26	$63,280	$1.40/sq.ft. for 45,200 sq.ft.
	C30102300340	Painting, masonry or concrete, latex, brushwork, addition for block filler	$0.29	$69,156	$1.53/sq.ft. for 45,200 sq.ft.
	C30102301940	Ceramic tile, thin set, 4-1/4" x 4-1/4"	$0.15	$36,349	$8.15/sq.ft. for 4,460 sq.ft.
C3020		Floor Finishes	$2.09	$501,344	
	C30204100140	Carpet, tufted, nylon, roll goods, 12' wide, 26 oz	$0.67	$161,350	$4.61/sq.ft. for 35,000 sq.ft.
	C30204101600	Vinyl, composition tile, maximum	$0.88	$211,140	$3.91/sq.ft. for 54,000 sq.ft.
	C30204101760	Tile, porcelain type, maximum	$0.46	$110,260	$14.90/sq.ft. for 7,400 sq.ft.
	C30204102180	Oak strip, sanded and finished, maximum	$0.08	$18,594	$10.33/sq.ft. for 1,800 sq.ft.
C3030		Ceiling Finishes	$5.77	$1,384,200	
	C30302106100	Acoustic ceilings, 3/4" fiberglass board, 24" x 24" tile, tee grid, suspended support	$5.77	$1,384,200	**$7.69/sq.ft. for 75% of 240,000 sq.ft.**
D		**Services**	**32.89%**	**$52.27**	**$12,543,813.95**

D1010		**Elevators and Lifts**	**$0.61**	**$147,000**	
	D10101101600	Hydraulic, passenger elevator, 2000 lb, 2 floors, 100 FPM	$0.61	$147,000	$73,500 ea. (use 2 elevators)
D2010		**Plumbing Fixtures**	**$2.24**	**$536,675**	
	D20101102080	Water closet, vitreous china, bowl only with flush valve, wall hung	$0.73	$175,000	$3,500 ea. - use 50 ea.
	D20103101920	Lavatory w/trim, vanity top, vitreous china, 20" x 16"	$0.17	$40,500	$1,350 ea. - use 30 ea.
	D20103102120	Lavatory w/trim, wall hung, PE on CI, 20" x 18"	$0.08	$20,280	$1,690 ea. - use 12 ea.
	D20104102000	Kitchen sink w/trim, countertop, stainless steel, 43" x 22" double bowl	$0.05	$12,825	$2,565 ea. - use 5 ea.
	D20104301840	Lab sink w/trim, polyethylene, single bowl, flanged, 23-1/2" x 20-1/2" OD	$0.37	$88,920	$1,710 ea. - use 52 ea.
	D20104404340	Service sink w/trim, PE on CI,wall hung w/rim guard, 24" x 20"	$0.27	$63,600	$3,975 ea. - use 16 ea.
	D20107101680	Shower, stall, baked enamel, terrazzo receptor, 36" square	$0.31	$75,400	$2,900 ea. - use 26 ea.
	D20108201920	Water cooler, electric, wall hung, wheelchair type, 7.5 GPH	$0.25	$60,150	$2,005 ea. - use 30 ea.
D2020		**Domestic Water Distribution**	**$0.63**	**$151,900**	
	D20202501780	**Gas fired water heater, commercial, 100< F rise, 75.5 MBH** input, 63 GPH	$0.51	$121,600	$7,600 ea. - use 16 ea.
	D20202501980	**Gas fired water heater, commercial, 100< F rise, 155 MBH** input, 150 GPH	$0.13	$30,300	$15,150 ea. - use 2 ea.
D2090			**$1.75**	**$420,059**	
	D20908101280	Copper tubing 1"	$0.12	$27,715	$25.45 /LF - 1,089 L.F. (hot water distribution)
	D20908101300	Copper tubing 1-1/4"	$0.17	$41,231	$30.25 /LF - 1,363 L.F. (cold water secondary distribution)
	D20908101340	Copper tubing 2"	$0.27	$65,359	$48.45 /LF - 1,349 L.F. (cold water primary distribution)
	D20908101380	Copper tubing 3"	$0.18	$43,000	$86.00/LF - 500 L.F. (main building supply line)
	D20908102820	Plastic PVC, Schedule 40, 1-1/2"	$0.20	$48,127	$29.80/LF - 1,615 LF (vents)
	D20908102850	Plastic PVC, Schedule 40, 4"	$0.50	$120,000	$40.00/LF - 3,000 LF (secondary building waste line)
	D20908102890	Plastic PVC, Schedule 40, 6"	$0.11	$27,350	$54.70/LF - 500 L.F. (main building waste line)
	D20908104200	Galvanized pipe 1/2"	$0.10	$24,152	$16.43 /LF - 1,470 L.F. (building secondary gas distribution)
	D20908104230	Galvanized pipe 1"	$0.04	$9,850	$19.70/LF - 500 L.F. (building main gas distribution line)
	D20908105070	Flanged , Black 4" Diameter	$0.06	$13,275	$88.50/LF - 150 L.F.
D3020		**Heat Generating Systems**	**$8.25**	**$1,980,792**	
	D30201081480	Heating systems, CI boiler, gas, terminal unit heaters, 5,032 MBH, 67,100 SF bldg	$8.25	$1,980,792	$8.20 for 67,100 sq.ft. - times 3.6 for 240,000 sq.ft.
D3030		**Cooling Generating Systems**	**$16.00**	**$3,840,000**	
	D30301154600	Packaged chiller, water cooled, with fan coil unit, schools and colleges, 60,000 SF, 230.00 ton	$16.00	$3,840,000	$16 sq.ft. for 60,000 sq.ft. - use 4 for 240,000 sq.ft.
D4010		**Sprinklers**	**$2.59**	**$620,400**	
	D40104100640	Wet pipe sprinkler systems, steel, light hazard, 1 floor, 50,000 SF	$1.49	$356,400	$2.97/sq.ft. for 50,000 sq.ft. - use 2.4 for 120,000 sq.ft.
	D40104100760	Wet pipe sprinkler systems, steel, light hazard, each additional floor, 50,000 SF	$1.10	$264,000	$2.20/sq.ft. for 50,000 sq.ft. - use 2.4 for 120,000 sq.ft.
D4020		**Standpipes**	**$0.61**	**$146,125**	
	D40203101580	Wet standpipe risers, class III, steel, black, sch 40, 6" diam pipe, 1 floor	$0.48	$114,800	$16,400/floor, first floor
	D40203101600	Wet standpipe risers, class III, steel, black, sch 40, 6" diam pipe, additional floors	$0.13	$31,325	$4,475/floor, additional floor
D4090		**Other Fire Protection Systems**	**$0.04**	**$9,408**	
	D40909200840	Average FM200 system, maximum	$0.04	$9,408	$3.92/cu.ft. for 2,400 cu.ft.
D5010		**Electrical Service/Distribution**	**$4.61**	**$1,107,400**	
	D50101301050	Underground service installation, includes excavation, backfill, and compaction, 100' length, 4' depth, 3 phase, 4 wire, 277/480 volts, 2000 A, groundfault switchboard	$1.05	$252,000	$84,000 for 2,000 Amp. Service, need 3 for 6,000 Amp. Service.

	D50102300560	Feeder installation 600 V, including RGS conduit and XHHW wire, 2000 A		$1.24	$298,200	$497/LF - use 200 ft. * 3 for 6,000 Amps.
	D50102400620	Switchgear installation, incl switchboard, panels & circuit breaker, 277/480 V, 2000 A		$0.74	$178,200	$59,400/ 2,000 amp. - use 3 for 6,000 amps.
	D50102505020	Panelboard, 4 wire w/conductor & conduit, NEHB, 277/480 V, 225 A, 1 stories, 25' horizontal		$1.58	$379,000	$9,475 ea. (use 40 panels)
D5020		Lighting and Branch Wiring		$10.68	$2,563,650	
	D50201100520	Receptacles incl plate, box, conduit, wire, 10 per 1000 SF, 1.2 watts per SF		$3.21	$770,400	$3.21/sq.ft. - for 240,000 sq.ft.
	D50201300320	Wall switches, 2.5 per 1000 SF		$0.60	$144,000	$0.60/sq.ft. - for 240,000 sq.ft.
	D50201350320	Miscellaneous power, 1.2 watts		$0.36	$86,400	$0.36/sq.ft. - for 240,000 sq.ft.
	D50201400280	Central air conditioning power, 4 watts		$0.64	$153,600	$0.64/sq.ft. - for 240,000 sq.ft.
	D50202100520	Fluorescent fixtures recess mounted in ceiling, 1.6 watt per SF, 40 FC, 10 fixtures @32watt per 1000 SF		$5.48	$1,314,390	$5.69/sq.ft. for 231,000 sq.ft. (240,000-9,000 below)
	D50202160320	Incandescent fixtures recess mounted, type A, 4 watt per SF, 32 FC, 24 fixtures per 1000 SF		$0.40	$94,860	$10.54/sq.ft. for 9,000 sq.ft.
D5030		Communications and Security		$4.25	$1,020,405	
	D50309100456	Communication and alarm systems, fire detection, addressable, 100 detectors, includes outlets, boxes, conduit and wire		$0.60	$144,360	$80,200/100 detectors - use 180 detectors
	D50309100462	Fire alarm command center, addressable with voice, excl. wire & conduit		$0.05	$12,675	$12,675/ea. - use 1
	D50309100640	Communication and alarm systems, includes outlets, boxes, conduit and wire, intercom systems, 100 stations		$1.04	$249,300	$138,500/100 stations - use 180 stations
	D50309100840	Communication and alarm systems, includes outlets, boxes, conduit and wire, master clock systems, 50 rooms		$0.90	$215,670	$102,700 (master clock) - use 2.1
	D50309200106	Internet wiring, 6 data/voice outlets per 1000 S.F.		$1.66	$398,400	$1.66/sq.ft.
E		**Equipment & Furnishings**	**12.64%**	**$20.08**	**$4,818,798**	
E1020		Institutional Equipment		$4.20	$1,008,036	
	E10202100120	Architectural equipment, library equipment, carrels, hardwood, deluxe		$0.06	$15,448	$1,931/ea. - use 8 ea.
	E10207200100	Architectural equipment, laboratory equipment, counter tops, acid proof, economy		$0.50	$119,803	$69.25/sq.ft. - use 1,730 sq.ft.
	E10207300110	Architectural equipment, laboratory equipment, cabinets, wall, open		$1.10	$263,393	$304.50/LF - use 865 LF
	E10207300120	Architectural equipment, laboratory equipment, cabinets, base, drawer units		$2.54	$609,393	$704.50/LF - use 865 LF
E1090		Other Equipment		$11.98	$2,874,484	
	E10903500220	Architectural equipment, kitchen equipment, range hood, including CO2 system, gas stove		$0.08	$18,330	Gas Stove $3,055/ea. (6 units)
	E10903600120	Special construction, refrigerators, prefabricated, walk-in, 7'-6" high, 12' x 20'		$0.55	$130,944	$136.40/sq.ft. - use 4
	E10906100120	Architectural equipment, school equipment basketball backstops, suspended type, electrically operated		$0.25	$58,800	$9,800 ea. - use 6
	E10906100130	Architectural equipment, school equipment bleachers-telescoping, powered operation, 30 tier, deluxe (per seat)		$10.73	$2,576,000	$644/seat - use 4,000 seats
	E10906100170	Architectural equipment, school equipment, scoreboards, basketball, 1 side, economy		$0.03	$7,410	$3,705 ea. - use 2
	E10908100610	Shooting range including bullet traps, controls, separators, ceilings, economy		$0.35	$83,000	$83,000 ea.
E2010		Fixed Furnishings		$3.90	$936,278	
	E20103200140	Furnishings, blinds, interior, vertical, PVC or cloth, T & B track, deluxe		$0.98	$235,478	$21.56/sq.ft. - use 10,922 sq.ft. (16.7 sq.ft./window, 654 windows)
	E20103200160	Furnishings, draperies, lightproof, deluxe		$0.11	$26,800	$67.00/sq.ft. - use 400 sq.ft.
	E20105100510	Furnishings, seating, lecture hall,auditorium chair, fully upholstered, spring seat		$2.81	$674,000	$337.00/ea. - use 2,000 seats
F		**Special Construction**	**0.00%**	**$0.00**	**$0.00**	
G		**Building Sitework**	**0.00%**	**$0.00**	**$0.00**	
Subtotal				**$159.67**	**$38,134,331**	
Contractor Fees (General Conditions, Overhead, Profit)				**$39.92**	**$9,533,583**	
Architectural Fees				**$13.97**	**$3,336,754**	
User Fees				**$0.00**	**$0**	
Total Building Cost				**$213.56**	**$51,004,668**	