

Alaska's Construction Industry

by Neal Fried,
Brigitta Windisch-Cole
and Brynn Keith

It has brought stability to the state's economy

Construction activity is often regarded as an economic bellwether. Its performance is a billboard for consumer confidence—particularly the residential and commercial building sector. Changes in the level of construction activity often signal a change in the economic climate of an area, state or nation. Because of this, the industry's performance often serves as a barometer of future economic wellbeing.

Alaska's construction industry in recent years has marched to a different drummer than it did in the past and its role in Alaska's economy has changed. It does not have as large an impact on the state's economy as it did in earlier decades. It has become far more stable and predictable, adjectives that would not fit Alaska's past construction history. Since 1989, construction has provided more certainty and steadiness to the state's economy than most other industries of consequence.

Its role has changed

Historically, construction has been characterized by boom and bust cycles—driven by the construction of military projects, refineries, oil pipelines, oil field developments and other big infrastructure projects. It was often the leading economic indicator for the state's overall economy. The industry's vigor was often the engine that drove the rest of the economy.

The last construction "boom" the state experienced was that of the early 1980s. Oil revenue

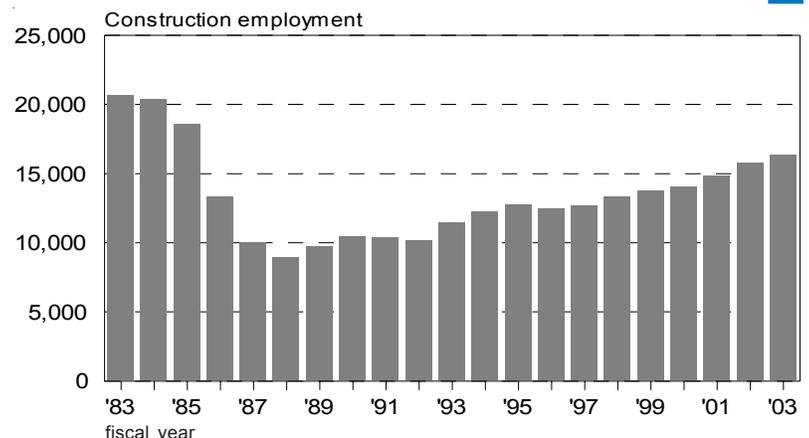
riches and a growing population, along with other factors, all contributed to its exuberance. Like so many classic construction booms, it was followed by a classic bust. More than 17,000 jobs were lost in the state's economy between 1985 and 1988 and more than half of these were in construction. Unlike previous down cycles in this industry, this one appears to have permanently changed the face of the industry and the role it plays in the state's economy.

Construction has enjoyed a long period of growth

Construction employment began to recover in 1989 and has been gaining incrementally ever since. (See Exhibit 1.) Over the past decade, it

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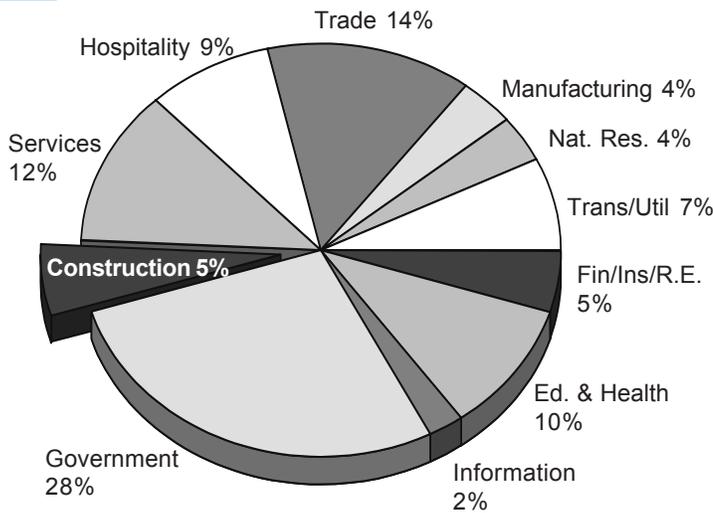
The picture of stability since 1989



Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

2 Construction Employment

An important slice of Alaska's economic pie



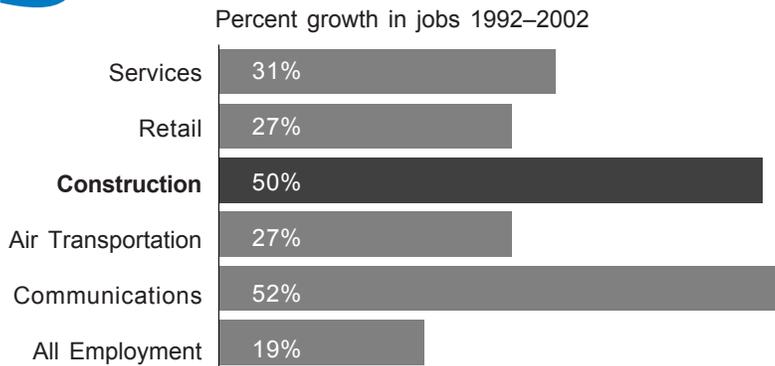
Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

grew by more than four percent a year. In 2003, construction employment may reach 16,400. Although the industry has made a steady recovery, it still does not approach the employment peaks of 30,000 established in 1976 or 20,700 reached in 1983. In those years it was not unusual for construction to account for eight to ten percent of all Alaska's wage and salary employment, and at times the industry's payroll represented as much as a third of all earnings paid to Alaska workers.

By the end of the construction bust of the late 1980s, construction's share of all wage and salary employment had fallen to a low of four percent. Since that time the industry's share has grown slightly and it now employs five percent of the wage and salary workforce. (See Exhibits 2 and 3.) It seems unlikely that the industry's share of the workforce will regain the high levels of the past.

3 Construction

A growth star over the past decade



Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

Over the past two years construction employment has enjoyed strong growth, posting growth rates of 5.7 percent in 2001 and 6 percent in 2002. The preliminary mid-year performance for 2003 was up 2.7 percent from 2002. The impetus for this growth in Alaska's construction industry has come from a variety of sources, both public and private.

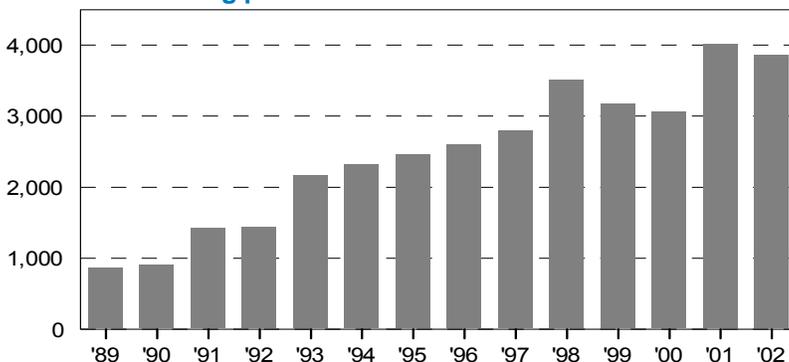
The private side—new hotels, stores, office buildings and oilfields

Between late 1998 and 2001 oil provided the construction industry a big boost with the development of the Alpine and Northstar fields on the North Slope. Since then oil's influence has waned. According to figures provided by Associated General Contractors, the oil industry spent approximately 25 percent less on construction in 2003 than it did in 2002. This reduced amount added up to \$1.4 billion.

4 Residential Construction

Boosts growth

Building permits statewide



Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

During the past five years the visitor industry has been an important source of construction activity. Hotel construction in Anchorage, Fairbanks and other tourist destinations in the state helped vitalize the industry. Between 1997 and 2002 eleven new hotels were built in Anchorage and six in the Fairbanks area. Princess Tours built two large resorts, one in the Talkeetna area and the second in Copper Center. Other hotel construction occurred at the Denali Park entrance, in

Talkeetna, on the Kenai Peninsula and many other locations. Current and planned hotel construction may add another five lodging places to Anchorage's inventory by 2005. A large number of restaurants were also built over the past five years, and this has helped expand the accommodation industry.

Retail construction has concentrated in Anchorage and the nearby Mat-Su Borough, where large building supply, grocery, specialty retail, and general merchandise stores were built. In the past few years, big box stores entered the Wasilla area, contributing to the development of a large and diversified shopping area. Additional retail development is planned for Palmer (Fred Meyer), Kenai (Home Depot), and Fairbanks (Wal-Mart).

Large office complex construction joined the building scene in recent years. Most of this new office space was built in Anchorage, where at least four multi-level buildings were erected recently, the largest being the ten-story Arctic Slope Regional Corporation headquarters building.

After the deep trough of the mid-1980s, residential construction began a slow recovery in the early 1990s. (See Exhibit 4.) Not all residential building activity is captured in these numbers, because some jurisdictions do not require building permits. Evidence exists that residential construction was also brisk in many of these unmonitored areas. Residential building activity accelerated in 1998 and has remained strong ever since.

The 2001 building season set a new record for the decade and the 2003 season may be set to top this performance. At this early stage, building activity in Anchorage, Alaska's largest housing market, is substantially up over last year. Building permits for housing units were up nearly 22 percent, and valuation of all projects, which includes commercial and public construction, increased by over \$130 million or nearly 33 percent over last year's figures. Residential building is also robust in Fairbanks and in several other parts of the state. Low mortgage interest rates have undoubtedly given a big boost to residential housing construction.

Federal government plays huge role

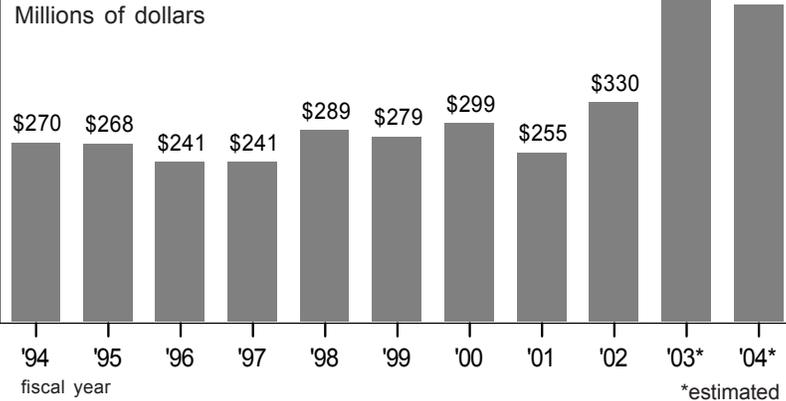
During the past five years all three levels of government have contributed to strong construction seasons, but since 2001, federally funded projects, mainly military related, have become the strongest contributor. Base infrastructure renewal, dormitories/barracks, family housing, training areas, and other new structures have transformed many of these bases into huge construction sites. The Bassett Hospital replacement on Fort Wainwright became the single largest building project in Fairbanks. The nearby missile defense test site at Fort Greely is the largest Department of Defense project in the state. Total project costs, stretched over several years, are estimated to amount to \$250 million. As part of an integrated missile defense shield, construction workers are also preparing sites and systems on Shemya Island in the Aleutian chain. According to information provided by the U.S. Army Corps of Engineers, current federal construction amounts to \$493 million. (See Exhibit 5.)

The Corps' construction projects also include civilian infrastructure improvements. Harbor and port extensions are an example of the Corps' responsibilities. Several port and harbor improvements are underway and more are scheduled. Among them are the St. Paul harbor expansion and a \$13.8 million harbor improvement project in Wrangell. Other federal construction money was funneled via the Denali Commission to rural areas where it is being used to build water and sewer systems, bulk fuel farms and airport lighting. In 2003, the commission administered over \$110 million to improve rural infrastructure.

Road improvements dominate the state's construction activity

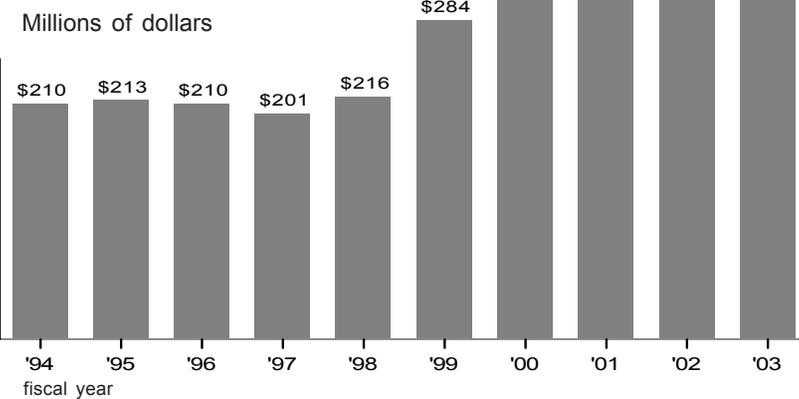
Over the past four years federal highway dollars spent in Alaska broke the \$300 million mark. The past two seasons have been busy with projects in nearly every part of the state. (See Exhibit 6.) Some of the large highway related projects are in the Anchorage/Mat-Su region. The largest site, a carryover project from previous seasons, is the interchange at the intersection of the Glenn and Parks highways.

5 Construction is Helped along by U.S. Army Corps of Engineers



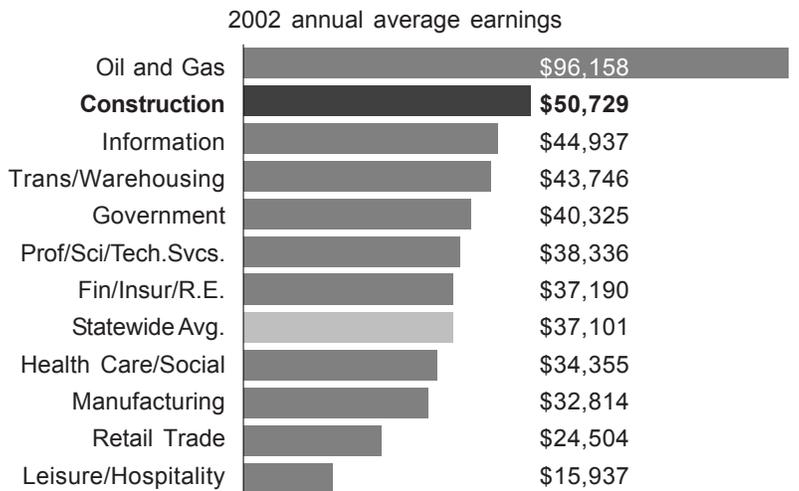
Source: U.S. Army Corps of Engineers

6 Federal Highway Funds Are a big plus in Alaska



Source: Alaska Department of Transportation and Public Facilities

7 Earnings in Construction And other Alaska industries



Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

State sponsored building has focused on only a few projects. For several years now the state's largest capital project has been the expansion at Ted Stevens International Airport in Anchorage. Some construction involving libraries occurred at the University of Alaska campuses in Anchorage and Fairbanks. In Fairbanks the museum expansion has begun; it will be the largest university construction project for several years.

School renewals and replacements have also helped to boost the construction industry. Several new schools were built in Anchorage, and upgrades were undertaken in Fairbanks and elsewhere. Construction experts estimate that over \$220 million are being spent on schools during the 2003 construction season.

It's a high payer

Only oil industry employees enjoy higher earnings than construction workers. The construction industry is one of the few high paying industries that have grown over the past decade. Average annual earnings in construction were \$50,729 in 2002. This is 37 percent above the overall statewide average of \$37,101. (See Exhibit 7.) Earnings are high partly because the wages paid to specific crafts people in the industry are above average, and in some cases significantly so. (See Exhibit 17.) The prevalence of overtime work, which is paid at one and a half times the base wage, is another important factor. Because of these higher earnings, construction's payroll has a greater impact than its employment numbers would suggest. (See Exhibit 8.)

A very seasonal industry

Construction remains one of the most seasonal industries in the state—only the visitor industry and fish processing would register as more seasonal. (See Exhibit 9.) In the July 2003 issue of *Alaska Economic Trends*, the seasonality of the state's workforce was explored in detail. This study found that 51 percent of construction's employment was categorized as highly seasonal. In 2002, average annual employment in construction was 15,800; monthly employment peaked at 19,700 in August; then it fell to its low point of 12,200 in January.

The pattern of seasonal employment in this industry shows little evidence of change during the past 20 years. Seasonality may partially explain the high percentage of nonresidents, 18.4 percent, working in construction. In 2001, 13 percent of the industry's payroll was paid to nonresidents.

More than 35,000 people worked in the industry in 2002

Although the annual average job count for construction in 2002 was 15,800 and the peak job count was 19,700, the industry directly employed more than 35,000 individuals. Why the difference? The first two figures count jobs. The latter figure, on the other hand, counts the number of different individuals that worked in the industry at any time during the year—some of whom may have worked only a day, a week, or a month. Due to turnover, several individuals could hold one of these jobs during the course of a year. The single largest group of these individual workers worked four quarters (29 percent). Nearly 28 percent worked one quarter or less. Using individual worker data, the average construction worker who worked during three quarters of the year in 2002 was paid \$26,425 compared to \$48,832 for the workers who worked in all four quarters—considerably different earnings than the job count earnings displayed in Exhibit 7.

Jobs exist around the state but headquarters is Anchorage/Mat-Su

According to reported employment data, more than half of the jobs in the construction industry are located in the Anchorage/Mat-Su region. (See Exhibit 10.) In theory, employment data are reported by the location of the job. The nomadic and often short-term nature of construction contracting work make pinpointing the actual employment location difficult. Contractors often report all of their employment in their headquarters location. If the exact location of all construction jobs were documented, the geographic distribution of this employment would be more dispersed.

In some ways Alaska's experience is similar to the nation's

Although the industry has not regained the employment levels of the early 1980s, it did grow by 50 percent between 1980 and 2002. This mirrored the industry's performance in the rest of the nation. Paralleling the national experience, employment growth was concentrated in the latter part of the 1990s. (See Exhibit 11.) The statewide and national trends diverged in the 2001-2002 period. (See Exhibit 12.) During those two years, Alaska's construction industry continued to grow while the industry in the rest of the nation shed jobs. Construction employment in the nation began to regain some ground in the first half of 2003, as Alaska continued on its long path of growth.

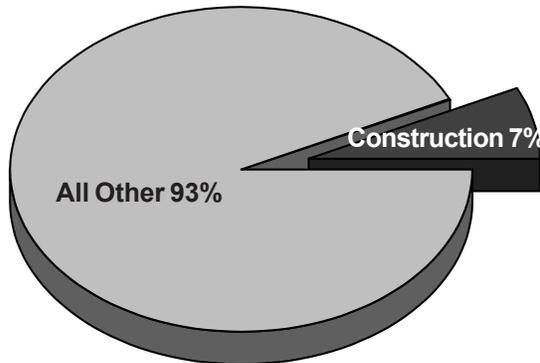
Characteristics of the construction industry

In labor statistics, construction activity is divided into three major branches that identify the type of construction work. (See Exhibit 13.) Those include: construction of buildings; heavy and civil engineering construction; and specialty trade contractors. (See Exhibit 14.)

Construction of buildings

The construction of buildings category essentially covers general contractors. This group is primarily involved in constructing residential and commercial buildings such as homes, hotels, institutions such as hospitals, office buildings, and retail establishments. This group of contractors usually assumes the entire responsibility for the construction of such buildings. General contractors usually retain oversight of subcontractors, who often represent specific trades. Some general contractors retain specialty crafts people as staff, which allows them to complete multiple construction phases of a building. Some general contractors are small firms that typically employ only a small staff and subcontract out most of the work. Some residential general contractors are self-employed and have no employees. They simply subcontract with specialty trades contractors

8 Construction Share of total earnings



Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

to perform most of the work. Such individuals, however, keep control over the project.

Heavy and civil engineering construction

Heavy and civil engineering construction firms often take on large projects such as roads and bridges, harbor dredging, pipeline construction, other oil and gas work, power plants and other heavy and civil engineering projects.

Specialty trade contractors

Specialty contractors perform specific tasks such as painting, plumbing, electrical work, pouring concrete, framing, glassing windows, digging foundations, erecting structural steel, etc. (See Exhibit 15.) These specialty contractors are often doing work for general or heavy construction contractors. In some cases, particularly with remodeling or repair jobs, these contractors often work directly for the owner of a property.

Often the size and experience of a firm determines whether a firm can secure a particular construction contract. Bonding, a required and expensive insurance coverage designed to diminish structural or completion risk for project owners, often prevents smaller contractors from taking on large projects. The general or heavy and civil engineering contractors who work on large projects are usually big and often national firms. In contrast, specialty trade contractors tend to be local, smaller, and more numerous.

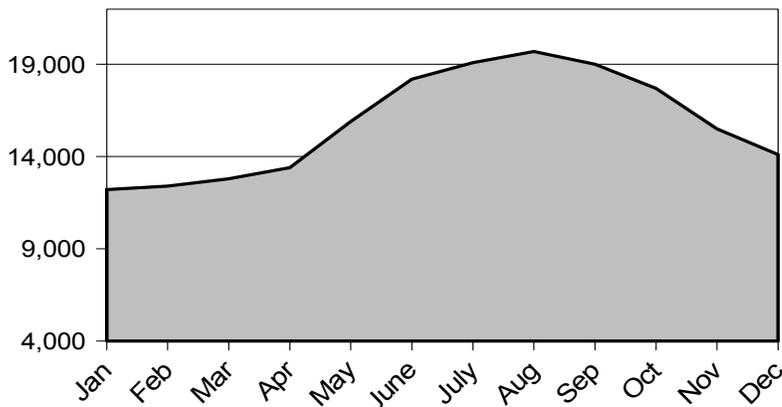
Although construction contractors are classified in one of these three areas, this does not prevent their taking on work in the other two areas. There are many contractors who switch types of work frequently and perform work outside their specialty.

The contractor variety

In 2002, there were 1,482 specialty trade employers, 738 building contractors, and 387 heavy and civil engineering construction firms. Specialty trade employed more than 53 percent of Alaska's construction workforce. Nearly 30 percent of the crews worked for general or building contractors and 17 percent worked for

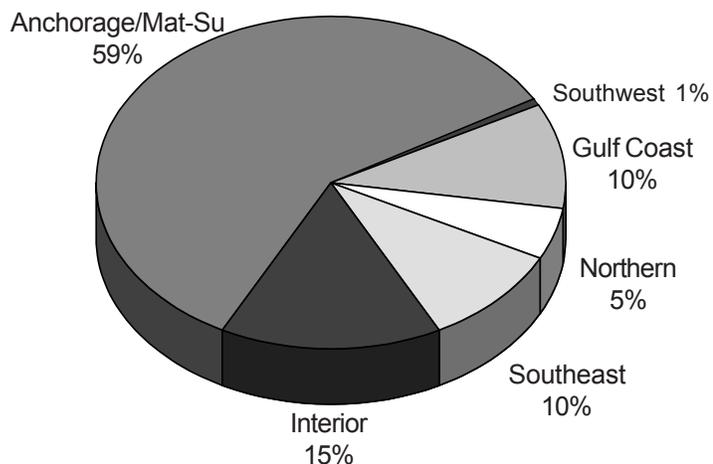
9 Construction Employment Nearly doubles in peak months

Number of jobs 2002



Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

10 Over Half of Construction Jobs Are in Anchorage/Mat-Su



Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

heavy and civil engineering contract companies. Nationally, employment also concentrated in the specialty trade group. Heavy construction employed 14 percent and building contractors 23 percent. The primary reason for the proportionally larger heavy and civil engineering construction workforce in Alaska in the 2002 season was the large amount of public sector infrastructure expansion and military construction.

Electrical contractors prominent in the specialty trade category

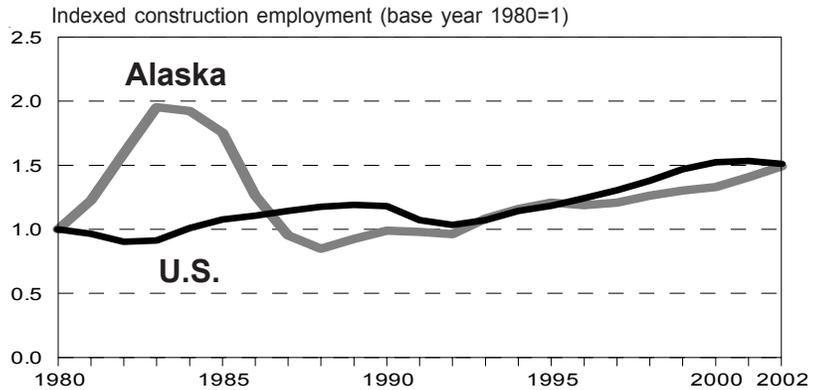
Among specialty trade firms, electrical contractors employed the most workers in 2002. One explanation for the size of this workforce, is that general contractors more often than not subcontract the electrical portion of their job to these specialty contractors. (See Exhibit 15.) Plumbing, heating and air conditioning specialty firms were the most numerous. This specialty employed the second largest workforce, followed by site preparation firms. Other construction industry specialty firms formed smaller groups with fewer workers.

Construction's occupational mix

Alaska's construction industry employs workers in more than 160 separate occupations including such diverse careers as accountants and pipe layers. People with many different talents, interests and skills—managers, clerical workers, skilled craftworkers, semi-skilled workers and laborers—find job opportunities in the construction industry. For the purposes of this article, the analysis of the construction industry's occupational mix was restricted to the 75 occupations with estimated employment in 2000 greater than ten. (See Exhibit 17.)

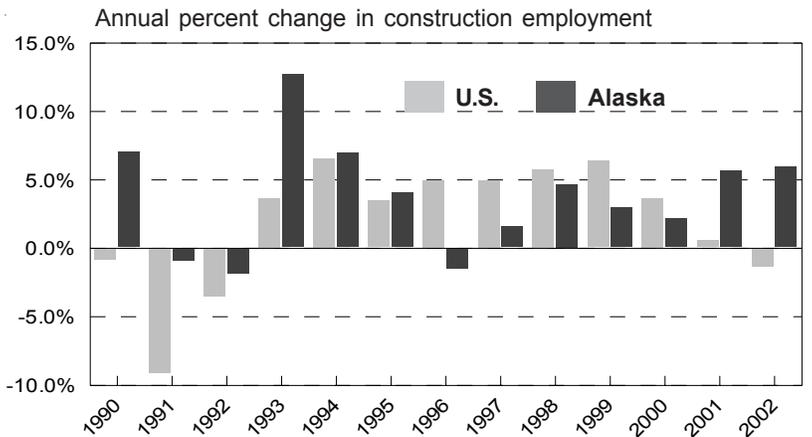
Nearly 70 percent of the employment in the construction industry was concentrated in the occupational category of construction and extraction workers. The remaining 30 percent was split between five broad categories including such varied functions as office support and transportation and material moving. (See Exhibit 16). Further concentration took place in occupations—over 46 percent of total industry employment fell into the industry's five largest discrete occupations — carpenters; electricians;

Employment Trends Converge **11** In Alaska and U.S. in past decade



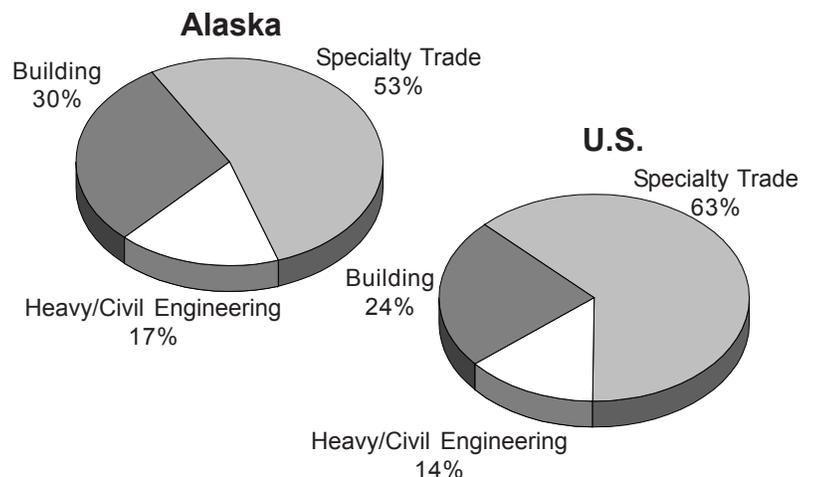
Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section; U.S. Department of Labor, Bureau of Labor Statistics

Employment Growth Rates **12** Alaska and U.S. compared



Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section; U.S. Department of Labor, Bureau of Labor Statistics

Heavy & Building Construction **13** Are bigger players in Alaska



Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section; U.S. Department of Labor, Bureau of Labor Statistics

construction laborers; operating engineers & other construction equipment operators; and plumbers, pipefitters & steamfitters. Occupations are listed in Exhibit 17.

Training requirements

Multiple training and education options exist for individuals interested in working in the construction industry. The duration and type of training range from short-term on-the-job training of less than four weeks to preparation requiring a combination of a four-year college degree with

significant work experience. The majority of Alaska's construction jobs require either medium- or long-term training, often available through an apprenticeship program. (See Exhibit 17.)

Apprenticeship programs combine closely supervised on-the-job training with classroom instruction. Apprenticeship training is available in Alaska for roughly one-third of the occupations reviewed in this analysis, covering nearly 65 percent of the industry's employment. (See Exhibit 17.) Of the apprenticed occupations for which wage data are available, all but one—carpet installers—pay higher than average wages. Nine offer average hourly wages in excess of \$23.84.

The various construction helper occupations offer another route into the construction fields. Helpers work alongside experienced craft workers, such as electricians and carpenters, performing a variety of unskilled tasks and providing much of the physical labor needed in construction. After acquiring experience and skill in various phases of the craft, they may become journey level craft workers. With combined employment in 2000 of just over 400, the helper occupations represent slightly less than three percent of the construction industry workforce.

Nonresident worker rates are high

Based on 2001 data, 23 of the occupations reviewed for this analysis had nonresident employment rates higher than the all-occupation average of 18.4 percent, and most of these occupations pay higher than average wages. The combination of high nonresident employment rates and high wages, in occupations such as electricians (\$24.86/hr.) and structural iron & steel workers (\$26.05), represents lost career and employment opportunities for Alaska's workers.

Future prospects will vary by occupation

Construction occupations are expected to offer solid employment opportunities in the future. Demand will be driven by both the need for additional workers as new projects develop and

14 Largest Construction Employers Alaska—2002

	Annual Average Employment	Type
1	Wilder Construction	213 heavy/civil eng
2	Osborne Construction	208 building
3	Colaska	186 heavy/civil eng
4	Summit	144 heavy/civil eng
5	Alcan Electrical	142 specialty
6	SKW/Eskimos	130 building
7	Alaska Interstate Inc. (AIC)	130 heavy/civil eng
8	Houston Contracting	127 heavy/civil eng
9	Alaska Mechanical Inc. (AMI)	105 building
10	Harpoon Construction	105 building
11	Ahtna Construction	103 heavy/civil eng
12	Conam Construction	101 heavy/civil eng
13	Davis Constructors	100 building
14	Kiewit Construction	96 building
15	Wolverine Supply	93 building
16	Aurora Electric	91 specialty
17	Mountain Development	90 building
18	Neeser Construction	87 building
19	Great Northwest	82 specialty
20	Simplex Grinnell	82 specialty
21	Brechan Enterprises	77 heavy/civil eng
22	West Construction	74 heavy/civil eng
23	LH Construction	70 building
24	REDI Electric	68 specialty
25	H&H Contractors	68 heavy/civil eng

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

the need to replace retiring workers. In 2002, Alaska's "average" construction worker was just over 37 years of age, with 30 percent of the construction workforce falling into the 45 or older category. As a result, the need to recruit new workers to the construction fields is receiving increasing attention from both industry officials and state policymakers.

Due to changes in construction methods and technology, future employment growth will be distributed unevenly among occupations. Employment of electricians is expected to grow faster than the industry average because of the need to wire both new and existing structures to accommodate the use of computer and telecommunications equipment. By contrast, the use of improved concrete pumping systems and quicker-setting cement will dampen the demand for cement masons.

Construction remains a fundamental part of Alaska's economy

Although construction's role in Alaska's economy has changed over the past decade, it remains one of the state's fundamental economic pillars. Construction provides us with roads to drive on and places to live and work, and it also generates thousands of high quality jobs. On a basic economic level, it attracts new money into the state's economy via the oil industry, the federal government, the visitor industry and other outside investments. During this past decade it has been one of the state's more stable and predictable industries and has been one of the few steady sources of new high quality employment opportunities. The outlook in the near-term remains positive, while the long term raises questions. The possible decline in federal spending weighs in on the negative side, while the possible construction of a gas pipeline and other sizeable projects argue for an even brighter future.

Construction Specialties 15

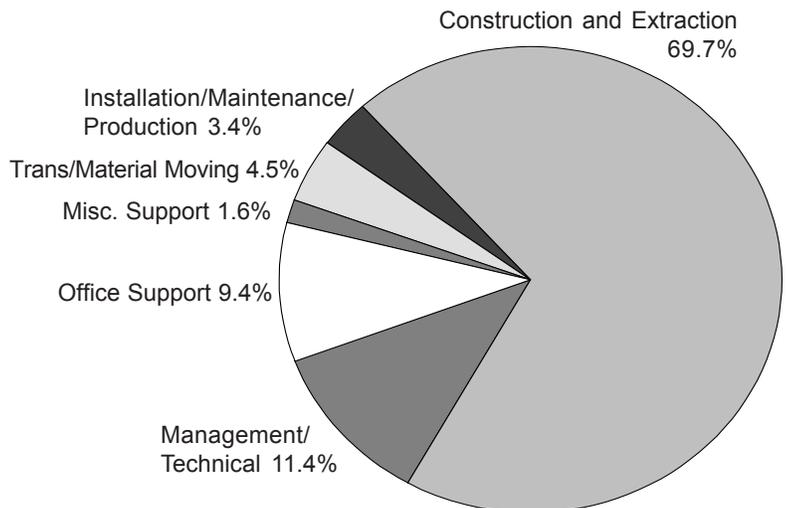
Examples in year 2000

	Firms	Ann. Avg. Employment
Foundation, concrete, structural steel, precast concrete	59	353
Framing	105	356
Masonry	48	246
Glass and glazing	11	109
Roofing	50	312
Siding	23	84
Other foundation, structure, and building exterior	7	12
Electrical	212	2,287
Plumbing, heating, air conditioning	218	1,818
Other building equipment contractors	24	177
Drywall and insulation	107	423
Painting and wall covering	131	440
Flooring	42	73
Tile/terrazzo	21	48
Finish carpentry	114	251
Other building finishing	14	89
Site preparation	216	1,093
Other specialties	80	312
Total	1,482	8,483

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

Construction's Staffing Pattern 16

Alaska 2000



Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

17 Occupations by Education or Training Required

Construction

Exhibit 17 organizes the occupations commonly found in the construction industry by the minimum level of training or education generally required for entry. The table includes 2000 estimated employment, the wage quartile (noted by \$), the percentage of the occupational employment found in the construction industry, the percentage of workers 45 years of age or older, and the percentage of nonresident workers in the occupation. Employment estimates for occupations that occur in multiple industries, such as civil engineers, include only the construction industry portion. Wage estimates are based on employer-reported wages for both union and nonunion workers. **Occupations for which apprenticeship programs exist in Alaska are bolded.** Nonresident status is based on the Permanent Fund Dividend definition.

Wage Quartiles

\$\$\$\$	\$23.84 & higher
\$\$\$	\$16.72–\$23.83
\$\$	\$12.35–\$16.71
\$	Up to \$12.34

Occupation	Estimated Employment 2000	Wage Quartile	Percent of Occupation in Construction	Percent of Workers 45 & Over 2001	Percent Nonresident Workers 2001
Bachelors and Above					
Construction Managers	527	\$\$\$\$	59.8	54.0	15.6
General & Operations Managers	482	\$\$\$\$	6.9	48.7	9.3
Cost Estimators	188	\$\$\$\$	50.7	54.4	12.2
Financial Managers	100	\$\$\$\$	6.7	49.0	7.2
Accountants & Auditors	42	\$\$\$\$	2.1	40.0	6.3
Chief Executives	39	\$\$\$\$	4.4	63.8	7.5
Civil Engineers	39	\$\$\$\$	3.9	44.8	8.9
Purchase Agents, except Wholesale, Retail & Farm Products	32	\$\$\$\$	5.6	49.8	6.3
Engineering Managers	20	\$\$\$\$	3.9	57.8	12.3
Administrative Services Managers	17	\$\$\$	1.6	50.8	6.2
Surveyors	12	\$\$\$\$	3.1	46.7	18.7
Associate/Postsecondary Vocational Program					
Mobile Heavy Equipment Mechanics, except Engines	65	\$\$\$\$	11.0	41.0	16.9
Bus & Truck Mechanics & Diesel Engine Specialists	61	\$\$\$	7.8	32.5	16.5
Welders, Cutters, Solderers & Brazers	61	\$\$\$	9.5	33.9	36.1
Telecomm Equip Install/Repair, except Line Installers	32	\$\$\$\$	4.7	44.0	10.7
Work Experience in a Related Occupation					
First-Line Supv/Mgrs: Const Trade & Extraction Wkrs	542	\$\$\$\$	29.2	53.0	23.5
First-Line Supv/Mgrs: Office & Admin Support Wkrs	112	\$\$\$	3.7	43.8	6.6
Construction & Building Inspectors	61	\$\$\$\$	25.0	62.3	21.4
First-Line Supv/Mgrs: Retail Sales Workers	25	\$	0.7	29.9	7.9
Long-term On-the-Job Training (more than 12 months)					
Carpenters	2,016	\$\$\$	47.8	30.1	16.8
Electricians	1,359	\$\$\$\$	65.7	33.3	20.6
Plumbers, Pipefitters & Steamfitters	716	\$\$\$\$	52.3	29.2	21.1
Cement Masons & Concrete Finishers	216	\$\$\$\$	83.7	28.8	31.7
Glaziers	215	\$\$\$	82.4	26.2	14.8
Structural Iron & Steel Workers	163	\$\$\$\$	78.7	33.7	25.4
Brickmasons & Blockmasons	135	\$\$\$\$	71.4	25.0	33.8
Maintenance & Repair Workers, General	66	\$\$\$	1.8	42.7	12.3
Heating/Air Condition/Refrig Mechanics & Installers	24	\$\$\$	12.2	34.3	14.8
Reinforcing Iron & Rebar Workers	20	N/A	100.0	27.6	37.2
Elevator Installers & Repairers	18	N/A	100.0	55.6	18.2
Telecommunications Line Installers & Repairers	18	\$\$\$	4.3	45.6	13.5
Plasterers & Stucco Masons	14	\$\$\$\$	40.0	34.8	43.6
Electrical Power Line Installers & Repairers	13	\$\$\$\$	4.8	45.1	9.0

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

Construction Occupations by Education or Training Required (continued) **17**

Occupation	Estimated Employment 2000	Wage Quartile	Percent of Occupation in Construction	Percent of Workers 45 & Over 2001	Percent Nonresident Workers 2001
Medium-term On-the-Job Training (1 to 12 months)					
Construction Laborers	1,754	\$\$\$	74.2	22.1	16.7
Operating Engineers & Other Const Equip Operators	724	\$\$\$\$	27.3	45.3	16.2
Truck Drivers, Heavy & Tractor-Trailer	440	\$\$\$	17.4	42.9	15.1
Bookkeeping, Accounting & Auditing Clerks	382	\$\$	8.1	36.7	6.0
Sheet Metal Workers	348	\$\$\$\$	90.2	26.7	15.5
Painters, Construction & Maintenance	261	\$\$\$	33.2	18.9	24.5
Secretaries, except Legal, Medical & Executive	233	\$\$	6.1	40.8	6.9
Roofers	197	\$\$\$	71.4	14.3	17.4
Insulation Workers	165	\$\$\$	65.2	N/A	N/A
Paving, Surfacing & Tamping Equipment Operators	143	\$\$\$	72.6	31.2	25.9
Executive Secretaries & Administrative Assistants	119	\$\$\$	3.7	37.5	7.7
Hazardous Materials Removal Workers	63	\$\$\$	24.9	27.8	15.0
Drywall & Ceiling Tile Installers	60	\$\$\$\$	73.2	20.6	23.3
Carpet Installers	54	\$\$	44.6	25.3	17.4
Earth Drillers, except Oil & Gas	52	\$\$\$\$	38.0	26.2	39.8
Sales Reps: Wholesale & Mfg, exc. Tech & Science Product	49	\$\$\$	2.7	33.2	8.1
Excavating & Loading Machine & Dragline Operators	41	\$\$\$	24.3	37.1	14.5
Fence Erectors	33	N/A	78.6	26.5	12.5
Pipelayers	27	\$\$\$	65.9	28.9	13.5
Tapers	21	N/A	80.8	27.0	28.9
Septic Tank Servicers & Sewer Pipe Cleaners	17	\$\$	58.6	13.2	7.0
Crane & Tower Operators	15	\$\$\$	38.5	53.7	29.0
Mechanical Door Repairers	10	N/A	55.6	66.7	0.0
Short-term On-the-Job Training (less than 1 month)					
Office Clerks, General	250	\$\$	4.0	29.7	10.7
Helpers: Electricians	160	\$\$\$	81.2	14.3	14.5
Helpers: Carpenters	90	\$\$	91.8	16.7	15.0
Payroll & Timekeeping Clerks	74	\$\$\$	12.7	35.1	5.1
Laborers & Freight, Stock, & Material Movers, Hand	58	\$\$	1.2	20.2	16.5
Retail Salespersons	57	\$	0.7	21.9	16.5
Helpers: Paint/Paperhanger/Plaster/Stucco Masons	37	\$\$	100.0	15.4	23.4
Truck Drivers, Light or Delivery Services	37	\$\$	1.8	24.0	11.9
Helpers: Roofers	35	N/A	100.0	0.0	19.4
Receptionists & Information Clerks	26	\$	0.9	23.5	12.7
Industrial Truck & Tractor Operators	23	\$\$	5.1	31.0	20.6
File Clerks	20	\$	2.6	21.9	9.1
Helpers: Extraction Workers	19	\$\$\$	14.7	7.2	20.7
Crossing Guards	18	\$\$\$	62.1	39.2	7.0
Helpers: Pipelayers/Plumber/Pipe & Steamfitters	16	N/A	100.0	21.8	32.2
Production, Planning & Expediting Clerks	16	\$\$\$	4.5	28.6	8.8
Stock Clerks & Order Fillers	16	\$\$	0.5	19.5	12.3
Helpers: Installation, Maintenance & Repair Wkrs	13	\$\$	3.6	25.2	17.9
Maids & Housekeeping Cleaners	12	\$	0.5	31.0	20.9

N/A Data not available

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section