



# CONSTRUCTION INDUSTRY

## OCCUPATIONAL STUDY ON CARPENTERS

SEPTEMBER 2008



CENTER OF EXCELLENCE,  
SOUTH CENTRAL REGION

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**IN THE SOUTH CENTRAL REGION, CONSTRUCTION RELATED INDUSTRIES ARE PROJECTED TO ADD ALMOST 10,800 NEW AND REPLACEMENT JOBS THROUGH 2012; OVER 1,900 NEW AND REPLACEMENT JOBS IN CARPENTRY ARE PROJECTED DURING THIS SAME TIME.**

**– SOURCE: EMSI COMPLETE EMPLOYMENT, MARCH 2008**

## **Executive Summary**

On March 10, 2008, Governor Arnold Schwarzenegger visited the Northern California Carpenters Training Center in Fairfield to discuss the State's future need for skilled workers in the building trades.

According to the Governor, to meet our infrastructure needs, California must continue to strengthen its skilled workforce. Just as construction starts on many of the state's major infrastructure projects, many of California's highly-skilled baby boomers will be retiring. Based on the Governor's plan to "rebuild California," it is estimated that California will need 200,000 new apprentices over the next decade in 30 different, critical occupations.

This labor shortage in the building and construction trades is a fantastic opportunity for Californians to take advantage of well-paying, high-demand jobs. The Governor cited the following statistics from the Agency for Labor and Workforce Development. By 2015, the state will need:

- **73,000 carpenters** who will earn a median wage of \$23.20 per hour;
- 25,000 plumbers, pipefitters, steamfitters and electricians who will earn a median wage of \$22-\$23 per hour;
- 15,000 operating engineers who will earn a median wage of more than \$27 per hour;
- Laborers, cement masons and concrete finishers and ironworkers to build the bridges, highways, schools, levees and housing.

According to California Labor Market and Economic Analysis 2007, carpentry is going to be among the top eleven most demanded skilled occupations for California through 2014.<sup>1</sup> **In the South Central Region, new and replacement jobs in carpentry across industries are expected to increase 17% (or over 1,900 jobs) by 2012.** Regional employers report they are experiencing moderate difficulty in hiring fully qualified carpenters. A primary issue is a lack of pre-employment training. The community colleges in the region could be of great assistance to employers by strengthening their pre-employment and continuing education courses related to carpentry, especially in math, communication, and vocational English skills.

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<sup>1</sup> California Economic Strategy Panel, <http://www.calmis.ca.gov/specialreports/Labor-Market-Economic-Analysis-2007.pdf>

## Introduction

The Economic and Workforce Development program, through the Center of Excellence initiative identifies industries and occupations with unmet employee development needs and provides community colleges information to allow for a response to industry workforce needs. The mechanism for providing this information is through *environmental scanning* – gathering both internal (college) and external (industry and workforce organizations) data to help colleges make informed decisions about their program offerings and use of resources.

This is an occupational study focusing on the construction industry and, more specifically on carpentry, an occupation within the industry. Although California is undergoing a construction industry downturn and overall loss of employment in the industry, carpenters remain one of the largest occupational groups in the state and are in high demand by the industry. **Statewide over 41,000 new jobs in carpentry are expected to be added by 2014.<sup>2</sup> Jobs in carpentry in construction and related industries in the South Central Region are expected to increase by 10% (over 1,100 new jobs) for a total of over 12,500 through 2012. This represents 5% of the State total.** In California, the potential shortage of skilled carpenters is expected to be significantly above average, with 87% of employers reporting moderate to much difficulty recruiting experienced workers.<sup>3</sup> South Central regional employers also reported moderate difficulty in finding skilled workers. With such a labor gap, there is a potential need for appropriate training programs.

This environmental scan first provides an overview of the current state of the construction industry and its prospects for the future, and then discusses different aspects of the carpentry occupation pertaining to California as a whole and the South Central Region in particular. Carpenters' skill sets, employment opportunities, existing training offerings and community colleges' response are also covered in this report.

## Industry Overview

The construction industry in the South Central Region is expected to employ over 82,000 workers by 2012 which represents an 8% increase in jobs, or an additional 6,100 new jobs during the five year period between 2007 and 2012.

Despite the 2007 downturn of the real estate market, construction is still a significant industry cluster in California's economy. ***In California, construction is expected to be among the economy's top ten largest sources of***

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<sup>2</sup> California Economic Strategy Panel, <http://www.calmis.ca.gov/specialreports/Labor-Market-Economic-Analysis-2007.pdf>

<sup>3</sup> California Economic Strategy Panel, <http://www.calmis.ca.gov/specialreports/Labor-Market-Economic-Analysis-2007.pdf>

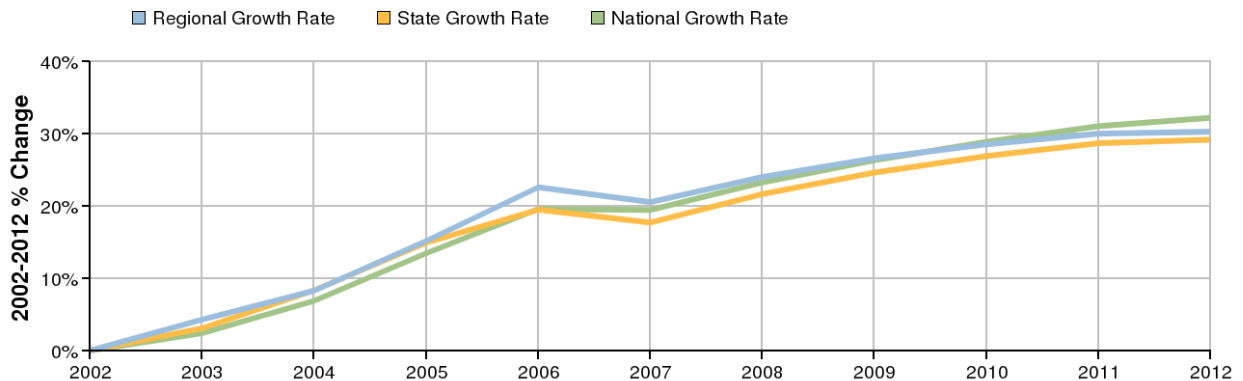
**employment over the next decade<sup>4</sup>. It is expected to generate about 42,000 new jobs in the next 5 years.** The construction industry is pushed forward by highway projects, other public works and commercial building projects. New housing communities, which rapidly emerged in recent years during the residential building boom, are now in need of improved roads, sewer systems, supermarkets and other business outlets, all of which involve the construction industry and create higher demand for workers.<sup>5</sup> **Carpenters represent 15% of all occupations within the industry and will continue to play a major role in these projects.**

In the near term, economists project a noticeable slowdown in overall growth in the industry over the next five years compared to the growth of 2002-2012<sup>6</sup> (see **Exhibit 1**). Nevertheless, the forecast for the construction sector is expected to be favorable as the demand for new industrial space remains strong<sup>7</sup> and the housing market moves in to a “recovery” by late 2008 or early 2009.<sup>8</sup> For more statistics on industry job growth from 2007 through 2012, please refer to **Appendix B**.

**Exhibit 1 – Regional, State, and National Growth Rates of Construction Employment**

Description	2002 Jobs	2012 Jobs	Change	% Change	EPW
Regional Total	63,360	82,527	19,167	30%	\$57,607
State Total	1,057,207	1,365,361	308,154	29%	\$63,864
National Total	9,668,637	12,778,785	3,110,148	32%	\$50,485

Source: EMSI Complete Employment - March 2008



<sup>4</sup> California Economic Strategy Panel, <http://www.calmis.ca.gov/specialreports/Labor-Market-Economic-Analysis-2007.pdf>

<sup>5</sup> Outlook For The California Economy, 2005-06, Center for the Continuing Study of the California Economy, December, 2005

<sup>6</sup> Economic Modeling Specialists, Inc., [www.economicmodeling.com](http://www.economicmodeling.com)

<sup>7</sup> Special Report: California Economic Advisory Council, March 9, 2007. “Construction, Real Estate Slowdown Keeps State Trailing U.S. Job Growth.

<sup>8</sup> 2007-2008 Economic Forecast and Industry Outlook for California and Southern California, July 2007, by Los Angeles County Economic Development Corporation (LAEDC), [www.laedc.org](http://www.laedc.org)  
 Also see: America’s Construction Industry: Identifying and Addressing Workforce Challenges An ETA/Business Relations Group Report, Dec 2004.

Growth projections for the construction industry for the ten year period from 2002-2012 were strong (30%) compared to the current 8% projected increase during the five year period from 2007-2012. Construction will continue playing a significant role in the South Central regional economy, providing about 6% of total regional jobs and above average annual incomes for the industry workers.<sup>9</sup>

According to the Pacific Coast Business Times, there are several projects currently underway, or in the pipeline for the near future in the South Central Region that will provide construction jobs over the next few years. They include:

- Upgrades to Highway 101 in Santa Maria and Santa Barbara
- The Village at Los Carneros – Goleta. 275 multi-family residential units
- Paseo de la Playa – Santa Barbara. 91 residential units and a 46,102 sq. ft. commercial building
- Old Town Mall – Santa Barbara. 12,851 sq. ft. of commercial space and 45,000 sq. ft. of residential space
- Working Artists Ventura (WAV) – Ventura. 82 unit, 130,000 sq. ft. residential and working space for artists
- Cabrillo Business Park – Goleta. 525,000 sq. ft. of office and R&D space
- The Vantage at Westlake - Westlake Village. 33,000 sq. ft. of office space
- Westlake Park Place – Westlake Village. 240,000 sq. ft. of office space
- Bella Vista – Thousand Oaks. 45,000 of office space
- Opus Center – Westlake Village. 435,000 of office and retail space

As **Exhibit 2** shows, top occupations in the South Central Region construction industry include **carpenters**; construction laborers; first-line supervisors/managers of construction trades and extraction workers; construction managers; painters, construction and maintenance; electricians; and plumbers, pipefitters, and steamfitters. **Among those, the most numerous and fastest growing occupational group in the industry is carpenters with over 1,000 new jobs for 10% growth through 2012.**

*Exhibit 2 – Top Occupations in the Construction Industry in the South Central Region*

SOC Code	Name	2007 Jobs	2012 Jobs	Change	% Change
47-2031	Carpenters	10,905	11,952	1,047	10%
47-2061	Construction laborers	9,936	10,779	843	8%
47-1011	First-line supervisors/managers of construction trades and extraction workers	6,139	6,576	437	7%
11-9021	Construction managers	4,099	4,304	205	5%
47-2141	Painters, construction and maintenance	3,625	3,863	238	7%
47-2111	Electricians	3,001	3,176	175	6%
47-2152	Plumbers, pipefitters, and steamfitters	2,671	2,929	258	10%

Source: EMSI Complete Employment - Spring 2008 Release v. 2

<sup>9</sup> Economic Modeling Specialists, Inc., [www.economicmodeling.com](http://www.economicmodeling.com)

## Occupational Overview

### Occupation Definition

Carpenters (SOC 47-2031) are involved in many different kinds of construction activity, from the building of highways and bridges to the installation of kitchen cabinets. Carpenters construct, erect, install, and repair structures and fixtures made from wood and other materials.

Depending on the type of work and the employer, carpenters may specialize in one or two activities or may be required to know how to perform many different tasks. **Small home builders and remodeling companies** may require carpenters to learn about all aspects of building a house—framing walls and partitions, putting in doors and windows, building stairs, installing cabinets and molding, and many other tasks. **Large construction contractors** or specialty contractors, however, may require their carpenters to perform only a few regular tasks, such as framing walls, constructing wooden forms for pouring concrete or erecting scaffolding. Carpenters also build tunnel bracing, or brattices, in underground passageways and mines.<sup>10</sup>

There are two major categories of carpenters: structural and detail<sup>11</sup>. Structural carpenters construct the items used in the erection, maintenance, and aesthetic mix of structures, while detail carpenters deal with the items used as furniture, art, or framing. Detailed descriptions of each group are presented in **Appendix C**.

There are 12 recognized specialties associated with this occupation: Carpenter; Maintenance Carpenter; Lather; Prop Maker; Residential Carpenter; Interior Systems Carpenter; Mold Carpenter; Casket Assembler; Ship Carpenter; Joiner; Wood Boat builder; Shipwright.<sup>12</sup> All these occupations are normally included in overall statistical data on the carpentry occupation, and therefore fall into the scope of this report.

### Skill Sets

According to the Occupational Information Network (O\*Net), the carpentry trade requires a wide set of skills, knowledge and abilities, which include the physical labor skills of carpentry work as well as intellectual abilities and critical thinking.<sup>13</sup>

*As a carpenter apprentice I'm learning all the basics of building. I do everything from hanging doors to working with sheet rock. I've learned how to build steps, which can be pretty complicated... There is a lot of math involved and a carpenter always has to do a lot of thinking.*

Chris Baker, Apprentice Carpenter, United Brotherhood of Carpenters and Joiners Local #3  
Source: [www.careervoyages.gov](http://www.careervoyages.gov)

<sup>10</sup> U.S. Department of Labor, Bureau of Labor Statistics

<sup>11</sup> The Princeton Review <http://www.princetonreview.com/cte/profiles/dayInLife.asp?careerID=30>

<sup>12</sup> California Employment Development Department

<sup>13</sup> For detailed lists of skills, knowledge and abilities, use the Occupational Information Network (O\*NET) at [www.online.onetcenter.org](http://www.online.onetcenter.org)

A simplified process of the structural carpenter's work involves the following basic steps:

- 1) Doing the layout in accordance with local building codes;
- 2) Cutting and shaping wood, plastic, fiberglass, or drywall using hand and power tools;
- 3) Joining the materials with nails, screws, staples, or adhesives; and
- 4) Checking the accuracy of the work and making any necessary adjustments.<sup>14</sup>

When working with prefabricated components, such as stairs or wall panels, the carpenter's task is somewhat simpler because it does not require as much layout work or the cutting and assembly of as many pieces. Prefabricated components are designed for easy and fast installation and generally can be installed in a single operation.

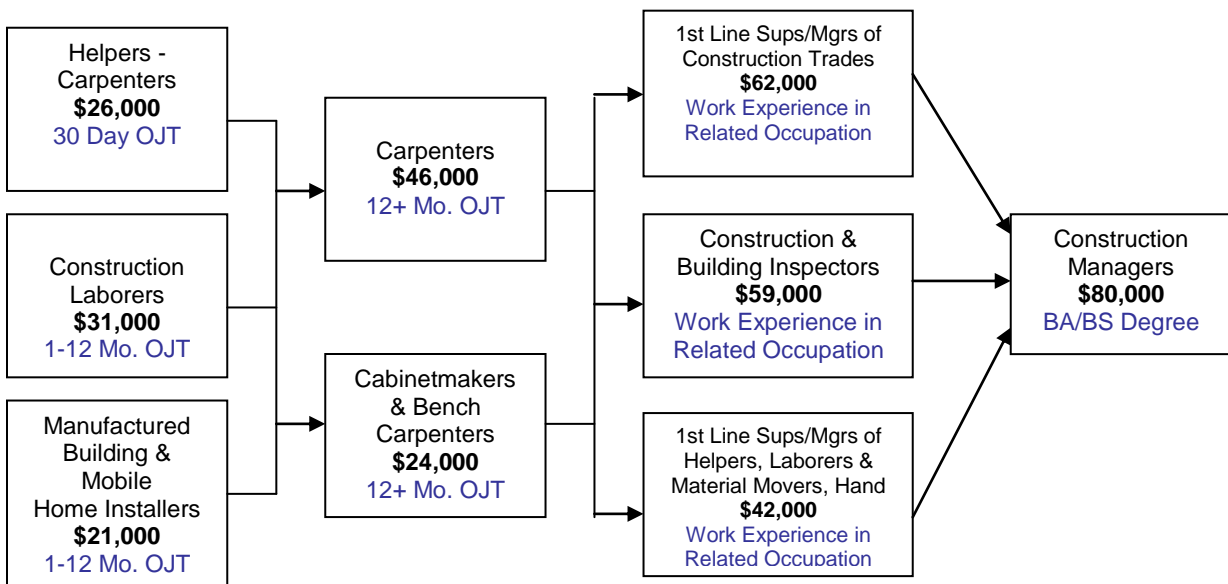
**Appendix D** features a list of job functions and required skills for carpenters.

### Career Pathways

Carpentry requires not only direct trade-related skills, but also basic knowledge of project and process management as well as soft skills, especially for those who want to progress through the career ladder.

The career paths for carpenters can be represented as four different levels, with each level requiring a certain amount of education ranging from apprenticeships, which combine on-the-job training (OJT) and classroom instruction, to work experience, to an advanced degree (see **Exhibit 3**)<sup>15</sup>.

**Exhibit 3 - Career Pathways for Carpenters**



<sup>14</sup> U.S. Department of Labor, Bureau of Labor Statistics

<sup>15</sup> The career path chart is modified from Carpentry Career Overview, California Employment Development Department, <http://www.calmis.ca.gov/selectcareers/>

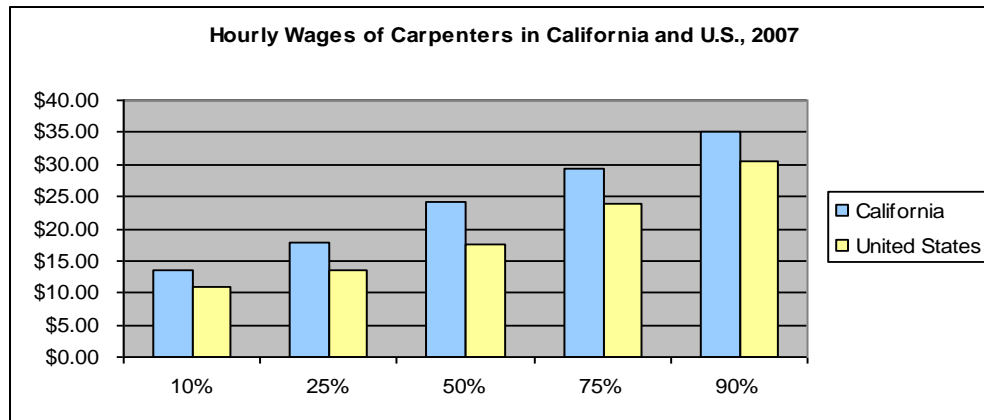
## Earnings

As of May 2007, median hourly wages of carpenters in California were \$24.12, compared to \$17.57 in the United States, which puts median state-wide earnings 37% above the national level.<sup>16</sup> A significant difference between rates can be seen in all percentiles, indicating consistently higher pay enjoyed by California carpenters compared to other states.

Regarding distribution of earnings, the lowest 10 percent of California carpenters earned less than \$13.39/hour and the highest 10 percent earned more than \$35.05/hour (see **Exhibit 4**).

**Exhibit 4 – Wages of Carpenters – Nation and Statewide**

Location	Rate Type	2007				
		10%	25%	50%	75%	90%
California	Annual	\$27,838	\$37,004	\$50,174	\$60,942	\$72,910
	Hourly	\$13.39	\$17.79	\$24.12	\$29.30	\$35.05
United States	Annual	\$22,610	\$28,190	\$36,550	\$49,600	\$63,330
	Hourly	\$10.87	\$13.55	\$17.57	\$23.85	\$30.45



Carpenter median wages over the past six years, from 2001 till 2007, were climbing slowly, but consistently, with the average annual growth rate of 3.21%, which is generally in line with inflation. Refer to **Appendix E** for more analysis of carpenter earnings dynamics.

Carpenter earnings should be adjusted to certain economic and other external factors. In particular, earnings may be reduced when carpenters lose work-time during bad weather and recessions, when jobs are unavailable.

Wages vary across the state from \$14 to \$18 median at the low end and to \$28 at the high end. 2006 median hourly earnings for South Central Region carpenters are in the center of the range as follows:

<sup>16</sup> California Labor Market Information Division, [www.labormarketinfo.edd.ca.gov](http://www.labormarketinfo.edd.ca.gov)

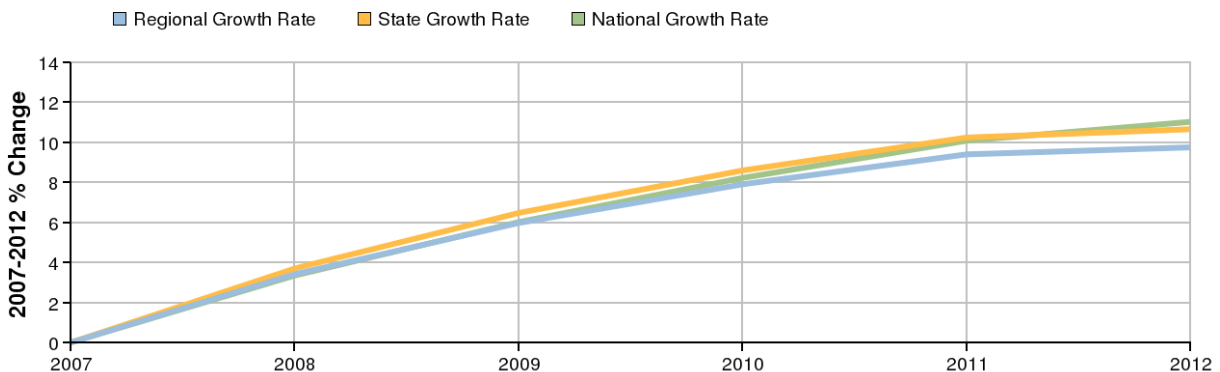
- San Luis Obispo County - \$20.71
- Santa Barbara County - \$24.89
- Ventura County - \$19.85
- North Los Angeles County - \$21.39

Source: EMSI Complete Employment – September 2007

For a complete list of carpenter wages in all metropolitan areas in California, see **Appendix F**.

## Employment Outlook

From an occupational perspective versus the industry perspective presented earlier, carpenter job growth in California is projected to be 11% through 2012, which is equal to the average national rate. Occupational data includes carpentry jobs across industries (e.g. carpenters working in government jobs). In the South Central Region, the growth will be slightly smaller than the state and national growth at 10% (see **Exhibit 5**). In comparison with other construction jobs, however, carpenters will still have the lead as the largest growing construction trade in the state.



In 2007, the South Central Region carpenters occupy 11,550 jobs across industries. With a 10% growth rate, carpentry jobs are expected to add over 1,100 new jobs to grow to over 12,500 by 2012. New and replacement jobs are expected to be over 1,900 to result in an overall increase of 17% by 2012. Median hourly earnings for carpenters in the South Central Region are \$28.12 per hour. While this is slightly lower than the state hourly average of \$29.37, it exceeds the national average by 35% (see **Exhibit 5**).

**Exhibit 5 – Employment Outlook for Carpenters in the Region, State and Nation  
2007-2012**

Region	2007 Jobs	2012 Jobs	Change	% Change	2007 Median Hourly Earnings
Regional Total	11,550	12,676	1,126	10%	\$28.12
State Total	214,700	237,578	22,878	11%	\$29.37
National Total	1,789,571	1,986,855	197,284	11%	\$20.82

Source: EMSI Complete Employment - March 2008

There is a noticeable shift of carpentry employment within the construction industry in the South Central Region. **New employment opportunities for carpenters in the South Central Region in the next five years are expected to be created in other specialty contractors (24%), finish carpentry (17%), framing contractors (13%), and residential building construction (12%).** (see Exhibit 6) For more occupational statistics and charts refer to **Appendix G**.

**Exhibit 6 – Top Industries for Carpenters  
In the South Central Region**

NAICS Code	Name	2007 Jobs	2012 Jobs	Change	% Change
236100	Residential building construction	3,118	3,477	359	12%
2381XX	Framing contractors and all other foundation, structure, and building exterior contractors	1,938	2,189	251	13%
2383XX	Finish carpentry contractors and all other building finishing contractors	1,687	1,969	282	17%
238900	Other specialty trade contractors	1,381	1,716	335	24%
238310	Drywall and insulation contractors	791	792	1	0%
236200	Nonresidential building construction	619	622	3	0%
238220	Plumbing, heating, and air-conditioning contractors	282	309	27	10%

Source: EMSI Complete Employment - March 2008

Some of the demand for carpenters, however, will be offset by expected productivity gains resulting from the increasing use of prefabricated components and improved fasteners and tools. As prefabricated components become more standardized, builders will use them more often. In addition, improved adhesives are reducing the time needed to join materials, and lightweight, cordless, and pneumatic tools will all continue to make carpenters more efficient. New and improved tools, equipment, techniques, and materials also have vastly increased carpenter versatility.<sup>17</sup>

***Carpenters with all-around skills will have better opportunities for steady work than carpenters who can perform only a few relatively simple, routine***

<sup>17</sup> Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook, 2006-07 Edition*, Carpenters, <http://www.bls.gov/oco/ocos202.htm>

**tasks.** Carpenters can experience periods of unemployment because of the short-term nature of many construction projects, winter slowdowns in construction activity in northern areas, and the cyclical nature of the construction industry. During economic downturns, the number of job openings for carpenters declines.<sup>18</sup> For comparison statistics on job growth between different California regions, see **Appendix H**.

## Training

Carpenters are classified as skilled workers. California Employment Development Department defines skilled work as jobs requiring at least long-term on-the-job training (12 months or more). This includes work experience in a related occupation, vocational training, and college education through the first professional degree.<sup>19</sup>

The usual way to become a journey-level carpenter is by completing a four-year apprenticeship program. Apprenticeship candidates have to complete the 12th grade or its equivalent, be physically able to do the work, and be at least 17 years old. The apprenticeship program involves on-the-job training and classroom instruction. Workers sometimes get carpentry skills without going through the formal apprentice program. With enough on-the-job experience and/or some construction courses completed, they can move through the apprenticeship program much faster.<sup>20</sup>

Other ways to obtain training in the carpentry trade are:

- 1) Carpentry training in high school;
- 2) Pre-apprenticeship training provided by public schools, community colleges, and other local organizations;
- 3) Working as a carpenter's helper, and further trade-related training;
- 4) Working with a contractor who will provide the necessary training through an apprenticeship provider.<sup>21</sup>

In terms of formal educational attainment, most carpenters (73.3%) in California hold high school degree or less, and some (20.7%) have completed some college coursework.<sup>22</sup> (See **Exhibit 7**)

**Exhibit 7 - Distribution of Educational Attainment**

	High School or Less	Some College	Bachelor's Degree or More
Carpenters	73.3%	20.7%	6.0%
Total, All Occupations	40.5%	27.4%	32.0%

<sup>18</sup> California Labor Market Information Division, [www.labormarketinfo.edd.ca.gov](http://www.labormarketinfo.edd.ca.gov)

<sup>19</sup> California Economic Strategy Panel <http://www.calmis.ca.gov/specialreports/Labor-Market-Economic-Analysis-2007.pdf>

<sup>20</sup> California Employment Development Department

<sup>21</sup> Carpentry Career Overview, California Employment Development Department, <http://www.calmis.ca.gov/selectcareers/>

<sup>22</sup> California Occupation Profile, Career One Stop online, <http://www.careerinfonet.org/>

Training programs in carpentry and carpentry-related trades in California are offered by the following groups:

- 1) Carpenters unions and their training centers;
- 2) Regional occupational programs (ROP);
- 3) Non-profit and for-profit organizations, including industry associations;
- 4) Community colleges.

The first three options will be discussed below; community college program offerings are presented in a later section of this report.

### Union Training Centers

Most union apprenticeship programs in California are administered by the United Brotherhood of Carpenter and Joiners of America (UBC). There are 29 union training centers in California, which offer apprenticeship programs for carpenters; 26 of which are administered by joint training committees, and three - by unilateral ones<sup>23</sup>. All together these training centers had 741 apprenticeship program completers in 2005. The largest is Southern California Carpentry J.A.T.C., which accounted for over 327 of the 2005 graduates.<sup>24</sup> Union apprenticeship programs combine on-the-job training (OJT) with related classroom instruction. The top training centers in California are:

- Southern California Carpentry J.A.T.C.
- Santa Clara/San Benito Carpenters J.A.T.C.
- Alameda County Carpenters Training Committee
- Gold Coast Carpenters J.A.T.C.
- Southern California Carpentry J.A.T.C. (San Diego)

For a complete listing of training centers' completion rates refer to **Appendix I**.

### Regional Occupational Programs

There are 45 ROPs in California, which offer carpentry related programs. Most of them are Construction Technology or Construction Trades programs, which include carpentry courses. In the South Central Region, the Ventura County, Santa Barbara County and Santa Lucia (serving San Luis Obispo County) ROPs offer courses in Construction Technology.

Some ROPs also provide classroom instruction for apprenticeship programs, and some offer 'pre-apprenticeship' courses aimed at informing students about available careers in construction.

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<sup>23</sup> Joint Apprenticeship and Training Committee (JATC): The committee is made up of equal representation of both employers and of employees and represented by a bona fide collective bargaining agent(s). It has been established to conduct, operate, or administer an apprenticeship program and enter into apprenticeship agreements with apprentices within the state and federal guidelines. It is responsible for assuring meaningful training experiences throughout the indenturement. Non-Joint (Unilateral) Apprenticeship Program (NJAP): A program sponsor in which a bona fide collective bargaining agent is not a participant.

<sup>24</sup> Completion Counts for Building Trade Programs Last 5 Years, Division of Apprenticeship Standards (DAS), [http://www.dir.ca.gov/das/DAS\\_annualReports.html](http://www.dir.ca.gov/das/DAS_annualReports.html)

## Non-profit and for-profit organizations

This group is largely represented by the construction industry associations that offer training for carpenters:

- Building Industries Associated
- Associated General Contractors
- American Subcontractors Association of California
- Home Builders Association of Northern California
- Building Industry Association of Southern California

Many of these groups are collaborating with external training facilities to provide carpentry training.

## **Employer Needs and Challenges**

On the employer side, potential shortages for carpenters are anticipated in California. Contractors report having trouble finding skilled carpenters to fill many of their openings, due in part to the fact that many jobseekers are not inclined to go into construction, preferring work that is less strenuous with more comfortable working conditions.

According to the California Labor Market and Economic Analysis, 2007, 87% of construction employers report that they experience moderate to much difficulty recruiting experienced carpenters.<sup>25</sup> This statistic is reinforced by our interviews with some large carpenter employers in California. All the interviewed employers are claiming much difficulty in finding skilled carpenters for foreman positions, and little difficulty in recruiting for entry-level jobs.

Some of the skills mentioned by companies as important for their carpenter employees are:

- Knowledge of general safety rules
- Proper and accurate use of hand tools
- English language competency
- Math
- Blueprint reading
- Communication

They also claim that most of their entry-level carpenters lack these skills.

Larger employers tend to be aware of existing training programs to include community colleges and apprenticeship programs. Smaller employers, however, seem to be less aware of existing training programs and tend to provide informal on-the-job training to carpenters at their sites. All employers

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<sup>25</sup> California Economic Strategy Panel, <http://calmis.ca.gov/specialreports/Labor-Market-Economic-Analysis-2007.pdf>

interviewed feel that community colleges could play an important role by offering training in construction safety and general hand tool use. According to one of the interviewees, community colleges should offer “a mobile teaching system that can provide jobsite practical training.”

Local employers agree that it is moderately difficult to find well-qualified carpenters, especially those with the ability to perform all phases of carpentry work. Challenges and barriers include the following:

- Lack of strong math skills
- Deficiency in language and communication skills

The employers view on-the-job training as the preferred method of developing carpentry skills. The hands-on training should be supplemented by classroom work in math, communications, and safety. They also believe that classroom training in carpentry skills would be effective only if the instructor had extensive experience in the trade.

Experienced carpenters who are most likely to be promoted to foreman or project supervisor are those with excellent carpentry skills, strong work ethic, and excellent people skills.

Please refer to **Appendix J** for the list of participants in South Central Region interviews and focus groups.

## **College Response and Existing Curriculum**

California community colleges' taxonomy of occupational programs (TOP) defines the carpentry program as follows: *0952.10 – Carpentry: Layout, fabrication, erection, and installation of structures using common systems of framing, construction materials, estimating, and blueprint reading.*<sup>26</sup>

In the South Central Region, Ventura College and College of the Canyons offer programs in construction management technology which are intended to provide a broad foundation for entry into occupations in the building industry. Santa Barbara City College is now offering a series of carpentry courses. Students who complete an introductory course (Beginning Construction) or have at least one year of experience can enter advanced course such as Framing, Beginning Finish Carpentry, Blueprint Reading, and Measuring and Calculating. Cuesta College offers an extensive program that includes courses directly related to carpentry. Courses include six units each of floor and wall framing, roof framing, and finish carpentry.

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<sup>26</sup> Taxonomy of Occupational Programs,  
[http://misweb.cccco.edu/webproginv/prod/toptitlelist\\_n.cfm](http://misweb.cccco.edu/webproginv/prod/toptitlelist_n.cfm)

Carpentry programs and courses are not always taught on a degree program basis. Some community colleges are offering vocational training in their facilities; others are providing four-year apprenticeship programs.

**Appendix K** offers a visual comparison of number of existing carpentry-related college programs against the job growth projections for each region. **Appendix L** provides the list of community colleges offering carpentry-related programs.

Since carpentry is a trade, apprenticeship programs have proved to be the most effective way to educate carpenters. Apprenticeship courses are designed for indentured apprentices under the Shelly-Maloney California Apprenticeship Standards Act. The Apprentice agreement states that the student will supplement on-the-job training with related classroom instruction during each year of apprenticeship. Normally, on-the-job training is provided at an employer's site, while supplemental classroom instruction can be offered through either a community college, carpenters union training center or other educational entity. Joint Apprenticeship committees administering each program are composed of representation from labor, management, the California State Division of Apprenticeship Standards, and a particular college.

Below are the areas that are typically included in an apprenticeship program.  
*What Is Learned On The Job:*

Parts of Buildings	Finishing Inside/Outside of Houses/Buildings
Houses and Buildings	The Care and Use of Tools
Using Woodworking Machines	General Methods of "Framing-In"
Building Forms for Concrete	Repairing Windows/Doors/Roofs
Types of Hardware Fittings	Building Scaffolds/Sheds/Walkways
Layout of Foundations	Rough Framings of Floors/Walls/Stairs

*What Is Learned In the Classroom:*

Welding	Installing Insulation
First Aid	Principles of Rigging
Building Codes	Algebra, Geometry, Trigonometry
Making Cabinets	Maintaining Tools
Reading Blueprints	Framing, Sheeting, and Insulation
Safety Practices	Figuring the Cost of Materials for a Job

Some of the strongest apprenticeship programs are administered by the carpenters' union in its training facilities. Colleges need to be aware of these programs, and collaborate with unions in their local areas instead of trying to duplicate their programs.

Carpenters are not required to have industry licensing or certification. However, if a carpenter decides to become an independent contractor, he/she will have to seek the appropriate certification.

## Conclusion and Recommendations

Although there has been a recent downturn in the real estate market, the need for infrastructure improvement, commercial construction, and home remodeling is expected to lead to some growth in the construction industry over the next five years. Among the occupations in the construction trades, carpenters are expected to experience a 10% increase in employment in the South Central Region by 2012.

Most employers prefer their carpenters to be trained on the job; community colleges in the South Central Region could assist employers by strengthening and expanding their building trades programs to provide a strong foundation for entry-level employees especially in work-related math and occupational language and communication skills.

Based on the identified training needs and the interviews that the Center of Excellence conducted with carpenters' union representatives, South Central regional colleges can consider the following as potential responses to the needs of the industry:

- Partner with local apprenticeship programs to provide supplemental classroom instruction to support the on-the-job training currently being provided through apprenticeship programs
- Establish articulation agreements with the union so that union apprentices can receive college credit for completed classes
- Develop programs for entry-level workers to address identified skill shortages:
  - Knowledge of general safety rules
  - Proper and accurate use of hand tools
  - English language proficiency
  - Math
  - Blueprint reading
  - Communication
- Partner with regional high school ROP programs to provide a continuum of training
- Reach out to smaller employers to increase awareness of community college programs
- Partner with employers to develop courses, programs and schedules that meet the specific needs of the industry

Several South Central regional colleges have construction technology programs. The recommendations presented in this report would align well with most of these established programs.

## References

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- California Division of Apprenticeship Standards (DAS), Completion Counts for Building Trade Programs Last 5 Years  
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## **APPENDIX A: How to Use this Report**

### About the Centers of Excellence

The Centers of Excellence (COE), in partnership with business and industry, deliver regional workforce research customized for community college decision making and resource development. This information has proven valuable to colleges in beginning, revising, or updating economic development and Career Technical Education (CTE) programs, strengthening grant applications, assisting in the accreditation process, and in supporting strategic planning efforts.

The Centers of Excellence are part of the California Community College's Economic and Workforce Development Network. The Centers aspire to be the premier source of regional economic and workforce information and insight for California's community colleges.

More information about the Centers of Excellence is available at [www.coecc.net](http://www.coecc.net)

### How to Use This Report

This report is designed to provide current industry data to:

- Define potential strategic opportunities relative to an industry's emerging trends and workforce needs;
- Influence and inform local college program planning and resource development;
- Promote a future-oriented and market responsive way of thinking among stakeholders; and,
- Assist faculty, Economic Development and CTE administrators, and Community and Contract Education programs in connecting with industry partners.

The information in this report has been validated by employers and also includes a listing of what programs are already being offered by colleges to address those workforce needs. In some instances, the labor market information and industry validation will suggest that colleges might not want to begin or add programs, thereby avoiding needless replication and low enrollments.

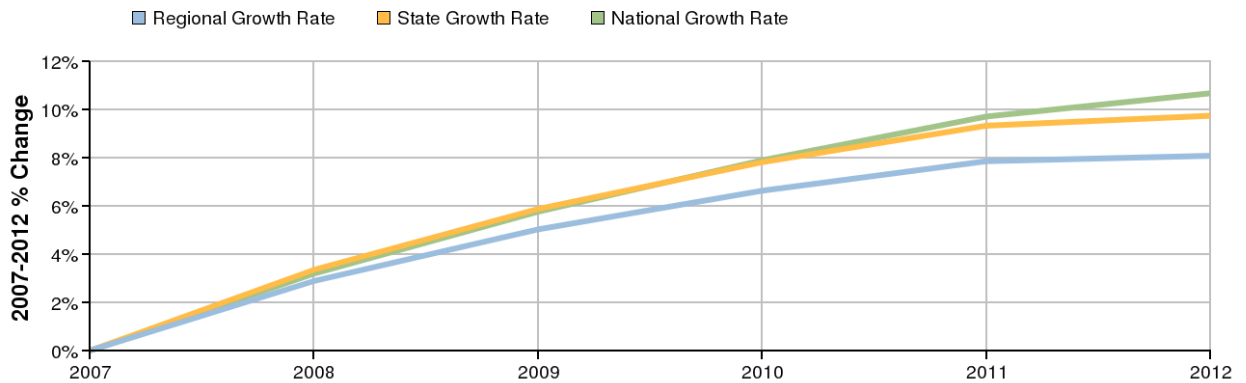
### Important Disclaimer

All representations included in this report have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. Efforts have been made to qualify and validate the accuracy of the data and the reported findings; however, neither the Centers of Excellence, COE host District or California Community Colleges Chancellor's Office are responsible for applications or decisions made by recipient community colleges or their representatives based upon components or recommendations contained in this study.

## Appendix B – South Central Region Construction Industry Growth Projections 2007-2012

The following data tables provide construction industry employment and occupational information for the South Central Region of Community Colleges serving San Luis Obispo, Santa Barbara, Ventura, and north Los Angeles Counties.

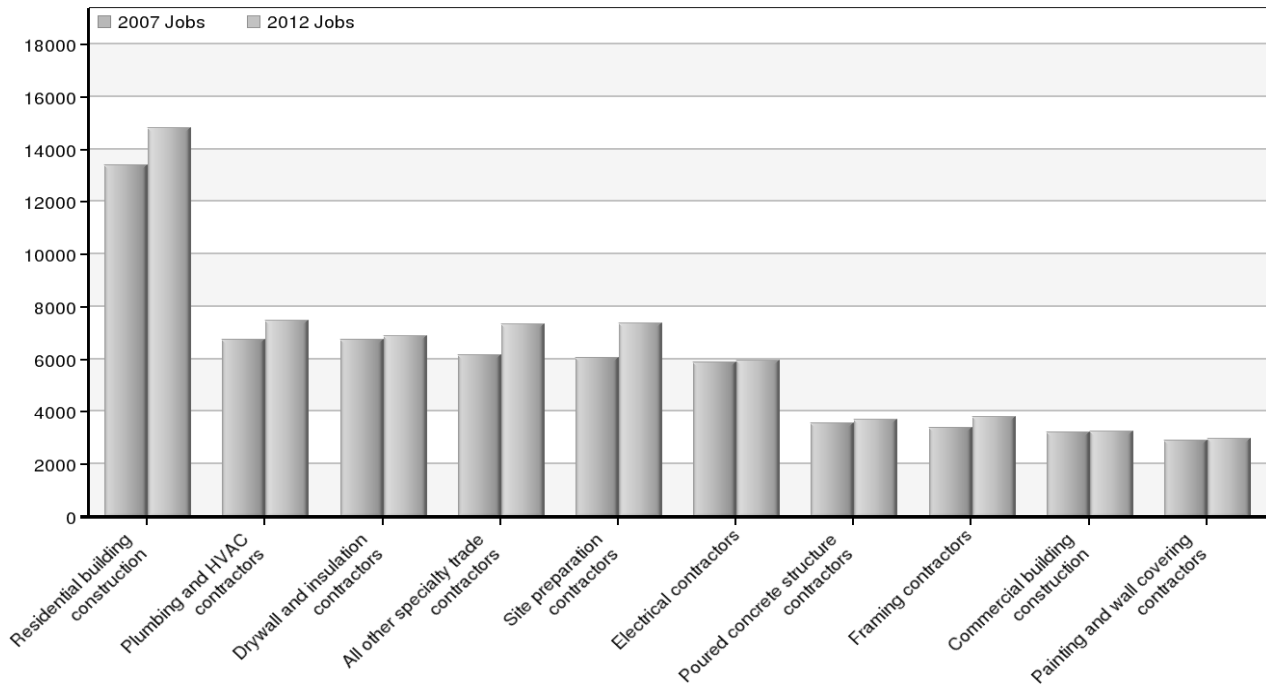
### Construction Industry Growth and Change Summary 2007-2012



Description	2007 Jobs	2012 Jobs	Change	% Change	EPW
Regional Total	76,360	82,527	6,167	8%	\$57,607
State Total	1,244,212	1,365,361	121,149	10%	\$63,864
National Total	11,546,878	12,778,785	1,231,907	11%	\$50,485

Source: Economic Modeling Specialists, Inc., March 2008

## Top Occupations and Growth in the Construction Industry in the South Central Region 2007-2012



SOC Code	Name	2007 Jobs	2012 Jobs	Change	% Change
47-2031	Carpenters	11,053	12,116	1,063	10%
47-2061	Construction laborers	9,743	10,560	817	8%
47-1011	First-line supervisors/managers of construction trades and extraction workers	5,901	6,311	410	7%
11-9021	Construction managers	4,064	4,264	200	5%
47-2141	Painters, construction and maintenance	3,629	3,867	238	7%
47-2111	Electricians	2,992	3,170	178	6%
47-2152	Plumbers, pipefitters, and steamfitters	2,558	2,806	248	10%

Source: Economic Modeling Specialists, Inc., March 2008

## Appendix C – Occupational Description: Structural and Detail Carpenters

Source: *The Princeton Review*

<http://www.princetonreview.com/cte/profiles/dayInLife.asp?careerID=30>

**Structural Carpenters** work with supervisors and construction managers on the production of multi-material products. They need a broad range of carpentry skills because they must be able to perform any of the many different tasks these jobs may require. These carpenters often can switch from residential building to commercial construction or remodeling work, depending on which offers the best work opportunities. They work with fiberglass, drywall, and plastic as well as wood, and they use saws, tape measures, drills, and sanders in their jobs. They shape and join material to the specifications of blueprints or at the direction of their contractor. This can entail long hours of physical labor, sometimes in unpleasant circumstances. Structural carpenters also spend significant time checking their work with plumb bobs, rules, and levels. The injury rate among these carpenters is above average. But structural carpenters enjoy a larger market for their services and a more consistent demand than piecework carpenters do.

**Detail Carpenters** usually work indoors, some involved in maintenance and refinishing, others involved in creation. The majority work as furniture restorers and repairmen. They fix, sand, even, and stain used furniture. Detail work requires a good eye for prior construction methods, an understanding of restoration techniques, and patience. Other detail carpenters fashion and create their own pieces of furniture, choosing the wood, designing the final product, then shaping and assembling the parts. Many then sell these pieces to retail houses and private buyers. Detail carpenters work directly with clients more than structural carpenters, so interpersonal skills are much more significant.

## Appendix D – Summary of Tasks, Skills, and Work Activities for Construction Carpenters (47-2031.01)

Source: the Occupational Information Network (O\*NET) [www.online.onetcenter.org](http://www.online.onetcenter.org)

### Tasks

- Measure and mark cutting lines on materials, using ruler, pencil, chalk, and marking gauge.
- Follow established safety rules and regulations and maintain a safe and clean environment.
- Verify trueness of structure, using plumb bob and level.
- Shape or cut materials to specified measurements, using hand tools, machines, or power saw.
- Study specifications in blueprints, sketches or building plans to prepare project layout and determine dimensions and materials required.
- Assemble and fasten materials to make framework or props, using hand tools and wood screws, nails, dowel pins, or glue.
- Build or repair cabinets, doors, frameworks, floors, and other wooden fixtures used in buildings, using woodworking machines, carpenter's hand tools, and power tools.
- Erect scaffolding and ladders for assembling structures above ground level.
- Remove damaged or defective parts or sections of structures and repair or replace, using hand tools.
- Install structures and fixtures, such as windows, frames, floorings, and trim, or hardware, using carpenter's hand and power tools.

### Tools & Technology

**Ladders** — Extension ladders; Fold-up ladders; Non-conducting ladders

**Levels** — Calibrating electronic levels; Laser levels; Spirit levels; Visible beam laser levels

**Power sanders** — Belt sanders; Hand-held rotary tools; Random orbit sanders; Sanders

**Power saws** — Circular saws; Compound miter saws; Radial-arm saws; Reciprocating saws

**Squares** — Combination squares; Framing squares; Layout bars

**Accounting software** — Intuit QuickBooks; Intuit Quicken; Job costing software

**Office suite software** — Microsoft Office

**Project management software** — Bosch Punch List; Craftsman CD Estimator; Estimating software; Turtle Creek Software Goldenseal Architect

**Web page creation and editing software**

**Word processing software** — Microsoft Word; Wilhelm Publishing Threshold

### Knowledge

**Building and Construction** — Knowledge of materials, methods, and the tools involved in the construction or repair of houses, buildings, or other structures such as highways and roads.

**Mathematics** — Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.

**Design** — Knowledge of design techniques, tools, and principles involved in production of precision technical plans, blueprints, drawings, and models.

**Production and Processing** — Knowledge of raw materials, production processes, quality control, costs, and other techniques for maximizing the effective manufacture and distribution of goods.

**Engineering and Technology** — Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services.

**Mechanical** — Knowledge of machines and tools, including their designs, uses, repair, and maintenance.

**Public Safety and Security** — Knowledge of relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions.

**Law and Government** — Knowledge of laws, legal codes, court procedures, precedents, government regulations, executive orders, agency rules, and the democratic political process.

## Skills

**Mathematics** — Using mathematics to solve problems.

**Time Management** — Managing one's own time and the time of others.

**Active Listening** — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.

**Critical Thinking** — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.

**Judgment and Decision Making** — Considering the relative costs and benefits of potential actions to choose the most appropriate one.

**Active Learning** — Understanding the implications of new information for both current and future problem-solving and decision-making.

**Management of Material Resources** — Obtaining and seeing to the appropriate use of equipment, facilities, and materials needed to do certain work.

**Quality Control Analysis** — Conducting tests and inspections of products, services, or processes to evaluate quality or performance.

**Equipment Maintenance** — Performing routine maintenance on equipment and determining when and what kind of maintenance is needed.

**Installation** — Installing equipment, machines, wiring, or programs to meet specifications.

## Abilities

**Arm-Hand Steadiness** — The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.

**Multilimb Coordination** — The ability to coordinate two or more limbs (for example, two arms, two legs, or one leg and one arm) while sitting, standing, or lying down. It does not involve performing the activities while the whole body is in motion.

**Trunk Strength** — The ability to use your abdominal and lower back muscles to support part of the body repeatedly or continuously over time without 'giving out' or fatiguing.

**Near Vision** — The ability to see details at close range (within a few feet of the observer).

**Information Ordering** — The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).

**Manual Dexterity** — The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.

**Problem Sensitivity** — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.

**Visualization** — The ability to imagine how something will look after it is moved around or when its parts are moved or rearranged.

**Deductive Reasoning** — The ability to apply general rules to specific problems to produce answers that make sense.

**Oral Comprehension** — The ability to listen to and understand information and ideas presented through spoken words and sentences.

### **Work Activities**

**Controlling Machines and Processes** — Using either control mechanisms or direct physical activity to operate machines or processes (not including computers or vehicles).

**Judging the Qualities of Things, Services, or People** — Assessing the value, importance, or quality of things or people.

**Monitor Processes, Materials, or Surroundings** — Monitoring and reviewing information from materials, events, or the environment, to detect or assess problems.

**Communicating with Supervisors, Peers, or Subordinates** — Providing information to supervisors, co-workers, and subordinates by telephone, in written form, e-mail, or in person.

**Coordinating the Work and Activities of Others** — Getting members of a group to work together to accomplish tasks.

**Performing General Physical Activities** — Performing physical activities that require considerable use of your arms and legs and moving your whole body, such as climbing, lifting, balancing, walking, stooping, and handling of materials.

**Getting Information** — Observing, receiving, and otherwise obtaining information from all relevant sources.

**Scheduling Work and Activities** — Scheduling events, programs, and activities, as well as the work of others.

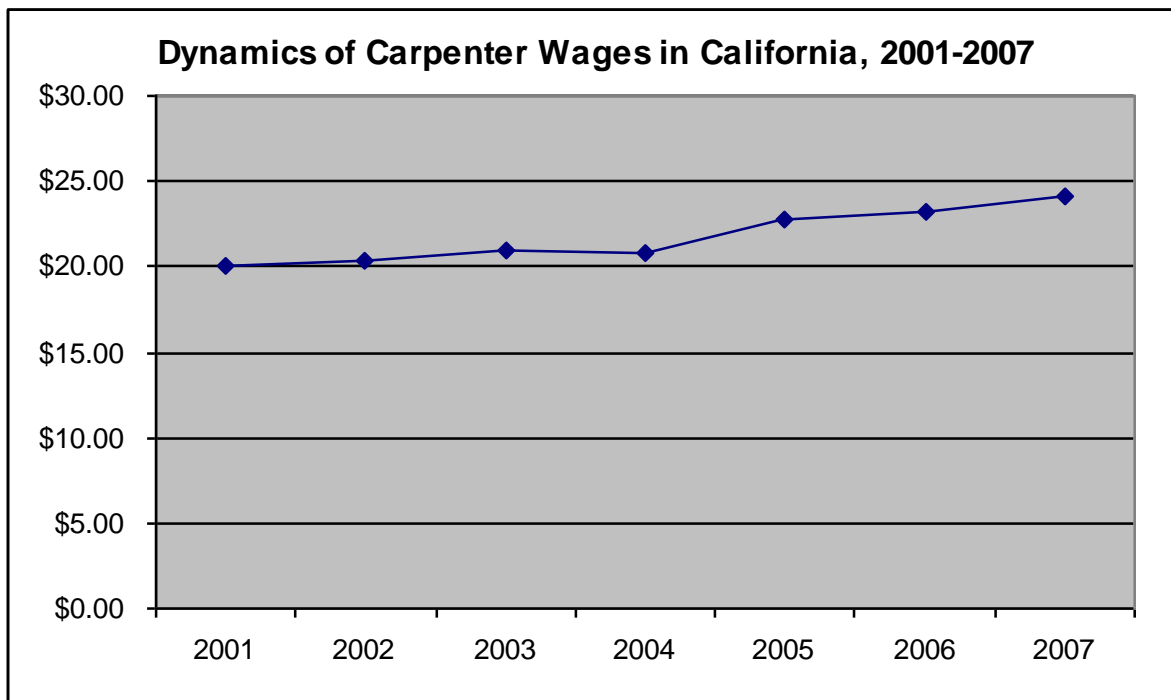
**Communicating with Persons Outside Organization** — Communicating with people outside the organization, representing the organization to customers, the public, government, and other external sources. This information can be exchanged in person, in writing, or by telephone or e-mail.

**Making Decisions and Solving Problems** — Analyzing information and evaluating results to choose the best solution and solve problems.

## Appendix E – Dynamics of Carpenter Earnings, 2001 – 2007

The chart below shows hourly and annual earnings of carpenters in 2001 through 2007, as well as annual percentage growth in earnings. *Source: California Employment Development Department*

Indicator	Rate Type	Median Wages						
		2001	2002	2003	2004	2005	2006	2007
Wages	Hourly	\$20.01	\$20.37	\$20.92	\$20.81	\$22.77	\$23.20	\$24.12
	Annual	\$41,636	\$42,366	\$43,510	\$43,277	\$47,357	\$48,263	\$50,174
Annual Growth Rate	Hourly	-	1.80%	2.70%	-0.53%	9.42%	1.89%	3.97%
	Annual	-	1.75%	2.70%	-0.54%	9.43%	1.91%	3.96%
Average Annual Growth Rate	Hourly	3.21%						
	Annual	3.20%						



## Appendix F – Carpenters Earnings by MSA Regions in California

The following table presents MSA carpentry wages. They are sorted by hourly earnings.

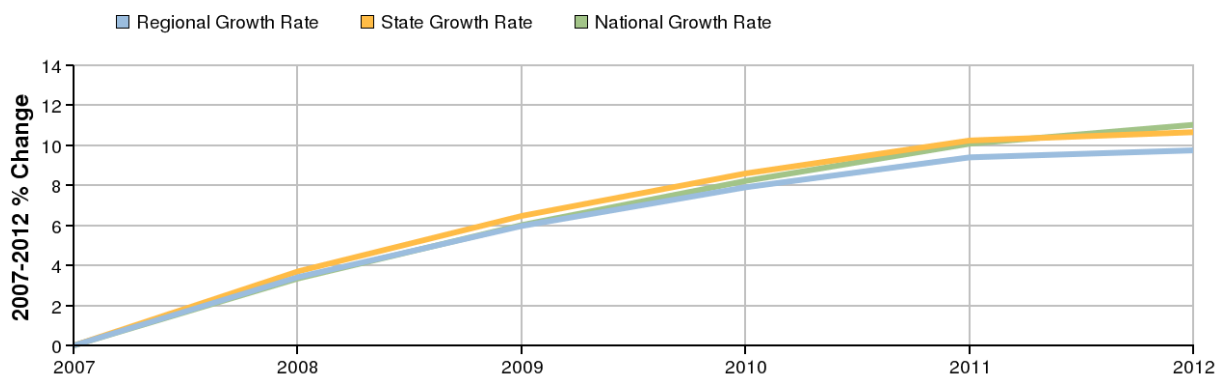
#	Region	Medium Wage 2007, \$	
		Hourly	Annual
1	San Francisco-San Mateo-Redwood City Metro Div	\$28.29	\$58,848
2	Oakland-Fremont-Hayward Metro Div	\$27.59	\$57,390
3	San Jose-Sunnyvale-Santa Clara MSA	\$27.41	\$57,010
4	Santa Rosa-Petaluma MSA	\$26.78	\$55,696
5	Santa Barbara-Santa Maria MSA	\$26.53	\$55,183
6	Vallejo-Fairfield MSA	\$26.51	\$55,152
7	Sacramento-Arden Arcade-Roseville MSA	\$25.03	\$52,042
8	Madera MSA	\$24.64	\$51,231
9	Merced MSA	\$24.63	\$51,211
10	Salinas MSA	\$24.44	\$50,831
11	Los Angeles-Long Beach-Glendale Metro Div	\$24.35	\$50,646
12	Stockton MSA	\$23.56	\$48,993
13	Modesto MSA	\$23.55	\$48,973
14	El Centro MSA	\$23.49	\$48,860
15	Santa Cruz-Watsonville MSA	\$23.20	\$48,244
16	Napa MSA	\$22.61	\$47,033
17	San Diego-Carlsbad-San Marcos MSA	\$22.19	\$46,171
18	Riverside-San Bernardino-Ontario MSA	\$22.09	\$45,935
19	Yuba City MSA	\$22.07	\$45,904
20	Oxnard-Thousand Oaks-Ventura MSA	\$21.98	\$45,719
21	San Luis Obispo-Paso Robles MSA	\$21.55	\$44,816
22	Chico MSA	\$21.33	\$44,374
23	Bakersfield MSA	\$20.72	\$43,112
24	Redding MSA	\$19.11	\$39,765
25	Fresno MSA	\$18.16	\$37,764
26	Visalia-Porterville MSA	\$17.53	\$36,471
27	Hanford-Corcoran MSA	\$14.28	\$29,696

Source: California Labor Market Data <http://www.labormarketinfo.edd.ca.gov>

## Appendix G – South Central Region Carpentry Occupational Report 2007-2012

The following data tables provide occupation specific information for carpentry across industries in the South Central Region.

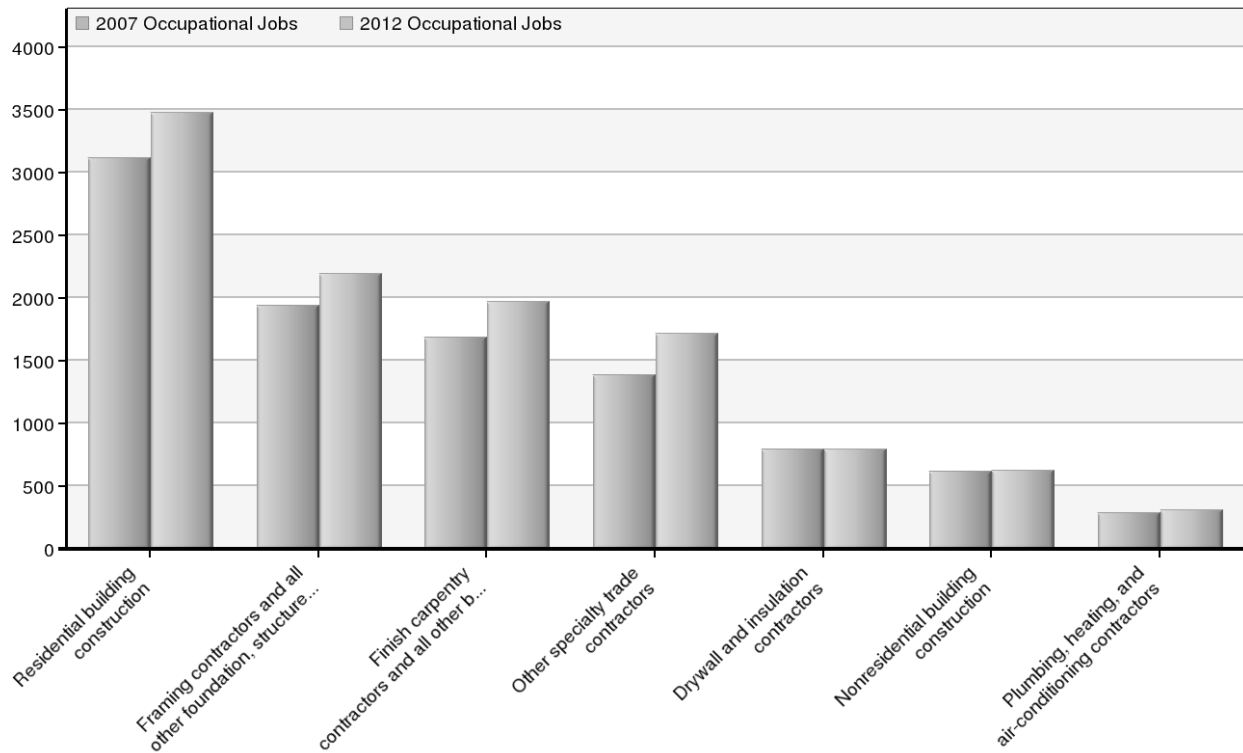
### Occupational Change Summary



Region	2007 Jobs	2012 Jobs	Change	% Change	2007 Median Hourly Earnings
Regional Total	11,550	12,676	1,126	10%	\$28.12
State Total	214,700	237,578	22,878	11%	\$29.37
National Total	1,789,571	1,986,855	197,284	11%	\$20.82

Source: EMSI Complete Employment - March 2008

## Top Industries for Carpenters in the South Central Region



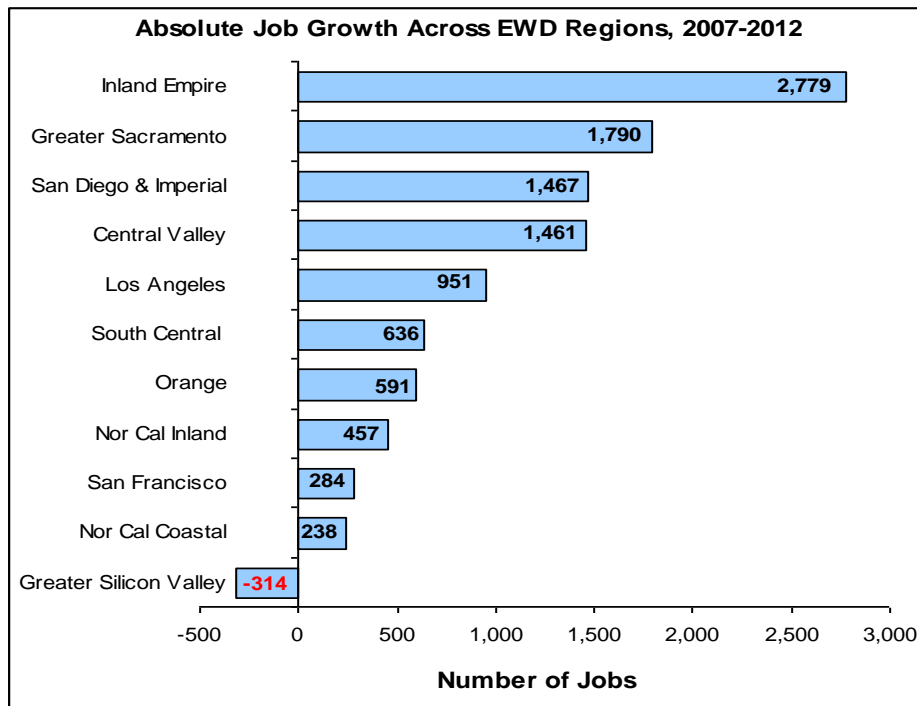
NAICS Code	Name	2007 Jobs	2012 Jobs	Change	% Change
236100	Residential building construction	3,118	3,477	359	12%
2381XX	Framing contractors and all other foundation, structure, and building exterior contractors	1,938	2,189	251	13%
2383XX	Finish carpentry contractors and all other building finishing contractors	1,687	1,969	282	17%
238900	Other specialty trade contractors	1,381	1,716	335	24%
238310	Drywall and insulation contractors	791	792	1	0%
236200	Nonresidential building construction	619	622	3	0%
238220	Plumbing, heating, and air-conditioning contractors	282	309	27	10%

Source: EMSI Complete Employment - March 2008

## Appendix H – Carpentry Jobs Across Community College Defined Regions

EWD Region	2007 Jobs	2012 Jobs	Change	% Change	2006 Median Hourly EPW
<b>National Total</b>	<b>1,781,781</b>	<b>1,841,847</b>	<b>60,066</b>	<b>3%</b>	<b>\$17.69</b>
<b>State Total</b>	<b>220,918</b>	<b>231,245</b>	<b>10,327</b>	<b>5%</b>	<b>\$22.61</b>
Inland Empire	33,168	35,947	2,779	8%	\$21.44
Greater Sacramento	18,711	20,501	1,790	10%	\$23.35
San Diego & Imperial	21,392	22,859	1,467	7%	\$21.10
Central Valley	19,072	20,533	1,461	8%	\$20.34
Los Angeles	36,251	37,202	951	3%	\$21.39
South Central	9,596	10,232	636	7%	\$21.57
Orange	20,801	21,392	591	3%	\$22.50
Nor Cal Inland	4,447	4,904	457	10%	\$20.78
San Francisco	37,017	37,301	284	1%	\$25.72
Nor Cal Coastal	2,718	2,956	238	9%	\$26.07
Greater Silicon Valley	17,891	17,577	-314	-2%	\$24.71

Source: Economic Modeling Specialists, Inc. [www.economicmodeling.com](http://www.economicmodeling.com)



“Northern regions are reported to experience construction jobs growth due to the expansion of long-term senior care housing market, as more retiring baby boomers choose to live in the north state and as they ponder long-term care for their aging parents and themselves.” (“Maturing market: Care housing for seniors is bucking local building trend”, June 24, 2007

<http://www.redding.com/news/2007/jun/24/maturing-market-care-housing-seniors-bucking-local/>

## Appendix I – Carpentry Apprenticeship Program Completion Rates

(Yellow shading represents the training centers with the highest program completing numbers)

Program completions the past 5 years		Completion Count					
		2000	2001	2002	2003	2004	2005
<b>CARPENTRY COMMITTEES</b>		<b>660</b>	<b>677</b>	<b>638</b>	<b>644</b>	<b>654</b>	<b>741</b>
<b>Joint</b>		<b>622</b>	<b>665</b>	<b>604</b>	<b>620</b>	<b>636</b>	<b>717</b>
1	00008 Southern California Carpentry J.A.T.C.	221	296	326	311	281	327
2	00019 Southern California Carpentry J.A.T.C. (San Diego)	53	37	60	42	44	29
3	00024 Gold Coast Carpenters J.A.T.C.	12	21	19	15	14	30
4	00038 San Francisco Carpentry Training Committee	34	18	11	15	19	29
5	00054 Monterey County Carpenters Training Committee	6	5	6	15	5	11
6	00057 Contra Costa County Carpenters Training Committee	34	20	11	19	11	13
7	00073 Central Valley Carpenters Training Committee	9	16	10	7	8	18
8	00077 Marin County Carpenters Training Committee	8	5	5	5	2	3
9	00084 Delta / Yosemite Carpenters Training Committee	7	5	6	12	12	6
10	00089 North Valley Carpenters Training Committee	28	20	22	24	41	19
11	00096 San Mateo County Carpentry Training Committee	29	14	12	19	29	15
12	00111 Santa Clara/San Benito Carpenters Jatc	45	59	32	41	45	64
13	00128 Sonoma, Lake & Mendocino Counties Carpenters Training Committee	16	19	19	10	8	12
14	00162 Napa And Solano Counties Carpenters Training Committee	9	9	10	7	9	14
15	02486 Humboldt & Del Norte Counties Carpenters Training Committee		1			1	
16	09162 Northeastern Butte Carpenters Training Committee	1	3	2	1	1	3
17	09462 Santa Cruz County Carpenters Training Committee	4	5	5	6	3	3
18	09476 Alameda County Carpenters Training Committee	42	35	15	28	35	41
19	09529 Tahoe Area Carpenters Training Committee	2	1	4		4	7
20	14150 Los Angeles Co. Carpenter Floor Workers J.A.T.C.	2	5	1	2		3
21	16129 Southern California Pile Drivers J.A.T.C.	21	17	2	7	9	12
22	17291 San Diego County Drywall / Lather Jac	9	8	4			22
23	17858 Pile Driver Training Committee For Northern California	12	11	6	7	14	14
24	18146 Greater Bay Area Hardwood Floor Layers Training Committee	2	1	4	1	1	3
25	19719 Southern California Acoustical Installer J.A.T.C.	16	33	12	26	40	19
26	28311 Los Angeles County Insulation & Weatherstripping Installers J.T.C.		1				
<b>Unilateral</b>		<b>38</b>	<b>12</b>	<b>34</b>	<b>24</b>	<b>18</b>	<b>24</b>
27	19161 San Diego Associated General Contractors J.A.C.	28	9	27	17	14	22
28	19718 Innercity Community Unilateral Apprenticeship Committee	1	1	5	6	3	
29	19950 Associated Builders & Contractors Golden Gate Chapter Carpentry U.A.C.	9	2	2	1	1	2

Source: Completion Counts for Building Trade Programs Last 5 Years, Division of Apprenticeship Standards (DAS), [http://www.dir.ca.gov/das/DAS\\_annualReports.html](http://www.dir.ca.gov/das/DAS_annualReports.html)

## **Appendix J – Participants of Regional Interviews and Focus Groups**

John Keough	Partner	B. O. D. Construction
Victor Fernandez	Project Supervisor	Melchiori Construction
Robin Hayhurst	Executive Director	Santa Maria Valley Contractors Assoc.
Larry Everett	Director	Construction Boot Camp
Oscar Delgado	Carpenter	Keane Construction
Joe Cruz	Carpenter	VC Construction

## Appendix K – Job Growth in Carpentry and Community Colleges Program Response

The chart below shows projected new jobs in carpentry, both in their numerical and percentage value, and the number of colleges currently offering carpentry-related programs in each community college defined region. Highlighted cells represent the top three values for each column.

Community College Defined Region	Number of New Jobs (2007-2012)	Job Growth (2007-2012), %	Number of Colleges Offering a Program in Carpentry
Nor Cal Inland	457	10%	3
Greater Sacramento	1,790	10%	3
Nor Cal Coastal	238	9%	1
Inland Empire	2,779	8%	2
Central Valley	1,461	8%	6
San Diego & Imperial	1,467	7%	1
South Central	636	7%	4
Orange	591	3%	3
Los Angeles	951	3%	5
San Francisco	284	1%	4
Greater Silicon Valley	-314	-2%	2

Color code:

1st ranked
2nd ranked
3rd ranked

## Appendix L – Community Colleges Offering Programs in Carpentry

#	School	Web-site	Program	Degree Offered:	Program Description:/ Comments:
1	<b>Bakersfield College</b>	www.bc.cc.ca.us	Carpenter Apprenticeship	Associate Degree (30 units); Certificate	The Apprentice class meets three to eight hours per week and yield two to six units of credit. Joint Apprenticeship committees administering each program are composed of representation from labor, management, California State Division of Apprenticeship Standards, and Bakersfield College. These committees adopt state approved standards for operation and assure equal opportunity for applicants.
2	<b>College of the Sequoias</b>	www.cos.edu	Construction Technology	Certificates < 2yrs. B (46 units)	
3	<b>Fresno City College</b>	www.fresnocitycollege.edu	Construction; Carpentry	S (48 units)	Oriented toward residential construction. Includes estimating, human relations as well as skills.
4	<b>Hartnell College</b>	www.hartnell.edu	Carpentry	Non-degree (26 units)	
5	<b>San Joaquin Delta College</b>	www.deltacollege.edu	Carpentry Technology	Non-degree (47 units)	
6	<b>San Jose City College</b>	www.sjcc.edu	Construction Technology	S (42 units)	Includes real estate property management.
7	<b>Palo Verde College</b>	www.paloverde.edu	Building Technology	S (27 units)	Certificate requires 12 unit core--intro. to building, rough carpentry, advanced framing, blueprint reading--plus 6 units construction electives. Degree requires core plus CAD, interior trim carpentry, concrete or masonry, electricity, plumbing.
8	<b>Victor Valley Community Coll</b>	www.vvc.edu	Building Construction; Construction Technology	non-degree (31 units); S (18 units)	Includes all aspects of construction. Any 18 units from certificates or major coursework.
9	<b>El Camino College</b>	www.elcamino.edu	Construction Technology	Associate degree (34 units)	Certificate of Competence (3.0 gpa) or Certificate of Completion (2.0 gpa) available. Includes cabinet and fine woodworking. Two years credit toward the California State Contractors License Board experience requirement.
10	<b>Long Beach City College</b>	www.lbcc.cc.ca.us	Carpentry Technology/ Trade Home Remodeling and Repair	Associate degree (40 units) Certificates (15-16 units) Pre-Apprenticeship (5.5 units)	<a href="http://osca.lbcc.edu/curriculumguides.cfm">http://osca.lbcc.edu/curriculumguides.cfm</a>
11	<b>Los Angeles Trade - Technical College</b>	www.lattc.cc.ca.us	Carpentry - Construction Technologies	Associate Degree (48 units)	A.S. degree and certificate offered in day. A.A. degree offered at night and geared to those already working in the field.

12	<b>Pasadena City College</b>	www.pasadena.edu	Building Construction	Certificate of Achievement (44 units)	Primarily carpentry.
13	<b>Rio Hondo College</b>	www.riohondo.edu	Carpentry Apprenticeship	Certificates, Carpenter apprenticeship (24 units)	Apprenticeship only. Students must be regular indentured apprentices registered with the State of California.
14	<b>American River College</b>	www.arc.losrios.edu	Carpenter Apprenticeship	Associate Degree (36.5 units)	<a href="http://www.arc.losrios.edu/catalog/Apprenticeship.pdf">http://www.arc.losrios.edu/catalog/Apprenticeship.pdf</a>
15	<b>Cosumnes River College</b>	www.crc.losrios.edu	Construction, Pre-Apprenticeship	non-degree (13 units)	Construction Pre-Apprenticeship
16	<b>Feather River College</b>	www.frc.edu	Construction Technology	S (35 units)	
17	<b>Lassen Community College</b>	www.lassen.cc.ca.us	Construction Technology	Vocational - Construction Tech; Associate Degree; Certificate	Construction Technology offers both an Associate of Science Degree and a Certificate of Achievement Program. Both programs are designed around 24 units of Construction Technology core courses to provide the student beginning through intermediate instruction in carpentry and building maintenance.
18	<b>Redwoods, College of the</b>	www.redwoods.edu	Construction Technology	S (54 units)	Residential and commercial building construction, historic preservation and restoration, and practical and artistic woodworking skills and techniques.
19	<b>Shasta College</b>	www.shastacollege.edu	Construction Technology	A (46 units)	Basic emphasis is on carpentry, but includes some plumbing, wiring, insulation, roofing, drywall, painting and drawing.
20	<b>Sierra College</b>	www.sierracollege.edu	Carpentry; Residential Building Construction	Non-degree (36 units); AA/AS; Certificate	A.S. requires laboratory science. Mostly carpentry but also wiring, plumbing, etc.
21	<b>Fullerton College</b>	www.fullcoll.edu	Carpentry	Associate Degree (18 units)	In addition to their Carpentry AA degree, there is a Wood Technology Department offering Vocational Certificates in: Cabinetmaking Specialist; Cabinetmaking/Millwork Tech Specialist; Furniture Making Specialist; Woodcarving Specialist
22	<b>Coast College</b>	www.orangecollege.edu	Finish Carpentry; Basic Carpentry; Construction Technology	Non-degree (12 units); non-degree (10 units); S (40 units)	Professional Upgrade Certificate of Completion.
23	<b>Santiago Canyon College</b>	www.sccollege.edu	Carpentry Apprenticeship Finish Carpentry	S (32 units)	Carpentry-Acoustical Tile, Drywall/Lather, Drywall Finisher, Plastering, Carpentry-Concrete, Finish Carpentry, Framing, Tilt-up, Carpentry-Millwright, Carpentry-Pile Driver
24	<b>Palomar College</b>	www.palomar.edu	Apprentice Carpentry	Associate's Degree (43 units)	Apprenticeship only.

	<b>City College of San Francisco</b>	www.ccsf.edu	Trade Skills - Construction	Certificate, Non-credit, 1.5 semesters	Students receive hands-on training with actual tools and machinery used in mechanical and construction occupations. This hands-on training covers how modern framing, electricity, plumbing and finishing systems are designed, installed and maintained.
28	<b>Laney College</b>	www.laney.peralta.edu	Carpentry; Construction Management	Construction Management: AA degree Building Codes and Inspections: Certificate, Non-credit, 17.5 units Carpentry: AA degree	Carpentry Department offers students the carpentry skills necessary for careers as carpenters and general contractors. The program is designed for entry level people as well as those already working as carpenters. Classes are held on campus and at specific work sites off campus. We focus on "green" or sustainable methods, techniques and materials to provide homes for low and middle income families.
29	<b>Santa Rosa Junior College</b>	www.santarosa.edu	Applied Technology	Construction Management Basic Skills Achievement Certificate, 16.5 units	The program includes: an overview of basic manual drafting skills; the language of blueprints and specifications; construction industry, the building design process; an overview of the architectural design process; an examination of project organization and management issues; and the development of basic construction-related writing and graphic representation skills.
30	<b>Diablo Valley College</b>	www.dvc.edu	Construction and superintendency; Construction and building inspection; Construction management	Certificates (28 - 37 units)	There are three different certificates of achievement: (1) supervision and superintendency (2) construction and building inspection (3) construction management. Each of these certificates prepares students for different positions within the construction industry.
31	<b>Cuesta College</b>	www.cuesta.edu	Construction Technology	S (37 units)	General certificate and degree require architectural drawing, construction management, building trades technology, and choice of specialty elective coursework.
32	<b>Santa Barbara City College</b>	www.sbccc.edu	Construction Trades	21 units	An introductory course and 6 advanced courses in carpentry are currently offered.
33	<b>Ventura College</b>	www.venturacollege.edu	Civil & Construction Management Technology and Construction Inspection	30 units	Degrees/certificates offered include AS; Certificate of Achievement. Options are available for Building Inspection and Construction Management.
34	<b>College of the Canyons</b>	www.canyons.edu	Civil & Construction Management Technology and Construction Inspection	Mgmt 36; Inspection 18	