



2007 Construction Report



A Supplement to
COLLEGE
Planning & Management



2007 College Construction Report

Paul Abramson

Construction at America's colleges and universities is booming, with the annual total spending having almost tripled over the last decade.

College construction totaled \$5 billion in 1990, the first year it had ever reached that high of a level. It peaked in 1992 at just under \$6.5 billion and then went through a series of years where annual construction remained just over \$6 billion. In 1997, it fell off slightly to \$5.8 billion of construction completed.

Since 1997, college construction has taken off. By 1999, almost \$7 billion worth of construction was being completed annually. Two years later construction totaled \$9.8 billion, and it rose to more than \$11 billion the following year (see Table 1).

The increase accelerated in 2004 when total college construction put into place topped \$13.6 billion, followed by \$14.5 billion in 2005.

In 2006, colleges in the United States put \$15.1 billion worth of construction in place, a 260-percent increase over what was spent in 1997. And there appears to be no end in sight. College planners are already predicting that construction will remain at or close to \$15 billion annually at least through 2009, driven by a need to accommodate more students, demands for better facilities for student living (recreation, living, and food service), better security, improved and additional technology, and upgraded facilities to allow sophisticated research and retain top faculty.

These are among the findings of this 12th annual survey of college construction prepared for *College Planning & Management* magazine in conjunction with Market Data Retrieval, a company of Dun and Bradstreet (D&B). Representatives of Market Data Retrieval sent survey forms and made follow-up telephone calls to every college in the United States seeking information on their construction programs. As projects are identified — often in the very early stages — contacts are continued in order to add detail and accuracy to the reports and projections. These reports are grouped into 12 regions (see list to the left) by year construction is expected to be completed and started, and are analyzed and used by the author to project construction totals.

Construction Activity

College construction completed in 2006 totaled more than \$15 billion, the highest one-year total in our nation's history. Of

that amount, \$10.3 billion (68.6 percent) was spent on entirely new buildings. That, too, was the highest total in history and it marked the first year since 1998 that the percentage of dollars put into new buildings (as opposed to adding to and retrofitting existing structures) had risen that high.

The balance of the \$15 billion went into adding space to existing structures (\$2.1 billion) and renovating existing space (\$2.6 billion). It is interesting to note that only one-third of all the nation's colleges report that they are currently in a construction mode. When asked about construction completed in 2006, expected to be completed in 2007, or projected to start in 2007, better than two-thirds of all colleges contacted said that they had no construction activity of any kind planned during those periods. Many did, however, indicate that they were now in the process of raising money for future capital projects. If those efforts come to fruition, there could be another significant increase in the annual total construction put in place by colleges in the United States.

A Regional Look

To better understand and estimate how and where construction is taking place, the nation was divided into 12 regions, and construction plans and programs of each region's colleges were examined.

In terms of construction put in place in 2006 (see Table 2), colleges and universities in Region 11 — including California, Arizona, Nevada, and Hawaii — were the

Regional Definitions

- Region 1:** CT, ME, MA, NH, RI, VT
- Region 2:** NJ, NY, PA
- Region 3:** DE, DC, MD, VA, WV
- Region 4:** KY, NC, SC, TN
- Region 5:** AL, FL, GA, MS
- Region 6:** IN, OH, MI
- Region 7:** IL, MN, WI
- Region 8:** IA, KS, MO, NE
- Region 9:** AR, LA, OK, TX
- Region 10:** CO, MT, ND, NM, SD, UT, WY
- Region 11:** AZ, CA, HI, NV
- Region 12:** AK, ID, OR, WA



Table 1: College Construction Completed (\$000s), 1995 through 2006

	<u>1995</u>	<u>% Of</u>		<u>1996</u>	<u>% Of</u>		<u>1997</u>	<u>% Of</u>		<u>1998</u>	<u>% Of</u>		<u>1999</u>	<u>% Of</u>
	<u>Cost</u>	<u>Total</u>		<u>Cost</u>	<u>Total</u>		<u>Cost</u>	<u>Total</u>		<u>Cost</u>	<u>Total</u>		<u>Cost</u>	<u>Total</u>
New Bldgs	\$4,131,972	67.7%		\$4,528,792	72.4%		\$4,260,969	73.8%		\$4,384,893	69.2%		\$4,567,166	67.2%
Additions	\$507,809	8.3%		\$541,697	8.7%		\$529,013	9.2%		\$857,051	13.5%		\$986,864	14.5%
Retrofits	\$1,463,373	24.0%		\$1,181,310	18.9%		\$986,993	17.1%		\$1,090,206	17.2%		\$1,239,307	18.2%
TOTAL	\$6,103,154			\$6,251,799			\$5,776,975			\$6,332,150			\$6,793,337	

	<u>2000</u>	<u>% Of</u>		<u>2001</u>	<u>% Of</u>		<u>2002</u>	<u>% Of</u>		<u>2003</u>	<u>% Of</u>		<u>2004</u>	<u>% Of</u>
	<u>Cost</u>	<u>Total</u>		<u>Cost</u>	<u>Total</u>		<u>Cost</u>	<u>Total</u>		<u>Cost</u>	<u>Total</u>		<u>Cost</u>	<u>Total</u>
New Bldgs	\$4,780,898	65.6%		\$6,029,621	61.8%		\$7,050,533	63.8%		\$7,453,511	67.4%		\$9,024,829	66.0%
Additions	\$1,039,178	14.3%		\$1,586,614	16.2%		\$1,732,084	15.7%		\$1,761,110	15.9%		\$2,151,836	15.7%
Retrofits	\$1,467,785	20.1%		\$2,147,947	22.0%		\$2,272,794	20.6%		\$1,843,611	16.7%		\$2,491,079	18.2%
TOTAL	\$7,287,861			\$9,764,182			\$11,055,411			\$11,058,232			\$13,667,744	

	<u>2005</u>	<u>% Of</u>		<u>2006</u>	<u>% Of</u>
	<u>Cost</u>	<u>Total</u>		<u>Cost</u>	<u>Total</u>
New Bldgs	\$9,792,474	67.4%		\$10,327,086	68.6%
Additions	\$2,067,987	14.2%		\$2,109,843	14.0%
Retrofits	\$2,662,689	18.3%		\$2,615,611	17.4%
TOTAL	\$14,523,150			\$15,052,540	

Note: All tables in this report were developed by the author based upon material provided by Market Data Retrieval.

Graph 1: History of College Construction

College Construction Completed, 1995 through 2006

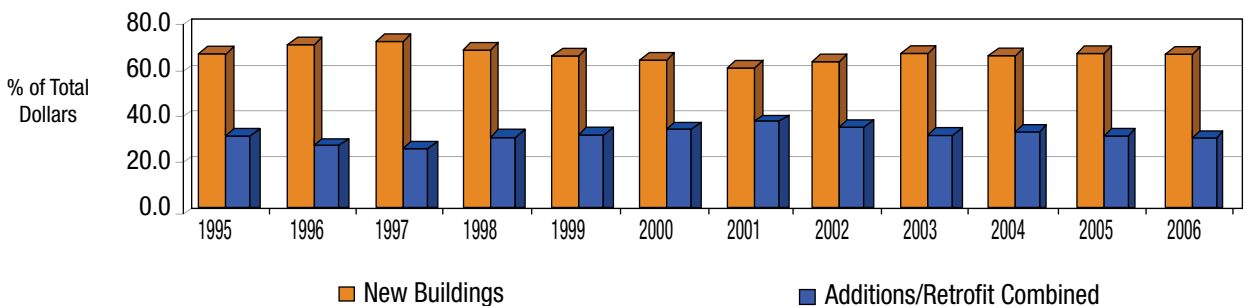
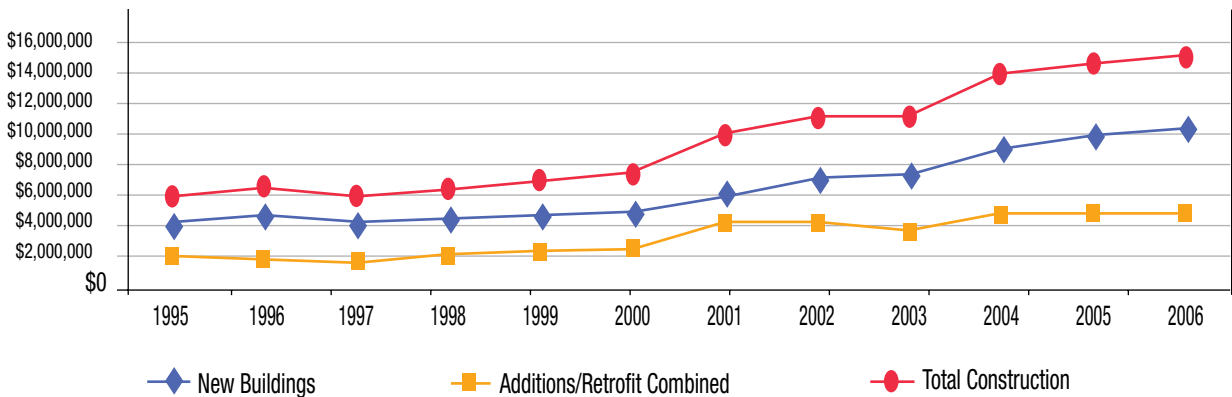


Table 2: College Construction Completed in 2006, Nationally and by Region

Region	New	Add	Renovate	Total	% Of Spending For			% Reg Is Of Nation
					New	Add	Renovate	
1	\$655,731,491	\$122,601,608	\$91,613,702	\$869,946,801	75.4%	14.1%	10.5%	5.8%
2	\$898,537,116	\$180,604,879	\$205,048,904	\$1,284,190,899	70.0%	14.1%	16.0%	8.5%
3	\$813,721,379	\$164,507,148	\$453,823,067	\$1,432,051,593	56.8%	11.5%	31.7%	9.5%
4	\$1,390,087,080	\$289,652,476	\$222,543,594	\$1,902,283,150	73.1%	15.2%	11.7%	12.6%
5	\$1,342,317,125	\$290,370,747	\$352,112,870	\$1,984,800,742	67.6%	14.6%	17.7%	13.2%
6	\$1,016,383,683	\$277,711,781	\$324,144,286	\$1,618,239,750	62.8%	17.2%	20.0%	10.8%
7	\$587,256,287	\$124,048,123	\$184,687,444	\$895,991,854	65.5%	13.8%	20.6%	6.0%
8	\$234,605,988	\$104,184,976	\$74,491,778	\$413,282,743	56.8%	25.2%	18.0%	2.7%
9	\$1,064,698,827	\$151,772,551	\$251,680,775	\$1,468,152,154	72.5%	10.3%	17.1%	9.8%
10	\$455,101,864	\$100,982,716	\$121,582,227	\$677,666,806	67.2%	14.9%	17.9%	4.5%
11	\$1,508,348,560	\$220,941,357	\$273,779,236	\$2,003,069,153	75.3%	11.0%	13.7%	13.3%
12	\$360,297,284	\$82,465,079	\$60,103,587	\$502,865,951	71.6%	16.4%	12.0%	3.3%
National	\$10,327,086,683	\$2,109,843,443	\$2,615,611,470	\$15,052,541,596	68.6%	14.0%	17.4%	100%

To read this table: Colleges in Region 1 (New England) spent \$656 million on new buildings completed in 2006, \$123 million on additions to existing buildings, and \$92 million on retrofit of existing buildings, for a total of \$870 million on all construction. More than 75.4 percent of Region 1's college construction dollars were spent on new buildings. Region 1 colleges spent 5.8 percent of all the money spent on college construction last year.

Table 3: College Construction Projected To Be Completed in 2007, Nationally and by Region

Region	New Add	Renovate	Total	% Of Spending For			% Reg Is Of Nation	
				New	Add	Renovate		
1	\$981,144,333	\$375,633,359	\$358,606,677	\$1,715,384,369	57.2%	21.9%	20.9%	11.9%
2	\$883,240,005	\$164,444,444	\$127,110,970	\$1,174,795,419	75.2%	14.0%	10.8%	8.2%
3	\$761,311,894	\$73,522,112	\$352,349,536	\$1,187,183,542	64.1%	6.2%	29.7%	8.2%
4	\$933,385,493	\$112,649,093	\$215,964,029	\$1,261,998,614	74.0%	8.9%	17.1%	8.8%
5	\$1,185,864,909	\$94,050,282	\$183,957,105	\$1,463,872,296	81.0%	6.4%	12.6%	10.2%
6	\$674,134,949	\$330,973,757	\$157,874,958	\$1,162,983,663	58.0%	28.5%	13.6%	8.1%
7	\$731,410,905	\$103,539,252	\$122,047,593	\$956,997,749	76.4%	10.8%	12.8%	6.6%
8	\$566,162,086	\$204,889,831	\$172,108,565	\$943,160,482	60.0%	21.7%	18.2%	6.5%
9	\$825,016,044	\$113,374,399	\$218,719,275	\$1,157,109,718	71.3%	9.8%	18.9%	8.0%
10	\$266,996,207	\$52,557,469	\$94,875,264	\$414,428,940	64.4%	12.7%	22.9%	2.9%
11	\$1,510,992,615	\$258,989,099	\$773,039,393	\$2,543,021,107	59.4%	10.2%	30.4%	17.6%
12	\$260,003,333	\$106,569,841	\$64,123,492	\$430,696,667	60.4%	24.7%	14.9%	3.0%
National	\$9,579,662,773	\$1,991,192,936	\$2,840,776,857	\$14,411,632,566	66.5%	13.8%	19.7%	100.0%

To read this table: Colleges in Region 1 (New England) expect to spend \$981 million on new buildings to be completed in 2007, \$376 million on additions to existing buildings, and \$359 million on retrofit of existing buildings, for a total of more than \$1.7 billion on all construction. More than 57 percent of Region 1's college construction dollars will go for new buildings. Region 1 colleges are projected to spend 11.9 percent of all the money spent on college construction to be completed this year.

largest spenders, with a total of just over \$2 billion put in place. Of that amount, 75 percent (\$1.5 billion) was for new buildings and another \$221 million was spent on providing additional space in existing buildings. Better than one-quarter of a billion dollars was used to renovate or retrofit existing structures. Colleges and universities in Region 11 were responsible for 13.3 percent of total college spending in the nation.

Colleges and universities in two other

regions almost reached \$2 billion apiece in spending in 2006. Colleges in Region 5 (Florida, Georgia, Mississippi, and Alabama) put \$1.985 billion worth of construction in place in 2006, including \$1.3 billion for new buildings. Colleges in Region 4 (North Carolina, South Carolina, Tennessee, and Kentucky) spent just over \$1.9 billion on new construction and actually constructed more new buildings than colleges in Region 5, with almost \$1.4 billion being used for that purpose.

Regions 4 and 5 are not only growing areas and very popular with prospective students from colder climates, they are also dominated by large state universities with strong support in their state legislatures and among their alumni. This has undoubtedly helped in their construction programs.

Region 6, including Ohio, Michigan, and Indiana, was another active region. Again, these states are dominated by major public universities, but they also have



a strong network of small, private liberal-arts colleges which compete for a small group of interested students and which must upgrade facilities in order to make their schools attractive.

Colleges and universities in four other regions also spent more than \$1 billion each on construction put in place in 2006. Region 9 (Texas, Oklahoma, Louisiana, and Arkansas) spent almost \$1.5 billion in 2006. Region 3 (Delaware, District of Columbia, Maryland, Virginia, and West Virginia) was responsible for \$1.4 billion in construction. Interestingly, this region spent a greater proportion of its construction dollars on the retrofit of existing buildings (31.7 percent) than did colleges in any other region.

Region 2 (New York, New Jersey, and Pennsylvania) was the seventh region to exceed \$1 billion in construction in 2006. The five other regions spent less than that, with Region 7 (Illinois, Minnesota, and Wisconsin) spending just under \$900 million and Region 1 (the six New England states) just slightly less than that. Region 10 includes seven mountain states (Colorado, Utah, North Dakota, South Dakota, New Mexico, Wyoming, and Montana), and was responsible for almost \$700 mil-

lion worth of construction. Colleges in the Pacific Northwest (Washington, Oregon, Alaska, and Idaho) spent \$500 million on construction, and Region 8 (Nebraska, Iowa, Missouri, Kansas) put \$413 million worth of construction in place last year.

What's Underway?

Construction completed in 2006 is history. Construction expected to be put into place in 2007 is what is happening right now. Colleges report that they will complete slightly more than \$14.4 billion worth of construction this year (see Table 3). Of that amount, \$9.6 billion (66.5 percent) will go into new buildings, and almost \$2 billion will be used to provide additional space in existing buildings. A little better than \$2.8 billion is being ticketed to retrofit, renovate, and upgrade existing structures. Colleges in Region 11 say they will complete better than \$2.5 billion worth of work in 2007. Colleges in seven other regions expect to exceed \$1 billion, and two others will be very close.

Looking Ahead

What is coming next? Colleges were asked about construction they were planning to start during calendar year 2007.

Table 4 shows the results of this query. The total projected construction is \$14.4 billion, with better than 70 percent of that going into new construction. Region 11, once again, is expecting the most activity in terms of dollars expended. While the total figures in Tables 3 and 4 might indicate that college construction will not increase over the next few years, our experience has been that projections of completions and starts tend to be somewhat low, both because of when contacts are made (sometimes three and four years before the projected is to be completed or started) and because of reluctance on the part of some colleges to reveal plans that are not yet concrete.

What's In a Building?

Every college that plans and constructs a new building designs that building for its own specific needs and purposes. An academic building at one institution will have a different mix of classrooms, labs, and offices than one at another. Some colleges will put science labs in their academic buildings; others construct buildings strictly for science. Similarly, student unions run the gamut from simple gathering and food service areas to the inclusion

Table 4: College Construction Projected to Start in 2007, Nationally and by Region

Region	NewAdd	Renovate	Total		% Of Spending For			% Reg Is Of Nation
					New	Add	Renovate	
1	\$613,137,546	\$114,267,442	\$134,394,830	\$861,799,818	71.1%	13.3%	15.6%	5.9%
2	\$759,499,952	\$150,877,313	\$278,333,740	\$1,188,711,005	63.9%	12.7%	23.4%	8.2%
3	\$663,681,537	\$78,106,149	\$197,841,548	\$939,629,234	70.6%	8.3%	21.1%	6.5%
4	\$628,201,288	\$145,500,363	\$250,464,522	\$1,024,166,173	61.3%	14.2%	24.5%	7.1%
5	\$858,037,995	\$100,023,761	\$147,361,265	\$1,105,423,021	77.6%	9.1%	13.3%	7.6%
6	\$815,601,732	\$462,334,107	\$570,979,576	\$1,848,915,415	44.1%	25.0%	30.9%	12.7%
7	\$609,529,343	\$88,089,362	\$320,878,528	\$1,018,497,233	59.8%	8.6%	31.5%	7.0%
8	\$700,267,565	\$128,094,143	\$326,050,733	\$1,154,412,441	60.7%	11.1%	28.2%	8.0%
9	\$1,104,389,806	\$154,204,839	\$142,810,424	\$1,401,405,068	78.8%	11.0%	10.2%	9.7%
10	\$509,042,327	\$87,082,360	\$98,744,618	\$694,869,304	73.3%	12.5%	14.2%	4.8%
11	\$2,224,471,349	\$247,989,346	\$324,044,932	\$2,796,505,627	79.5%	8.9%	11.6%	19.3%
12	\$189,836,780	\$43,200,000	\$92,018,356	\$325,055,136	58.4%	13.3%	28.3%	2.2%
National	\$9,675,697,218	\$1,799,769,184	\$2,883,923,072	\$14,359,389,474	70.1%	11.0%	18.8%	100.0%

To read this table: Colleges in Region 1 (New England) expect to spend \$613 million on new buildings being started in 2007, \$114 million on additions to existing buildings, and \$134 million on retrofit of existing buildings, for a total of \$862 million on all construction. More than 71 percent of Region 1's construction dollars are destined to be spent on new buildings. The projected construction plans of Region 1 colleges starting in 2007 account for 5.8 percent of all college construction projects projected to start this year.

Table 5: Profile of New Buildings Currently Underway

Building Type	Median Size (Sq. Ft.)	Median Cost	Cost Per Square Foot			Buildings in Sample
			Low Quartile	Median	High Quartile	
Academic	45,000	\$10,640,000	\$168.04	\$206.00	\$319.01	75
Child Care	20,900	\$4,838,971	\$200.00	\$306.38	\$463.22	8
Library	73,500	\$18,050,500	\$190.48	\$253.42	\$333.33	12
Office	34,000	\$8,950,000	\$183.64	\$249.66	\$370.22	28
Performance	64,243	\$26,660,000	\$258.16	\$300.00	\$437.02	15
Physical Education	76,553	\$10,561,560	\$108.33	\$180.43	\$278.34	14
Residence Halls	50,000	\$7,500,000	\$123.46	\$150.00	\$191.61	44
Science	79,000	\$23,077,690	\$196.43	\$290.27	\$427.93	62
Student Union	51,950	\$17,500,000	\$173.00	\$228.26	\$287.90	22
Technology	51,000	\$12,000,000	\$141.03	\$262.50	\$395.84	23

To read this table: The median academic building in this sample of buildings currently being constructed will contain 45,000 sq. ft. and will cost \$10.64 million. The median cost will be \$206 per square foot. One-quarter of the academic buildings will cost \$168.04 per square foot or less. At the other end of the scale, one out of four academic buildings will cost \$319.01 per square foot or more. This information was gathered from a sample of 75 academic buildings currently under construction.

of theaters, bowling alleys, and the like.

Nevertheless, when a college says that it is building a science building, an academic building, a library, or a performance building, there is a certain commonality of facilities that we all expect. That commonality allows some comparison from campus to campus in terms of cost and size. **Table 5** provides information on ten building types that were identified by colleges. In each case it is assumed that the function that was named is the dominant one in the building, although other facilities may also be included.

Information was gathered on 75 new academic buildings that were underway when the reports were made. Among those 75, the median size was 45,000 sq. ft. and the median cost was \$10,640,000. In terms of cost per sq. ft. the academic building right in the middle is being constructed for \$206 per sq. ft. One-quarter of the academic buildings are being constructed for \$168 or less, while one-quarter at the other end of the scale cost \$319 or more per sq. ft.

Looking at some of the other building types identified, the median library building was 73,500 sq. ft. and cost \$18 million. Among 15 performance venues, the median size was a little over 64,000 sq. ft. and the cost \$26.7 million. Sixty-two science

buildings were reported, with the median 79,000 sq. ft. and costing \$23 million. The median cost per sq. ft. for science buildings was a little over \$290, but one-quarter of these buildings cost \$428 or more.

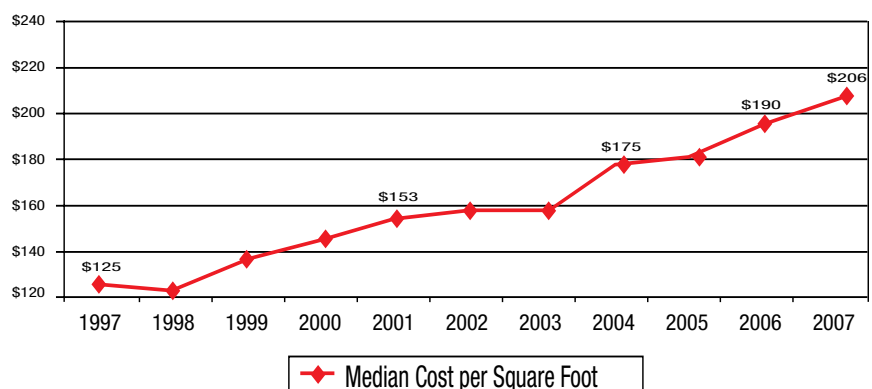
Rising Costs

We have been publishing cost information on various building types since 1997. In the following four graphs, we have tracked the median cost of construction per sq. ft. over that period of time.

Graph A shows that the median cost per sq. ft. for academic buildings was just over \$120 in 1997 and stayed closed to that mark in 1998. Since then it has risen significantly and this year, for the

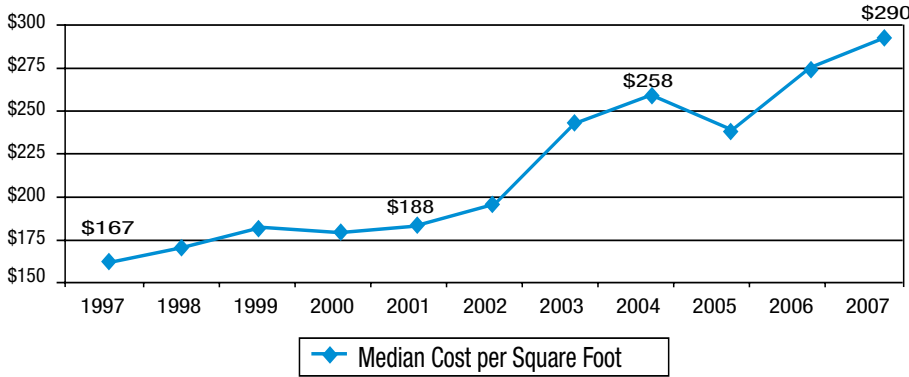
first time, the median cost per sq. ft. for academic buildings has risen above the \$200 mark. Science buildings (**Graph B**) always cost more than academic buildings. In 1997, they cost close to \$170 per sq. ft. By 2004 the cost had risen above \$250 per sq. ft. and now stands close to \$300. Library buildings (**Graph C**) cost just under \$140 per sq. ft. in 1997 and actually declined in cost for the next couple of years. It is hard to know exactly why this happened, but it may have been a result of colleges reconsidering how library buildings would be used as new technology made its mark. But since 1999, the cost for library buildings has gone up quite steadily, reaching almost \$260 per sq. ft. this year. Presumably some

Graph A: Median Cost per Square Foot for Academic Buildings, 1997-2007

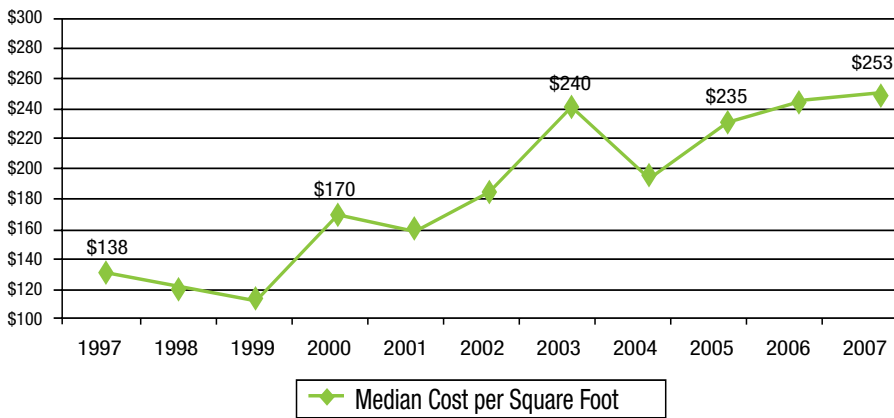




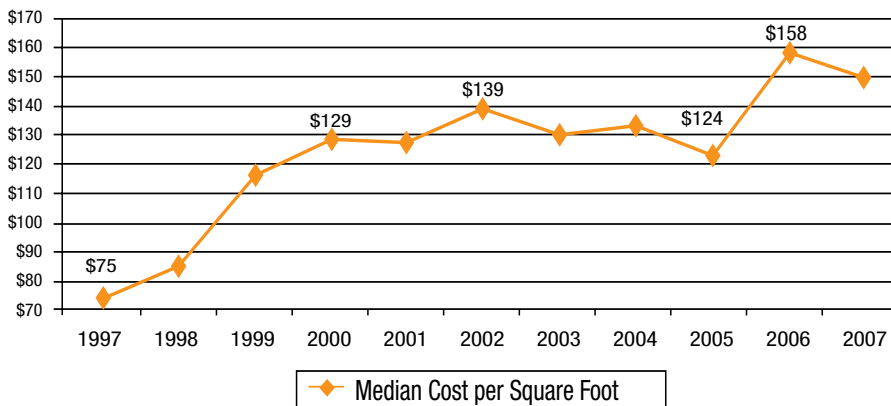
Graph B: Median Cost per Square Foot for Science Buildings, 1997-2007



Graph C: Median Cost per Square Foot for Library Buildings, 1997-2007



Graph D: Median Cost per Square Foot for Residence Hall Buildings, 1997-2007



of the reason for that increased cost has been the introduction of more and more sophisticated technology.

Graph D looks at the median cost per sq. ft. for residence hall buildings. The

days of inexpensive housing for students has gone by. The “plain Jane” buildings of 1997 — costing about \$75 per sq. ft. — are being replaced by buildings that now cost between \$150 and \$160 per sq. ft.

One may wonder why some buildings reported in 2007 are less expensive than those reported in 2006. The reason lies in the reporting methodology. We do not control for the types of institutions that report in any one year, so that, conceivably, a group of colleges with very high aspirations may dominate the reporting for any building type in one year. In another year, colleges that are more concerned with getting structures up and operating — even if all the bells and whistles are not included — may dominate the sample. There is no magic in any of these figures, but they indicate the direction in which costs are going and may serve as a cautionary note to college planners. If you are planning to construct a building three or four years from now, you should definitely assume that that building is going to cost significantly more than it would cost if it were being put into the ground today.

What's Being Renovated?

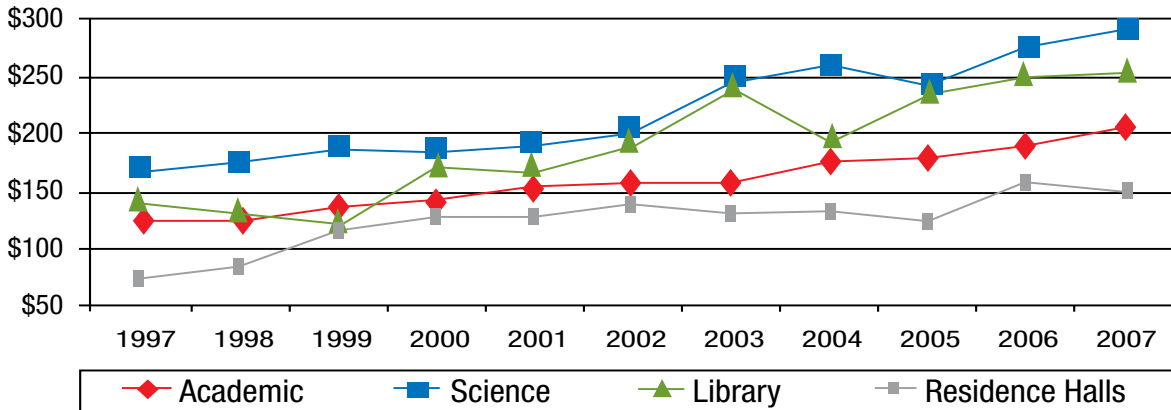
With better than \$2.6 billion being spent last year on the renovation of existing buildings, it seemed important to know what kinds of work are most often undertaken for that amount of money. The list of retrofits on the following page shows that when renovation projects are started on a college campus, more than half of them involve overhauling the building's electrical and HVAC systems. Lighting, flooring, and carpeting are in better than four of ten projects and plumbing, ADA compliance, and upgrading alarm systems are in one-third.

Other retrofits of interest include one-quarter of the projects involved with controls and 22 percent upgrading bathroom areas. Security equipment was of concern in one out of five college projects, and improving classrooms in 12.4 percent.

The poor condition of many existing college buildings has been documented many times in the past. Putting \$2.6 billion to work on improving how these buildings



Median Cost per Square Foot for College Buildings



function is an important step in the right direction, but it is also important that colleges prioritize what they are doing and where they are putting this money that, in the total construction budget, is still a relatively small amount.^{CPM}

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Retrofit

*When Colleges Renovate a Building, Here is the Work They Most Often Undertake**

	(% of projects)		(% of projects)
Electric Overhaul	52.9%	Bathrooms	22.0%
HVAC	53.2%	Storage	24.9%
Lighting	44.9%	Security Equipment	20.2%
Flooring/Carpeting	43.9%	LAN's	23.2%
Plumbing	38.0%	Offices	16.8%
ADA Compliance	34.9%	Windows	15.1%
Alarms	31.5%	WANs	22.0%
Fiber Optics/Cable	28.5%	Roofing	18.3%
Tile	22.0%	Classrooms	12.4%
Controls	25.1%	Code Violations	10.0%

* Retrofit undertaken in at least 10 percent of reported projects

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