Changes in Construction Markets
The Next 15 Years

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AIA

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OVERVIEW

TRENDS

- **Economic and population trends dictate slow but steady growth in construction spending over the next 15 years.**
- **The aging of the population is good news for commercial and industrial construction, as well as for high-end residential projects.**
- **Within the next decade, more than half of all construction dollars will go for additions and alterations rather than new structures.**

1 Modest But Steady Gains in Construction Activity

Average annual volume of contract awards, billions of 1987 dollars

	1991 to 1995	1996 to 2010
Educational Facilities	$16.2	$16.0
Health Care Facilities	8.9	8.9
Public Buildings	4.7	5.3
Retail Facilities	15.4	15.1
Office Buildings	10.9	18.7
Industrial Facilities	12.7	14.4
Total	**$68.8**	**$78.4**

Sources: F.W. Dodge and The American Institute of Architects

The next 15 years offer many encouraging developments for architects and other professions serving the construction industry. Building activity will increase an average of 1% per year from levels in the first half of the 1990s, in line with population growth.

The movement of the baby-boom generation into middle age favors some types of construction activity over others. Households in their 40s and 50s form the core of both the trade-up market for home building and the remodeling market for existing residences. They are also the group most likely to own second homes or time-share condominiums.

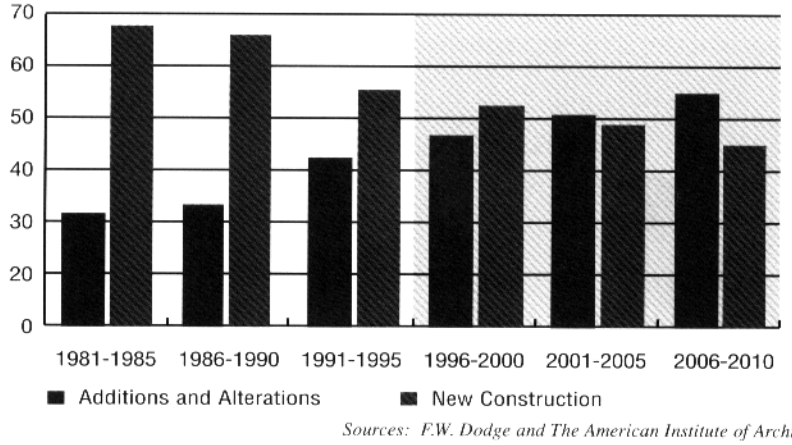
On the nonresidential side, nearly all of the growth in construction spending will come from the commercial and industrial categories—including retail facilities, office buildings, plus manufacturing and distribution facilities. Office construction, in particular, is expected to bounce back sharply, although from very depressed levels. Meanwhile, spending increases within the institutional categories (educational, health care, and public buildings) will stabilize near today's healthy rates.

New construction opportunities are only part of the story. According to a recent government survey, the existing nonresidential stock now comprises close to 5 million buildings—and as many as 100,000 new structures are added each year. The average age of the typical nonresidential building is approaching 30 years, with one in five built before World War II.

Over the next 15 years, a growing share of construction spending will be earmarked for improvements to this aging stock. As recently as the mid-1980s, additions and alterations together accounted for less than a third of construction activity. So far in the 1990s, nearly 25% of all construction dollars go for alterations and another 20% for additions. By 2010, the market for work on existing buildings will be even larger than for new construction.

2 Building Rehabilitation to Surpass New Construction

% of total construction contracts



Sources: F.W. Dodge and The American Institute of Architects

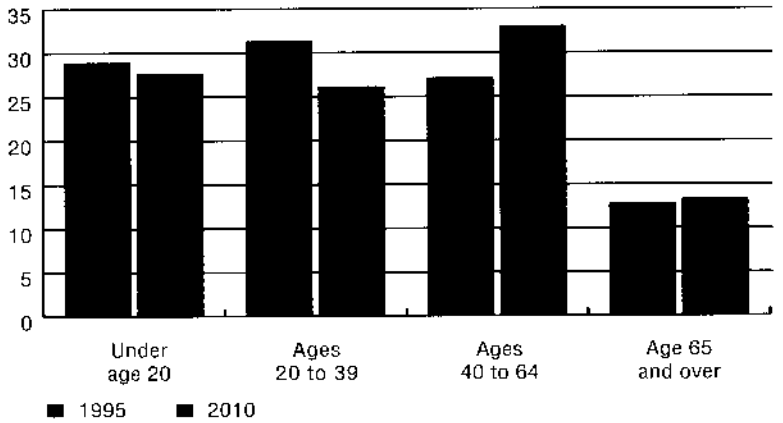
THE CONSTRUCTION FUTURE

TRENDS

- **Despite an influx of immigrants in younger age groups, the average age of the population will be almost 3.5 years higher in 2010 than in 1995.**
- **Dramatic growth in the middle-aged population means that good quality single-family homes will account for a larger share of residential markets and commercial buildings will account for a larger share of nonresidential markets.**
- **The Sunbelt will capture 80% of overall population growth in the next 15 years, attracting immigrants from other countries as well as migrants from other regions of the United States.**

3 The US Population Is Aging

% of total population

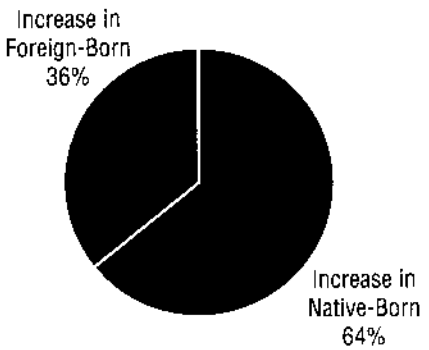


Source: US Bureau of the Census

Because population growth has slowed in recent years, the average age in the United States has been rising. The rapid growth in the immigrant population has tempered this increase somewhat, however, since immigrants tend to be younger on average than the native-born population. Nevertheless, the age distribution of the population will reduce the need for structures used primarily by younger age groups, such as elementary schools and rental apartments, and increase the need for structures used primarily by middle-aged groups, such as office buildings and single-family housing designed for the trade-up market. Mirroring population growth, most of construction growth over the next 15 years will be centered in the South and West regions of the country.

4 Immigrants Strengthen Population Growth

Share of growth, 1995-2010



Source: US Bureau of the Census

Demographics Drive Long-Term Demand

High on the list of forces that determine the need for particular types of construction projects are population trends. According to US Census Bureau projections, the number of people in the United States will approach the 300 million mark in 2010—an increase of more than 36 million from 1995. In addition, the median age of the population will be 37.2 years in 2010, up almost 3.5 years from that in 1995 and almost 7.5 years from 1980.

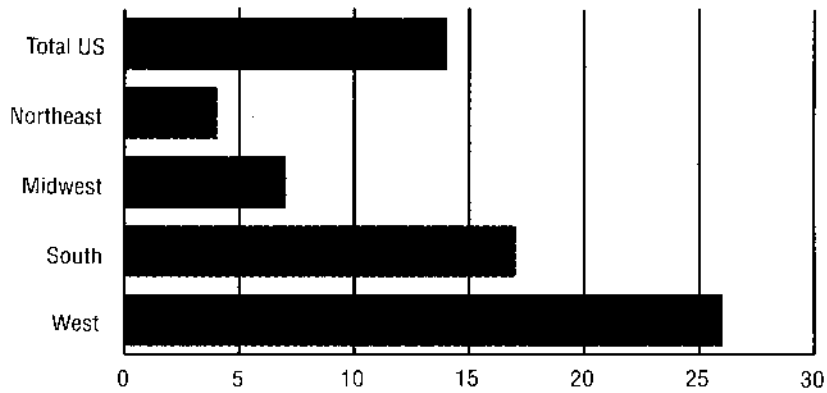
Although overall population growth in the next 15 years should remain as strong as it has over the past several decades, immigrants will contribute a significant share of the increase.

More than 13 million persons—representing more than a third of the total projected increase—will arrive from abroad. If current trends continue, about half of these immigrants will come from Mexico and other Central and South American countries, about a third from Asian countries, and most of the rest from Canada and Europe.

Because many recent immigrants are between the ages of 15 and 35, they are helping to offset slower growth among the native-born population within these age groups. Even so, the influx of younger households from abroad will not be enough to reverse a broad-based aging of the population. Between now and 2010, the share of the population that is middle aged will expand dramatically, while the share of people aged 65 and over will increase slightly.

5 The Sunbelt Leads Population Growth

% increase in population, 1995-2010



Source: US Bureau of the Census

Continued Shifts to the Sunbelt

Where people choose to reside also determines construction needs. For the past several decades, the South and West have attracted increasing shares of the country's population. This trend will continue, with these regions expected to capture more than 80% of population growth over the next 15 years. While the total US population is projected to increase almost 1% per year between now and 2010, population in the West will be

6 Migration and Immigration Flows Shape Regional Growth

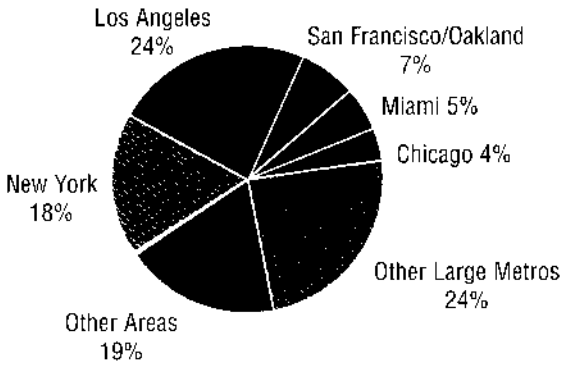
Population growth in millions, 1995-2010

	Natural Increase (Births-Deaths)	Migration Between Regions	Immigration From Abroad	Total Population Growth
New England	0.5	-0.6	0.6	0.5
Mid-Atlantic	1.7	-3.0	2.5	1.2
East North Central	3.2	-1.5	0.8	2.5
West North Central	1.3	0.1	0.2	1.6
South Atlantic	2.7	3.6	1.8	8.1
East South Central	1.0	0.8	0.1	1.9
West South Central	3.7	0.5	1.2	5.4
Mountain	2.2	1.0	0.4	3.6
Pacific	6.7	-0.9	5.6	11.4
US Total	**23.0**	**0.0**	**13.2**	**36.2**

Source: US Bureau of the Census

7 Immigrant Population Largely Concentrated in Gateway Areas

Destination of all new immigrants, 1980-1990



Source: US Bureau of the Census

increasing at almost twice that pace. By comparison, population growth in the Northeast is projected to be only 25% of the national rate.

Much of the population growth in the Sunbelt reflects migration from other regions of the country. Except for the West North Central states, all census divisions located within the Frostbelt are projected to lose population to other regions over the next 15 years. In the Sunbelt, in contrast, all areas except the Pacific states are expected to attract population from other regions during this period.

Immigration will be another major source of population growth in the Sunbelt. With immigrants accounting for over a third of total US population growth in the next 15 years, the location choices of these individuals will greatly influence regional growth patterns.

In a continuation of recent trends, a disproportionately large share of future immigrants is likely to settle in the Sunbelt region. During the 1980s, over 70% of new immigrants chose to locate in just 11 metropolitan areas—many of which are located in the South Atlantic, South Central, and California coastal regions of the country. Over the next 15 years, immigrants will continue to contribute to the ongoing shift of population to the Sunbelt.

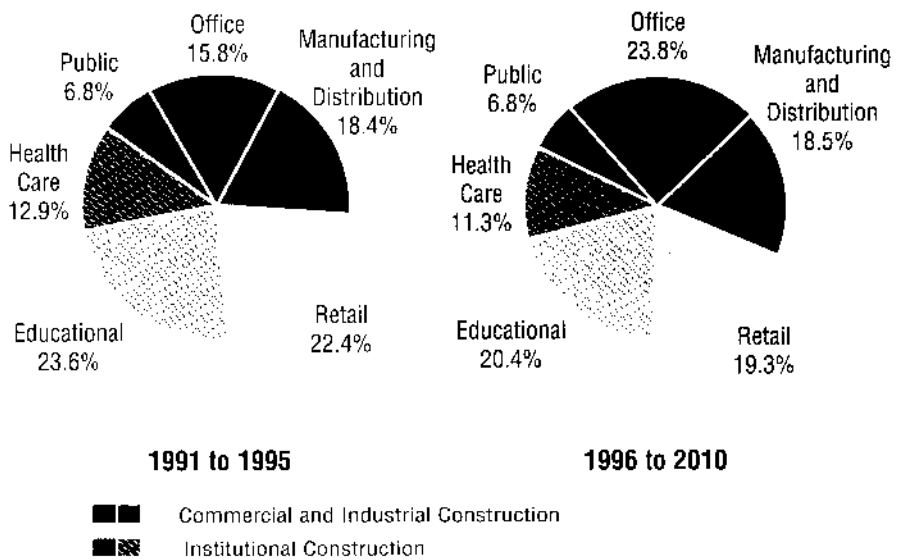
The Changing Mix of Construction

As the demographic characteristics of the population change, so too will the mix of construction actvity. Institutional buildings, for example, primarily serve the youngest and oldest age groups. With the younger population shrinking and the older population not set for a big growth spurt until after 2010, the institutional share of nonresidential construction is expected to decline slightly over the next 15 years.

Commercial buildings, in contrast, primarily support the population in the middle of the age spectrum. Since this is the age group that will see profound growth in the coming years, commercial construction markets will thrive between now and 2010.

8 Office Share Set to Expand

% of total nonresidential construction



Sources: F.W. Dodge and The American Institute of Architects

HOME BUILDING

TRENDS

- **Strong growth in households ensures that housing starts will increase over the next 15 years.**
- **Single-person households and married couples with no children living at home will account for more than 70% of the households added between 1995 and 2010.**
- **Even though households are becoming smaller, the size of new homes will continue to increase in order to incorporate remote offices for telecommuters and health care services for an aging population.**

Steady growth in the US population, combined with a decline in the average size of households, means that the total number of households will rise in the years ahead. Much of this growth will be among households in their 40s and 50s, who traditionally buy bigger, more expensive homes. Households in younger age groups, however, will shrink in number, undermining support for the rental and first-time home buyer markets.

As a result, home building activity during the decade 2000-2010 will be nearly as strong as in the 1980s, with a similar emphasis on better-quality homes.

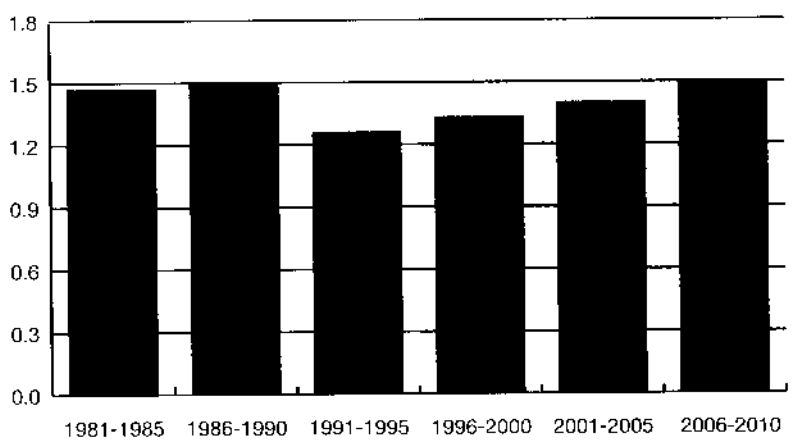
The long-term decline in average household size reflects the strong growth in single-person households. Of the 18 million new households that will be formed between now and 2010, almost 7 million will consist of single persons. Married couples without children are the second-fastest growing household type, accounting for over 6 million of the projected increase. The growth of this household type results from the movement of the baby-boom generation into its mid-40s to mid-60s. By 2010, most of these households will be "empty-nesters" with no children living at home.

The changing size and composition of households of course influence the types of homes that will be required in the next 15 years. Smaller households looking to buy new homes are likely to seek smaller houses on relatively small lots, requiring little maintenance. This suggests a renewal of interest in condominiums and planned developments.

At the same time, though, many of tomorrow's small households will also be in their peak earning years. Regardless of household size, higher-income households tend to buy larger homes with more amenities. On balance, then, the long-term rise in the cost of new homes built is likely to continue over the next 15 years.

9 Housing Starts to Return to 1980s Levels

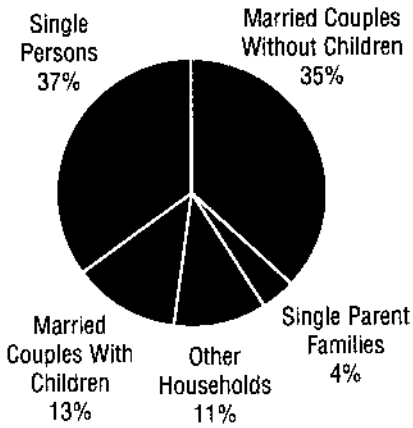
Millions of units



Sources: US Department of Commerce and The American Institute of Architects

10 Most New Households Will Be Smaller

% of new households formed, 1995-2010



Total additional households: 18.0 million

Source: Joint Center for Housing Studies of Harvard University

REMODELING ACTIVITY

TRENDS

- **Over the next 15 years, a growing number of households will be in their mid-40s to mid-60s—the age group that spends the most on remodeling projects.**
- **Changes in work patterns and health care needs will encourage households to remodel their current homes to accommodate new home-based activities.**
- **Homes built during the 1970s construction boom are reaching the age where they require system replacements and improvements.**

12 Number of Households in Peak Earning Years to Increase Dramatically

Millions of households

Age of Head	1995	2010	% Change
Under 25	5.4	6.4	1.0
25 to 34	19.5	19.9	0.4
35 to 44	22.9	22.6	-0.3
45 to 64	29.8	43.8	14.0
65 and older	21.4	24.3	2.9
All households	**99.0**	**117.0**	**18.0**

Source: Joint Center for Housing Studies of Harvard University

After being one of the fastest-growing construction categories in the 1980s, residential remodeling took a serious dive in the early 1990s and has only recently begun to recover. Now, with so many households moving into their peak earning years and therefore peak home remodeling years, activity will grow briskly in the years ahead. About half of the growth will come from increases in the number of homes remodeled, and the other half from increases in spending per household.

Remodeling covers two general types of construction activity: repairs and replacements, and improvements. The first category is meant simply to maintain the structural quality of a home. Remodeling expenditures of this type increase as homes age up to about 20 to 25 years, and then stay fairly constant. As a result, the more homes there are, the more remodeling takes place to maintain that stock of homes.

Other kinds of remodeling projects, such as the addition of a room or an upgrade of a kitchen, are considered improvements. This type of activity is often an alternative to moving up to a larger home with more amenities.

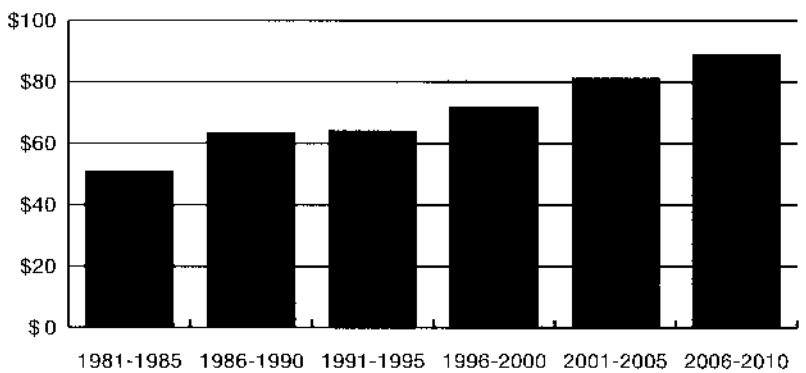
For this reason, the same households that constitute the prime trade-up group—upper-income households in their mid-30s through mid-50s—also make up the prime remodeling group. Households in this age group spend significantly more than others on remodeling projects, with most expenditures aimed at improving rather than merely maintaining their homes.

The kinds of discretionary remodeling projects commonly undertaken change as home-based activities change. In recent years, for example, there has been increased interest in the addition of media centers, exercise rooms, au pair and in-law suites, and master bedrooms and baths.

Over the next decade, home offices will gain in popularity as about a third of the working population does at least some telecommuting. Increased longevity means that households will also be adding more in the way of health care features to their homes. Moreover, technological advances will encourage more households to install new security and automation systems in their homes.

11 Remodeling Activity Poised for Take-off

Average annual spending on additions and replacements, billions of 1994 dollars



Sources: US Department of Commerce and Joint Center for Housing Studies of Harvard University

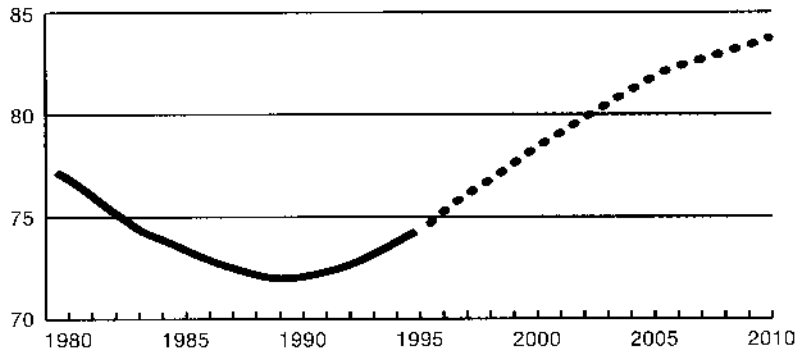
EDUCATIONAL FACILITIES

TRENDS

- **Rising educational attainment, especially among adults, is creating the need for additional facilities.**
- **New educational activities, such as on-line courses and company-sponsored training programs, are taking place in less formal settings.**
- **Because the existing stock of schools is old and in need of repair, additions and upgrades will take an increasing portion of the educational construction dollar, particularly in areas with slow population growth.**

14 School-Age Population on the Rise

Millions of persons aged 5 to 24



Source: US Bureau of the Census

The recent rebound in school construction will be sustained over the next decade—thanks to increasing enrollments and rising educational attainment, as well as the need to upgrade existing facilities. Starting in about a decade, though, the declining birth rate will reduce enrollments enough to slow the growth of educational construction somewhat. Nevertheless, construction levels in 2010, even after adjusting for inflation, will be 40% to 50% higher than in the 1980s.

In an otherwise sluggish nonresidential construction sector, educational building clearly stands out. Spending in this category has risen yearly since 1983, making it one of the few construction types to avoid the early 1990s recession. Overall, construction budgets for educational facilities have more than doubled since the last downturn.

After shrinking steadily for much of the 1980s, the school-age population has expanded by about 2.2 million persons since 1989 and should continue to grow for the next 15 years. However, the number of births has been falling since 1990, so fewer children were entering the educational system as of 1995. This means that school enrollments are set to grow much more slowly beginning in about 2005.

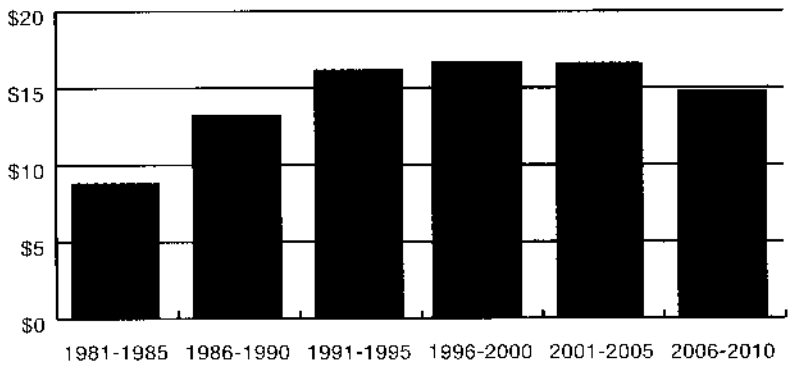
Growth in educational enrollments showed less of a slowdown than growth in the school-age population during the 1980s, and enrollments are still increasing faster than the school-age population during the 1990s. Along with the growing school-age population, the increase in enrollments reflects a steady decline in high school dropout rates in recent years. In fact, dropout rates are currently a third lower than in 1980.

Not only are more students finishing high school, but they are also attending college in record numbers. The proportion of the adult population that has completed four years of college has already improved from 17% in 1980 to almost 23% today.

Higher college enrollments also reflect the growing numbers of adults returning later in life to complete their college educations. At present, over 40% of college students are age 25 and older; nearly 20% are age 35 and

13 Educational Market Still Makes the Grade

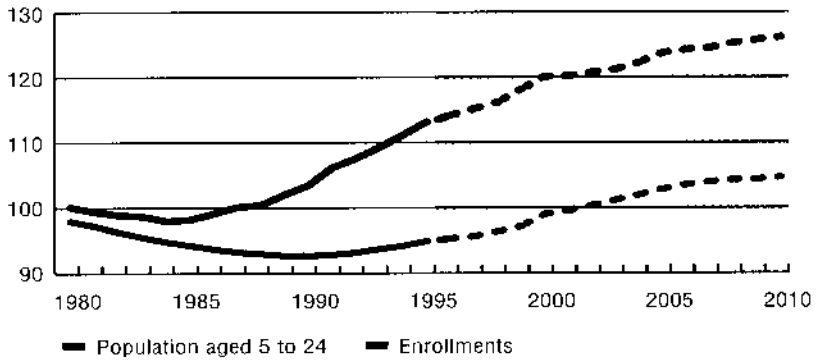
Contract awards, billions of 1987 dollars, five-year averages



Sources: F.W. Dodge and The American Institute of Architects

15 Enrollments Outpace School-Age Population Growth

Millions of persons; index: 1980=100



Sources: US Bureau of the Census and National Center for Education Statistics

older. Despite the higher average age of college students, a growing share of this population is enrolled in school full-time.

Opportunities for less formal education are also expanding. More and more companies are sponsoring training programs to help keep employees up with changes in technology. Enrollments at technical schools are picking up, and students with home computers are accessing educational offerings on-line.

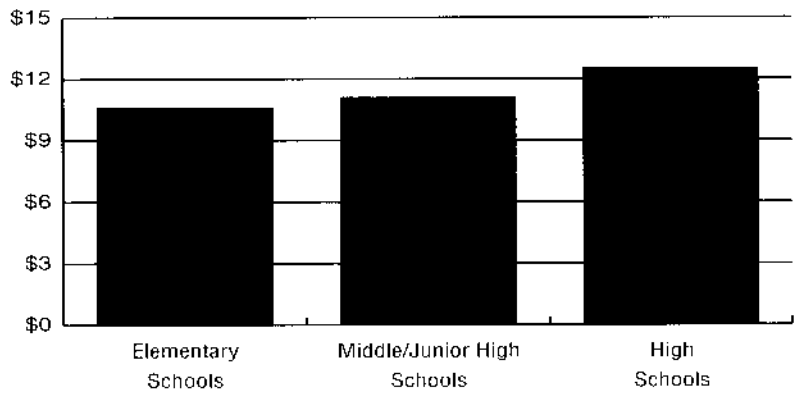
Rising school enrollments translate directly into increasing need for educational facilities. Surveys of school administrators indicate that new school buildings average about 100 to 150 square feet per student (the lower end of the range for elementary schools and the upper end for high schools). With construction costs averaging about $100 per square foot, the per student cost of new school facilities is $11,000 to $13,000.

A large share of total education spending, however, goes toward school upgrades or additions rather than new construction. In recent years, about half of construction budgets in this market has gone for improvements to existing buildings.

There is reason to believe this share will expand in the years ahead.

16 Building New Schools Is Costly

Average construction costs per student, thousands of dollars, 1996



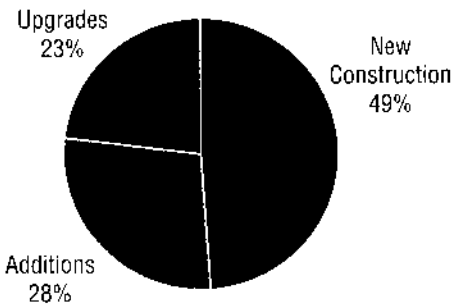
Source: School Planning and Management Magazine

According to a recent US General Accounting Office estimate, repairs and replacements worth $112 billion are needed to restore our nation's schools to good condition. With a total estimated replacement value of around $420 billion, this estimate points to a serious problem in the nation's school facilities.

The need for repairs and replacements increased during the 1980s, just when

17 Additions and Upgrades Account for More Than Half of Education Spending

% of school construction, 1995



Source: School Planning and Management Magazine

school enrollments were falling off and facilities were being mothballed and under-maintained. As enrollments grow, existing facilities can therefore absorb much of the increase once they are restored to satisfactory condition.

The extent to which upgrades and additions can meet the need for school facilities varies widely from region to region. In the slower growing areas of the Northeast and Midwest, for example, improvements and additions will likely account for a much larger portion of total construction expenditures than in faster growing areas.

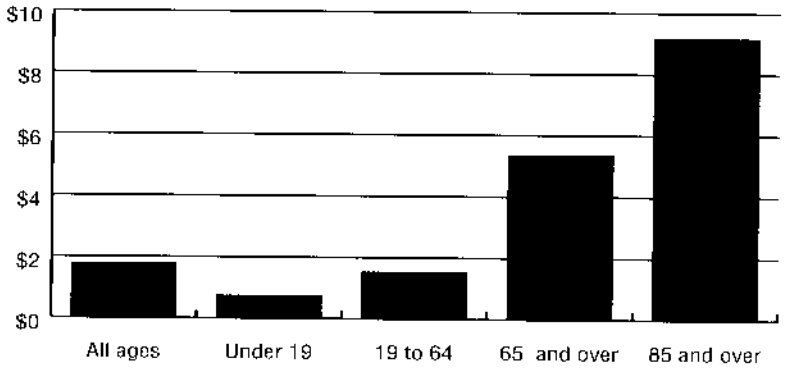
HEALTH CARE FACILITIES

TRENDS

- **With the aging of the population, demand for medical services will shift from acute to chronic care.**
- **Health services will increasingly be integrated into living arrangements rather than delivered through free-standing facilities.**
- **Cost containment efforts will continue to emphasize efficient use of existing space.**

19 Elderly Spend More for Medical Care

Per capita health care expenditures, thousands of 1987 dollars



Source: Health Care Financing Administration

With the aging of the population and changes in medical needs, new health care construction projects initiated over the next 15 years will be primarily clinics, chronic care services, and integrated residential facilities. At the same time, intensifying competition from managed care providers will keep the pressure on to use existing facilities more efficiently.

Construction of health facilities soared throughout the late 1980s and early 1990s with the sharp increase in health care expenditures. But the lengthy debate over health care reform has now put new construction projects on hold. After relatively flat levels of construction over the next decade and a half, health care projects will be poised for another big surge when the baby-boomers move into their 60s—the stage in life when people spend a much larger share of their incomes for medical care.

While inefficiencies in the health care system are often singled out as the cause of runaway increases in health care spending, several factors have contributed to spiraling costs. First of all, there are more people at the stage of life when health care spending rises sharply. On average, individuals age 65 and over spend three-and-a-half times more on medical care than younger adults; those age 85 and older spend six times more.

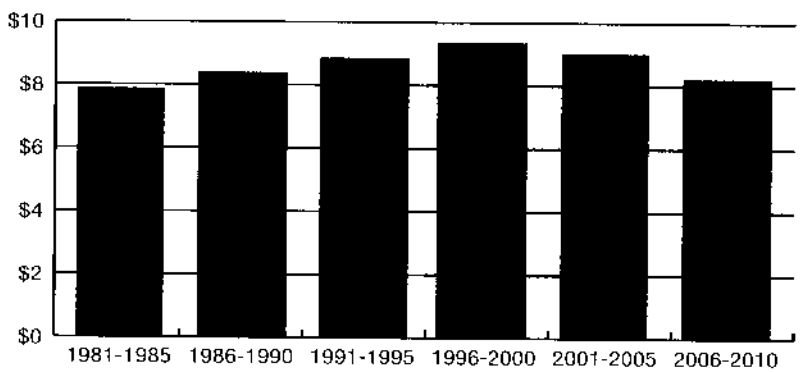
In addition, the type of care required changes over time. Younger people tend to need acute care while older people seek care for chronic conditions and assistance with disabilities. Not surprisingly, the elderly devote a larger portion of their rising medical expenditures to nursing home care.

Meanwhile, cost containment strategies—such as shorter hospital stays and more procedures performed on an outpatient basis—have focused on limiting the use of medical facilities. Ongoing efforts to rein in costs will continue to emphasize this objective and therefore hold down spending on new facilities.

In the next 15 years, living arrangements for the elderly will have an important influence on construction in this category. Three-quarters of the population age 85 and over live outside of nursing homes. Options for assisted living will need to be added to homes to support the growing elderly population.

18 Health Care Spending Begins to Slow

Contract awards, billions of 1987 dollars, five-year averages



Sources: F.W. Dodge and The American Institute of Architects

PUBLIC BUILDINGS

TRENDS

- **Slow growth in government employment will limit the construction of new facilities.**
- **Justice construction will continue to expand in response to overcrowding of existing facilities and to resumed growth in the young adult population.**
- **Security features will receive greater emphasis in public building construction.**

Spending on public construction projects—which includes detention facilities, police and fire stations, post offices, and related government facilities—currently accounts for about 12% of the overall institutional market. Over the past 15 years, public projects have become the fastest growing institutional construction category, with justice facilities (jails, prisons, court houses, police stations) providing the bulk of the growth. Over the next 15 years, justice construction activity will remain strong as the at-risk population increases. Spending in the public building category will therefore remain at its current lofty level.

Construction of detention facilities has been fueled by rising crime rates and growing concern over public safety. Court houses and police stations have been forced to handle the increased load in the criminal justice system. At present, justice projects account for approximately two-thirds of public construction spending.

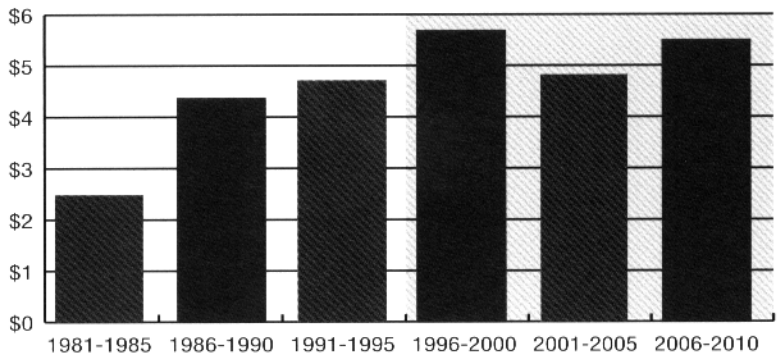
The inmate population has increased more that threefold since 1980, mostly because of the rise in drug offenses. Drug-related crimes account for over 60% of commitments to federal prisons and a third of commitments to state prisons. Although jail and prison construction has increased sharply, it has failed to keep pace with growth in the inmate population. Federal prisons are running at about 130% of design capacity, and 38 states have prison populations in excess of capacity. Meanwhile, local jails are operating close to 100% of capacity nationally, up from around 80% in 1980.

Persistent overcrowding ensures that justice construction will remain strong over the next 15 years. The at-risk population (18 to 24 year-olds) will also grow by about 20% during this period—well ahead of the overall population. This age group makes up over a third of the current population of prison inmates.

Other types of public construction projects, in contrast, have seen little growth because government employment has begun to stabilize. During the 1960s and 1970s, the role of government was expanding and the number of public employees grew at a pace well above that in the private sector. Beginning around 1980, the movement to curb the growth of government started to take hold, reducing the growth in public employment to about 1% annually. Federal government employment is now lower than in 1980, and continuing budget pressures will likely limit job growth in the future.

20 Public Construction Remains a Strong Sector

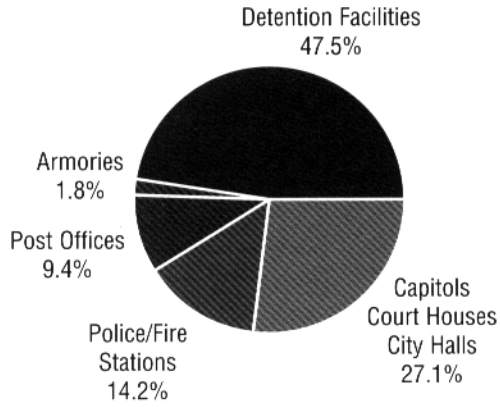
Billions of 1987 dollars, five-year averages



Sources: F.W. Dodge and The American Institute of Architects

21 Justice Facilities Dominate the Public Construction Market

% of construction, 1990-1995 average



Source: F.W. Dodge

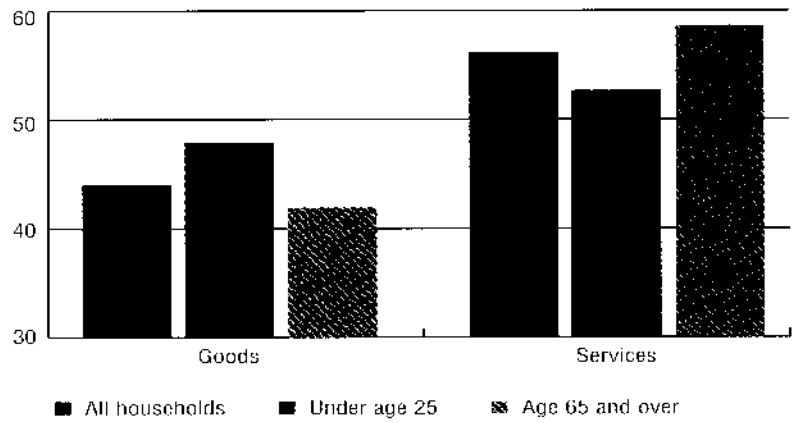
RETAIL FACILITIES

TRENDS

- **On-line shopping options will diminish the need for new retail outlets, while electronic display capabilities reduce space requirements at existing facilities.**
- **As the population ages, spending will shift away from goods and toward services, further reducing the demand for new retail facilities.**
- **Tomorrow's consumers will look more for security and convenience, rather than entertainment, in their shopping choices.**

23 Older Households Spend Less on Goods

% of household expenditures, 1990



Source: US Bureau of Labor Statistics

Retail construction spending will retreat from current strong levels as excess space and weaker sales growth force retailers to rethink expansion plans. The aging population will further dampen the need for new retail projects, given that older households spend a smaller share of their incomes on store products. The growing number of alternatives to in-store shopping is yet another negative for retail construction in the years ahead.

Over the past two decades, the strength of retail construction has resulted as much from the introduction of new retailing formats as it has from the need for additional space. Power centers, warehouse clubs, festival market places, and megamalls, among other formats, have not only changed the face of retailing but also produced tremendous booms in retail building.

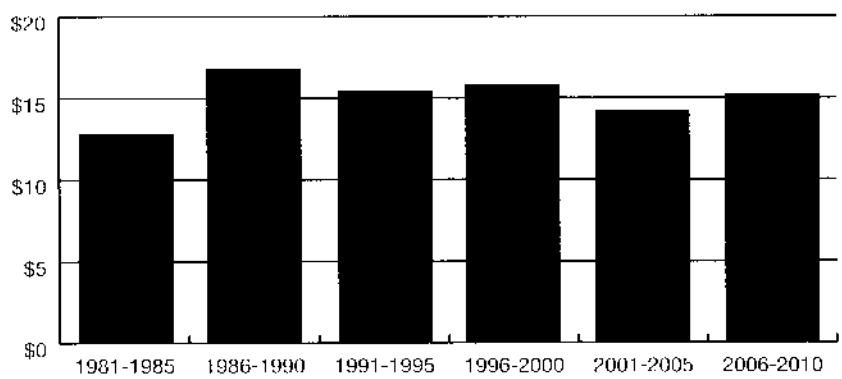
The growth in retail activity has closely paralleled the gains in disposable income in recent years. This implies that the new formats have been more successful in pulling sales away from other retailers than in adding new sales. As a result, retail sales per square foot of space have dropped, a trend that will serve to limit new construction activity in the years ahead.

In addition, an aging population does not favor retail markets. As the baby-boom generation moves into its late 50s and 60s, these consumers will spend more of their incomes on services than on goods. What is more, consumer surveys reveal that persons aged 60 and over are the least likely age group to visit malls regularly. Given these behavioral trends as well as growing concerns over security, tomorrow's older households are likely to handle more of their goods purchases from the comfort of their homes.

The need for added retail facilities should therefore be modest over the next 15 years. Nevertheless, the relationship between space needs and retail construction activity is imperfect. As retailers attempt to come up with a better mousetrap to generate more sales, today's retail formats may well become obsolete. In that case, retail construction activity may indeed exceed the amount of new space needed.

22 New Shopping Habits Will Limit Retail Construction

Contract awards, billions of 1987 dollars, annual averages



Sources: F.W. Dodge and The American Institute of Architects

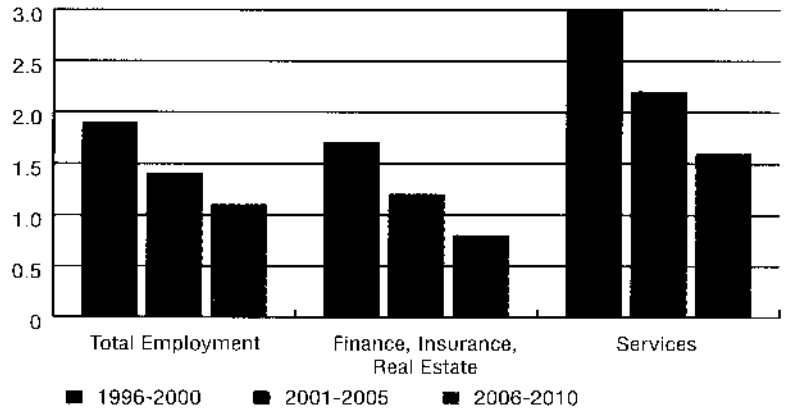
OFFICE BUILDINGS

TRENDS

- **The growing popularity of home and mobile offices will reduce the need for additional office space; the office buildings that are constructed will have more flexible designs.**
- **Productivity gains in the service sector will slow the growth of office support jobs, but likely lead to more space use by other employees.**
- **Office construction will be concentrated in suburban locations, in line with urban development and employment growth patterns.**

25 Office Employment Growth Set to Slow

Average annual % change in payroll employment



Source: US Department of Commerce

After suffering an eight-year recession, the office construction market began a tentative recovery in 1993. Rising rents, falling vacancies, and continued growth in office employment now ensure that construction activity will return to levels close to those in previous decades. Even so, construction of new office buildings will again level off as employment growth slows and firms aggressively manage space costs.

The demand for new office buildings is basically determined by the growth of office employment and the space needs of these additional workers. Today, nearly 80% of office jobs are in the services and the finance, insurance, and real estate industries. While these two broad sectors of the economy will still generate virtually all future office employment opportunities, the pace of job growth is headed for a slowdown beginning in about a decade.

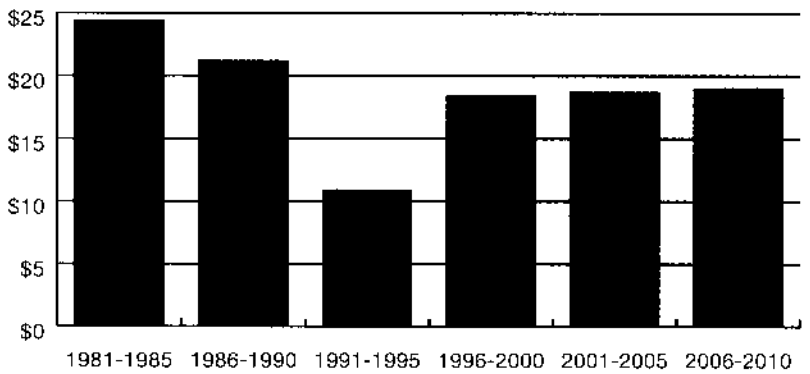
Businesses have been on an equipment investment binge in recent years, dramatically increasing their purchases of personal computers, voice messaging systems, cellular phones, and customized software. As a result, service-sector productivity (output per worker) has improved. Businesses have cut office support staff and are contracting activities out to more efficient specialty service suppliers. The growth of office employment will therefore slow as productivity continues to climb.

In the 15 years ahead, two conflicting forces shape the outlook for office construction. On the one hand, the shift to a more highly skilled workforce is likely to increase the amount of space required per worker. On the other hand, lower vacancy rates will be pushing up office rents, and businesses will be looking for opportunities to keep space costs under control.

Two cost-management approaches that have become increasingly popular are telecommuting and work-space sharing. The goals are aggressive: a recent survey of major businesses found that three-quarters of the companies are actively trying to lower the space needs per employee, with a 25% reduction the average target. As companies pursue new ways to manage their space needs, they will be looking to consolidate their locations and to increase the flexibility of the space they do keep.

24 Office Construction on the Road to Recovery

Contract awards, billions of 1987 dollars, annual averages



Sources: F.W. Dodge and The American Institute of Architects

MANUFACTURING AND DISTRIBUTION FACILITIES

TRENDS

- **As competition in both domestic and international markets intensifies, US manufacturers will put more emphasis on research and development.**
- **Distribution systems will be under pressure to generate the same productivity gains that have been realized in manufacturing.**
- **In emphasizing consumer choice, manufacturers and distributors will expand their product offerings—compounding the pressures to manage inventories closely.**

27 Productivity Gains Limit Manufacturing Space Needs

Average annual % change, 1980-1995

Sources: Federal Reserve Board, US Bureau of Labor Statistics, and F.W. Dodge

Productivity gains in the industrial sector, coupled with generally slower growth in the economy, will limit the need for additional manufacturing and distribution capacity. While growth in merchandise exports will partially offset this dampening effect, the amount of industrial construction activity in the next 15 years will still be lower than in the previous 15.

Investments in capital equipment have dramatically improved the performance of US manufacturers. Today, the typical manufacturing worker produces 60% more goods per hour than in 1980. And since productivity has risen faster than output, the number of manufacturing workers is now lower than 15 years ago.

The aging of the population will further erode the need for additional manufacturing facilities, given that the elderly spend less of their incomes on consumer goods. Nevertheless, growth in international trade will offset some of the manufacturing slowdown. Now that trade agreements are less restrictive, exports make up almost 12% of the output of the US economy—half again as much as in 1980. Indeed, exports account for almost a fifth of total US factory output.

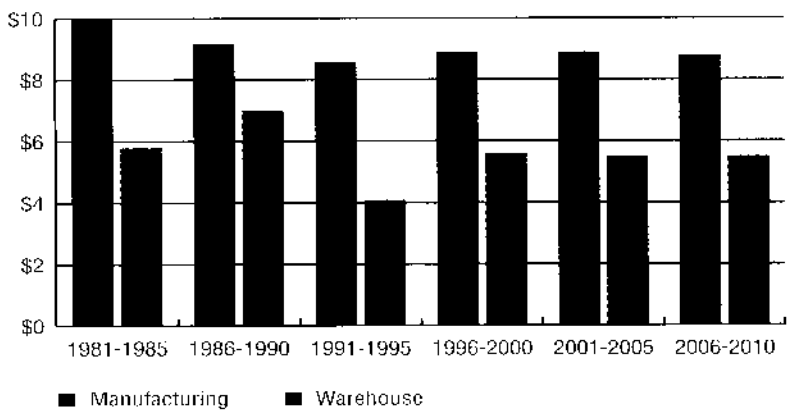
Competition from countries with lower costs has, however, forced US manufacturers to focus on more technologically sophisticated products. This focus on new product development and enhancement has made research and development facilities the fastest growing manufacturing construction category.

Warehouses currently account for about a third of all industrial construction spending. Because wholesale distribution has not experienced the same productivity gains as manufacturing, warehouse facilities have made up a growing share of the industrial construction category.

Improved inventory management, however, has already begun to reduce the demand for additional facilities. Inventories as a proportion of sales for manufacturers and distributors are now almost 10% lower than a decade ago. With increasingly thin profit margins throughout the distribution system, tighter inventory controls will limit warehouse construction over the next 15 years.

26 Industrial Construction Will Stabilize

Contract awards, billions of 1987 dollars, annual averages



Sources: F.W. Dodge and The American Institute of Architects