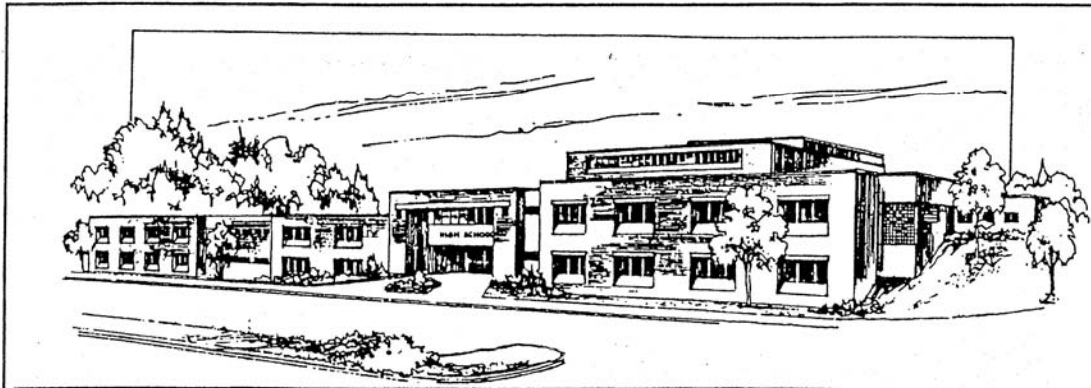


CONSTRUCTION ESTIMATING REFERENCE SHEET 1 of 3



Costs per square foot of floor area

Exterior Wall	S.F. Area	50000	70000	90000	110000	130000	150000	170000	190000	210000
	L.F. Perimeter	816	1083	1100	1300	1290	1450	1433	1566	1700
Face Brick with Concrete Block Back-up	Steel Frame	83.15	81.20	77.55	76.75	74.75	74.30	73.00	72.75	72.50
	R/Conc. Frame	85.45	83.75	80.25	79.55	77.55	77.15	75.90	75.65	75.40
Decorative Concrete Block	Steel Frame	79.80	78.20	75.20	74.60	72.90	72.50	71.45	71.20	71.05
	R/Conc. Frame	82.90	81.30	78.30	77.70	76.00	75.65	74.55	74.30	74.15
Limestone with Concrete Block Back-up	Steel Frame	86.45	84.50	80.20	79.40	76.95	76.45	74.90	74.60	74.35
	R/Conc. Frame	90.15	88.15	83.85	83.05	80.60	80.15	78.55	78.25	78.00
Perimeter Adj., Add or Deduct	Per 100 L.F.	1.80	1.25	1.00	.85	.70	.60	.55	.45	.40
Story Hgt. Adj., Add or Deduct	Per 1 Ft.	1.10	1.00	.80	.75	.65	.65	.55	.55	.55

For Basement, add \$18.85 per square foot of basement area

The above costs were calculated using the basic specifications shown on the facing page. These costs should be adjusted where necessary for design alternatives and owner's requirements. Reported completed project costs, for this type of structure, range from \$55.05 to \$127.15 per S.F.

Common additives

Description	Unit	\$ Cost	Description	Unit	\$ Cost
Bleachers, Telescoping, manual			Kitchen Equipment		
To 15 tier	Seat	76 - 105	Broiler	Each	3425
16-20 tier	Seat	155 - 190	Cooler, 6 ft. long, reach-in	Each	2725
21-30 tier	Seat	165 - 199	Dishwasher, 10-12 racks per hr.	Each	2600
For power operation, add	Seat	30 - 47	Food warmer, counter, 1.2 KW	Each	745
Carrels Hardwood	Each	655 - 855	Freezer, 44 C.F., reach-in	Each	6625
Clock System			Lockers, Steel, single tier, 60" or 72"	Opening	135 - 216
20 room	Each	11,800	2 tier, 60" or 72" total	Opening	83 - 105
50 room	Each	28,700	5 tier, box lockers	Opening	44 - 57
Elevators, Hydraulic passenger, 2 stops			Locker bench, lam. maple top only	L.F.	18.65
1500# capacity	Each	40,000	Pedestals, steel pipe	Each	43
2500# capacity	Each	41,300	Seating		
Emergency lighting, 25 watt, battery operated			Auditorium chair, all veneer	Each	127
Lead battery	Each	330	Veneer back, padded seat	Each	152
Nickel cadmium	Each	620	Upholstered, spring seat	Each	178
Flagpoles, Complete			Classroom, movable chair & desk	Set	65 - 120
Aluminum, 20' high	Each	1100	Lecture hall, pedestal type	Each	127 - 370
40' high	Each	2475	Sound System		
Fiberglass, 23' high	Each	1475	Amplifier, 250 watts	Each	1525
39'-5" high	Each	2525	Speaker, ceiling or wall	Each	131
			Trumpet	Each	246

Note: Design Fees Included

Source: 1998 R.S. Means Construction Building Data

FIGURE 1 Cost per SF of Area for a Typical 12' Story Height High School

CONSTRUCTION ESTIMATING REFERENCE SHEET 2 of 3

TABLE 1 Average Costs per Pupil for Schools Built in 1997 or Scheduled for Completion in 1998 in the United States

School Type	National Medians		
	Cost per Pupil	Square Foot per Pupil	Building Size (SF)
Elementary	\$11,429	119.0	67,000
Middle	\$14,286	145.9	105,000
High	\$16,872	184.8	140,000

Base: 445 Elementary Schools; 205 Middle Schools; 209 High Schools
Source: School Planning & Management Magazine

TABLE 2 Historical Cost Indexes (1960 – 2003)

Year	Index	Year	Index	Year	Index	Year	Index
2003	132.0	1992	99.4	1981	70.0	1970	28.7
2002	128.7	1991	96.8	1980	62.9	1969	26.9
2001	125.1	1990	94.3	1979	57.8	1968	24.9
2000	120.9	1989	92.1	1978	53.5	1967	23.5
1999	117.6	1988	89.9	1977	49.5	1966	22.7
1998	115.1	1987	87.7	1976	46.9	1965	21.7
1997	112.8	1986	84.2	1975	44.8	1964	21.2
1996	110.2	1985	82.6	1974	41.4	1963	20.7
1995	107.6	1984	82.0	1973	37.7	1962	20.2
1994	104.4	1983	80.2	1972	34.8	1961	19.8
1993	101.7	1982	76.1	1971	32.1	1960	19.7

Base: 1993 = 100
Source: 2004 R.S. Means Building Construction Cost Data

CONSTRUCTION ESTIMATING REFERENCE SHEET 3 of 3

TABLE 3 Location Cost Indexes (12 U.S. Cities)

City	Location Index
Columbia, SC	74.0
Dallas, TX	84.3
Miami, FL	87.1
Phoenix, AZ	87.9
Albuquerque, NM	89.3
Denver, CO	95.8
Portland, OR	104.0
Detroit, MI	107.2
Chicago, IL	112.5
Boston, MA	115.0
San Francisco, CA	123.6
New York, NY	134.0

Base: National Average = 100

Source: 2003 R.S. /means Building Construction Cost Data

TABLE 4 Reduction Factor β for Several Decreases in Cost

Decrease in Cost When Production Doubles (%)	Reduction Factor β	Decrease in Cost When Production Doubles (%)	Reduction Factor β
1	0.986	6	0.911
2	0.971	7	0.895
3	0.956	8	0.880
4	0.941	9	0.865
5	0.926	10	0.848

TABLE 5 Design and Engineering Fees as a Percentage of Const. Cost

Building Types	Total Project Cost (Thousands of Dollars)						
	100	250	500	1,000	5,000	10,000	50,000
Factories, garages, warehouses, repetitive housing	9.0%	8.0 %	7.0%	6.2%	5.3%	4.9%	4.5%
Apartment, banks, schools, libraries, offices, municipal buildings	11.7%	10.8%	8.5%	7.3%	6.4%	6.0%	5.6%
Churches, hospitals, homes, laboratories, museums, research	14.0%	12.8%	11.9%	10.9%	8.5%	7.8%	7.2%
Memorials, monumental work, decorative furnishings	---	16.0%	14.5%	13.1%	10.0%	9.0%	8.3%

Source: 1998 R.S. Means Building Construction Cost Data