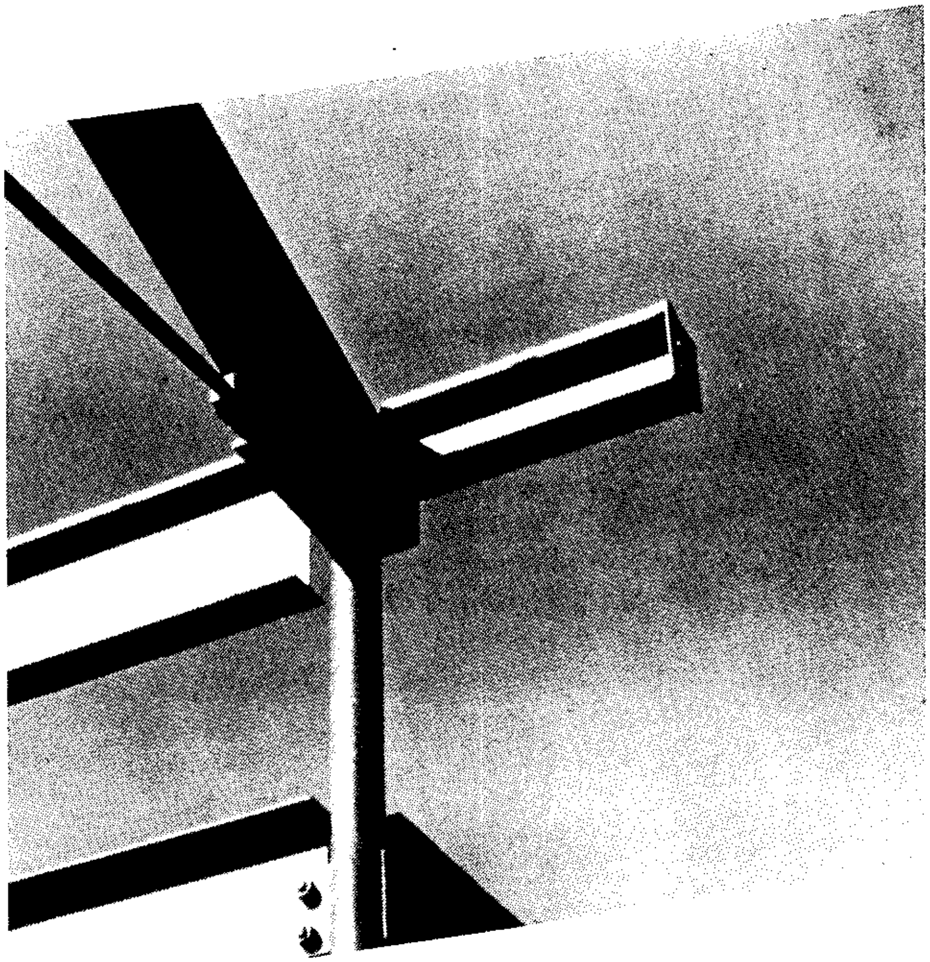
TECHNICAL PUBLICATION NO. 52

EFFECTS OF THE SHORTAGE OF SKILLED CARPENTERS ON THE ASSOCIATED BUILDERS AND CONTRACTORS OF FLORIDA: IMPEDIMENTS AND RECOMMENDATIONS



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SUMMARY OF TECHNICAL REPORT NUMBER 52

EFFECTS OF THE SHORTAGE OF SKILLED CARPENTERS ON THE ASSOCIATED BUILDERS AND CONTRACTORS OF FLORIDA: IMPEDIMENTS AND RECOMMENDATIONS

BY

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The School of Building Construction at the University of Florida, in conjunction with the Building Construction Industry Advisory Committee, has undertaken a study concerning a manpower shortage in the construction industry in the state of Florida. This is such a broad topic that several studies are being conducted of segments of the construction industry, and then a comprehensive report will be made as a part of a research grant from the Building Construction Industry Advisory Committee. This report covers only members of the Associated Builders and Contractors. Graduate students, under the close supervision of faculty, developed a number of surveys intent upon isolating the causes and effects of a shortage of skilled carpenters and to identify the steps that may be taken in order to prevent, or at least minimize, such a shortage. This research report was designed to address the obstacles faced by the industry and to make specific recommendations as to what courses of action may be taken by those persons and organizations involved. This work reports the status of the shortage of skilled carpenters as reported by members of the Associated Builders and Contractors and the enlightening recommendations could be quite useful in coping with the problem.

Sixty-four members of the Florida Associated Builders and Contractors (ABC) responded to the survey. Of those, 60, or 94% of the respondents expressed a need for more skilled carpenters in the state of Florida. In fact, 81% felt that there are not enough skilled carpenters in the state to handle the present work load. In light of the projected growth of Florida in the next decade, this shortage could serve to hamper the industry in its efforts to keep up with demand through the 1990's.

To aggravate the problem, ABC contractors feel that only 68% of those carpenters in their employ would be considered skilled in the trade. A general decline in craftsmanship was considered the most important contributing factor to the shortage of skilled workers. Eighty-four percent of the respondents felt that carpenters should undergo some sort of formal training.

The ABC contractors felt that on-the-job training programs provided adequately skilled carpenters; other training programs were not used extensively. It was also found that the level of communication between the ABC contractors and training programs was quite remote. Stronger communication between the parties was considered highly desirable, and ABC contractors felt that formal meetings between the groups would be the best method for establishing such a link.

It is clear that the ABC contractors in the state of Florida face a potential crisis. Falling numbers of new workers in the job market will contribute to the problem. Comparatively low wage rates for carpenters in Florida and an impression of low prestige in the field also have a sizeable impact. The boom in population, and therefore demand for housing, clearly will make the situation more acute. Those parties involved should take steps to remedy the manpower shortage in the industry before it becomes too critical to manage in a satisfactory manner. Meeting between the ABC contractors and training institutions should be a good start.

Copies of this report can be obtained by contacting:

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EFFECTS OF THE SHORTAGE OF SKILLED CARPENTERS ON THE ASSOCIATED BUILDERS AND CONTRACTORS OF FLORIDA: IMPEDIMENTS AND RECOMMENDATIONS

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Most of all, I would like to thank my parents, Ted and Jo Dittmer. Their love and support through the years has helped make this possible.

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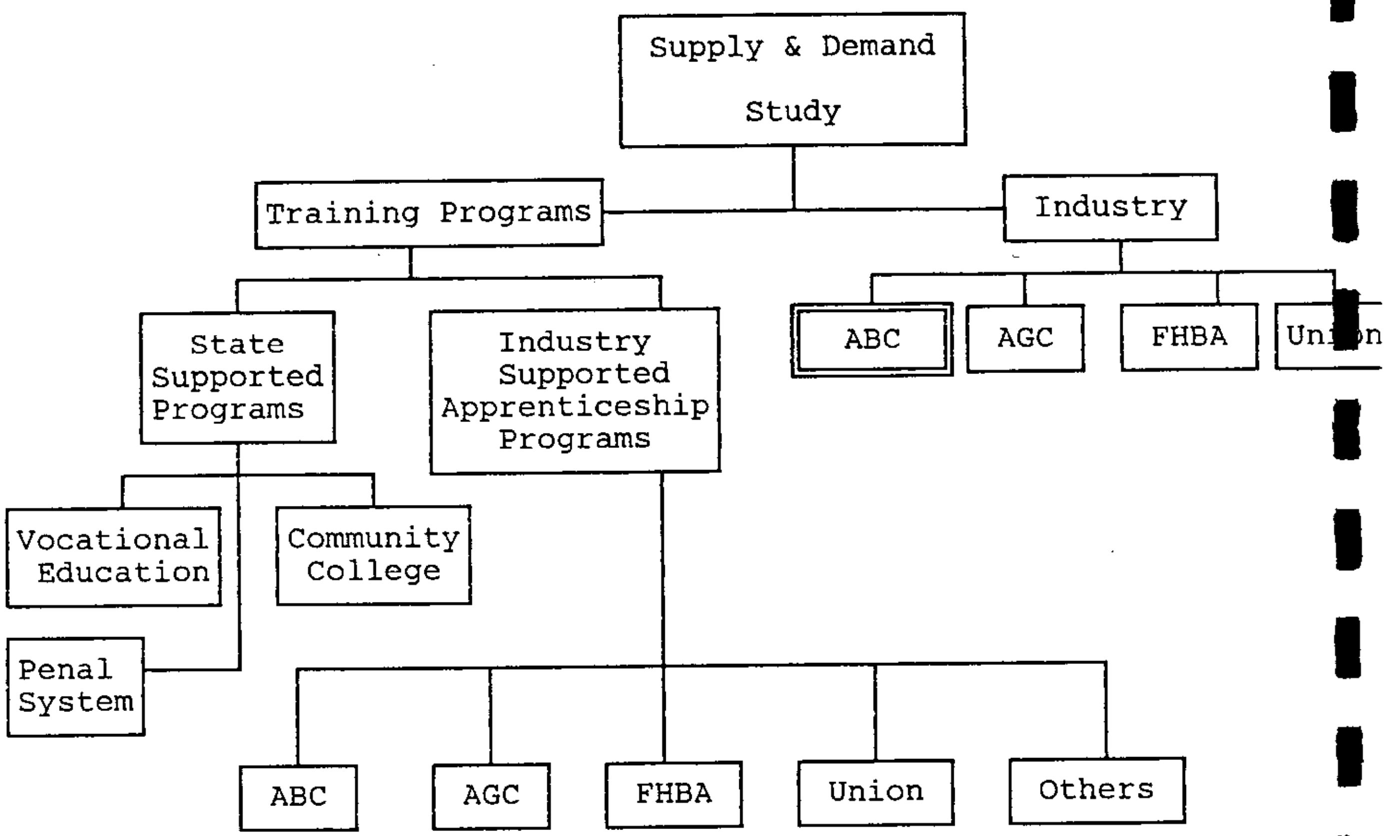
INTRODUCTION

The School of Building Construction at the University of Florida, in cooperation with the Building Construction Industry Advisory Committee (BCIAC), is conducting a research project to examine impediments to an adequate supply of skilled construction craftsmen in Florida. Recruitment, training, availability, and employment of construction craftsmen will be examined and recommendations will be made to improve this situation. The carpentry trade was selected for this study because carpenters form the largest group of skilled labor in the construction industry.

This report is one part of the larger project mentioned above (Fig. 1.1). It concentrates on the supply and demand of skilled carpenters as reported by members of the Associated Builders and Contractors (ABC). The intent of this study is to analyze the shortage of skilled carpenters and to develop conclusions and recommendations to alleviate the problem.

FIGURE 1.1

SCOPE OF TOTAL RESEARCH PROJECT



LEGEND:

- scope of research for this particular project

ABC - Associated Builders and Contractors

AGC - Associated General Contractors

FHBA - Florida Home Builders Association

Union - United Brotherhood of Carpenters and Joiners of America

Others - Any individual or group program which is non-union and does not to any one particular building organization. This group will be referred to throughout this report as "other (non-union)".

OVERVIEW OF THE STUDY

There are six main points which the study reviews and responds to. They are to:

1. Determine if ABC contractors perceive a shortage of skilled carpenters. If so, examine the impediments to an adequate supply of carpenters in Florida.

2. Determine the various skills carpenters need to meet the standards of ABC contractors.

3. Evaluate how well the training programs are meeting the needs of ABC contractors for skilled carpenters.

4. Determine the existing level of communications between ABC contractors and training programs. Recommend how ABC contractors can maintain a closer working relationship and involvement with these programs.

5. Elicit opinions from ABC contractors as to the cause of the shortage of skilled carpenters, and make suggestions as how to help solve the shortage.

6. Develop recommendations to alleviate the viewed shortage of skilled carpenters.

OVERVIEW OF THE CONSTRUCTION INDUSTRY

To understand how a shortage in skilled construction employees affects growth, it is necessary to have background knowledge of the construction industry. The availability of construction labor, especially skilled workers, has a significant affect on the growth of an area. Construction rates need to keep pace with an area's growth rate so infrastructure, public facilities, and housing do not become overburdened by rapid growth. To apply the results of the carpentry study to Florida, it is essential to have an overview of the current economic situation in the state. Each region in the state has its own characteristics and growth trends. With this background knowledge, it is easier to understand how the supply and demand of skilled construction workers is affecting the growth trends in Florida.

The construction industry is one of the nation's largest industries. In 1986, the value of new construction put in place was $340.6 billion, approximately 8.9 percent of the United States Gross National Product. The value of new construction put in place for 1987 is expected to increase 1.0 percent to $343.2 billion, setting an all-time record. Also in 1986, construction industry employment rose 11.0 percent to an all-time high of 5.2 million people.[1] The sheer size of the construction industry

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[1] 1987 U. S. Industrial Outlook, U. S. Department of Commerce, January 1987, p. 1-1 and 1-2.

means that it has large requirements for new workers. The potential labor supply problems need to be understood and solved.

The years 1990-1995 have the potential for seeing significant shortages of skilled manpower in the construction industry. Several national trends make a strong impact on the labor supply:

1. The slowing national birthrate of the 1970s and 1980s. As a result of the lower birthrate, fewer young workers will be available to replace a stable number of older workers from 1990 onward.

2. Fewer workers continue to work until the customary retirement age of 65. The situation is more pronounced in the construction industry. While 9.5 percent of all male workers are 55 or over, only 8.0 percent of all men in the construction industry are in that category.

3. The increase in the number of women entering the work force. Historically this group has not had a significant impact on the supply of construction workers, but that is slowly changing.

4. The numbers of immigrants, legal and illegal. This number can not be accurately predicted, but it can be an important source of new workers.

5. Persons with previous construction industry experience. Movement of workers into and out of the industry is great, and while the number of persons in this category cannot be accurately quantified, it is believed to be significant.[2]

According to projections by the Bureau of Labor Statistics, the annual need for new construction workers from 1990-1995 will be 263,000 people (Table 1.1). This figure takes into account replacement needs and an annual growth rate of two percent.

Of the 174,000 skilled workers needed each year, almost 40

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[2] Ibid, p. 2,3, and 5.

percent of those will be carpenters. The total number of job openings for carpenters each year is usually heightened because turnover is high. Since there are no strict training requirements for carpenters, many people with limited skills take jobs as carpenters. These untrained workers eventually leave the occupation because they find they dislike the work or cannot find steady employment. Periods of unemployment also result from the short-term nature of many construction projects and the cyclical nature of the construction industry.

TABLE 1.1

ANNUAL NEED FOR NEW CONSTRUCTION WORKERS

	REPLACEMENT NEEDS	GROWTH NEEDS	TOTAL
SKILLED CRAFTSMEN	114,000	60,000	**174,000**
OTHER CONSTRUCTION WORKERS	66,000	23,000	89,000
TOTAL	180,000	83,000	**263,000**

Source: Construction Labor Research Council, October 1985, "Meeting the Future Need for Construction Labor, 1990-1995", Washington, D.C., p. 8.

Employment in the construction industry, as well as in other industries, has shifted from the Midwest and Northeastern States to the "Sun Belt" States: Florida, Alabama, Mississippi, Louisiana, Texas, New Mexico, Arizona, and California.[3] Consequently, large areas of the Southeast are short of manpower, with conditions particularly tight in Atlanta, Nashville, and the Orlando-Tampa Bay corridor. While the shortages are mostly the result of increased building construction activity, they are being compounded by vigorous state and federal infrastructure construction programs.[4] Although state economists and business leaders predict a slowing of the construction growth rate for the nation and Florida, there are still areas experiencing strong growth throughout the state.

TRENDS IN FLORIDA

In the past five to ten years, Florida has experienced an unparalleled period of economic expansion. Florida is currently the second fastest-growing state in the nation (behind California), and is the fifth most populous. The 1986 population was 11,657,800 and an additional 12.7 percent increase is expected from 1986 to 1991.[5] Keeping up with the population growth, the state's 4.7 percent job growth rate was the fastest in the country. This translates to 213,200 new jobs created over

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[3] John Lukasiewicz and John Tschetter, "Employment Trends in the Building Trades", <u>Occupational Outlook Quarterly</u>, Spring 1983, p. 4.

[4] "Labor Shortages Grip Several Cities", <u>Engineering News Record</u>, September 25, 1986, p. 10.

[5] "State Overview", <u>Florida Trend</u>, Yearbook 1987, vol. 29., no. 13, p. 53.

the past year.[6] The unemployment rate over 1986 averaged 6.3 percent, compared to the national average of 6.8 percent.[7]

While the general growth trends are positive, economists do anticipate a slowing of employment growth rates throughout the state. The construction industry is expected to slow also due to several factors:

1. Excessive building inventories. Overbuilding in the early 1980s has created an overflow of available space, especially in condominiums, commercial, and retail space.

2. Tax reforms, federal and state. Two leading construction businessmen had these positive/negative feelings on the subject:
Tom P. Fronce, marketing director for M. A. Mortenson Company - "The affect of tax reform will be felt for several years until developers figure out a way to make their projects financially feasible. There is no question that tax reform will slow commercial real estate development in the State.", and, "Frankly this could help our market for 1988 and beyond. It will allow the overbuilt segments of the market to catch up and give developers time to re-think and charge ahead."
Steven W. High, president and C.E.O. of H. J. High Construction Company -"With tax legislation doing away with limited partnerships, eliminating tax losses on buildings and decreasing depreciation will obviously affect the investment strategies of individuals and corporations. Having to make an investment based upon a positive cash flow is surely different from the past, when virtually everything could be written off one's income tax." For state taxes, Florida currently ranks 47th, having one of the lowest rates for taxing residents. A factor which limits state funds for infrastructure improvements.

3. The rising cost of insurance. The construction industry is a relatively hazardous and complex business. Because of this, insurance rates in the last few

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[6] Department of Labor and Employment Security, Bureau of Labor Market Information, Florida Employment Trends, March 1987, p. 3.

[7] Ibid, p. 15.

years have skyrocketed. Contractors cannot accurately predict their insurance premiums for longer term projects. If they cannot manage the uncertain insurance costs and requirements, they may have difficulty staying in business.

4. Infrastructure problems. According to John McKim Barley, II, vice president-architecture of Reynolds, Smith & Hills, Inc., of Jacksonville - "A lack of funding strategies for our infrastructure. Not only do we see a need to expand our water, sewer, roadway, and other support systems because of our growth, there is also a need to replace and maintain our existing infrastructure."[8]

In order to examine these growth issues more closely, the state is divided into regions. The Florida Statistical Abstract divides the state into five distinct regions: **Northwest** (the Panhandle, Pensacola, Tallahassee), **Northeast** (Jacksonville, Gainesville, Ocala etc.), **Central** (Orlando, Daytona Beach, the Spacecoast), **Southwest** (the Tampa Bay area), **Southeast** (Miami, Palm Beach, etc.), (Fig. 1.2). An analysis of each region shows the interactions between regions and the movement of trends around the state. Table 1.2 contains key economic and growth factors shown by region. These factors provide a foundation to better understand the current and projected growth in each region. Also the table allows for an easy comparison between regions and to the state figures. The following sections on each region refer to and highlight items in the table.

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[8] Philip H. Bloom, "Building Trends...For the Rest of the Eighties",Florida Construction Industry Magazine, December 1986, p. 19, 20, and 22.

Market Regions in Florida

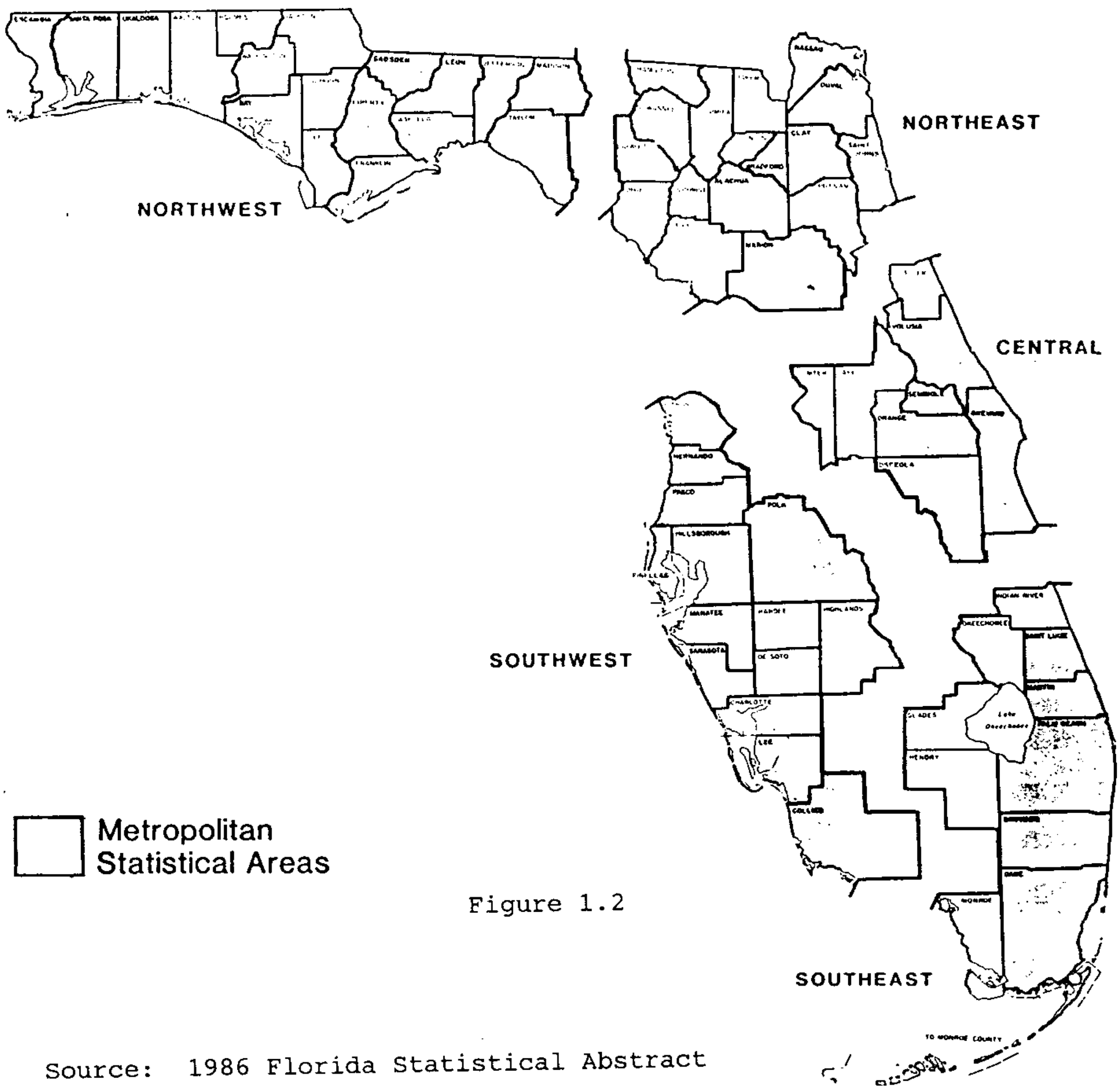

Figure 1.2

Source: 1986 Florida Statistical Abstract

TABLE 1.2

LEADING ECONOMIC FACTORS BY REGION

1986 ECONOMIC FACTORS	FLORIDA	NW	NE	CEN	SW	SE
POPULATION (1000's)	11,657.8	1017.3	1423.1	1753.9	3370.8	4092.8
% CHANGE '81-'86	+15.4	+15.5	+16.6	+23.6	+17.5	+10.1
PROJECTION 1991	13,143.1	1164.9	1620.2	2085.6	3854.0	4435.1
UNEMPLOYMENT RATE	6.3	6.4	6.2	5.5	6.2	6.7
% CHANGE '85-'86	+5.0	+1.6	+17.1	+5.8	+6.9	+1.5
HOUSING START ESTIMATES	185,219	11,238	18,996	38,876	56,746	59,362
% CHANGE '81-'86	+34.3	+31.1	+95.2	+87.3	+14.4	+20.6
PER CAPITA INCOME ($)	14,278	9,445	10,445	12,808	13,000	13,194
% CHANGE '81-'86	+31.0	+28.5	+33.4	+33.1	+27.5	+26.0

Source: Florida Trend, Yearbook 1987, vol. 29, no. 13.

NORTHWEST REGION

The Panhandle has typically been an area of slow economic growth. Area business leaders have become aggressive, trying to expand and diversify the economy by attracting new industries. Recently Russell Corporation, an athletic uniform maker, Stone Container, a brown paper bag plant, and Bendix Corporation, an auto brake factory, have located plants in the west Panhandle bringing about 900 new jobs to the area.

One of the region's difficulties is the overbuilt real estate market. Office space vacancies in fall 1986 were estimated at 29% in Pensacola. Also, condominium sales in Okaloosa and Walton counties have dropped a total of 34% since 1984. When the excesses in the real estate market are absorbed, development is expected to rekindle quickly. The most promising area for new development in the Northwest Region lies in the thousands of acres of undeveloped coastline. As soon as the time is right, developers will certainly take advantage of this area of prime real estate.

In the Tallahassee area, attention is focused on diversifying the economy away from government employment and education. "We'd like to see 10% manufacturing employment, up from 4.1% now," says Mike Longhouser, the city's new economic development specialist. " For many people in government and service jobs, there are limited opportunities for growth and advancement."[9]

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[9] Charlotte Wittwer, "Trying to Diversify a Two-Track Economy", Florida Trend, Yearbook 1987, p. 129 and 130.

Several projects in planning or development phases promise growth for the Northwest Region:

1. Leon County's Innovation Park, a 208 acre industrial park has attracted a strong base of state-sponsored research operations.

2. Pegasus Studios, recently broke ground on a $2 million movie studio in Gadsden (near Tallahassee). Also, Florida State University is working to establish a motion picture, television and recording arts program in their College of Communication.

3. Houston's Development Group Inc. (DGI), purchased 21,000 acres near Fort Walton Beach, including seven miles of Gulf beachfront. DGI is planning a 25 year development program which includes an international airport, hotels, a theme park, condominiums and shopping space. However, due to DGI's recent financial problems, this development project may not materialize.

NORTHEAST REGION

Two main areas of growth in the Northeast region are Ocala and Jacksonville, but the remainder of the region is considered the state's poorest area. Most of the depressed area has its emphasis in agriculture, a volatile industry which continues to trouble the region. Farmers are trying to diversify from row crops to more profitable vegetables. Some farmers are changing to catfish or poultry farms to help increase their earning potential.

Like the Northwest, business leaders want to attract more industry to the area and increase the operations of current area manufacturers. Both Taylor and Alachua Counties have attracted several medium-size businesses, adding over 400 jobs. In Hamilton County, a new $9 million medium security prison is being welcomed by area residents. It will provide 250 jobs and $3-$4 million annually to the local economy.

On the southern part of the Northeast region, Marion County had strong growth for the past five years. The Ocala metropolitan area was ranked as the third fastest growing in the nation from 1981 to 1985.[10] Although the Ocala area had a major influx of people, it is not expected to become a booming business center for another few years. Currently, there are several large residential/commercial developments under construction or in planning which are anticipated to bring thousands of new residents and jobs to the area.

Jacksonville is one of Florida's hottest markets. It is the insurance capital of the South, has a large financial sector with headquarters for several major banks, is becoming a marketing and distribution center for the food industry, and has become a center for medical clinics, highlighted by the opening of the Mayo Clinic last year. With a diversified economic base, Jacksonville continues to attract varied industries. In the last

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[10] Elizabeth Willson, "Much More Than a Pass-Through Place", Florida Trend, Yearbook 1987, p. 105.

eight years, 163 new companies have located in the Jacksonville area, and over 88,900 new jobs have been created.[11] In the past five years, from 1980-1985, construction permits issued grew in value by more than 100 percent, from just over $268 million in 1980 to nearly $723 million in 1985.[12]

Jacksonville city leaders are investing a lot of time and money into their downtown area. The city owns 16 acres of downtown waterfront sites and will see that it is developed in a quality manner. Like most areas of the state, Jacksonville has excess office space available, but with the rapid growth rate, these excesses are expected to be absorbed within a year, not significantly slowing construction rates.

There are many large projects in construction and planning stages throughout the Northeast region. Several projects will impact on the population and construction growth:

1. The $1.2 billion Trident submarine base at Kings Bay, Georgia. Perhaps the largest project ever in the Southeast United States, it will require thousands of workers during the time of construction, at least ten years. Kings Bay is about five miles north of the Florida-Georgia border, and with Jacksonville being the closest large city, the city should feel a

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[11] Richard Frisbie, "Jacksonville is "Florida's Hottest Market"", Florida Construction Industry Magazine, August 1986, p. 4.

[12] Ibid, p. 4 and 5.

substantial amount of growth from this project alone. The submarine base is expected to increase area population by at least 30,000 people during construction and throughout operations. While under construction, this project will put a significant squeeze on the construction labor force from Atlanta to Jacksonville.

2. $350 million Enterprise Center by Faison Associates in downtown Jacksonville. Includes Florida National Bank's new headquarters and a 350 room Omni Hotel.

3. Renaissance Place, by Wilma Southeast, on the river in downtown. To be completed in 10 to 15 years, this "city within a city" will include 3 million square feet of office space and a 650 room hotel connected to a performing arts hall. Wilma has agreed to pay $42 million for a five-block site - or more than $3 million an acre.

4. A 6,500 acre multi-use development in St. Johns County. To be developed in six phases over 30 years, the projected cost is $1.6 billion.

CENTRAL REGION

As one of the fastest growing cities in the state, Orlando dominates the Central region, but the rest of the area would like to see more growth in the future. To the north, Sumter and Lake counties have been influenced by the growth in Marion County. Both counties have a large population of retirees and would like to draw more in, especially to upscale subdivisions like those planned in neighboring counties. Sumter County is expecting some growth following the completion of a 57 acre national cemetery built by the U. S. Veterans Administration. Area leaders expect it to spur restaurant and motel development to accommodate out-of-town visitors. Lake County has not been very fortunate in attracting new business to the area. The 1986 unemployment rate was 8.7%, well above state average. The citrus acreage, once a major source of area income, has decreased about 90% since 1980. Retirees make up over 28% of Lake County's population and continue to move there in large numbers.

On the east coast, the space industry and tourism are the main sources of income. In Volusia County, Daytona Beach has been doing a booming business during the college spring break season. But area businessmen would like to attract a more stable convention business. The city has the Ocean Center convention facility, completed in 1985, and in April 1987 work began on a 402 room, $50 million Marriott hotel across the street from the center. The close proximity of a high-end hotel should help the convention business. If not, area hotel occupancy rates, a low 62.9%, could worsen.[13] The remainder of the county has landed two good businesses: Boston Whaler, a boat builder, plans to

[13] Gregory Crouch, "Orlando Slows Down To Catch Its Breath", Florida Trend, Yearbook 1987, p. 100.

hire 275 workers; and Fame Plastics, a cabinet maker, will hire 200.[14]

Since the Challenger disaster in January 1986, some 2,000 workers have been laid off by NASA subcontractors. As a result, in Brevard County housing starts fell off and unemployment rates rose from 4.9% in 1985, to 7% in 1986. Despite this bad luck, improvements are ahead. Brevard County voters passed a 2% resort tax which should raise $1.1 million for tourism marketing. As NASA gears up for the next space shuttle launch in the near future, they predict employment will soon reach pre-Challenger levels. Contractors are adding about 100 new jobs a month and Grumman Corporation will have added close to 1,000 jobs at facilities in Melbourne.[15]

The Orlando tricounty area of Orange, Seminole and Osceola counties, have been growing at breakneck speed. In the past five years, the area's population soared 23%, the number of hotel rooms doubled, office space doubled, and housing starts increased 173%.[16] Tourism, a major source of employment and income in this area, boomed setting all kinds of records. The high growth rate has stressed the region. Office buildings and hotels both have high vacancy rates, a definite sign of overbuilding. The growth rate and construction rate are supposed to slacken through 1987, and maybe longer. A slow down does not mean stopping. Large

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[14] Ibid, p. 100.

[15] Ibid, p. 100.

[16] Ibid, p. 97.

projects underway and planned, plus corporate relocations, (in 1986 Orange and Seminole Counties had more than 80 corporate expansions or relocations), means new jobs:

1. Walt Disney Corporation's $300 million, 900 employee movie studio to open in 1988, and a studio tour facility in 1989.

2. MCA Incorporated announced it would build Universal Studios Florida to compete with the Disney-MGM Studio. The facilities will employ a total of 3,400 people.

3. The duPont Centre, a 13.5 acre facility in downtown Orlando, includes hotels, office buildings, and a trade mart. Phased over eight to ten years, the cost is $400 million.

4. AT&T is expanding Orlando operations and adding 500 jobs.

5. The American Automobile Association is moving its national headquarters from Virginia to Orlando in mid-1989, with 650 new jobs.

SOUTHWEST REGION

The Tampa Bay area continues to experience strong growth, but other parts of the Southwest region have less certain growth patterns. In the north, Citrus and Levy counties are growing slowly; their population has a high percentage of retirees.

Developers are planning new upscale subdivions for retirees who play golf or have boats, in order to make the most of the continued influx of retirees.

Toward the center of the state, this largely rural area has been devastated recently by citrus losses due to freeze and canker, and a weakened phosphate industry. This area is coming back by taking advantage of its centralized location in the state, and its proximity to Orlando and Tampa. Highlands County has attracted half a dozen medium-size companies who have added around 500 new jobs. Polk County has a new tourist attraction, Boardwalk and Baseball, and Lakeland is becoming a distribution headquarters for food stores. New projects include a $78 million Pepperidge Farm plant that will employ 400, and a new warehouse and corporate headquarters for Publix Super Markets Inc.[17].

In the south, Naples earned the title of the fastest growing metropolitan area in the country for 1986, and it has been booming ever since. Traditionally opposed to uncontrolled growth, residents are now embracing economic growth. Lee County has attracted new industries, for example Saftronics, a New York electronics firm, employs 100 people.[18] In Sarasota County, more than 500 manufacturing jobs were added last year. Throughout the area population growth is strong and housing starts are expected to increase accordingly over the next few years.

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17 Elizabeth Willson, "Lakeland Makes The Most of Location", Florida Trend, Yearbook 1987, p. 90 and 91.

18 Bonnie Welch, "A New Attitude Embraces Growth", Florida Trend, Yearbook 1987, p. 74.

The Tampa Bay area is the hub of the region. The city of Tampa continues to flourish, particularly because of its ability to attract new companies. Time, Incorporated has plans to relocate there employing over 1,500 workers. City leaders hope that is just the beginning, and are negotiating with several companies, each of which could employ more than 2,000 people.[19] One of the areas major problems is the infrastructure, the road system needs expanding urgently to keep up with the area's growth. Pasco and Manatee counties are absorbing the overflow from Tampa. These counties are ready to grow with increasing populations and prime land locations near the major highways. Some upcoming projects in the region include:

1. St. Petersburg plans a $66 million, multipurpose domed sports stadium. They hope to attract a major sports team which could bring in a great deal of income and tourists to the city.

2. Paragon Group will build an office tower of up to 55 stories in downtown Tampa. Paragon foresees demand for the offices soon, even though real estate experts consider Tampa overbuilt.

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[19] John Taylor, "Tampa Bay Takes Big-League Strides", Florida Trend, Yearbook 1987, p. 82.

SOUTHEAST REGION

Much of the Southeast region experienced steady growth over a long period of time, and it is still growing. The northern counties of Martin and St. Lucie have just recently been attracting attention. With a 49 mile addition to I-95 to connect these counties to Palm Beach County and a $60 million shopping mall opening soon in Martin County, more people will be traveling and spending retail dollars there.

Palm Beach County has been the fastest-growing county in Florida over the past six years, but growth has its problems. There is a glut of new office space and the roads are extremely overcrowded. The area has not been trying to attract industry like most of the state. In fact, overall manufacturing jobs have declined over the past few years. Despite these problems, the economy is booming with massive retail expansions, over 5,600 new retail jobs in 1986, and growth in housing starts.

Spurred by the opening of two major expressways - Interstate 75 and the Sawgrass Expressway - the western reaches of Dade and Broward Counties are the new focal points in the region's economic growth. Planners and economists expect this corridor to become the site of massive commercial, industrial, and residential development.[20] Development in this western area includes a 1.6 million square foot mall, hotel, offices, and industrial parks. The region's economic centers continue to be Fort

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[20] Matt Walsh, "Dade and Broward Open New Frontiers", Florida Trend, Yearbook 1987, p. 57.

Lauderdale and Miami, both showing signs of progress and economic strength. Both cities are completing major public projects, and have more large developments in the works. Miami's new festival marketplace, Joe Robbie's new Dolphins Stadium, and the $53 million expansion of the Miami Beach Convention Center are examples of the area's continued growth. If there is a weakness in Dade County's economy, it is in the overbuilt condominium and commercial real estate markets. Vacancy rates are still high in these sectors, yet construction continues.

In Monroe County, the Florida Keys are facing major growth management problems. The over-loaded roads, sewers, and landfills are causing strict limitations to be placed on development throughout the county. There are a few projects still in the planning stages, but they may not be built for several years.

Major projects in the Southeast region include:

1. Boston developer Pritam Singh paid $17.25 million for Key West's 103 acre Truman Annex. He plans to develop an $80 million mixed-use project.

2. Fort Lauderdale will begin construction on a performing arts center and museum of technology as part of a $300 million redevelopment of downtown's New River area.

3. A 49 mile addition of I-95 connecting Palm Beach and Martin Counties is under construction.

SUMMARY

There is a high level of growth throughout the state of Florida. New industries are locating here, major corporation are relocating or placing branch offices in Florida, and major construction projects are planned in all regions of the state. Two main problems of this growth are overbuilding and overloading the infrastructure. All the large cities have excesses in office space and high hotel vacancies. These cities will have to slow their construction rate, especially for office buildings and hotels, while the available excesses are absorbed. Due to the steady influx of people, residential construction should remain steady.

Overburdening the infrastructure continues to be a problem in most major cities throughout the state. The problems facing Monroe County are representative of many other cities. They have temporarily stopped all construction until their roads, sewers, and water supply can be expanded to accommodate more growth. Infrastructure problems should be addressed as the growth occurs, not waiting until the system is overburdened.

The large projects planned throughout the state and the steady population growth is creating opportunities for the construction industry. Skilled construction labor, including carpenters, will be in demand throughout Florida during this extended period of growth. The increasing number of skilled construction workers needed each year to keep pace with growth rates may cause a labor shortage in the next five to ten years.

In fact, results of this study showed that many contractors in Florida already perceive a shortage of skilled carpenters. This study analyzes the perceived shortage and develops recommendations on how to alleviate this problem.

CHAPTER TWO:

THE ASSOCIATED BUILDERS AND CONTRACTORS

The Associated Builders and Contractors (ABC) is a national association which actively promotes and defends the open "Merit Shop" form of construction. ABC is an organization of more than 18,000 members nationwide[21]; this figure represents 18,000 construction firms, not individuals. These general contractors, subcontractors, suppliers, and associates are united under one banner of free and open competition in the construction industry. ABC members are located in 76 chapters and four chapters-in-formation in all 50 states, the Virgin Islands, Guam and Canada. ABC offers numerous national and chapter programs to members to help increase the quality and productivity of construction, employees, and businesses. In addition, the association's elected leaders and professional staff work with national, state, and local government officials to promote legislation supporting the free enterprise system.[22] This chapter covers the history of national ABC, the Florida ABC, and reviews some of ABC's current programs and services.

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21 Building America, The Associated Builders and Contractors, 1986.

22 ABC Working For You, 1986 Catalog of Services and Programs, Associated Builders and Contractors, p. 1.

THE FORMATION OF THE ASSOCIATED BUILDERS AND CONTRACTORS

The Associated Builders and Contractors was formally established in 1950 in Baltimore, Maryland and developed the Merit Shop policy as its purpose. On May 24, 1950, the organization's resolution was stated as follows:

> Resolved, that the Members of the Associated Builders and Contractors of Maryland, Inc., believing that it is the right and prerogative of every American employer to hire whomever he desires, hereby expresses their approval of an open shop policy throughout the industry.[23]

The phrase "open shop" often implies "anti-union", therefore, ABC coined the phrase "Merit Shop". Specifically, Merit Shop is a business way of life for both employers and employees. It means the preservation of the individual worker's freedom to choose whether he wants to be a union member or not. It means union and independent contractors should be protected in their right to do business with each other, regardless of their firm's labor relations. In bidding, it means the job goes to the lowest responsible bidder whether the firm is union or independent. Merit Shop stresses <u>merit</u>. It also stresses <u>performance</u> and <u>pride</u>, <u>economy</u> and <u>efficiency</u>.[24]

When ABC was being organized, in Maryland in the late 1940s,

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23 John P. Trimmer, "ABC: Profile of Philosophy Part I", <u>Merit Shop Contractor</u>, January, 1976, p. 16.

24 <u>ABC of Florida Construction Users Directory, 1987-88</u>, Associated Builders and Contractors, p. 3.

construction was booming, largely due to defense industries such as Bethlehem Steel and Martin Aircraft which employed thousands of workers. In addition to expansion of war plants, there was a tremendous demand for new construction by the State of Maryland. It was during this period of demand that the groundwork was laid for the growth of the open shop. Homebuilding firms saw the growth opportunities available in the war-related construction and turned their businesses in that directions. They continued their custom of using union and open shop workers side by side. This was a new development for the Baltimore area, which was a union town as far as major construction was concerned.

According to one of the founders of ABC, Edward P. Colwill of Baltimore, it was the flexibility in the use of the work force - breaking outside the rigidity of union craft jurisdictions- that brought increased efficiency and effective cost-savings into construction operations. This remains one of the major assets of Merit Shop construction as it has ventured into many fields that were formerly considered exclusively union.[25] Union leaders did not like the success of the Merit Shop contractors. In the face of rumored union activity against them, Merit Shop contractors organized the ABC. They felt with the organization, they could make a more efficient and effective stand against union activity.

Over the years, ABC has been a strong force in the construction industry. The organized contractors have withstood union protests, numerous legal battles, and economic swings to

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25 Ibid., p. 15.

emerge as the fastest growing national association in the construction industry. ABC members have worked together to meet the needs of merit shop contractors and the construction industry.[26] The major services and programs provided by ABC are discussed later in this chapter.

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26 ABC Working For You, 1986 Catalog of Services and Programs, Associated Builders and Contractors, p. 1.

FLORIDA ABC

The current Florida chapters of ABC are shown in Figure 2.1. They are:

Central Florida Chapter
Membership - 206
Head Office - Winter Park
President - Wayne H. Gey

Florida Gold Coast Chapter
Membership - 541
Head Office - Boca Raton
President - Frederick R. Prout

Florida Gulf Coast Chapter
Membership - 331
Head Office - Tampa.
President - Bart Trueblood

North Florida Chapter
Membership - 66
Head Office - Tallahassee
President - Jim Maples

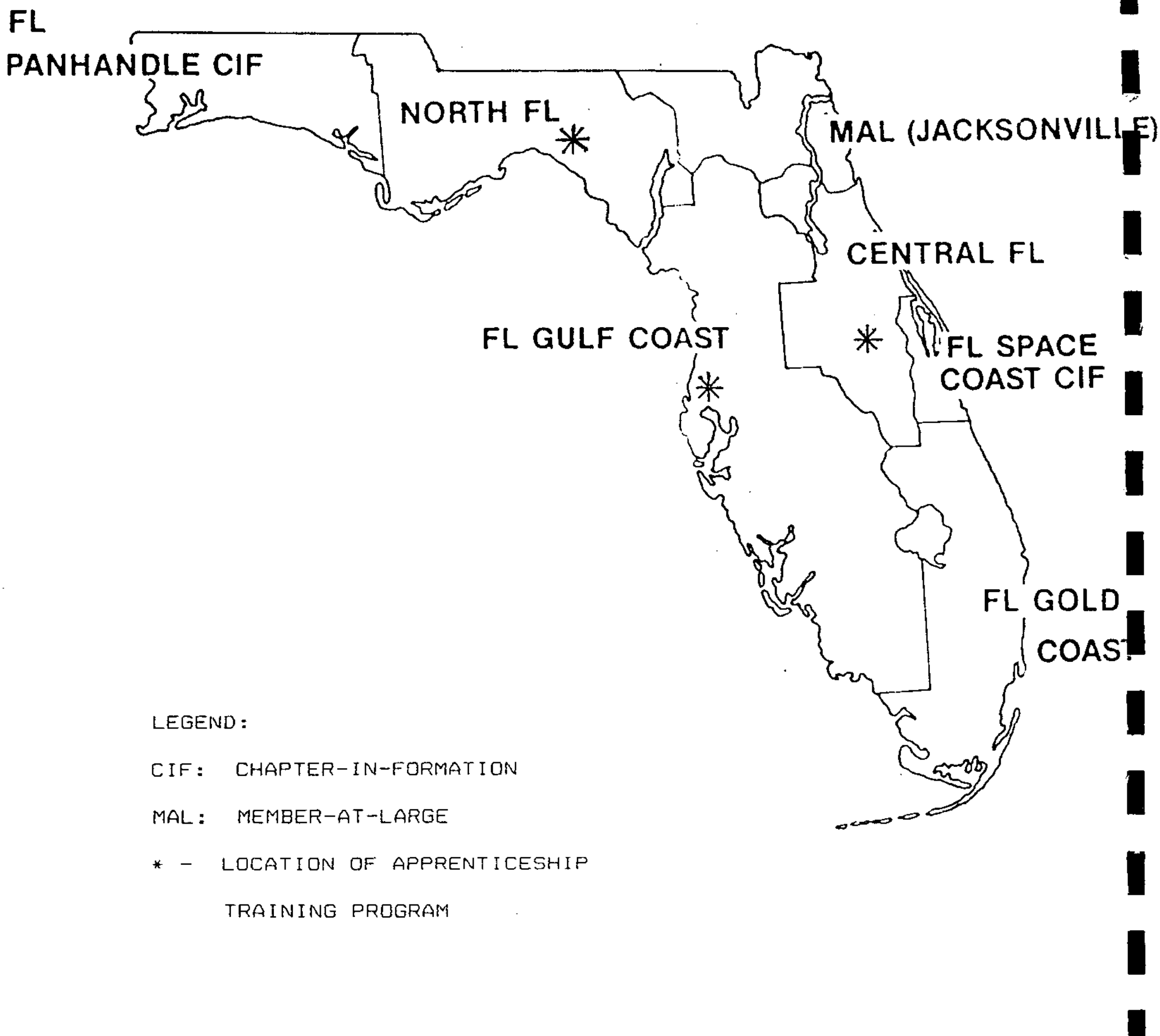
Florida Panhandle
Chapter-in-Formation
Membership - 68
Head Office - Pensacola
President - Mark Toler

Florida Space Coast
Chapter-in-Formation
Membership - 72
Head Office - Melbourne
President - W. Doug Padgett

Jacksonville
Member-at-Large
Membership and officers not available.

ABC FLORIDA STATE CHAPTERS

FIGURE 2.1



LEGEND:

CIF: CHAPTER-IN-FORMATION

MAL: MEMBER-AT-LARGE

* - LOCATION OF APPRENTICESHIP TRAINING PROGRAM

The regional chapters serve several purposes:

- Distribute information and services to ABC members, their workers, and contractors interested in joining ABC.

- The North Florida, Central Florida, and Florida Gulf Coast chapters each sponsor an apprenticeship training program in their area. Each chapter is responsible for overseeing and setting requirements for their training program.

- Organize area contractors to confront regional issues and politics.

- Provide support and advice to members in need.

- Serve as a liaison between member contractors and the state and national ABC - communicate ideas, problems, suggestions, and need for services.

ABC'S SERVICES AND PROGRAMS

ABC has a wide variety of services and programs available to every member. The following descriptions are taken from ABC Working For You, 1986 Catalog of Services and Programs, Associated Builders and Contractors, Washington, D.C.. (Appendix C contains a full listing of ABC's services and programs).

Industry Relations: ABC actively promotes the benefits of building merit shop to construction owners. Industry relations and business development at ABC mean more construction for the dollar, and more construction dollars for merit shop contractors.

Legal: ABC has experienced labor relations attorneys on staff to advise ABC members on the legal ramifications of such matters as picketing, vandalism, employee relations and jobsite violence. The legal staff is a clearinghouse for the exchange of information between ABC's network of over 100 chapter attorneys nationwide.

Government Relations: ABC speaks for merit shop contractors. On Capitol Hill, with government agencies, and throughout the federal government, ABC assists its members in many ways. ABC comments on proposed legislation and lobbies on legislation affecting the construction industry.

Education and Manpower: ABC is actively involved in virtually every aspect of construction education, providing the services necessary to meet the challenges and opportunities which face the industry. Education programs are available for workers and for management. Among the education services available are the apprenticeship training programs and the innovative Wheels of Learning program.

Merit Shop Foundation: ABC's educational adjunct, working to build a better future for the construction industry by educating the construction workforce. Since it was formed in 1971, the Foundation's activities have grown to include training construction craftspeople, distributing construction research grants and providing financial assistance to outstanding construction management students.

Communications: ABC tells its story to members, potential members, construction users, Congress, government agencies, the general public and more through the major national news media and the more than 60 trade publications which cover the construction industry, and through its internal publications.

ABC's Apprenticeship Program and the Wheels of Learning program are worth discussing in greater detail due to their importance relative to the carpentry study.

ABC APPRENTICESHIP TRAINING PROGRAM

The ABC apprenticeship program is defined as:

"A prescribed period of on-the-job training (OTJ) supplemented by related classroom instruction, which is generally two nights each week, three hours each night, from September through April of each year. This is to meet the required 144 hours of related training according to government regulations. Each apprentice also receives a minimum of 2,000 hours of OTJ each year"[27]

ABC offers apprenticeship programs in the following trades: Carpenter, Plumber, Electrician, Refrigeration A/C, Sheet Metal, each of which require a minimum of 8000 hours of on-the-job training, and Sprinkler Fitter which requires 6000 hours to complete. The Carpentry Work Processes are as follows:[28]

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[27] Standards of Apprenticeship, Florida Gulf Coast Chapter Associated Builders and Contractors, Inc., p. 3.

[28] Apprenticeship Handbook of Procedures, Florida Gulf Coast Chapter Associated Builders and Contractors, Inc., p. 8.

CARPENTRY WORK PROCESSES

	ACTIVITY	HOURS
A.	Building, laying out, leveling, lining up and bracing foundations, walls & floors.	1500
B.	Laying out, framing & erecting foundations and walls.	800
C.	Framing and setting various rafters and roof coverings.	700
D.	Determining use, operating and setting up various tools, materials and equipment for exterior mill work.	1000
E.	Applying & installing interior wall coverings.	500
F.	Laying & erecting various floors.	500
G.	Laying & installing various types of stairs.	500
H.	Cutting, fitting & hanging various interior finish.	1000
I.	MISCELLANEOUS - Building walkways, erecting scaffolding, making temporary sheds, making miscellaneous repairs and additions, erecting miscellaneous types of concrete forms.	1500
	TOTAL HOURS	**8000**

The carpentry program is a four year program consisting of the 8000 hours of on-the-job training and a minimum of 144 hours per year of classroom training. The total classroom time is a minimum of 576 hours.

There are minimum entry requirements for applicants to the apprenticeship programs. Using the Florida Gulf Coast Chapter as an example, the entry requirements are:

- A high school diploma or equivalent.
- Must be at least 17 years of age.
- Must be of sufficient physical fitness to perform the work of the trade.
- Complete apprenticeship application evaluation.

Also, applicants must be sponsored by their employer who pays the apprenticeship fees and is responsible for providing adequate on-the-job training. The apprenticeship standards include the Obligation of the Employer:

> After being selected for apprenticeship by the Trade Committee, the employer agrees that the apprentice while under his employment will be employed under such conditions as will result in normal advancement; that the employer will require the apprentice to make satisfactory progress in both on-the-job training as well as in the related classroom studies. The employer also agrees that the apprentice will not be employed in a manner that may be considered to be in conflict with these standards. The employer further agrees to pay his prorated share of the cost of operating the apprenticeship program. The employer shall take affirmative action to insure that equal opportunity is given to all its apprentices regardless of race, color, creed, sex or natural origin.[29]

The employer needs to work with the apprentice to order to optimize the quality of carpenter he will eventually have working for him. Several surveyed ABC contractors felt this was a drawback to the program. A few comments were received stating the employers feel they would sponsor an apprentice and then he

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[29] Standards of Apprenticeship, Florida Gulf Coast Chapter Associated Builders and Contractors, Inc., 1986, p. 3.

would leave to work for another employer. Also, some contractors suggested a system where firms would contribute money and have a pool of workers available, as opposed to sponsoring an individual employee.

One of the benefits of the apprenticeship program is a minimum wage scale which changes as the trainee completes levels of the training program. The 1986 wage scale for the Gulf Coast Chapter ranged from $4.35 for a beginner to $7.39 for completing 8000 on-the-job hours. Having a wage scale gives employees an incentive to enroll in and complete the program.

There are currently three ABC apprenticeship programs in Florida. The programs and their sponsors are: Tampa (Gulf Coast), Orlando (Central), and Tallahassee (North Florida). These programs vary slightly; each ABC apprenticeship program may have different requirements as determined by the advisory committees presiding over the training program. This flexibility allows each program to adapt to different circumstances in their particular area. Unfortunately, this variation may cause a lack of continuity between programs, hampering trainees who transfer from one program to another.

The following table, (Table 2.1), gives some information regarding the ABC apprenticeship programs. The averages shown in the table represent the three ABC training programs in Florida. Also, the statewide average is shown for comparison. Included in the state average are training programs sponsored by the ABC, the United Brotherhood of Carpenters and Joiners, the Associated

General Contractors, Florida Home Builders Association and other non-union programs. The three ABC programs make up 12% of the training programs in Florida.

TABLE 2.1

INFORMATION ON ABC APPRENTICESHIP PROGRAMS

BACKGROUND INFORMATION	AVERAGE ABC	AVERAGE STATE WIDE	ABC MINIMUM	ABC MAXIMUM
DURATION OF PROGRAM IN YEARS	3.7	3.8	3.0	4.0
NUMBER OF APPRENTICES PRESENTLY ENROLLED	15.3	35.2	6.0	28.0
AVAILABLE CAPACITY	54.3	81.3	17.0	101.0
TOTAL HOURS OF CLASSROOM INSTRUCTION IN THE PROGRAM	598	605	576	621
TOTAL HOURS OF JOB SITE TRAINING IN THE PROGRAM	7,333	7,667	6,000	8,000
NUMBER OF APPRENTICES WHO GRADUATE EACH YEAR FROM PROGRAM	18.3	11.5	0.0	50.0
PERCENTAGE OF GRADUATES WHO HAVE FULL-TIME CARPENTRY JOBS	100.0%	89.4%	---	---
AVERAGE AGE OF GRADUATES	25.0	25.3	23.0	27.0

Source: "An Analysis of Carpentry Apprenticeship Programs in Florida", Technical Publication No. 47, School of Building Construction, University of Florida, 1987.

WHEELS OF LEARNING PROGRAM

An alternative to the traditional training program, the Wheels of Learning Program is designed to provide a comprehensive craft training program more conveniently, and at a relatively low cost. This program is competency - based, allowing a person to enter at his ability level, proceed through it at one's own pace, and exit at any level. The Wheels of Learning was developed in 1979 with a goal of completing programs for 23 trades by 1990. Currently, twelve programs are available including carpentry, electrical, plumbing, and HVAC.

Each construction trade is divided into a series of instructional units (modules). A typical program consists of approximately 20 modules per year, therefore, a four-year program such as carpentry consists of a total of approximately 80 modules. Each module contains 3 parts: a student manual, an instructor's guide, and written and performance (hands-on) tests. The program can be used in a classroom setting, in a contractor's shop, on the job site or on an individual basis.

A module can be used by itself to teach a specific task. This method would be used for a contractor needing to train a large number of people in a few basic tasks so they may become productive on the job in a short amount of time. Secondly, all the modules in any one trade can be combined to form the curriculum of formal classroom training in that trade. Last and most uniquely, one can draw various tasks from various trades to form an educational program for training a multi-skilled craftsperson. Essentially by doing this the sponsor of the program is developing a customized training experience.[30]

The Wheels of Learning Program is different from existing programs in the following ways:

1. Can be utilized for training in specific tasks.

2. Speeds up time for attaining a productive level acceptable to both employer and employee.

3. It encourages development of in-house training facilities and programs by employers, reducing the need for large, centrally located facilities.

4. Provides greater flexibility and increases productivity through increased yearly utilization of workforces thereby decreasing unemployment.

5. Provides opportunity for retraining those with outdated or unneeded skills.

6. Allows more rapid expansion of the workforce.

7. Promotes participation of supervisors in training process thus enhancing skills.

8. Will be able to train crafts persons using the same curriculum, anywhere in the nation.[31]

This program has obvious advantages over the traditional apprenticeship program. The Wheels of Learning program has flexibility in the training site and amount of supervision needed. An employee can learn at their own pace, and is more

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[30] Wheels of Learning Summary, Associated Builders and Contractors, Inc., 1986, p. 3.

[31] Ibid., p. 3 and 4.

productive on the job in a shorter period of time. More importantly, the program is adaptable to train the large pool of unskilled people who are currently unemployed. The result would be a more steady supply of skilled workers that will be so desperately required in the near future.[32] Also, the continuity of the program nationwide will provide an even basis of comparison when deciding whether to hire an individual. The Wheels of Learning appears to be an excellent program. Its flexibility and continuity to adapt to almost any training place and situation make it an unique program.

ABC is founded on the Merit Shop philosophy and has accumulated a large, supportive membership. It has become a strong force in the construction industry; Merit Shop contractors account for more than 60% of construction put in place. They lobby in state and national government to promote and defend the Merit Shop ideals. The bottom line is ABC works for its members with extensive services, programs, and support.

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32 Ibid., p. 5.

CHAPTER THREE:

METHODOLOGY

SURVEY METHOD

The information and data required for this study was gathered using a questionnaire survey. The questionnaire was formulated from information gathered through a literature search and input from personnel with knowledge of the construction industry. The survey was mailed out to 280 ABC contractors, 64 responses were received, achieving a response rate of 23 percent.

CONTENT VALIDITY

The initial questionnaire was based on information from an extensive literature search and a meeting on November 11, 1986 with Mr. Steve Cona, Educational Director of the ABC Florida Gulf Coast Chapter.[32] The research and the meeting identified issues of interest and problems faced by the construction industry. These problems and issues were incorporated into the first draft of the questionnaire. This draft was used as a pilot study and mailed to a general contractor, and one member of each of the following organizations: the Florida Homebuilders Association, the Association of General Contractors, the United Brotherhood of Carpenters and Joiners, and the Associated Builders and Contractors. Based on the comments received from these sources,

[32] Meeting between Mr. Ali Markus, head of research team, and Mr. Steve Cona, Educational Director of the ABC Gulf Coast Chapter, Tampa, Florida, November 11, 1986, 3 pm.

revisions were made to form the second draft. The second draft was used for a test carpenter study in conjunction with contractors in the Florida Homebuilders Association. This provided a further chance for revision since the responses indicated that some questions were unclear or misunderstood. Those questions were revised or replaced. By examining the responses, it was possible to probe deeper into certain topics by adding more questions. These revisions made up the third and final draft used in the ABC carpenter study presented in this report (Appendix A).

QUESTIONNAIRE DEVELOPMENT

The gathering of information from the literature search and members of construction organizations was necessary to seek out the skill related problems contractors feel are important. Once the problems were defined, a variety of questions were formulated which would address the problems from different angles. After several months of revisions, the questionnaire was finalized on May 1, 1987. The final questionnaire contains 32 questions and covers both sides of one page (Appendix A).

The questionnaire is divided into six main sections, each addressing a separate topic:

SECTION ONE: Background information on the respondent firm. The name of the firm, the person answering the questionnaire and his position in the firm, the annual volume of business in dollars, the type of construction, type of operation, and the number of projects carried per year.

SECTION TWO: Determining the supply of skilled carpenters. Number of journeyman carpenters, apprentices, or carpenters-in-training that are on the payroll, the need of carpenters to have broader skills in the future, and what criteria determines a promotion or wage increase for carpenters. What wages are paid to journeyman and apprentice carpenters, length of time they remain with the firm, and where the firm searches for carpenters.

SECTION THREE: Status of carpentry shortages and overtime work. Whether there are enough skilled carpenters to hire, is there a need for more carpenters, and what causes the shortage of carpenters. Amount of overtime the carpenters work, and does a shortage in carpenters cause the need for overtime. What tasks should a skilled carpenter be able to perform proficiently.

SECTION FOUR: Skill level of sub-contracted carpentry work. The amount of carpentry work the firm sub-contracts, the availability of carpentry sub-contractors, and do the sub-contractors deliver work of sufficient quality.

SECTION FIVE: The use of training programs. Do training programs contribute in supplying and/or producing skilled carpenters. Methods of establishing training programs and level of communications with the training programs. Do carpenters generally need more training, and which training programs produce the best carpenters.

SECTION SIX: Licensing, illegal aliens, and opinions. Do carpenters need to be licensed to insure better skills, are illegal aliens employed by firms in Florida. Opinions on how to solve the shortage of skilled carpenters and how to work more effectively with the training programs.

In an effort to address the different topics while making the questionnaire understandable and easy to respond to, four types of questions were used:

1. Numeric, check-off, or percentage response.
2. 'Yes', 'No', or 'Cannot Say' responses.
3. Responses using a Likhert scale of one to four.
4. Short answer written responses.

QUESTIONNAIRE ADMINISTRATION

The intent of the study is to analyze the survey responses as reported by Florida ABC contractors. Each questionnaire packet contained: a cover letter from Professor Brisbane H. Brown, Director, School of Building Construction at the University of Florida; a letter from Mr. Fred Powers, Educational

Director of the ABC National Staff; the questionnaire; and a self-addressed, stamped return envelope, (Appendix A contains examples of each).

The initial questionnaire mailing was to 165 ABC contractors who employ carpenters, based on a random membership list received from the ABC National Office in Washington, D.C. By October 5, 1987, 45 responses had been received. At this time a follow-up packet was mailed to the 120 non-responding contractors. Questionnaire packets were also mailed to 115 contractors not previously contacted. By October 26, 1987, a total of 64 responses had been received from the total mailing to 280 ABC contractors. The total response rate was 23 percent, 64 responses from a mailing of 280. The response rate by region is shown in Table 3.1.

TABLE 3.1

QUESTIONNAIRE RESPONSE BY REGION

REGION	NUMBER OF RESPONDENTS	PERCENT
NORTHWEST	5	7.8
NORTHEAST	2	3.1
CENTRAL	20	31.3
SOUTHWEST	25	39.0
SOUTHEAST	12	18.8
TOTAL	64	100.0

The low number of responses received from the northwest and northeast regions are do to the relatively low ABC membership in the northwest regions. Also, Jacksonville, which makes up the northeast region is an ABC Member-at-Large and therefore did not have a membership mailing list available.

STATISTICAL ANALYSIS

The responses from the 64 questionnaires were summarized using Statistical Analysis System (SAS), software on the computer at the Northeast Regional Data Center. The SAS System is a software system for data analysis and report writing. The basic SAS system provides tools for information storage, data modification, report writing, and statistical analysis. The statistical functions performed on the response data include finding the mean, standard deviation, frequency, and correlation coefficient for each quantified response. The SAS output was customized to fit the study's needs by producing the lists, tables, plot graphs, and response frequency by region which are used extensively in Chapter Four - Statistical Analysis and Appendix B - Responses by Region. The SAS program allowed the response information to be summarized by frequency distribution and sorted by regions corresponding to the Metropolitan Statistical Areas in the Florida Statistical Abstract of 1986.[33]

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[33] Bureau of Economic and Business Research, College of Business Administration, University of Florida, 1986 Florida Statistical Abstract, p. 28.

CHAPTER FOUR:

STATISTICAL ANALYSIS

INTRODUCTION TO ANALYSIS

The analysis of the study involving the supply and demand of skilled carpenters, as reported by ABC contractors, is based primarily on questionnaire responses. Sixty-four responses were received from a mailing to 280 ABC contractors, a response rate of 23%. For purpose of analysis, the questionnaire is divided into six sections:

1. Information on the respondent firm.
2. Specific information about the carpenters employed by the respondent firm.
3. Availability of skilled carpenters in Florida.
4. The skill level and availability of sub-contracted carpentry work.
5. The role played by various training programs.
6. Solicit opinions regarding licensing of carpenters and illegal alien carpenters.

The following terms are used throughout the analysis:

Mean - The arithmetic average of a group of numbers.

Median - The point equidistant between two extremes in a group of numbers arranged in ascending order.

Since the mean and the median may be quite different for the same group of numbers, many response analysis tables contain both the mean and the median. Viewing these numbers together for a single question gives a more accurate picture of the responses received. On the Likhert response questions (ranked one to four), only the mean has been shown. For these questions, the mean gives an accurate representation of the responses. Also, most of the numbers in the following tables have been rounded to two decimal places.

This chapter contains responses for the entire state. Responses by region are in Appendix B. The following analysis is divided into six sections corresponding to the questionnaire sections outlined above.

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SECTION ONE:

INFORMATION ON THE RESPONDENT FIRM

All of the respondents are open-shop companies (Table 4.1.1) because the Associated Builders and Contractors is an open-shop organization. Nearly three quarters of the firms do commercial construction work (Table 4.1.2), and 48% of the firms do only commercial construction. Other types of construction include, heavy construction, industrial construction, government work, and marine construction.

TABLE 4.1.1

TYPE OF OPERATION

TYPE OF OPERATION	PERCENTAGE
OPEN SHOP	100.0
UNION	0.0
BOTH	0.0

TABLE 4.1.2

TYPE OF CONSTRUCTION UNDERTAKEN

TYPE OF CONSTRUCTION	AVERAGE PERCENTAGE
RESIDENTIAL	8.2
COMMERCIAL	73.8
OTHER	18.0

The respondents varied considerably on the dollar volume of business and the number of projects the firm carried (Table 4.1.3). As seen in the table, an average firm has $17.1 million dollars in business annually, and carries 22.9 projects each year.

TABLE 4.1.3

ANNUAL VOLUME OF BUSINESS

AND NUMBER OF PROJECTS PER YEAR

QUESTION	MEAN	MINIMUM	MEDIAN	MAXIMUM
ANNUAL VOLUME OF BUSINESS (millions of dollars)	$17.10	$0.25	$7.50	$200.00
NUMBER OF PROJECTS CARRIED PER YEAR	22.90	2.00	15.00	100.00

SECTION TWO:

SPECIFIC INFORMATION ABOUT THE CARPENTERS

Several basic questions are necessary to obtain information about the carpenters employed by the respondent firms.

The number of carpenters employed and their skill level is shown in Table 4.2.1. On the average, 16 journeyman carpenters are employed and 11 of these are skilled. Also, an average of three additional apprentices or carpenters-in-training are employed.

TABLE 4.2.1

SKILL LEVEL OF CARPENTERS

QUESTION	MEAN	MINIMUM	MAXIMUM
NUMBER OF JOURNEYMAN CARPENTERS ON THE PAYROLL	16.3	0.0	80.0
NUMBER OF JOURNEYMAN CARPENTERS THAT ARE SKILLED	11.1	0.0	60.0
NUMBER OF APPRENTICES/CARPENTER -IN-TRAINING ON THE PAYROLL	3.3	0.0	20.0

The average open-shop wage scale for carpenters in all areas of construction in the Southeast states are among the lowest in the nation. According to a national survey published in <u>Engineering News Record</u>, the average open-shop wage rate for journeyman carpenters in all areas of construction in the Southeast was $10.01. The average open-shop wage in the other national regions ranged from $9.63 to $12.07.[33] The average union wage rate in the Southeast was $14.02 per hour, 29% more than the Southeast open-shop average.[34]

In our study of Florida ABC contractors, the wages paid to journeyman carpenters vary from a high of $15.50 to a low of $8.00 (Table 4.2.2). For apprentices the wage was much lower, a high of $10.50 and a low of $4.75. The variance in wage rates throughout the state is explained by the cost of living and the supply and demand of carpenters, which vary throughout the state. Another factor contributing to lower wage rates is that the respondents are non-union contractors. Union wages in the Southeast average much higher than the Florida average shown in the table below.

TABLE 4.2.2

HOURLY WAGES PAID

TYPE OF CARPENTER	MEAN	MINIMUM	MEDIAN	MAXIMUM
JOURNEYMAN CARPENTER	$10.29	$8.00	$10.00	$15.50
APPRENTICE/CARPENTER -IN-TRAINING	$7.33	$4.75	$7.13	$10.50

33 "Some Trades Cooling to Give-Backs", Engineering News Record, September 18, 1986, p. 56.

34 "Costs are Beginning to Ride Higher", Engineering News Record, September 18, 1986, P. 49.

The low wage scale is one of the reasons responsible for a shortage of skilled carpenters. Several respondents felt that a higher wage would be helpful in attracting more skilled carpenters to Florida. Some of the remarks are:

- "[Florida can attract skilled carpenters] By honoring those people with skilled certified credentials from accredited programs of varying levels (i.e. apprentices, journeyman, master) with higher wages and benefits commensurate with their experience and field."
- "Need higher wages and better training programs [to attract skilled carpenters]."

The construction industry generally has a high turnover rate of employment, largely due to the short duration of most projects. The length of a carpenter's employment with a company depends on the amount of work the company has, the amount of work they expect to have in the future, and the skill of the carpenter. Some companies will pay a skilled worker during a brief period of no work in order to retain that worker. The length of expected employment also affects the amount of training the company will provide for the carpenters. If a firm has a high turnover rate, they may stop trying to train their workers because the workers are not expected to stay. Of course this can work the other way. A carpenter may leave a firm which does not invest time or money in his training and go to a firm which will train him and pay him more.

In Florida, the average length of employment is 27.6 months for a journeyman carpenter, and 21.8 months for an apprentice (Table 4.2.3). The median length of employment was less, 15 months for each type of carpenter.

TABLE 4.2.3

LENGTH OF EMPLOYMENT (IN MONTHS)

TYPE OF CARPENTER	MEAN	MINIMUM	MEDIAN	MAXIMUM
JOURNEYMAN CARPENTER	27.6	6.0	15.0	180.0
APPRENTICE/CARPENTER -IN-TRAINING	21.8	0.0	15.0	84.0

When searching for carpenters to hire, respondents ranked "contacts in the construction industry" highest. Through business and personal contacts, employers can identify the skill level of a potential employee. The employer can then determine whether the carpenter has the necessary skills required for the job (Table 4.2.4). Next on the list, firms advertised in the newspapers to attract new workers. Lowest on the list are the union run programs; they are rarely utilized by open-shop companies. The ranking of the other items, mostly training programs, suggests a lack of communication or confidence in these programs.

TABLE 4.2.4

HIRING PRACTICES

<u>WHERE DO YOU SEARCH FOR CARPENTERS?</u>

Use the following scale:

4. Always
3. Most of the time
2. Sometimes
1. Never

HIRING PRACTICE	MEAN
CONTACTS IN THE CONSTRUCTION INDUSTRY	2.98
ADVERTISEMENTS IN THE PAPER	2.86
COMPANY ON-THE-JOB TRAINING	2.33
OPEN-SHOP APPRENTICE PROGRAMS	2.26
OTHER CONSTRUCTION JOBS	2.25
VOCATIONAL TRAINING CENTERS	1.78
COMMUNITY COLLEGE TRAINING PROGRAMS	1.53
UNION APPRENTICESHIP PROGRAMS	1.16
LABOR AGENTS	1.14
LABOR UNIONS	1.11

When the study asked ABC contractors "What determines promotion or an increase in wages of a carpenter in your company?", performance was the overwhelming response (Table 4.2.5). Contractors value a skilled, reliable carpenter and will pay more or promote him accordingly. Experience was ranked second, still a significant factor. The market wage rate and graduation from training programs were fairly important criteria for promotion, while seniority is only a factor sometimes. Contractors as businessmen must consider the market wage rate in their area and pay carpenters in relation to that scale. If they pay too much, they may not be able to underbid their competition, too little and they may lose their carpenters. Graduating from training programs is a criteria because the carpenter gains a comprehensive knowledge of the carpentry trade that on-site work may not provide.

TABLE 4.2.5

PROMOTION CRITERIA

WHAT CRITERIA DETERMINES PROMOTION OR AN INCREASE IN WAGES OF A CARPENTER IN YOUR COMPANY?

Use the following scale:

4. Always
3. Most of the time
2. Sometimes
1. Never

PROMOTION CRITERIA	MEAN
PERFORMANCE	3.81
EXPERIENCE	3.05
MARKET WAGE RATE	2.65
GRADUATION FROM TRAINING PROGRAMS	2.62
SENIORITY	2.02

SECTION THREE:

AVAILABILITY OF SKILLED CARPENTERS

The questionnaire contains direct and indirect questions on the topics of carpenter's skill level, the availability of skilled carpenters, the amount of overtime the firm's carpenters work, and how shortages of carpenters have affected the firm's business. Asking a variety of questions which approach the topics in different ways obtained a more comprehensive response.

The first question asks about the availability of skilled carpenters (Table 4.3.1). As seen in the table, 81.2% of the ABC contractors surveyed felt there are not enough skilled carpenters for them to hire.

TABLE 4.3.1

AVAILABILITY OF SKILLED CARPENTERS

ARE THERE ENOUGH SKILLED CARPENTERS FOR YOU TO HIRE?

RESPONSE	NUMBER OF RESPONDENTS	PERCENT
YES	8	12.5
NO	52	81.2
CANNOT SAY	3	4.7
NO RESPONSE TO THIS QUESTION	1	1.6

A notable 94% of respondents felt there is a need for more skilled carpenters in commercial construction (Table 4.3.2). These two findings are the essence of the entire study - the fact that a vast majority of surveyed contractors express a need for more skilled carpenters. These responses clearly indicate that there is a perceived shortage of skilled carpenters in the construction industry. The reasons for the shortage and the effect this shortage has upon the construction firms are discussed later in this section.

TABLE 4.3.2

NEED FOR SKILLED CARPENTERS

DO YOU FEEL THERE IS A NEED FOR MORE SKILLED CARPENTERS IN COMMERCIAL CONSTRUCTION?

RESPONSE	NUMBER OF RESPONDENTS	PERCENT
YES	60	94.0
NO	1	1.5
CANNOT SAY	2	3.0
NO RESPONSE TO THIS QUESTION	1	1.5

The respondent was asked to rank 20 tasks that a "skilled carpenter" should be able to perform proficiently (Table 4.3.3). Of these 20 items, 14 received a ranking of at least "necessary". The remaining items received rankings of greater than 2.0, indicating the performance of these tasks are desirable to necessary. It is apparent contractors place importance on the variety of skills their carpenters possess.

TABLE 4.3.3 DESIRED SKILLS FOR CARPENTERS

IN YOUR OPINION, WHICH OF THE FOLLOWING TASKS MUST A "SKILLED CARPENTER" BE ABLE TO PERFORM PROFICIENTLY?

Use the following scale:
4. Absolutely necessary
3. Necessary
2. Desirable
1. Unnecessary

SKILLS	MEAN
CONSTRUCTION FORMS (footing, walls, edge, curb)	3.72
FRAME PARTITIONS	3.69
CONSTRUCTION FORMS (piers, columns, beams, slabs, stairs, bridge, deck)	3.66
INSTALL DECKING AND SHEATHING	3.61
FRAME FLOOR AND SILLS	3.56
INSTALL DOOR, WINDOW FRAME AND UNITS	3.53
FRAME ROOFS	3.45
INSTALL EXTERIOR WALL COVERING AND TRIM	3.39
INSTALL PANELING, FURRING, SOFFIT CEILING	3.31
INSTALL STRUCTURAL TIMBER	3.25
APPLY WEATHER STRIPPING AND CAULKING	3.22
READ BLUEPRINTS	3.17
CONSTRUCT INTERIOR STAIRS	3.13
INSTALL CABINETS, FIXTURES, AND SHELVING	3.05
ISSUE INSTRUCTIONS TO CREW MEMBERS	2.83
CONDUCT SITE PREPARATION AND LAYOUTS	2.56
PREPLAN FORTHCOMING ACTIVITIES	2.54
INSTALL INSULATION AND SOUND CONTROL MATERIAL	2.42
BUILD TRUSSES	2.33
INSTALL DRYWALL MATERIAL	2.33

Closely related to the issue of skills, the following question asks "Will the future carpenter be performing a broader variety of tasks?" (Table 4.3.4). The rankings suggest that carpenters will slightly broaden their task variety. One comment against specialization had this to say:

- "Specialization of work creates more sub-contract work, general acceptance of mediocre work."

TABLE 4.3.4

TASK VARIETY FOR FUTURE CARPENTERS

WILL THE FUTURE CARPENTER BE PERFORMING A BROADER VARIETY OF TASKS?

Use the following scale:

4. Much broader
3. Broader
2. No change
1. Narrower

CARPENTER TYPE	MEAN
FORM CARPENTERS	2.55
FINISH CARPENTERS	2.55
FRAMING CARPENTERS	2.47

The effect of a shortage of skilled carpenters is addressed in the next few questions. The survey asks whether the firm would increase their volume of business if there is an adequate supply of skilled carpenters (Table 4.3.5). The response varied considerably. 37.5% replied they would increase their business and 33.0% said they would not. This finding shows over one third of all firms would expand business if there was an adequate supply of skilled carpenters.

TABLE 4.3.5

AFFECT OF SKILLED CARPENTER AVAILABILITY ON BUSINESS VOLUME

WOULD YOU BID MORE JOBS OR INCREASE THE VOLUME OF YOUR BUSINESS IF THERE WAS AN ADEQUATE SUPPLY OF SKILLED CARPENTERS IN THE INDUSTRY?

RESPONSE	NUMBER OF RESPONDENTS	PERCENT
YES	24	37.5
NO	21	33.0
CANNOT SAY	18	28.0
NO RESPONSE TO THIS QUESTION	1	1.5

The shortage of skilled carpenters has other effects too, for instance, 70.3% of responding contractors indicate a shortage of carpenters is a direct cause of scheduling problems (Table 4.3.6). A scheduling delay can be costly and inconvenient to everyone involved. Avoiding problems by having a reliable supply of skilled carpenters would be welcomed by most contractors.

TABLE 4.3.6

CARPENTER SHORTAGE CAUSING SCHEDULING PROBLEMS

HAS A SHORTAGE OF CARPENTERS EVER DIRECTLY CAUSED SCHEDULING PROBLEMS?

RESPONSE	NUMBER OF RESPONDENTS	PERCENT
YES	45	70.3
NO	15	23.4
CANNOT SAY	0	0.0
NO RESPONSE TO THIS QUESTION	4	6.5

When there is a shortage of carpenters, carpenters may be required to work overtime. Paying overtime wages is an added expense to management. The carpenter shortage has caused 59.3% of respondents to pay overtime (Table 4.3.7). ABC contractors estimate carpenters work overtime an average of 6.7% of their hours (Table 4.3.8). Some firms report as much as 20% of a carpenter's work is overtime.

TABLE 4.3.7

PAYMENT OF OVERTIME BECAUSE OF SHORTAGE

HAVE YOU EVER, IN THE PAST YEAR, PAID OVERTIME TO SKILLED CARPENTERS BECAUSE OF ANY SHORTAGE IN THE MARKET?

RESPONSE	NUMBER OF RESPONDENTS	PERCENT
YES	38	59.3
NO	22	34.2
CANNOT SAY	3	5.0
NO RESPONSE TO THIS QUESTION	1	1.5

TABLE 4.3.8

ESTIMATED PERCENTAGE OF OVERTIME HOURS

WHAT PERCENTAGE OF HOURS WORKED BY CARPENTERS IS OVERTIME? Please estimate.

QUESTION	MEAN	MINIMUM	MAXIMUM
PERCENTAGE OF OVERTIME HOURS WORKED BY CARPENTERS	6.7%	0.0%	20.0%

To help alleviate the problem of paying overtime, a majority of respondents, 54.6% would hire more skilled carpenters (Table 4.3.9).

TABLE 4.3.9

MORE SKILLED CARPENTERS VERSUS OVERTIME

WOULD YOU HIRE MORE SKILLED CARPENTERS TO AVOID PAYING OVERTIME?

RESPONSE	NUMBER OF RESPONDENTS	PERCENT
YES	35	54.6
NO	12	19.0
CANNOT SAY	15	23.4
NO RESPONSE TO THIS QUESTION	2	3.0

When asked about the reasons for the shortage of skilled carpenters, respondents ranked the general decline in craftsmanship as an important reason (Table 4.3.10). A decline in craftsmanship is seen as contributing to the shortage because there is no longer the pride associated with being a carpenter that there once was. Therefore, less people are inclined to become carpenters, they may not view it as a good profession. Ranked second and third in the table are the construction boom and a lack of training programs. There are training programs available, but they are poorly utilized by contractors as shown in section five of this chapter. Also, several surveyed contractors commented they felt there has been a general decline in the work ethic and a lack of pride in one's work. A decline in attitude and under-usage of training programs may be strong factors in the perceived decrease in craftsmanship.

TABLE 4.3.10

REASONS FOR SHORTAGE OF SKILLED CARPENTERS

IN YOUR VIEW, IS THE SHORTAGE OF SKILLED CARPENTERS DUE TO:

Use the following scale:

4. Very important reason
3. Important reason
2. Could be the reason
1. Not a reason at all

REASONS	MEAN
GENERAL DECLINE IN CRAFTSMANSHIP	3.03
CONSTRUCTION BOOM	2.86
LACK OF TRAINING PROGRAMS	2.73
MORE EMPHASIS ON CUTTING COST THAN QUALITY CONTROL	2.42
BECAUSE THERE IS GREATER EMPHASIS ON FACTORY BUILT COMPONENTS THERE IS A DECREASED DEMAND IN THE SKILLS LEVEL OF ON SITE CARPENTERS	2.21
LOW WAGE RATES	1.82
PART TIME CARPENTERS	1.68
LOW PROFILE OF LABOR UNIONS	1.45

A few more reasons for a shortage of carpenters were suggested:

- "Lack of interest to teach by existing carpenters, lack of interest to learn and work at it by young people."
- "Lack of interest in young people to work for wages in construction."
- "Transient labor force."
- "General decline in work ethic and attitude that everyone must get a college degree."

An open-ended question asking contractors what they would suggest to help solve the shortage of skilled carpenters received these responses:

- "Integrity in all levels of management and ownership passed on down through the trade and a striving for excellence - again, attitude."
- "Provide financial support through a training fund supported by volume based contributions by G.C.'s, which recognizes the multi-employer nature of the industry."
- "There should be vocational courses offered in all high schools to create an interest."
- "Vo-Tech programs that cover the "skill" and the business."

- "Publicize apprenticeship programs - stability of work available for skilled carpenters."
- "Training programs - career benefits carried over from employer to employer."

SECTION FOUR:

SUB-CONTRACTED CARPENTRY WORK

The responding contractors are almost evenly divided when it comes to sub-contracting carpentry work. An average of 54.1% of reported work is sub-contracted (Table 4.4.1). These responses represent 30 respondents, 47%, who sub-contract carpentry work. The remaining 53% of respondents doing all of their own carpentry work are shown as non-respondents in Tables 4.4.2 -4.3 -4.4.

TABLE 4.4.1

PERCENTAGE OF SUB-CONTRACTED CARPENTRY WORK

WHAT PERCENTAGE OF CARPENTRY WORK DO YOU SUB-CONTRACT?

QUESTION	MEAN	MINIMUM	MEDIAN	MAXIMUM
WHAT PERCENTAGE OF CARPENTRY WORK DO YOU SUB-CONTRACT	54.1%	0.0%	50.0%	100.0%

On the remainder of the sub-contracted carpentry questions, firms answered if they sub-contracted a majority of their carpentry work. This is the reason for a large number of non-respondents on the next questions.

Of the half who sub-contract their carpentry work, 70.1% believe there are not enough carpentry sub-contracting firms available to do their work (Table 4.4.2). A majority, 56.3%, are not satisfied with the sub-contracted carpentry work available, compared with 40.6% who find the work adequate (Table 4.4.3).

TABLE 4.4.2

AVAILABILITY OF SUB-CONTRACT CARPENTRY FIRMS

IF YOU SUB-CONTRACT A MAJORITY OF YOUR CARPENTRY WORK, ARE THERE ENOUGH FIRMS AVAILABLE TO DO YOUR WORK?

RESPONSE	NUMBER OF RESPONDENTS	PERCENT
YES	6	19.3
NO	22	70.1
CANNOT SAY	3	9.6
NO RESPONSE TO THIS QUESTION	33	---

TABLE 4.4.3

QUALITY OF SUB-CONTRACTED CARPENTRY WORK

ARE YOU SATISFIED WITH THE QUALITY OF THE WORK DONE BY THE FIRMS TO WHOM YOU SUB-CONTRACT CARPENTRY WORK?

RESPONSE	NUMBER OF RESPONDENTS	PERCENT
YES	13	40.6
NO	18	56.3
CANNOT SAY	1	3.1
NO RESPONSE TO THIS QUESTION	32	---

The remaining two questions deal with the skill level of the sub-contractors carpenters. Consistent with the previous findings about carpenter's skill, 63% of surveyed contractors feel sub-contractors do not employ carpenters of adequate skill (Table 4.4.4). When viewing this statistic along with the 81% of respondents who believe there are not enough skilled carpenters to hire, (Table 4.3.1, page 65), it shows an overall inability of most contractors to obtain carpenters with satisfactory skills. Also, an average of only 29.2% of the sub-contractors' carpenters are thought to be skilled (Table 4.4.5)

TABLE 4.4.4

ADEQUACY OF CARPENTRY SUB-CONTRACTORS

IN YOUR OPINION, IS THE SKILL OF THE CARPENTERS WHO WORK ON THE SUB-CONTRACTED WORK ADEQUATE?

RESPONSE	NUMBER OF RESPONDENTS	PERCENT
YES	10	31.2
NO	20	62.5
CANNOT SAY	2	6.3
NO RESPONSE TO THIS QUESTION	32	---

TABLE 4.4.5

PERCENTAGE OF SUB-CONTRACTOR'S CARPENTERS THAT ARE SKILLED

IN YOUR OPINION, WHAT PERCENTAGE OF THE SUB-CONTRACTOR'S CARPENTERS ARE SKILLED CARPENTERS?

QUESTION	MEAN	MINIMUM	MEDIAN	MAXIMUM
PERCENTAGE OF SUB-CONTRACTORS CARPENTERS THAT ARE SKILLED	29.2%	10.0%	25.0%	80.0%

SECTION FIVE:

THE ROLE OF TRAINING PROGRAMS

The surveyed ABC contractors consider on-the-job training the most effective training method for supplying and producing the best carpenters. On-the-job training is usually considered a misnomer. On-the-job training should consist of a skilled carpenter instructing and supervising a trainee through a variety of tasks. The trainee should be familiarized with the important aspects of his trade and should be given periodic evaluations. But many jobs have only a few skilled carpenters who have little time to train others. It is costly in the short term for a higher paid carpenter to interrupt his work to supervise a trainee. Instead of receiving any formal training, the trainee usually must learn by observation (sink or swim). The trainee is often assigned repetitive tasks so he can be productive. A typical result of on-the-job training is not a "skilled carpenter", but a worker who can do several tasks and calls himself or herself, a carpenter. Remember, these same contractors who fully utilize "on-the-job training" are the same ones who believe there is a shortage of skilled carpenters (Table 4.3.1) due in part to a decline in craftsmanship and a lack of training programs (Table 4.3.10). This process may produce some skilled carpenters, but it does not follow the process that constitutes training.

On the first two questions concerning training programs, on-the-job training received a ranking over 3.0 on the Likhert scale ranging from one to four (Table 4.5.1 and Table 4.5.2). This means on-the-job training contributed more than "to some extent" in supplying and producing good carpenters. Open-shop apprenticeship programs ranked second on both lists, being used to some extent by the contractors.

TABLE 4.5.1

CONTRIBUTIONS OF THE TRAINING PROGRAMS

ARE THE FOLLOWING TRAINING PROGRAMS MAKING ANY SUBSTANTIAL CONTRIBUTIONS IN SUPPLYING SKILLED CARPENTERS TO THE RESIDENTIAL CONSTRUCTION INDUSTRY?

Use the following scale:

4. To a large extent
3. To some extent
2. To a small extent
1. Negligible

TRAINING PROGRAM	MEAN
ON-THE-JOB TRAINING	3.23
OPEN SHOP APPRENTICESHIP PROGRAMS	2.57
VOCATIONAL TRAINING CENTERS	2.02
COMMUNITY COLLEGE TRAINING	1.88
UNION APPRENTICESHIP PROGRAMS	1.77

TABLE 4.5.2

PERFORMANCE OF THE TRAINING PROGRAMS

<u>IN YOUR OPINION, ARE THE FOLLOWING TRAINING PROGRAMS MAKING ANY SUBSTANTIAL CONTRIBUTIONS IN PRODUCING THE BEST CARPENTERS FOR YOUR NEEDS?</u>

Use the following scale:

4. The best
3.
2.
1. The worst

TRAINING PROGRAM	MEAN
ON-THE-JOB TRAINING	3.15
OPEN SHOP APPRENTICESHIP PROGRAMS	2.76
VOCATIONAL TRAINING CENTERS	2.17
UNION APPRENTICESHIP PROGRAMS	2.00
COMMUNITY COLLEGE TRAINING	1.81

Lagging far behind on the list are vocational training centers, community college training, and union apprenticeship programs. ABC contractors may have a lack of confidence in training programs. They definitely have a low level of communication with these programs (Table 4.5.3). Improved communication levels between the ABC and the training programs is one step in solving the supply problem of skilled carpenters.

Here are a few comments from respondent contractors regarding the different training programs:

- "I believe the ABC apprenticeship program does an excellent job."
- "Only building a reputation over time will insure consistent demand for skilled workmen from a training program."
- "Better on-the-job training, more open-shop apprentice programs."
- "Construction firms support training programs with apprentices from within the company."

TABLE 4.5.3

COMMUNICATION LEVEL BETWEEN INDUSTRY AND TRAINING PROGRAMS

WHAT LEVEL OF COMMUNICATIONS DO YOU HAVE WITH THE FOLLOWING TRAINING PROGRAM?

Use the following scale:

4. Very close
3. Close
2. Remote
1. Very remote

TRAINING PROGRAM	MEAN
ON-THE-JOB TRAINING	3.36
OPEN SHOP APPRENTICESHIP PROGRAMS	2.57
COMMUNITY COLLEGE TRAINING	1.62
VOCATIONAL TRAINING CENTERS	1.57
UNION APPRENTICESHIP PROGRAMS	1.56

Some contractors offered suggestions to improve the training programs:

- "Cooperation between contractors in setting up and running open-shop apprenticeship training programs."
- "General Contractors contributing money to the training program."
- "Shorter, more intense training, more dedication on the part of the trainee, better wage scale."
- "Simple communication to employers on the availability of carpenter training programs that we can enroll in as needed."

Although most contractors promote on-the-job training, 84.3% feel that carpenters should undergo some classroom training program (Table 4.5.4). Many contractors want carpenters to have classroom training, yet they have poor communication with training programs. When asked how contractors would suggest establishing an industry / training program linkage, formal contact between the two groups ranked highest (Table 4.5.5). The other methods suggested ranked slightly lower.

TABLE 4.5.4

NEED FOR CLASSROOM TRAINING

<u>DO YOU THINK THAT CARPENTERS WORKING IN COMMERCIAL CONSTRUCTION NEED TO UNDERGO SOME CLASSROOM TRAINING PROGRAM?</u>

RESPONSE	NUMBER OF RESPONDENTS	PERCENT
YES	54	84.3
NO	3	4.7
CANNOT SAY	5	8.0
NO RESPONSE TO THIS QUESTION	2	3.0

TABLE 4.5.5

STRATEGY FOR INDUSTRY / TRAINING PROGRAM LINKAGE

<u>RANK THE FOLLOWING AS THE BEST METHOD OF ESTABLISHING AN INDUSTRY/TRAINING PROGRAM LINKAGE.</u>
(1,2,3,4; 4 being the most important)

STRATEGY	MEAN
FORMAL MEETING OF THE TWO GROUPS	3.09
SITTING ON AN ADVISORY COMMITTEE	2.44
ATTENDING EDUCATIONAL FUNCTIONS	2.33
WRITTEN CONTACT	2.33

Additional suggestions are made by contractors to provide more effective involvement with training programs:

- "Co-op programs that offer incentives to both groups."
- "Availability of a program which does not require a company to sponsor an individual, rather the company provides funding for a program and hires from a student body as work is available."
- "Make programs accessible to more areas, short travel required."
- "Vo-Tech schools and / or community college open houses for building industry people."
- "Owners of construction companies being more involved personally with their time."
- "Employer (contractor) agreements with education community and other employers through contractor organizations."

SECTION SIX:

OPINIONS REGARDING LICENSING AND ILLEGAL ALIENS

The questionnaire asked if carpenters should be required to have a license in order to insure better skills and standards (Table 4.6.1). A considerable response of "No" was received by 70.3% of the respondents.

TABLE 4.6.1

LICENSING OF CARPENTERS

IN YOUR OPINION, SHOULD THE CARPENTER BE REQUIRED TO HAVE A LICENSE TO INSURE BETTER SKILLS AND STANDARDS?

RESPONSE	NUMBER OF RESPONDENTS	PERCENT
YES	12	18.7
NO	45	70.3
CANNOT SAY	6	9.4
NO RESPONSE TO THIS QUESTION	1	1.6

A few comments from the contractors indicate that some reasons for a low quality of work could not be solved by licensing:

- "Instill pride and quality back in the work place, as long as low costs rule, there will continue to be a lack of skilled workmen."

- "Quality in construction has declined because the market is more concerned with cost than quality. Until pride in one's work can be restored, quality will remain low."

And one comment in favor of licensing:

- "Require G.C.'s to use apprentices on certain types of construction. License for journeyman would control the number of unqualified "so-called" carpenters, would limit the number of form and finish sub-contractors by them being unable to use anyone they chose to do a journeyman's work."

On the subject of illegal aliens, contractors did not have a strong opinion (Table 4.6.2). When asked if they think illegal aliens are employed by some construction firms, 45.3% could not say. And when asked to estimate the percentage of Florida carpenters who are illegal aliens, only 36% of the contractors responded. The group who did respond estimated an average of 9.2% of Florida carpenters are illegal aliens (Table 4.6.3). The opinions represented for these questions are fairly inconclusive. It is unclear whether the issue of illegal aliens is important to the surveyed contractors and if illegal aliens have a significant impact on their business.

TABLE 4.6.2

ILLEGAL ALIEN CARPENTERS

FROM YOUR EXPERIENCE, DO YOU BELIEVE THAT ILLEGAL ALIENS ARE BEING HIRED BY OTHER CONSTRUCTION FIRMS?

RESPONSE	NUMBER OF RESPONDENTS	PERCENT
YES	13	20.3
NO	19	29.7
CANNOT SAY	29	45.3
NO RESPONSE TO THIS QUESTION	3	4.7

TABLE 4.6.3

PERCENTAGE OF ILLEGAL ALIEN CARPENTERS

IN YOUR OPINION, WHAT PERCENTAGE OF THE CARPENTERS IN FLORIDA ARE ILLEGAL ALIENS?

QUESTION	MEAN	MINIMUM	MAXIMUM
PERCENTAGE OF ILLEGAL ALIEN CARPENTERS	9.2%	0.0%	30.0%

The previous six sections show the statewide averages for the questionnaire responses received from ABC contractors. The following section shows the responses by region. Chapter Five offers conclusions and recommendations based on the data shown in this chapter.

SECTION SEVEN:

SUMMARY OF RESPONSES BY REGIONS

The following tables contain a summary of questionnaire responses of statewide averages and for each region. In this format, the reader can easily compare regional responses and responses which relate to one another. More detailed tables for each region are contained in Appendix B.

In Table 4.7.1, the Northeast region has some statistics which stand out from the rest. The contractors responding in the Northeast region carry the most projects per year and employ the most apprentice carpenters. The journeyman carpenter salary is far above the state average, and the length of employment for both journeyman and apprentices is considerably longer than the other regions. The Northwest and Southwest regions pay the lowest wages to carpenters. The Southwest region has by far the shortest length of employment for apprentices, perhaps because of their low pay scale.

In Table 4.7.2, the respondents from the Northeast region do not appear to have the same problem with scheduling and overtime payment the other regions express. Apparently the contractors surveyed in the Northeast region do not sub-contract their carpentry work, so their figures for the sub-contract questions are 0.0%. For the first three issues in this table, the Southwest region has the highest figures. Fifty percent of the Southwest contractors would increase their business volume, and 84.0% have had scheduling problems due to a shortage of skilled carpenters.

In Table 4.7.4, the four regions are in almost perfect agreement regarding the training programs which contribute to the supply of carpenters and the programs which produce the best carpenters. On-the-job training and open-shop apprenticeship programs ranked first and second respectively in both areas. The vocational, community college and union programs ranked very low in all regions for these issues.

Table 4.7.5 shows similar rankings for the issue of communication level with the programs. Again, all five regions gave very similar rankings. For the best method of establishing an industry / training program linkage, all regions agreed on a formal meeting of the two groups. The other methods ranked quite a bit behind.

In the other issues not highlighted, the regions responded similar to the statewide average. The discussion of the state averages is covered in the first six sections of this chapter.

TABLE 4.7.1 SUMMARY OF RESPONSES BY REGION

ISSUE	STATE WIDE	NW REGION	NE REGION	CENTER REGION	SW REGION	SE REGION
AVE. PERCENT OF RESIDENTIAL CONSTRUCTION UNDERTAKEN	8.2	4.0	0.0	6.0	11.9	7.5
AVE. PERCENT OF COMMERCIAL CONSTRUCTION UNDERTAKEN	73.8	96.0	50.0	75.5	72.3	68.5
AVE. PERCENT OF OTHER CONSTRUCTION UNDERTAKEN	18.0	0.0	50.0	18.5	15.8	24.0
AVE. ANNUAL VOLUME OF BUSINESS (IN MILLIONS)	$17.1	$7.1	$10.7	$22.5	$19.7	$7.2
AVE. NUMBER OF PROJECTS CARRIED PER YEAR	22.9	12.6	50.0	20.9	27.0	17.0
AVE. NUMBER OF JOURNEYMAN CARPENTERS EMPLOYED	16.3	20.6	22.5	17.1	18.9	6.8
AVE. NUMBER OF SKILLED JOURNEYMAN CARPENTERS	11.1	10.0	7.5	10.8	14.9	4.3
AVE. NUMBER OF APPRENTICE CARPENTERS EMPLOYED	3.3	1.8	15.0	3.3	3.3	1.8
AVE. HOURLY WAGE FOR JOURNEYMAN CARPENTER	$10.29	$9.36	$12.00	$10.17	$9.38	$12.41
AVE. HOURLY WAGE FOR APPRENTICE CARPENTER	$7.33	$6.48	$7.50	$7.57	$6.86	$8.44
AVE. EMPLOYMENT LENGTH FOR JOURNEYMAN (MONTHS)	27.6	26.0	102.0	24.2	27.2	20.9
AVE. EMPLOYMENT LENGTH APPRENTICE (MONTHS)	21.8	24.0	33.9	24.2	17.0	19.4
CONTRACTORS WITHOUT ENOUGH SKILLED CARPENTERS TO HIRE	81.2%	80.0%	50.0%	85.0%	84.0%	75.0%
CONTRACTORS WHO FEEL A NEED FOR MORE SKILLED CARPENTERS	94.0%	100.0%	100.0%	100.0%	88.0%	91.7%

TABLE 4.7.2 SUMMARY OF RESPONSES BY REGION

ISSUE	STATE WIDE	NW REGION	NE REGION	CENTER REGION	SW REGION	SE REGION
CONTRACTORS WHO MAY INCREASE VOLUME OF WORK IF ADEQUATE SUPPLY OF SKILLED CARPENTERS	37.5	80.0	0.0	25.0	50.0	50.0
CONTRACTORS WHO HAVE HAD SCHEDULING PROBLEMS CAUSED BY A SHORTAGE OF CARPENTERS	70.3	60.0	0.0	60.0	84.0	75.0
CONTRACTORS WHO HAVE PAID OVERTIME BECAUSE OF SHORTAGE OF SKILLED CARPENTERS	59.3	60.0	0.0	55.0	72.0	50.0
CONTRACTORS WHO WOULD HIRE MORE SKILLED CARPENTERS TO AVOID PAYING OVERTIME	54.6	60.0	50.0	50.0	48.0	75.0
AVE. PERCENT HOURS WORKED BY CARPENTERS THAT IS OVERTIME	6.7%	7.5%	5.0%	7.5%	7.0%	4.4%
AVE. PERCENT OF CARPENTRY WORK SUB-CONTRACTED	54.1%	0.0%	0.0%	42.8%	59.0%	74.3%
CONTRACTORS WHO DO NOT HAVE ENOUGH SUB-CONTRACT CARPENTRY FIRMS TO HIRE	70.1%	100.0%	0.0%	82.0%	60.0%	75.0%
CONTRACTORS WHO ARE NOT SATISFIED WITH THE QUALITY OF CARPENTRY SUB-CONTRACTORS	56.3%	100.0%	0.0%	41.7%	60.0%	75.0%
CONTRACTORS WHO THINK THE SKILL OF SUB-CONTRACTOR'S CARPENTERS IS NOT ADEQUATE	62.5%	100.0%	0.0%	58.3%	66.6%	75.0%
AVE. PERCENT OF SKILLED SUB-CONTRACTOR CARPENTERS	29.2%	0.0%	0.0%	27.2%	31.0%	27.5%
CONTRACTORS WHO THINK CARPENTERS SHOULD UNDERGO SOME CLASSROOM TRAINING	84.3%	80.0%	100.0%	85.0%	84.0%	91.7%
CONTRACTORS WHO THINK CARPENTERS SHOULD NOT BE REQUIRED TO BE LICENSED	70.3%	60.0%	100.0%	75.0%	64.0%	75.0%

TABLE 4.7.3 SUMMARY OF RESPONSES BY REGION

ISSUE	STATE WIDE	NW REGION	NE REGION	CENTER REGION	SW REGION	SE REGION
CONTRACTORS WHO BELIEVE ILLEGAL ALIENS ARE HIRED BY OTHER CONSTRUCTION FIRMS	20.3%	40.0%	50.0%	0.0%	24.0%	33.3%
AVE. PERCENT OF CARPENTERS BELIEVED TO BE ILLEGAL ALIEN	9.2%	15.0%	5.0%	4.5%	12.0%	7.6%
WILL FUTURE CARPENTERS BE PERFORMING A BROADER VARIETY OF TASKS: SCALE OF 1 TO 4, 4-MUCH BROADER, 1-NARROWER A. FORM CARPENTERS	2.55	2.80	3.00	2.67	2.39	2.50
B. FINISH CARPENTERS	2.55	2.60	2.00	2.50	2.56	2.70
C. FRAMING CARPENTERS	2.47	2.80	3.00	2.39	2.36	2.60
CONTRACTORS' RANKINGS FOR REASONS FOR SHORTAGE OF SKILLED CARPENTERS: SCALE OF 1 TO 4, 4-VERY IMPORTANT REASON, 1-NOT A REASON A. GENERAL DECLINE IN CRAFTSMANSHIP	3.03	3.40	2.50	3.00	3.04	3.00
B. CONSTRUCTION BOOM	2.86	2.60	3.50	3.29	2.79	2.36
C. LACK OF TRAINING PROGRAMS	2.73	3.40	3.00	2.59	2.65	2.75
D. EMPHASIS ON CUTTING COST NOT ON QUALITY	2.42	1.60	2.50	2.53	2.61	2.18
E. EMPHASIS ON FACTORY BUILT COMPONENTS, NOT ON-SITE SKILL LEVEL OF CARPENTERS	2.21	1.60	2.50	2.39	2.43	1.54
F. LOW WAGE RATES	1.82	1.60	1.50	1.89	2.00	1.50
G. PART TIME CARPENTERS	1.68	1.20	2.00	1.60	1.87	1.54
H. LOW PROFILE OF LABOR UNION	1.45	1.00	1.00	1.50	1.65	1.18

TABLE 4.7.4 SUMMARY OF RESPONSES BY REGION

ISSUE	STATE WIDE	NW REGION	NE REGION	CENTER REGION	SW REGION	SE REGION
RANKING OF TRAINING PROGRAMS WHICH CONTRIBUTE TO THE SUPPLY OF SKILLED CARPENTERS SCALE OF 1 TO 4, 4-A LARGE EXTENT, 1-NEGLIGIBLE A. ON-THE-JOB TRAINING	3.23	2.67	4.00	3.01	3.25	3.14
B. OPEN-SHOP APPRENTICESHIP PROGRAMS	2.57	2.67	3.00	2.61	2.60	2.28
C. VOCATIONAL TRAINING CENTERS	2.02	1.67	2.00	2.17	2.16	1.62
D. COMMUNITY COLLEGE TRAINING	1.88	1.00	1.00	2.08	1.84	2.17
E. UNION APPRENTICESHIP PROGRAMS	1.77	1.67	1.00	1.90	1.70	1.86
RANKING OF TRAINING PROGRAMS WHICH PRODUCE THE BEST CARPENTERS FOR NEEDS: SCALE OF 1 TO 4, 4-THE BEST, 1-THE WORST A. ON-THE-JOB TRAINING	3.15	3.40	3.50	3.15	3.04	3.20
B. OPEN-SHOP APPRENTICESHIP PROGRAMS	2.76	2.80	2.50	3.08	2.48	3.00
C. VOCATIONAL TRAINING CENTERS	2.17	2.20	2.00	2.40	2.04	2.25
D. UNION APPRENTICESHIP PROGRAMS	2.00	1.50	1.00	1.78	2.05	2.50
E. COMMUNITY COLLEGE TRAINING	1.81	2.00	1.00	2.20	1.65	1.75

TABLE 4.7.5 SUMMARY OF RESPONSES BY REGION

ISSUE	STATE WIDE	NW REGION	NE REGION	CENTER REGION	SW REGION	SE REGION
COMMUNICATION LEVEL CONTRACTORS HAVE WITH THE FOLLOWING TRAINING PROGRAMS: SCALE OF 1 TO 4, 4-VERY CLOSE, 1-VERY REMOTE						
A. ON-THE-JOB TRAINING	3.36	3.60	3.50	3.17	3.39	3.45
B. OPEN-SHOP APPRENTICESHIP PROGRAMS	2.57	3.20	2.50	2.47	2.39	2.82
C. COMMUNITY COLLEGE TRAINING	1.62	1.75	2.50	1.67	1.61	1.54
D. VOCATIONAL TRAINING CENTERS	1.57	1.80	1.50	1.59	1.56	1.27
E. UNION APPRENTICESHIP PROGRAMS	1.56	1.60	1.00	1.06	1.17	1.09
CONTRACTORS' RANKINGS FOR BEST METHOD OF ESTABLISHING AN INDUSTRY/TRAINING PROGRAM LINKAGE: SCALE 1 TO 4, 4-MOST IMPORTANT						
A. FORMAL MEETING OF THE TWO GROUPS	3.09	3.50	3.00	3.23	2.67	3.71
B. SITTING ON AN ADVISORY COMMITTEE	2.44	2.67	3.00	2.64	2.23	2.43
C. ATTENDING EDUCATIONAL FUNCTIONS	2.33	2.33	2.00	2.58	2.41	1.67
D. WRITTEN CONTACT	2.33	2.00	1.00	2.45	2.65	1.83

CHAPTER FIVE:

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

The questionnaire results show conclusively that ABC contractors feel there is a shortage of skilled carpenters. The study results also reveal a shortage of carpentry sub-contractors to hire. Most contractors feel the sub-contractors' carpenters are not skilled enough nor do an adequate quality of work.

A shortage of carpenters has other effects on a contractor's business. For instance, 70.3% of respondent firms report a shortage of carpenters has been a direct cause of scheduling problems. Most contractors have paid overtime to skilled carpenters they employ because of a shortage, and over half of the contractors would hire more skilled carpenters to avoid paying overtime.

The survey reveals that almost three-quarters of the construction work reported is commercial construction. The average annual volume of business is $17.1 million with a median of $7.5 million, and the average number of projects carried per year is 22.9 with a median of 15.0 jobs. The variance between the average and median values reflects the respondents who were on the extreme either in volume of construction or in number of projects per year.

The average number of journeyman carpenters employed is 16.3 and the number of those considered skilled is 11.1. An average of 3.3 apprentice carpenters are employed by responding firms. The average length of employment is 27.6 months for a journeyman carpenter and 21.8 months for an apprentice carpenter. This shows a relatively short employment time that is typical in the construction industry. The short period of employment is one reason employers are often reluctant to invest in training programs for their employees. The average wage for a journeyman carpenter is $10.29 and $7.33 for an apprentice carpenter. These wages are low for a skilled craftsman. The low wage paid is considered one of the reasons for a shortage of skilled carpenters. There is not much incentive for a person to enter the carpentry trade if higher wages are not available.

Responding firms consistently ranked on-the-job training as the training method which makes the most substantial contribution in providing skilled carpenters. Respondents also ranked on-the-job training highest as the method which produces the best carpenters and as the program contractors have the closest communication with. In these three categories the five training methods ranked almost identically. Open-shop apprenticeship programs ranked second in all three. The communication between the open-shop training programs and contractors is fairly remote, showing most contractors do not maintain close communication with the ABC training programs. Community college training, vocational training centers and union apprenticeship programs all ranked lower. This demonstrates the lack of use and a lack of communication between ABC contractors and these programs. To establish a better industry / training program linkage, a majority of contractors feel a formal meeting between the two groups would be most effective.

Although the responding firms utilize on-the-job training the most, 84.3% feel carpenters should undergo some classroom training. This is a strong statement in favor of a more formal training program in addition to on-the-job training.

In summary, the purpose of this report is to determine whether surveyed ABC contractors believe there is a lack of skilled carpenters available in the job market. The study results show conclusively there is a shortage of skilled carpenters. Most contractors use on-the-job training to train their carpenters, yet they feel the carpenters need additional classroom training. The contractors have poor levels of communication with the open-shop, vocational and community college training programs. Perhaps improved use of these programs could provide the combination of classroom and on-the-job training the contractors want. The high turnover rate of carpenters is the main reason contractors are not willing to invest the time and money enrolling employees in a training program. Contractors do not want to invest in their employees, but they want to have skilled carpenters available. Some type of compromise needs to be reached in these issues. People must be trained to supply the skilled carpenters needed now and for the future. The contractors and the training programs should work together to help arrive at a solution which will benefit both sides.

RECOMMENDATIONS

The shortage of skilled carpenters affects the entire state's construction industry. Solutions to this issue need to be reached by the ABC, its members, and the various training programs. Remarks from the contractors indicate a willingness to find a solution, but nobody is taking the first step. Recommendations to alleviate the shortage problem are:

1. Open lines of communication between contractors, workers, and training programs. Improved communication is a fundamental factor in solving any problem. Communication with all the training programs needs development. Surveyed contractors favor a formal meeting between the groups. The ABC training programs have a lot to offer, and vocational centers and community colleges could be an excellent source of skilled workers. Contractors need to become more personally involved with the programs which supply them with workers. The training programs should be reviewed to ascertain whether their curriculum meets ABC standards. And more importantly, the training centers need financial support to fund the instruction of more students and better quality students.

2. ABC contractors should better utilize the programs and services available to them as ABC members. The ABC has apprenticeship programs and programs to provide classroom

training to supplement on-the-job training. ABC offers three apprenticeship training programs in Florida, and the Wheels of Learning program. For contractors not located near a apprenticeship programs, Wheels of Learning is convenient and adaptable to any training environment. The Wheels of Learning program can be used to train individuals or groups, unskilled persons, or retrain workers with out-dated skills. Another plus for this program is its continuity; the program is the same throughout the nation. This would be a great benefit to workers who re-locate, and employers can better gauge the skill level of the employee. With a financial investment and some involvement from company supervisors, every ABC firm should be able to increase the skill level of the carpenters they employ.

3. <u>**The ABC should develop a Manpower and Training Committee to formulate a system to help recruitment to training programs and the placement of program graduates.**</u> Several contractors expressed a desire to have an available pool of skilled workers to hire when needed. Firms could use this labor pool, thereby supporting the training programs. The two groups should work to see the carpenters supplied are of the quantity and quality needed. The higher quality work and increased efficiency of a skilled worker should be enough incentive for contractors to work out a solution to the skilled labor shortage.

4. **<u>On-the-job training needs to be organized to provide a more consistent level of training.</u>** Most contractors cite on-the-job training as the main method of training used by their firm. The quality of on-the-job training will vary significantly from firm to firm. The ABC could design a systematic on-the-job program which would provide job rotation and training similar to the system used for the apprenticeship programs. This would take some effort from employers, but the worker would receive a much more well-rounded training experience. Job rotation and periodic evaluations used consistently in the industry could greatly improve the skill level of available carpenters.

5. **<u>An increased wage scale is needed to attract more workers.</u>** Employees not in an apprenticeship program do not have a guaranteed wage scale. Overall higher wages are necessary to attract workers to the carpentry trade and to insure a higher skill level. Carpenters graduating from training programs should be recognized by earning a guaranteed minimum wage. Also, increased job security would help encourage workers to invest their time in training programs. A few contractors suggested having a wage / benefit program in which an employee could transfer benefits earned from one company to another. This is one idea to provide a greater degree of job security.

6. **<u>Develop vocational programs for the high school level.</u>** Establishing interest in the construction trades at an early time

could supply a lot of workers. The skilled construction trades should be promoted as a good career choice. High school students who might otherwise drop out could develop a skill which will provide them with a good living. Perhaps ABC's Merit Shop Foundation could organize a program for recruitment of high school students.

RECOMMENDATIONS FOR FUTURE RESEARCH

During the course of this study, the following topics were raised. They may be appropriate research projects in the future.

1. <u>**An in-depth study to survey the carpenters themselves.**</u> This study reports management's views about the shortage of skilled carpenters. To understand both sides of the issue, a survey must be done of the carpenters themselves. Through extensive personal interviews and questionnaires, carpenters could contribute their opinions on the various issues covered in this report. The individual carpenters could comment on the quality of training available to them and suggest ways to improve the programs. Also, the communication level between themselves, their employers, and the training programs could be investigated. Surveying carpenters would provide the other viewpoint to the issue of a skilled carpenter shortage. The comparison of the study by management and the study by carpenters could provide valuable insight into the carpenter shortage that one side alone cannot provide.

2. <u>**A study investigating ways to improve the training programs.**</u> Contractors currently have low communication levels with the various training programs; it is even fairly low with ABC (open-shop) programs. The vocational and community college training programs should be reviewed to determine how these programs

compare to the ABC training programs. The programs need to have the type of well-rounded, high quality program that will produce a skilled workman. ABC may need to review its programs also. They may need to establish more training programs, or expand the existing ones. Several respondent firms suggested the training programs could be funded and organized differently to provide a pool of available workers. This study could ascertain if that idea is feasible and if it would help solve the supply / demand problems of skilled workers.

3. **A study to determine the interest in construction industry careers at the high school level.** Several responding contractors feel a high school vocational program is a key in providing construction labor for future needs. Students need to be shown a career as a skilled craftsman is attainable and rewarding. If this interest can be sparked in high school, they could be trained and in the job market earlier; an important factor in solving an impending labor shortage.

4. **Continue this study to other skilled trades.** Research into other trades can determine additional areas of shortages. Which trades will be most affected by a general labor shortage, and ways training programs and contractors can alleviate the problem. Knowing which trades are facing a shortage of skilled workers can help training programs, contractors, and other skilled craftsmen prepare for the future in the construction industry.

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APPENDICES

APPENDIX A:

QUESTIONNAIRE PACKAGE

A-1 QUESTIONNAIRE

QUESTIONNAIRE

Name of firm ______________________________

Contact person ______________ Position ______________ Phone ______________

Annual Volume of Business in Dollars ______________________________

Type of Construction Undertaken: Residential ______ % Commercial ______ % Others: ______

Type of Operation: Open Shop ______ Union ______ Both ______

Number of projects carried per year ______

Answer the following as yes, no, or cannot say.

	Yes	No	Cannot Say
1. Are there enough skilled carpenters for you to hire?	____	____	____
2. Do you feel there is a need for more skilled carpenters in commercial construction?	____	____	____
3. Do you think that carpenters working in commercial construction need to undergo some classroom training program?	____	____	____

4. How many workers do you have on your payroll drawing journeyman carpenter wages?
5. Of these workers earning journeyman carpenter wages, how many are skilled capenters? ______
6. How many apprentices or carpenters-in-training do you have on your payroll? ______ ______

7. In your opinion, which of the following tasks must a "skilled carpenter" be able to perform proficiently? Use the following scale: 4. Absolutely necessary 3. Necessary 2. Desirable 1. Unnecessary

a. Read blueprints				
b. Conduct site preparation and layouts	4	3	2	1
c. Preplan forthcoming activities	4	3	2	1
d. Construction forms (footing, walls, edge, curb)	4	3	2	1
e. Construction forms (piers, columns, beams, slabs, stairs, bridge, deck)	4	3	2	1
f. Frame floor and sills	4	3	2	1
g. Frame partitions	4	3	2	1
h. Frame roofs	4	3	2	1
i. Build trusses	4	3	2	1
j. Install structural timber	4	3	2	1
k. Install decking and sheathing	4	3	2	1
l. Install exterior wall covering and trim	4	3	2	1
m. Apply weather stripping and caulking	4	3	2	1
n. Install door, window frame and units	4	3	2	1
o. Install drywall material	4	3	2	1
p. Construct interior stairs	4	3	2	1
q. Install cabinets, fixtures and shelving	4	3	2	1
r. Install paneling, furring, soffit ceiling	4	3	2	1
s. Install insulation and sound control material	4	3	2	1
t. Issue instructions to crew members	4	3	2	1
u. Other ______________________	4	3	2	1
	4	3	2	1

8. What is the average hourly wage paid by your firm to the following?

Journeyman carpenter $__________ Apprentice (carpenter-in-training) $__________

9. How long, on the average, do the carpenters stay in your employment? (answer in months)

Journeyman carpenter __________ Apprentice (carpenter-in-training) __________

	yes	no	cannot say
10. Would you bid more jobs or increase the volume of your business if there was an adequate supply of skilled carpenters in the industry?	____	____	____
11. Have you ever, in the past year, paid overtime to skilled carpenters because of any shortage in the market?	____	____	____
12. Would you hire more skilled carpenters to avoid paying overtime?	____	____	____

13. What percentage of hours worked by carpenters is overtime? Please estimate. __________ %

Answer questions number 14 to 18 if you sub-contract any of the carpentry work, otherwise skip to question 19.

14. What percentage of carpentry work do you subcontract? __________ %

	yes	no	cannot say
15. If you sub-contract a majority of your carpentry work, are there enough firms available to do your work?	____	____	____
16. Are you satisfied with the quality of the work done by the firms to whom you sub-contract carpentry work?	____	____	____
17. In your opinion, is the skill of the carpenters who work on the sub-contracted work adequate?	____	____	____

18. In your opinion, what percentage of the sub-contractor's carpenters are skilled carpenters? __________ %

19. Where do you search for carpenters? Use the following scale: 4. Always 3. Most of the time 2. Sometimes 1. Never

a. Labor agents				
b. Labor unions	4	3	2	1
c. Vocational training centers	4	3	2	1
d. Union apprenticeship programs	4	3	2	1
e. Open-shop apprenticeship programs	4	3	2	1
f. Advertisements in the papers	4	3	2	1
g. Contacts in the construction industry	4	3	2	1
h. Other construction jobs	4	3	2	1
i. Company on-the-job training	4	3	2	1
j. Community college training programs	4	3	2	1

20. Are the following training programs making any substantial contributions <u>in supplying</u> skilled carpenters to the residential construction industry?
Use the following scale: 4. To a large extent 3. To some extent 2. To a small extent 1. Negligible

a. Vocational training centers 4 3 2 1
b. Union apprenticeship programs 4 3 2 1
c. Open shop apprenticeship programs 4 3 2 1
d. Community College training 4 3 2 1
e. On-the-job training 4 3 2 1

21. Will the future carpenter be performing a broader variety of tasks? Use the following rating system:

4 = much broader 3 = broader 2 = no change 1 = narrower

a. framing carpenters 4 3 2 1
b. form carpenters 4 3 2 1
c. finish carpenters 4 3 2 1
d. other ____________________ 4 3 2 1

22. In your opinion, are the following training programs making any substantial contributions <u>in producing</u> the best carpenters for your needs?
(rank 1 - 4; 4 being the best and 1 being the worst)

a. Vocational training centers 4 3 2 1
b. Union apprenticeship programs 4 3 2 1
c. Open shop apprenticeship programs 4 3 2 1
d. Community college training 4 3 2 1
e. On-the-job training 4 3 2 1

23. What criteria determines promotion or an increase in wages of a carpenter in your company?
Use the following scale: 4. Always 3. Most of the time 2. Sometimes 1. Never

a. Graduation from training program 4 3 2 1
b. Performance 4 3 2 1
c. Experience 4 3 2 1
d. Seniority 4 3 2 1
e. Market wage rate 4 3 2 1

	yes	no	cannot say
24. In your opinion, should the carpenter be required to have a license to insure better skills and standards?	____	____	____
25. From your experience, do you believe that illegal aliens are being hired by other construction firms?	____	____	____

26. In your opinion, what percentage of the carpenters in Florida are illegal aliens? ________ %

27. In your view, is the shortage of skilled carpenters due to:
Use the following scale:
4. very important reason 3. important reason 2. could be the reason 1. not a reason at all

a. Lack of training programs 4 3 2 1
b. Low wage rates 4 3 2 1
c. Part time carpenters 4 3 2 1
d. More emphasis on cutting cost than quality control 4 3 2 1
e. Construction boom 4 3 2 1
g. Low profile of labor unions 4 3 2 1
h. General decline in craftsmanship 4 3 2 1
i. Because there is greater emphasis on factory built components (trusses etc.) there is a decreased demand in the skills level of on site carpenters. 4 3 2 1
j. Others ____________________ 4 3 2 1

28. What would you suggest to help solve the shortage of skilled carpenters?

____

____

____

29. Rank (1, 2, 3, 4 ; 4 being the most important) the following as the best method of establishing an Industry/Training program linkage.

a. Formal meeting of the two groups 4 3 2 1
b. Sitting on an advisory committee 4 3 2 1
c. Attending educational functions 4 3 2 1
d. Written contact 4 3 2 1
e. Others (please specify) ____________________ 4 3 2 1

30. In your opinion, what one factor could provide more effective involvement with training programs for a closer working relationship?

____

____

____

31. What level of communications do you have with the following training programs?
Use the following scale: 4. very close 3. close 2. remote 1. very remote

a. Vocational training centers 4 3 2 1
b. Union apprenticeship programs 4 3 2 1
c. Open shop apprenticeship programs 4 3 2 1
d. Community college training 4 3 2 1
e. On-the-job training 4 3 2 1

32. Has a shortage of carpenters ever directly caused scheduling problems?
Yes ________ No ________

A-3 COPY OF COVER LETTER FROM THE DIRECTOR, SCHOOL OF BUILDING CONSTRUCTION, UNIVERSITY OF FLORIDA

SCHOOL OF BUILDING CONSTRUCTION
UNIVERSITY OF FLORIDA
GAINESVILLE, 32611

PHONE 904 392-5965
904 392-0202
SUNCOM 622-0202

August 18, 1987

Dear A.B.C. Contractor:

In cooperation with the Building Construction Industry Advisory Committee, the School of Building Construction at the University of Florida is conducting a study to determine whether skilled carpenters are being trained in sufficient numbers to fulfill your needs. We also want to find out what hiring methods are most effective in obtaining skilled carpenters.

Your cooperation will be of great benefit to us as well as the construction industry. Please take a few minutes of your valuable time to fill out the attached questionnaire and return it in the enclosed self-addressed stamped envelope. If you have any questions concerning this study or the questionnaire please contact Ali Markus or Ivee Dittmer at (904) 392-6755. Thank you for your consideration.

Sincerely,

Brisbane H. Brown, Jr.
Professor

Enclosure

A-4 COPY OF COVER LETTER FROM ASSOCIATED BUILDERS AND CONTRACTORS, INC.

ASSOCIATED BUILDERS AND CONTRACTORS, INC.

July 10, 1987

MEMO

TO: ABC Member Contractor

FROM: Fred Powers, Director of Education
ABC National Staff

RE: University of Florida, School of Building Construction Carpentry Survey

Associated Builders & Contractors has recently been approached by the University of Florida- School of Building Construction and the Building Construction Industry Advisory Committee to assist them with conducting a study to determine what hiring methods are most effective in obtaining skilled carpenters. This study is also to discover whether skilled carpenters are being trained in sufficient numbers to meet the needs of today's construction industry.

As you may already know, your valuable input today is necessary to determine the trends and shape of our industry tomorrow. Please take some time to fill out the enclosed questionnaire and return in the enclosed self addressed stamped envelope. If you have any questions concerning this study or the questionnaire please direct them to Ali Markus at (904) 392-6755. Thank you for your time and expertise.

729 15th Street, NW • Washington, DC 20005 • (202) 637-8800

A-5 COPY OF FOLLOW-UP COVER LETTER FROM THE DIRECTOR, SCHOOL OF BUILDING CONSTRUCTION, UNIVERSITY OF FLORIDA

SCHOOL OF BUILDING CONSTRUCTION
UNIVERSITY OF FLORIDA
GAINESVILLE, 32611

PHONE 904 392-5965
904 392-0202
SUNCOM 622-0202

October 1, 1987

Dear ABC Contractor:

Several weeks ago you received a questionnaire from the School of Building Construction at the University of Florida, in conjunction with Associated Builders & Contractors (ABC) and the Building Construction Industry Advisory Committee, concerning a study to determine whether skilled carpenters are being trained in sufficient numbers to fulfill your needs. Unfortunately, the response rate has been rather low. We urgently need responses from ABC Contractors in order to complete this study.

Your cooperation will be of great benefit to us as well as the construction industry. Please take a few minutes of your valuable time to fill out the attached questionnaire and return it as soon as possible in the enclosed self addressed stamped envelope. If you have any questions concerning this study or the questionnaire please contact Ali M. Markus at (904) 392-6755.

Thank you for your consideration.

Sincerely,

Brisbane H. Brown, Jr.
Professor

BHB:bh

AMERICA'S FIRST SCHOOL OF CONSTRUCTION EDUCATION
EQUAL EMPLOYMENT OPPORTUNITY/AFFIRMATIVE ACTION EMPLOYER

APPENDIX B:

TABLES OF RESPONSES BY REGIONS

B-1

TABLES OF RESPONSES FOR CENTRAL REGION

TABLE B-1

QUESTIONNAIRE RESPONSE BY REGION

REGION	NUMBER OF RESPONDENTS	PERCENT
CENTRAL	**20**	**31.3**
NORTHEAST	2	3.1
NORTHWEST	5	7.8
SOUTHEAST	12	18.8
SOUTHWEST	25	39.0
TOTAL	64	100.0

TABLE B-1.1

TYPE OF OPERATION

TYPE OF OPERATION	CENTRAL REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
OPEN SHOP	20	100.0	64	100.0
UNION	0	0.0	0	0.0
BOTH	0	0.0	0	0.0

TABLE B-1.2

TYPE OF CONSTRUCTION UNDERTAKEN

TYPE OF CONSTRUCTION	CENTRAL REGION AVERAGE PERCENT	STATEWIDE AVERAGE PERCENT
RESIDENTIAL	6.0	8.2
COMMERCIAL	75.5	73.8
OTHER	18.5	18.0

TABLE B-1.3

ANNUAL VOLUME OF BUSINESS

AND NUMBER OF PROJECTS PER YEAR

QUESTION	CENTRAL REGION		STATEWIDE	
	MEAN	MEDIAN	MEAN	MEDIAN
ANNUAL VOLUME OF BUSINESS (millions of $)	$22.5	$10.0	$17.1	$7.5
NUMBER OF PROJECTS CARRIED PER YEAR	20.9	20.0	22.9	15.0

TABLE B-1.4

SKILL LEVEL OF CARPENTERS

QUESTION	CENTRAL REGION			STATEWIDE
	MEAN	MINIMUM	MAXIMUM	MEAN
NUMBER OF JOURNEYMAN CARPENTERS ON THE PAYROLL	17.1	1.0	55.0	16.3
NUMBER OF JOURNEYMAN CARPENTERS THAT ARE SKILLED	10.8	1.0	55.0	11.1
NUMBER OF APPRENTICES ON THE PAYROLL	3.3	0.0	20.0	3.3

TABLE B-1.5

HOURLY WAGES PAID

WHAT IS THE AVERAGE HOURLY WAGE PAID BY YOUR FIRM TO THE FOLLOWING?

A. JOURNEYMAN CARPENTER

B. APPRENTICE (CARPENTER-IN-TRAINING)

TYPE OF CARPENTER	CENTRAL REGION			STATEWIDE
	MEAN	MINIMUM	MAXIMUM	MEAN
JOURNEYMAN CARPENTER	$10.17	$8.00	$12.00	$10.29
APPRENTICE/CARPENTER -IN-TRAINING	7.57	5.75	10.00	$7.33

TABLE B-1.6

LENGTH OF EMPLOYMENT (IN MONTHS)

HOW LONG, ON THE AVERAGE, DO THE CARPENTERS STAY IN YOUR EMPLOYMENT?

TYPE OF CARPENTER	CENTRAL REGION			STATEWIDE
	MEAN	MINIMUM	MAXIMUM	MEAN
JOURNEYMAN CARPENTER	24.2	6.0	100.0	27.6
APPRENTICE/CARPENTER -IN-TRAINING	24.2	6.0	60.0	21.8

TABLE B-1.7

HIRING PRACTICES

WHERE DO YOU SEARCH FOR CARPENTERS?
Use the following scale:

4. Always
3. Most of the time
2. Sometimes
1. Never

HIRING PRACTICE	CENTRAL REGION MEAN	STATEWIDE MEAN
CONTACTS IN THE CONSTRUCTION INDUSTRY	3.12	2.98
ADVERTISEMENTS IN THE PAPER	2.91	2.86
OTHER CONSTRUCTION	2.53	2.25
OPEN-SHOP APPRENTICE PROGRAMS	2.50	2.26
COMPANY ON-THE-JOB TRAINING	2.41	2.33
VOCATIONAL TRAINING CENTERS	1.71	1.78
COMMUNITY COLLEGE TRAINING PROGRAM	1.60	1.53
UNION APPRENTICESHIP PROGRAMS	1.00	1.16
LABOR AGENTS	1.00	1.14
LABOR UNIONS	1.00	1.11

TABLE B-1.8

PROMOTION CRITERIA

WHAT CRITERIA DETERMINES PROMOTION OR AN INCREASE IN WAGES OF A CARPENTER IN YOUR COMPANY?

Use the following scale:

4. Always
3. Most of the time
2. Sometimes
1. Never

PROMOTION CRITERIA	CENTRAL REGION MEAN	STATEWIDE MEAN
PERFORMANCE	3.78	3.81
EXPERIENCE	3.13	3.05
MARKET WAGE RATE	2.94	2.65
GRADUATION FROM TRAINING PROGRAMS	2.64	2.62
SENIORITY	2.27	2.02

TABLE B-1.9

AVAILABILITY OF SKILLED CARPENTERS

ARE THERE ENOUGH SKILLED CARPENTERS FOR YOU TO HIRE?

RESPONSE	CENTRAL REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	2	10.0	8	12.5
NO	17	85.0	52	81.2
CANNOT SAY	1	5.0	3	4.7
NO RESPONSE	0	0.0	1	1.6

TABLE B-1.10

NEED FOR SKILLED CARPENTERS

DO YOU FEEL THERE IS A NEED FOR MORE SKILLED CARPENTERS IN COMMERCIAL CONSTRUCTION?

RESPONSE	CENTRAL REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	20	100.0	60	94.0
NO	0	0.0	1	1.5
CANNOT SAY	0	0.0	2	3.0
NO RESPONSE	0	0.0	1	1.5

TABLE B-1.11 DESIRED SKILLS FOR CARPENTERS

IN YOUR OPINION, WHICH OF THE FOLLOWING TASKS MUST A "SKILLED CARPENTER" BE ABLE TO PERFORM PROFICIENTLY?

Use the following scale:

4. Absolutely necessary
3. Necessary
2. Desirable
1. Unnecessary

SKILLS	CENTRAL REGION	STATEWIDE
	MEAN	MEAN
CONSTRUCTION FORMS(wall,edge,curb)	3.75	3.72
CONSTRUCTION FORMS (piers, beams, stairs,bridge,deck,columns,slabs)	3.65	3.66
FRAME PARTITIONS	3.60	3.69
INSTALL DECKING & SHEATHING	3.50	3.61
FRAME FLOOR AND SILLS	3.50	3.56
FRAME ROOFS	3.50	3.45
INSTALL DOOR, WINDOW FRAME & UNITS	3.40	3.53
INSTALL EXTR. WALL COVERING & TRIM	3.40	3.39
INSTALL STRUCTURAL TIMBER	3.35	3.25
INSTL PANELING,FURRING,SOFFIT CEIL	3.30	3.31
CONSTRUCT INTERIOR STAIRS	3.25	3.13
APPLY WEATHER STRIPPING & CAULKING	3.20	3.22
READ BLUEPRINTS	3.20	3.17
INSTL CABINETS,FIXTURES & SHELVING	3.10	3.05
ISSUE INSTRUCTIONS TO CREW MEMBERS	2.85	2.83
PREPLAN FORTHCOMING ACTIVITIES	2.60	2.54
BUILD TRUSSES	2.55	2.33
INSTALL DRYWALL MATERIAL	2.50	2.33
INSTL INSUL.& SOUND CONTROL MATER.	2.40	2.42
CONDUCT SITE PREPARATION & LAYOUTS	2.30	2.56

TABLE B-1.12

TASK VARIETY FOR FUTURE CARPENTERS

WILL THE FUTURE CARPENTER BE PERFORMING A BROADER VARIETY OF TASKS?

Use the following scale:

4. Much broader
3. Broader
2. No change
1. Narrower

CARPENTER TYPE	CENTRAL REGION MEAN	STATEWIDE MEAN
FORM CARPENTERS	2.67	2.55
FINISH CARPENTERS	2.50	2.55
FRAMING CARPENTERS	2.39	2.47

TABLE B-1.13

AFFECT OF SKILLED CARPENTER AVAILABILITY ON BUSINESS VOLUME

WOULD YOU BID MORE JOBS OR INCREASE THE VOLUME OF YOUR BUSINESS IF THERE WAS AN ADEQUATE SUPPLY OF SKILLED CARPENTERS IN THE INDUSTRY?

	CENTRAL REGION		STATEWIDE	
RESPONSE	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	5	25.0	24	37.5
NO	8	40.0	21	33.0
CANNOT SAY	7	35.0	18	28.0
NO RESPONSE	0	0.0	1	1.5

TABLE B-1.14

CARPENTER SHORTAGE CAUSING SCHEDULING PROBLEMS

HAS A SHORTAGE OF CARPENTERS EVER DIRECTLY CAUSED SCHEDULING PROBLEMS?

RESPONSE	CENTRAL REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	12	60.0	45	70.3
NO	6	30.0	15	23.4
CANNOT SAY	0	0.0	0	0.0
NO RESPONSE	2	10.0	4	6.5

TABLE B-1.15

PAYMENT OF OVERTIME BECAUSE OF SHORTAGE

HAVE YOU EVER, IN THE PAST YEAR, PAID OVERTIME TO SKILLED CARPENTERS BECAUSE OF ANY SHORTAGE IN THE MARKET?

RESPONSE	CENTRAL REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	11	55.0	38	59.3
NO	8	40.0	22	34.2
CANNOT SAY	1	5.0	3	5.0
NO RESPONSE	0	0.0	1	1.5

TABLE B-1.16

ESTIMATED PERCENTAGE OF OVERTIME HOURS

WHAT PERCENTAGE OF HOURS WORKED BY CARPENTERS IS OVERTIME?
Please estimate.

QUESTION	CENTRAL REGION			STATEWIDE
	MEAN	MINIMUM	MAXIMUM	MEAN
PERCENTAGE OF OVERTIME HOURS WORKED BY CARPENTERS	7.5%	0.0%	20.0%	6.7%

TABLE B-1.17

MORE SKILLED CARPENTERS VERSUS OVERTIME

WOULD YOU HIRE MORE SKILLED CARPENTERS TO AVOID PAYING OVERTIME?

RESPONSE	CENTRAL REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	10	50.0	35	54.6
NO	5	25.0	12	19.0
CANNOT SAY	4	20.0	15	23.4
NO RESPONSE	1	5.0	2	3.0

TABLE B-1.18

REASONS FOR SHORTAGE OF SKILLED CARPENTERS

IN YOUR VIEW, IS THE SHORTAGE OF SKILLED CARPENTERS DUE TO:

Use the following scale:

4. Very important reason
3. Important reason
2. Could be the reason
1. Not a reason at all

	CENTRAL REGION	STATEWIDE
REASONS	MEAN	MEAN
CONSTRUCTION BOOM	3.29	2.86
GENERAL DECLINE IN CRAFTSMANSHIP	3.00	3.03
LACK OF TRAINING PROGRAMS	2.59	2.73
MORE EMPHASIS ON CUTTING COST THAN QUALITY CONTROL	2.53	2.42
BECAUSE THERE IS GREATER EMPHASIS ON FACTORY BUILT COMPONENTS THERE IS DECREASED DEMAND IN THE SKILLS LEVEL OF ON SITE CARPENTERS	2.39	2.21
LOW WAGE RATES	1.89	1.82
PART TIME CARPENTERS	1.60	1.68
LOW PROFILE OF LABOR UNIONS	1.50	1.45

TABLE B-1.19

PERCENTAGE OF SUB-CONTRACTED CARPENTRY WORK

WHAT PERCENTAGE OF CARPENTRY WORK DO YOU SUB-CONTRACT?

QUESTION	CENTRAL REGION			STATEWIDE
	MEAN	MINIMUM	MAXIMUM	MEAN
PERCENTAGE OF OVERTIME HOURS WORKED BY CARPENTERS	42.8%	4.0%	100.0%	54.1%

TABLE B-1.20

AVAILABILITY OF SUB-CONTRACT CARPENTRY FIRMS

IF YOU SUB-CONTRACT A MAJORITY OF YOUR CARPENTRY WORK, ARE THERE ENOUGH FIRMS AVAILABLE TO DO YOUR WORK?

RESPONSE	CENTRAL REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	1	9.0	6	19.3
NO	9	82.0	22	70.1
CANNOT SAY	1	9.0	3	9.6
NO RESPONSE	9	---	33	---

TABLE B-1.21

QUALITY OF SUB-CONTRACTED CARPENTRY WORK

ARE YOU SATISFIED WITH THE QUALITY OF THE WORK DONE BY THE FIRMS TO WHOM YOU SUB-CONTRACT CARPENTRY WORK?

RESPONSE	CENTRAL REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	7	58.3	13	40.6
NO	5	41.7	18	56.3
CANNOT SAY	0	0.0	1	3.1
NO RESPONSE	8	---	32	---

TABLE B-1.22

ADEQUACY OF CARPENTRY SUB-CONTRACTORS

IN YOUR OPINION, IS THE SKILL OF THE CARPENTERS WHO WORK ON THE SUB-CONTRACTED WORK ADEQUATE?

RESPONSE	CENTRAL REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	4	33.3	10	31.2
NO	7	58.3	28	62.5
CANNOT SAY	1	8.4	2	6.3
NO RESPONSE	8	---	32	---

TABLE B-1.23

PERCENTAGE OF SUB-CONTRACTOR'S CARPENTERS THAT ARE SKILLED

IN YOUR OPINION, WHAT PERCENTAGE OF THE SUB-CONTRACTOR'S CARPENTERS ARE SKILLED CARPENTERS?

QUESTION	CENTRAL REGION			STATEWIDE
	MEAN	MINIMUM	MAXIMUM	MEAN
PERCENTAGE OF SUBCONTRACTORS CARPENTERS THAT ARE SKILLED	27.2%	10.0%	50.0%	29.2%

TABLE B-1.24

CONTRIBUTIONS OF THE TRAINING PROGRAMS

ARE THE FOLLOWING TRAINING PROGRAMS MAKING ANY SUBSTANTIAL CONTRIBUTIONS IN SUPPLYING SKILLED CARPENTERS TO THE RESIDENTIAL CONSTRUCTION INDUSTRY?

Use the following scale:

4. To a large extent
3. To some extent
2. To a small extent
1. Negligible

TRAINING PROGRAM	CENTRAL REGION	STATEWIDE
	MEAN	MEAN
ON-THE-JOB TRAINING	3.01	3.23
OPEN SHOP APPRENTICESHIP PROGRAMS	2.61	2.57
VOCATIONAL TRAINING CENTERS	2.17	2.02
COMMUNITY COLLEGE TRAINING	2.08	1.88
UNION APPRENTICESHIP PROGRAMS	1.90	1.77

TABLE B-1.25

PERFORMANCE OF THE TRAINING PROGRAMS

IN YOUR OPINION, ARE THE FOLLOWING TRAINING PROGRAMS MAKING ANY SUBSTANTIAL CONTRIBUTIONS IN PRODUCING THE BEST CARPENTERS FOR YOUR NEEDS?

Use the following scale:

4. The best
3.
2.
1. The worst

TRAINING PROGRAM	CENTRAL REGION MEAN	STATEWIDE MEAN
ON-THE-JOB TRAINING	3.15	3.15
OPEN SHOP APPRENTICESHIP PROGRAMS	3.08	2.76
VOCATIONAL TRAINING CENTERS	2.40	2.17
COMMUNITY COLLEGE TRAINING	2.20	1.81
UNION APPRENTICESHIP PROGRAMS	1.78	2.00

TABLE B-1.26

COMMUNICATION LEVEL BETWEEN INDUSTRY AND TRAINING PROGRAMS

WHAT LEVEL OF COMMUNICATIONS DO YOU HAVE WITH THE FOLLOWING TRAINING PROGRAM?

Use the following scale:

4. Very close
3. Close
2. Remote
1. Very remote

TRAINING PROGRAM	CENTRAL REGION	STATEWIDE
	MEAN	MEAN
ON-THE-JOB TRAINING	3.17	3.36
OPEN SHOP APPRENTICESHIP PROGRAMS	2.47	2.57
COMMUNITY COLLEGE TRAINING	1.67	1.62
VOCATIONAL TRAINING CENTERS	1.59	1.57
UNION APPRENTICESHIP PROGRAMS	1.06	1.56

TABLE B-1.27

NEED FOR CLASSROOM TRAINING

DO YOU THINK THAT CARPENTERS WORKING IN COMMERCIAL CONSTRUCTION NEED TO UNDERGO SOME CLASSROOM TRAINING PROGRAM?

RESPONSE	CENTRAL REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	17	85.0	54	84.3
NO	1	5.0	3	4.7
CANNOT SAY	2	10.0	5	8.0
NO RESPONSE	0	0.0	2	3.0

TABLE B-1.28

STRATEGY FOR INDUSTRY / TRAINING PROGRAM LINKAGE

RANK THE FOLLOWING AS THE BEST METHOD OF ESTABLISHING AN INDUSTRY/TRAINING PROGRAM LINKAGE.
(1,2,3,4; 4 being the most important)

STRATEGY	CENTRAL REGION MEAN	STATEWIDE MEAN
FORMAL MEETING OF THE TWO GROUPS	3.23	3.09
ATTENDING EDUCATIONAL FUNCTIONS	2.64	2.33
SITTING ON AN ADVISORY COMMITTEE	2.58	2.44
WRITTEN CONTACT	2.45	2.33

TABLE B-1.29

LICENSING OF CARPENTERS

IN YOUR OPINION, SHOULD THE CARPENTER BE REQUIRED TO HAVE A LICENSE TO INSURE BETTER SKILLS AND STANDARDS?

RESPONSE	CENTRAL REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	5	25.0	12	18.7
NO	15	75.0	45	70.3
CANNOT SAY	0	0.0	6	9.4
NO RESPONSE	0	0.0	1	1.6

TABLE B-1.30

ILLEGAL ALIEN CARPENTERS

FROM YOUR EXPERIENCE, DO YOU BELIEVE THAT ILLEGAL ALIENS ARE BEING HIRED BY OTHER CONSTRUCTION FIRMS?

RESPONSE	CENTRAL REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	0	0.0	13	20.3
NO	9	45.0	19	29.7
CANNOT SAY	11	55.0	29	45.3
NO RESPONSE	0	0.0	3	4.7

TABLE B-1.31

PERCENTAGE OF ILLEGAL ALIEN CARPENTERS

IN YOUR OPINION, WHAT PERCENTAGE OF THE CARPENTERS IN FLORIDA ARE ILLEGAL ALIENS?

QUESTION	CENTRAL REGION			STATEWIDE
	MEAN	MINIMUM	MAXIMUM	MEAN
PERCENTAGE OF ILLEGAL ALIEN CARPENTERS	4.5%	0.0%	10.0%	9.2%

B-2

TABLES OF RESPONSES FOR NORTHEAST REGION

TABLE B-2

QUESTIONNAIRE RESPONSE BY REGION

REGION	NUMBER OF RESPONDENTS	PERCENT
CENTRAL	20	31.3
NORTHEAST	2	3.1
NORTHWEST	5	7.8
SOUTHEAST	12	18.8
SOUTHWEST	25	39.0
TOTAL	64	100.0

TABLE B-2.1

TYPE OF OPERATION

TYPE OF OPERATION	NORTHEAST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
OPEN SHOP	2	100.0	64	100.0
UNION	0	0.0	0	0.0
BOTH	0	0.0	0	0.0

TABLE B-2.2

TYPE OF CONSTRUCTION UNDERTAKEN

TYPE OF CONSTRUCTION	NORTHEAST REGION AVERAGE PERCENT	STATEWIDE AVERAGE PERCENT
RESIDENTIAL	0.0	8.2
COMMERCIAL	50.0	73.8
OTHER	50.0	18.0

TABLE B-2.3

ANNUAL VOLUME OF BUSINESS

AND NUMBER OF PROJECTS PER YEAR

	NORTHEAST REGION		STATEWIDE	
QUESTION	MEAN	MEDIAN	MEAN	MEDIAN
ANNUAL VOLUME OF BUSINESS (millions of $)	$10.7	$10.7	$17.1	$7.5
NUMBER OF PROJECTS CARRIED PER YEAR	50.0	50.0	22.9	15.0

TABLE B-2.4

SKILL LEVEL OF CARPENTERS

QUESTION	NORTHEAST REGION MEAN	NORTHEAST REGION MINIMUM	NORTHEAST REGION MAXIMUM	STATEWIDE MEAN
NUMBER OF JOURNEYMAN CARPENTERS ON THE PAYROLL	22.5	15.0	30.0	16.3
NUMBER OF JOURNEYMAN CARPENTERS THAT ARE SKILLED	7.5	5.0	10.0	11.1
NUMBER OF APPRENTICES ON THE PAYROLL	15.0	10.0	20.0	3.3

TABLE B-2.5

HOURLY WAGES PAID

WHAT IS THE AVERAGE HOURLY WAGE PAID BY YOUR FIRM TO THE FOLLOWING?

A. JOURNEYMAN CARPENTER
B. APPRENTICE (CARPENTER-IN-TRAINING

TYPE OF CARPENTER	NORTHEAST REGION MEAN	NORTHEAST REGION MINIMUM	NORTHEAST REGION MAXIMUM	STATEWIDE MEAN
JOURNEYMAN CARPENTER	$12.00	$12.00	$12.00	$10.29
APPRENTICE/CARPENTER -IN-TRAINING	7.50	6.00	9.00	$7.33

TABLE B-2.6

LENGTH OF EMPLOYMENT (IN MONTHS)

HOW LONG, ON THE AVERAGE, DO THE CARPENTERS STAY IN YOUR EMPLOYMENT?

TYPE OF CARPENTER	NORTHEAST REGION MEAN	NORTHEAST REGION MINIMUM	NORTHEAST REGION MAXIMUM	STATEWIDE MEAN
JOURNEYMAN CARPENTER	102.0	24.0	180.0	27.6
APPRENTICE/CARPENTER -IN-TRAINING	33.9	36.0	84.0	21.8

TABLE B-2.7

HIRING PRACTICES

WHERE DO YOU SEARCH FOR CARPENTERS?
Use the following scale:

4. Always
3. Most of the time
2. Sometimes
1. Never

HIRING PRACTICE	NORTHEAST REGION MEAN	STATEWIDE MEAN
ADVERTISEMENTS IN THE PAPER	3.00	2.86
COMPANY ON-THE-JOB TRAINING	3.00	2.33
CONTACTS IN THE CONSTRUCTION INDUSTRY	2.50	2.98
OTHER CONSTRUCTION JOBS	2.50	2.25
VOCATIONAL TRAINING CENTERS	2.00	1.78
OPEN-SHOP APPRENTICESHIP PROGRAMS	1.50	2.26
COMMUNITY COLLEGE TRAINING PROGRAM	1.50	1.53
LABOR AGENTS	1.50	1.14
UNION APPRENTICESHIP PROGRAMS	1.00	1.16
LABOR UNIONS	1.00	1.11

TABLE B-2.8

PROMOTION CRITERIA

WHAT CRITERIA DETERMINES PROMOTION OR AN INCREASE IN WAGES OF A CARPENTER IN YOUR COMPANY?

Use the following scale:

4. Always
3. Most of the time
2. Sometimes
1. Never

PROMOTION CRITERIA	NORTHEAST REGION MEAN	STATEWIDE MEAN
PERFORMANCE	4.00	3.81
EXPERIENCE	3.50	3.05
GRADUATION FROM TRAINING PROGRAMS	3.50	2.62
MARKET WAGE RATE	3.00	2.65
SENIORITY	2.00	2.02

TABLE B-2.9

AVAILABILITY OF SKILLED CARPENTERS

ARE THERE ENOUGH SKILLED CARPENTERS FOR YOU TO HIRE?

RESPONSE	NORTHEAST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	1	50.0	8	12.5
NO	1	50.0	52	81.2
CANNOT SAY	0	0.0	3	4.7
NO RESPONSE	0	0.0	1	1.6

TABLE B-2.10

NEED FOR SKILLED CARPENTERS

DO YOU FEEL THERE IS A NEED FOR MORE SKILLED CARPENTERS IN COMMERCIAL CONSTRUCTION?

RESPONSE	NORTHEAST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	2	100.0	60	94.0
NO	0	0.0	1	1.5
CANNOT SAY	0	0.0	2	3.0
NO RESPONSE	0	0.0	1	1.5

TABLE B-2.11 DESIRED SKILLS FOR CARPENTERS

IN YOUR OPINION, WHICH OF THE FOLLOWING TASKS MUST A "SKILLED CARPENTER" BE ABLE TO PERFORM PROFICIENTLY?

Use the following scale:

4. Absolutely necessary
3. Most of the time
2. Sometimes
1. Never

SKILLS	NORTHEAST REGION MEAN	STATEWIDE MEAN
CONSTRUCTION FORMS(wall,edge,curb)	4.00	3.72
FRAME PARTITIONS	4.00	3.69
CONSTRUCTION FORMS (piers, beams, stairs,bridge,deck,columns,slabs)	4.00	3.66
INSTALL DECKING & SHEATHING	4.00	3.61
FRAME FLOOR AND SILLS	4.00	3.56
INSTALL DOOR, WINDOW FRAME & UNITS	4.00	3.53
FRAME ROOFS	4.00	3.45
INSTALL EXTR. WALL COVERING & TRIM	4.00	3.39
READ BLUEPRINTS	4.00	3.17
INSTL PANELING,FURRING,SOFFIT CEIL	3.50	3.31
INSTALL STRUCTURAL TIMBER	3.50	3.25
CONSTRUCT INTERIOR STAIRS	3.50	3.13
INSTL CABINETS,FIXTURES,SHELVING	3.50	3.05
ISSUE INSTRUCTIONS TO CREW MEMBERS	3.00	2.83
CONDUCT SITE PREPARATION & LAYOUT	3.00	2.56
APPLY WEATHER STRIPPING & CAULKING	2.50	3.22
PREPLAN FORTHCOMING ACTIVITIES	2.50	2.54
BUILD TRUSSES	2.00	2.33
INSTL INSUL.& SOUND CONTROL MATER.	1.50	2.42
INSTALL DRYWALL MATERIAL	1.50	2.33

TABLE B-2.12

TASK VARIETY FOR FUTURE CARPENTERS

WILL THE FUTURE CARPENTER BE PERFORMING A BROADER VARIETY OF TASKS?

Use the following scale:

4. Much broader
3. Broader
2. No change
1. Narrower

CARPENTER TYPE	NORTHEAST REGION MEAN	STATEWIDE MEAN
FRAMING CARPENTERS	3.00	2.47
FORM CARPENTERS	3.00	2.55
FINISH CARPENTERS	2.00	2.55

TABLE B-2.13

AFFECT OF SKILLED CARPENTER AVAILABILITY ON BUSINESS VOLUME

WOULD YOU BID MORE JOBS OR INCREASE THE VOLUME OF YOUR BUSINESS IF THERE WAS AN ADEQUATE SUPPLY OF SKILLED CARPENTERS IN THE INDUSTRY?

RESPONSE	NORTHEAST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	0	0.0	24	37.5
NO	1	50.0	21	33.0
CANNOT SAY	1	50.0	18	28.0
NO RESPONSE	0	0.0	1	1.5

TABLE B-2.14

CARPENTER SHORTAGE CAUSING SCHEDULING PROBLEMS

HAS A SHORTAGE OF CARPENTERS EVER DIRECTLY CAUSED SCHEDULING PROBLEMS?

RESPONSE	NORTHEAST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	0	0.0	45	70.3
NO	2	100.0	15	23.4
CANNOT SAY	0	0.0	0	0.0
NO RESPONSE	0	0.0	4	6.5

TABLE B-2.15

PAYMENT OF OVERTIME BECAUSE OF SHORTAGE

HAVE YOU EVER, IN THE PAST YEAR, PAID OVERTIME TO SKILLED CARPENTERS BECAUSE OF ANY SHORTAGE IN THE MARKET?

RESPONSE	NORTHEAST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	0	0.0	38	59.3
NO	2	100.0	22	34.2
CANNOT SAY	0	0.0	3	5.0
NO RESPONSE	0	0.0	1	1.5

TABLE B-2.16

ESTIMATED PERCENTAGE OF OVERTIME HOURS

WHAT PERCENTAGE OF HOURS WORKED BY CARPENTERS IS OVERTIME?
Please estimate.

QUESTION	NORTHEAST REGION			STATEWIDE
	MEAN	MINIMUM	MAXIMUM	MEAN
PERCENTAGE OF OVERTIME HOURS WORKED BY CARPENTERS	5.0%	5.0%	5.0%	6.7%

TABLE B-2.17

MORE SKILLED CARPENTERS VERSUS OVERTIME

WOULD YOU HIRE MORE SKILLED CARPENTERS TO AVOID PAYING OVERTIME?

RESPONSE	NORTHEAST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	1	50.0	35	54.6
NO	1	50.0	12	19.0
CANNOT SAY	0	0.0	15	23.4
NO RESPONSE	0	0.0	2	3.0

TABLE B-2.18

REASONS FOR SHORTAGE OF SKILLED CARPENTERS

IN YOUR VIEW, IS THE SHORTAGE OF SKILLED CARPENTERS DUE TO:

Use the following scale:
4. Very important reason
3. Important reason
2. Could be the reason
1. Not a reason at all

REASONS	NORTHEAST REGION MEAN	STATEWIDE MEAN
CONSTRUCTION BOOM	3.50	2.86
LACK OF TRAINING PROGRAMS	3.00	2.73
GENERAL DECLINE IN CRAFTSMANSHIP	2.50	3.03
MORE EMPHASIS ON CUTTING COST THAN QUALITY CONTROL	2.50	2.42
BECAUSE THERE IS GREATER EMPHASIS ON FACTORY BUILT COMPONENTS THERE IS DECREASED DEMAND IN THE SKILLS LEVEL OF ON SITE CARPENTERS	2.50	2.21
PART TIME CARPENTERS	2.00	1.68
LOW WAGE RATES	1.50	1.82
LOW PROFILE OF LABOR UNIONS	1.00	1.45

TABLE B-2.19

PERCENTAGE OF SUB-CONTRACTED CARPENTRY WORK

WHAT PERCENTAGE OF CARPENTRY WORK DO YOU SUB-CONTRACT?

QUESTION	NORTHEAST REGION			STATEWIDE
	MEAN	MINIMUM	MAXIMUM	MEAN
WHAT PERCENTAGE OF CARPENTRY WORK DO YOU SUB-CONTRACT	0.0%	0.0%	0.0%	54.1%

TABLE B-2.20

AVAILABILITY OF SUB-CONTRACT CARPENTRY FIRMS

IF YOU SUB-CONTRACT A MAJORITY OF YOUR CARPENTRY WORK, ARE THERE ENOUGH FIRMS AVAILABLE TO DO YOUR WORK?

RESPONSE	NORTHEAST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	0	0.0	6	19.3
NO	0	0.0	22	70.1
CANNOT SAY	0	0.0	3	9.6
NO RESPONSE	2	---	33	---

TABLE B-2.21

QUALITY OF SUB-CONTRACTED CARPENTRY WORK

ARE YOU SATISFIED WITH THE QUALITY OF THE WORK DONE BY THE FIRMS TO WHOM YOU SUB-CONTRACT CARPENTRY WORK?

RESPONSE	NORTHEAST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	0	0.0	13	40.6
NO	0	0.0	18	56.3
CANNOT SAY	0	0.0	1	3.1
NO RESPONSE	2	---	32	---

TABLE B-2.22

ADEQUACY OF CARPENTRY SUB-CONTRACTORS

IN YOUR OPINION, IS THE SKILL OF THE CARPENTERS WHO WORK ON THE SUB-CONTRACTED WORK ADEQUATE?

RESPONSE	NORTHEAST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	0	0.0	10	31.2
NO	0	0.0	28	62.5
CANNOT SAY	0	0.0	2	6.3
NO RESPONSE	2	---	32	---

TABLE B-2.23

PERCENTAGE OF SUB-CONTRACTOR'S CARPENTERS THAT ARE SKILLED

IN YOUR OPINION, WHAT PERCENTAGE OF THE SUB-CONTRACTOR'S CARPENTERS ARE SKILLED CARPENTERS?

QUESTION	NORTHEAST REGION			STATEWIDE
	MEAN	MINIMUM	MAXIMUM	MEAN
PERCENTAGE OF SUBCONTRACTORS CARPENTERS THAT ARE SKILLED	0.0%	0.0%	0.0%	29.2%

TABLE B-2.24

CONTRIBUTIONS OF THE TRAINING PROGRAMS

ARE THE FOLLOWING TRAINING PROGRAMS MAKING ANY SUBSTANTIAL CONTRIBUTIONS IN SUPPLYING SKILLED CARPENTERS TO THE RESIDENTIAL CONSTRUCTION INDUSTRY?

Use the following scale:

4. To a large extent
3. To some extent
2. To a small extent
1. Negligible

TRAINING PROGRAM	NORTHEAST REGION	STATEWIDE
	MEAN	MEAN
ON-THE-JOB TRAINING	4.00	3.23
OPEN SHOP APPRENTICESHIP PROGRAMS	3.00	2.57
VOCATIONAL TRAINING CENTERS	2.00	2.02
UNION APPRENTICESHIP PROGRAMS	1.00	1.77
COMMUNITY COLLEGE TRAINING	1.00	1.88

TABLE B-2.25

PERFORMANCE OF THE TRAINING PROGRAMS

IN YOUR OPINION, ARE THE FOLLOWING TRAINING PROGRAMS MAKING ANY SUBSTANTIAL CONTRIBUTIONS IN PRODUCING THE BEST CARPENTERS FOR YOUR NEEDS?

Use the following scale:

4. The best
3.
2.
1. The worst

TRAINING PROGRAM	NORTHEAST REGION MEAN	STATEWIDE MEAN
ON-THE-JOB TRAINING	3.50	3.15
OPEN SHOP APPRENTICESHIP PROGRAMS	2.50	2.76
VOCATIONAL TRAINING CENTERS	2.00	2.17
COMMUNITY COLLEGE TRAINING	1.00	1.81
UNION APPRENTICESHIP PROGRAMS	1.00	2.00

TABLE B-2.26

COMMUNICATION LEVEL BETWEEN INDUSTRY AND TRAINING PROGRAMS

WHAT LEVEL OF COMMUNICATIONS DO YOU HAVE WITH THE FOLLOWING TRAINING PROGRAM?

Use the following scale:

4. Very close
3. Close
2. Remote
1. Very remote

TRAINING PROGRAM	NORTHEAST REGION MEAN	STATEWIDE MEAN
ON-THE-JOB TRAINING	3.50	3.36
OPEN SHOP APPRENTICESHIP PROGRAMS	2.50	2.57
VOCATIONAL TRAINING CENTERS	2.50	1.57
COMMUNITY COLLEGE TRAINING	1.50	1.62
UNION APPRENTICESHIP PROGRAMS	1.00	1.56

TABLE B-2.27

NEED FOR CLASSROOM TRAINING

DO YOU THINK THAT CARPENTERS WORKING IN COMMERCIAL CONSTRUCTION NEED TO UNDERGO SOME CLASSROOM TRAINING PROGRAM?

RESPONSE	NORTHEAST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	2	100.0	54	84.3
NO	0	0.0	3	4.7
CANNOT SAY	0	0.0	5	8.0
NO RESPONSE	0	0.0	2	3.0

TABLE B-2.28

STRATEGY FOR INDUSTRY / TRAINING PROGRAM LINKAGE

RANK THE FOLLOWING AS THE BEST METHOD OF ESTABLISHING AN INDUSTRY/TRAINING PROGRAM LINKAGE.
(1,2,3,4; 4 being the most important)

STRATEGY	NORTHEAST REGION MEAN	STATEWIDE MEAN
FORMAL MEETING OF THE TWO GROUPS	3.00	3.09
SITTING ON AN ADVISORY COMMITTEE	3.00	2.44
ATTENDING EDUCATIONAL FUNCTIONS	2.00	2.33
WRITTEN CONTACT	1.00	2.33

TABLE B-2.29

LICENSING OF CARPENTERS

IN YOUR OPINION, SHOULD THE CARPENTER BE REQUIRED TO HAVE A LICENSE TO INSURE BETTER SKILLS AND STANDARDS?

	NORTHEAST REGION		STATEWIDE	
RESPONSE	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	0	0.0	12	18.7
NO	2	100.0	45	70.3
CANNOT SAY	0	0.0	6	9.4
NO RESPONSE	0	0.0	1	1.6

TABLE B-2.30

ILLEGAL ALIEN CARPENTERS

FROM YOUR EXPERIENCE, DO YOU BELIEVE THAT ILLEGAL ALIENS ARE BEING HIRED BY OTHER CONSTRUCTION FIRMS?

RESPONSE	NORTHEAST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	1	50.0	13	20.3
NO	0	0.0	19	29.7
CANNOT SAY	1	50.0	29	45.3
NO RESPONSE	0	0.0	3	4.7

TABLE B-2.31

PERCENTAGE OF ILLEGAL ALIEN CARPENTERS

IN YOUR OPINION, WHAT PERCENTAGE OF THE CARPENTERS IN FLORIDA ARE ILLEGAL ALIENS?

QUESTION	NORTHEAST REGION			STATEWIDE
	MEAN	MINIMUM	MAXIMUM	MEAN
PERCENTAGE OF ILLEGAL ALIEN CARPENTERS	5.0%	5.0%	5.0%	9.2%

TABLE B-3

QUESTIONNAIRE RESPONSE BY REGION

REGION	NUMBER OF RESPONDENTS	PERCENT
CENTRAL	20	31.3
NORTHEAST	2	3.1
NORTHWEST	**5**	**7.8**
SOUTHEAST	12	18.8
SOUTHWEST	25	39.0
TOTAL	64	100.0

TABLE B-3.1

TYPE OF OPERATION

TYPE OF OPERATION	NORTHWEST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
OPEN SHOP	5	100.0	64	100.0
UNION	0	0.0	0	0.0
BOTH	0	0.0	0	0.0

TABLE B-3.2

TYPE OF CONSTRUCTION UNDERTAKEN

TYPE OF CONSTRUCTION	NORTHWEST REGION AVERAGE PERCENT	STATEWIDE AVERAGE PERCENT
RESIDENTIAL	4.0	8.2
COMMERCIAL	96.0	73.8
OTHER	0.0	18.0

TABLE B-3.3

ANNUAL VOLUME OF BUSINESS

AND NUMBER OF PROJECTS PER YEAR

QUESTION	NORTHWEST REGION		STATEWIDE	
	MEAN	MEDIAN	MEAN	MEDIAN
ANNUAL VOLUME OF BUSINESS (millions of $)	$7.1	$3.5	$17.1	$7.5
NUMBER OF PROJECTS CARRIED PER YEAR	12.6	10.2	22.9	15.0

TABLE B-3.4

SKILL LEVEL OF CARPENTERS

QUESTION	NORTHWEST REGION			STATEWIDE
	MEAN	MINIMUM	MAXIMUM	MEAN
NUMBER OF JOURNEYMAN CARPENTERS ON THE PAYROLL	20.6	2.0	75.0	16.3
NUMBER OF JOURNEYMAN CARPENTERS THAT ARE SKILLED	10.0	2.0	25.0	11.1
NUMBER OF APPRENTICES ON THE PAYROLL	1.8	0.0	3.0	3.3

TABLE B-3.5

HOURLY WAGES PAID

<u>WHAT IS THE AVERAGE HOURLY WAGE PAID BY YOUR FIRM TO THE FOLLOWING?</u>

A. JOURNEYMAN CARPENTER
B. APPRENTICE (CARPENTER-IN-TRAINING)

TYPE OF CARPENTER	NORTHWEST REGION			STATEWIDE
	MEAN	MINIMUM	MAXIMUM	MEAN
JOURNEYMAN CARPENTER	$9.36	$8.00	$10.00	$10.29
APPRENTICE/CARPENTER -IN-TRAINING	6.48	4.75	7.50	$7.33

TABLE B-3.6

LENGTH OF EMPLOYMENT (IN MONTHS)

<u>HOW LONG, ON THE AVERAGE, DO THE CARPENTERS STAY IN YOUR EMPLOYMENT?</u>

TYPE OF CARPENTER	NORTHWEST REGION			STATEWIDE
	MEAN	MINIMUM	MAXIMUM	MEAN
JOURNEYMAN CARPENTER	26.0	12.0	64.0	27.6
APPRENTICE/CARPENTER -IN-TRAINING	24.0	12.0	36.0	21.8

TABLE B-3.7

HIRING PRACTICES

WHERE DO YOU SEARCH FOR CARPENTERS?
Use the following scale:

4. Always
3. Most of the time
2. Sometimes
1. Never

HIRING PRACTICE	NORTHWEST REGION MEAN	STATEWIDE MEAN
CONTACTS IN THE CONSTRUCTION INDUSTRY	3.00	2.98
ADVERTISEMENTS IN THE PAPER	3.00	2.86
OPEN-SHOP APPRENTICESHIP PROGRAMS	2.75	2.26
OTHER CONSTRUCTION JOBS	2.33	2.25
VOCATIONAL TRAINING CENTERS	2.33	1.78
COMPANY ON-THE-JOB TRAINING	2.25	2.33
COMMUNITY COLLEGE TRAINING PROGRAM	1.67	1.53
UNION APPRENTICESHIP PROGRAM	1.67	1.16
LABOR AGENTS	1.33	1.14
LABOR UNIONS	1.33	1.11

TABLE B-3.8

PROMOTION CRITERIA

WHAT CRITERIA DETERMINES PROMOTION OR AN INCREASE IN WAGES OF A CARPENTER IN YOUR COMPANY?

Use the following scale:

4. Always
3. Most of the time
2. Sometimes
1. Never

PROMOTION CRITERIA	NORTHWEST REGION MEAN	STATEWIDE MEAN
PERFORMANCE	4.00	3.81
EXPERIENCE	3.20	3.05
GRADUATION FROM TRAINING PROGRAMS	2.80	2.62
SENIORITY	2.40	2.02
MARKET WAGE RATE	1.80	2.65

TABLE B-3.9

AVAILABILITY OF SKILLED CARPENTERS

ARE THERE ENOUGH SKILLED CARPENTERS FOR YOU TO HIRE?

RESPONSE	NORTHWEST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	1	20.0	8	12.5
NO	4	80.0	52	81.2
CANNOT SAY	0	0.0	3	4.7
NO RESPONSE	0	0.0	1	1.6

TABLE B-3.10

NEED FOR SKILLED CARPENTERS

DO YOU FEEL THERE IS A NEED FOR MORE SKILLED CARPENTERS IN COMMERCIAL CONSTRUCTION?

RESPONSE	NORTHWEST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	5	100.0	60	94.0
NO	0	0.0	1	1.5
CANNOT SAY	0	0.0	2	3.0
NO RESPONSE	0	0.0	1	1.5

TABLE B-3.11 DESIRED SKILLS FOR CARPENTERS

IN YOUR OPINION, WHICH OF THE FOLLOWING TASKS MUST A "SKILLED CARPENTER" BE ABLE TO PERFORM PROFICIENTLY?

Use the following scale:

4. Absolutely necessary
3. Necessary
2. Desirable
1. Never

SKILLS	NORTHWEST REGION MEAN	STATEWIDE MEAN
CONSTRUCTION FORMS(wall,edge,curb)	4.00	3.72
FRAME PARTITIONS	4.00	3.69
CONSTRUCTION FORMS (piers, beams, stairs,bridge,deck,columns,slabs)	4.00	3.66
INSTALL DECKING & SHEATHING	4.00	3.61
FRAME FLOOR AND SILLS	4.00	3.56
INSTALL DOOR, WINDOW FRAME & UNITS	4.00	3.53
FRAME ROOFS	4.00	3.45
INSTL PANELING,FURRING,SOFFIT CEIL	3.80	3.31
INSTALL STRUCTURAL TIMBER	3.60	3.25
CONSTRUCT INTERIOR STAIRS	3.60	3.13
INSTALL EXTR. WALL COVERING & TRIM	3.40	3.39
ISSUE INSTRUCTIONS TO CREW MEMBERS	3.40	2.83
APPLY WEATHER STRIPPING & CAULKING	3.20	3.22
INSTL CABINETS,FIXTURES,SHELVING	3.20	3.05
READ BLUEPRINTS	3.00	3.17
PREPLAN FORTHCOMING ACTIVITIES	3.00	2.54
INSTL INSUL.& SOUND CONTROL MATER.	3.00	2.42
CONDUCT SITE PREPARATION & LAYOUT	2.80	2.56
INSTALL DRYWALL MATERIAL	2.40	2.33
BUILD TRUSSES	2.20	2.33

TABLE B-3.12

TASK VARIETY FOR FUTURE CARPENTERS

WILL THE FUTURE CARPENTER BE PERFORMING A BROADER VARIETY OF TASKS?

Use the following scale:

4. Much broader
3. Broader
2. No change
1. Narrower

CARPENTER TYPE	NORTHWEST REGION	STATEWIDE
	MEAN	MEAN
FORM CARPENTERS	2.80	2.55
FRAMING CARPENTERS	2.80	2.47
FINISH CARPENTERS	2.60	2.55

TABLE B-3.13

AFFECT OF SKILLED CARPENTER AVAILABILITY ON BUSINESS VOLUME

WOULD YOU BID MORE JOBS OR INCREASE THE VOLUME OF YOUR BUSINESS IF THERE WAS AN ADEQUATE SUPPLY OF SKILLED CARPENTERS IN THE INDUSTRY?

RESPONSE	NORTHWEST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	4	80.0	24	37.5
NO	0	0.0	21	33.0
CANNOT SAY	1	20.0	18	28.0
NO RESPONSE	0	0.0	1	1.5

TABLE B-3.14

CARPENTER SHORTAGE CAUSING SCHEDULING PROBLEMS

HAS A SHORTAGE OF CARPENTERS EVER DIRECTLY CAUSED SCHEDULING PROBLEMS?

RESPONSE	NORTHWEST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	3	60.0	45	70.3
NO	1	20.0	15	23.4
CANNOT SAY	0	0.0	0	0.0
NO RESPONSE	1	20.0	4	6.5

TABLE B-3.15

PAYMENT OF OVERTIME BECAUSE OF SHORTAGE

HAVE YOU EVER, IN THE PAST YEAR, PAID OVERTIME TO SKILLED CARPENTERS BECAUSE OF ANY SHORTAGE IN THE MARKET?

RESPONSE	NORTHWEST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	3	60.0	38	59.3
NO	2	40.0	22	34.2
CANNOT SAY	0	0.0	3	5.0
NO RESPONSE	0	0.0	1	1.5

TABLE B-3.16

ESTIMATED PERCENTAGE OF OVERTIME HOURS

WHAT PERCENTAGE OF HOURS WORKED BY CARPENTERS IS OVERTIME?
Please estimate.

QUESTION	NORTHWEST REGION			STATEWIDE
	MEAN	MINIMUM	MAXIMUM	MEAN
PERCENTAGE OF OVERTIME HOURS WORKED BY CARPENTERS	7.5%	5.0%	10.0%	6.7%

TABLE B-3.17

MORE SKILLED CARPENTERS VERSUS OVERTIME

WOULD YOU HIRE MORE SKILLED CARPENTERS TO AVOID PAYING OVERTIME?

RESPONSE	NORTHWEST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	3	60.0	35	54.6
NO	0	0.0	12	19.0
CANNOT SAY	2	40.0	15	23.4
NO RESPONSE	0	0.0	2	3.0

TABLE B-3.18

REASONS FOR SHORTAGE OF SKILLED CARPENTERS

IN YOUR VIEW, IS THE SHORTAGE OF SKILLED CARPENTERS DUE TO:

Use the following scale:

4. Very important reason
3. Important reason
2. Could be the reason
1. Not a reason at all

REASONS	NORTHWEST REGION MEAN	STATEWIDE MEAN
GENERAL DECLINE IN CRAFTSMANSHIP	3.40	3.03
LACK OF TRAINING PROGRAMS	3.40	2.73
CONSTRUCTION BOOM	2.60	2.86
MORE EMPHASIS ON CUTTING COST THAN QUALITY CONTROL	1.60	2.42
BECAUSE THERE IS GREATER EMPHASIS ON FACTORY BUILT COMPONENTS THERE IS DECREASED DEMAND IN THE SKILLS LEVEL OF ON SITE CARPENTERS	1.60	2.21
LOW WAGE RATES	1.60	1.82
PART TIME CARPENTERS	1.20	1.68
LOW PROFILE OF LABOR UNIONS	1.00	1.45

TABLE B-3.19

PERCENTAGE OF SUB-CONTRACTED CARPENTRY WORK

WHAT PERCENTAGE OF CARPENTRY WORK DO YOU SUB-CONTRACT?

QUESTION	NORTHWEST REGION			STATEWIDE
	MEAN	MINIMUM	MAXIMUM	MEAN
WHAT PERCENTAGE OF CARPENTRY WORK DO YOU SUB-CONTRACT	0.0%	0.0%	0.0%	54.1%

TABLE B-3.20

AVAILABILITY OF SUB-CONTRACT CARPENTRY FIRMS

IF YOU SUB-CONTRACT A MAJORITY OF YOUR CARPENTRY WORK, ARE THERE ENOUGH FIRMS AVAILABLE TO DO YOUR WORK?

RESPONSE	NORTHWEST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	0	0.0	6	19.3
NO	1	100.0	22	70.1
CANNOT SAY	0	0.0	3	9.6
NO RESPONSE	4	---	33	---

TABLE B-3.21

QUALITY OF SUB-CONTRACTED CARPENTRY WORK

ARE YOU SATISFIED WITH THE QUALITY OF THE WORK DONE BY THE FIRMS TO WHOM YOU SUB-CONTRACT CARPENTRY WORK?

RESPONSE	NORTHWEST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	0	0.0	13	40.6
NO	1	100.0	18	56.3
CANNOT SAY	0	0.0	1	3.1
NO RESPONSE	4	---	32	---

TABLE B-3.22

ADEQUACY OF CARPENTRY SUB-CONTRACTORS

IN YOUR OPINION, IS THE SKILL OF THE CARPENTERS WHO WORK ON THE SUB-CONTRACTED WORK ADEQUATE?

RESPONSE	NORTHWEST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	1	100.0	10	31.2
NO	0	0.0	28	62.5
CANNOT SAY	0	0.0	2	6.3
NO RESPONSE	4	---	32	---

TABLE B-3.23

PERCENTAGE OF SUB-CONTRACTOR'S CARPENTERS THAT ARE SKILLED

IN YOUR OPINION, WHAT PERCENTAGE OF THE SUB-CONTRACTOR'S CARPENTERS ARE SKILLED CARPENTERS?

QUESTION	NORTHWEST REGION			STATEWIDE
	MEAN	MINIMUM	MAXIMUM	MEAN
PERCENTAGE OF SUBCONTRACTORS CARPENTERS THAT ARE SKILLED	0.0%	0.0%	0.0%	29.2%

TABLE B-3.24

CONTRIBUTIONS OF THE TRAINING PROGRAMS

ARE THE FOLLOWING TRAINING PROGRAMS MAKING ANY SUBSTANTIAL CONTRIBUTIONS IN SUPPLYING SKILLED CARPENTERS TO THE RESIDENTIAL CONSTRUCTION INDUSTRY?

Use the following scale:

4. To a large extent
3. To some extent
2. To a small extent
1. Negligible

TRAINING PROGRAM	NORTHWEST REGION	STATEWIDE
	MEAN	MEAN
ON-THE-JOB TRAINING	2.67	3.23
OPEN SHOP APPRENTICESHIP PROGRAMS	2.67	2.57
VOCATIONAL TRAINING CENTERS	1.67	2.02
UNION APPRENTICESHIP PROGRAMS	1.67	1.77
COMMUNITY COLLEGE TRAINING	1.00	1.88

TABLE B-3.25

PERFORMANCE OF THE TRAINING PROGRAMS

IN YOUR OPINION, ARE THE FOLLOWING TRAINING PROGRAMS MAKING ANY SUBSTANTIAL CONTRIBUTIONS IN PRODUCING THE BEST CARPENTERS FOR YOUR NEEDS?

Use the following scale:

4. The best
3.
2.
1. The worst

TRAINING PROGRAM	NORTHWEST REGION MEAN	STATEWIDE MEAN
ON-THE-JOB TRAINING	3.40	3.15
OPEN SHOP APPRENTICESHIP PROGRAMS	2.80	2.76
VOCATIONAL TRAINING CENTERS	2.20	2.17
COMMUNITY COLLEGE TRAINING	2.00	1.81
UNION APPRENTICESHIP PROGRAMS	1.50	2.00

TABLE B-3.26

COMMUNICATION LEVEL BETWEEN INDUSTRY AND TRAINING PROGRAMS

WHAT LEVEL OF COMMUNICATIONS DO YOU HAVE WITH THE FOLLOWING TRAINING PROGRAM?

Use the following scale:

4. Very close
3. Close
2. Remote
1. Very remote

TRAINING PROGRAM	NORTHWEST REGION MEAN	STATEWIDE MEAN
ON-THE-JOB TRAINING	3.60	3.36
OPEN SHOP APPRENTICESHIP PROGRAMS	3.20	2.57
VOCATIONAL TRAINING CENTERS	1.80	1.57
COMMUNITY COLLEGE TRAINING	1.75	1.62
UNION APPRENTICESHIP PROGRAMS	1.60	1.56

TABLE B-3.27

NEED FOR CLASSROOM TRAINING

DO YOU THINK THAT CARPENTERS WORKING IN COMMERCIAL CONSTRUCTION NEED TO UNDERGO SOME CLASSROOM TRAINING PROGRAM?

	NORTHWEST REGION		STATEWIDE	
RESPONSE	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	4	80.0	54	84.3
NO	0	0.0	3	4.7
CANNOT SAY	1	20.0	5	8.0
NO RESPONSE	0	0.0	2	3.0

TABLE B-3.28

STRATEGY FOR INDUSTRY / TRAINING PROGRAM LINKAGE

RANK THE FOLLOWING AS THE BEST METHOD OF ESTABLISHING AN INDUSTRY/TRAINING PROGRAM LINKAGE.
(1,2,3,4; 4 being the most important)

STRATEGY	NORTHWEST REGION	STATEWIDE
	MEAN	MEAN
FORMAL MEETING OF THE TWO GROUPS	3.50	3.09
SITTING ON AN ADVISORY COMMITTEE	2.67	2.44
ATTENDING EDUCATIONAL FUNCTIONS	2.33	2.33
WRITTEN CONTACT	2.00	2.33

TABLE B-3.29

LICENSING OF CARPENTERS

IN YOUR OPINION, SHOULD THE CARPENTER BE REQUIRED TO HAVE A LICENSE TO INSURE BETTER SKILLS AND STANDARDS?

RESPONSE	NORTHWEST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	1	20.0	12	18.7
NO	3	60.0	45	70.3
CANNOT SAY	1	20.0	6	9.4
NO RESPONSE	0	0.0	1	1.6

TABLE B-3.30

ILLEGAL ALIEN CARPENTERS

FROM YOUR EXPERIENCE, DO YOU BELIEVE THAT ILLEGAL ALIENS ARE BEING HIRED BY OTHER CONSTRUCTION FIRMS?

RESPONSE	NORTHWEST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	2	40.0	13	20.3
NO	1	20.0	19	29.7
CANNOT SAY	2	40.0	29	45.3
NO RESPONSE	0	0.0	3	4.7

TABLE B-3.31

PERCENTAGE OF ILLEGAL ALIEN CARPENTERS

IN YOUR OPINION, WHAT PERCENTAGE OF THE CARPENTERS IN FLORIDA ARE ILLEGAL ALIENS?

QUESTION	NORTHWEST REGION			STATEWIDE
	MEAN	MINIMUM	MAXIMUM	MEAN
PERCENTAGE OF ILLEGAL ALIEN CARPENTERS	15.0%	15.0%	15.0%	9.2%

B-4

TABLES OF RESPONSES FOR SOUTHEAST REGION

TABLE B-4

QUESTIONNAIRE RESPONSE BY REGION

REGION	NUMBER OF RESPONDENTS	PERCENT
CENTRAL	20	31.3
NORTHEAST	2	3.1
NORTHWEST	5	7.8
SOUTHEAST	**12**	**18.8**
SOUTHWEST	25	39.0
TOTAL	64	100.0

TABLE B-4.1

TYPE OF OPERATION

TYPE OF OPERATION	SOUTHEAST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
OPEN SHOP	12	100.0	64	100.0
UNION	0	0.0	0	0.0
BOTH	0	0.0	0	0.0

TABLE B-4.2

TYPE OF CONSTRUCTION UNDERTAKEN

TYPE OF CONSTRUCTION	SOUTHEAST REGION AVERAGE PERCENT	STATEWIDE AVERAGE PERCENT
RESIDENTIAL	7.5	8.2
COMMERCIAL	68.5	73.8
OTHER	24.0	18.0

TABLE B-4.3

ANNUAL VOLUME OF BUSINESS

AND NUMBER OF PROJECTS PER YEAR

	SOUTHEAST REGION		STATEWIDE	
QUESTION	MEAN	MEDIAN	MEAN	MEDIAN
ANNUAL VOLUME OF BUSINESS (millions of $)	$7.2	$5.0	$17.1	$7.5
NUMBER OF PROJECTS CARRIED PER YEAR	17.0	9.0	22.9	15.0

TABLE B-4.4

SKILL LEVEL OF CARPENTERS

QUESTION	SOUTHEAST REGION			STATEWIDE
	MEAN	MINIMUM	MAXIMUM	MEAN
NUMBER OF JOURNEYMAN CARPENTERS ON THE PAYROLL	6.8	2.0	15.0	16.3
NUMBER OF JOURNEYMAN CARPENTERS THAT ARE SKILLED	4.3	0.0	12.0	11.1
NUMBER OF APPRENTICES ON THE PAYROLL	1.8	0.0	6.0	3.3

TABLE B-4.5

HOURLY WAGES PAID

WHAT IS THE AVERAGE HOURLY WAGE PAID BY YOUR FIRM TO THE FOLLOWING?

A. JOURNEYMAN CARPENTER
B. APPRENTICE (CARPENTER-IN-TRAINING)

TYPE OF CARPENTER	SOUTHEAST REGION			STATEWIDE
	MEAN	MINIMUM	MAXIMUM	MEAN
JOURNEYMAN CARPENTER	$12.41	$10.00	$15.50	$10.29
APPRENTICE/CARPENTER -IN-TRAINING	8.44	6.00	10.50	$7.33

TABLE B-4.6

LENGTH OF EMPLOYMENT (IN MONTHS)

HOW LONG, ON THE AVERAGE, DO THE CARPENTERS STAY IN YOUR EMPLOYMENT?

	SOUTHEAST REGION			STATEWIDE
TYPE OF CARPENTER	MEAN	MINIMUM	MAXIMUM	MEAN
JOURNEYMAN CARPENTER	20.9	6.0	84.0	27.6
APPRENTICE/CARPENTER -IN-TRAINING	19.4	0.0	72.0	21.8

TABLE B-4.7

HIRING PRACTICES

WHERE DO YOU SEARCH FOR CARPENTERS?
Use the following scale:

4. Always
3. Most of the time
2. Sometimes
1. Never

HIRING PRACTICE	SOUTHEAST REGION MEAN	STATEWIDE MEAN
ADVERTISEMENTS IN THE PAPER	3.00	2.86
CONTACTS IN THE CONSTRUCTION INDUSTRY	2.82	2.98
COMPANY ON-THE-JOB TRAINING	2.11	2.33
OTHER CONSTRUCTION JOBS	2.10	2.25
OPEN-SHOP APPRENTICESHIP PROGRAMS	1.78	2.26
COMMUNITY COLLEGE TRAINING PROGRAM	1.67	1.53
VOCATIONAL TRAINING CENTERS	1.60	1.78
LABOR AGENTS	1.33	1.14
UNION APPRENTICESHIP PROGRAMS	1.00	1.16
LABOR UNIONS	1.00	1.11

TABLE B-4.8

PROMOTION CRITERIA

WHAT CRITERIA DETERMINES PROMOTION OR AN INCREASE IN WAGES OF A CARPENTER IN YOUR COMPANY?

Use the following scale:

4. Always
3. Most of the time
2. Sometimes
1. Never

PROMOTION CRITERIA	SOUTHEAST REGION MEAN	STATEWIDE MEAN
PERFORMANCE	3.82	3.81
EXPERIENCE	2.91	3.05
MARKET WAGE RATE	2.73	2.65
GRADUATION FROM TRAINING PROGRAMS	2.45	2.62
SENIORITY	1.73	2.02

TABLE B-4.9

AVAILABILITY OF SKILLED CARPENTERS

ARE THERE ENOUGH SKILLED CARPENTERS FOR YOU TO HIRE?

	SOUTHEAST REGION		STATEWIDE	
RESPONSE	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	2	16.7	8	12.5
NO	9	75.0	52	81.2
CANNOT SAY	1	8.3	3	4.7
NO RESPONSE	0	0.0	1	1.6

TABLE B-4.10

NEED FOR SKILLED CARPENTERS

DO YOU FEEL THERE IS A NEED FOR MORE SKILLED CARPENTERS IN COMMERCIAL CONSTRUCTION?

RESPONSE	SOUTHEAST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	11	91.7	60	94.0
NO	0	0.0	1	1.5
CANNOT SAY	1	8.3	2	3.0
NO RESPONSE	0	0.0	1	1.5

TABLE B-4.11 DESIRED SKILLS FOR CARPENTERS

IN YOUR OPINION, WHICH OF THE FOLLOWING TASKS MUST A "SKILLED CARPENTER" BE ABLE TO PERFORM PROFICIENTLY?

Use the following scale:

4. Always
3. Most of the time
2. Sometimes
1. Never

SKILLS	SOUTHEAST REGION MEAN	STATEWIDE MEAN
CONSTRUCTION FORMS(wall,edge,curb)	3.83	3.72
FRAME PARTITIONS	3.83	3.69
CONSTRUCTION FORMS (piers, beams, stairs,bridge,deck,columns,slabs)	3.83	3.66
INSTALL DECKING & SHEATHING	3.67	3.61
INSTALL DOOR, WINDOW FRAME & UNITS	3.58	3.53
FRAME FLOOR AND SILLS	3.50	3.56
FRAME ROOF	3.50	3.45
INSTL PANELING,FURRING,SOFFIT CEIL	3.42	3.31
INSTALL EXTR. WALL COVERING & TRIM	3.17	3.39
APPLY WEATHER STRIPPING & CAULKING	3.17	3.22
INSTALL STRUCTURAL TIMBER	3.08	3.25
CONSTRUCT INTERIOR STAIRS	3.08	3.13
INSTALL CABINETS,FIXTURES,SHELVING	3.08	3.03
READ BLUEPRINTS	3.00	3.17
ISSUE INSTRUCTIONS TO CREW MEMBERS	2.92	2.83
CONDUCT SITE PREPARATION & LAYOUT	2.67	2.56
PREPLAN FORTHCOMING ACTIVITIES	2.58	2.54
INSTL INSUL.& SOUND CONTROL MATER.	2.33	2.42
BUILD TRUSSES	2.08	2.33
INSTALL DRYWALL MATERIAL	1.92	2.33

TABLE B-4.12

TASK VARIETY FOR FUTURE CARPENTERS

WILL THE FUTURE CARPENTER BE PERFORMING A BROADER VARIETY OF TASKS?

Use the following scale:

4. Much broader
3. Broader
2. No change
1. Narrower

CARPENTER TYPE	SOUTHEAST REGION MEAN	STATEWIDE MEAN
FINISH CARPENTERS	2.70	2.55
FRAMING CARPENTERS	2.60	2.47
FORM CARPENTERS	2.50	2.55

TABLE B-4.13

AFFECT OF SKILLED CARPENTER AVAILABILITY ON BUSINESS VOLUME

WOULD YOU BID MORE JOBS OR INCREASE THE VOLUME OF YOUR BUSINESS IF THERE WAS AN ADEQUATE SUPPLY OF SKILLED CARPENTERS IN THE INDUSTRY?

RESPONSE	SOUTHEAST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	6	50.0	24	37.5
NO	3	25.0	21	33.0
CANNOT SAY	3	25.0	18	28.0
NO RESPONSE	0	0.0	1	1.5

TABLE B-4.14

CARPENTER SHORTAGE CAUSING SCHEDULING PROBLEMS

HAS A SHORTAGE OF CARPENTERS EVER DIRECTLY CAUSED SCHEDULING PROBLEMS?

RESPONSE	SOUTHEAST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	9	75.0	45	70.3
NO	3	25.0	15	23.4
CANNOT SAY	0	0.0	0	0.0
NO RESPONSE	0	0.0	4	6.5

TABLE B-4.15

PAYMENT OF OVERTIME BECAUSE OF SHORTAGE

HAVE YOU EVER, IN THE PAST YEAR, PAID OVERTIME TO SKILLED CARPENTERS BECAUSE OF ANY SHORTAGE IN THE MARKET?

RESPONSE	SOUTHEAST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	6	50.0	38	59.3
NO	6	50.0	22	34.2
CANNOT SAY	0	0.0	3	5.0
NO RESPONSE	0	0.0	1	1.5

TABLE B-4.16

ESTIMATED PERCENTAGE OF OVERTIME HOURS

WHAT PERCENTAGE OF HOURS WORKED BY CARPENTERS IS OVERTIME?
Please estimate.

QUESTION	SOUTHEAST REGION			STATEWIDE
	MEAN	MINIMUM	MAXIMUM	MEAN
PERCENTAGE OF OVERTIME HOURS WORKED BY CARPENTERS	4.4%	0.0%	10.0%	6.7%

TABLE B-4.17

MORE SKILLED CARPENTERS VERSUS OVERTIME

WOULD YOU HIRE MORE SKILLED CARPENTERS TO AVOID PAYING OVERTIME?

RESPONSE	SOUTHEAST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	9	75.0	35	54.6
NO	1	8.3	12	19.0
CANNOT SAY	2	16.7	15	23.4
NO RESPONSE	0	0.0	2	3.0

TABLE B-4.18

REASONS FOR SHORTAGE OF SKILLED CARPENTERS

IN YOUR VIEW, IS THE SHORTAGE OF SKILLED CARPENTERS DUE TO:

Use the following scale:

4. Very important reason
3. Important reason
2. Could be the reason
1. Not a reason at all

REASONS	SOUTHEAST REGION MEAN	STATEWIDE MEAN
GENERAL DECLINE IN CRAFTSMANSHIP	3.00	3.03
LACK OF TRAINING PROGRAMS	2.75	2.73
CONSTRUCTION BOOM	2.36	2.86
MORE EMPHASIS ON CUTTING COST THAN QUALITY CONTROL	2.18	2.42
BECAUSE THERE IS GREATER EMPHASIS ON FACTORY BUILT COMPONENTS THERE IS DECREASED DEMAND IN THE SKILLS LEVEL OF ON SITE CARPENTERS	1.54	2.21
PART TIME CARPENTERS	1.54	1.68
LOW WAGE RATES	1.50	1.82
LOW PROFILE OF LABOR UNIONS	1.18	1.45

TABLE B-4.19

PERCENTAGE OF SUB-CONTRACTED CARPENTRY WORK

WHAT PERCENTAGE OF CARPENTRY WORK DO YOU SUB-CONTRACT?

QUESTION	SOUTHEAST REGION			STATEWIDE
	MEAN	MINIMUM	MAXIMUM	MEAN
WHAT PERCENTAGE OF CARPENTRY WORK DO YOU SUB-CONTRACT	74.3%	50.0%	98.0%	54.1%

TABLE B-4.20

AVAILABILITY OF SUB-CONTRACT CARPENTRY FIRMS

IF YOU SUB-CONTRACT A MAJORITY OF YOUR CARPENTRY WORK, ARE THERE ENOUGH FIRMS AVAILABLE TO DO YOUR WORK?

RESPONSE	SOUTHEAST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	1	25.0	6	19.3
NO	3	75.0	22	70.1
CANNOT SAY	0	0.0	3	9.6
NO RESPONSE	8	---	33	---

TABLE B-4.21

QUALITY OF SUB-CONTRACTED CARPENTRY WORK

ARE YOU SATISFIED WITH THE QUALITY OF THE WORK DONE BY THE FIRMS TO WHOM YOU SUB-CONTRACT CARPENTRY WORK?

RESPONSE	SOUTHEAST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	1	25.0	13	40.6
NO	3	75.0	18	56.3
CANNOT SAY	0	0.0	1	3.1
NO RESPONSE	8	---	32	---

TABLE B-4.22

ADEQUACY OF CARPENTRY SUB-CONTRACTORS

IN YOUR OPINION, IS THE SKILL OF THE CARPENTERS WHO WORK ON THE SUB-CONTRACTED WORK ADEQUATE?

RESPONSE	SOUTHEAST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	1	25.0	10	31.2
NO	3	75.0	28	62.5
CANNOT SAY	0	0.0	2	6.3
NO RESPONSE	8	---	32	---

TABLE B-4.23

PERCENTAGE OF SUB-CONTRACTOR'S CARPENTERS THAT ARE SKILLED

IN YOUR OPINION, WHAT PERCENTAGE OF THE SUB-CONTRACTOR'S CARPENTERS ARE SKILLED CARPENTERS?

QUESTION	SOUTHEAST REGION			STATEWIDE
	MEAN	MINIMUM	MAXIMUM	MEAN
PERCENTAGE OF SUBCONTRACTORS CARPENTERS THAT ARE SKILLED	27.5%	10.0%	50.0%	29.2%

TABLE B-4.24

CONTRIBUTION OF THE TRAINING PROGRAMS

ARE THE FOLLOWING TRAINING PROGRAMS MAKING ANY SUBSTANTIAL CONTRIBUTIONS IN SUPPLYING SKILLED CARPENTERS TO THE RESIDENTIAL CONSTRUCTION INDUSTRY?

Use the following scale:

4. To a large extent
3. To some extent
2. To a small extent
1. Negligible

TRAINING PROGRAM	SOUTHEAST REGION	STATEWIDE
	MEAN	MEAN
ON-THE-JOB TRAINING	3.14	3.23
OPEN SHOP APPRENTICESHIP PROGRAMS	2.28	2.57
COMMUNITY COLLEGE TRAINING	2.17	1.88
UNION APPRENTICESHIP PROGRAMS	1.86	1.77
VOCATIONAL TRAINING CENTERS	1.62	2.02

TABLE B-4.25

PERFORMANCE OF THE TRAINING PROGRAMS

IN YOUR OPINION, ARE THE FOLLOWING TRAINING PROGRAMS MAKING ANY SUBSTANTIAL CONTRIBUTIONS IN PRODUCING THE BEST CARPENTERS FOR YOUR NEEDS?

Use the following scale:

4. The best
3.
2.
1. The worst

TRAINING PROGRAM	SOUTHEAST REGION MEAN	STATEWIDE MEAN
ON-THE-JOB TRAINING	3.20	3.15
OPEN SHOP APPRENTICESHIP PROGRAMS	3.00	2.76
UNION APPRENTICESHIP PROGRAMS	2.50	2.00
VOCATIONAL TRAINING CENTERS	2.25	2.17
COMMUNITY COLLEGE TRAINING	1.75	1.81

TABLE B-4.26

COMMUNICATION LEVEL BETWEEN INDUSTRY AND TRAINING PROGRAMS

WHAT LEVEL OF COMMUNICATIONS DO YOU HAVE WITH THE FOLLOWING TRAINING PROGRAM?

Use the following scale:

4. Very close
3. Close
2. Remote
1. Very remote

TRAINING PROGRAM	SOUTHEAST REGION MEAN	STATEWIDE MEAN
ON-THE-JOB TRAINING	3.45	3.36
OPEN SHOP APPRENTICESHIP PROGRAMS	2.82	2.57
COMMUNITY COLLEGE TRAINING	1.54	1.62
VOCATIONAL TRAINING CENTERS	1.27	1.57
UNION APPRENTICESHIP PROGRAMS	1.09	1.56

TABLE B-4.27

NEED FOR CLASSROOM TRAINING

DO YOU THINK THAT CARPENTERS WORKING IN COMMERCIAL CONSTRUCTION NEED TO UNDERGO SOME CLASSROOM TRAINING PROGRAM?

RESPONSE	SOUTHEAST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	11	91.7	54	84.3
NO	0	0.0	3	4.7
CANNOT SAY	1	8.3	5	8.0
NO RESPONSE	0	0.0	2	3.0

TABLE B-4.28

STRATEGY FOR INDUSTRY / TRAINING PROGRAM LINKAGE

RANK THE FOLLOWING AS THE BEST METHOD OF ESTABLISHING AN INDUSTRY/TRAINING PROGRAM LINKAGE.
(1,2,3,4; 4 being the most important)

STRATEGY	SOUTHEAST REGION MEAN	STATEWIDE MEAN
FORMAL MEETING OF THE TWO GROUPS	3.71	3.09
SITTING ON AN ADVISORY COMMITTEE	2.43	2.44
WRITTEN CONTACT	1.83	2.33
ATTENDING EDUCATIONAL FUNCTIONS	1.67	2.33

TABLE B-4.29

LICENSING OF CARPENTERS

IN YOUR OPINION, SHOULD THE CARPENTER BE REQUIRED TO HAVE A LICENSE TO INSURE BETTER SKILLS AND STANDARDS?

	SOUTHEAST REGION		STATEWIDE	
RESPONSE	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	3	25.0	12	18.7
NO	9	75.0	45	70.3
CANNOT SAY	0	0.0	6	9.4
NO RESPONSE	0	0.0	1	1.6

TABLE B-4.30

ILLEGAL ALIEN CARPENTERS

FROM YOUR EXPERIENCE, DO YOU BELIEVE THAT ILLEGAL ALIENS ARE BEING HIRED BY OTHER CONSTRUCTION FIRMS?

RESPONSE	SOUTHEAST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	4	33.3	13	20.3
NO	3	25.0	19	29.7
CANNOT SAY	4	33.3	29	45.3
NO RESPONSE	1	8.4	3	4.7

TABLE B-4.31

PERCENTAGE OF ILLEGAL ALIEN CARPENTERS

IN YOUR OPINION, WHAT PERCENTAGE OF THE CARPENTERS IN FLORIDA ARE ILLEGAL ALIENS?

QUESTION	SOUTHEAST REGION			STATEWIDE
	MEAN	MINIMUM	MAXIMUM	MEAN
PERCENTAGE OF ILLEGAL ALIEN CARPENTERS	7.6%	0.0%	15.0%	9.2%

B-5

TABLES OF RESPONSES FOR SOUTHWEST REGION

TABLE B-5

QUESTIONNAIRE RESPONSE BY REGION

REGION	NUMBER OF RESPONDENTS	PERCENT
CENTRAL	20	31.3
NORTHEAST	2	3.1
NORTHWEST	5	7.8
SOUTHEAST	12	18.8
SOUTHWEST	**25**	**39.0**
TOTAL	64	100.0

TABLE B-5.1

TYPE OF OPERATION

TYPE OF OPERATION	SOUTHWEST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
OPEN SHOP	25	100.0	64	100.0
UNION	0	0.0	0	0.0
BOTH	0	0.0	0	0.0

TABLE B-5.2

TYPE OF CONSTRUCTION UNDERTAKEN

TYPE OF CONSTRUCTION	SOUTHWEST REGION AVERAGE PERCENT	STATEWIDE AVERAGE PERCENT
RESIDENTIAL	11.9	8.2
COMMERCIAL	72.3	73.8
OTHER	15.8	18.0

TABLE B-5.3

ANNUAL VOLUME OF BUSINESS

AND NUMBER OF PROJECTS PER YEAR

QUESTION	SOUTHWEST REGION		STATEWIDE	
	MEAN	MEDIAN	MEAN	MEDIAN
ANNUAL VOLUME OF BUSINESS (millions of $)	$19.7	$23.7	$17.1	$7.5
NUMBER OF PROJECTS CARRIED PER YEAR	27.0	20.0	22.9	15.0

TABLE B-5.4

SKILL LEVEL OF CARPENTERS

QUESTION	SOUTHWEST REGION			STATEWIDE
	MEAN	MINIMUM	MAXIMUM	MEAN
NUMBER OF JOURNEYMAN CARPENTERS ON THE PAYROLL	18.9	0.0	80.0	16.3
NUMBER OF JOURNEYMAN CARPENTERS THAT ARE SKILLED	14.9	1.0	60.0	11.1
NUMBER OF APPRENTICES ON THE PAYROLL	3.3	0.0	18.0	3.3

TABLE B-5.5

HOURLY WAGES PAID

WHAT IS THE AVERAGE HOURLY WAGE PAID BY YOUR FIRM TO THE FOLLOWING?
A. JOURNEYMAN CARPENTER
B. APPRENTICE (CARPENTER-IN-TRAINING)

TYPE OF CARPENTER	SOUTHWEST REGION			STATEWIDE
	MEAN	MINIMUM	MAXIMUM	MEAN
JOURNEYMAN CARPENTER	$9.38	$8.00	$11.00	$10.29
APPRENTICE/CARPENTER -IN-TRAINING	6.86	5.00	9.26	$7.33

TABLE B-5.6

LENGTH OF EMPLOYMENT (IN MONTHS)

HOW LONG, ON THE AVERAGE, DO THE CARPENTERS STAY IN YOUR EMPLOYMENT?

TYPE OF CARPENTER	SOUTHWEST REGION			STATEWIDE
	MEAN	MINIMUM	MAXIMUM	MEAN
JOURNEYMAN CARPENTER	27.2	6.0	150.0	27.6
APPRENTICE/CARPENTER -IN-TRAINING	17.0	3.0	48.0	21.8

TABLE B-5.7

HIRING PRACTICES

WHERE DO YOU SEARCH FOR CARPENTERS?
Use the following scale:

4. Always
3. Most of the time
2. Sometimes
1. Never

HIRING PRACTICE	SOUTHWEST REGION MEAN	STATEWIDE MEAN
CONTACTS IN THE CONSTRUCTION INDUSTRY	3.00	2.98
ADVERTISEMENTS IN THE PAPER	2.75	2.86
OPEN-SHOP APPRENTICE PROGRAMS	2.26	2.26
COMPANY ON-THE-JOB TRAINING	2.30	2.33
OTHER CONSTRUCTION JOBS	2.11	2.25
VOCATIONAL TRAINING CENTERS	1.82	1.78
COMMUNITY COLLEGE TRAINING PROGRAM	1.41	1.53
UNION APPRENTICESHIP PROGRAMS	1.26	1.16
LABOR UNIONS	1.17	1.11
LABOR AGENTS	1.11	1.14

TABLE B-5.8

PROMOTION CRITERIA

WHAT CRITERIA DETERMINES PROMOTION OR AN INCREASE IN WAGES OF A CARPENTER IN YOUR COMPANY?

Use the following scale:

4. Always
3. Most of the time
2. Sometimes
1. Never

PROMOTION CRITERIA	SOUTHWEST REGION MEAN	STATEWIDE MEAN
PERFORMANCE	3.74	3.81
EXPERIENCE	3.00	3.05
MARKET WAGE RATE	2.56	2.65
GRADUATION FROM TRAINING PROGRAMS	2.55	2.62
SENIORITY	1.91	2.02

TABLE B-5.9

AVAILABILITY OF SKILLED CARPENTERS

ARE THERE ENOUGH SKILLED CARPENTERS FOR YOU TO HIRE?

RESPONSE	SOUTHWEST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	2	8.0	8	12.5
NO	21	84.0	52	81.2
CANNOT SAY	1	4.0	3	4.7
NO RESPONSE	1	4.0	1	1.6

TABLE B-5.10

NEED FOR SKILLED CARPENTERS

DO YOU FEEL THERE IS A NEED FOR MORE SKILLED CARPENTERS IN COMMERCIAL CONSTRUCTION?

RESPONSE	SOUTHWEST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	22	88.0	60	94.0
NO	1	4.0	1	1.5
CANNOT SAY	1	4.0	2	3.0
NO RESPONSE	1	4.0	1	1.5

TABLE B-5.11 DESIRED SKILLS FOR CARPENTERS

IN YOUR OPINION, WHICH OF THE FOLLOWING TASKS MUST A "SKILLED CARPENTER" BE ABLE TO PERFORM PROFICIENTLY?

Use the following scale:
4. Absolutely necessary
3. Necessary
2. Desirable
1. Unnecessary

SKILLS	SOUTHWEST REGION MEAN	STATEWIDE MEAN
FRAME PARTITIONS	3.60	3.69
CONSTRUCTION FORMS(wall,edge,curb)	3.56	3.72
INSTALL DECKING & SHEATHING	3.56	3.61
FRAME FLOOR AND SILLS	3.52	3.56
CONSTRUCTION FORMS (piers,beams, stairs,bridge,deck,columns,slabs)	3.48	3.66
INSTALL DOOR, WINDOW FRAME & UNITS	3.48	3.53
INSTALL EXTR. WALL COVERING & TRIM	3.44	3.39
APPLY WEATHER STRIPPING & CAULKING	3.32	3.22
FRAME ROOFS	3.24	3.45
READ BLUEPRINTS	3.20	3.17
INSTALL STRUCTURAL TIMBER	3.16	3.25
INSTL PANELING,FURRING,SOFFIT CEIL	3.12	3.31
CONSTRUCT INTERIOR STAIRS	2.92	3.13
INSTL CABINETS,FIXTURES & SHELVING	2.92	3.05
ISSUE INSTRUCTIONS TO CREW MEMBERS	2.64	2.83
CONDUCT SITE PREPARATION & LAYOUTS	2.64	2.56
INSTALL DRYWALL MATERIAL	2.44	2.33
PREPLAN FORTHCOMING ACTIVITIES	2.44	2.54
INSTL INSUL.& SOUND CONTROL MATER.	2.40	2.42
BUILD TRUSSES	2.32	2.33

TABLE B-5.12

TASK VARIETY FOR FUTURE CARPENTERS

WILL THE FUTURE CARPENTER BE PERFORMING A BROADER VARIETY OF TASKS?

Use the following scale:

4. Much broader
3. Broader
2. No change
1. Narrower

CARPENTER TYPE	SOUTHWEST REGION MEAN	STATEWIDE MEAN
FINISH CARPENTERS	2.56	2.55
FORM CARPENTERS	2.39	2.55
FRAMING CARPENTERS	2.36	2.47

TABLE B-5.13

AFFECT OF SKILLED CARPENTER AVAILABILITY ON BUSINESS VOLUME

WOULD YOU BID MORE JOBS OR INCREASE THE VOLUME OF YOUR BUSINESS IF THERE WAS AN ADEQUATE SUPPLY OF SKILLED CARPENTERS IN THE INDUSTRY?

RESPONSE	SOUTHEAST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	6	50.0	24	37.5
NO	3	25.0	21	33.0
CANNOT SAY	3	25.0	18	28.0
NO RESPONSE	0	0.0	1	1.5

TABLE B-5.14

CARPENTER SHORTAGE CAUSING SCHEDULING PROBLEMS

HAS A SHORTAGE OF CARPENTERS EVER DIRECTLY CAUSED SCHEDULING PROBLEMS?

RESPONSE	SOUTHWEST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	21	84.0	45	70.3
NO	3	12.0	15	23.4
CANNOT SAY	0	0.0	0	0.0
NO RESPONSE	1	4.0	4	6.5

TABLE B-5.15

PAYMENT OF OVERTIME BECAUSE OF SHORTAGE

HAVE YOU EVER, IN THE PAST YEAR, PAID OVERTIME TO SKILLED CARPENTERS BECAUSE OF ANY SHORTAGE IN THE MARKET?

RESPONSE	SOUTHWEST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	18	72.0	38	59.3
NO	4	16.0	22	34.2
CANNOT SAY	2	8.0	3	5.0
NO RESPONSE	1	4.0	1	1.5

TABLE B-5.16

ESTIMATED PERCENTAGE OF OVERTIME HOURS

WHAT PERCENTAGE OF HOURS WORKED BY CARPENTERS IS OVERTIME?
Please estimate.

QUESTION	SOUTHWEST REGION			STATEWIDE
	MEAN	MINIMUM	MAXIMUM	MEAN
PERCENTAGE OF OVERTIME HOURS WORKED BY CARPENTERS	7.0%	1.0%	20.0%	6.7%

TABLE B-5.17

MORE SKILLED CARPENTERS VERSUS OVERTIME

WOULD YOU HIRE MORE SKILLED CARPENTERS TO AVOID PAYING OVERTIME?

RESPONSE	SOUTHWEST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	12	48.0	35	54.6
NO	5	20.0	12	19.0
CANNOT SAY	7	28.0	15	23.4
NO RESPONSE	1	4.0	2	3.0

TABLE B-5.18

REASONS FOR SHORTAGE OF SKILLED CARPENTERS

IN YOUR VIEW, IS THE SHORTAGE OF SKILLED CARPENTERS DUE TO:

Use the following scale:

4. Very important reason
3. Important reason
2. Could be the reason
1. Not a reason at all

REASONS	SOUTHWEST REGION MEAN	STATEWIDE MEAN
GENERAL DECLINE IN CRAFTSMANSHIP	3.04	3.03
CONSTRUCTION BOOM	2.79	2.86
LACK OF TRAINING PROGRAMS	2.65	2.73
MORE EMPHASIS ON CUTTING COST THAN QUALITY CONTROL	2.61	2.42
BECAUSE THERE IS GREATER EMPHASIS ON FACTORY BUILT COMPONENTS THERE IS DECREASED DEMAND IN THE SKILLS LEVEL OF ON SITE CARPENTERS	2.43	2.21
LOW WAGE RATES	2.00	1.82
PART TIME CARPENTERS	1.87	1.68
LOW PROFILE OF LABOR UNIONS	1.65	1.45

TABLE B-5.19

PERCENTAGE OF SUB-CONTRACTED CARPENTRY WORK

WHAT PERCENTAGE OF CARPENTRY WORK DO YOU SUB-CONTRACT?

	SOUTHWEST REGION			STATEWIDE
QUESTION	MEAN	MINIMUM	MAXIMUM	MEAN
WHAT PERCENTAGE OF CARPENTRY WORK DO YOU SUB-CONTRACT	59.0%	0.0%	100.0%	54.1%

TABLE B-5.20

AVAILABILITY OF SUB-CONTRACT CARPENTRY FIRMS

IF YOU SUB-CONTRACT A MAJORITY OF YOUR CARPENTRY WORK, ARE THERE ENOUGH FIRMS AVAILABLE TO DO YOUR WORK?

	SOUTHWEST REGION		STATEWIDE	
RESPONSE	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	4	26.7	6	19.3
NO	9	60.0	22	70.1
CANNOT SAY	2	13.3	3	9.6
NO RESPONSE	10	---	33	---

TABLE B-5.21

QUALITY OF SUB-CONTRACTED CARPENTRY WORK

ARE YOU SATISFIED WITH THE QUALITY OF THE WORK DONE BY THE FIRMS TO WHOM YOU SUB-CONTRACT CARPENTRY WORK?

RESPONSE	SOUTHWEST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	5	33.3	13	40.6
NO	9	60.0	18	56.3
CANNOT SAY	1	6.7	1	3.1
NO RESPONSE	10	---	32	---

TABLE B-5.22

ADEQUACY OF CARPENTRY SUB-CONTRACTORS

IN YOUR OPINION, IS THE SKILL OF THE CARPENTERS WHO WORK ON THE SUB-CONTRACTED WORK ADEQUATE?

RESPONSE	SOUTHWEST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	4	26.7	10	31.2
NO	10	66.6	28	62.5
CANNOT SAY	1	6.7	2	6.3
NO RESPONSE	10	---	32	---

TABLE B-5.23

PERCENTAGE OF SUB-CONTRACTOR'S CARPENTERS THAT ARE SKILLED

IN YOUR OPINION, WHAT PERCENTAGE OF THE SUB-CONTRACTOR'S CARPENTERS ARE SKILLED CARPENTERS?

QUESTION	SOUTHWEST REGION			STATEWIDE
	MEAN	MINIMUM	MAXIMUM	MEAN
PERCENTAGE OF SUBCONTRACTORS CARPENTERS THAT ARE SKILLED	31.0%	10.0%	80.0%	29.2%

TABLE B-5.24

CONTRIBUTION OF THE TRAINING PROGRAMS

ARE THE FOLLOWING TRAINING PROGRAMS MAKING ANY SUBSTANTIAL CONTRIBUTIONS IN SUPPLYING SKILLED CARPENTERS TO THE RESIDENTIAL CONSTRUCTION INDUSTRY?

Use the following scale:

4. To a large extent
3. To some extent
2. To a small extent
1. Negligible

TRAINING PROGRAM	SOUTHWEST REGION	STATEWIDE
	MEAN	MEAN
ON-THE-JOB TRAINING	3.25	3.23
OPEN SHOP APPRENTICESHIP PROGRAMS	2.60	2.57
VOCATIONAL TRAINING CENTERS	2.16	2.02
COMMUNITY COLLEGE TRAINING	1.84	1.88
UNION APPRENTICESHIP PROGRAMS	1.70	1.77

TABLE B-5.25

PERFORMANCE OF THE TRAINING PROGRAMS

IN YOUR OPINION, ARE THE FOLLOWING TRAINING PROGRAMS MAKING ANY SUBSTANTIAL CONTRIBUTIONS IN PRODUCING THE BEST CARPENTERS FOR YOUR NEEDS?

Use the following scale:

4. The best
3.
2.
1. The worst

TRAINING PROGRAM	SOUTHWEST REGION	STATEWIDE
	MEAN	MEAN
ON-THE-JOB TRAINING	3.04	3.15
OPEN SHOP APPRENTICESHIP PROGRAMS	2.48	2.76
UNION APPRENTICESHIP PROGRAMS	2.05	2.00
VOCATIONAL TRAINING CENTERS	2.04	2.17
COMMUNITY COLLEGE TRAINING	1.65	1.81

TABLE B-5.26

COMMUNICATION LEVEL BETWEEN INDUSTRY AND TRAINING PROGRAMS

WHAT LEVEL OF COMMUNICATIONS DO YOU HAVE WITH THE FOLLOWING TRAINING PROGRAM?

Use the following scale:

4. Very close
3. Close
2. Remote
1. Very remote

TRAINING PROGRAM	SOUTHWEST REGION MEAN	STATEWIDE MEAN
ON-THE-JOB TRAINING	3.39	3.36
OPEN SHOP APPRENTICESHIP PROGRAMS	2.39	2.57
COMMUNITY COLLEGE TRAINING	1.61	1.62
VOCATIONAL TRAINING CENTERS	1.56	1.57
UNION APPRENTICESHIP PROGRAMS	1.17	1.56

TABLE B-5.27

NEED FOR CLASSROOM TRAINING

DO YOU THINK THAT CARPENTERS WORKING IN COMMERCIAL CONSTRUCTION NEED TO UNDERGO SOME CLASSROOM TRAINING PROGRAM?

RESPONSE	SOUTHWEST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	21	84.0	54	84.3
NO	2	8.0	3	4.7
CANNOT SAY	1	4.0	5	8.0
NO RESPONSE	1	4.0	2	3.0

TABLE B-5.28

STRATEGY FOR INDUSTRY / TRAINING PROGRAM LINKAGE

RANK THE FOLLOWING AS THE BEST METHOD OF ESTABLISHING AN INDUSTRY/TRAINING PROGRAM LINKAGE.
(1,2,3,4; 4 being the most important)

STRATEGY	SOUTHWEST REGION MEAN	STATEWIDE MEAN
FORMAL MEETING OF THE TWO GROUPS	2.67	3.09
WRITTEN CONTACT	2.65	2.33
ATTENDING EDUCATIONAL FUNCTIONS	2.41	2.33
SITTING ON AN ADVISORY COMMITTEE	2.23	2.44

TABLE B-5.29

LICENSING OF CARPENTERS

IN YOUR OPINION, SHOULD THE CARPENTER BE REQUIRED TO HAVE A LICENSE TO INSURE BETTER SKILLS AND STANDARDS?

RESPONSE	SOUTHWEST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	3	12.0	12	18.7
NO	16	64.0	45	70.3
CANNOT SAY	5	20.0	6	9.4
NO RESPONSE	1	4.0	1	1.6

TABLE B-5.30

ILLEGAL ALIEN CARPENTERS

FROM YOUR EXPERIENCE, DO YOU BELIEVE THAT ILLEGAL ALIENS ARE BEING HIRED BY OTHER CONSTRUCTION FIRMS?

RESPONSE	SOUTHWEST REGION		STATEWIDE	
	NUMBER OF RESPONDENTS	PERCENT	NUMBER OF RESPONDENTS	PERCENT
YES	6	24.0	13	20.3
NO	6	24.0	19	29.7
CANNOT SAY	11	44.0	29	45.3
NO RESPONSE	2	8.0	3	4.7

TABLE B-5.31

PERCENTAGE OF ILLEGAL ALIEN CARPENTERS

IN YOUR OPINION, WHAT PERCENTAGE OF THE CARPENTERS IN FLORIDA ARE ILLEGAL ALIENS?

QUESTION	SOUTHWEST REGION			STATEWIDE
	MEAN	MINIMUM	MAXIMUM	MEAN
PERCENTAGE OF ILLEGAL ALIEN CARPENTERS	12.0%	0.0%	30.0%	9.2%

APPENDIX C:

LISTING OF SERVICES AND PROGRAMS AVAILABLE FROM THE ASSOCIATED BUILDERS AND CONTRACTORS

The following pages provide a complete listing of the current services, programs, and publications ABC has available. The national ABC and the individual chapters offer these programs and services to their members.

Source: ABC Working For You, 1986 Catalog of Services and Programs, Associated Builders and Contractors, Washington, D.C., 1986.

SERVICES AND PROGRAMS

Industry Relations

ABC actively promotes the benefits of building merit shop to construction owners. Personal meetings, literature, news and directories about the merit shop keep the names of ABC members out in front of construction consumers. ABC's industry relations services and programs include:

- *Construction Buyers' Service Center* (CBSC)—A computerized referral service developed and operated by ABC to match owners with contractors. CBSC gives construction profiles of enrolled ABC members to construction consumers in search of qualified merit shop contractors. All ABC members are eligible to enroll in CBSC at no cost.

- Promoting the merit shop and ABC members by advertising in national publications.

- Exhibiting at national and regional trade shows such as the International Council of Shopping Centers, Plant Engineering and Maintenance, CONEXPO and the American Institute of Architects.

- Promoting the advantages of merit shop construction and the availability of merit shop contractors to construction owners through personal meetings.

- Assisting ABC members who have been excluded from bidding because of labor or non-labor affiliation.

- Distributing educational and research materials to ABC members to assist them in analyzing current internal practices as they strive to become Cost Effective Operations.

- Developing and implementing studies and/or programs in conjunction with other industry groups, such as the Edison Electric Institute, which are of mutual benefit.

- Compiling and updating a mailing list of major construction consumers, owners, plant buyers and chief executive officers for association use.

Industry relations and business development at ABC mean more construction for the dollar, and more construction dollars for merit shop contractors. For more information, contact the ABC National Industry Relations Department.

Legal

ABC has experienced labor relations attorneys on staff to advise ABC members on the legal ramifications of such matters as picketing, vandalism, employee relations and jobsite violence. The legal staff is a clearinghouse for the exchange of information between ABC's network of over 100 chapter attorneys nationwide. Legal services provided include:

- **Field Representative Program**—Counsel is available to assist you at your jobsite or in Washington, D.C.

- **Legal Assistance Fund**—The ABC National Legal Rights and Strategy Committee administers monies to assist members in construction litigation of national importance.

- **Regulatory Commentary**—Prepares comments and testimony on proposed federal regulations affecting the construction industry.

• **Attorney's Conference**—An annual educational seminar for all ABC chapter attorneys and interested members.

• **Wage Survey Program**—Assists in the preparation and implementation of local and regional wage surveys.

• **Open Shop Hotline**—Union contractors interested in going open shop can receive expert advice by dialing (202) 737-9885.

• **Daily Assistance**—Responds daily to legal needs of ABC members. Assistance is only a phone call away at (202) 637-8800.

ABC also offers several publications and films to ABC members as legal aids. The manuals include *Operating Dual Shop*, *ABC Labor Relations Fact File/Davis-Bacon Manual*, *Wage Survey Booklet* and *The ABCs of Going Open Shop . . . and Staying That Way*. In addition, ABC offers "The Strongest Link," a seminar on responding to union organizing attempts which utilizes both manuals and a videotape.

Government Relations

ABC speaks for merit shop contractors. On Capitol Hill, with government agencies, and throughout the federal government, ABC assists its members in many ways:

• Comments on proposed legislation.
• The ABC voice on Capitol Hill; lobbies on legislation affecting the construction industry.
• Assists ABC members in pinpointing who to contact in the government for specific questions or problems.
• Advises members and staff on state and local lobbying efforts.
• Coordinates TACK grassroots lobbying network.
• Administers ABC Political Action Committee.
• Holds the annual National Legislative Conference in Washington, D.C.
• Publishes *Washington Review* to keep members involved in the TACK network and chapter leadership current on legislative activities.
• Liaison to the Department of Labor, White House and government regulatory and executive agencies.
• Information center on the Davis-Bacon Act and state prevailing wage laws.

Political Action Committee

ABC-PAC coordinates statewide and national political efforts on behalf of ABC members by assisting candidates who share the association's views and political philosophy. All ABC members are encouraged to make contributions to ABC-PAC to strengthen the merit shop's political voice.

In ABC-PAC's *Five Year Pledge* program, members make a commitment to contribute a specific sum of money to ABC-PAC over a five-year period. Major donors can become members of the Caucus Club: the club's Bronze, Silver and Gold levels recognize contributions of $250, $500 and $1000 respectively. Both Caucus Club members and five year donors are invited to attend receptions with political leaders, and Caucus Club members are recognized at ABC conventions and legislative conferences.

TACK

ABC's grassroots network, the TACK Team, increases the association's presence in city hall, the state house and on Capitol Hill. TACK stands for the elements of any effective team: (T)raining, (A)ction, (C)ommunications and (K)now-how. Through the TACK network, ABC members become actively involved in ABC's grassroots lobbying efforts. TACK members receive a "how to" handbook, congressional biographies and "TACK Alerts" when immediate action is needed.

Education and Manpower

ABC is actively involved in virtually every aspect of construction education, providing the services necessary to meet the challenges and opportunities which face the industry. Association education and training activities include:

- Developing and providing the most comprehensive and flexible training program in the industry—Wheels of Learning.
- Developing and providing the Train-the-Trainer program, now on videotape.
- Initiating and facilitating regional and national symposia on construction education and training.
- Working with ABC chapter offices to create approved apprenticeship training programs throughout the country.
- Helping ABC chapters to develop and promote training at the local level.
- Striving to implement the Business Roundtable's Construction Industry Cost Effectiveness recommendations as they apply to training.
- Providing information on Davis-Bacon as it relates to apprenticeship training and the use of trust funds.

Wheels of Learning

Training is an investment in the future. At ABC, the Wheels of Learning is the answer to the open shop's training needs.

Wheels is a competency-based task training program. It is designed to maximize learning by combining illustrated instructional materials for the student with structured classroom activities conducted by a trade teacher.

As Wheels helps craftspeople develop more and better skills, their work becomes more efficient. With highly-trained craftspeople, construction projects are completed with higher quality in less time and with less waste of man-hours and materials. Start-up and completion dates can be pinpointed more accurately and, from a labor standpoint, cost overruns are kept to a minimum.

Wheels of Learning has targeted development in 23 trades:

-boilermaker	-instrumentation	-operating engineer
-carpentry	-insulating	-painting
-cement masonry	-ironworking	-pipefitting
-ceramic tile/terrazzo	-lathing/plastering	-plumbing
-drywall	-masonry	-roofing
-electrical	-millwrighting	-sheet metal work
-glazing	-metal building assembler	-sprinkler fitting
-heating, ventilating and air conditioning		-welding

The single greatest advantage of Wheels of Learning is long-term: Wheels will provide a steady supply of skilled workers in all trades. With a steady labor supply, contractors, developers and clients can count on a future of higher quality construction at a lower cost.

Complete descriptions of Wheels programs begin on page 91. To place your order, use Order Form 2 in the publications section of this catalog.

Management Education

Education is one of the most important benefits ABC provides its members and their employees. Through leadership and management seminars, the ABC National convention, technical meetings and ABC's latest addition, teleconferences, members have the opportunity to increase management know-how and operate more efficient, more profitable businesses.

Recognizing the need for field supervisory and middle management training, ABC has responded with several specially designed programs. ABC's Training Orientation Program for Supervisors (TOPS) can expose new field supervisors to the basics of managing a jobsite or enable experienced supervisors to review and improve their managerial skills.

The Train the Trainer Program was developed by ABC to help fill the void of qualified training instructors. This program teaches journeymen or in-house instructors to conduct craft training in formal classroom situations.

ABC's Three-Tier Financial Management program is an excellent series of seminars designed to provide financial management education for contracting firms of various sizes. ABC also offers "How to Select Computer Hardware and Software"—a very timely topic in today's construction industry.

To order any of these programs, see the publications section of this catalog. For further information, contact the ABC National Management Education Department (202) 637-8800.

Safety

Safety is synonymous with saving—saving resources through the prevention of jobsite accidents and saving lives through the use of proper safety procedures. ABC recognizes that safety is important for contractors and their employees, and has developed several state-of-the-art safety programs to help members create and maintain a safe and profitable jobsite. ABC also:

- Monitors and comments on OSHA and MSHA regulations to ensure that the merit shop is properly represented.
- Keeps members up-to-date on the industry's changing safety regulations and policies.
- Develops practical safety programs.
- Offers consulting services to any member with questions on safety regulations or procedures.

Several proven safety programs have been developed and made available by ABC. Please refer to the publications section of this catalog to learn more about:

- ABC's Construction Site Safety Program
- Drug Abuse and the Workplace
- Construction Safety Guide
- Job Safety Analysis Series
- Employee Safety Indoctrination Program
- ABC Crane Safety Program

Membership

The development, promotion and implementation of ABC's member services are overseen by the national Chapter Relations Department. This department works "behind the scenes" to keep the flow of ideas and information moving among the network of ABC office, departments and personnel. In addition to assisting chapters with the creation of membership development and retention tools, the department develops and coordinates member contests and award programs. ABC members directly benefit from many of the department's services, including:

- Serves as ABC's clearinghouse of information.
- Handles members' questions on any aspect of ABC.
- Assists in chapter planning and marketing efforts.
- Publishes an "Idea Exchange" newsletter to facilitate the creative exchange of information within ABC.
- Serves ABC Members-At-Large.
- Oversees the Beam Club program.
- Coordinates and prints information on all chapter contests.
- Assesses member needs to be sure ABC is providing the services needed to run a profitable business.

The Beam Club
ABC's Beam Club is an exclusive recognition program for ABC members who sponsor new members into their chapters. Since its inception in 1966, over 1400 contractors, subcontractors, suppliers and associates have qualified for this prestigious club. Levels of recognition are as follows:

New Beam Club Program
(Levels Effective January 1, 1986)
5 Members—New emblem patch plus gold numerical pin "5."
10 Members—Burgundy jacket plus gold numerical pin "10."
15 Members—Gold numerical pin "15."
(Numerical pins will be awarded in increments of 5. The pin is designed to be attached to the Beam Club patch.)
50 Members—Beige jacket (plus "50" pin).
100 Members—Gold jacket (plus "100" pin).
200 Members—Specially designed gold watch.

The ABC National Convention is a highlight of Beam Club activities. All members who sponsor 100 or more new members are recognized at the convention. At the annual Beam Club luncheon held during the convention, the "Beam Club Member-of-the-Year" award and a handsome diamond set "superbowl-style" gold ring is presented to a current Beam Club member who continues recruiting new members even though he or she has already earned Beam Club recognition.

Trade Councils

ABC offers distinct services to electrical, mechanical and industrial contractors through its Electrical, Mechanical and Industrial Councils. The councils are structured to ensure specialty contractors working in these areas of many important services:

- Craft training.
- Supervisory training.
- Quarterly newsletters and updates.
- Recruitment brochures to attract specialty contractors to ABC.
- New product/market information.
- Special seminars addressing the needs of specialty contractors.
- Increased numbers of exhibitors serving specialty areas at ABC trade shows.
- Code and regulatory representation.

Communications

ABC tells its story to members, potential members, construction users, Congress, government agencies, the general public and more through the major national news media and the more than 60 trade publications which cover the construction industry, and through its internal publications.

Builder & Contractor magazine, the association's official monthly periodical, contains in-depth articles on what is happening in the industry and related fields. *ABC Newsline*, the association's newsletter, alerts members to important and timely happenings in the industry.

ABC also publishes an annual classified membership directory which can serve as an excellent marketing tool for member firms because it is distributed to more than 3000 of the nation's most important construction users.

Information is also developed by ABC on various legislative issues, insurance, safety, membership activities, labor relations, business activities and many other areas of interest to its members. ABC strives to keep you up-to-date on this rapidly changing industry. Among ABC's communications activities:

- *Builder & Contractor*—a monthly magazine.
- *ABC Newsline*—a timely newsletter published 26 times a year.
- *National Membership Directory.*
- Government affairs, safety, education, mechanical and electrical updates.
- In-house printing facilities run virtually non-stop.
- Responds to more than 400 telephone calls a day from members.
- Processes more than 1000 pieces of mail and orders daily.
- A clearinghouse of ideas.

The many newsletters, brochures, pamphlets, films and audiovisuals developed by ABC can be found in the publications section of this catalog.

Group Insurance Program

The ABC Security Plan was started in February, 1957 as a member service to merit shop contractors. For 28 years, the plan has steadily grown and evolved. Currently, over 3000 ABC member firms participate, covering nearly 90,000 ABC insureds for a broad range of benefits. Annualized premium now exceeds $50 million.

Coverages available through the ABC Security Plan include: four medical plans; two dental plans; weekly disability income insurance; long term disability income protection; accidental death, dismemberment and disability insurance; and life insurance.

Rates for the medical plans vary from chapter to chapter, are renewed in October of each year, and are guaranteed for one year. Only ABC members are eligible to participate in the Security Plan.

The program is directed by eight trustees, all ABC members from different areas of the country. It is underwritten by Connecticut General Life Insurance Company. Administration is handled by the Insurance Department at ABC National and claims are paid by Connecticut General claim offices located throughout the U.S.

Over the years, the Security Plan has changed and adapted to meet the needs of the ABC membership and to respond to the changing climate of the insurance industry. All Security Plan medical programs now include cost containment features which provide increased benefits for wide usage of the plan while saving many employers substantial amounts in reduced health insurance premiums.

For members and their employees, the ABC Security Plan offers benefits that are tough to beat. Contact your local chapter office or call the ABC National Insurance Department toll free (800) 621-2993 for more information.

Meetings and Conventions

ABC sponsors numerous meetings and conventions throughout the year, giving ABC members the opportunity to meet with their colleagues and industry leaders. In addition to beneficial workshops and seminars and speakers, these meetings feature fun and entertainment for the contractor, his employees and family. ABC-sponsored events include:
- ABC National Convention and Exposition—the biggest gathering of the year for merit shop contractors, featuring informative seminars, speakers, exhibitors and resort locations.
- Open Shop Symposium—an annual meeting of ABC's larger volume members, distinguished industry spokesmen, editors, economists and educators, which gives attendees a preview of the year ahead for the construction industry.
- European Trade Mission—An annual tour featuring meetings and inside looks at construction in other nations.

• Leadership Conference—brings together incoming chapter leaders and chapter executive directors to focus on ABC programs and services.

Credit Union

The ABC National Federal Credit Union is open to all ABC members and their employees, offering a full array of services from savings accounts to personal loans and investment opportunities. In addition, your savings and investments are insured by an agency of the U.S. government for up to $100,000 for each individual account.

Since its inception in 1975, the Credit Union has been an added plus for ABC firms. The following services are available:

-Savings Accounts
-Boat Loans
-Christmas Club Accounts
-Mortgage Loans
-Share Secured Loans
-Student Loans
-Auto Loans
-Certificates of Deposit
-IRAs
-Pension Program
-Long- and Short-Term Investments

For more information, call the ABC National Federal Credit Union at (202) 637-8866.

Merit Shop Foundation

The Merit Shop Foundation is ABC's educational adjunct, working to build a better future for the construction industry by educating the construction workforce. Since it was formed by the ABC National Board of Directors in 1971, the Foundation's activities have grown to include training construction craftspeople, distributing construction research grants and providing financial assistance to outstanding construction management students. Specific Foundation activities include:

• Student Chapters—Facilitate interaction between ABC chapters and area college and university construction students.
• Merit Shop Nights—A forum for members of the industry to instruct construction students on the "how tos" of merit shop construction.
• Research Grants—Funding for research projects which will improve industry operations.
• Lecture Series—Members of the industry speak to student groups about merit shop construction and construction careers.

The Foundation solicits contributions to support is activities. All contributions are tax deductible and both individuals and corporations are eligible to participate. By contributing at pre-set levels, contractors can join the Foundation's leadership clubs, including: Hard Hat Club, $100; Builders Club, $250; Cornerstone Club, $500; Presidents Club, $1000; Round Table, $2500; and the Inner Circle, $5000.

APPENDIX D:

STATISTICAL ANALYSIS COMPUTER PRINTOUT

D-1 FORMULA FOR REQUIRED SAMPLE SIZE

$$n = \frac{(t/\Sigma)^2(P)(1-P)}{1+1/N\ [(t/\Sigma)^2(P)(1-P)-1]}$$

n = Sample Size Needed

t = Standard Normal Variable Based on Confidence Limit

Σ = Allowable Estimation Error

P = Population Proportion

N = Total Population

t = 1.96	when using 5 % Confidence Limit (95 % Confident)
Σ = .11	choice by researcher to use 11% Estimation Error because partial mailing list was determined by the national ABC
P = .5	used in Practical Statistical Applications
N = 280	number of ABC contractors in Florida who employ carpenters

$$n = \frac{(1.96/.11)^2(.5)(1-.5)}{1+1/280\ [(1.96/.11)^2(.5)(1-.5)-1]}$$

n = **62 REQUIRED RESPONDENTS**

Appendix D consists of the computer printout used for this report's statistical analysis. The printout contains the computer program used for the overall study, the data entered for this report, and the results of the computer analysis which were used throughout this report. If the reader should wish to obtain a copy of the computer printout, contact the executive secretary at the School of Building Construction, University of Florida, Gainesville, Florida.