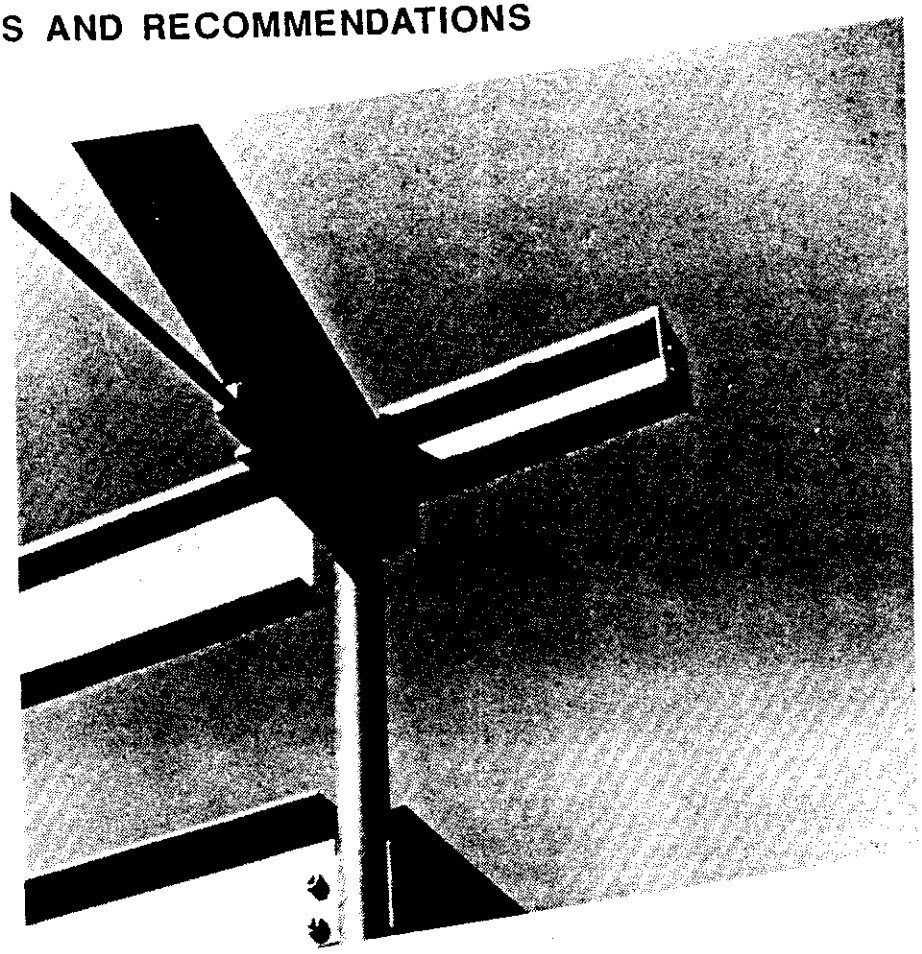
TECHNICAL PUBLICATION NO. 50

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



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1987

SUMMARY OF TECHNICAL REPORT NUMBER 50

EFFECTS OF THE SHORTAGE OF SKILLED CARPENTERS ON THE ASSOCIATED GENERAL CONTRACTORS OF FLORIDA: IMPEDINENTS AND RECOMMENDATIONS

BY
ANTHONY A. CARDINALE, ALI MARKUS, BRISBANE H. BROWN, JR.,
J. MORRIS TRIMMER, RICHARD FURMAN

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 crisis in the construction industry in the state of Florida. This is such a broad topic that several studies are being conducted on segemnts of the construction industry, and then a comprehensive report will be made as a part of the research grant from the Building Construction Industry Advisory Committee. This report covers only Associated General 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 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 in commercial construction and the enlightening recommendations could be quite useful in coping with the problem.

Seventy-one members of the Florida Associated General Contractors (AGC) responded to the survey. Of those, 67, or 94% of the respondents expressed a need for more skilled carpenters in the state of Florida. In fact, 71% felt that there are not enough skilled carpenters in the state to handle the present workload. In light of the projected growth in Florida in the next decade, this shortage could serve to frustrate the industry in its efforts to keep up with demand through the 1990's.

A general decline in craftsmanship followed by the lack of training programs were considered the most important contributing factors to the shortage of skilled carpenters. Eighty-three percent of the contractors felt that carpenters should undergo some sort of formal training.

The contractors felt that, although the various training programs provided some skilled carpenters, those programs were making only a small contribution to the total supply of skilled carpenters. It was also found that the level of communication between the contractors and the training programs was quite remote. Stronger communication between the parties was considered highly desirable, and the contractors felt that formal

meetings between the two groups would be the best method for establishing such a link.

It is clear that the commercial construction industry in Florida faces 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 the boom in population and therefore construction will clearly 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. Meetings between the AGC contractors and the various training programs should be a good start.

Copies of this report can be obtained by contacting:

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I would like to thank my parents, Dr. and Mrs. Anthony Cardinale, and my family for their continued love and support without which none of this research would have been possible. I would also like to thank Tracy Heins for her support. To these wonderful people, I would like to dedicate this work.

I am gratefully indebted to the contributions and advice from my Committee Chairman, Dr. Brisbane Brown as well as Dr. Trimmer and Richard Furman. I would also like to acknowledge and show my appreciation for the tremendous amount of time and guidance given by Ali Markus, the Research Coordinator.

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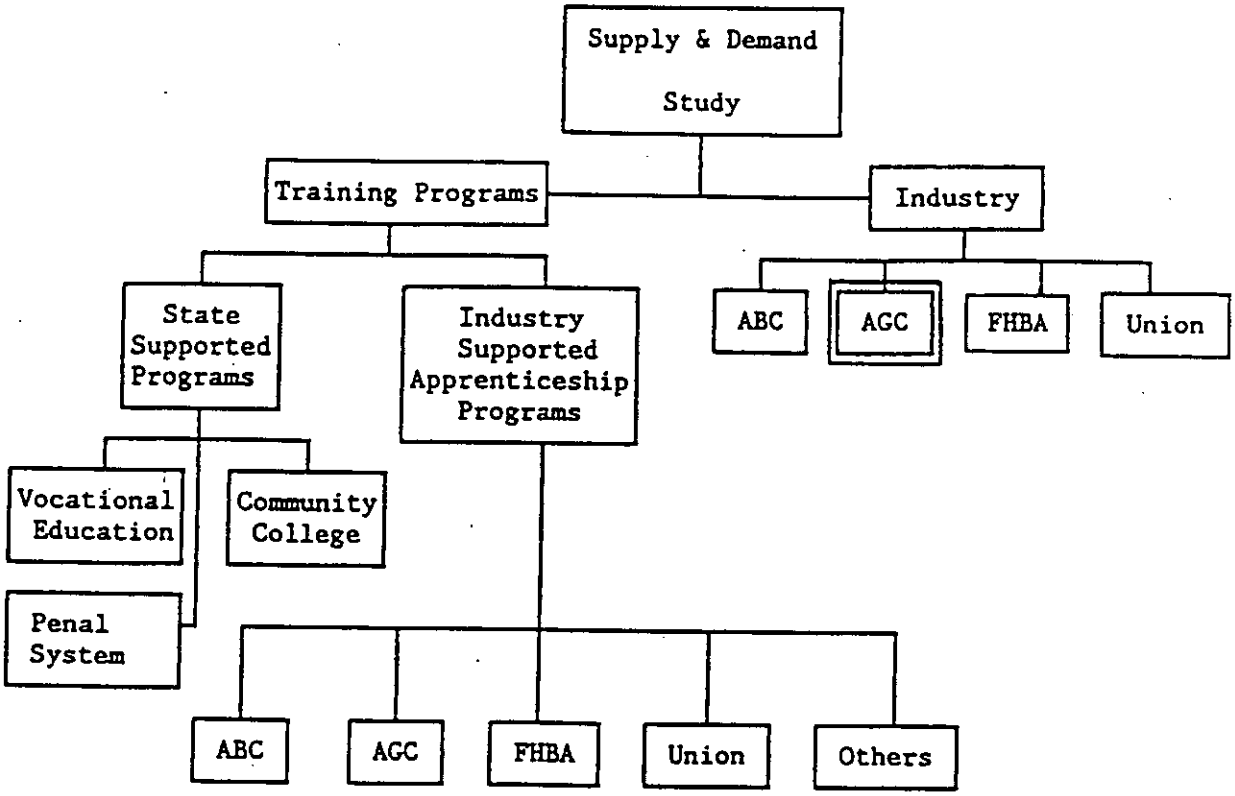
INTRODUCTION

INTRODUCTION

Under a grant from the Building Construction Industry Advisory Committee (BCIAC), the School of Building Construction at the University of Florida is conducting a research project to determine the impediments to an adequate supply of skilled construction labor in Florida. After preliminary investigation the carpentry trade was chosen as the study vehicle since it is the largest skilled labor trade in the construction industry. The research will investigate the level of communication between the industry and the training programs as well as the communication between the various training programs themselves. A variety of other factors that might possibly impede the supply of skilled carpenters in Florida will also be examined. For example, the possible differences between union and non-union contractors in their perceptions of the industry's needs and the possible differences between the four major construction associations in their communication with the various public and private training programs. The research will develop methodologies that would coordinate the needs of the carpentry industry with the various existent training and apprenticeship programs. The research project will conclude with recommendations on what can be done to relieve the shortages of skilled craftsmen in Florida.

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 belong to any one particular building organization.

Figure 1.1

PURPOSE OF THE STUDY

The study that is presented herein is a part of the larger above mentioned project and will concentrate on the supply of skilled carpenters to the members of the Associated General Contractors of Florida (see Figure 1.1). The intention of this study is to determine the impediments of an adequate supply of skilled carpenters although the focus of this study will be the AGC Contractors and the supply of skilled carpenters that are available to them. The study will be conducted with the use of questionnaire surveys as the information gathering tool. The reader should be cautioned as to the limitation of the study. The responses to the questionnaires will be provided by the management of AGC contractors and therefore may be biased towards management's point of view. The goal of the study is to:

(1) Determine the extent of the shortage of skilled carpenters in the opinion of AGC contractors and the factors that they feel have caused this shortage
(2) Determine the impediments to an adequate skilled carpenter supply in Florida
(3) Examine the level of communication between AGC contractors and the state training or apprenticeship programs that are available in Florida
(4) Identify the tasks a skilled carpenter should be able to perform proficiently

(5) Ascertain where AGC contractors search for carpenters

(6) Determine whether AGC contractors feel the training programs make any substantial contributions in producing and supplying skilled carpenters.

(7) Develop recommendations for relieving the shortage of carpenters based on input solicited from AGC contractors

Overview

> The U.S. Department of Labor Bureau of Labor Statistics in 1980 estimated that 900,000 new jobs would be created for construction craftworkers by 1990. In addition, 1.5 million vacancies will occur by workers leaving the industry because of retirement or transfer to other industries. Thus a total of 2.4 million new construction workers will be needed by 1990. Present construction craft apprentice and task training programs are graduating an average of 50,000 per year. Unless training of construction workers is significantly increased, a severe shortage could result.[1] (see figure 1.2)

Indeed, many contractors throughout the nation are feeling the shortages in several crafts. Several large cities, primarily on the East Coast, are experiencing serious labor shortages fueled by local commercial building booms and shifting regional growth patterns.[2] Contractors in the Southeast are having trouble finding enough skilled labor to man their

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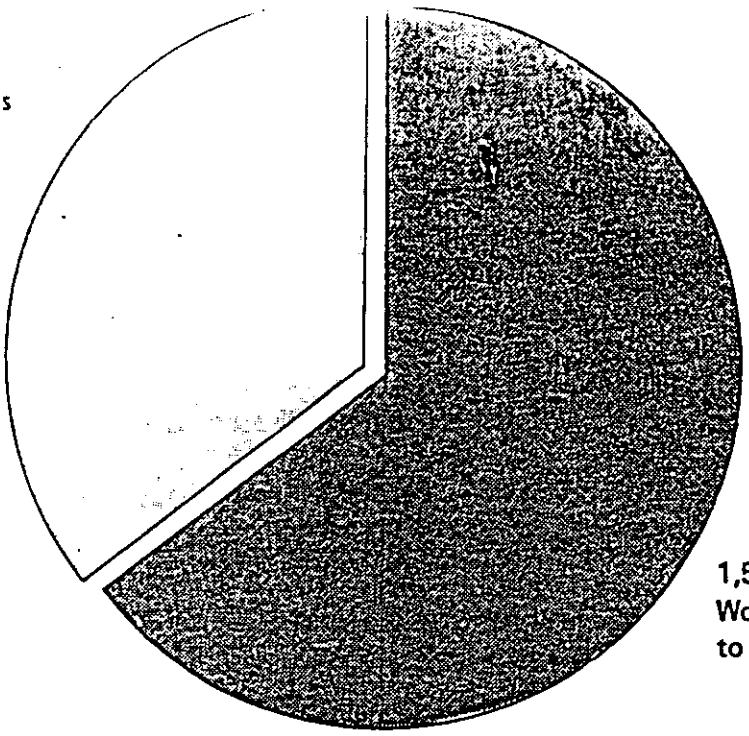
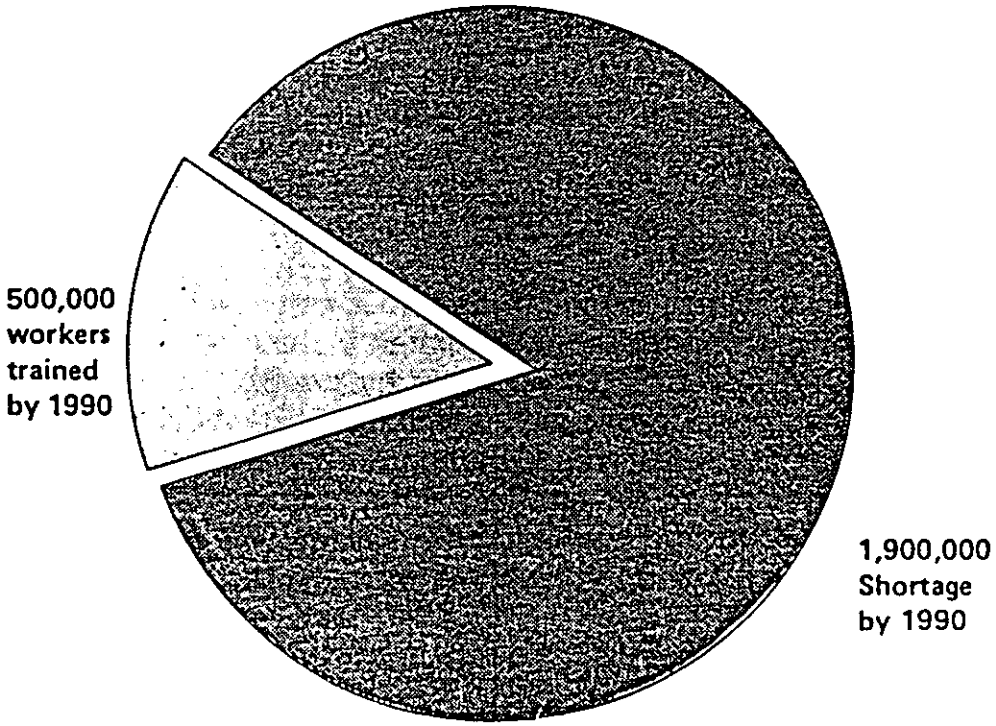
[1] "Training Problems in Open Shop Construction", The Business Roundtable, A Construction Industry Cost Effectiveness Project Report, Report D-4, September, 1982, p.5.

[2] "Labor Shortages Grip Several Cities," Engineering News Record, 25 September 1986, p.10.



2,400,000 Additional trained workers needed by 1990



SOURCE: ANNUAL CONSTRUCTION INDUSTRY
REPORT DEPT OF LABOR 1/80

Currently training less than 50,000 workers per year

Figure 1.2

projects. Engineering News Record (ENR) reports that there is "a tremendous shortage of skilled craftsmen" and that the labor shortages in the Southeast have created "tremendous scheduling problems - nothing is getting done on time."[3] Many contractors are having to pay extensive overtime to make up for lost time and delays.[4] The AGC Manpower and Training Committee has researched the topic of future manpower development. The Committee states "that we face tremendous worker availability problems beginning in the near future because of the following:

* There are fewer young people entering the industry
* The average age of the current workforce is increasing
* Retirement patterns are changing
* The market for construction is increasing without a corresponding increase in training
* The share of union construction is decreasing"[5]

The AGC Manpower and Training Committee has also published an "Increased Manpower Needs" bar chart which projects through 1995. A portion of this chart is reproduced in Figure 1.3.

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[3] "Labor Shortages Grip Several Cities," Engineering News Record, 25 September 1986, p.10.

[4] Ibid, p.11.

[5] "Blueprint for Training," An AGC Manpower and Training Services Publication, 1986, p.1.

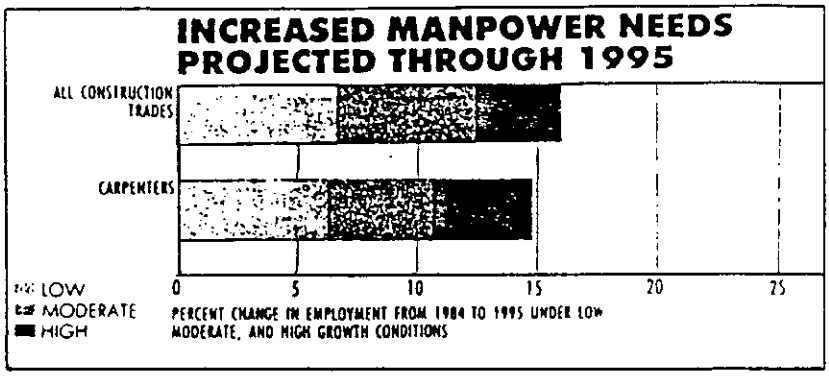

Figure 1.3 Increased Manpower Needs

Source: AGC Manpower and Training Services and the Bureau of Labor Statistics

Taking into consideration this widespread construction labor shortage and Florida's unprecedented growth, it is important to examine the potential and possibly severe skilled labor shortage that might occur in Florida.

Construction Trends in Florida

Population and Economic Growth

There has been nearly constant economic growth in Florida since 1970. Only the recession of 1974-76 and 1981-82 marred the upward trends of various economic indicators.[6] John Koenig states in Florida Trend magazine, "Floridians are enjoying the

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[6] "The Impact of the Florida Construction Industry on State Economy," School of Building Construction, University of Florida, Technical Publication #49, 1987, p.4.

prosperity of an unparalleled period of economic expansion." It seems that Florida's growth is surpassing most population predictions and the state Office of Planning and Budgeting has raised their estimate from the present population of 11.6 million in 1986 to 12.6 million by 1990.[7] Statistics show that since 1982, Florida has added approximately 1.5 million people and 850,000 jobs. This corresponds to the startling fact that 895 residents move to Florida every day.[8] According to the 1986 Florida Statistical Abstract, Florida had four of the nation's top 20 housing markets for 1986.[9] In fact, Florida is second only to California in terms of the fastest growing state in the United States.[10] Hank Boerner, editor of Florida Update Newsletters, estimates that these new Floridians will need two more miles of road each day; 100,000 more fresh gallons of water daily; new ways to take care of the 3500 pounds of additional solid waste and 95,000 gallons of waste water they create. If these population trends continue, then there will have to be commensurate construction activity in the housing, commercial, and infrastructure markets. Although the value of building permits dropped 6-7% in 1986, Florida's building permit activity

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[7] "State Overview", Florida Trend, Yearbook 1987, p. 50.

[8] "Who Pays", Florida Construction Industry, April 1987, p.30

[9] "The Impact of the Florida Construction Industry on State Economy", School of Building Construction, University of Florida, Technical Publication #49, 1987, p.59.

[10] "Who Pays", Florida Construction Industry, April 1987, p.30.

is still much higher than the national average and comprises 12% of the national building permit activity.[11] In the six years from 1981 to 1987, construction employment has increased 21% from 283,100 in 1981 to 343,300 in 1987[12] (see Table 1.1).

Year	Construction Employment
1981	283,100
1984	309,414
1985	335,229
1986	339,900
1987	343,300 *

Table 1.1 Construction Employment

Source: Florida Statistical Abstract 1986
* Estimate

Florida is responsible for creating 10% of the nation's new jobs each year and at the present time, the construction industry directly accounts for 7.5% of Florida's employment.[13] Employment growth has been so strong that, even with the massive influx of new residents seeking work, the state's unemployment level had sunk to 4.6% at the end of 1986.[14] But Florida's tremendous population growth is not providing the skilled labor

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[11] "State Overview", Florida Trend, Yearbook 1987, p.47.

[12] "The Impact of the Florida Construction Industry on State Economy", School of Building Construction, University of Florida, Technical Report #49, 1987, p.13.

[13] Ibid., p.120.

[14] "State Overview", Florida Trend, Yearbook 1987, p.46.

that is needed and Steven W. Setzer from Engineering News Record reports that "large areas in the Southeast are short of manpower".[15] He particularly emphasizes that shortage conditions are tight in the Orlando - Tampa Bay corridor. This tight labor shortage is causing a return flow of workers from the depressed areas of the Southwest back to the East.[16] Many contractor association officials say that the influx of workers from the Southwest has helped to alleviate what would have been an even more acute labor shortage.

Construction Growth

Many large national and international construction firms have set up corporate offices in Florida to capitalize on the state's growth. According to Tom P. Fronce, Director of Marketing for M.A. Mortenson Company, "the overall outlook for the next fifteen to twenty years in Florida look bright for the construction industry." Nineteen out of every twenty corporate executives responding to a Florida Trend survey believe Florida's economic performance this year will meet or exceed that of 1986. But when asked what is the greatest potential detriment to the construction industry in Florida, Philip H. Bloom, Vice President of business development for Blosam Contractors, responded that an area of great concern is the

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[15] "Labor Shortage Grips Several Cities", Engineering News Record, 25 September 1986, p.10.

[16] Ibid., p.10.

labor market and the continual development of skilled labor.[17] It is this concern for an adequate skilled labor pool that worries contractors in Florida where the growth rate is four times faster than the nation as a whole. A large portion of this growth is concentrated in several Florida cities. Walt Disney World, in Orlando, is planning 200 to 500 million in new construction. The work at Disney is expected "to have a big impact on manpower."[18] Developers in that area are taking advantage of the growth in central Florida and are also planning other large projects. The labor squeeze is expected to only get worse in Northeast Florida where Elkay Properties Inc. is building in Ocala a 272 acre community project with 1,174 housing units. Two other large community developments are also under way near Ocala. Adding to the labor shortage of Northeast Florida is the construction of the 1.2 billion dollar Trident Submarine base at Kings Bay, Georgia. This will require thousands of workers over the next ten years.[19] In Northwest Florida, construction of Innovation Park, a 208 acre industrial and research center, is under way. Naples, in the Southwest area of Florida is expecting large scale development in the

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[17] "Building Trends...for the Rest of the Eighties", Florida Construction Industry, December 1986, p.18.

[18] "Labor Shortages Grip Several Cities", Engineering News Record, 25 September 1986, p.11.

[19] Ibid., p.10.

housing sector with a growth of 341% in Hendry County by 1991.[20] Tampa Bay and St. Petersburg are continuing to attract both residential and industrial development. Developers are planning to start construction on a 55 story office tower in downtown Tampa in 1988. Although Miami has been overbuilt in the past few years, the surrounding areas to the west and the north look promising for continuing development. The two new expressways in these areas should facilitate this development.

Construction Wages

While most labor shortages in Florida are the result of local building booms, they are quite possibly being exacerbated by Florida's low wage levels. The average wage level for Florida's construction workers is below the national average. In fact, Engineering News Record's Third Quarterly Cost Report for 1987 shows that open shop carpenters in the Southeastern states have the lowest average journeymen wage rates.[21] (see Figure 1.4) The Southeastern states were the least generous to the nonunion sector in terms of wage increases. Carpenters are paid an average of $9.73 an hour which is a decrease from $10.01 given in 1986.

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[20] John Taylor, "Development Finds Its Way Up the Coast", Florida Trend, Yearbook 1987, p.76.

[21] "Third Quarterly Cost Report", Engineering News Record, 17 September 1987, p.51.

AREA	JOURNEYMEN CARPENTER WAGES AVERAGE HOURLY WAGE
New England (1)	$11.92
New York/New Jersey	$10.74
Middle Atlantic (2)	$11.08
Southeast (3)	$9.73
Great Lakes (4)	$11.11
South Central (5)	$10.09
Central (6)	$10.55
Central Mountain (7)	$10.83
Mountain (8)	$13.73
Western (9)	$11.65
National Range	$9.73-13.73

Table 1.4 Open Shop Wage Rates for Carpenters, 1987

Source: Engineering News Record, September 1987

Note:
(1) Connecticut, Massachusetts, Maine, New Hampshire, Rhode Island, Vermont.
(2) Delaware, Madison, Pennsylvania, Virginia, West Virginia, Washington D.C.
(3) Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee.
(4) Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin.
(5) Arkansas, Louisiana, New Mexico, Oklahoma, Texas.
(6) Iowa, Kansas, Missouri, Nebraska.
(7) Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming.
(8) Arizona, California, Hawaii, Nevada.
(9) Alaska, Idaho, Oregon, Washington.

The president of the Florida Building Trades Council, Joseph E. Martin, says that the open shop in Florida has succeeded in creating a textbook environment of almost pure

competition, where projects go to cheaper and cheaper labor. He believes this situation has lead to a sharp decline in the competency levels of construction workers.[22] Martin adds that if skilled construction people refuse to work in Florida for wages below the national level and leave Florida after their first job, then the open shop [sector] will have to cook up new ways to stem the losses. Many non-union contractors have started training programs but they are only a drop in the bucket.[23] Additionally, there is the problem of funding these open shop programs. Union funding most often comes from a cents-per-hour charge under their collective bargaining agreements. Unfortunately, this is not the case for the open shop sector and the results can be seen in Figure 1.5.

Even in areas of Florida where the union wage rates are considerably higher, there are labor shortages. In Miami, where union carpenters are earning wages of $16.40 an hour (up 6.5% from 1986), a labor spokesman complained of a carpenter shortage.[24] He further says that the increase in emergency finish-up jobs are giving the unions trouble in their efforts to keep these jobs staffed.

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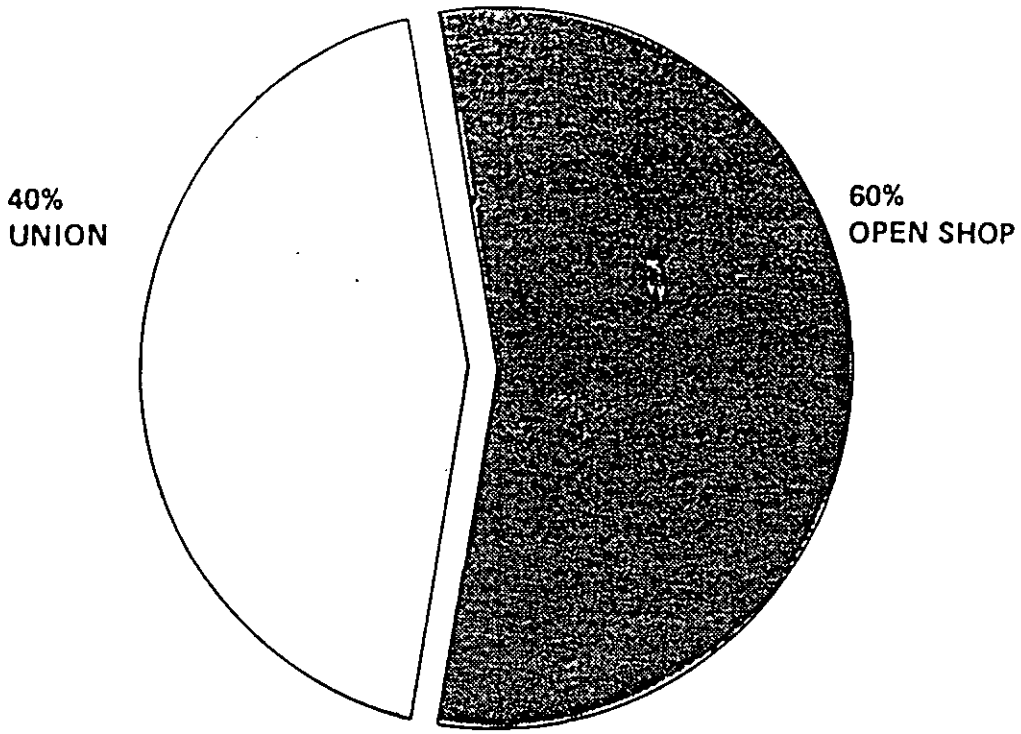
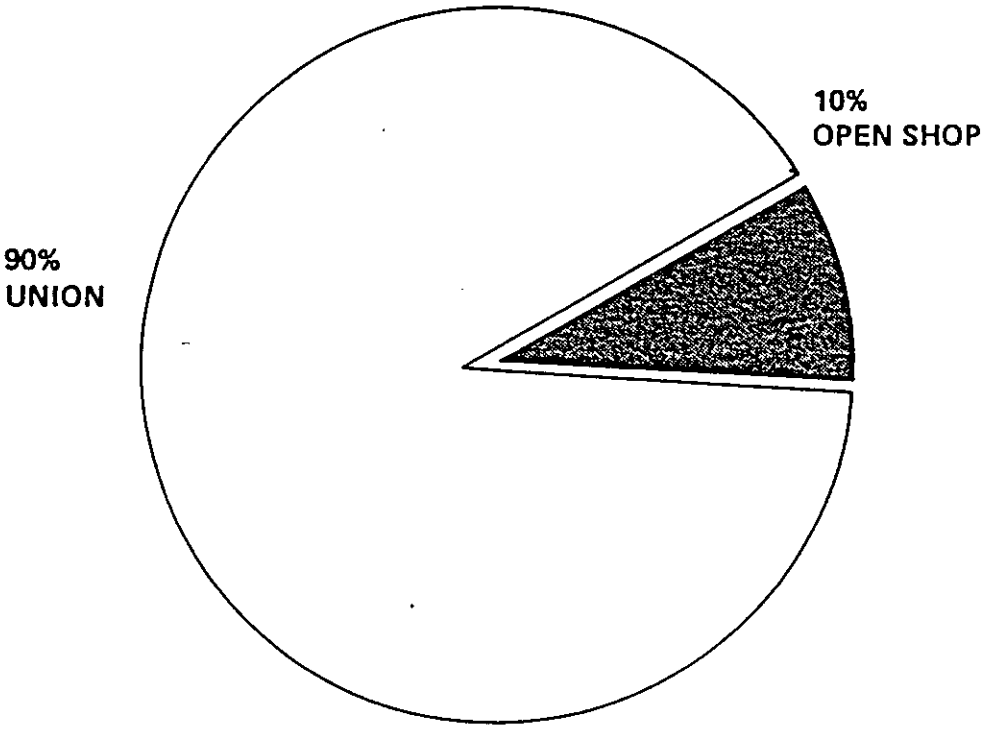
[22] "Third Quarterly Cost Report", Engineering News Record, 18 September 1986, p.61.

[23] "Labor Shortages Grip Several Cities", Engineering News Record, 25 September 1986, p.10.

[24] "Third Quarterly Cost Report", Engineering News Record, 17 September 1987, p.52.



% OF CONSTRUCTION MARKET



% OF TRAINING FUNDS EXPENDED

Figure 1.5

Source: Annual Construction Industry Report,
Dept. of Labor

Definition of a Carpenter

The focus of this study is to determine the impediments to an adequate supply of skilled carpenters to AGC contractors. To satisfy this requirement, one must first describe the role of a carpenter. The U.S. Department of Labor defines a construction carpenter as someone who:

> Constructs, erects, installs, and repairs structures and fixtures of wood, plywood, and wallboard, using carpenter's handtools and powertools, and conforming to local building codes: studies blueprints, sketches or building plans for information pertaining to type of material required, such as lumber or fiberboard, and dimensions of structure or fixture to be fabricated. Selects specified types of lumber or other materials. Prepares layout, using rule, framing square, and calipers. Marks cutting and assembly lines on materials, using pencil, chaulk, and marking gage. Shapes materials to prescribed measurements, using saws, chisels, and planes. Assembles cut and shaped materials and fastens them together with nails, wooden dowels, or glue. Verifies trueness of structure with plumb bob and carpenter's level. Erects framework for structures and lays subflooring. Builds stairs and lays out and installs partitions and cabinet work. Covers subfloor with building paper to keep out moisture and lays hardwood, parquet, and wood strip block floors by nailing floors to subfloor or cementing them to mastic or asphalt base. Applies shock absorbing, sound deadening, and decorative paneling to ceiling and walls. Fits and installs prefabricated window frames, doors, doorframes, weather stripping, interior and exterior trim, and finish hardware such as locks, letterdrops, and kick plates. Constructs forms and chutes for pouring concrete. Erects scaffolding and ladders for assembling structures above ground level. May weld metal parts to steel structural members.

Source: U.S. Department of Labor, Employment and Training Administration, Dictionary of Occupational Titles, 4th Edition, 1977.

A carpenter may specialize in a particular phase or type of carpentry and several titles are presented below.

Typical Carpenter Titles

Combination-Window Installer	Door Hanger
Lay-Out Carpenter	Hardwood Floor Installer
Finish Carpenter	Stair Builder
House Carpenter	Weather Stripper
Building-Insulating Carpenter	Jalousie Installer

Taking into consideration the national skilled labor shortage, Florida's growth and low carpenter wages, and the relatively small percentage of training that the open shop sector is providing, it is imperative that we examine the status of AGC contractors and the skilled carpenters available to them. Chapter 2 will investigate the AGC on both the national and Florida level. Next, the methodology used in developing and distributing the questionnaire will be addressed in Chapter 3. Chapter 4 will analyze the responses to the questionnaire and finally, conclusions and recommendations will be provided in Chapter 5.

CHAPTER 2

THE ASSOCIATED GENERAL CONTRACTORS

National Association

The Associated General Contractors of America (AGC) is a full-service national construction association serving both union and open shop contractors. There are approximately 8,400 General Contractor members and 32,500 Associate and Affiliate members in the nation. The numbers can be somewhat deceiving since a member can a firm or corporation and the membership comprises a wide variety of professionals involved in all aspects of construction (see Table 2.1). These members have helped to form the 113 local Chapters of the AGC. Each local Chapter has its own elected leadership and represents members interest on the local level.

AGC MEMBER TYPE	QUALIFICATIONS
General Contractor	Typically two years of experience in construction contracting as well as an upstanding reputation.
Associate Member	Subcontractor, Manufacturer, or Supplier involved in construction.
Affiliate Member	Financial Institution, Accounting Firm, Insurance Firm, Realtor, or Law Firm involved in construction.

Table 2.1 AGC Member Types

The AGC's strength comes from membership control and 325 members make up the Board of Directors. This Board forms AGC policies and is aided by more than 60 national committees on which 1,300 general contractors serve. AGC main headquarters with more than 90 staff members is located in Washington, D.C.

This office provides Legislative services on the national level with 29 registered lobbyists. There is a $750,000 political action fund and a one-on-one contact with every Representative and Senator. This allows constant monitoring of construction issues on Capitol Hill and Monthly Legislative Updates are provided to all AGC members. Additional staffing is coordinated to provide members with services including:

* Manpower and Training
* Safety and Health Information
* Construction Education
* Curriculum Development
* Insurance and Bonding
* Crime Prevention
* Management Conferences
* Construction Marketing
* Contract Documents
* Political Action
* Weekly National Newsletter
* Constructor Magazine

In 1918, the founders created the AGC and adopted bylaws that read in part:

> "The purposes of the association are:
> To make membership in the association a reasonable assurance to the public of the skill, integrity, and responsibility of its members,
> To protect the legitimate market for the services of general contractors against encroachment by governmental or other agencies,
> To eliminate waste and reduce construction costs,
> To establish various standard contracts and coordinate their use so that the respective interests of owners, general contractors, subcontractors, manufacturers, and suppliers may be properly protected."[1]

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[1] "President's Report", AGC Annual Report 1987 Convention

Over the past sixty-nine years, the AGC has pursued their role established in the bylaws. There has been constant and heavy involvement in Contract Documents, Safety, Training, Education, and Legislative Action.

Contract Documents - In 1987, the AGC and the American Institute of Architects reached an agreement on revisions of several AIA contract documents. AIA Documents A101, Standard Form of Agreement Between Owner and Contractor, and A201, General Conditions, now carry an endorsement by the AGC. The AGC provides information on these documents to members in order to promote their use. The approval and endorsement was a culmination of four years of work from AGC's AIA Documents Review Committee.

Safety - Another success in 1987 was the co-sponsorship, with the American Society of Safety Engineers, of National Safety in the Workplace Week. This joint initiative was well received by President Reagan and Congress, who in turn declared June 15 to June 21 to be the official safety week.

Training and Education - Mr. Ed Profke, Chairman of a special subcommittee of the AGC of America Manpower and Training Committee, has been interviewed by Ali Markus, the Research Coordinator. In this interview, Mr. Profke expressed his interest in obtaining the results of this AGC study. He feels

this information is important and should be incorporated into work he is doing on the national level. His committee is busy in the development of training programs for high school students in order to interest them in entering the construction industry as craftsman.

AGC of America, also through the Manpower and Training Committee, offers a "blueprint" for craft level training. This plan addresses the future construction industry manpower needs. There are five specific areas of activity:

1) Future Manpower Development - An AGC task force to examine projected skilled manpower needs versus the current training system's ability to produce the required number of skilled craftsmen.

2) Curriculum Development - AGC curriculum development began with the Commercial Carpentry Curriculum course material. Now the AGC and the Curriculum and Instruction Materials Center, (CIMC), offer instructional materials on most skilled trades ranging from Carpentry to Heavy Equipment Operation.

3) Vocational Education - An AGC Committee that is involved in forming linkages between Vocational Education and industry training programs. The Committee will provide assistance to any AGC member or Chapter interested in Vocational Education as a training resource.

4) Open Shop Training - This represents AGC's efforts to increase open shop craft training. They have developed models that provide the necessary vehicle for open shop members and Chapters to register their training programs for use on Federal and State funded projects.

5) Joint Apprenticeship Training - AGC participates on the National Joint Apprenticeship and Training Committees which establish national training standards and recommend development of training materials. They also assist in the National Joint Trust Fund to promote training and the Federal Committee on Apprenticeship, which advises the Secretary of Labor on training policy.

Other AGC national involvement in training and education can be seen in the Supervisory Training Program (STP) developed by AGC contractors. This program focuses on the skills that project supervisors and foremen need to be effective. There are ten different units of study, each with about 25 hours of classroom contact.

Legislative Action - The National Journal, one of the most well-respected periodicals on Capitol Hill, carried an article, "Measuring Clout," which analyzed the political effectiveness of

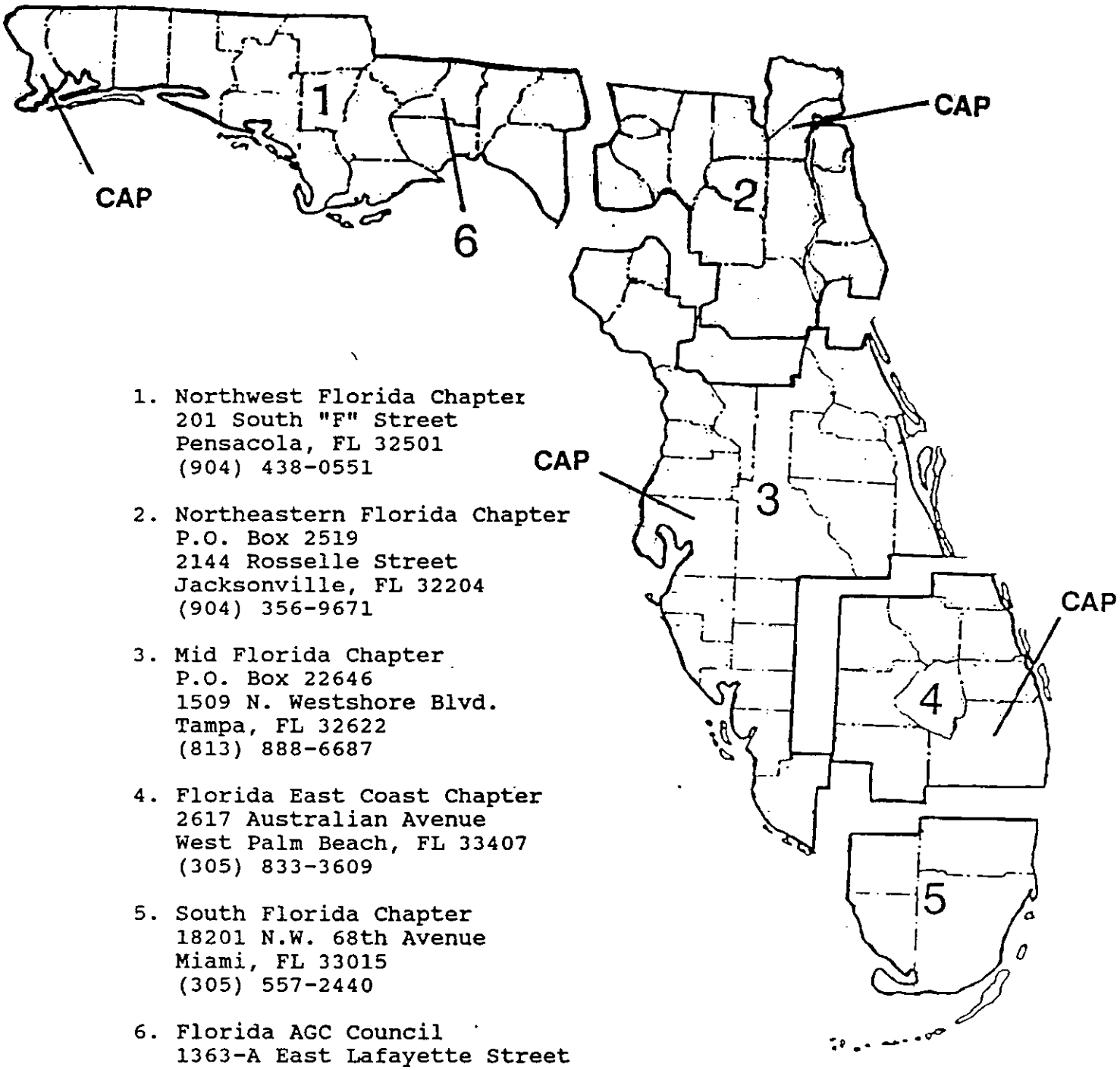
various prominent national associations. This article stated the following about the AGC of America.

> "Trade associations that have wowed Washingtonians include the Associated General Contractors of America, which has a big Political Action Committee (PAC), gives policy makers good information, and knows how to count votes..."

Many legislative actions upheld the AGC's positions in 1987, including prevailing decisions in Water Resources, Superfund - the hazardous waste cleanup program, Clean Water, and H.R. 281 - the Common Situs Picketing and Anti Dual Shop Bill.

FLORIDA AGC

The Florida Association of General Contractors is divided into five autonomous regional Chapters (see Figure 2.1). These Chapters are some of the best run contractor organizations of their kind. The membership numbers for each AGC Chapter are summerized in Table 2.2 but it should be noted that these numbers fluctuate regularly.



1. Northwest Florida Chapter
   201 South "F" Street
   Pensacola, FL 32501
   (904) 438-0551

2. Northeastern Florida Chapter
   P.O. Box 2519
   2144 Rosselle Street
   Jacksonville, FL 32204
   (904) 356-9671

3. Mid Florida Chapter
   P.O. Box 22646
   1509 N. Westshore Blvd.
   Tampa, FL 32622
   (813) 888-6687

4. Florida East Coast Chapter
   2617 Australian Avenue
   West Palm Beach, FL 33407
   (305) 833-3609

5. South Florida Chapter
   18201 N.W. 68th Avenue
   Miami, FL 33015
   (305) 557-2440

6. Florida AGC Council
   1363-A East Lafayette Street
   P.O. Box 10569
   Tallahassee, FL 32302
   (904) 878-5597

CAP - Carpenter Apprentice Program

Figure 2.1 The Florida AGC Chapters

CHAPTER	GENERAL CONTRACTOR MEMBERS	ASSOCIATE MEMBERS	AFFILIATE MEMBERS
Northwest	51	230	57
Northeast	45	147	53
Mid-Florida	123	65	35
East Coast	106	343	63
South	70	75	0
TOTAL	395	860	208

Table 2.2 Florida AGC Membership

The Florida AGC realizes that the growth in the Florida open shop sector necessitates training in order to meet the increased manpower needs. Collectively, the Florida AGC Chapters offer the greatest number of registered open shop apprenticeship programs in the United States. The apprenticeship programs include Air Conditioning, Carpentry, Electrical, Glaziers, Heavy Equipment Operators, Painting, and Plumbing. The locations of the four carpenter apprenticeship programs are also shown on Figure 2.1.

Of particular importance is the Florida AGC Council located in Tallahassee. The Council was formed by the five AGC Chapters "to coordinate on a statewide basis the activities of local

chapters and their individual members for the betterment of the construction industry in the state of Florida." This office also serves as a liaison between the Florida state government and the five AGC Chapters. This allows monitoring of construction issues in the legislature, cabinet meetings, etc. Each General Contractor Member is automatically a member of the Florida AGC Council and a portion of their annual dues is used to support the Council.

Insurance programs are available to members through the AGC. Under Florida law, AGC members can participate in a self-insurer's program. This program provides substantial savings on Worker's Compensation coverage. AGC members can also participate in a Group Major Medical Plan. This is a non-profit trust handled by AGC's Board of Trustees.

The Florida AGC serves both the union and the open shop sector. Unionized members are advised of settlements negotiated with the local building and construction trade unions. Both contractual language and wage rates are available at the AGC Offices. Services such as AGC's Mid Florida Chapter Jobs Center are available to the open shop contractors. There are two Jobs Centers located in Orlando and Tampa. The purpose of this service is to provide a manpower pool for the commercial construction in central Florida. The Jobs Center performs four operations. First, they find workers and then train these workers if needed. The workers are then tested on their skills and placed in appropriate jobs for AGC contractors.

The Florida AGC Chapters provide monthly or bi-monthly newsletters to keep the membership informed on the local, state, and national developments in construction. The Chapters also provide a AGC Publications Library which outlines an extensive list of AGC publications dealing with construction related topics.

The FLORIDA AGC and the QUESTIONNAIRE ANALYSIS

In addition to a statewide analysis of AGC contractors, an analysis of the AGC contractors by Florida's five market regions will be considered (see Figure 2.2). These five market regions are described in the 1986 Florida Statistical Abstract.[2] This breakdown of the state was made because of the different character and construction activity of these regions. It will also facilitate the comparison of AGC data with the data from the other four professional organizations considered in the overall research project. Chapter four will present the results of the AGC questionnaires on a statewide basis. The responses on the regional basis can be found in Appendix B. The next chapter presents the methodology used in the study of the effects of the shortage of skilled carpenters on the Florida AGC contractors.

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[2] Bureau Of Economic and Business Research, Collego of Business Administration, University of Florida, 1986 Florida Statistical Abstract, p.29.

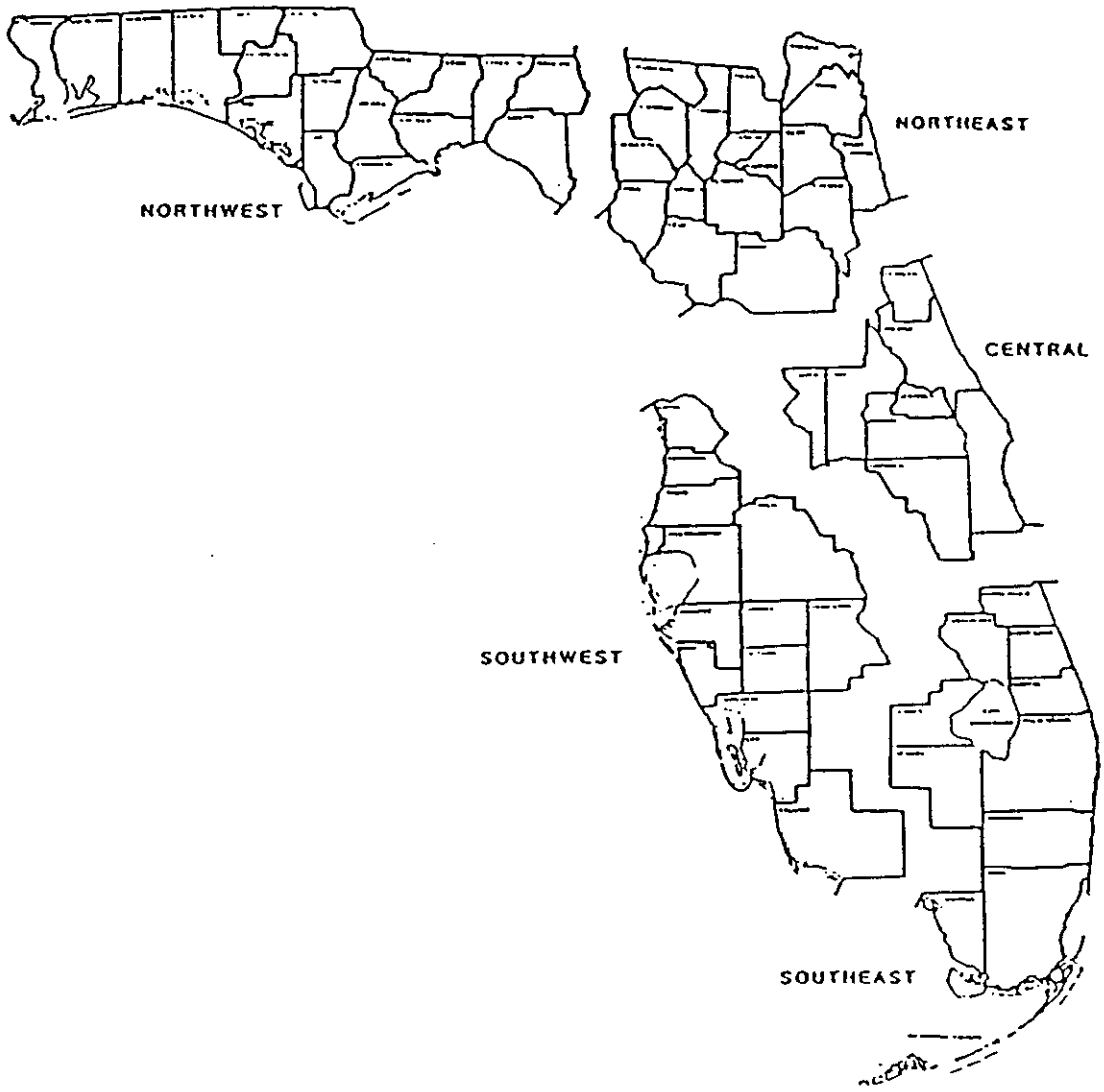

Figure 2.2 Florida's Five Market Regions

Source: 1986 Florida Statistical Abstract

CHAPTER 3

METHODOLOGY

In this Chapter, the methodology used to determine the impediments to an adequate supply of skilled carpenters for Florida AGC contractors is presented. A flow diagram is included in Figure 3.1 to summarize this methodology. Additional sections have been presented on the questionnaire development and administration, content validation of the questionnaire, and information on the methods for statistical analysis of the questionnaire responses.

The study of the AGC contractors was conducted through the Survey Research Method. This method allowed the information to be collected through the use of questionnaire mailouts. The objective of these questionnaires focused on the effects of a shortage of skilled carpenters on the 395 General Contractor members of the Florida AGC. Therefore, a survey population of 395 was considered revelant. Two-thirds (263) of this total population was considered adequate for sampling because the nature of the study was to examine the general trends of the responses. A response rate of 26.5% was obtained from the questionnaires mailed out to the sample population. The response rate was considered sufficient in order to give adequate statistical results.

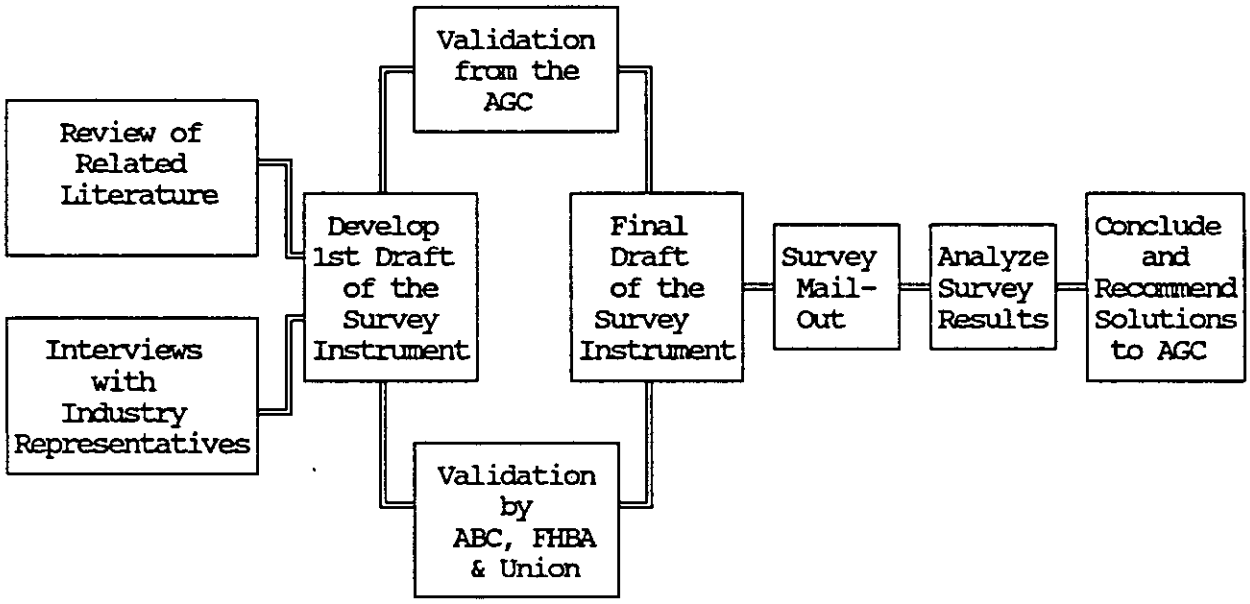

Figure 3.1 Flow Diagram of the Study Methodology

QUESTIONNAIRE DEVELOPMENT

The study of the AGC contractors was conducted through the use of a questionnaire survey. The focus of this questionnaire was to determine the availability, quality, and training of skilled carpenters in the Florida construction industry.

To ascertain the information that was needed, a literature search was conducted to examine the trends in both the construction labor supply and general building economy in Florida. Additional input was sought from members of the construction industry, apprenticeship training programs, and research faculty at the University of Florida. The members of the construction industry provided insight into problem areas such as carpenter availability and the lack of communication between contractors and apprenticeship training programs. The apprenticeship training programs helped develop questions directed at skill related problems in the present carpenter labor pool.

The final draft of the questionnaire contained 32 questions (see Appendix A) and was divided into six areas of investigation as follows:

Area 1 - **Background information on the responding firms.** This included the name of the firm, the position of respondent in the firm, their annual volume of business, the relative proportions of residential, commercial, or other work that the firm was involved in, whether the firm was open shop, union or both and

finally the number of projects undertaken per year.

Area 2 - **Background information about the skilled carpenters currently employed by AGC contractors.** Questions presented here determined the number of journeymen and apprentice carpenters on the contractor's payroll, the wage rate and average length of employment of both journeymen and apprentice carpenters, where the contractors searched for new carpenters, and the criterion that determines promotion or a wage increase for carpenters.

Area 3 - **Determination of an actual shortage of skilled carpenters and the affects this had on the firm.** Questions in this area examined whether there were enough skilled carpenters to hire, the amount of overtime paid to these carpenters, whether hiring more skilled carpenters, if available, would reduce overtime work, whether the volume of projects bid would increase if there was an adequate supply of skilled carpenters, whether a shortage of carpenters ever directly caused scheduling problems and finally the rating of possible reasons for a shortage of skilled carpenters from a provided list.

Area 4 - **The status of carpentry subcontractors.** Responses determined the amount of carpentry work subcontracted, the availability and readiness of these subcontractors, and also the quality of carpenters employed by these subcontractor firms.

Area 5 - **Evaluation of the apprenticeship training program's contributions to the skilled labor supply in Florida.** In this area of inquiry, AGC contractors were asked what tasks they feel a "skilled" carpenter must be able to perform proficiently, whether various types of carpenters will be performing a wider variety of tasks in the future, whether various training programs were making substantial contributions in producing and supplying skilled carpenters, and the level of communication the AGC contractor has with the various apprenticeship programs.

Area 6 - **Solicitation of views and opinions of AGC contractors on labor supply shortage topics.** This final area was designed to elicit a variety of responses that would help alleviate the skilled carpenter shortages. The section asked for views on the factors that could improve the involvement and relationship between contractors and training programs, suggestions that would help solve the shortage of skilled carpenters, the estimated percentage of working carpenters that are illegal aliens, and whether carpenter licensing would improve the quality of carpentry work being performed.

The responses to the questions were also grouped into categories. The four response categories were:

1) Numeric, percentage or check answers
2) Yes, no or cannot say answers
3) Likhert scale or rating (from one to four)
4) Written responses.

CONTENT VALIDITY

The initial questionnaire was based on information from a literature search and a meeting on November 3, 1986 with Clay McCulloh, Vice President of AGC Mid Florida Chapter, and John Weicherding, Executive Director of AGC Jobs Center.[1] The research and the meeting identified the problems that are faced by the construction industry and were incorporated into the first draft. This draft was then sent to a AGC general contractor, a member of the Home Builders Association, a member of the ABC, and a member of the Union Brotherhood of Carpenters as a pilot study. Revisions were made on the basis of their comments to make the second draft. This second draft was used for a similar carpenter study in conjunction with contractors in the Florida Home Builders Association. This provided a further chance for revision since some of the responses indicated that the questions were unclear or misunderstood. These questions were either revised or replaced. By examining the responses it was also possible to expand on some questions in order to probe deeper into the topic. These revisions made up the third and final draft used in the AGC carpenter study presented herein.

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[1] Meeting with Mr. Ali Markus, Research Coordinator, Clay McCulloh, Vice President AGC Mid Florida, and John Weicherding, Director of AGC Jobs Center, in Tampa on November 3, 1986, 2:00p.m.

QUESTIONNAIRE ADMINISTRATION

The intent of the study was to analyze the general trends of responses from AGC contractors. A random sample of 263 general contractors was initially sought. 217 general contractors were randomly chosen from lists provided by four of the five Florida AGC Chapters by selecting every second and third contractor after number two on the list. In other words, contractors in the 4th, 5th, 7th, and 8th positions and so on received the mail-out package. The AGC South Florida Chapter did not mail a listing of their members and preferred that 50 questionnaire packages be mailed to them for distribution to a sample of their membership. This brought the total to 267 questionnaires mailed out. With each questionnaire a cover letter from the School of Building Construction and a cover letter from the AGC Chapter (see Appendix A) as well as a postage paid return envelope was included. As of September 7, 1987 forty-two questionnaires had been returned. Telephone calls to the AGC Chapters were made and the AGC officers encouraged more responses from their membership. At that point, seventy-five, follow-up survey packages were sent to each AGC Chapter for redistribution. By November 1, 1987 the responses totaled 71 out of a sample of 267. This corresponds to a 26.5% return rate. The response breakdown by region is presented in Table 3.1.

RESPONSES BY REGION

REGION	NUMBER OF RESPONDENTS	PERCENT OF RESPONDENTS
Central	10	14.1
Northeast	9	12.7
Northwest	10	14.1
Southeast	30	42.2
Southwest	12	16.9
TOTAL	71	100.0

Table 3.1 Responses by Region

Statistical Analysis

The responses from the 71 questionnaires were input into the Statistical Analysis System, (SAS), on the mainframe at Northeast Regional Data Center. SAS is an all-purpose data analysis system and the basic SAS system provides tools for information storage, data modification, report writing, statistical analysis, and file handling. This program allowed the response information to be sorted by regions corresponding

to the Metropolitan Statistical Areas in the Florida Statistical Abstract of 1986.[2] The various statistical functions performed on the response data include the means, averages, standard deviations, frequencies, and correlations. The output from SAS can be customized to the user's needs in the form of lists, tables, bar chart graphs, plot graphs, etc. One of the most useful outputs for this study was the frequency tables which provided summary distributions of the many variables in the response data.

A copy of the output from SAS can be found in Appendix C. The output from the AGC responses is analyzed next, in Chapter four. The analysis will be based on the six areas of investigation developed in this chapter and will include both the state-wide and the regional results.

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

CHAPTER 4

STATISTICAL ANALYSIS

The analysis of the questionnaire responses provided by Florida AGC contractors was based on 71 responses received from the 267 questionnaires mailed out. This corresponds to a 26.5% response rate. A sample of the questionnaire and accompanying cover letters can be found in Appendix A. The analysis will follow the six areas of investigation detailed in Chapter 3 and a additional section on correlations factors. The seven sections are:

1) Background information on responding firms
2) Background information about the skilled carpenters currently employed by AGC contractors
3) Determination of the extent of the shortage of skilled carpenters and the affects this has on the firm
4) The status of carpentry subcontractors
5) Evaluation of the apprenticeship training programs's contributions to the skilled carpenter supply in Florida
6) Solicitation of views and opinions from AGC contractors on skilled carpenter shortages topics.
7) Pearson Correlations.

These seven sections will be developed on a statewide basis followed by a summary of the regional responses. Only responses of major importance will be included in the responses by regional section.

4.1. BACKGROUND INFORMATION ON RESPONDING FIRMS

Responses from the AGC Contractors in Florida were placed into the five market regions of Florida. These are the same five market regions used in the 1986 Florida Statistical Abstract.[1] The number of responses in each region are listed in Table 4.1a.

RESPONSES BY REGION

REGION	NUMBER OF RESPONDENTS	PERCENT
Central	10	14.1
Northeast	9	12.7
Northwest	10	14.1
Southeast	30	42.2
Southwest	12	16.9
Total	71	100.0

Table 4.1a Responses by Region

[1] Bureau of Economic and Business Research, College of Business Administration, University of Florida, 1986 Florida Statistics Abstract, p.30.

Nature and Size of Responding Firms:

TYPE OF OPERATION

Although the AGC offers membership to union, open shop, and double-breasted contractors, none of the respondents were strictly unionized. There were seven double breasted operations and the remaining 64 respondents were open shop contractors.(see Table 4.1b)

TYPE OF OPERATION	NUMBER OF RESPONDENTS	PERCENT
Open shop	64	90.1
Union	0	0.0
Both (double breasted)	7	9.9
Total response	71	100.0

Table 4.1b Type of Operation

TYPE OF CONSTRUCTION UNDERTAKEN

The majority of AGC contractors responding were involved in commercial construction. A total of 77% of the construction provided by contractors was commercial, 13% was residential, and about 10% involved other types of construction (see Table 4.1c).

TYPE OF CONSTRUCTION	AVERAGE PERCENTAGE
Commercial	77.3
Residential	13.0
Other	9.7

Table 4.1c Type of Construction
(in percentages)

AVERAGE ANNUAL VOLUME OF BUSINESS

The sixty-five AGC contractors responding to this question reported a cumulative total of $1,925 million in business volume. This figure was slightly distorted by a maximum reported annual volume of $850 million from one firm. The lowest volume of annual business was $100,000 and the average value was approximately 30 million. The average number of projects carried annually by the 67 responding contractors was 27 but the median value of 10 might give a better understanding of the project load of AGC contractors.(see Table 4.1d)

BACKGROUND INFORMATION	AVERAGE	MINIMUM	MEDIAN	MAXIMUM
Annual Volume of Business (in millions of dollars)	29.6	0.1	8.0	850.0
Projects carried per year	27.0	1.0	10.0	500.0

Table 4.1d Average Annual Volume of Business and Projects Carried

4.2 BACKGROUND INFORMATION ON THE SKILLED CARPENTERS

NUMBER OF CARPENTERS EMPLOYED

Of the 62 responses, there was an average of 21 journeymen carpenters working for each AGC contractor. On the average, only slightly more than half or 12 of these carpenters were rated as "skilled" carpenters. The study revealed that the average number of carpenter apprentices or carpenters-in-training employed by AGC contractors was six. This means that about 22% of employed carpenters are apprentices or carpenters-in-training.(see Table 4.2a)

BACKGROUND INFORMATION	AVERAGE	MINIMUM	MAXIMUM
Number of journeymen carpenters on payroll	21	0	150
Number of journeymen carpenters that are skilled	12	0	80
Number of apprentices on the payroll	6	0	50

Table 4.2a Number of Carpenters Employed (by skill level)

AVERAGE HOURLY WAGE PAID TO JOURNEYMEN AND APPRENTICE CARPENTERS

The median hourly wage for journeymen carpenters was shown to be $10.50 and $7.50 for apprentices. Since this study consists of over 90% open shop contractors (see Table 4.1b), the hourly figures presented in Table 4.2b can be considered as

representative of open shop carpenter rates. These figures are below the unionized carpenters in Florida which are receiving $12.60 and $8.75, respectively.[2]

Some respondents felt that incentives such as higher wages would help to alleviate the shortage of skilled carpenters.

CARPENTER TYPE	AVERAGE	MINIMUM	MEDIAN	MAXIMUM
Journeymen carpenter	$10.87	$7.50	$10.50	$15.00
Apprentice (carpenter-in-training)	$7.89	$5.00	$7.50	$12.00

Table 4.2b Hourly Wages (in dollars)

AVERAGE LENGTH OF EMPLOYMENT

The average length of employment for journeymen carpenters is 2 years and a median value of 1 year. The carpenter apprentices had the same median value of 1 year but average 14 months of employment (see Table 4.2c). There was a wide range of values given by respondents and some of the comments reflected this variable length of employment. These include:

> "[We] retain some carpenters for years, but turnover is high"
> "[Employment length] depends on the workload"
> "Per project basis" and "Indefinite length"

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[2] Darren Jones, Effects of the Shortage of Skilled Carpenters as Reported by Union Contractors, School of Building Construction, University of Florida, Technical Publication, p.71

CARPENTER TYPE	AVERAGE	MINIMUM	MEDIAN	MAXIMUM
Journeymen carpenter	24	3	12	120
Apprentice (carpenter-in-training)	14	2	12	60

Table 4.2c Average Length of Employment (in months)

HIRING PRACTICES

The hiring practices used by AGC contractors seems to be rather informal. Contacts in the construction industry and advertisements in the paper ranked the highest when contractors were asked where they search for carpenters. To a lesser extent, other methods of finding carpenters were other construction jobs, company on-the-job training, and open shop apprenticeship programs, in that order. The union apprentice programs and the labor unions were the least popular means of finding prospective carpenters. Table 4.2d illustrates, in descending order of popularity, ten different methods of searching for carpenters.

WHERE DO YOU SEARCH FOR CARPENTERS ?

Use the following scale:

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

HIRING PRACTICE	AVERAGE
Construction industry contacts	2.90
Advertisements in the paper	2.59
Other construction jobs	2.27
Company on-the-job training	2.22
Open shop apprentice programs	2.09
Community college training programs	1.92
Vocational training centers	1.69
Labor Agents	1.27
Labor Unions	1.17
Union apprentice programs	1.10

Table 4.2d Hiring Practices (in descending order of popularity)

PROMOTION CRITERION

When AGC contractors were asked "What criterion determines promotion or a wage increase for carpenters?", eighty percent felt that promotion should be based on the carpenter's performance. Experience was ranked as the next most important criterion for promotion. Surprisingly, seniority which can be related to experience in many cases was believed to be least important. The market wage rate for carpenters ranked third and was followed by graduation from a carpenter training program (see Table 4.2e).

WHAT CRITERION 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 CRITERION	AVERAGE
Performance	3.80
Experience	3.11
Market wage rate	2.52
Graduation from training program	2.35
Seniority	1.85

Table 4.2e Promotion Criterion
(in descending order of importance)

4.3 STATUS OF THE SHORTAGE OF SKILLED CARPENTERS

AVAILABILITY OF SKILLED CARPENTERS

Many questions in the survey were developed to verify the extent of the shortage of skilled carpenters. In return, 72% of the contractors felt there were not enough skilled carpenters available to hire. Only 17 of the respondents felt that there are enough skilled carpenters (see Table 4.3a).

ARE THERE ENOUGH SKILLED CARPENTERS FOR YOU TO HIRE ?

RESPONSE	NUMBER OF RESPONDENTS	PERCENT
Yes	17	23.9
No	51	71.8
Cannot say	3	4.2
No Response to question	0	0

Table 4.3a Availability of Skilled Carpenters

While seventy-two percent of the contractors did not feel there were enough skilled carpenters for them to hire, a overwhelming majority (94.4%) felt there was a need for more skilled carpenters. In fact, only two of the 71 responding contractors felt satisfied with the current number of carpenters in commercial construction (see Table 4.3b).

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

RESPONSE	NUMBER OF RESPONDENTS	PERCENT
Yes	67	94.4
No	2	2.8
Cannot say	2	2.8
No Response to question	0	*

Table 4.3b Need For Skilled Carpenters

SKILL LEVELS OF CARPENTERS

In order to determine the tasks that a "skilled carpenter" should be able to perform proficiently, the AGC contractors were asked to rate various tasks from absolutely necessary to unnecessary. Formwork of all types was deemed the most important task that a carpenter should be able to perform (see Table 4.3c). Framing skills for floors, sills and partitions were next in order of merit, followed by installing decking and sheathing, framing roofs, installing doors, windows, and exterior wall coverings. Only 34 respondents felt that reading blueprints was absolutely necessary and was rated as 9th in level of importance. The building of trusses was placed near the bottom of the task list probably because of the heavy involvement in commercial construction. Installing drywall material and insulation were ranked as the least important tasks that skilled carpenters should be able to perform proficiently.

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

TASKS	AVERAGE
Construction forms (piers, columns, beams, slabs, decks, stairs, bridges)	3.66
Construction forms (walls, footings, edges, curbs)	3.63
Frame floors and sills	3.51
Frame partitions	3.48
Install decking and sheathing	3.38
Frame roofs	3.38
Install door, window frame and unit	3.37
Install exterior wall covering and trim	3.29
Read blueprints	3.21
Install paneling, furring, soffit ceiling	3.18
Install structural timber	3.18
Construct interior stairs	3.17
Install cabinets, fixtures and shelving	3.10
Apply weather stripping and caulking	3.01
Issue instruction to crew members	2.76

Table 4.3c Desired Skill Level of Carpenters

TASKS	AVERAGE
Preplan forthcoming activities	2.65
Build trusses	2.59
Install drywall material	2.53
Install insulation and sound control material	2.44

Table 4.3c Desired Skill Level of Carpenters (continued)

In an effort to ascertain how the range of skills of carpenters will change in the future, contractors were asked whether the tasks of different types of carpenters will become broader or narrower. Thirteen contractors responded that the form carpenter's variety of tasks will become much broader. Twenty-four to twenty-nine contractors felt that all carpenter types will have a broader variety of tasks. But the highest number of responses for each carpenter type believed that there would be no change in the tasks currently undertaken by skilled carpenters.(see Table 4.3d)

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	AVERAGE
Form carpenter	2.80
Finish carpenter	2.69
Framing carpenter	2.64

Table 4.3d Skill Level of Future Carpenters

The next question was used to determine if the shortage of carpenters was affecting contractors' business volume. Thirty-six percent of the contractors felt that they would be able to increase the volume of their business if there was an adequate supply of carpenters. On the other hand, thirty-three percent of the contractors felt that would not affect the volume of their business (see Table 4.3e). Another 33% did not feel qualified to answer this question.

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	26	36.6
No	24	33.8
Cannot say	21	29.6
No Response to question	0	0.0

Table 4.3e Effect of Availability of Carpenter on Business Volume

When contractors were asked whether a shortage of carpenters has ever directly caused scheduling problems, fifty-two contractors or 80% responded that scheduling problems have been created by the carpenter shortage (see Table 4.3e). This question relates to the 67% of the respondents who have paid overtime to carpenters in the past year (see Table 4.3g). Some 30% did not pay overtime to skilled carpenters or felt that the overtime was not caused by the shortage of carpenters.

HAS A SHORTAGE OF CARPENTER EVER DIRECTLY CAUSED SCHEDULING PROBLEMS ?

RESPONSE	NUMBER OF RESPONDENTS	PERCENT
Yes	52	80.0
No	13	20.0
No Response to question	6	*

Table 4.3f Shortage of Carpenters vs. Scheduling

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	47	67.1
No	21	30.0
Cannot say	2	2.9
No Response to question	1	*

Table 4.3g Overtime payments

Although 67% of the contractors reported paying overtime to carpenters due to a shortage, the average percentage of hours of overtime worked by carpenters was 8.1% (see Table 4.3h). Some of the larger reported values might be indicative several problems. This large amount of overtime could be from a severe carpenter availability problem or it could be from inadequate scheduling on the part of the contractor.

WHAT PERCENTAGE OF HOURS WORKED BY CARPENTERS IS OVERTIME ?

QUESTION	AVERAGE	MINIMUM	MAXIMUM
Percentage of overtime hours worked by carpenters	8.1	0.0	45.0

Table 4.3h Estimated overtime hours (percentage)

Contractors seem to be reluctant to pay overtime and 81% stated that they would hire more carpenters to avoid paying overtime. An important consideration here is that some overtime is not necessarily an evil. An astute contractor will want to keep slightly more work on hand than the carpenters doing the work. This might be the case with the 12% that responded no to hiring more carpenters to avoid paying overtime.

WOULD YOU HIRE MORE SKILLED CARPENTERS TO AVOID PAYING OVERTIME ?

RESPONSE	NUMBER OF RESPONDENTS	PERCENT
Yes	55	80.9
No	8	11.8
Cannot say	5	7.4
No Response to question	3	*

Table 4.3i More Skilled Carpenters vs. Overtime

The following question provided the contractors an opportunity to rate eight possible reasons for the current shortage of skilled carpenters. The general decline in craftsmanship and the lack of training programs were judged as the most important reasons for the shortage of skilled carpenters (see Table 4.3h). This is to say that it is not so much a shortage of carpenters but a shortage of "skilled" carpenters. Contractors also feel that the shortage is being exacerbated by the boom in construction. To a lesser extent, the increase in

prefab components, increased emphasis on cutting cost, low wage rates, and part-time carpenters were seen as reasons for the shortage of carpenters. Finally, the low profile of labor unions was believed not at all to be a reason for the shortage of skilled carpenters. AGC contractors gave additional reasons for the skilled carpenter shortage. Some of these comments are:

- "The carpenter today is a specialist in one phase of carpentry"
- "I have seen the products of the local tech center and there was no hope."

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	AVERAGE
General decline in craftsmanship	2.90
Lack of training programs	2.59
Construction boom	2.27
Because there is greater emphasis on prefab, there is decreased demand in the skill level of on site carpenters	2.22
More emphasis on cutting cost than quality control	2.09
Low wage rates	1.92
Part time carpenters	1.17
Low profile of Labor Union	1.10

Table 4.3j Reasons for Shortage of Skilled Carpenters

Contractors were also encouraged to give written suggestions pertaining to the relief of the shortage of carpenters. Some of the suggestions are listed below by general topic.

Training Programs:

- "More training programs and the advertisement of these programs"
- "Information to the public that training is available"
- "Start [training] programs in highschool, create a better image and bring it back to a respected profession"
- "Provide more Association sponsored training programs"
- "A comprehensive, non-union, state-wide program that produces carpenters with practical knowledge and a commitment to the industry"
- "State funding or contribution to broad based training programs run by industry associations"
- "Open shop apprentice school with local contractor involvement"
- "More commitment from General Contractors"

On-The-Job Training:

- "Formal and/or on-the-job training is the only answer. However, not many are willing to hire and train the unskilled ... if tight schedules and budgets were not a major factor, then contractors would be willing to train on-the-job"
- "Provide more improved and developed on-site training"
- "Provide training on-the-job and schooling after hours"

Miscellaneous:

- "Higher Wages"
- "Local Employment Hiring Centers"

- "Labor Pool through the AGC"

- "Make carpentry a "closed" trade with only highly skilled craftsmen able to wear the title of "carpenter" and leave the rest as laborers"

- "Get owners to demand quality work"

4.4 THE STATUS OF CARPENTRY SUBCONTRACTORS

Although the trend in general contracting is for the contractor to operate as a construction brokers, the AGC contractors reported only 38.7% of their carpentry work is subcontracted (see Table 4.4a). Some of the larger firms reported 100% of their carpentry work is on the subcontract basis.

WHAT PERCENTAGE OF CARPENTRY WORK DO YOU SUBCONTRACT ?

QUESTION	AVERAGE	MINIMUM	MAXIMUM
Percentage of carpentry work subcontracted	38.7	0.0	100.0

Table 4.4a Subcontracted Carpentry Work (percentage)

When questioned about the availability of carpentry subcontractors, about 44% of the contractors felt that there was enough carpentry subcontractors to handle their work. On the other hand, some 41% believed the opposite and have had trouble finding enough carpentry firms (see Table 4.4b). About 16% of the contractors were not in a position to answer this question.

IF YOU SUBCONTRACT A MAJORITY OF YOUR WORK, ARE THERE ENOUGH FIRMS AVAILABLE TO DO YOUR WORK ?

RESPONSE	NUMBER OF RESPONDENTS	PERCENT
Yes	14	43.8
No	13	40.6
Cannot say	5	15.6
No Response to question	39	*

Table 4.4b Availability of Carpentry Subcontract Firms

The next several questions were designed to elicit views on the skill levels of carpenters working for carpentry subcontractors. First, the AGC contractors were asked whether they were satisfied with the quality of work performed by these subcontractors (see Table 4.4c). Although 40% of the contractors were satisfied with the carpentry subcontractors, the majority (51.4%) did not feel that the subcontractors were doing quality work. This question evaluates the subcontractor as a whole and so further questions were asked to determine the quality of the subcontractor's carpenters.

ARE YOU SATISFIED WITH THE QUALITY OF WORK DONE BY THE FIRMS TO WHOM YOU SUBCONTRACT CARPENTRY WORK ?

RESPONSE	NUMBER OF RESPONDENTS	PERCENT
Yes	14	40.0
No	18	51.4
Cannot say	3	8.6
No Response to question	36	*

Table 4.4c Quality of Carpentry Subcontractors

When asked if the skill of the subcontractor's carpenters was adequate, 63% of AGC contractors were not satisfied with the carpenter's skills (see Table 4.4d). Half as many contractors or 31.4% felt these carpenters had sufficient skills and the other 5.7% of the contractors did not feel qualified to comment.

IN YOUR OPINION, IS THE SKILL OF CARPENTERS WHO WORK ON THE SUBCONTRACTED WORK ADEQUATE ?

RESPONSE	NUMBER OF RESPONDENTS	PERCENT
Yes	11	31.4
No	22	62.9
Cannot say	2	5.7
No Response to question	36	*

Table 4.4d Adequacy of Carpenters of Subcontractors

A third question pertaining to subcontractor's carpenters invited an estimate of the percentage of subcontractor's carpenters that are "skilled." From the 34 respondents to this question, only 32.6% of the carpenters working for carpentry subcontractors were deemed as "skilled" (see Table 4.4e). The response minimum was 1% and the maximum was 90%.

IN YOUR OPINION, WHAT PERCENTAGE OF THE SUBCONTRACTOR'S CARPENTERS ARE SKILLED CARPENTERS ?

QUESTION	AVERAGE	MINIMUM	MAXIMUM
Percentage of sub-contractor's carpenters that are skilled	32.6	1.0	90.0

Table 4.4e Percentage of Skilled Subcontractor Carpenters

4.5 THE ROLE PLAYED BY TRAINING PROGRAMS

The role played by the training programs is vital to the continuation of a skilled manpower supply. But where do the majority of skilled carpenters get their training and what type of training yields the quality carpenters. To answer these questions contractors were asked which training programs are making substantial contributions in both supplying and producing skilled carpenters. The overwhelming reaction was that AGC contractors feel on-the-job training is the best method for both supplying and producing skilled carpenters (see Table 4.5a and 4.5b). The results for these two questions were very similar. The responses to these questions agreed that open shop training and vocational training were the two next best alternatives to on-the-job training. The union apprenticeship programs were thought to have only a small contribution in the supply of skilled craftsmen. This is probably because there was very little union representation in the study other than the seven double-breasted firms that responded. In the eyes of the AGC contractors, the least important contribution was made by the community college training programs.

To the extent that on-the-job training is the most popular method of training, the next question asked whether today's carpenters working in commercial construction need to undergo some kind of classroom training. The overwhelming response was yes; 83.1% of the contractors concluded that the current carpenters in commercial construction need classroom training (see Table 4.5c).

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

Use the following scale:

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

TRAINING PROGRAM	AVERAGE
On-the-job training	3.15
Vocational training center	2.38
Open shop apprenticeships	2.32
Union apprenticeships	1.89
Community college training	1.84

Table 4.5a Contributions of the Training Programs

IN YOUR OPINION, WHICH OF THE FOLLOWING TRAINING PROGRAMS PRODUCES THE BEST CARPENTERS FOR YOUR NEEDS ?

Use the following scale:

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

TRAINING PROGRAM	AVERAGE
On-the-job training	3.19
Open shop apprenticeships	2.51
Vocational training center	2.26
Union apprenticeships	2.00
Community college training	1.89

Table 4.5b Performance of Training Programs

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

RESPONSE	NUMBER OF RESPONDENTS	PERCENT
Yes	59	83.1
No	7	9.9
Cannot say	5	7.0
No Response to question	0	0.0

Table 4.5c Need for Classroom Training

In order to determine the contractors's awareness and utilization of various training programs, contractors were asked to rate the level of communication they had with these training programs. The only appreciable levels of communication were with on-the-job training and open shop training programs (see Table 4.5d). Communication with the vocational training programs and the community college programs was used to a lesser extent. Considering the open shop nature of the respondents, it was quite natural that communication with the union apprenticeship programs was negligible.

WHAT LEVEL OF COMMUNICATION DO YOU HAVE WITH THE FOLLOWING TRAINING PROGRAMS ?

Use the following scale:

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

TRAINING PROGRAM	AVERAGE
On-the-job training	3.15
Open shop apprenticeships	2.26
Vocational training center	1.70
Community college training	1.66
Union apprenticeships	1.11

Table 4.5d Level of Communication between Industry and Training Programs

So that the contractors might develop a better communication channel with the training programs, contractors were asked to rank industry-training program linkages. A formal meeting between the two groups was reported as the best method for communication between the two parties (see Table 4.5e). The formal meeting was followed by sitting on advisory committees. Attending educational functions and written contact were close in level of importance but not nearly as popular as the formal meeting.

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

STRATEGY	AVERAGE
Formal meeting of the two groups	2.90
Sitting on an advisory committee	2.59
Attending educational functions	2.27
Written contact	2.22

Table 4.5e Strategy for Industry-Training Program Linkage

4.6 AGC CONTRACTORS VIEWS AND OPINIONS

In the final area of questions, the views of the contractors were solicited on topics that can or do affect the skills of currently employed carpenters. The first question probed into the carpenter licencing issue. The majority of AGC contractors (58.8%) felt that a requirement for carpenters to become licenced would not ensure better skills and standards (see Table 4.6a). Only 22% of the contractors believed licencing to be a good idea and another 19% were unsure.

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

RESPONSE	NUMBER OF RESPONDENTS	PERCENT
Yes	15	22.1
No	40	58.8
Cannot say	13	19.1
No Response to question	3	*

Table 4.6a Licensing of Carpenters

Another topic that was explored and could affect carpenter skills was the issue of illegal aliens in the carpentry industry. In order to get an honest response, contractors were asked if they believed that other contractors are hiring illegal aliens. The majority of the respondents (47%) did not feel they were in a position to reply but 27 contractors (39.7%) believed that other contractors were hiring illegal aliens. About 13% did not agree (see Table 4.6b).

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

RESPONSE	NUMBER OF RESPONDENTS	PERCENT
Yes	27	39.7
No	9	13.2
Cannot say	32	47.1
No Response to question	3	*

Table 4.6b Illegal Aliens

Contractors were also requested to estimate the percentage of carpenters in Florida that are illegal aliens. From the 26 contractors that responded, the average percentage of illegal aliens working as carpenters was estimated at about 10% (see Table 4.6c).

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

QUESTION	AVERAGE	MINIMUM	MAXIMUM
Percentage of illegal alien carpenters	9.8	0.0	33.0

Table 4.6c Estimate of Illegal Aliens

4.7 PEARSON CORRELATIONS

In this section, the results of the correlation analysis on the 71 AGC contractor questionnaires is presented. The correlation analysis is used to measure the strength of the relationship between two variables or responses. Correlation coefficients can range from -1 to 1. A correlation coefficient close to 1 means the two responses are positively correlated; a correlation coefficient near zero means there is little correlation; and a correlation coefficient close to -1 means the responses are negatively or inversely correlated. Thus the higher the absolute value of the correlation coefficient, the stronger the relationship between the two responses. For example, when the contractor's average volume of business was compared to Question 4, the number of journeymen carpenters employed, a positive correlation coefficient of .70217 was obtained. This states that as the average volume of business increases, the number of journeymen carpenters that are employed also increases. The significant correlations are presented in Table 4.7.

RESPONSE	CORRELATION COEFFICIENT	RESPONSE
Question I As the business volume increases	.70217	Question 4 The number of journeymen carpenters employed increases
Question I As the business volume increases	.55365	Question 6 The number of apprentice carpenters employed increases
Question 4 As the number of journeymen carpenters increases	.81185	Question 5 The number of journeymen carpenters that are "skilled" increases
Question 5 As the number of journeymen carpenters that are "skilled" increases	.67855	Question 6 The number of apprentice carpenters employed increases
Question 8A As journeymen carpenter wage rates increase	.42376	Question 14 The percentage of carpentry work that is subcontracted increases
Question II As the percentage of residential construction decreases	.42467	Question 18 The percentage of subcontracted carpenters that are "skilled" increases

Table 4.7 Pearson Correlation Coefficients

This concludes the response analysis in terms of the statewide frequencies and correlations. The next section will provide similar information but the information will be broken down into the five market regions of Florida.

4.8 SUMMARY ANALYSIS OF RESPONSES BY REGION

The study reveals that from the AGC contractors that responded, the average annual volume of business in the Northeast region was the largest (see Table 4.8). While the greatest percentage of commercial construction undertaken by contractors was in the Central region, the Southeast region reported the most residential construction. Almost no residential construction was undertaken by contractors in the Northwest region and these contractors achieved the greatest amount of construction other than residential and commercial. When compared to the state average for number of apprentices employed, the Northwest region had one-third as many employed apprentices and the lowest hourly wage for journeymen and apprentice carpenters. The range of hourly wages throughout Florida was reported as $7.50 to $15.00 for journeymen carpenters and $5.00 to $12.00 for apprentice carpenters. The Southeast region reported the highest average hourly wage for journeymen carpenters. This hourly wage of $12.19 has probably been influenced by the union wage scales in that area.

The highest percentage of contractors that felt there were not enough skilled carpenters and felt the need for more carpenters was in the Northeast region. At the same time, only 50% of the contractors in the Central region felt there was not enough skilled carpenters. This might be attributed to the AGC Jobs Center program available in that area.

SUMMARY OF RESPONSES BY REGION

ISSUE	STATE WIDE	NW REGION	NE REGION	CENTER REGION	SE REGION	SW REGIC
Annual Average volume of business (in millions)	29.6	13.1	107.3	27.5	10.6	29.1
Avg. percent of residential construction undertaken	13.0	1.0	8.3	6.0	22.3	9.1
Avg. percent of commercial construction undertaken	77.2	66.0	75.6	92.0	75.7	80.0
Avg. percent of other construction undertaken	9.6	33.0	16.1	2.0	2.0	10.9
Avg. no. of journeymen carpenters employed	21	17	23	23	19	34
Avg. no. of "skilled" journeymen carpenters	12	7	11	15	9	23
Avg. no. of apprentice carpenters employed	6	2	9	3	5	12
Avg journeymen carpenters' hourly wage (in dollars)	10.87	8.85	11.03	10.42	12.19	9.59
Avg. apprentice carpenters' hourly wage (in dollars)	7.89	6.65	7.69	7.58	8.74	6.95
Avg. length of journeymen carpenters employment (months)	24	24	18	24	31	14
Avg. length of apprentice carpenters employment (months)	14	20	14	16	14	10
Contractors without enough skilled carpenters to hire	71.8%	50.0%	100%	50.0%	80.0%	66.7%
Contractors feeling need for more skilled carpenters	94.4%	90.0%	100%	90.0%	96.7%	91.7%
Contractors who may increase volume if adequate supply of carpenters	36.6%	20.0%	33.3%	10.0%	56.7%	25.0%
Contractors who have paid overtime because of a shortage	67.1%	50.0%	88.9%	50.0%	69.0%	75.0%

Table 4.8 Summary of Responses by Region

SUMMARY OF RESPONSES BY REGION

ISSUE	STATE WIDE	NW REGION	NE REGION	CENTER REGION	SE REGION	SW REGION
Contractors who would hire more skilled carpenters to avoid paying overtime	80.9%	60.0%	88.9%	66.7%	92.9%	75.0%
Avg. percent of hours worked by carpenters that is overtime	8.1	8.1	9.4	6.0	6.2	13.5
Avg. percent of carpentry work that is subcontracted	38.7	13.3	33.7	48.7	49.2	12.4
Contractors who do not have enough carpentry subcontractors	43.8%	33.3%	100%	60.0%	47.1%	40.0%
Contractors who feel skill of carpentry subcontractors is not adequate	62.9%	33.3%	0.0%	85.7%	70.6%	50.0%
Avg. percent of subcontractor's carpenters that are skilled	32.6	32.8	30.0	31.4	26.2	41.0
Contractors who feel carpenters need classroom training	83.1%	90.0%	100%	70.0%	80.0%	83.3%
Avg. percent of contractors in favor of carpenter licencing to ensure better skills	22.1	10.0	33.3	0.0	37.0	8.3
Ranking for a broader variety of tasks for future carpenters (scale 1 to 4; 4 being broader)						
a. framing carpenters	2.6	2.5	2.5	2.6	2.8	2.4
b. form carpenters	2.8	3.0	3.1	2.5	2.8	2.5
c. finish carpenters	2.7	3.0	2.5	2.5	2.8	2.4
Ranking of training programs producing the best carpenters (scale 1 to 4, 4 being the best)						
a. on-the-job training	3.2	3.2	3.3	3.0	2.9	3.9
b. open shop apprenticeship	2.5	2.4	2.5	2.8	2.6	2.3
c. community college	1.9	1.8	1.7	1.4	2.1	2.0
d. vocational training	2.3	2.8	2.4	2.3	2.0	2.3
e. union apprenticeship	2.0	1.6	2.3	1.9	2.3	1.5

Table 4.8 Summary of Responses by Region (continued)

SUMMARY OF RESPONSES BY REGION

ISSUE	STATE WIDE	NW REGION	NE REGION	CENTER REGION	SE REGION	SW REGIC
Contractors' communication level with training programs (scale 1 to 4, 4 being close)						
a. on-the-job training	3.2	3.4	3.4	2.7	3.0	3.5
b. open shop apprenticeship	2.3	2.3	2.7	2.3	2.1	2.2
c. community college	1.7	1.5	1.8	1.5	1.7	1.8
d. vocational training	1.7	1.8	2.1	1.5	1.5	2.0
e. union apprenticeship	1.1	1.1	1.2	1.0	1.1	1.1
Ranking of best method for industry-training program linkage (scale 1 to 4, 4 being important)						
a. formal meeting	3.2	2.7	3.3	3.9	3.3	3.0
b. sitting on advisory committee	2.6	2.2	3.0	2.2	2.9	2.5
c. attending educational function	2.5	2.1	2.7	2.3	2.8	2.6
d. written contact	2.2	2.0	2.0	2.2	2.5	1.9
Ranking of reasons for shortage of skilled carpenters (scale 1 to 4, 4 being important)						
a. general decline in craftsmanship	3.3	3.5	3.3	3.1	3.5	3.0
b. lack of training programs	2.9	3.0	3.0	2.4	3.1	3.1
c. construction boom	2.6	2.8	2.6	2.6	2.5	2.8
d. increased emphasis on prefab and decreased demand for on-site carpenters	2.4	2.7	2.2	2.0	2.3	2.3
e. more emphasis on cutting costs than quality control	2.4	2.3	2.3	2.4	2.5	2.3
f. low wage rates	2.1	2.4	2.3	1.6	2.2	1.8
g. part time carpenters	1.9	2.1	2.0	2.1	1.8	1.7
h. low profile of labor unions	1.4	1.4	1.2	1.4	1.6	1.3

Table 4.8 Summary of Responses by Region (continued)

The questionnaire results identify the Northeast and Southeast regions as the hardest hit in terms of paying overtime to skilled carpenters. The average percent of the hours worked by carpenters that is overtime is 9.4 and 13.5%, respectively. About 90% of the contractors in the Northeast region stated that they have paid overtime to carpenters because of a shortage of carpenters.

The largest amount of carpentry work subcontracted out is taking place in the Central and Southeast regions. Here almost 50% of the carpentry is on the subcontract basis. These two regions follow the Northeast region in the percentage of contractors who feel they do not have enough carpentry subcontracting firms available to them. The Central and Southeast regions are also the areas where the carpenters provided by the subcontractors are felt to be inadequate in terms of their skills. Additionally, the Central and Southeast regions have reported the lowest percentages for the number of subcontractor carpenters that are skilled.

It was almost unanimous that carpenters need to undergo some form of classroom training. State-wide, 83% of the contractors believed this to be true. The percentage range for the five regions on this subject varied from 70% to 100%, indicating their strong conviction.

The Southeast region contained the highest percentage of contractors in favor of carpenter licencing in order to ensure better carpenter skills. However, only 37% of these contractors were in favor of licencing and this too might be an attitude passed on by the large union influence in the area.

All of the five regions ranked on-the-job training as the best method for producing the best skilled carpenters. In fact, the Southwest region's

average rated on-the-job training at 3.9 on a scale of 4.0. The fi
regions also rated open shop apprenticeship programs as the second bes
method for producing carpenters. Only the Southeast and the Northeas
regions had responses that showed contractors felt that unic
apprenticeship programs were making contributions to the supply of skilled carpenters.

The AGC contractors were again unanimous on the subject of linkages for a industry-training program. The formal meeting was chosen as the bes
method to create such a linkage. Sitting on an advisory committee wa
rated as the second best alternative with the exception of the Southwest and Central regions. These regions ranked the attendance of educationa functions above sitting on advisory committees.

The contractors' reasons for the shortage of skilled carpenters wer much the same within the five regions as they were state-wide. Thes reasons are listed in order of importance in Table 4.8. Some differences between the ratings from the regions and the state averages are note below. The Northwest region classified the low wage rate as a slightly more important reason for the shortage of skilled carpenters. The Centra region indicated that the lack of training programs was not as important a the construction boom and that the emphasis on cutting costs was more important than the increased emphasis on prefabricated materials. Thi same sentiment regarding the emphasis on cutting costs was demonstrated by the Southeast region.

Up to now, the questionnaire responses from AGC contractors have been analyzed on both a state-wide and a regional basis. For more detailed information on the responses by region, refer to Appendix B. In the nex

chapter conclusions will be drawn from the preceding information. In addition, recommendations will be directed at alleviating, at least in part, the shortage of skilled carpenters available to the AGC contractors in Florida.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

The Extent of the Shortage of Skilled Carpenters

The study has shown that the majority of AGC General Contractors believe the shortage of skilled carpenters is a serious problem. While 71.8% of the contractors felt that there are not enough skilled carpenters to hire, an overwhelming majority (94.4%) felt there was a need for more skilled carpenters in the commercial construction industry in Florida. In fact, only 2 of the 71 respondents felt satisfied with the current number of skilled carpenters. Many AGC contractors (80%) reported that this shortage has directly caused scheduling problems and some 37% felt that the inadequate supply of skilled carpenters was constraining their volume of business. The carpenter shortage reportedly caused 67% of the contractors to pay overtime to skilled carpenters last year.

The shortage of skilled carpenters has also affected the carpentry subcontractors employed by AGC general contractors. Over 40% of the general contractors stated that there was not enough carpentry subcontractors available to perform their work. The contractors also felt that the quality of the carpentry subcontractor's work is deficient. A majority of the contractors were not satisfied with the quality of the carpentry subcontractors and almost 63% felt that the skills of these subcontracted carpenters were inadequate.

Impediments to an Adequate Supply of Skilled Carpenters

In the opinion of AGC contractors, the general decline in craftsmanship was judged as the most important reason for the shortage of skilled carpenters. This is to say that there may be enough so-called carpenters but finding "skilled" or qualified carpenters is difficult at best. The lack of training programs was also perceived as a serious impediment to an adequate supply of skilled carpenters. Numerous contractors commented on the need for more training programs but more importantly the need for more contractor involvement in these programs. Another important and rather obvious reason for the shortage of skilled carpenters was the general boom in construction in Florida. A further impediment was revealed regarding the changing nature of construction materials. The study indicated that the increased use of prefabricated materials has contributed towards reducing the skill levels of carpenters.

Training Programs - Contributions and Communication

The above mentioned impediments to an adequate skilled carpenter supply have lead to reducing both the role and the perceived need for formal carpenter training programs. Many AGC contractors feel that carpenters today are becoming more and more specialized. And by specializing, carpenters can get by with little or no formal training. This is demonstrated by the overwhelming number of contractors who feel that on-the-job training makes the largest contributions in both producing and

supplying carpenters for the commercial construction industry. But is on-the-job training really training workers to be skilled carpenters or is it perpetuating specialization in the carpentry industry? If workers are being trained on the job without guidance directed at training, then these workers are probably learning through "osmosis" and are not rotating through a variety of work and skills. When considering on-the-job training, it should be realized that this is the most economical training method for contractors. Contractors do not have to spend as much money for on-the-job training as they do for formal classroom training. Rather they can save money by training unskilled workers to do certain carpentry tasks.

Additional responses provided by AGC contractors determined that open shop training programs and vocational training programs were the two next best alternatives to on-the-job training. Union apprenticeship programs were thought to have little contribution to the supply of skilled carpenters and community college programs were thought to have even less of a contribution.

Contractors were also asked to rate the levels of communication they had with various training programs. The only appreciable levels of communication were with on-the-job training and open shop training programs. The level of communication between contractors and the vocational training programs was substantially lower and communication with community colleges and union programs was used to even a lesser extent.

The AGC contractors favored the formal meeting as the best method in providing a communication linkage between themselves and the various training programs.

Supply of Carpenters to AGC Contractors

The hiring practices of AGC contractors is rather informal. The highest ranked methods for locating carpenters was through contacts in the construction industry and advertisements in the newspaper. Searching for carpenters on other construction jobs was popular, as was training new carpenters on the job. Open shop and community college training programs were sometimes used as a source of carpenters. Finally, the use of vocational training centers and programs associated with carpenter unions were viewed as unpopular sources for carpenters.

Important Tasks for Skilled Carpenters

Various tasks that AGC contractors thought a skilled carpenter should perform proficiently included formwork as the single most important task out of 21 tasks listed. This is probably due to the fact that most AGC contractors perform their own concrete work and need carpenters to construct formwork. Framing type work was rated as the next most important skill that carpenters should posses. This framing work includes framing floors, sills, partitions and roofs. The installation of decking and sheathing was also believed to be a necessary skill followed by the installation of door and window units, exterior wall

coverings, and trimwork. The ability to read blueprints was rated as the ninth most important skill but was still rated between necessary and absolutely necessary. Building trusses and installing drywall, insulation, and sound control material ranked as the least important tasks that carpenters should be able to perform. This is probably due to the large percentage of contractor involvement in commercial construction and other trades or type of workers performing some of this work.

RECOMMENDATIONS

It is evident from this study that the skilled carpenter shortage is of a serious proportion. Rather than wait for the problem to get worse or correct itself, actions must be taken to help alleviate this shortage of skilled carpenters on both a statewide and a national basis. Solutions to the shortage problem must take into consideration the needs of AGC contractors in order to be truly effective. Responses from the contractors indicated that a solution should contain more contractor involvement and commitment. The following recommendations are suggested:

1. The AGC Chapter Associations should require the use of competency based instructional materials in all carpenter training programs.

2. The competency based training programs should issue carpenter certificates at various stages in the training program and carpenter cards upon completion of this program to ensure training transportability.

3. AGC Manpower and Training Committees from each AGC Chapter should place contractor members on advisory boards of the AGC, Vocational, Community College, and High School training programs for the purpose of improved communication and implementation of the competency based training program.

4. Approximately, 160 hours of classroom instruction by the various training programs should be integrated with on-the-job training.

5. A rotation of on-the-job duties must be monitored by the same instructors who are working in the classrooms of the various training programs.

6. Indivdual carpenters must be given incentives to participate in the classroom training and the on-the-job training.

7. Job Centers which place carpenters on jobs, similar to the two used by the AGC Mid Florida Chapter, should be created in all AGC Chapters.

8. The AGC Manpower and Training Committee of each AGC Chapter should promote all the various training programs to the public in order to attract and recruit more trainees.

9. When the various training programs have incorporated the AGC competency based training program, the AGC manpower and Training Committee should promote these programs to AGC contractors in order to make the contractors more aware of the quality of carpenters produced by the training programs.

RECOMMENDATION RATIONAL

This section has been included in order to provide rational and further explanation of the recommendations given in the previous section. The rational numbers correspond to the recommendation numbers used previously.

1. The National AGC and the Curriculum and Instructional Materials Center (CIMC) of the Oklahoma State Department of Vocational and Technical Education have developed competency based instructional materials available for several construction crafts including both residential and commercial carpentry. This material was developed with a tremendous amount of input and involvement from AGC contractors. The AGC Chapter Associations should full advantage of this material and negotiate with community colleges, vocational centers, highschools, and open shop programs to include it in their training programs.

2. Competency based training lends itself well to the standardization of carpenter skills, which in turn could be recognized by National and State level AGC associations. Competency based training and the standardization of skills could provide for the use of carpenter certificates at certain stages and a card at the end of the apprenticeship. However, this should not be used as a method of licensing carpenters but rather ensure training transportability. The use of this system would also help link and coordinate the various AGC training programs

available in Florida. Further, this system would keep different organizations or programs from duplicating efforts in the development of carpentry training and allow concentration on administration of these programs. Another advantage of this system is that current carpenters could get updated training and test-out of the phase if competent.

3. The AGC chapter associations should establish or improve communication with the various training programs available throughout the state, whether highschools, vocational centers, open shop programs, or community colleges. This would allow current training programs to be utilized to a much greater extent. Since much thought, time, and money has already gone into these programs, they should be re-evaluated, improved, and incorporated with the competency based system, in order to better meet the needs of the AGC contractors. The chapter associations must be the voice or communication channel for the contractors because they have the knowledge and resources to see that the contractor's needs are being meet. Many contractors expressed their disappointment with the graduates from several of the training programs. The contractors must have faith in training programs if they are expected to give monetary support to the programs and hire the program's graduates. This confidence can be improved by increasing contractor input to these programs. The placement of contractors on the advisory boards of the training programs would accomplish this goal. Another more

direct input can take place in the participation of the contractor's carpenters to assist in classroom training on weekends or other appropriate times.

4. Over 80% of AGC contractors felt carpenters need to undergo some kind of classroom training. Since on-the-job training was reported to be a very popular training method, on-it should be continued and integrated with some classroom instruction. AGC chapter associations should negotiate with the community colleges, highschools, and vocational centers in order to fuse the resources of these schools with the needs of the contractor's training programs. Again these resources could be available on evenings and weekends and supplement the on-the-job training programs. The AGC Mid Florida Chapter has already started programs using community college facilities.

5. The rotation of on-the-job duties is crucial to the full development of carpenter apprentices. The most feasible method of monitoring this on-the-job duty rotation is through the instructors who are already aware of the classroom progress of the apprentices.

6. Individual carpenters must be given incentives to participate in classroom instruction and on-the-job training.

7. A Job Center work much like a labor pool. However, it also has the ability to find workers, test worker skills, and then place workers in appropriate jobs. Job Centers easily fit into the scheme of competency based training and actually facilitate program implementation.

8. By increasing the number of recruits, the aggregate quality of the individuals in the training program will increase. The AGC should target areas, such as highschools, where they can get young potential future workers interested in the construction crafts.

9. If AGC contractors are made aware of the progress of the training programs or better yet take active roles in the programs, then they will be more likely to hirer the apprentices and promote the training programs to other interested individuals.

RECOMMENDATIONS FOR FUTURE RESEARCH

The following topics were uncovered during the course of this study and provide potential subjects for further research.

1. This study has the limitation of considering only management's point of view since responses were obtained only from AGC contractors. This was done because it was the most feasible method to gather the required information. A site interview with employed carpenters and appentices could be of great importance if the study addressed the same issues but was directed towards the carpenter and labor's point of view. A minimum of 200 carpenter and apprentices representing the five market regions of Florida should be sought by this research. The research could be conducted by 3 to 5 members, each concentrating on a different region. If a grant for telephone, travel, and expenses was made, it would be feasible for this research to cover the skilled carpenter shortage from another direction.

2. A study into the trend towards specialization in the carpentry industry could also provide new insight into the carpenter shortage problem.

3. Further study into the effects that prefabricated materials have had on the carpentry trade could provide useful information. Materials such as pre-hung doors and windows, trusses, and modular components have certainly affected the skill level of on-site carpenters.

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APPENDIX

APPENDIX A QUESTIONNAIRE PACKAGE

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	4	3	2	1
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

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	4	3	2	1
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 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

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 in producing 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 _____

SCHOOL OF BUILDING CONSTRUCTION
UNIVERSITY OF FLORIDA
GAINESVILLE, 32611

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

Dear Mr. (AGC Contractor)

In cooperation with the Associated General Contractors of Florida and 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 Tony Cardinale at (904) 392-6755.

Thank you for your consideration.

Sincerely,

Brisbane H. Brown, Jr.
Professor and Director

THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA
NORTHEASTERN FLORIDA CHAPTER

CAROL M. VOELKER, *Executive Vice President* *Jacksonville Phone* 904/356-9671

MEMORANDUM TO : A G C MEMBERS (GENERAL CONTRACTOR)

MEMORANDUM FROM: RICHARD METTE- MARKETING AND EDUCATION DIRECTOR

DATE JUNE 10, 1987

Please find enclosed a request from the school of building construction at the University of Florida. This questionairre will help determine the skill needs within our state for carpenters,etc.
I encourage you to take the time to provide this necessary information that has been requested. The results could significantly benefit our industry within Florida.

SCHOOL OF BUILDING CONSTRUCTION
UNIVERSITY OF FLORIDA
GAINESVILLE, 32611

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

Dear Mr. AGC Contractor,

I would like to thank you for your time and cooperation in responding to our labor supply survey. At a time when Florida's growth is abound and there are continued predictions of skilled labor shortages, it is important to have comprehensive and coordinated training programs in order to be responsive to the industry's needs. You input is very much appreciated and will enhance our understanding of the construction industry's needs.

If you have not had the time to respond to this survey, please, I urge you to take the time to complete and return the enclosed questionnaire. We need all the input we can get from members of professional organizations such as the AGC. If you have any questions or if we can help you in any way please feel free to contact us at (904) 392-6755.

Again, thank you and your company for participating in our labor supply research.

Sincerely,

Brisbane H. Brown, Jr.
Professor

APPENDIX B-1 RESPONSES FROM NORTHWEST REGION

RESPONSES BY REGION

REGION	NUMBER OF RESPONDENTS	PERCENT
Central	10	14.1
Northeast	9	12.7
Northwest	10	14.1
Southeast	30	42.2
Southwest	12	16.9
Total	71	100.0

Table B-1.1 Responses by Region

TYPE OF OPERATION

TYPE OF OPERATION	NORTHWEST PERCENTAGE	STATE-WIDE PERCENTAGE
Open shop	100.0	90.1
Union	0.0	0.0
Both (double breasted)	0.0	9.9
Total response	100.0	100.0

Table B-1.2b Type of Operation

TYPE OF CONSTRUCTION UNDERTAKEN

TYPE OF CONSTRUCTION	NORTHWEST AVERAGE PERCENT	STATE-WIDE AVERAGE PERCENT
Commercial	66.0	77.3
Residential	1.0	13.0
Other	33.0	9.7

Table B-1.3 Type of Construction (in percentages)

AVERAGE ANNUAL VOLUME OF BUSINESS

	NORTHWEST REGION		STATEWIDE	
BACKGROUND INFORMATION	AVERAGE PERCENT	MEDIAN	AVERAGE PERCENT	MEDIAN
Annual Volume of Business (in millions of dollars)	13.1	7.5	29.6	8.0
Projects carried per year	12.0	7.0	27.1	10.0

Table B-1.4 Average Annual Volume of Business & Projects Carried

NUMBER OF CARPENTERS EMPLOYED

BACKGROUND INFORMATION	NORTHWEST REGION			STATEWIDE
	AVERAGE	MINIMUM	MAXIMUM	AVERAGE
Number of journeymen carpenters on payroll	16.7	2	75	21.6
Number of journeymen carpenters that are skilled	7.4	2	25	12.0
Number of apprentices on the payroll	1.7	0	8	5.7

Table B-1.5 Number of Carpenters Employed (by skill level)

AVERAGE HOURLY WAGE PAID TO JOURNEYMEN AND APPRENTICE CARPENTERS

CARPENTER TYPE	NORTHWEST REGION			STATE
	AVERAGE	MINIMUM	MAXIMUM	AVERAGE
Journeymen carpenter	8.85	7.50	12.25	10.87
Apprentice (carpenter-in-training)	6.65	5.00	9.05	7.89

Table B-1.6 Hourly Wages (in dollars)

AVERAGE LENGTH OF EMPLOYMENT

CARPENTER TYPE	NORTHWEST REGION			STATE
	AVERAGE	MINIMUM	MAXIMUM	AVERAGE
Journeymen carpenter	24	3	96	24
Apprentice (carpenter-in-training)	20	6	36	14

Table B-1.7 Average Length of Employment (in months)

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 AVERAGE	STATEWIDE AVERAGE
Community college training programs	4.00	1.92
Construction industry contacts	2.87	2.90
Company on-the-job training	2.50	2.22
Open shop apprentice programs	2.33	2.09
Other construction jobs	2.25	2.27
Vocational training centers	2.00	1.69
Advertisements in the paper	1.66	2.59
Labor Agents	1.25	1.27
Union apprentice programs	1.12	1.10
Labor Unions	1.00	1.17

Table B-1.8 Hiring Practices (in descending order of popularity)

WHAT CRITERION 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 CRITERION	NORTHWEST REGION	STATEWIDE
	AVERAGE	AVERAGE
Performance	3.60	3.80
Experience	3.10	3.11
Market wage rate	2.80	2.52
Graduation from training program	2.40	2.35
Seniority	1.80	1.85

Table B-1.9 Promotion Criterion
(in descending order of importance)

ARE THERE ENOUGH SKILLED CARPENTERS FOR YOU TO HIRE ?

RESPONSE	NORTHWEST REGION	STATEWIDE
	AVERAGE PERCENT	AVERAGE PERCENT
Yes	50.0	23.9
No	50.0	71.8
Cannot say	0.0	4.2
No Response to question	0.0	0.0

Table B-1.10 Availability of Skilled Carpenters

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

RESPONSE	NORTHWEST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	9	90.0	67	94.4
No	1	10.0	2	2.8
Cannot say	0	0.0	2	2.8
No Response to question	0	*	0	*

Table B-1.11 Need For Skilled 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

TASKS	NORTHWEST REGION	STATEWIDE
	AVERAGE	AVERAGE
Frame partitions	3.80	3.48
Install structural timber	3.70	3.18
Construction forms (piers, columns, beams, slabs, decks, stairs, bridges)	3.60	3.66
Construction forms (walls, footings, edges, curbs)	3.60	3.63
Frame floors and sills	3.60	3.51
Install decking and sheathing	3.60	3.38
Frame roofs	3.60	3.38
Install door, window frame and unit	3.30	3.37
Construct interior stairs	3.30	3.17
Install cabinets, fixtures and shelving	3.20	3.10
Install paneling, furring, soffit ceiling	3.10	3.18
Install exterior wall covering and trim	3.00	3.29
Apply weather stripping and caulking	3.00	3.01
Read blueprints	2.90	3.21

Table B-1.12 Desired Skill Level of Carpenter

TASKS	NORTHWEST REGION	STATEWIDE
	AVERAGE	AVERAGE
Preplan forthcoming activities	2.90	2.65
Install insulation and sound control material	2.80	2.44
Build trusses	2.60	2.59
Install drywall material	2.60	2.53
Issue instruction to crew members	2.50	2.76

Table B-1.12 Desired Skill Level of Carpenter (CONTINUED)

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	
	RESPONDENTS	AVERAGE	RESPONDENTS	AVERAGE
Form carpenter	10	2.5	71	2.80
Finish carpenter	10	3.0	65	2.69
Framing carpenter	9	3.0	67	2.64

Table B-1.13 Skill Level of Future Carpenters

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	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	2	20.0	26	36.6
No	7	70.0	24	33.8
Cannot say	1	10.0	21	29.6
No Response to question	0	*	0	*

Table B-1.14 Effect of Availability of Carpenters on Business Volume

HAS A SHORTAGE OF CARPENTER EVER DIRECTLY CAUSED SCHEDULING PROBLEMS ?

RESPONSE	NORTHWEST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	7	70.0	52	80.0
No	3	30.0	13	20.0
No Response to question	0	*	6	*

Table B-1.15 Shortage of Carpenters vs. Scheduling

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

RESPONSE	NORTHWEST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	5	50.0	47	67.1
No	5	50.0	21	30.0
Cannot say	0	0.0	2	2.9
No Response to question	0	*	1	*

Table B-1.16 Overtime payments

WHAT PERCENTAGE OF HOURS WORKED BY CARPENTERS IS OVERTIME ?

QUESTION	NORTHWEST REGION			STATE
	AVERAGE	MINIMUM	MAXIMUM	AVERAGE
Percentage of overtime hours worked by carpenters	8.1	1.0	25.0	8.1

Table B-1.17 Estimated overtime hours (percentage)

WOULD YOU HIRE MORE SKILLED CARPENTERS TO AVOID PAYING OVERTIME ?

RESPONSE	NORTHWEST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	6	60.0	55	80.9
No	3	30.0	8	11.8
Cannot say	1	10.0	5	7.4
No Response to question	0	*	3	*

Table B-1.18 More Skilled Carpenters vs. Overtime

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	STATEWIDE
	AVERAGE	AVERAGE
General decline in craftsmanship	3.50	2.90
Lack of training programs	3.00	2.59
Construction boom	2.80	2.27
Because there is greater emphasis on prefab, there is decreased demand in the skill level of on site carpenters	2.70	2.22
Low wage rates	2.40	1.92
More emphasis on cutting cost than quality control	2.30	2.09
Part time carpenters	2.10	1.17
Low profile of Labor Union	1.40	1.10

Table B-1.19 Reasons for Shortage of Skilled Carpenters

WHAT PERCENTAGE OF CARPENTRY WORK DO YOU SUBCONTRACT ?

QUESTION	NORTHWEST REGION			STATE
	AVERAGE	MINIMUM	MAXIMUM	AVERAGE
Percentage of carpentry work subcontracted	13.3	0.0	20.0	38.7

Table B-1.20 Subcontracted Carpentry Work (percentage)

IF YOU SUBCONTRACT A MAJORITY OF YOUR WORK, ARE THERE ENOUGH FIRMS AVAILABLE TO DO YOUR WORK ?

RESPONSE	NORTHWEST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	1	33.3	14	43.8
No	1	33.3	13	40.6
Cannot say	1	33.3	5	15.6
No Response to question	7	*	39	*

Table B-1.21 Availability of Carpentry Subcontract Firms

ARE YOU SATISIFIED WITH THE QUALITY OF WORK DONE BY THE FIRMS TO WHOM YOU SUBCONTRACT CARPENTRY WORK ?

RESPONSE	NORTHWEST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	2	20.0	14	40.0
No	1	10.0	18	51.4
Cannot say	0	0.0	3	8.6
No Response to question	7	*	36	*

Table B-1.22 Quality of Carpentry Subcontractors

IN YOUR OPINION, IS THE SKILL OF CARPENTERS WHO WORK ON THE SUBCONTRACTED WORK ADEQUATE ?

RESPONSE	NORTHWEST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	2	20.0	11	31.4
No	1	10.0	22	69.9
Cannot say	0	0.0	2	5.7
No Response to question	7	*	36	*

Table B-1.23 Adequacy of Carpenters of Subcontractors

IN YOUR OPINION, WHAT PERCENTAGE OF THE SUBCONTRACTOR'S CARPENTERS ARE SKILLED CARPENTERS ?

QUESTION	NORTHWEST REGION			STATE
	AVERAGE	MINIMUM	MAXIMUM	AVERAGE
Percentage of sub-contractor's carpenters that are skilled	55.0	25.0	90.0	32.6

Table B-1.24 Percentage of Skilled Subcontractor Carpenters

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

Use the following scale:

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

TRAINING PROGRAMS	NORTHWEST REGION	STATEWIDE
	AVERAGE	AVERAGE
On-the-job training	3.60	3.15
Vocational training center	2.50	2.38
Open shop apprenticeships	2.20	2.32
Community college training	1.78	1.84
Union apprenticeships	1.44	1.89

Table B-1.25 Contributions of the Training Programs

IN YOUR OPINION, WHICH OF THE FOLLOWING TRAINING PROGRAMS PRODUCES THE BEST CARPENTERS FOR YOUR NEEDS ?

Use the following scale:

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

TRAINING PROGRAMS	NORTHWEST REGION	STATEWIDE
	AVERAGE	AVERAGE
On-the-job training	3.20	3.19
Open shop apprenticeships	2.40	2.51
Vocational training center	2.75	2.26
Community college training	1.78	1.89
Union apprenticeships	1.56	2.00

Table B-1.26 Performance of Training Programs

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

RESPONSE	NORTHWEST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	9	90.0	59	83.1
No	1	10.0	7	9.9
Cannot say	0	0.0	5	7.0
No Response to question	0	*	0	*

Table B-1.27 Need for Classroom Training

WHAT LEVEL OF COMMUNICATION DO YOU HAVE WITH THE FOLLOWING TRAINING PROGRAMS ?

Use the following scale:

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

TRAINING PROGRAMS	NORTHWEST REGION	STATEWIDE
	AVERAGE	AVERAGE
On-the-job training	3.40	3.15
Open shop apprenticeships	2.30	2.26
Vocational training center	1.80	1.70
Community college training	1.50	1.11
Union apprenticeships	1.10	1.66

Table B-1.28 Level of Communication between Industry and Training Programs

RANK THE FOLLOWING AS THE BEST METHOD OF ESTABLISHING AN INDUSTRY-TRAINING PROGRAM LINKAGE.

Scale: 1,2,3,4; 4 being the most important.

STRATEGY	NORTHWEST REGION	STATEWIDE
	AVERAGE	AVERAGE
Formal meeting of the two groups	2.67	2.90
Sitting on an advisory committee	2.22	2.59
Attending educational functions	2.11	2.27
Written contact	2.00	2.22

Table B-1.29 Strategy for Industry-Training Program Linkage

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

RESPONSE	NORTHWEST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	1	10.0	15	22.1
No	8	80.0	40	58.8
Cannot say	1	10.0	13	19.1
No Response to question	0	*	3	*

Table B-1.30 Licensing of Carpenters

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

RESPONSE	NORTHWEST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	1	10.0	27	39.7
No	3	30.0	9	13.2
Cannot say	6	60.0	32	47.1
No Response to question	0	*	3	*

Table B-1.31 Illegal Aliens

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

QUESTION	NORTHWEST REGION			STATE
	AVERAGE	MINIMUM	MAXIMUM	AVERAGE
Percentage of illegal alien carpenters	15.0	0.0	30.0	9.8

Table B-1.32 Estimate of Illegal Aliens

APPENDIX B-2 RESPONSES FROM NORTHEAST REGION

RESPONSES BY REGION

REGION	NUMBER OF RESPONDENTS	PERCENT
Central	10	14.1
Northeast	9	12.7
Northwest	10	14.1
Southeast	30	42.2
Southwest	12	16.9
Total	71	100.0

Table B-2.1 Responses by Region

TYPE OF OPERATION

TYPE OF OPERATION	NORTHEAST PERCENTAGE	STATE-WIDE PERCENTAGE
Open shop	100.0	90.1
Union	0.0	0.0
Both (double breasted)	0.0	9.9
Total response	100.0	100.0

Table B-2.2b Type of Operation

TYPE OF CONSTRUCTION UNDERTAKEN

TYPE OF CONSTRUCTION	NORTHEAST AVERAGE PERCENT	STATE-WIDE AVERAGE PERCENT
Commercial	75.5	77.3
Residential	8.3	13.0
Other	16.1	9.7

Table B-2.3 Type of Construction (in percentages)

AVERAGE ANNUAL VOLUME OF BUSINESS

BACKGROUND INFORMATION	NORTHEAST REGION		STATEWIDE	
	AVERAGE PERCENT	MEDIAN	AVERAGE PERCENT	MEDIAN
Annual Volume of Business (in millions of dollars)	107.3	15.0	29.6	8.0
Projects carried per year	70.1	14.0	27.1	10.0

Table B-2.4 Average Annual Volume of Business & Projects Carried

NUMBER OF CARPENTERS EMPLOYED

BACKGROUND INFORMATION	NORTHEAST REGION			STATEWIDE
	AVERAGE	MINIMUM	MAXIMUM	AVERAGE
Number of journeymen carpenters on payroll	23.3	5	40	21.6
Number of journeymen carpenters that are skilled	11.3	4	24	12.0
Number of apprentices on the payroll	8.7	5	12	5.7

Table B-2.5 Number of Carpenters Employed (by skill level)

AVERAGE HOURLY WAGE PAID TO JOURNEYMEN AND APPRENTICE CARPENTERS

CARPENTER TYPE	NORTHEAST REGION			STATE
	AVERAGE	MINIMUM	MAXIMUM	AVERAGE
Journeymen carpenter	11.03	9.50	15.00	10.87
Apprentice (carpenter-in-training)	7.69	6.50	10.00	7.89

Table B-2.6 Hourly Wages (in dollars)

AVERAGE LENGTH OF EMPLOYMENT

CARPENTER TYPE	NORTHEAST REGION			STATE
	AVERAGE	MINIMUM	MAXIMUM	AVERAGE
Journeymen carpenter	18	6	60	24
Apprentice (carpenter-in-training)	14	6	24	14

Table B-2.7 Average Length of Employment (in months)

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 AVERAGE	STATEWIDE AVERAGE
Construction industry contacts	3.22	2.90
Company on-the-job training	3.11	2.22
Open shop apprentice programs	2.56	2.09
Other construction jobs	2.56	2.27
Advertisements in the paper	2.33	2.59
Vocational training centers	2.11	1.69
Community college training programs	1.79	1.92
Labor Agents	1.25	1.27
Union apprentice programs	1.00	1.10
Labor Unions	1.00	1.17

Table B-2.8 Hiring Practices (in descending order of popularity)

WHAT CRITERION 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 CRITERION	NORTHEAST REGION	STATEWIDE
	AVERAGE	AVERAGE
Performance	4.00	3.80
Experience	2.78	3.11
Market wage rate	2.56	2.52
Graduation from training program	2.56	2.35
Seniority	2.00	1.85

Table B-2.9 Promotion Criterion
(in descending order of importance)

ARE THERE ENOUGH SKILLED CARPENTERS FOR YOU TO HIRE ?

RESPONSE	NORTHEAST REGION	STATEWIDE
	AVERAGE PERCENT	AVERAGE PERCENT
Yes	0.0	23.9
No	100.0	71.8
Cannot say	0.0	4.2
No Response to question	0.0	0.0

Table B-2.10 Availability of Skilled Carpenters

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

RESPONSE	NORTHEAST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	9	100.0	67	94.4
No	0	0.0	2	2.8
Cannot say	0	0.0	2	2.8
No Response to question	0	*	0	*

Table B-2.11 Need For Skilled 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

TASKS	NORTHEAST REGION	STATEWIDE
	AVERAGE	AVERAGE
Frame partitions	3.87	3.48
Frame roofs	3.87	3.38
Frame floors and sills	3.87	3.51
Construction forms (walls, footings, edges, curbs)	3.78	3.63
Install decking and sheathing	3.75	3.38
Construct interior stairs	3.75	3.17
Install exterior wall covering and trim	3.75	3.29
Construction forms (piers, columns, beams, slabs, decks, stairs, bridges)	3.67	3.66
Install structural timber	3.62	3.18
Install door, window frame and unit	3.62	3.37
Install paneling, furring, soffit ceiling	3.37	3.18
Install cabinets, fixtures and shelving	3.12	3.10
Read blueprints	3.11	3.21
Apply weather stripping and caulking	2.87	3.01

Table B-2.12 Desired Skill Level of Carpenter

TASKS	NORTHEAST REGION	STATEWIDE
	AVERAGE	AVERAGE
Build trusses	2.87	2.59
Issue instruction to crew members	2.62	2.76
Install drywall material	2.37	2.53
Preplan forthcoming activities	2.33	2.65
Install insulation and sound control material	2.12	2.44

Table B-2.12 Desired Skill Level of Carpenter (CONTINUED)

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		STATEWIDE	
	RESPONDENTS	AVERAGE	RESPONDENTS	AVERAGE
Form carpenter	8	2.5	71	2.80
Finish carpenter	9	3.1	65	2.69
Framing carpenter	8	2.5	67	2.64

Table B-2.13 Skill Level of Future Carpenters

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	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	3	33.3	26	36.6
No	2	22.2	24	33.8
Cannot say	4	44.4	21	29.6
No Response to question	0	*	0	*

Table B-2.14 Effect of Availability of Carpenters on Business Volume

HAS A SHORTAGE OF CARPENTER EVER DIRECTLY CAUSED SCHEDULING PROBLEMS ?

RESPONSE	NORTHEAST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	9	100.0	52	80.0
No	0	0.0	13	20.0
No Response to question	0	*	6	*

Table B-2.15 Shortage of Carpenters vs. Scheduling

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

RESPONSE	NORTHEAST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	8	88.9	47	67.1
No	1	11.1	21	30.0
Cannot say	0	0.0	2	2.9
No Response to question	0	*	1	*

Table B-2.16 Overtime payments

WHAT PERCENTAGE OF HOURS WORKED BY CARPENTERS IS OVERTIME ?

QUESTION	NORTHEAST REGION			STATE
	AVERAGE	MINIMUM	MAXIMUM	AVERAGE
Percentage of overtime hours worked by carpenters	9.4	5.0	15.0	8.1

Table B-2.17 Estimated overtime hours (percentage)

WOULD YOU HIRE MORE SKILLED CARPENTERS TO AVOID PAYING OVERTIME ?

RESPONSE	NORTHEAST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	8	88.9	55	80.9
No	1	11.1	8	11.8
Cannot say	0	0.0	5	7.4
No Response to question	0	*	3	*

Table B-2.18 More Skilled Carpenters vs. Overtime

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	STATEWIDE
	AVERAGE	AVERAGE
General decline in craftsmanship	3.33	2.90
Lack of training programs	3.00	2.59
Construction boom	2.56	2.27
Low wage rates	2.33	1.92
More emphasis on cutting cost than quality control	2.33	2.09
Because there is greater emphasis on prefab, there is decreased demand in the skill level of on site carpenters	2.22	2.22
Part time carpenters	2.00	1.17
Low profile of Labor Union	1.22	1.10

Table B-2.19 Reasons for Shortage of Skilled Carpenters

WHAT PERCENTAGE OF CARPENTRY WORK DO YOU SUBCONTRACT ?

QUESTION	NORTHEAST REGION			STATE
	AVERAGE	MINIMUM	MAXIMUM	AVERAGE
Percentage of carpentry work subcontracted	33.7	0.0	80.0	38.7

Table B-2.20 Subcontracted Carpentry Work (percentage)

IF YOU SUBCONTRACT A MAJORITY OF YOUR WORK, ARE THERE ENOUGH FIRMS AVAILABLE TO DO YOUR WORK ?

RESPONSE	NORTHEAST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	0	0.0	14	43.8
No	2	100.0	13	40.6
Cannot say	0	0.0	5	15.6
No Response to question	7	*	39	*

Table B-2.21 Availability of Carpentry Subcontract Firms

ARE YOU SATISIFIED WITH THE QUALITY OF WORK DONE BY THE FIRMS TO WHOM YOU SUBCONTRACT CARPENTRY WORK ?

RESPONSE	NORTHEAST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	1	50.0	14	40.0
No	1	50.0	18	51.4
Cannot say	0	0.0	3	8.6
No Response to question	7	*	36	*

Table B-2.22 Quality of Carpentry Subcontractors

IN YOUR OPINION, IS THE SKILL OF CARPENTERS WHO WORK ON THE SUBCONTRACTED WORK ADEQUATE ?

RESPONSE	NORTHEAST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	2	100.0	11	31.4
No	0	0.0	22	69.9
Cannot say	0	0.0	2	5.7
No Response to question	7	*	36	*

Table B-2.23 Adequacy of Carpenters of Subcontractors

IN YOUR OPINION, WHAT PERCENTAGE OF THE SUBCONTRACTOR'S CARPENTERS ARE SKILLED CARPENTERS ?

QUESTION	NORTHEAST REGION			STATE
	AVERAGE	MINIMUM	MAXIMUM	AVERAGE
Percentage of sub-contractor's carpenters that are skilled	30.0	10.0	50.0	32.6

Table B-2.24 Percentage of Skilled Subcontractor Carpenters

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

Use the following scale:

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

TRAINING PROGRAMS	NORTHEAST REGION	STATEWIDE
	AVERAGE	AVERAGE
On-the-job training	3.44	3.15
Vocational training center	2.43	2.38
Open shop apprenticeships	2.12	2.32
Union apprenticeships	2.17	1.89
Community college training	1.75	1.84

Table B-2.25 Contributions of the Training Programs

IN YOUR OPINION, WHICH OF THE FOLLOWING TRAINING PROGRAMS PRODUCES THE BEST CARPENTERS FOR YOUR NEEDS ?

Use the following scale:

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

TRAINING PROGRAMS	NORTHEAST REGION	STATEWIDE
	AVERAGE	AVERAGE
On-the-job training	3.33	3.19
Open shop apprenticeships	2.50	2.51
Vocational training center	2.43	2.26
Union apprenticeships	2.33	2.00
Community college training	1.75	1.89

Table B-2.26 Performance of Training Programs

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

RESPONSE	NORTHEAST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	9	100.0	59	83.1
No	0	0.0	7	9.9
Cannot say	0	0.0	5	7.0
No Response to question	0	*	0	*

Table B-2.27 Need for Classroom Training

WHAT LEVEL OF COMMUNICATION DO YOU HAVE WITH THE FOLLOWING TRAINING PROGRAMS ?

Use the following scale:

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

TRAINING PROGRAMS	NORTHEAST REGION	STATEWIDE
	AVERAGE	AVERAGE
On-the-job training	3.44	3.15
Open shop apprenticeships	2.67	2.26
Vocational training center	2.11	1.70
Community college training	1.78	1.11
Union apprenticeships	1.22	1.66

Table B-2.28 Level of Communication between Industry and Training Programs

RANK THE FOLLOWING AS THE BEST METHOD OF ESTABLISHING AN INDUSTRY-TRAINING PROGRAM LINKAGE.

Scale: 1,2,3,4; 4 being the most important.

STRATEGY	NORTHEAST REGION	STATEWIDE
	AVERAGE	AVERAGE
Formal meeting of the two groups	3.33	2.90
Sitting on an advisory committee	3.00	2.59
Attending educational functions	2.67	2.27
Written contact	2.00	2.22

Table B-2.29 Strategy for Industry-Training Program Linkage

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

RESPONSE	NORTHEAST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	3	33.3	15	22.1
No	4	44.4	40	58.8
Cannot say	2	22.2	13	19.1
No Response to question	0	*	3	*

Table B-2.30 Licensing of Carpenters

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

RESPONSE	NORTHEAST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	2	22.2	27	39.7
No	1	11.1	9	13.2
Cannot say	6	66.7	32	47.1
No Response to question	0	*	3	*

Table B-2.31 Illegal Aliens

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

QUESTION	NORTHEAST REGION			STATE
	AVERAGE	MINIMUM	MAXIMUM	AVERAGE
Percentage of illegal alien carpenters	10.0	10.0	10.0	9.8

Table B-2.32 Estimate of Illegal Aliens

APPENDIX B-3 RESPONSES FROM CENTRAL REGION

RESPONSES BY REGION

REGION	NUMBER OF RESPONDENTS	PERCENT
Central	10	14.1
Northeast	9	12.7
Northwest	10	14.1
Southeast	30	42.2
Southwest	12	16.9
Total	71	100.0

Table B-3.1 Responses by Region

TYPE OF OPERATION

TYPE OF OPERATION	CENTRAL PERCENTAGE	STATE-WIDE PERCENTAGE
Open shop	90.0	90.1
Union	0.0	0.0
Both (double breasted)	10.0	9.9
Total response	100.0	100.0

Table B-3.2b Type of Operation

TYPE OF CONSTRUCTION UNDERTAKEN

TYPE OF CONSTRUCTION	CENTRAL AVERAGE PERCENT	STATE-WIDE AVERAGE PERCENT
Commercial	92.0	77.3
Residential	6.0	13.0
Other	2.0	9.7

Table B-3.3 Type of Construction (in percentages)

AVERAGE ANNUAL VOLUME OF BUSINESS

BACKGROUND INFORMATION	CENTRAL REGION		STATEWIDE	
	AVERAGE PERCENT	MEDIAN	AVERAGE PERCENT	MEDIAN
Annual Volume of Business (in millions of dollars)	27.6	5.5	29.6	8.0
Projects carried per year	33.3	12.0	27.1	10.0

Table B-3.4 Average Annual Volume of Business & Projects Carried

NUMBER OF CARPENTERS EMPLOYED

BACKGROUND INFORMATION	CENTRAL REGION			STATEWIDE
	AVERAGE	MINIMUM	MAXIMUM	AVERAGE
Number of journeymen carpenters on payroll	22.7	2	100	21.6
Number of journeymen carpenters that are skilled	14.6	2	50	12.0
Number of apprentices on the payroll	2.8	0	10	5.7

Table B-3.5 Number of Carpenters Employed (by skill level)

AVERAGE HOURLY WAGE PAID TO JOURNEYMEN AND APPRENTICE CARPENTERS

CARPENTER TYPE	CENTRAL REGION			STATE
	AVERAGE	MINIMUM	MAXIMUM	AVERAGE
Journeymen carpenter	10.42	9.00	13.50	10.87
Apprentice (carpenter-in-training)	7.58	6.50	8.00	7.89

Table B-3.6 Hourly Wages (in dollars)

AVERAGE LENGTH OF EMPLOYMENT

CARPENTER TYPE	CENTRAL REGION			STATE
	AVERAGE	MINIMUM	MAXIMUM	AVERAGE
Journeymen carpenter	24	6	96	24
Apprentice (carpenter-in-training)	16	3	60	14

Table B-3.7 Average Length of Employment (in months)

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 AVERAGE	STATEWIDE AVERAGE
Construction industry contacts	3.11	2.90
Advertisements in the paper	2.80	2.59
Other construction jobs	2.50	2.27
Open shop apprentice programs	1.87	2.09
Company on-the-job training	1.75	2.22
Vocational training centers	1.74	1.69
Community college training programs	1.25	1.92
Labor Agents	1.25	1.27
Union apprentice programs	1.25	1.10
Labor Unions	1.25	1.17

Table B-3.8 Hiring Practices (in descending order of popularity)

WHAT CRITERION 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 CRITERION	CENTRAL REGION	STATEWIDE
	AVERAGE	AVERAGE
Performance	3.70	3.80
Experience	3.20	3.11
Graduation from training program	2.60	2.35
Market wage rate	2.40	2.52
Seniority	1.90	1.85

Table B-3.9 Promotion Criterion
(in descending order of importance)

ARE THERE ENOUGH SKILLED CARPENTERS FOR YOU TO HIRE ?

RESPONSE	CENTRAL REGION	STATEWIDE
	AVERAGE PERCENT	AVERAGE PERCENT
Yes	40.0	23.9
No	50.0	71.8
Cannot say	10.0	4.2
No Response to question	0.0	0.0

Table B-3.10 Availability of Skilled Carpenters

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

RESPONSE	CENTRAL REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	9	90.0	67	94.4
No	1	10.0	2	2.8
Cannot say	0	0.0	2	2.8
No Response to question	0	*	0	*

Table B-3.11 Need For Skilled 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

TASKS	CENTRAL REGION	STATEWIDE
	AVERAGE	AVERAGE
Construction forms (piers, columns, beams, slabs, decks, stairs, bridges)	3.50	3.66
Read blueprints	3.50	3.21
Construction forms (walls, footings, edges, curbs)	3.50	3.63
Install door, window frame and unit	3.30	3.37
Frame floors and sills	3.20	3.51
Install decking and sheathing	3.20	3.38
Apply weather stripping and caulking	3.20	3.01
Install paneling, furring, soffit ceiling	3.20	3.18
Frame partitions	3.10	3.48
Frame roofs	3.00	3.38
Install cabinets, fixtures and shelving	2.90	3.10
Install exterior wall covering and trim	2.90	3.29
Issue instruction to crew members	2.89	2.76
Preplan forthcoming activities	2.80	2.65

Table B-3.12 Desired Skill Level of Carpenter

TASKS	CENTRAL REGION	STATEWIDE
	AVERAGE	AVERAGE
Construct interior stairs	2.70	3.17
Install structural timber	2.60	3.18
Install drywall material	2.50	2.53
Install insulation and sound control material	2.40	2.44
Build trusses	2.00	2.59

Table B-3.12 Desired Skill Level of Carpenter (CONTINUED)

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		STATEWIDE	
	RESPONDENTS	AVERAGE	RESPONDENTS	AVERAGE
Form carpenter	10	2.6	71	2.80
Finish carpenter	10	2.5	65	2.69
Framing carpenter	10	2.5	67	2.64

Table B-3.13 Skill Level of Future Carpenters

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	CENTRAL REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	1	10.0	26	36.6
No	3	30.0	24	33.8
Cannot say	6	60.0	21	29.6
No Response to question	0	*	0	*

Table B-3.14 Effect of Availability of Carpenters on Business Volume

HAS A SHORTAGE OF CARPENTER EVER DIRECTLY CAUSED SCHEDULING PROBLEMS ?

RESPONSE	CENTRAL REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	6	75.0	52	80.0
No	2	25.0	13	20.0
No Response to question	2	*	6	*

Table B-3.15 Shortage of Carpenters vs. Scheduling

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

RESPONSE	CENTRAL REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	5	50.0	47	67.1
No	5	50.0	21	30.0
Cannot say	0	0.0	2	2.9
No Response to question	0	*	1	*

Table B-3.16 Overtime payments

WHAT PERCENTAGE OF HOURS WORKED BY CARPENTERS IS OVERTIME ?

QUESTION	CENTRAL REGION			STATE
	AVERAGE	MINIMUM	MAXIMUM	AVERAGE
Percentage of overtime hours worked by carpenters	6.0	0.0	15.0	8.1

Table B-3.17 Estimated overtime hours (percentage)

WOULD YOU HIRE MORE SKILLED CARPENTERS TO AVOID PAYING OVERTIME ?

RESPONSE	CENTRAL REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	6	66.7	55	80.9
No	2	22.2	8	11.8
Cannot say	1	11.1	5	7.4
No Response to question	1	*	3	*

Table B-3.18 More Skilled Carpenters vs. Overtime

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	CENTRAL REGION	STATEWIDE
	AVERAGE	AVERAGE
General decline in craftsmanship	3.10	2.90
Construction boom	2.60	2.27
Lack of training programs	2.40	2.59
More emphasis on cutting cost than quality control	2.40	2.09
Part time carpenters	2.10	1.17
Because there is greater emphasis on prefab, there is decreased demand in the skill level of on site carpenters	2.00	2.22
Low wage rates	1.60	1.92
Low profile of Labor Union	1.44	1.10

Table B-3.19 Reasons for Shortage of Skilled Carpenters

WHAT PERCENTAGE OF CARPENTRY WORK DO YOU SUBCONTRACT ?

QUESTION	CENTRAL REGION			STATE
	AVERAGE	MINIMUM	MAXIMUM	AVERAGE
Percentage of carpentry work subcontracted	48.7	0.0	100.0	38.7

Table B-3.20 Subcontracted Carpentry Work (percentage)

IF YOU SUBCONTRACT A MAJORITY OF YOUR WORK, ARE THERE ENOUGH FIRMS AVAILABLE TO DO YOUR WORK ?

RESPONSE	CENTRAL REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	3	60.0	14	43.8
No	2	40.0	13	40.6
Cannot say	0	0.0	5	15.6
No Response to question	5	*	39	*

Table B-3.21 Availability of Carpentry Subcontract Firms

ARE YOU SATISIFIED WITH THE QUALITY OF WORK DONE BY THE FIRMS TO WHOM YOU SUBCONTRACT CARPENTRY WORK ?

RESPONSE	CENTRAL REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	2	28.6	14	40.0
No	5	71.4	18	51.4
Cannot say	0	0.0	3	8.6
No Response to question	3	*	36	*

Table B-3.22 Quality of Carpentry Subcontractors

IN YOUR OPINION, IS THE SKILL OF CARPENTERS WHO WORK ON THE SUBCONTRACTED WORK ADEQUATE ?

RESPONSE	CENTRAL REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	1	14.3	11	31.4
No	6	85.7	22	69.9
Cannot say	0	0.0	2	5.7
No Response to question	3	*	36	*

Table B-3.23 Adequacy of Carpenters of Subcontractors

IN YOUR OPINION, WHAT PERCENTAGE OF THE SUBCONTRACTOR'S CARPENTERS ARE SKILLED CARPENTERS ?

QUESTION	CENTRAL REGION			STATE
	AVERAGE	MINIMUM	MAXIMUM	AVERAGE
Percentage of sub-contractor's carpenters that are skilled	31.4	10.0	50.0	32.6

Table B-3.24 Percentage of Skilled Subcontractor Carpenters

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

Use the following scale:

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

TRAINING PROGRAMS	CENTRAL REGION	STATEWIDE
	AVERAGE	AVERAGE
On-the-job training	3.11	3.15
Vocational training center	2.78	2.38
Open shop apprenticeships	2.78	2.32
Union apprenticeships	2.00	1.89
Community college training	1.37	1.84

Table B-3.25 Contributions of the Training Programs

IN YOUR OPINION, WHICH OF THE FOLLOWING TRAINING PROGRAMS PRODUCES THE BEST CARPENTERS FOR YOUR NEEDS ?

Use the following scale:

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

TRAINING PROGRAMS	CENTRAL REGION	STATEWIDE
	AVERAGE	AVERAGE
On-the-job training	3.00	3.19
Open shop apprenticeships	2.86	2.51
Vocational training center	2.23	2.26
Union apprenticeships	1.86	2.00
Community college training	1.43	1.89

Table B-3.26 Performance of Training Programs

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

RESPONSE	CENTRAL REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	7	70.0	59	83.1
No	3	30.0	7	9.9
Cannot say	0	0.0	5	7.0
No Response to question	0	*	0	*

Table B-3.27 Need for Classroom Training

WHAT LEVEL OF COMMUNICATION DO YOU HAVE WITH THE FOLLOWING TRAINING PROGRAMS ?

Use the following scale:

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

TRAINING PROGRAMS	CENTRAL REGION	STATEWIDE
	AVERAGE	AVERAGE
On-the-job training	2.70	3.15
Open shop apprenticeships	2.30	2.26
Vocational training center	1.50	1.70
Community college training	1.50	1.11
Union apprenticeships	1.00	1.66

Table B-3.28 Level of Communication between Industry and Training Programs

RANK THE FOLLOWING AS THE BEST METHOD OF ESTABLISHING AN INDUSTRY-TRAINING PROGRAM LINKAGE.

Scale: 1,2,3,4; 4 being the most important.

STRATEGY	CENTRAL REGION	STATEWIDE
	AVERAGE	AVERAGE
Formal meeting of the two groups	3.86	2.90
Attending educational functions	2.33	2.27
Sitting on an advisory committee	2.17	2.59
Written contact	2.17	2.22

Table B-3.29 Strategy for Industry-Training Program Linkage

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

RESPONSE	CENTRAL REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	0	0.0	15	22.1
No	7	70.0	40	58.8
Cannot say	3	30.0	13	19.1
No Response to question	0	*	3	*

Table B-3.30 Licensing of Carpenters

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

RESPONSE	CENTRAL REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	3	30.0	27	39.7
No	2	20.0	9	13.2
Cannot say	5	50.0	32	47.1
No Response to question	0	*	3	*

Table B-3.31 Illegal Aliens

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

QUESTION	CENTRAL REGION			STATE
	AVERAGE	MINIMUM	MAXIMUM	AVERAGE
Percentage of illegal alien carpenters	6.7	0.0	25.0	9.8

Table B-3.32 Estimate of Illegal Aliens

APPENDIX B-4 RESPONSES FROM SOUTHWEST REGION

RESPONSES BY REGION

REGION	NUMBER OF RESPONDENTS	PERCENT
Central	10	14.1
Northeast	9	12.7
Northwest	10	14.1
Southeast	30	42.2
Southwest	12	16.9
Total	71	100.0

Table B-4.1 Responses by Region

TYPE OF OPERATION

TYPE OF OPERATION	SOUTHWEST PERCENTAGE	STATE-WIDE PERCENTAGE
Open shop	91.7	90.1
Union	0.0	0.0
Both (double breasted)	8.3	9.9
Total response	100.0	100.0

Table B-4.2b Type of Operation

TYPE OF CONSTRUCTION UNDERTAKEN

TYPE OF CONSTRUCTION	SOUTHWEST AVERAGE PERCENT	STATE-WIDE AVERAGE PERCENT
Commercial	80.0	77.3
Residential	9.1	13.0
Other	10.9	9.7

Table B-4.3 Type of Construction
(in percentages)

AVERAGE ANNUAL VOLUME OF BUSINESS

BACKGROUND INFORMATION	SOUTHWEST REGION		STATEWIDE	
	AVERAGE PERCENT	MEDIAN	AVERAGE PERCENT	MEDIAN
Annual Volume of Business (in millions of dollars)	29.2	20.0	29.6	8.0
Projects carried per year	18.7	8.5	27.1	10.0

Table B-4.4 Average Annual Volume of Business & Projects Carried

NUMBER OF CARPENTERS EMPLOYED

BACKGROUND INFORMATION	SOUTHWEST REGION			STATEWIDE
	AVERAGE	MINIMUM	MAXIMUM	AVERAGE
Number of journeymen carpenters on payroll	33.7	0	120	21.6
Number of journeymen carpenters that are skilled	22.8	2	80	12.0
Number of apprentices on the payroll	12.0	0	50	5.7

Table B-4.5 Number of Carpenters Employed (by skill level)

AVERAGE HOURLY WAGE PAID TO JOURNEYMEN AND APPRENTICE CARPENTERS

CARPENTER TYPE	SOUTHWEST REGION			STATE
	AVERAGE	MINIMUM	MAXIMUM	AVERAGE
Journeymen carpenter	9.59	8.25	11.00	10.87
Apprentice (carpenter-in-training)	6.95	5.00	9.00	7.89

Table B-4.6 Hourly Wages (in dollars)

AVERAGE LENGTH OF EMPLOYMENT

CARPENTER TYPE	SOUTHWEST REGION			STATE
	AVERAGE	MINIMUM	MAXIMUM	AVERAGE
Journeymen carpenter	14	6	30	24
Apprentice (carpenter-in-training)	8	3	30	14

Table B-4.7 Average Length of Employment (in months)

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 AVERAGE	STATEWIDE AVERAGE
Advertisements in the paper	2.83	2.59
Construction industry contacts	2.50	2.90
Other construction jobs	2.25	2.27
Company on-the-job training	2.17	2.22
Open shop apprentice programs	1.92	2.09
Labor Agents	1.68	1.27
Vocational training centers	1.58	1.69
Community college training programs	1.50	1.92
Union apprentice programs	1.00	1.10
Labor Unions	1.00	1.17

Table B-4.8 Hiring Practices (in descending order of popularity)

WHAT CRITERION 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 CRITERION	SOUTHWEST REGION	STATEWIDE
	AVERAGE	AVERAGE
Performance	3.90	3.80
Experience	3.08	3.11
Market wage rate	2.58	2.52
Graduation from training program	1.90	2.35
Seniority	1.67	1.85

Table B-4.9 Promotion Criterion
(in descending order of importance)

ARE THERE ENOUGH SKILLED CARPENTERS FOR YOU TO HIRE ?

RESPONSE	SOUTHWEST REGION	STATEWIDE
	AVERAGE PERCENT	AVERAGE PERCENT
Yes	33.3	23.9
No	66.7	71.8
Cannot say	0.0	4.2
No Response to question	0.0	0.0

Table B-4.10 Availability of Skilled Carpenters

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

RESPONSE	SOUTHWEST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	11	91.7	67	94.4
No	1	8.3	2	2.8
Cannot say	0	0.0	2	2.8
No Response to question	0	*	0	*

Table B-4.11 Need For Skilled 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

TASKS	SOUTHWEST REGION	STATEWIDE
	AVERAGE	AVERAGE
Construction forms (piers, columns, beams, slabs, decks, stairs, bridges)	3.75	3.66
Construction forms (walls, footings, edges, curbs)	3.75	3.63
Frame floors and sills	3.42	3.51
Install decking and sheathing	3.33	3.38
Install exterior wall covering and trim	3.27	3.29
Frame partitions	3.17	3.48
Install door, window frame and unit	3.17	3.37
Construct interior stairs	3.17	3.17
Read blueprints	3.17	3.21
Install cabinets, fixtures and shelving	3.00	3.10
Install paneling, furring, soffit ceiling	3.00	3.18
Apply weather stripping and caulking	3.00	3.01
Install structural timber	3.00	3.18
Frame roofs	2.92	3.38

Table B-4.12 Desired Skill Level of Carpenter

TASKS	SOUTHWEST REGION	STATEWIDE
	AVERAGE	AVERAGE
Preplan forthcoming activities	2.92	2.65
Build trusses	2.75	2.59
Install insulation and sound control material	2.33	2.44
Install drywall material	2.33	2.53
Issue instruction to crew members	2.33	2.76

Table B-4.12 Desired Skill Level of Carpenter (CONTINUED)

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		STATEWIDE	
	RESPONDENTS	AVERAGE	RESPONDENTS	AVERAGE
Form carpenter	12	2.41	71	2.80
Finish carpenter	12	2.50	65	2.69
Framing carpenter	12	2.41	67	2.64

Table B-4.13 Skill Level of Future Carpenters

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	SOUTHWEST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	3	25.0	26	36.6
No	4	33.3	24	33.8
Cannot say	5	41.7	21	29.6
No Response to question	0	*	0	*

Table B-4.14 Effect of Availability of Carpenters on Business Volume

HAS A SHORTAGE OF CARPENTER EVER DIRECTLY CAUSED SCHEDULING PROBLEMS ?

RESPONSE	SOUTHWEST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	9	81.8	52	80.0
No	2	18.2	13	20.0
No Response to question	1	*	6	*

Table B-4.15 Shortage of Carpenters vs. Scheduling

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

RESPONSE	SOUTHWEST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	9	75.0	47	67.1
No	2	16.7	21	30.0
Cannot say	1	8.3	2	2.9
No Response to question	0	*	1	*

Table B-4.16 Overtime payments

WHAT PERCENTAGE OF HOURS WORKED BY CARPENTERS IS OVERTIME ?

QUESTION	SOUTHWEST REGION			STATE
	AVERAGE	MINIMUM	MAXIMUM	AVERAGE
Percentage of overtime hours worked by carpenters	13.5	5.0	45.0	8.1

Table B-4.17 Estimated overtime hours (percentage)

WOULD YOU HIRE MORE SKILLED CARPENTERS TO AVOID PAYING OVERTIME ?

RESPONSE	SOUTHWEST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	9	75.0	55	80.9
No	3	25.0	8	11.8
Cannot say	0	0.0	5	7.4
No Response to question	0	*	3	*

Table B-4.18 More Skilled Carpenters vs. Overtime

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	STATEWIDE
	AVERAGE	AVERAGE
Lack of training programs	3.09	2.59
General decline in craftsmanship	3.00	2.90
Construction boom	2.80	2.27
Because there is greater emphasis on prefab, there is decreased demand in the skill level of on site carpenters	2.30	2.22
More emphasis on cutting cost than quality control	2.27	2.09
Low wage rates	1.82	1.92
Part time carpenters	1.73	1.17
Low profile of Labor Union	1.30	1.10

Table B-4.19 Reasons for Shortage of Skilled Carpenters

WHAT PERCENTAGE OF CARPENTRY WORK DO YOU SUBCONTRACT ?

QUESTION	SOUTHWEST REGION			STATE
	AVERAGE	MINIMUM	MAXIMUM	AVERAGE
Percentage of carpentry work subcontracted	12.4	0.0	25.0	38.7

Table B-4.20 Subcontracted Carpentry Work (percentage)

IF YOU SUBCONTRACT A MAJORITY OF YOUR WORK, ARE THERE ENOUGH FIRMS AVAILABLE TO DO YOUR WORK ?

RESPONSE	SOUTHWEST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	2	40.0	14	43.8
No	1	20.0	13	40.6
Cannot say	2	40.0	5	15.6
No Response to question	4	*	39	*

Table B-4.21 Availability of Carpentry Subcontract Firms

ARE YOU SATISIFIED WITH THE QUALITY OF WORK DONE BY THE FIRMS TO WHOM YOU SUBCONTRACT CARPENTRY WORK ?

RESPONSE	SOUTHWEST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	2	33.3	14	40.0
No	3	50.0	18	51.4
Cannot say	1	16.7	3	8.6
No Response to question	6	*	36	*

Table B-4.22 Quality of Carpentry Subcontractors

IN YOUR OPINION, IS THE SKILL OF CARPENTERS WHO WORK ON THE SUBCONTRACTED WORK ADEQUATE ?

RESPONSE	SOUTHWEST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	2	33.3	11	31.4
No	3	50.0	22	69.9
Cannot say	1	16.7	2	5.7
No Response to question	6	*	36	*

Table B-4.23 Adequacy of Carpenters of Subcontractors

IN YOUR OPINION, WHAT PERCENTAGE OF THE SUBCONTRACTOR'S CARPENTERS ARE SKILLED CARPENTERS ?

QUESTION	SOUTHWEST REGION			STATE
	AVERAGE	MINIMUM	MAXIMUM	AVERAGE
Percentage of sub-contractor's carpenters that are skilled	41.0	25.0	50.0	32.6

Table B-4.24 Percentage of Skilled Subcontractor Carpenters

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

Use the following scale:

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

TRAINING PROGRAMS	SOUTHWEST REGION	STATEWIDE
	AVERAGE	AVERAGE
On-the-job training	3.40	3.15
Vocational training center	2.40	2.38
Open shop apprenticeships	2.00	2.32
Community college training	1.90	1.84
Union apprenticeships	1.40	1.89

Table B-4.25 Contributions of the Training Programs

IN YOUR OPINION, WHICH OF THE FOLLOWING TRAINING PROGRAMS PRODUCES THE BEST CARPENTERS FOR YOUR NEEDS ?

Use the following scale:

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

TRAINING PROGRAMS	SOUTHWEST REGION	STATEWIDE
	AVERAGE	AVERAGE
On-the-job training	3.90	3.19
Open shop apprenticeships	2.27	2.51
Vocational training center	2.27	2.26
Community college training	2.00	1.89
Union apprenticeships	1.50	2.00

Table B-4.26 Performance of Training Programs

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

RESPONSE	SOUTHWEST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	10	83.3	59	83.1
No	1	8.3	7	9.9
Cannot say	1	8.3	5	7.0
No Response to question	0	*	0	*

Table B-4.27 Need for Classroom Training

WHAT LEVEL OF COMMUNICATION DO YOU HAVE WITH THE FOLLOWING TRAINING PROGRAMS ?

Use the following scale:

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

TRAINING PROGRAMS	SOUTHWEST REGION	STATEWIDE
	AVERAGE	AVERAGE
On-the-job training	3.45	3.15
Open shop apprenticeships	2.18	2.26
Vocational training center	2.00	1.70
Community college training	1.80	1.11
Union apprenticeships	1.09	1.66

Table B-4.28 Level of Communication between Industry and Training Programs

RANK THE FOLLOWING AS THE BEST METHOD OF ESTABLISHING AN INDUSTRY-TRAINING PROGRAM LINKAGE.

Scale: 1,2,3,4; 4 being the most important.

STRATEGY	SOUTHWEST REGION	STATEWIDE
	AVERAGE	AVERAGE
Formal meeting of the two groups	3.00	2.90
Attending educational functions	2.60	2.27
Sitting on an advisory committee	2.50	2.59
Written contact	1.89	2.22

Table B-4.29 Strategy for Industry-Training Program Linkage

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

RESPONSE	SOUTHWEST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	1	8.3	15	22.1
No	9	75.0	40	58.8
Cannot say	2	16.7	13	19.1
No Response to question	0	*	3	*

Table B-4.30 Licensing of Carpenters

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

RESPONSE	SOUTHWEST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	4	33.3	27	39.7
No	1	8.3	9	13.2
Cannot say	7	58.3	32	47.1
No Response to question	0	*	3	*

Table B-4.31 Illegal Aliens

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

QUESTION	SOUTHWEST REGION			STATE
	AVERAGE	MINIMUM	MAXIMUM	AVERAGE
Percentage of illegal alien carpenters	10.4	2.0	33.0	9.8

Table B-4.32 Estimate of Illegal Aliens

APPENDIX B-5 RESPONSES FROM SOUTHEAST REGION

RESPONSES BY REGION

REGION	NUMBER OF RESPONDENTS	PERCENT
Central	10	14.1
Northeast	9	12.7
Northwest	10	14.1
Southeast	30	42.2
Southwest	12	16.9
Total	71	100.0

Table B-5.1 Responses by Region

TYPE OF OPERATION

TYPE OF OPERATION	SOUTHEAST PERCENTAGE	STATE-WIDE PERCENTAGE
Open shop	83.3	90.1
Union	0.0	0.0
Both (double breasted)	16.7	9.9
Total response	100.0	100.0

Table B-5.2b Type of Operation

TYPE OF CONSTRUCTION UNDERTAKEN

TYPE OF CONSTRUCTION	SOUTHEAST AVERAGE PERCENT	STATE-WIDE AVERAGE PERCENT
Commercial	75.7	77.3
Residential	22.3	13.0
Other	2.0	9.7

Table B-5.3 Type of Construction (in percentages)

AVERAGE ANNUAL VOLUME OF BUSINESS

BACKGROUND INFORMATION	SOUTHEAST REGION		STATEWIDE	
	AVERAGE PERCENT	MEDIAN	AVERAGE PERCENT	MEDIAN
Annual Volume of Business (in millions of dollars)	10.6	4.0	29.6	8.0
Projects carried per year	18.8	10.0	27.1	10.0

Table B-5.4 Average Annual Volume of Business & Projects Carried

NUMBER OF CARPENTERS EMPLOYED

BACKGROUND INFORMATION	SOUTHEAST REGION			STATEWIDE
	AVERAGE	MINIMUM	MAXIMUM	AVERAGE
Number of journeymen carpenters on payroll	18.5	0	150	21.6
Number of journeymen carpenters that are skilled	9.0	0	40	12.0
Number of apprentices on the payroll	4.8	0	28	5.7

Table B-5.5 Number of Carpenters Employed (by skill level)

AVERAGE HOURLY WAGE PAID TO JOURNEYMEN AND APPRENTICE CARPENTERS

CARPENTER TYPE	SOUTHEAST REGION			STATE
	AVERAGE	MINIMUM	MAXIMUM	AVERAGE
Journeymen carpenter	12.19	10.50	14.90	10.87
Apprentice (carpenter-in-training)	8.74	6.88	12.00	7.89

Table B-5.6 Hourly Wages (in dollars)

AVERAGE LENGTH OF EMPLOYMENT

CARPENTER TYPE	SOUTHEAST REGION			STATE
	AVERAGE	MINIMUM	MAXIMUM	AVERAGE
Journeymen carpenter	30.6	4.0	120.0	24
Apprentice (carpenter-in-training)	13.6	2.0	48.0	14

Table B-5.7 Average Length of Employment (in months)

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 AVERAGE	STATEWIDE AVERAGE
Construction industry contacts	2.90	2.90
Advertisements in the paper	2.79	2.59
Other construction jobs	2.11	2.27
Company on-the-job training	2.00	2.22
Open shop apprentice programs	2.00	2.09
Community college training programs	1.74	1.92
Vocational training centers	1.48	1.69
Labor Agents	1.35	1.27
Labor Unions	1.32	1.17
Union apprentice programs	1.12	1.10

Table B-5.8 Hiring Practices (in descending order of popularity)

WHAT CRITERION 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 CRITERION	SOUTHEAST REGION	STATEWIDE
	AVERAGE	AVERAGE
Performance	3.80	3.80
Experience	3.20	3.11
Market wage rate	2.42	2.52
Graduation from training program	2.36	2.35
Seniority	1.87	1.85

Table B-5.9 Promotion Criterion
(in descending order of importance)

ARE THERE ENOUGH SKILLED CARPENTERS FOR YOU TO HIRE ?

RESPONSE	SOUTHEAST REGION	STATEWIDE
	AVERAGE PERCENT	AVERAGE PERCENT
Yes	13.3	23.9
No	80.0	71.8
Cannot say	6.7	4.2
No Response to question	0.0	0.0

Table B-5.10 Availability of Skilled Carpenters

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

RESPONSE	SOUTHEAST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	29	96.7	67	94.4
No	1	3.3	2	2.8
Cannot say	0	0.0	2	2.8
No Response to question	0	*	0	*

Table B-5.11 Need For Skilled 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

TASKS	SOUTHEAST REGION	STATEWIDE
	AVERAGE	AVERAGE
Construction forms (piers, columns, beams, slabs, decks, stairs, bridges)	3.70	3.66
Construction forms (walls, footings, edges, curbs)	3.60	3.63
Frame floors and sills	3.53	3.51
Frame partitions	3.53	3.48
Frame roofs	3.48	3.38
Install door, window frame and unit	3.43	3.37
Install decking and sheathing	3.43	3.38
Install exterior wall covering and trim	3.40	3.29
Read blueprints	3.28	3.21
Install paneling, furring, soffit ceiling	3.23	3.18
Install structural timber	3.17	3.18
Install cabinets, fixtures and shelving	3.17	3.10
Construct interior stairs	3.13	3.17
Apply weather stripping and caulking	3.07	3.01

Table B-5.12 Desired Skill Level of Carpenter

TASKS	SOUTHEAST REGION	STATEWIDE
	AVERAGE	AVERAGE
Issue instruction to crew members	2.76	2.76
Preplan forthcoming activities	2.50	2.65
Build trusses	2.50	2.59
Install drywall material	2.43	2.53
Install insulation and sound control material	2.23	2.44

Table B-5.12 Desired Skill Level of Carpenter (CONTINUED)

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		STATEWIDE	
	RESPONDENTS	AVERAGE	RESPONDENTS	AVERAGE
Form carpenter	27	2.8	71	2.80
Finish carpenter	27	2.9	65	2.69
Framing carpenter	26	2.8	67	2.64

Table B-5.13 Skill Level of Future Carpenters

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	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	17	56.7	26	36.6
No	8	26.7	24	33.8
Cannot say	5	16.7	21	29.6
No Response to question	0	*	0	*

Table B-5.14 Effect of Availability of Carpenters on Business Volume

HAS A SHORTAGE OF CARPENTER EVER DIRECTLY CAUSED SCHEDULING PROBLEMS ?

RESPONSE	SOUTHEAST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	25	92.6	52	80.0
No	2	7.4	13	20.0
No Response to question	3	*	6	*

Table B-5.15 Shortage of Carpenters vs. Scheduling

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

RESPONSE	SOUTHEAST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	20	69.0	47	67.1
No	8	27.6	21	30.0
Cannot say	1	3.4	2	2.9
No Response to question	1	*	1	*

Table B-5.16 Overtime payments

WHAT PERCENTAGE OF HOURS WORKED BY CARPENTERS IS OVERTIME ?

QUESTION	SOUTHEAST REGION			STATE
	AVERAGE	MINIMUM	MAXIMUM	AVERAGE
Percentage of overtime hours worked by carpenters	6.2	0.0	20.0	8.1

Table B-5.17 Estimated overtime hours (percentage)

WOULD YOU HIRE MORE SKILLED CARPENTERS TO AVOID PAYING OVERTIME ?

RESPONSE	SOUTHEAST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	26	92.9	55	80.9
No	2	7.1	8	11.8
Cannot say	0	0.0	5	7.4
No Response to question	2	*	3	*

Table B-5.18 More Skilled Carpenters vs. Overtime

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	STATEWIDE
	AVERAGE	AVERAGE
General decline in craftsmanship	3.48	2.90
Lack of training programs	3.08	2.59
Construction boom	2.52	2.27
More emphasis on cutting cost than quality control	2.48	2.09
Because there is greater emphasis on prefab, there is decreased demand in the skill level of on site carpenters	2.32	2.22
Low wage rates	2.16	1.92
Part time carpenters	1.78	1.17
Low profile of Labor Union	1.62	1.10

Table B-5.19 Reasons for Shortage of Skilled Carpenters

WHAT PERCENTAGE OF CARPENTRY WORK DO YOU SUBCONTRACT ?

QUESTION	SOUTHEAST REGION			STATE
	AVERAGE	MINIMUM	MAXIMUM	AVERAGE
Percentage of carpentry work subcontracted	49.2	0.0	100.0	38.7

Table B-5.20 Subcontracted Carpentry Work (percentage)

IF YOU SUBCONTRACT A MAJORITY OF YOUR WORK, ARE THERE ENOUGH FIRMS AVAILABLE TO DO YOUR WORK ?

RESPONSE	SOUTHEAST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	8	47.1	14	43.8
No	7	41.2	13	40.6
Cannot say	2	11.8	5	15.6
No Response to question	13	*	39	*

Table B-5.21 Availability of Carpentry Subcontract Firms

ARE YOU SATISIFIED WITH THE QUALITY OF WORK DONE BY THE FIRMS TO WHOM YOU SUBCONTRACT CARPENTRY WORK ?

RESPONSE	SOUTHEAST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	7	41.2	14	40.0
No	8	47.1	18	51.4
Cannot say	2	11.8	3	8.6
No Response to question	13	*	36	*

Table B-5.22 Quality of Carpentry Subcontractors

IN YOUR OPINION, IS THE SKILL OF CARPENTERS WHO WORK ON THE SUBCONTRACTED WORK ADEQUATE ?

RESPONSE	SOUTHEAST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	4	23.5	11	31.4
No	12	70.6	22	69.9
Cannot say	1	5.9	2	5.7
No Response to question	13	*	36	*

Table B-5.23 Adequacy of Carpenters of Subcontractors

IN YOUR OPINION, WHAT PERCENTAGE OF THE SUBCONTRACTOR'S CARPENTERS ARE SKILLED CARPENTERS ?

QUESTION	SOUTHEAST REGION			STATE
	AVERAGE	MINIMUM	MAXIMUM	AVERAGE
Percentage of sub-contractor's carpenters that are skilled	26.2	1.0	70.0	32.6

Table B-5.24 Percentage of Skilled Subcontractor Carpenters

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

Use the following scale:

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

TRAINING PROGRAMS	SOUTHEAST REGION	STATEWIDE
	AVERAGE	AVERAGE
On-the-job training	3.08	3.15
Open shop apprenticeships	2.39	2.32
Vocational training center	2.17	2.38
Union apprenticeships	2.17	1.89
Community college training	2.04	1.84

Table B-5.25 Contributions of the Training Programs

IN YOUR OPINION, WHICH OF THE FOLLOWING TRAINING PROGRAMS PRODUCES THE BEST CARPENTERS FOR YOUR NEEDS ?

Use the following scale:

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

TRAINING PROGRAMS	SOUTHEAST REGION	STATEWIDE
	AVERAGE	AVERAGE
On-the-job training	2.88	3.19
Open shop apprenticeships	2.59	2.51
Union apprenticeships	2.35	2.00
Community college training	2.08	1.89
Vocational training center	2.04	2.26

Table B-5.26 Performance of Training Programs

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

RESPONSE	SOUTHEAST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	24	80.0	59	83.1
No	3	10.0	7	9.9
Cannot say	3	10.0	5	7.0
No Response to question	0	*	0	*

Table B-5.27 Need for Classroom Training

WHAT LEVEL OF COMMUNICATION DO YOU HAVE WITH THE FOLLOWING TRAINING PROGRAMS ?

Use the following scale:

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

TRAINING PROGRAMS	SOUTHEAST REGION	STATEWIDE
	AVERAGE	AVERAGE
On-the-job training	3.00	3.15
Open shop apprenticeships	2.11	2.26
Community college training	1.68	1.11
Vocational training center	1.46	1.70
Union apprenticeships	1.15	1.66

Table B-5.28 Level of Communication between Industry and Training Programs

RANK THE FOLLOWING AS THE BEST METHOD OF ESTABLISHING AN INDUSTRY-TRAINING PROGRAM LINKAGE.

Scale: 1,2,3,4; 4 being the most important.

STRATEGY	SOUTHEAST REGION	STATEWIDE
	AVERAGE	AVERAGE
Formal meeting of the two groups	3.33	2.90
Sitting on an advisory committee	2.89	2.59
Attending educational functions	2.84	2.27
Written contact	2.47	2.22

Table B-5.29 Strategy for Industry-Training Program Linkage

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

RESPONSE	SOUTHEAST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	10	37.0	15	22.1
No	12	44.4	40	58.8
Cannot say	5	18.5	13	19.1
No Response to question	3	*	3	*

Table B-5.30 Licensing of Carpenters

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

RESPONSE	SOUTHEAST REGION		STATEWIDE	
	RESPONDENTS	PERCENT	RESPONDENTS	PERCENT
Yes	17	63.0	27	39.7
No	2	7.4	9	13.2
Cannot say	8	29.6	32	47.1
No Response to question	3	*	3	*

Table B-5.31 Illegal Aliens

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

QUESTION	SOUTHEAST REGION			STATE
	AVERAGE	MINIMUM	MAXIMUM	AVERAGE
Percentage of illegal alien carpenters	9.7	1.0	25.0	9.8

Table B-5.32 Estimate of Illegal Aliens

APPENDIX C - SAS COMPUTER PRINTOUT

Copies of this SAS printout can be obtained by contacting:

Executive Secretary
Building Construction Industry Advisory Committee
School of Building Construction
University of Florida
Gainesville, Florida 32611
(904) 392-5965