

MAINE STATE LEGISLATURE

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SCHOOL CONSTRUCTION COSTS

**A Report of the
State Board of Education**

to

**the Joint Committee on Education
of the 115th Legislature**

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Background:

The 114th Legislature amended Chapter 911, M.R.S.A. 20-A, Section 15905, subsection 4 by adding the following to the State Board of Education rulemaking authority:

The state board is encouraged to review school construction rules regarding costs per square foot, consider other measures for containing building costs and report on those efforts to the joint standing committee of the Legislature having jurisdiction over education matters during the First Regular Session of the 115th Legislature.

In keeping with the spirit of this statute, the State Board of Education requested its building construction sub-committee to prepare a report on construction costs for school buildings in Maine for the past five years. The staff of the Division of School Facilities, Bureau of School Management, was asked to collect data and prepare exhibits for the report.

Methodology:

Information relating to school construction projects approved by the State Board of Education for the last five years (1985-1990) was collected from the nine architectural firms most frequently used by school administrative units for construction projects. For purposes of analysis, the information was divided into the categories of new buildings and additions/renovations. It was also separated as regular projects and special projects (8000 square feet or less). Additionally, it was analyzed by elementary, middle/junior high and high school construction projects. Summaries of the collected information are included in the attachments.

Information relating to per square foot cost for school building construction was also compared with costs of other construction in Maine. Summary information regarding the costs of other construction in Maine was provided by William G. Wadman, Administrator of the Maine Advancement Program, based on figures compiled and published by the F. W. Dodge Division of McGraw Hill Publishing Company.

Definitions:

As used in this report, "construction cost per square foot" (C.C.S.F.) was based on the cost of total new area plus built-in equipment. Budget items such as site acquisition and development, design fees and contingency funds were not included in the cost.

For purposes of the report, "high schools" included those schools which housed students in grades 9 through 12. "Middle schools/junior high schools" referred to schools which housed grades 5 or 6 through 8, and "elementary schools" meant schools which housed kindergarten through grades 4, 5, 6 or 8. "Special projects" referred to building construction (new or additions) which included 8000 square feet or less of new space.

Findings:

There were eighty-six school construction projects included in the data collected for the five year period 1985-1989.

SCHOOL CONSTRUCTION PROJECTS: 1985-1989			
YEAR	NEW SCH.	ADD./ REN.	TOTAL
1985	4	4	8
1986	7	14	21
1987	6	14	20
1988	8	13	21
1989	9	7	16
TOTAL	34	52	86
5-YEAR			
AVE.	6.8	10.4	17.2

Thirty-four (40%) of the projects were new buildings and fifty-two (60%) were additions to and renovations of existing buildings.

Sixty-six (78%) of the projects were elementary schools, ten (11%) were junior high/middle schools and ten (11%) were high schools.

SCHOOL CONSTRUCTION PROJECTS BY BUILDING EDUCATION LEVEL				
YEAR	ELE.	J.H./ MID.	H.S.	TOT.
1985	7	1	0	8
1986	18	2	1	21
1987	13	3	4	20
1988	15	1	5	21
1989	13	3	0	16
TOTAL	66	10	10	86
5-YEAR				
AVE.	13.2	2	2	17.2

During that five-year period, over two million square feet of space were added to Maine schools. The average construction cost per square foot for the five-year period was \$65.58, and the average construction project added 23,605.2 square feet.

CONSTRUCTION COST PER SQUARE FOOT: 1985-1989	
YEAR	AVERAGE CONSTRUCTION COST PER SQUARE FOOT
1985	\$53.64
1986	\$63.91
1987	\$65.28
1988	\$74.60
1989	\$70.47
5-YEAR AVERAGE	\$65.58
INCREASE *	\$16.83 (31.4%)
* corrected for inflation (CPI)	\$6.98 (14.0%)

The construction cost per square foot averaged \$53.64 in 1985 and \$70.47 in 1989, an increase of \$16.83, or 31.4%, over the five year period. When corrected for inflation using the Consumer Price Index, the increase is \$6.98, or 14%. The highest year's average construction cost per square foot was 74.60 in 1988.

The smallest increase in construction cost per square foot was for new schools, rising from an average of \$50.00 in 1985 to \$65.10 in 1989, an increase of \$15.10, or 30.2% over the five year period. Corrected for inflation using the Consumer Price Index, the increase was \$6.03, or 12.97%. The average construction cost per square foot was higher for additions and renovations to existing buildings than for new buildings. The five year increase for additions and renovations was \$20.27, an increase of 35.4%. Corrected for inflation using the Consumer Price Index, the increase was \$9.31, or 17.5%.

CONSTRUCTION COST PER SQUARE FOOT BY TYPE OF CONSTRUCTION		
YEAR	NEW CONSTRUCTION	ADDITIONS/ RENOVATIONS
1985	\$50.00	\$57.21
1986	\$57.33	\$67.20
1987	\$61.48	\$66.91
1988	\$70.76	\$76.97
1989	\$65.10	\$77.48
5-YEAR AVE.	\$60.93	\$69.15
INCREASE *	\$15.10 (30.2%)	\$20.27 (35.4%)
* corrected for inflation (CPI)	\$6.03 (12.97%)	\$9.31 (17.5%)

CONSTRUCTION COST PER SQUARE FOOT BY TYPE OF PROJECT		
YEAR	REGULAR PROJECTS	SPECIAL PROJECTS
1985	\$52.35	\$57.38
1986	\$59.63	\$83.61
1987	\$64.59	\$66.55
1988	\$70.12	\$78.69
1989	\$68.47	\$79.19
5-YEAR AVE.	\$63.03	\$73.08
INCREASE*	\$16.12 (30.7%)	\$21.81 (38%)
* corrected for inflation (CPI)	\$6.54 (13.4%)	\$10.53 (19.7%)

The largest increase in construction cost per square foot was for special projects, rising from an average of \$57.38 in 1985 to \$79.19 in 1989, an increase of \$21.81, or 38% over the five year period. When corrected for inflation using the Consumer Price index, the increase for special projects was \$6.54, or 13.4%

High school projects as a whole had a higher construction cost per square foot over the five year period (\$74.40) than did either elementary schools (\$66.68) or middle/junior high schools (\$62.64). The construction cost per square foot for new elementary, middle/junior high and high schools differed by less than two dollars per square foot over the five year period, although in general construction costs per square foot for high school additions and renovations, regular projects and special projects were approximately ten percent above the same category costs for elementary and middle/junior high schools.

CONSTRUCTION COST PER SQUARE FOOT BY TYPE BY LEVEL					
SCHOOL TYPE	ALL PROJECTS	NEW CONSTRUCTION	ADDITIONS/ RENOVATIONS	REGULAR PROJECTS	SPECIAL PROJECTS
ELE.	\$66.68	\$62.80	\$69.53	\$62.52	\$73.94
MID./ J.H.	\$62.64	\$61.48	\$63.41	\$61.48	NONE
HIGH	\$74.40	\$61.18	\$77.71	\$75.98	\$80.60

Average square foot areas in high schools exceeded average square foot areas in elementary schools in all categories except regular projects. There were no middle/junior high school special projects (8000 square feet or under) which inflates the square foot area of the middle/junior high school projects.

AVERAGE SQUARE FOOT AREA BY TYPE BY LEVEL					
SCHOOL TYPE	ALL PROJECTS	NEW CONSTRUCTION	ADDITIONS/ RENOVATIONS	REGULAR PROJECTS	SPECIAL PROJECTS
ELE.	21,056	35,892	10,599	29,456	7,110
MID. / J.H.	42,168	48,975	37,630	48,975	NONE
HIGH	21,462	55,200	13,220	21,600	7,200

When construction costs per square foot for buildings included in the survey were compared to other construction figures for the same time period, the results were fairly consistent.

Information provided by the Maine Advancement Program indicated that the construction cost per square foot of most educational facilities in the five year period from 1985 through 1989 rose at approximately the same rate as the public schools included in the Department of Education survey (30.4% and 34.5% compared to 31.4%). These figures appear to reflect the specialized nature of the construction, especially when compared to the smaller increases in Non-Residential Construction and Total Building Construction figures.

CONSTRUCTION COST PER SQUARE FOOT BY CATEGORY OF FACILITY				
YEAR	SCHOOL & CLASSROOM	EDUCATION & SCIENCE	NON-RESIDENTIAL CONSTRUCTION	TOTAL BUILDING CONSTRUCTION
1985	\$74.40	\$75.35	\$70.76	\$47.74
1986	\$74.57	\$75.96	\$63.54	\$47.43
1987	\$75.67	\$76.77	\$72.10	\$53.66
1988	\$104.88	\$104.75	\$80.68	\$56.77
1989	\$97.03	\$101.31	\$81.32	\$57.31
5-YEAR AVE.	\$66.10	\$86.83	\$73.68	\$52.58
INCREASE *	\$22.63 (30.4%)	\$25.96 (34.5%)	\$10.56 (14.9%)	\$9.57 (9.57%)
* corrected for inflation (CPI)	\$9.11 (13.2%)	\$11.67 (16.6%)	-\$.18 (-.3%)	\$1.83 (4%)

NOTE: The School and Classroom category on the previous page represents building construction at colleges, universities, and private schools in the State of Maine, as well as public school buildings. Education and Science includes schools, classrooms, laboratories, museums and libraries. Non-Residential Construction includes all building types except one and two-family houses, apartment buildings, hotels, motels and dormitories. Total Building Construction includes residential with all other categories.

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5-YEAR AVE.	\$65.58	
INCREASE *	\$16.83	(31.4%)
* corrected for inflation (CPI)	\$6.98	(14.0%)

Monitoring and Control:

School construction project approval processes currently in place are created to control school construction design and to monitor construction costs. All projects are reviewed by staff of the Division of School Facilities and the Bureau of Public Improvements prior to recommendation for concept and funding approval by the State Board of Education. The Division of School Facilities' review includes both educational programs and space allocations in new school buildings and additions to existing buildings. The Division coordinates the development of the construction plans with other Department of Education consultants lending advice on program requirements. The Bureau of Public Improvements publishes a Schedule of Recommended Fees for architectural services, which is used by school administrative units in their negotiations with design professionals. The Bureau of Public Improvements also has adopted rules which govern the selection of the design professional and the general contractor. Bureau staff advise local building committee members and superintendents and monitor the progress of the construction projects. The State Board of Education has adopted rules (Chapter 61) which include minimum and maximum sizes for school sites and recommended maximum sizes for classrooms and other school rooms. The application of these recommended sizes to specific projects is made by the staff of the Division of School Facilities before recommendations are forwarded to the State Board. Decisions are based on the educational program to be housed in the school, projected enrollment estimates and population shifts.