

COLLEGE

Planning & Management



2 0 0 1 C o n s t r u c t i o n R e p o r t

More than \$8 billion is being spent this year to complete college and university construction projects. Interestingly, more and more of those dollars are going toward renovating existing facilities.



by Paul Abramson

In 1997, colleges and universities in the United States put just less than \$5.8 billion worth of construction in place. That marked something of a low point for construction spending in the decade of the '90s and also the beginning of a turnaround. Since 1997, college construction completed has increased annually, going from \$6.3 billion in 1998 to \$6.8 billion in 1999 — and reaching almost \$7.3 billion last year. This year, colleges project that they will complete more than \$8 billion worth of construction and start even more (see Table 1).

Construction, as defined in this study, includes new buildings, major additions and major retrofits to existing buildings. It is interesting to note that college construction patterns have undergone something of a change through the last eight years.

As recently as 1997, almost three out of every four college construction dollars went into new buildings — what I have previously dubbed “the edifice complex.” (When colleges receive large gifts from donors, I found that, though they might wish to put the money into repairing or renovating existing structures, far too often the donor prefers that the money be used to construct a new building, an edifice honoring the donor.)

Through the last three years, that percentage has slipped steadily, with colleges assigning a larger and larger proportion of their construction spending to their existing build-

ings so that, last year, new buildings consumed just more than 65 percent of the construction dollars and, this year, that is expected to drop to less than 62 percent.

These are among the key findings of this Sixth Annual Survey of College and University Construction developed by COLLEGE PLANNING & MANAGEMENT magazine in conjunction with School Construction Alert, a reporting service of the Market Data Retrieval Division of Dun & Bradstreet.

Representatives of School Construction Alert send survey forms and make follow-up telephone calls to each of the 3,600 colleges in the United States seeking information on their construction programs. As projects are identified, often at the early stages, contacts, designed to add detail and accuracy to the reports and the projections, are continued. The author of this report compiles the data into state and regional groupings, from which projections of total construction activity are made.

What Happened in 2000?

During the calendar year 2000, colleges and universities together put almost \$7.3 billion worth of construction in place (see Table 2). Of that total, \$4.78 billion (65.6 percent) went into the construction of new buildings, just more than \$1 billion (14.3 percent) was used to fund additions to existing structures and \$1.47 billion (20.1 percent) was used for

major retrofit of existing buildings. (This total excludes normal maintenance activity performed on a regular basis.)

As indicated above, the spending pattern of 2000 represents a slight shifting in college construction activity. While new construction still gets the bulk of the money, a significant proportion is now being used to upgrade older buildings that will be used into the future.

Table 2 looks not just at national spending but also at how much was spent in each of 12 regions of the United States and how colleges in those regions did their spending. (See Regional Definitions at right to identify which states are included in various regions.)

As can be seen, colleges in Region 2 (New York, New Jersey and Pennsylvania) spent more on construction than colleges in any other region, totaling more than \$837 million. These colleges were close to the national average in the manner of spending, putting 62.5 percent into new buildings, 10.3 percent into additions and 27.3 percent into major retrofit. Region 2 colleges were responsible for 11.5 percent of all college spending on construction last year.

Region 11 (California, Arizona, Nevada and Hawaii) ranked second among the regions, with total spending of almost \$770 million. Region 9 (Texas, Louisiana, Arkansas and Oklahoma) spent just slightly less (\$768 million). It should be noted, however, that, while Region 9 colleges spent somewhat less than colleges in Regions 2 and 11, they may have completed more construction because the cost of building in the southwest tends to be lower than in the big industrial states of the east and in California.

Region 5 (Florida, Georgia, Mississippi and Alabama) ranked fourth among the regions in overall spending at \$740 million, but note that colleges in that region spent their dollars very differently. Five out of six construction dollars spent last year were for new buildings. As a result, colleges in this region spent more on opening entirely new college buildings than colleges anywhere else in the nation.

Regions 6 (Ohio, Indiana and Michigan) and 7 (Illinois, Wisconsin and Minnesota) ranked next in construction spending, each above \$650 million. Colleges in Region 7 were the only ones in the nation to spend less than half their construction money on new buildings.

What's Underway Now?

One year ago, colleges throughout the United States forecast that they would complete \$7.19 billion worth of construction in the year 2000. Actual construction was \$7.29 billion, almost exactly what was projected.

Colleges this year are projecting completing just more than \$8 billion of construction in the year 2001. History has shown that college personnel do a pretty good job of estimating their construction activity, so we can be relatively confident that this 10-percent increase in construc-

Regional Definitions

Region 1:	Conn., Maine, Mass., N.H., R.I., Vt.
Region 2:	N.J., N.Y., Pa.
Region 3:	Del., D.C., Md., Va., W.V.
Region 4:	Ky., N.C., S.C., Tenn.
Region 5:	Ala., Fla., Ga., Miss.
Region 6:	Ind., Ohio, Mich.
Region 7:	Ill., Minn., Wis.
Region 8:	Iowa, Kan., Mo., Neb.
Region 9:	Ark., La., Okla., Texas
Region 10:	Colo., Mont., N.D., N.M., S.D., Utah, Wyo.
Region 11:	Ariz., Calif., Hawaii, Nev.
Region 12:	Alaska, Idaho, Ore., Wash.

TABLE 1: College Construction Completed (\$000s)

	1996 Cost	% of Total	1997 Cost	% of Total	1998 Cost	% of Total	1999 Cost	% of Total	2000 Cost	% of Total	2001 Projected Cost	% of Total	Starting 2001 Cost	% of Total
New Buildings	\$ 4,528,792	72.4%	\$ 4,260,969	73.8%	\$ 4,384,893	69.2%	\$ 4,567,166	67.2%	\$ 4,780,898	65.6%	\$ 4,946,189	61.4%	\$ 5,074,157	61.9%
Additions	\$ 541,697	8.7%	\$ 529,013	9.2%	\$ 857,051	13.5%	\$ 986,864	14.5%	\$ 1,039,178	14.3%	\$ 1,187,344	14.7%	\$ 1,195,205	14.6%
Retrofits	\$ 1,181,310	18.9%	\$ 986,993	17.1%	\$ 1,090,206	17.2%	\$ 1,239,307	18.2%	\$ 1,467,785	20.1%	\$ 1,922,229	23.9%	\$ 1,993,700	23.6%
TOTAL	\$6,251,799		\$5,776,975		\$6,332,150		\$6,793,337		\$7,287,861		\$8,055,762		\$8,203,062	

To read this table: In 1996, colleges spent \$4,528,792,000 on construction of new buildings, \$541,697,000 on additions to existing buildings and \$1,181,310,000 to upgrade and retrofit existing buildings — a total of \$6,251,799,000. In 2000, colleges completed buildings worth \$7,287,861,000. They expect to start \$8.203 billion worth of construction projects this year. Through the last three years the percentage of the college construction dollar devoted to entirely new buildings has been falling from 73.8 percent in 1997 to 61.4 percent in 2001.



tion activity will actually occur. (One possible fly in the ointment: In the past, with 75 percent of construction activity related to new buildings, projects being forecast were well underway and the only likely changes were in final cost or, occasionally, delays in completion. With more colleges engaging in retrofit projects, projecting the actual cost and completion of these shorter-term projects may be somewhat more difficult.)

Colleges are projecting completing \$8.056 billion worth of construction this year (see Table 3), with just less than \$5 billion being invested in new structures, another \$1.2 billion being spent on additions to existing structures and a little more than \$1.9 billion being used to retrofit existing buildings. The percentage of money going to new buildings continues to drop, standing at 61 percent.

Colleges in Region 2 will be the big spenders, breaking the \$1-billion mark this year. About half of that money will go into new buildings. Region 5 colleges expect to put \$860 million of construction in place this year, making it the nation's second-highest college construction spender. With \$648 million of that going to new buildings, the region will construct more new space than any other.

Three other regions are expecting their colleges to spend more than \$800 million apiece on construction this year —Region 7, Region 9 and Region 11. Region 6 will spend

just less than \$800 million.

How about the lower-spending regions? Colleges in New England (Region 1) will spend more than half a billion dollars, and those in Region 3 (Maryland, Delaware, Virginia, West Virginia and Washington, D.C.) will spend almost as much. Colleges in the Pacific Northwest (Region 12) will be putting just less than \$400 million worth of construction in place. The lowest-spending region includes Colorado, Utah, Montana, New Mexico, Wyoming, North Dakota and South Dakota. Together, colleges in this widespread region will spend just \$231 million on construction this year.

Looking to the Future

Construction completed last year or scheduled to be completed during 2001 is history. The future is better defined by construction scheduled to start this year, probably ending largely in the next two or three years.

Table 4 shows that colleges are projecting that they will start as much as \$8.2 billion worth of construction during 2001, with Region 2 and Region 5 expecting to undertake the most work. It is interesting to note that the percentage of the construction dollar going into new buildings seems to be steady, around 61 percent. Apparently college administrations are finally beginning to heed the warnings of their physical plant and business officers and putting money into deterior-

TABLE 2: College Construction Completed in 2000 Nationally and by Region (\$000s)

Region	New Bldgs	Additions	Renovations	Total	% of Spending for			% of Nation
					New Bldgs	Additions	Renovations	
1	\$ 290,638	\$ 150,610	\$ 74,774	\$ 516,022	56.3%	29.2%	14.5%	7.1%
2	\$ 523,391	\$ 85,845	\$ 228,243	\$ 837,479	62.5%	10.3%	27.3%	11.5%
3	\$ 303,007	\$ 74,607	\$ 118,576	\$ 496,190	61.1%	15.0%	23.9%	6.8%
4	\$ 316,706	\$ 131,801	\$ 154,481	\$ 602,988	52.5%	21.9%	25.6%	8.3%
5	\$ 618,540	\$ 31,998	\$ 89,364	\$ 739,902	83.6%	4.3%	12.1%	10.1%
6	\$ 478,772	\$ 71,005	\$ 108,152	\$ 657,928	72.8%	10.8%	16.4%	9.0%
7	\$ 310,890	\$ 192,358	\$ 167,974	\$ 671,222	46.3%	28.7%	25.0%	9.2%
8	\$ 447,359	\$ 44,484	\$ 116,952	\$ 608,794	73.5%	7.3%	19.2%	8.4%
9	\$ 495,403	\$ 83,294	\$ 188,837	\$ 767,534	64.5%	10.9%	24.6%	10.5%
10	\$ 243,600	\$ 9,515	\$ 51,643	\$ 304,758	79.9%	3.1%	16.9%	4.2%
11	\$ 534,645	\$ 128,746	\$ 106,111	\$ 769,502	69.5%	16.7%	13.8%	10.6%
12	\$ 217,948	\$ 34,917	\$ 62,677	\$ 315,542	69.1%	11.1%	19.9%	4.3%
National	\$4,780,898	\$1,039,178	\$1,467,785	\$7,287,861	65.6%	14.3%	20.1%	100%

To read this table: Colleges in Region 1 (New England) spent \$290,638,000 on new buildings completed in 2000, \$150,610,000 on additions to existing buildings and \$74,774,000 on retrofit of existing buildings, for a total of \$516,022,000 on all construction. Just more than 56 percent of Region 1's college construction dollars were spent on new buildings. Region 1 colleges have spent 7.1 percent of all the money spent on college construction last year.

rating older buildings.

New Buildings

I have noted throughout this article the slow beginning of a shift among colleges from constructing new buildings to putting money into their existing ones. Nevertheless, the bulk of the construction work being carried out involves new construction.

Table 5 examines some of those new buildings in terms of their cost, size and cost per square foot. Nine building types were identified based on each college's description of the basic use to which the building would be put.

Altogether, information was available on 347 different buildings being completed during 2000 and 2001. Of these, 56 were identified as science buildings. Table 5 shows that the median science building reported will contain 67,000 square feet and cost \$13 million. In terms of cost per square foot, the median science building cost \$188.35. However, one of four science buildings reported was constructed for \$142.86 per square foot or less. On the other end of the scale, one quarter of the buildings cost \$229.51 per square foot or more.

It is interesting to note that, while science buildings are the most expensive to build in terms of median cost (library buildings are

next at \$166.29 per square foot), the top 25 percent of buildings of several other types actually cost more. In other words, one quarter of library buildings cost \$285 or more per square foot, significantly more than the most expensive college science buildings. However, it is also true that only 18 library buildings were reported, so the top 25 percent is really a limited number.

However, there are other building types that can be quite expensive. The median academic building, presumably basically classrooms, offices and perhaps some laboratories, cost \$153.06 per square foot, but the top 25 percent cost \$230 per square foot or more. The median performance building (theaters, auditoriums and music facilities were among those described) is 56,000 square feet and cost \$12 million. In terms of cost per square foot, the median was \$159.06. One quarter of the performance buildings cost \$265 or more per square foot.

Of course, cost per square foot is not just a function of building type but also of amenities, including sophistication and location. There are not enough buildings of any specific type to look at costs and size on a regional basis but, when all building types are looked at together within a region, some differences become clear.

The median college building in Region 1 cost \$168 per square foot. Most of the 27

TABLE 3: College Construction Projected to Be Completed in 2001 Nationally and by Region (\$000s)

Region	New Bldgs	Additions	Renovations	Total	% of Spending for			
					New Bldgs	Additions	Renovations	% of Nation
1	\$ 289,400	\$ 76,655	\$ 137,035	\$ 503,090	57.5%	15.2%	27.2%	6.2%
2	\$ 557,200	\$ 170,520	\$ 379,055	\$1,106,775	50.3%	15.4%	34.2%	13.7%
3	\$ 279,348	\$ 108,320	\$ 109,243	\$ 496,911	56.2%	21.8%	22.0%	6.2%
4	\$ 439,486	\$ 103,700	\$ 117,878	\$ 661,064	66.5%	15.7%	17.8%	8.2%
5	\$ 648,222	\$ 56,394	\$ 155,942	\$ 860,558	75.3%	6.6%	18.1%	10.7%
6	\$ 466,702	\$ 202,425	\$ 129,652	\$ 798,779	58.4%	25.3%	16.2%	9.9%
7	\$ 393,340	\$ 120,841	\$ 314,137	\$ 828,318	47.5%	14.6%	37.9%	10.3%
8	\$ 423,904	\$ 53,730	\$ 84,168	\$ 561,801	75.5%	9.6%	15.0%	7.0%
9	\$ 603,099	\$ 76,259	\$ 134,195	\$ 813,553	74.1%	9.4%	16.5%	10.1%
10	\$ 124,709	\$ 81,100	\$ 25,400	\$ 231,209	53.9%	35.1%	11.0%	2.9%
11	\$ 551,632	\$ 84,675	\$ 175,748	\$ 812,054	67.9%	10.4%	21.6%	10.1%
12	\$169,148	\$ 52,725	\$ 159,777	\$ 381,650	44.3%	13.8%	41.9%	4.7%
National	\$4,946,189	\$1,187,344	\$1,922,229	\$8,055,762	61.4%	14.7%	23.9%	100%

To read this table: Colleges in Region 1 (New England) expect to spend \$289,400,000 on new buildings to be completed in 2001, \$76,655,000 on additions to existing buildings and \$137,035,000 on retrofit of existing buildings, for a total of \$503,090,000 on all construction. About 58 percent of Region 1's construction dollars will go for new buildings. Region 1 colleges will spend 6.2 percent of all the money spent on college construction this year.



buildings identified were academic, residence hall and physical education. In Region 2, the median cost among 43 buildings was \$178 per square foot. There was a plurality of residence halls and science buildings.

Region 3 had 21 identified projects, with a median cost of \$159 per square foot. There were more academic buildings than any other type. Region 4 reported on 35 buildings, including a lot of residence halls and academic buildings. The median cost was

\$135 per square foot.

Region 5 had the lowest median cost at \$117 per square foot. There were 49 buildings, dominated by residence halls and science buildings. Region 6 has a median cost of \$175 per square foot among 35 buildings, most of them academic buildings and residence halls. Region 7 had a median cost of \$162 per square foot among its 18 reported buildings. The plurality was science buildings.

TABLE 4: College Construction Projected to Start in 2001 Nationally and by Region (\$000s)

Region	New Bldgs	Additions	Renovations	Total	% of Spending for			% of Nation
					New Bldgs	Additions	Renovations	
1	\$ 363,254	\$ 77,103	\$ 214,742	\$ 655,098	55.5%	11.8%	32.8%	8.0%
2	\$ 419,250	\$ 91,780	\$ 478,283	\$ 989,313	42.4%	9.3%	48.3%	12.1%
3	\$ 356,553	\$ 75,928	\$ 65,218	\$ 497,700	71.6%	15.3%	13.1%	6.1%
4	\$ 408,227	\$ 96,582	\$ 125,458	\$ 630,266	64.8%	15.3%	19.9%	7.7%
5	\$ 525,122	\$ 261,879	\$ 174,759	\$ 961,760	54.6%	27.2%	18.2%	11.7%
6	\$ 609,352	\$ 80,997	\$ 92,204	\$ 782,553	77.9%	10.4%	11.8%	9.5%
7	\$ 528,350	\$ 176,000	\$ 125,074	\$ 829,424	63.7%	21.2%	15.1%	10.1%
8	\$ 424,464	\$ 82,550	\$ 100,347	\$ 607,361	69.9%	13.6%	16.5%	7.4%
9	\$ 614,667	\$ 81,062	\$ 83,753	\$ 779,481	78.9%	10.4%	10.7%	9.5%
10	\$ 212,861	\$ 29,975	\$ 61,325	\$ 304,161	70.0%	9.9%	20.2%	3.7%
11	\$ 446,857	\$ 58,050	\$ 310,758	\$ 815,665	54.8%	7.1%	38.1%	9.9%
12	\$ 165,200	\$ 83,300	\$ 101,780	\$ 350,280	47.2%	23.8%	29.1%	4.3%
National	\$5,074,157	\$1,195,205	\$1,933,700	\$8,203,062	61.9%	14.6%	23.6%	100%

To read this table: Colleges in Region 1 (New England) expect to spend \$363,254,000 on new buildings being started in 2001, \$77,103,000 on additions to existing buildings and \$214,742,000 on retrofit of existing buildings, for a total of \$655,098,000 on all construction. More than 55 percent of the construction dollars will be spent on new buildings. The construction plans of Region 1 colleges starting in 2001 account for 8 percent of all construction projects now on the boards nationally.

TABLE 5: Profile of New Buildings Being Completed in 2000/2001

Building Type	Median Size (Sq. Ft.)	Median Cost (\$000s)	Cost per Square Foot			Buildings in Sample
			Low Quartile	Median	High Quartile	
Science	67,000	\$13,000	\$ 142.86	\$ 188.35	\$ 229.51	56
Library	58,000	\$10,000	\$ 126.33	\$ 166.29	\$ 285.28	18
Student Union	59,085	\$ 7,495	\$ 98.44	\$ 148.72	\$ 238.04	23
Academic	56,500	\$ 7,650	\$ 102.27	\$ 153.06	\$ 230.77	92
Performance	56,000	\$12,000	\$ 117.36	\$ 159.06	\$ 265.14	23
Technology	65,000	\$10,000	\$ 115.87	\$ 139.75	\$ 202.02	29
Residence Halls	40,000	\$ 6,000	\$ 92.33	\$ 127.66	\$ 177.69	59
Physical Education	55,000	\$ 6,300	\$ 70.00	\$ 110.04	\$ 195.65	29
Office	35,000	\$ 3,765	\$ 78.09	\$ 118.05	\$ 163.36	18

To read this table: The median science building scheduled for completion in 2001 will contain 67,000 square feet and will cost \$13,000,000. The median cost will be \$188.35 per square foot. One quarter of the science buildings will cost \$142.86 per square foot or less. At the other end of the scale, one out of four science buildings will cost \$229.51 per square foot or more. This information was gathered from a sample of 56 science buildings scheduled for completion in 2001.

Region 8's 19 reported buildings cost \$146 per square foot at the median, and there were more physical education projects than any other type. Region 9 had 48 reported projects, with a median cost of \$146 per square foot. There were a lot of physical education buildings in the mix, along with some science and residence halls.

Region 10 had just 15 reported buildings, with a median cost of \$144 per square foot. Region 11, with 36 buildings — many of them identified as science and technology — had the highest costs, at \$210 per square foot. Region 12, with 10 buildings reported, had a median cost of \$145 per square foot.

Residence Halls


There is one building type that can be compared from one end of the nation to the other — residence halls. The purpose of a residence hall in Washington is the same as one in Florida or Maine. While there can be variations in amenities and design, the simi-

larities outweigh the differences and make comparisons possible.

Table 6 tabulates information gathered from 68 residence hall projects currently under construction and expected to open this year and next. The median cost among them is \$6.25 million, and the median size is 59,000 square feet. The median project provides 200 beds, but there are residence halls in the sample as small as 44 beds and as large as 800.

Cost per square foot at the median is \$101.67, and the median cost per bed is \$35,544. The median project provides 279 square feet for each bed. That does not mean, of course, that each bed is situated in a 279-square-foot space, but is the total space of the project, divided by the number of beds.

What do residence halls contain other than bedrooms and restroom facilities? As Table 6 shows, 71 percent include kitchens, and an equal number include a television/recreation room. All include laundry rooms, and ten percent report an exercise room.

Residence halls are heavily carpeted, and most are air-conditioned. Access to the Internet and cable TV are now standard. Three of four dormitories are multistory and therefore contain elevators. Security is becoming a critical part of all residence hall projects. Card access systems (67 percent) and video surveillance (25 percent) are gaining in popularity. 

Paul Abramson is editorial director of COLLEGE PLANNING & MANAGEMENT magazine. He can be reached for questions and comments at <intelled@aol.com>.

TABLE 6: Residence Hall Amenities (Percentage of New Dormitories Containing Various Facilities)

Item	Percentage
Carpeting in Public Areas	77.6%
Carpeting in Resident Rooms	57.1%
Central Air Conditioning	63.3%
Air Conditioning, Either Central or Room	89.8%
Exercise Room	10.2%
Television/Recreation Room	71.4%
Dining Hall	0.0%
Kitchen	71.4%
Laundry	100.0%
Classroom	34.7%
Access to Internet	95.9%
Computer Access to College Facilities	87.8%
Cable TV Access	95.9%
Card Access Security System	67.3%
Video Surveillance	24.5%
Elevators	73.5%
Sprinklers	95.9%
Median Cost	\$6,250,000
Median Size (Sq. Ft.)	59,000
Median Cost per Square Foot	\$101.67
Median Number of Beds	200
Median Square Feet per Bed	278.9
Median Cost per Bed	\$35,544

A Comparison of College and School Construction Dollars

Public and private colleges put almost \$7.3 billion worth of construction in place during calendar year 2000. Public school districts completed work worth just more than \$21 billion. Colleges and schools together — the education construction market — completed \$28.4 billion worth of construction in a single year.

Together, schools and colleges are projecting a total of almost \$28.9 billion to be completed in 2001. They expect to start work on another \$28 billion worth of educational construction projects during the current year.

While colleges allocate about 65 percent of their construction funds to creating new buildings, school districts use slightly more than 45 percent of their construction dollars for new schools. The balance goes toward improving and enlarging existing facilities. Through the last three years, colleges, too, have begun spending a larger proportion of their construction dollars on existing buildings. A comparison of college and school construction completed in 2000 is shown here.

Education Construction Completed in 2000 (\$ Billions)

	Schools	Colleges	Total
New Buildings	\$9.389	\$4.781	\$14.170
Additions	\$6.132	\$1.039	\$ 7.171
Retrofits	\$5.636	\$1.468	\$ 7.104
Total	\$21.157	\$7.288	\$28.445

COLLEGE PLANNING & MANAGEMENT

Office Locations

Advertising Sales

New York/New England

Thom Scirrotto
24 Nashua Drive
Sicklerville, NJ 08081
800/704-9358
856/728-3980, fax

Mideast

Virginia Koneval
10050 Deerfield Lane
Brecksville, OH 44141
866/812-0288
440/526-6587, fax

Mid-Atlantic/South

Mike Spring
6 Constitution Road
Laurel Springs, NJ 08021
866/895-8894
856/784-5868, fax

West/South

Marcia Rodman
801 South Wells, Suite 901
Chicago, IL 60607
800/799-5080
312/939-4603, fax

Midwest

Jeff Brumbeau
801 South Wells, Suite 901
Chicago, IL 60607
800/799-5080
312/939-4603, fax

Editorial

Ellen Kollie
330 Progress Road
Dayton, OH 45449
800/523-4625, x152
937/847-5910, fax

This report is also available on the
COLLEGE PLANNING & MANAGEMENT Website at
www.cpmmag.com