

CAREER CLUSTERS—FOCUSING
EDUCATION ON THE FUTURE



Preparing for Career
Success in Architecture
and Construction



Career Clusters Prepare All Students for College, Technical Training, Apprenticeships and Careers

Career Clusters prepare learners of all ages for the information age as schools, colleges and employers strive for higher achievement in science, math and communication. One key to improving learner achievement is providing learners with relevant contexts for studying and learning. Career Clusters offer these contexts by linking school-based learning with the knowledge and skills required for continued success.

The Concept of Career Clusters

Career Clusters identify the knowledge and skills learners need as they follow a pathway toward their career goals. The knowledge and skills identified form a strong basis for learner success whether the learners are in high school, college, technical training, an apprenticeship program or in the workplace.

How to Pursue Education and Training in Architecture and Construction

There are thousands of challenging educational and training opportunities within the high-skilled world of Architecture and Construction. Learners need a solid background in math, science and technical skills. Education and training can be



obtained in high schools, technical colleges, two-year community colleges, four-year colleges/universities, apprenticeship programs and career technical schools/institutes.

Along the way, career guidance professionals assist learners in assessing their educational goals, interests, abilities and skills to facilitate a good match to the cluster's many pathway options. Learners participate in relevant educational opportunities framed in the context

of the cluster. They gain knowledge and skills through coordinated workplace learning experiences such as site visits, job shadowing and internships. If they choose, they may achieve valuable skill certifications that lead to employment. Colleges and universities offer

advanced degrees and industry certifications that prepare learners for professional and technical careers. Apprenticeship programs prepare learners for journeyworker status.

Industry plays a major role in training and career development by supporting apprenticeships, craft training, joint industry/school programs and industry training leading to certification and college credit.



Career Pathways at a Glance

The Architecture and Construction Career Cluster is divided into three pathways. Pathways are grouped by the knowledge and skills required for occupations in these career fields. Each pathway provides instruction as a basis for success in an array of careers and educational pursuits.



The Three Pathways

- Design/Pre-Construction
- Construction
- Maintenance/Operations

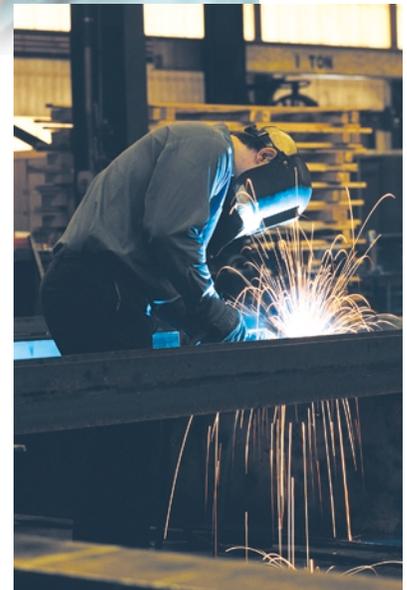
What Is the Architecture and Construction Career Cluster?

This diverse Career Cluster prepares learners for careers in designing, planning, managing, building and maintaining the built environment. People employed in this cluster work on new structures, restorations, additions, alterations and repairs.



Employment Outlook

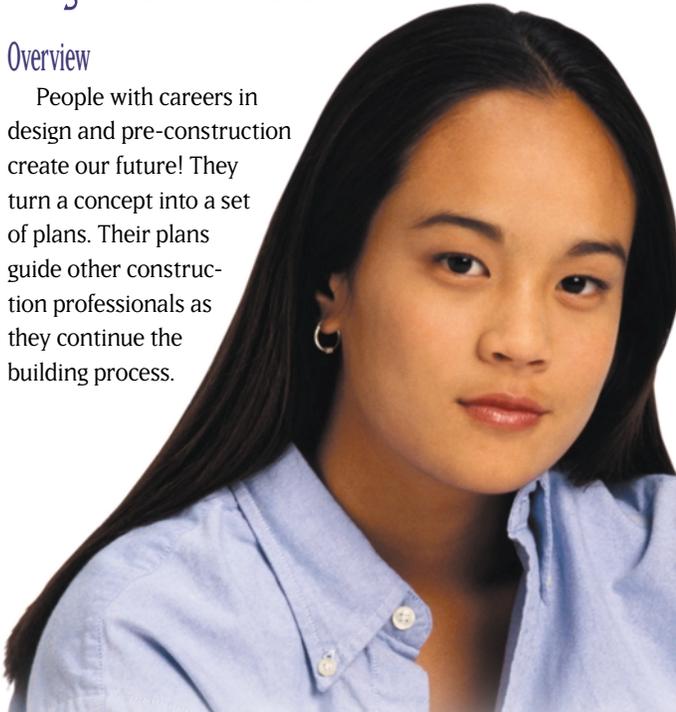
Architecture and construction comprise one of the largest industries in the United States. Based on the latest statistics, this career cluster has 13.8 million jobs. In the next few years, many new jobs will be added and many employment opportunities will result from the need to replace experienced workers who leave jobs.



Design/Pre-Construction

Overview

People with careers in design and pre-construction create our future! They turn a concept into a set of plans. Their plans guide other construction professionals as they continue the building process.



Sample Occupations

- Architect
- Computer Information System Manager/Designer
- Computer-Aided Drafter (CAD)
- Landscape Designer
- Mechanical Engineer
- Preservationist
- Renderer (traditional and computer)
- Surveyor
- Urban Planner/Designer



Credentials

- Licensing requirements for architects include a professional degree in architecture, a period of practical training and a passing score on all sections of the Architect Registration Examination.

- All 50 states and U.S. territories license land surveyors. Most require that surveyors pass a written examination given by the National Council of Examiners for Engineering and Surveying as well as a written examination prepared by the state licensing board.
- Community colleges, technical institutes and career

interior design; and civil, electrical, mechanical and structural engineering.

Employment Outlook

Latest statistics indicate design/pre-construction employees hold about 2.5 million jobs. Employment is projected to grow about as fast as the average for all occupations through 2010.



Additional job openings will come from the need to replace employees who retire or leave the labor force. Overall job opportunities in engineering are expected

technical schools offer one-, two- and three-year programs (including degree and/or certificate programs) in engineering technology with focus areas in civil, electrical, mechanical and structural engineering as well as surveying and drafting.

- Four-year colleges and universities offer degree programs in architecture; landscape architecture; surveying; urban-planning;

to be good but will vary by specialty. Based on the latest statistics, nearly 3 in 10 architects are self-employed. Starting salaries are significantly higher for engineers than those of college graduates in other fields. The median annual salary of architects is \$52,510, while surveyors earn a median annual salary of \$36,700. Earnings for drafters vary by specialty and level of responsibility.

Construction

Overview

Employees in construction literally build our future! These are the people who build and remodel houses, apartments, industrial buildings, warehouses, office buildings, churches, schools and recreational facilities. This pathway also includes the builders of highways,



streets, bridges, tunnels and airports as well as power plants, chemical plants, refineries and mills.

Sample Occupations

- Carpenter
- Education and Training Director
- Electrician
- General Contractor
- Iron/Metalworker
- Pipe Fitter

- Project Inspector
- Project Manager
- Safety Director

Credentials

- Skilled construction craftworkers can earn the status of journeyworker.
- Community colleges, technical institutes and career technical schools offer one-, two- and three-year programs (including degree

and/or certificate programs) in skilled crafts, construction management, construction technology, construction science and safety. Craft training programs run from one to five years.

- Four-year colleges and universities offer degree programs in construction management, construction technology, construction science and safety.

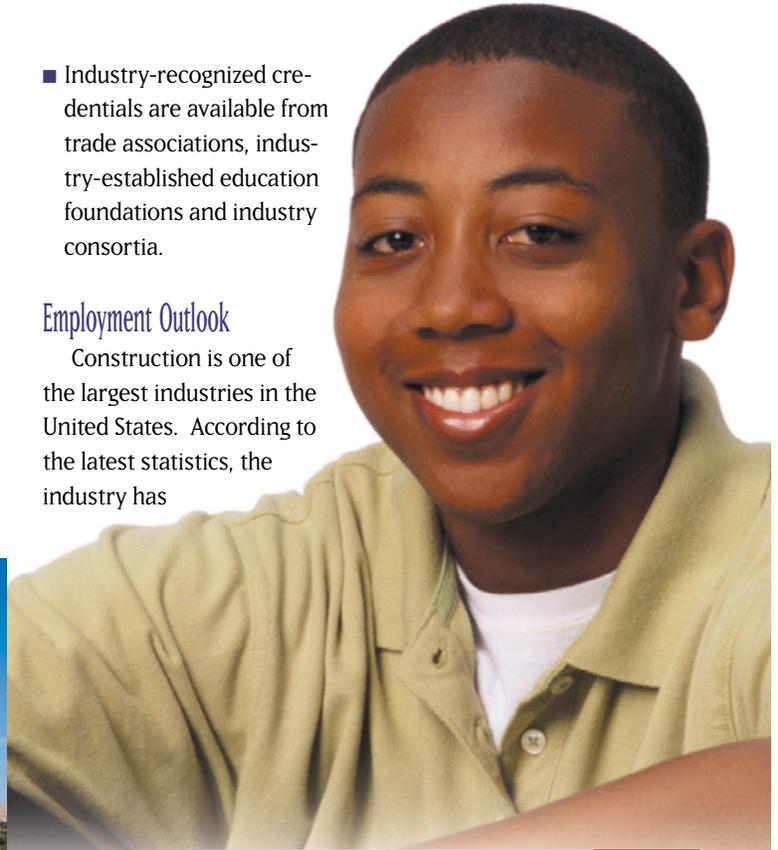
- Industry-recognized credentials are available from trade associations, industry-established education foundations and industry consortia.

Employment Outlook

Construction is one of the largest industries in the United States. According to the latest statistics, the industry has

8.3 million jobs. Job opportunities are expected to be excellent in the construction industry, due largely to the numerous openings arising each year from experienced construction workers who leave jobs and the continued shortage of

adequate training programs. Construction has a very large number of self-employed workers. Earnings in construction are significantly higher than the average for all industries.



Maintenance/ Operations

Overview

Employees with careers in maintenance/operations keep our future intact! These are the people who unload, inspect, and move new equipment into position. They determine the optimal placement of machines in a plant, assemble machinery, install machinery, repair machinery and perform preventive maintenance.

They detect, diagnose and correct minor problems on machinery. They keep the structure of an establishment in good repair. They maintain the smooth operation of refineries, power plants, chemical plants and mills.

Sample Occupations

- Boilermaker
- Demolition Engineer
- Environmental Engineer
- Equipment Operator
- Highway Worker
- Maintenance Planner/
Scheduler
- Millwright
- Specialty Contractor
- Thermal Control Technician

Credentials

- Skilled craftworkers can earn the status of journeyworker.
- Community colleges, technical institutes and career technical schools offer one-, two- and three-year programs (including degree and/or certificate programs) in skilled crafts,

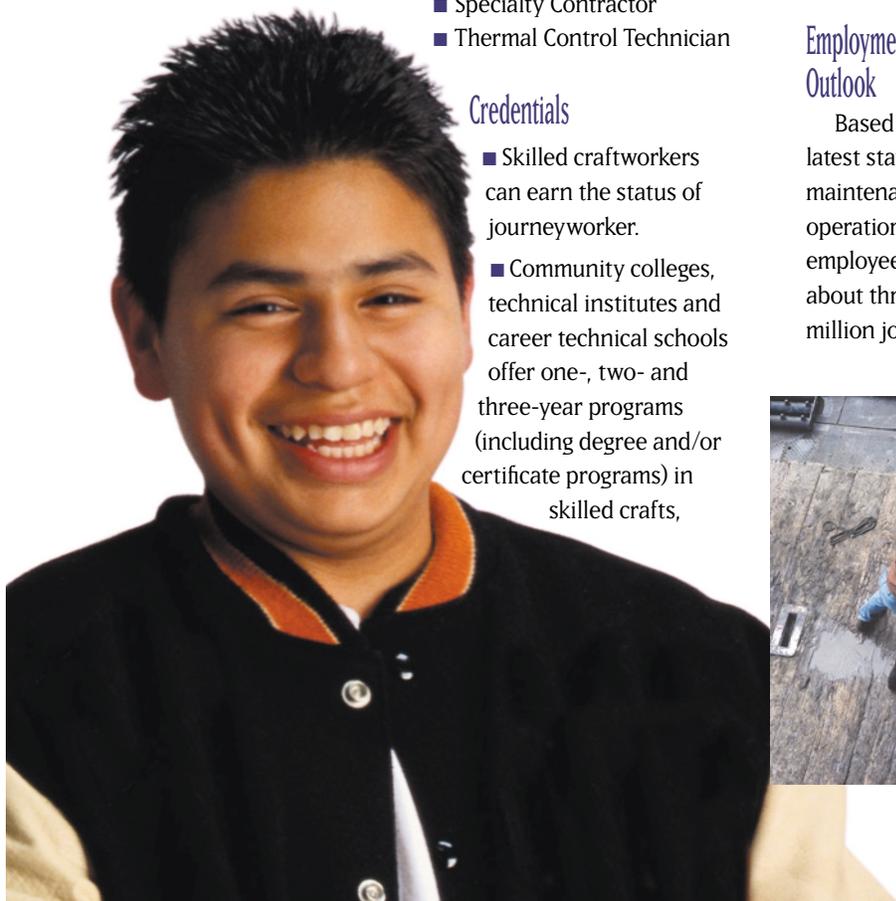
construction management, construction technology, construction science and engineering technology. Craft training programs run from one to five years.

- Four-year colleges and universities offer degree programs in construction management, construction technology, construction science and engineering.
- Industry-recognized credentials are available from trade associations, industry-established education foundations and industry consortia.

Despite slower-than-average employment growth, applicants with broad skills should have favorable job prospects through 2010. As automation of machinery becomes more widespread, there is a greater need for repair work than for the installation of new machinery. Earnings vary by industry and geographic region. The median hourly wage of general maintenance and repair workers is \$13.39, while the median hourly wage of millwrights is \$19.33.

Employment Outlook

Based on the latest statistics, maintenance/operations employees hold about three million jobs.



CAREER CLUSTERS—FOCUSING EDUCATION ON THE FUTURE



The 16 Career Clusters

Agriculture, Food & Natural Resources
Architecture & Construction
Arts, A/V Technology & Communications
Business, Management & Administration
Education & Training
Finance
Government & Public Administration
Health Science
Hospitality & Tourism
Human Services
Information Technology
Law, Public Safety & Security
Manufacturing
Marketing, Sales & Service
Science, Technology, Engineering & Mathematics
Transportation, Distribution & Logistics



Produced by the States'
Career Clusters Initiative.

For further information on the States' Career Clusters,
contact the *National Association of State Directors
of Career Technical Education Consortium*
at (202) 737-0303 or www.careerclusters.org.

The Career Clusters Initiative was designed and developed under a cooperative agreement with the Office of Vocational and Adult Education, U.S. Department of Education. The findings and opinions expressed in this brochure do not necessarily reflect the position or policies of the U.S. Department of Education.

References:

Occupational Outlook Handbook 2002-2003
Career Guide to Industries 2002-03 Edition
Architecture and Construction Advisory Committee

July 2002