

The Davis School District has invested nearly two billion dollars in facilities acquired over the life of the District. Operating and maintaining that size of an asset is an on-going challenge. Since the money to build and maintain facilities is generated by taxes, the District is very careful of the type of buildings constructed, materials used, and systems used to stretch those tax dollars as far as possible while still adhering to the District motto “Learning First”.

Construction Costs

Construction costs are market driven and very difficult to control. Davis School District carefully monitors current construction trends to determine the most economical approach for each building project.

- **The price of building materials and systems fluctuate due to market conditions.** Each building is analyzed to provide the most economical structural system before it is bid. For instance, there will be times that the price for a load bearing masonry structure is less expensive than a steel frame or visa versa.
- **Prototype building plans are used to adapt to high growth conditions where new buildings are needed quickly.** Prototype plans must be changed every decade or so to keep up with the ever changing education field.
- **Construction Manager / General Contractor (Cm/Gc) project delivery method.** Bringing a contractor into the design process early helps maintain the budget, identify more economical building systems, control change orders, and monitor market conditions.
- **Value Engineering.** Every new building prototype plan goes through an extensive value engineering process. Independent architect, engineers, and contractor (cold team) is brought in to review the design. The cold team then identifies alternate solutions, cost saving strategies, and improvements to the plan. All other projects are thoroughly reviewed by the District maintenance, custodial, utilities and technology departments.
- **District facility expertise including inspectors, architects, and other specialists.** This allows the District to get beautiful modern buildings at reasonable costs. It costs just as much to construct an ugly building as a beautiful building.
- **Standardizing building amenities creates parity between schools and keeps costs down.** Unlike other Wasatch Front school districts, Davis School District does not build swimming pools at high schools or auditoriums at junior high schools.
- **School buildings in the State of Utah are well below the national average.** School buildings in the Davis School District are below the State average. See attached *School Planning & Management* article.
- **Award winning buildings are the result of careful planning.** The District does not pay for or seek design awards.

Facility Fun Facts

Davis School District operates 108 sites

1,351 Acres

10,345,701 sq. ft.

High Schools
3,164,776 sq. ft.

Junior High Schools
2,324,964 sq. ft.

Elementary Schools
3,920,654 sq. ft.

Other Buildings
116,343 sq. ft.

Average Building Cost per Square Foot

**Davis School District
Elementary School**
\$ 168.52
(2015)
850 students

Junior High School
\$ 117.17
(2011)
1,136 students

High School
\$ 154.04
(2016)
2,645 students

**Intermountain Region
Elementary School**
\$ 215.00
(2015)
425 students

Junior High School
\$ 236.64
(2015)
467 students

High School
\$ 262.50
(2015)
1,150 students

Average DSD Utility Cost per Square Foot

Elementary School
\$ 0.81

Junior High School
\$ 0.65

High School
\$ 0.69

Architects, engineers, and construction trades, who all take great pride in their work, apply for building awards on their own at no expense to the tax payer.

Maintainable Buildings

School buildings in the Davis School District are expected to last for sixty to seventy-five years. Over that long life span thousands of children will walk the floors, touch the walls, and open the doors every day. Maintenance and custodial staff have been reduced due to several lean budget years. Life cycle costs are evaluated with every building material that is specified. A school building must be maintainable.

- Concrete masonry block walls double as a structural element as well as a durable interior finish
- Polished concrete floors require very little maintenance yet continue to shine with more traffic.
- Single-ply roofing membrane with a thirty year warranty are specified. The white surface reflects sunlight which helps to keep the building cooler. Leaks are easy to find and repair.
- Carpet tile is installed with less waste than traditional rolled carpet. When a carpet tile gets stained it can be replaced with a new tile.
- Solid phenolic toilet partitions with heavy duty hardware are easily maintained in vandal prone areas of the school.
- Door hardware must withstand the abuse received each day as they are opened and closed over and over again.

Energy Efficient

The District spends over eight million dollars each year to heat, cool, and turn on the lights. The cost of energy, natural gas and electricity, doubles every ten years. It is imperative that we be responsible with the energy we use and look for every way to conserve. Students cannot learn when their environment is too hot or too cold.

- Energy efficient heating and cooling systems such as ground-source heat pumps and thermal air displacement provide better comfort.
- Well insulated walls and roofs prevent heat gain and heat loss through walls and roofs.
- Energy efficient windows with insulated glass, low-E coatings control solar heat gain.
- Sophisticated building controls allows the District to set back the thermostat when buildings are not occupied.
- Building Commissioning ensures that the mechanical systems are installed and operating correctly.
- Energy efficient lighting with controls cut the electricity usage in half.

- Daylighting creates a comfortable environment and when controlled properly reduces the need for the building lights to be turned on. Studies show an increase in test scores when students are in an environment with natural daylighting.
- Reduction of electrical demand charge. Demand is one part of the monthly power bill. It is the peak amount of power required in a building which the power company is required to produce. Controlling the start up each day of the pumps, motors, and fans can drastically reduce the demand charge.
- Net zero electrical use is achieved by generating electricity at the building site through the use of photovoltaic solar panels.
- Drought tolerant landscaping and Xeriscaping is used to reduce water requirements and maintenance.
- Recycling programs are used to conserve natural resources.

Educational Relevancy

One can build the most economical, maintainable, and energy efficient building possible but we need to remember that the purpose is to educate children.

- Building theming allows the building to be used as a learning tool while creating a fun exciting place to be at a relatively low cost.
- Building transparency is used to create a safe environment where children can always be supervised. This reduces incidents of bullying.
- Natural daylight creates a healthy environment, reduces absenteeism, and increases test scores.
- Flexible learning spaces allow students to work individually, in small groups or large groups.
- Flexible furniture that is easily moveable enables a teacher to rearrange a classroom to accommodate their lesson plan.
- Small learning communities are used to make a large school feel like a small school.
- Technology is constantly changing and adapting. Computers are as much of a learning tool as a pencil and paper once were. Electronic text books and library books require a robust wifi network.
- Building safety systems such as fire sprinklers, fire alarm, carbon monoxide alarms, and security alarms are provided to protect students and the assets of the District.
- Commons and other break-out spaces are utilized to maintain a safe environment. Over-crowded schools foster behavior issues. Since schools in the District tend to be “high enrollment” buildings, these spaces are used for gathering by students, assemblies and tutoring.

A Closer Look at Regions

A look at medians for elementary, middle and high schools from the past 20 years.

NATIONAL FIGURES are always instructive, but from the point of view of the local school administrator or school board, it may be more important to know what your neighbors are doing. *School Planning & Management's* regional figures are designed to help you do that.

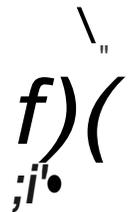
On the following pages, figures are given for new school construction activity in each of 12 regions of the United States. In each region, the median is shown for each school type in terms of cost per square ft., cost per student and space per student. Also shown is the median school capacity reported, the building size and the building cost.

The purpose of this section is to provide data that can help you understand not only what your own district needs, but also what others are doing and how much their projects cost.

The national tables allow comparison with districts with similar aspirations. The regional tables allow you to measure yourself against your neighbors. With this information, you will have data necessary to make your own plans and, in many cases, to help the public understand what you are building, why you are doing it and what it is likely to cost. Remember, there is no right or wrong; these are guidelines that can be applied to your own local needs and may help in explaining and understanding them.

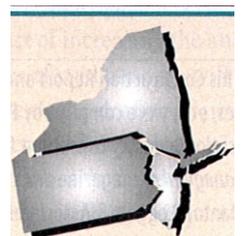
REGION 1 MEDIANS NEW SCHOOLS (CJ; MI, MA, NH, RI, VT)

	Elementary	Middle	High	
\$/sq. ft.	\$400.36	\$371.59	\$387.75	The median elementary school in Region 1 spent \$400.36 per square foot or \$86,619 for each of 629 students accommodated. Construction costs in Region 1 are higher than anywhere else (per square foot) but repeating throughout the region is consistent.
\$/student	\$86,619	\$67,628	\$80,474	
Sq. ft./student	214.2	182.6	193	
Students	629	1001	1118	
Size (sq. ft.)	103,650	182,059	222,826	
Total cost (\$000)	\$36,900	\$67,800	\$89,970	



REGION 2 MEDIANS NEW SCHOOLS (N.J., N.Y., PA)

	Elementary	Middle	High	
\$/sq. ft.	\$235.36	\$250.93	\$333.33	The median elementary school in Region 2 spent \$235.36 per student or just over \$43,000 for each of the 602 students accommodated. The median middle school cost \$485 million and housed 703 students. The median high school in the region cost \$58 million.
\$/student	\$43,083	\$57,940	\$63,120	
Sq. ft./student	183.0	239.7	174.2	
Students	602	785	600	
Size (sq. ft.)	95,368	183,500	90,000	
Total cost (\$000)	\$21,000	\$45,850	\$58,000	



REGION 3 MEDIANS NEW SCHOOLS

(DC, DE, MD, PA, WV)

	Elementary	Middle	High
S/sq. ft.	\$236.67	\$198.07	\$224.47
\$/student	\$59,102	\$46,879	\$63,333
Sq. ft./student	252.6	233.7	200.0
Students	700	450	1,345
Size (sq. ft.)	79,500	92,500	300,000
Total cost (\$000)	\$25,000	\$21,450	\$80,000

The median elementary school in Region 3 cost \$236.67 per square foot or \$59,102 for each of the 700 students accommodated. The median high school with 1,345 students was 300,000 square foot and cost \$80 million and provided 200 square foot per student.

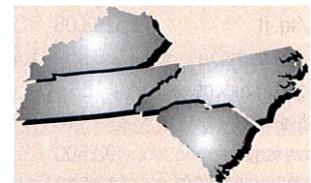


REGION 4 MEDIANS NEW SCHOOLS

(KY, NC, SC, TN)

	Elementary	Middle	High
S/sq. ft.	\$191.56	\$248.75	\$143.04
\$/student	\$28,329	\$36,722	\$24,856
Sq. ft./student	136.0	148.5	142.3
Students	650	850	1,025
Size (sq. ft.)	79,500	126,000	177,000
Total cost (\$000)	\$14,500	\$31,550	\$24,615

The median elementary school in Region 4 cost \$191.56 per square foot or \$28,329 for each of 650 students. The median middle school houses 850 students in 126,000 square feet. The region's median new high school housed 1,025 students.



REGION 5 MEDIANS NEW SCHOOLS

(AL, LA, GA, MS)

	Elementary	Middle	High
S/sq. ft.	\$133.33	\$194.17	\$200.00
\$/student	\$25,263	\$35,524	\$34,000
Sq. ft./student	182.2	172.7	162.2
Students	750	586	1,200
Size (sq. ft.)	90,000	103,000	160,000
Total cost (\$000)	\$12,000	\$22,000	\$50,000

The median elementary school in Region 5 cost \$133.33 per square foot or \$25,263 for each of the 750 students. The median high school cost \$50 million and encompassed 160,000 square feet.



REGION 6 MEDIANS NEW SCHOOLS

(IN, OH, MI)

	Elementary	Middle	High
S/sq. ft.	\$199.08	\$246.43	\$318.21
\$/student	\$28,369	\$42,944	\$41,655
Sq. ft./student	136.0	171.6	152.9
Students	587	575	875
Size (sq. ft.)	72,734	92,364	152,500
Total cost (\$000)	\$142,500	\$29,675	\$34,250

The median elementary school in Region 6 cost \$199.08 per square foot or \$28,369 for each of the 587 students. The median middle and high schools cost far more per square foot and per student and provided considerably more space per student.



REGION 7 MEDIANS NEW SCHOOLS

(IL, MN, WI)

	Elementary	Middle	High
S/sq. ft.	\$180.22	\$221.82	\$232.68
\$/student	\$45,655	\$45,951	\$39,286
Sq. ft./student	253.3	207.2	198.0
Students	675	531	1,000
Size (sq. ft.)	85,884	110,000	155,000
Total cost (\$000)	\$15,850	\$25,000	\$35,000

The median elementary school in Region 7 cost \$180.22 per square foot or \$45,655 for each of 675 students. The median high school cost \$5 million and houses 1,000 students, providing 198 square foot per student at \$232.68 per square foot.

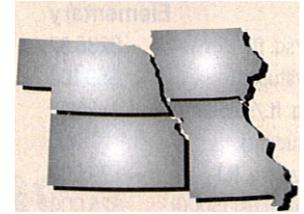


REGION 8 MEDIANS NEW SCHOOLS

(IA. 118.110. NE)

	Elementary	Middle	High
\$/sq. ft.	\$160.00	\$237.89	\$215.61
\$/student	\$30,713	\$46,962	\$40,000
Sq. ft./student	240.4	183.7	191.7
Students	580	517	1,800
Size (sq. ft.)	75,000	99,000	345,000
Total cost (\$000)	\$12,500	\$27,450	\$65,000

The median elementary school in Region 8 cost \$160.00 per square foot or \$30.713 for each of the 580 students. The median high school cost \$65 million and provides 345,000 square foot for 1,800 students.



REGION 9 MEDIANS NEW SCHOOLS

(AR. LI. 01, JX)

	Elementary	Middle	High
\$/sq. ft.	\$193.08	\$246.67	\$209.84
\$/student	\$33,969	\$39,278	\$40,000
Sq. ft./student	183.6	186.7	226.7
Students	718	750	800
Size (sq. ft.)	92,500	140,000	130,000
Total cost (\$000)	\$18,940	\$37,000	\$35,000

The median elementary school in Region 9 cost \$193.08 per square foot or \$33,969 each for 718 students. They provide 183.6 square foot per student and cost almost \$19 million. The median high school cost \$35 million for 800 students.

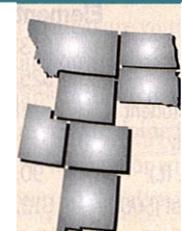


REGION 10 MEDIANS NEW SCHOOLS

(CO. 111; NEJ. Nil. SD. M. ITJ)

	Elementary	Middle	High
\$/sq. ft.	\$215.00	\$236.64	\$223.04
\$/student	\$48,680	\$40,685	\$29,116
Sq. ft./student	226.4	171.9	147.8
Students	425	467	1,150
Size (sq. ft.)	73,000	80,290	168,114
Total cost (\$000)	\$12,800	\$18,100	\$41,975

The median elementary school in Region 10 cost \$215 per square foot or \$48,680 for each of 425 students. The high schools cost \$42 million and provide 148 square foot per student for 1,150 students. The median middle school has 467 students and cost \$18.1 million at \$236.64 per square foot

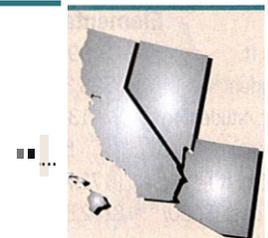


REGION 11 MEDIANS NEW SCHOOLS

(IA. C.1.11. NU)

	Elementary	Middle	High
\$/sq. ft.	\$290.33	\$368.42	\$295.83
\$/student	\$54,217	\$59,322	\$45,250
Sq. ft./student	128.8	161.0	152.2
Students	500	590	1,185
Size (sq. ft.)	65,909	995,000	245,000
Total cost (\$000)	\$27,000	\$35,000	\$72,500

The median elementary school in Region 11 cost \$290.33 per square foot and houses 500 students. High schools cost \$72.5 million and house 1,185 students.



REGION 12 MEDIANS NEW SCHOOLS

(AL. M. OR. 11)

	Elementary	Middle	High
\$/sq. ft.	\$240.00	\$348.33	\$272.03
\$/student	\$50,831	\$54,625	\$46,389
Sq. ft./student	195.2	163.8	164.3
Students	650	900	900
Size (sq. ft.)	75,000	145,000	158,500
Total cost (\$000)	\$18,000	\$50,000	\$41,500

The median elementary school in Region 12 cost \$240 per square foot or \$50,831 for each of the 650 students. The median high school cost \$41.5 million at \$272.03 per square foot. The median middle school cost \$50 million, and housed 900 students.

