CONSTRUCTION LABOR RESEARCH COUNCIL

# CRAFT LABOR SUPPLY OUTLOOK
# 2005 - 2015

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## Introduction

The availability of an ample supply of skilled labor has always been critical to a smoothly functioning construction industry. The cyclical swings and the localized nature of the industry have, traditionally, made it difficult to maintain a balance between labor supply and demand. In periods of boom, skilled labor is frequently in short supply. More marginal workers are hired and labor costs escalate. Conversely, during slack times the industry pays a price in workers who leave the industry for better opportunities and loss of new entrants to the labor force who never come into the construction industry.

Labor shortages during the boom period of the late 1990's and early 2000's, as well as greater focus on the aging work force in the United States, have increased awareness in the construction industry of the importance of attracting new entrants. Construction is in a competition with other industries to interest qualified young people in careers and more industry programs have been implemented that recognize this. Needs will continue regardless of the phase of the business cycle.

Training requires time, often a number of years. There is, therefore, a lag between recruiting new entrants and producing trained craft workers. Today's actions will impact labor availability many years into the future.

The source data in this analysis are all publicly available from the Bureau of Labor Statistics (BLS) and the Bureau of the Census. Some of the published data have been modified to better reflect construction industry concepts. For example, estimates of craft needs have been adjusted to reflect only persons with occupational skills who are employed in the construction industry. The analysis focuses on long-term needs.

Construction Labor Research Council has been examining labor supply issues in the construction industry for many years. This report is an update of earlier analyses, which have been prepared periodically. CLRC has also assisted local groups in estimating their specific needs and is available to prepare this type of information for others.

Summary

The years 2005 through 2015 will require large numbers of new entrants into the construction trades. Annual new entrants of craft workers into the construction industry are estimated to be 185,000 persons. Needs will be almost evenly divided between growth and replacement.

Like other industries, construction will be significantly affected by an increasing number of older workers leaving the labor force. Available to replace them will be young workers whose numbers will be little changed throughout the period. As this, too, affects all industries, the construction industry will be challenged in attracting an adequate supply of qualified new entrants.

With the working life of construction workers less than many other occupations, the demographic trends are impacting construction earlier than other industries. The construction industry can point to having increased its employment during the 1990's at the same rate as the service sector of the economy. A large influx of Hispanic workers appears to have been a key factor in meeting this demand.

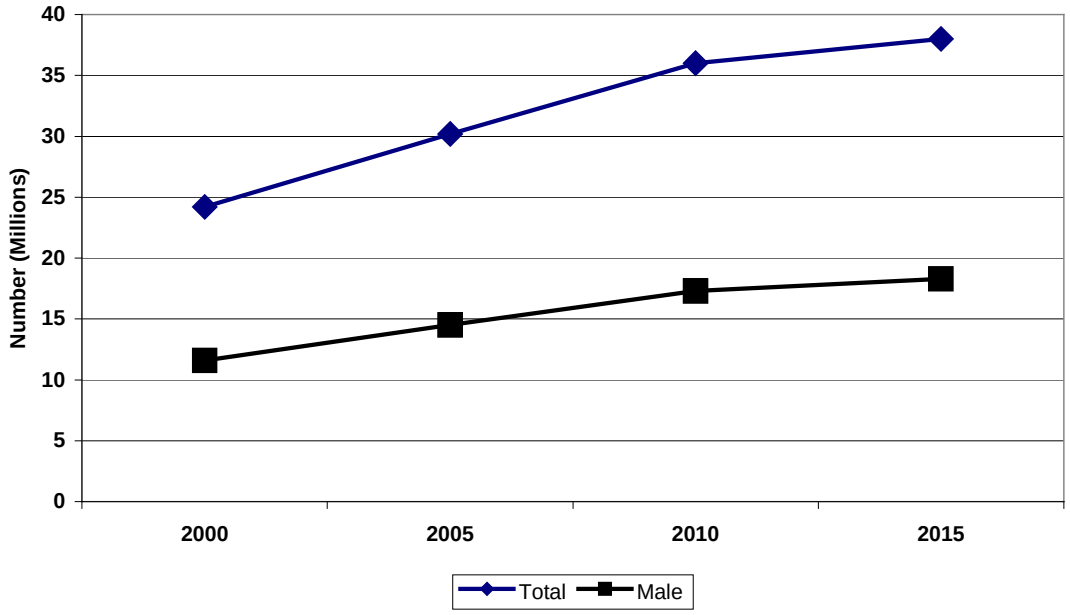
Other factors will influence whether construction will be successful in attracting the new entrants it requires in the next decade. Productivity gains can moderate the estimates. Training is important, but available data indicates training numbers are flat and dependent upon the union sector. Furthermore, BLS estimates of replacement needs appear conservative and may, therefore, underestimate the number of required new entrants.

## Population Trends

The period from 2005 to 2015 will see the baby boomer population bubble have its next impact on society. This population group will be retiring and leaving the labor force. Numbers of new retirees will reach levels never before seen. The construction industry will share in this societal shift.

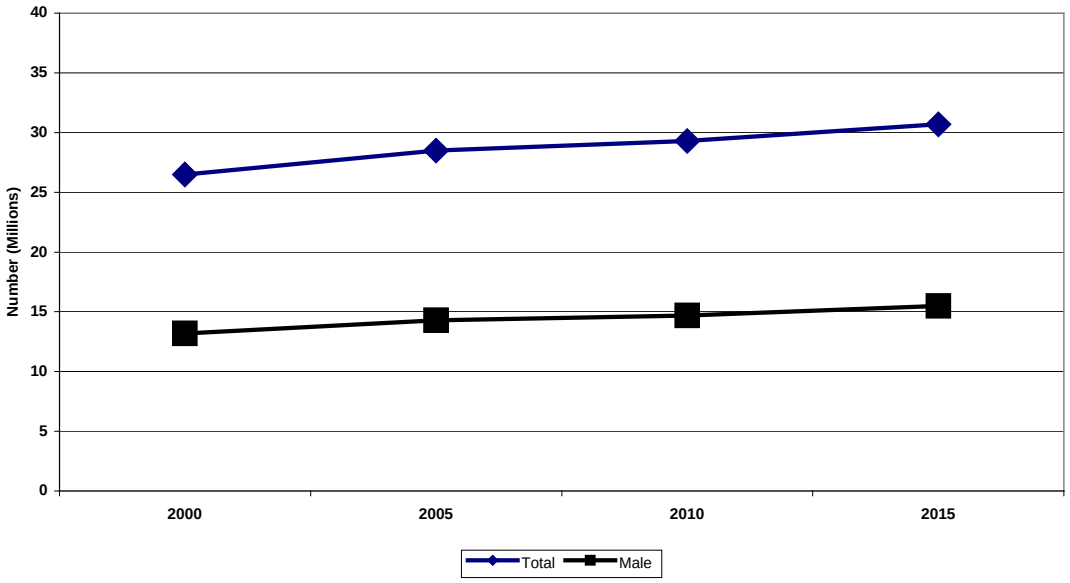
The number of males 55 to 64 years old in the United States is projected to increase from 11.6 million to 18.3 million in the period 2000 to 2015 (Chart 1). Close to 40 percent of the total growth in the male population will be in this age group. This is the age group in which most retirements will occur.

**Chart 1**
**Number of Persons 55-64 Years of Age**



At the same time as the rapid expansion in the number of males in their later working years, the number of 18 to 24 year olds will increase modestly (Chart 2). This is the group that is the primary source of new entrants into the labor force. The number of 18 to 24 year old males is projected to increase from 13.2 million in 2000 to 15.5 million in 2015.

**Chart 2**
**Number of Persons 18-24 Years of Age**




In 2000 the number of 18 to 24 year old males exceeded the number of 55 to 64 year old males by 1.6 million. By 2015, the number of 55 to 64 year old males will be 2.8 million higher than 18 to 24 year olds. In other words, at the beginning of the period there were 114 younger males for every 100 older males, but in 2015 this will decline to 85.

This country is in a period in which the labor markets are most impacted by the growing number of workers in their final working years, rather than the stable number of potential new entrants. The outflow from the age pipeline is the dominant characteristic, not the inflow. The potential will continue for tight competition for new labor force entrants, primarily due to demographic factors.

Among males, the composition of the 18 to 24 year old population is changing and will continue to change through 2015. Whites will continue to predominate (76 percent of 18 to 24 year olds), but their growth rate lags that of Blacks and Hispanics. The growth rate of Blacks (21 percent) and Hispanics (23 percent) is almost four times more rapid than Whites (6 percent). (As Hispanics are either Black or White, the growth rate for non-Hispanic Whites is even slower).

Population shifts affect all industries, not just construction. There will be competition between construction and all other industries to attract the qualified new entrants needed to replace exiting older workers. In this environment, the importance of communicating construction's opportunities to all potential qualified entrants will grow.

## Labor Force Trends

The work force in the construction industry currently:

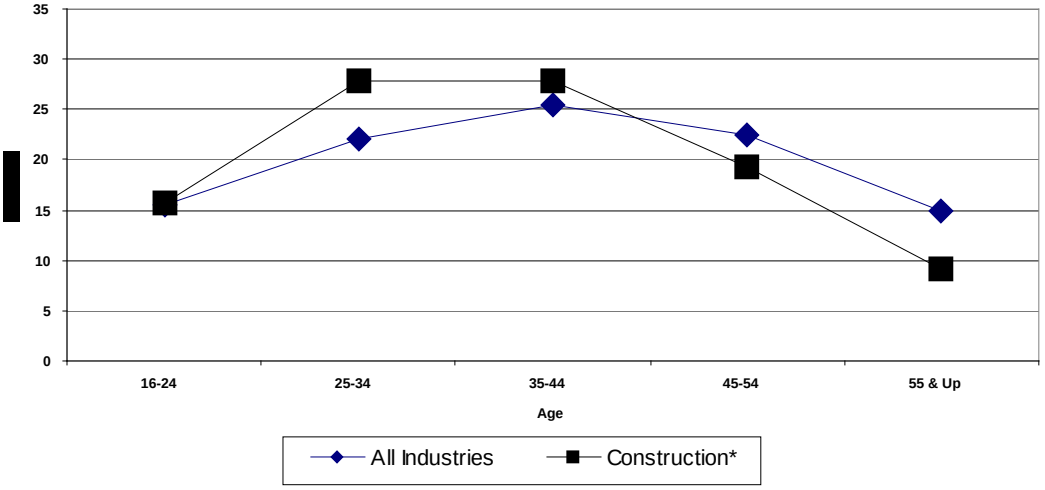
- o Continues to age.
- o Has more workers in their prime working years than other industries, but they leave construction at an earlier age.
- o Is increasingly Hispanic.

These factors suggest that the aging of the population will be a more critical factor to the construction industry's labor force, as will national immigration policy.

Compared to other industries, more construction craft workers are in the prime working years of 25 through 44 (Chart 3). This offsets fewer construction workers age 45 and up. The proportion of younger workers in construction is about the same as other industries. This mix suggests that construction gets its share of new entrants, but that they are less likely to remain in the industry through what is generally considered their full working life.

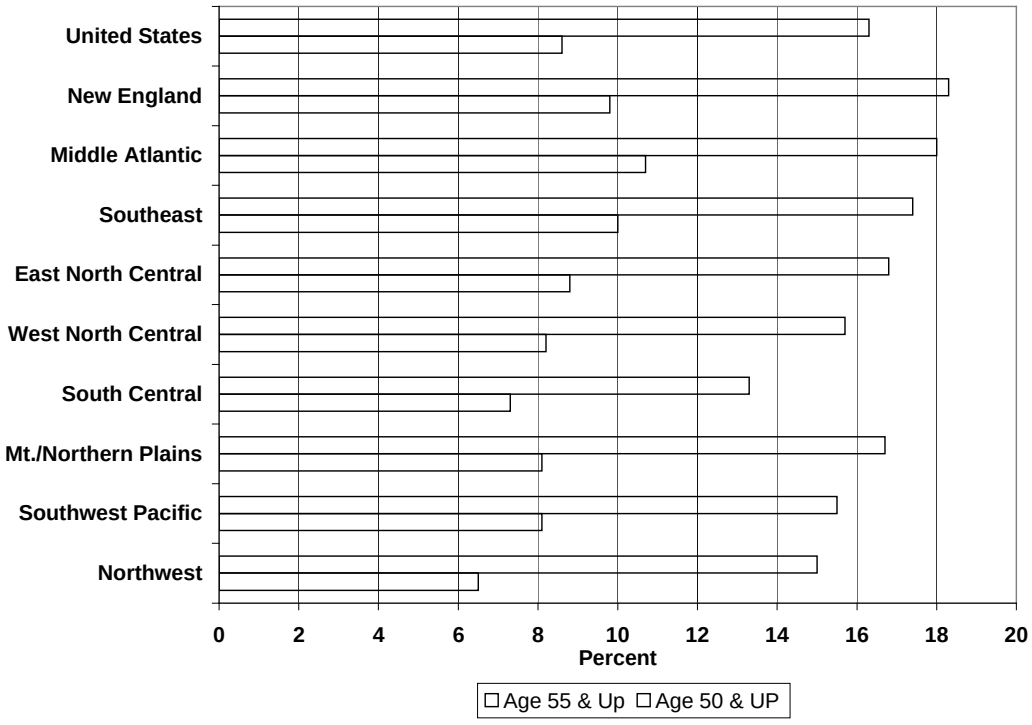
While regional differences in the portion of older construction workers are not great, there are distinctive patterns (Chart 4). Whether older workers are classified as those 50 and older or 55 and older, percentage of older workers is above average in regions bordering the Atlantic Ocean. A below average portion are in the regions bordering the Pacific Ocean, as well as the South Central region. In general, about half the workers age 50 and up are between 50 and 54 years old.

**Chart 3**
**Work Force Age Distribution**




*Craft Workers

**Chart 4**
**Older Construction Workers**



The construction labor force continues to grow older (Chart 5). Comparing 2003 to 1997, the portion of the construction labor force in the prime working years of 25 to 44 has declined. Growth has occurred for both younger and older workers, indicating work force aging and success in attracting new entrants. The median age of all construction craft workers was 33 years of age in 1988 and 37 in 1997. In 2003, it was 38.

**Chart 5**
**Construction Workers Age Distribution**

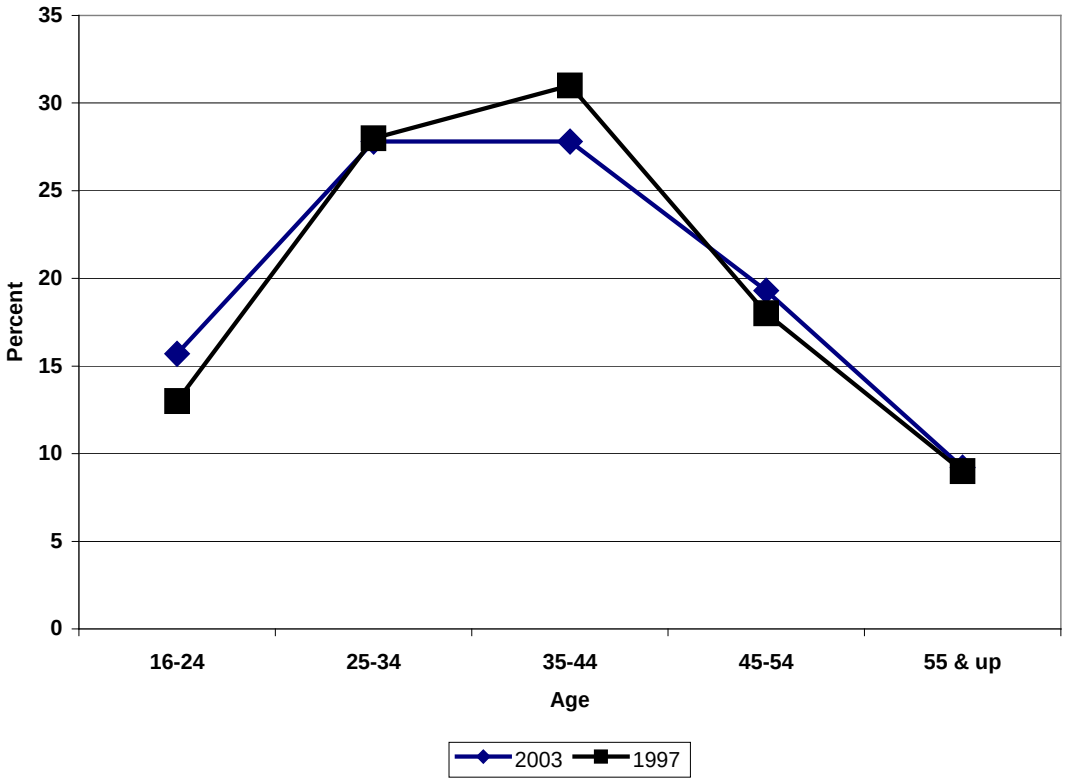


Table 1
Percentage of Older Workers

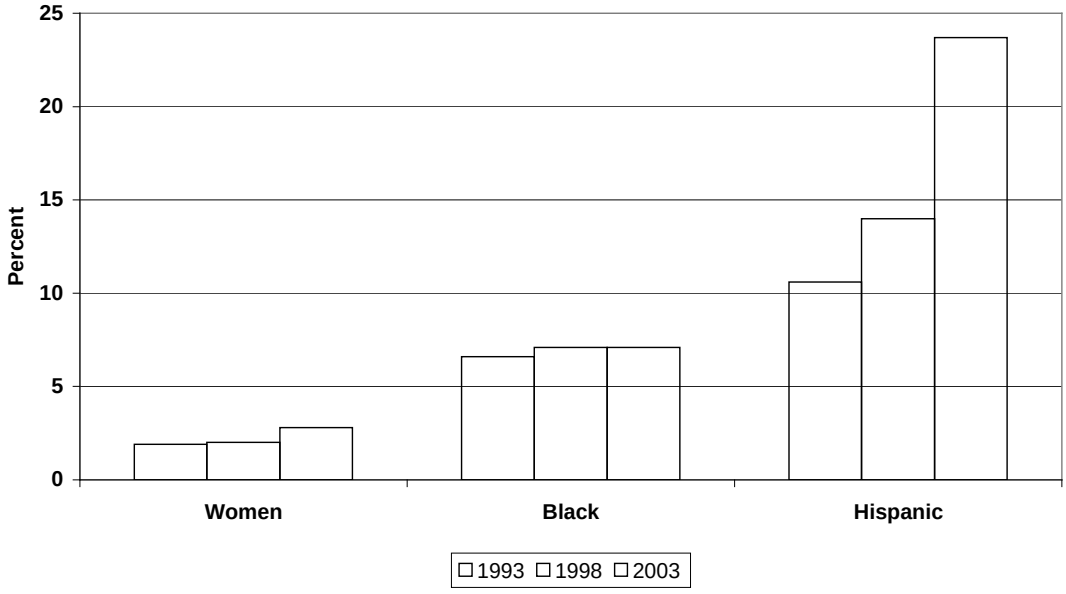
| | Age 55 & Up | Age 50 & Up |
|---|---|---|
| Boilermakers | 2.1 | 27.7 |
| Bricklayers | 11.1 | 19.5 |
| Carpenters | 8.8 | 15.9 |
| Cement Masons | 6.1 | 13.6 |
| Equipment Operators | 11.3 | 20.7 |
| Electricians | 9.5 | 17.1 |
| Ironworkers | 9.6 | 15.5 |
| Laborers | 8.5 | 15.4 |
| Millwrights | 8.3 | 12.4 |
| Painters | 8.4 | 15.6 |
| Pipefitters/Plumbers | 11.0 | 21.6 |
| Sheet Metal Workers | 8.6 | 13.4 |

Portion of older workers, by craft, is similar with some exceptions (Table 1). If older is defined as 50 or more, oldest crafts are boilermakers, bricklayers, equipment operators and pipefitters/plumbers. Fewest older workers are cement masons, millwrights and sheet metal workers. For most crafts, eight to eleven percent of workers are 55 or older. Boilermakers and cement masons have a lower percentage of workers 55 or more.

Growth in the labor force in the next 10 years is projected to be the same as the past 10 years. The rate is 1.1 percent each year, the slowest rate of growth since the 1960's. By sex, the projected annual increase is 1.0 for men and 1.3 percent for women as women continue to increase their labor force participation rate. Projected labor force growth rate for Hispanics is 2.9 percent.

The long-term story in the labor force has been the growing participation of women, but this has had minimal impact upon construction crafts (Chart 6). The big change in labor force composition for construction crafts has been the inflow of Hispanic workers. The

**Chart 6**
**Employment Composition**
**Construction Crafts**




percentage of Hispanic construction craft workers more than doubled from 1993 to 2003 to almost a quarter of all construction craft workers. With Hispanics projected to continue to increase relatively rapidly in the labor force, their impact on the construction crafts is likely to increase.

## Construction Craft Requirements

New workers are needed in the construction industry both to replace experienced workers who are leaving the industry and to fill new job opportunities created by growth in the industry. Demand for new workers from both of these factors is about equal. Replacement needs are determined by demographics; growth needs by economics.

Annual new entrants of craft workers into the construction industry in the coming decade are estimated to be 185,000 persons. Growth will account for 90,000 persons and replacement 95,000. As these are averages for a 10 year period, figures should be less than the 10 year average at the beginning of the period and greater toward 2015.

As replacement demand is based upon demographics, there is a greater degree of certainty in the estimates. Replaced workers are primarily older workers who retire and are also those who die or who leave the construction trades or industry for another position. The level of replacement demand is mostly dependent upon the actions of those already working in the industry, not external economic factors. Replacement needs represent the number of new entrants required to maintain present employment levels.

Replacement needs will be higher than in past years because of the aging of the construction labor force. The upswing in older workers in the industry will lead to greater numbers of retirements throughout the 2005 to 2015 period. There is, therefore, a high level of certainty in the 95,000 estimate of annual replacement needs.

To the extent that the construction industry continues to grow in the coming decade, there will be further demand created for new workers. This portion of demand for new workers may be uncertain, but the construction industry has grown, long-term, with the economy. Further growth is likely.

Construction industry craft employment is projected to increase by 90,000 persons annually through 2015. This is 1.6 percent per year (Labor force growth is projected at 1.1 percent.) The projected growth rate for the next 10 years is about half the actual growth rate from 1992 to 2002.

Requirements for new entrants by craft generally follow industry patterns with replacement needs close to, but slightly higher than growth needs (Table 2). Growth is a more important component of new entrants for cement masons, electricians and sheet metal workers. Most of the need for new entrants is attributed to replacement for boilermakers and insulators.

Table 2
Average Annual New Entrants
Selected Crafts
2005-2015

| | |
|---|---|
| Boilermakers | 1,000 |
| Bricklayers | 4,000 |
| Carpenters | 22,000 |
| Cement Masons | 8,400 |
| Electricians | 22,400 |
| Equipment Operators | 15,300 |
| Insulators | 2,700 |
| Ironworkers | 4,500 |
| Laborers | 20,100 |
| Painters | 8,000 |
| Pipefitters/Plumbers | 17,500 |
| Sheet Metal Workers | 6,200 |

## Factors Affecting Estimates

Whether the construction industry will be able to meet its future needs is unknown, but there are some indicators to be considered. They relate to the characteristics of the industry. An actual shortage of bodies is highly unlikely. A shortage of labor in construction means a shortage of adequately trained, skilled, productive persons. In addition, shortages can occur when there are an adequate number of persons, but there is a mismatch between skills available and skills required. There is also the possibility that there is a geographic imbalance in available craft workers.

An unknown, which can significantly impact the potential supply of labor in the future, is immigration. It is likely that there is a relationship between the influx of Hispanics in the industry and immigration. Immigration, legal or illegal, has been a traditional means of filling the need for labor throughout the history of the United States. Some immigrants bring skills with them. Immigration levels in the next 10 years are uncertain, but are likely to remain substantial. During the past 10 years workers in the construction trades were a little over five percent of all workers and twice that percentage for immigrants. Regardless of the present level of immigration or skill level, if it remains the same or increases, it can be an important source of new workers.

The number of new entrants required is partially dependent upon changes in productivity. Labor demand can be moderated by increases in productivity. BLS projects that industry output will increase slightly faster than industry employment, an increase in productivity. In the 1992 to 2002 period, the industry increased employment at a more rapid pace than output.

Another factor, especially for craft demand, is mix of construction. Recent years have seen, by historical standards, a shift in total construction to the residential segment of the industry. Whether the recent experience is a distortion or the new norm will have to be watched.

With demographics the primary determinant of replacement needs, there is a higher degree of certainty in the projections. BLS estimates, however, may be too conservative. Most construction occupations have replacement rates of two percent or less which appears too low in light of the aging labor force.

Meeting the need for new entrants is strongly related to the number of persons being trained. Measuring the adequacy of training is not possible because there are no reliable figures as to the number of persons being trained. The portion of workers requiring formal training is debatable, as is the length of time or type of training required.

There are an estimated 225,000 persons currently enrolled in government registered apprenticeship programs. Since training programs are multi-year, the annual number of completers is substantially less. The primary source of apprenticeship figures is the Department of Labor's Office of Apprenticeship Training, Employer and Labor Services. Not only is their count incomplete (states including California and New York are excluded), but quality of their data is questionable. There are no figures as to the number of participants in vocational/technical programs. The adequacy of industry training efforts is, therefore, impossible to determine.

California with about 15 percent of all apprentices maintains its own data records. They present an interesting look at the characteristics of today's apprentices. Over half are

members of minorities and Whites just slightly outnumber Hispanics. The largest construction apprenticeship program in the state is 70 percent minority.

It appears that, even without strong documentation, some conclusions can be stated about training. A disproportionately large share of formal training is conducted in the unionized segment of the industry. Crafts need to be evaluated independently, as some have a much higher portion of journeymen who have completed formal training programs.

The continuation of current retirement patterns is less certain than in the past. Decades of a reduction in the retirement age have come to a halt and may be reversing. Reasons for the change appear to be ability to work later in life, financial need to continue working and increase in the age for receipt of full Social Security benefits. A shift from reliance on defined benefit pensions to defined contribution plans also appears to be a consideration.

These factors all apply to some extent to construction, except one which is overriding. Construction craft work remains physically demanding. Even if construction workers continue in the labor force longer, they will become employed in other industries.

The age a construction worker retires is influenced by when retirement benefits (as well as Social Security) can be collected and ability to retain health care benefits. Construction pension funds have traditionally been defined benefit plans, and still are, but expansion of retirement plans has been in defined contribution programs. It is defined benefit plans that specifically provide for early retirement. Furthermore, to the extent that health insurance coverage is available, earlier retirements are facilitated.

Of course, since future needs rely on projections, the accuracy of the projections is a factor in developing new entrant needs. Past BLS projections of the economy were low by about five percent, but slightly higher for all major construction occupations, except electricians. These are projections of employment. If replacement needs are included, the projections of new entrants appears accurate, since, as noted, replacement needs are believed to be conservative.

Finally, it should be noted that, while the need for pro-active programs to attract young people into the construction industry remains as important as ever, the industry has been successful in expanding the recent years. From its prior peak in 1989 to its most recent peak in 2001, industry employment grew by 1.5 million persons. Construction achieved the same rate of increase as the service producing sector of the economy.