EXECUTIVE EDUCATION PROGRAMS IN THE CONSTRUCTION INDUSTRY

AN ANALYSIS OF EXISTING NATIONAL PROGRAMS

AND CURRENT INDUSTRY PARTICIPATION

by

SUSAN ANN TOMLINSON-DYKENS

Submitted to the Department of
Civil Engineering
in Partial Fulfillment of the Requirement for
the Degree of

MASTER OF SCIENCE
in Civil Engineering

at the

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

February 1992

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Signature of Author _____
Department of Civil Engineering
January 24, 1992

Certified by _____
Fred Moavenzadeh
Center for Construction Research and Education
Research Advisor

Accepted by _____
Eduardo Kausel
Chairman, Departmental Committee on Graduate Students

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February 1992

ABSTRACT

Executive Education in the construction industry is a vital tool for developing and refining all levels of managers. Construction executives need, along with their technical skills, good human relation abilities to manage their staffs, proficiency in management to run a business and propitious business skills for building a company's competitive advantage in today's business world.

Executive education programs can be university-based, in-company, or developed and delivered by private organizations or societies. Research into existing programs and the administration of a survey resulted in a better understanding of what the executives in the construction industry want from executive education programs. In-company programs are sometimes preferred for the convenience and flexibility they offer and for the ability to be tailored to the specific interests of the company. University-based programs offer a more structured and formal educational experience with the ability to interact and network with outside businesses and industries. University-based programs are generally targeted to all industries and offer general management and functional management programs. Private organizations and societies offer industry-specific courses that can be utilized both on an in-company basis or externally at designated locations throughout the year. The familiarity of the administering agencies and their knowledge of construction issues are key to their popularity.

Executives in the construction industry have firm beliefs of how educational programs should be structured and taught. The value of education was acknowledged in all facets of this research. The participation in executive education programs was both a company-specific issue and an economic one.

Thesis Supervisor: Prof. Fred Moavenzadeh
Title: Director, Center for Construction Research and Education, Department of Civil Engineering

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CHAPTER I

INTRODUCTION

Education is the process of training and developing the knowledge, skill, mind, and character of an individual. Executive education is the refinement of these elements in individuals responsible for the management, administration and functioning of a business organization and its branches and departments.

The development and refinement of executives is a strategically vital element in today's highly competitive, dynamic, and volatile business world. To be successful in such times, and effective in building a company's competitive advantage, organizations and their executives need the skills and perspective that can only be developed through ongoing, state-of-the-art education.

Executive education broadens the views of the men and women who run businesses by expanding their understanding of their roles as managers. Education can enhance their strategic decision making ability by improving the individuals effectiveness in analyzing business problems and formulating policy. By acknowledging the need for constant self-assessment and professional change and growth, executives become more able and informed leaders thus promoting better management performance at all levels. The introduction of new ideas and approaches to business situations increases the executive's understanding of economic, social, technological, and political forces and changes and how they impact and influence the company. Executive education helps men and women to better anticipate and evaluate the future impacts of current changes in both the external environment and internal actions taken by their companies. This capacity for "seeing the whole picture" is probably the most important contribution executives make to their organizations. Executive education that achieves these objectives greatly benefit both the individual executive and the company as a whole.

This paper is a result of detailed research of existing Executive Education Programs. It includes University-Based Executive Education Programs that exist in the nations leading universities. The sixty-six

universities offering programs in 1990 and 1991 are listed and the 369 programs that these universities offer are described in detail. The program name, length and number of participants it can accommodate per session is indicated. The participants are described by their age, management level, and function within the company. The companies sending individuals to these programs are described by their size and from which industry they operate.

A brief review of other educational alternatives is included which encompasses In-Company Executive Education Programs and programs held at specific locations designated by the administering organization. Private institutes such as Fails Management Institute, Construction Industry Institute, Hughes Institute for Continuing Education, the Hartford Graduate Center of Rensselaer Polytechnic Institute and the Building and Construction Technology division of Northeastern University's Continuing Education Center offer programs that are in designated locations throughout the United States but can also be utilized on an in-company basis. Associations also offer Executive Education Programs such as the Associated General Contractors and the American Institute of Chemical Engineers. These seminars and courses are offered both as external educational experiences and in-company educational resources.

This paper then analyses and illustrates the results of a survey administered in 1991. The survey was distributed to various companies in the construction industry. The executives chosen to respond were asked to answer questions about their company's feelings for and participation in Executive Education Programs.

First the respondents were asked to identify their age, title, and function within the company. They were then asked to identify their company as to whether it is a Design Firm, Construction Company or Construction Management Firm, what major trade capabilities it performs and what its billings were for various construction areas. The respondents were also asked to indicate the number of salaried employees and how many were eligible for participation in Executive Education Programs. Next the respondent was to complete a section describing how their company chose employees to participate in these programs, how they

chose the programs, what the desired length of the programs is and which topics are of interest to the company.

Questions and responses were broken down into university-based programs and in-company programs and are analyzed accordingly. Finally there is a list of perceived benefits of both types of programs along with additional comments from the respondent.

The paper concludes with an analysis of the cumulation of research and a conclusion is arrived at as to the demand for and fulfillment of Executive Education Programs in the Construction Industry.

1.1 CONSTRUCTION INDUSTRY

The construction industry covers vast specialties that are considered both unique to the industry and complexly interwoven with other businesses and industries. Architecture, Civil Engineering, and Construction Management can be thought of as pure construction specialties. These general professions can be broken down into areas of concentration such as planning, structural engineering, environmental, geotechnical, highway, transportation, surveying, water resources, and waste disposal. There are probably a dozen other specialties that could be included that would directly impact and relate to construction activities.

Other forms of engineering such as Aerospace, Agricultural, Chemical, Computer, Electrical, Electronics, Energy, Industrial, Materials, Mechanical, Manufacturing, Petroleum, and Waterways and Coastal are closely tied to the Construction Industry but play major roles in other industries too.

Many of the professionals that consider themselves members of the Construction Industry as a whole are also members of one or more professional groups or organizations within the industry. Membership to an organization is voluntary, subsequently, it can be presumed that not all construction professionals are accounted for by the organization's membership statistics. Conversely, individuals might be members of more than one organization, therefor indicating that recorded membership

might overestimate the total number of professionals in the industry. The organization's membership totals not only consider the regular, active, working, members but also associate members, student members, and emeritus members. These other members can account for 15% to 20% of the organization's total membership.

As of June 1991, the American Society of Civil Engineers recorded its individual membership at 109,487. The American Institute of Architects indicated a membership total of 55,379 as of August 1990. The National Society of Professional Engineers had a membership total of 52,743 as of October 1990. As of July 1991, the Association of General Contractors had a national corporate membership of 33,000. The American Consulting Engineers Council, a national organization of engineering firms has a membership of nearly 5,000 as of September 1990. See Exhibit 1 below for a comparison of these figures. See Appendix A-1 and A-2 for a breakdown of each group.

The construction industry is one of the largest segments of the United States economy. According to the U.S. Department of Commerce, Bureau of the Census, the total new construction put in place in 1990 reached almost $435 billion dollars.

Annual Value of New Construction Put in Place

(Millions of dollars)

(current dollars)

	1986	1987	1988	1989	1990
TOTAL NEW CONSTRUCTION	398,206	410,208	422,075	432,066	433,999
Private Construction	313,613	319,639	327,102	333,515	324,435
Residential buildings	187,148	194,656	198,101	196,551	186,851
Nonresidential buildings	91,171	91,994	97,102	103,358	102,427
Farm nonresidential	2,072	2,503	2,270	2,356	(N/A)
Public utilities	30,948	27,858	27,503	28,549	31,831
All other private	2,275	2,628	2,126	2,702	3,326

	1986	1987	1988	1989	1990
Public Construction	84,593	90,569	94,973	98,551	109,564
Buildings	31,115	32,962	36,163	39,202	45,255
Highways and street	25,318	26,958	30,141	29,502	31,988
Military facilities	3,867	4,324	3,579	3,520	3,733
Conservation and development	4,937	5,519	4,728	4,968	4,734
Sewer systems	7,654	8,998	8,634	9,229	10,302
Water supply facilities	3,183	3,674	3,917	3,923	4,911
Miscellaneous public	8,517	8,134	7,810	8,207	8,641

Notes:

* Taken from the U.S. Department of Commerce, Bureau of the Census
* See Appendix A-16 for a further breakdown of this chart

The growth and health of the construction industry is directly related to the economic health of the country. Additionally, the construction industry has historically been very cyclical. These cycles directly affect the expenditures of the market segments. These expenditures, most likely, include the industry's investment in the development of its "quarter of a million plus" managers and executives. As is indicated on the graphs of Exhibit 2, the monthly values of new construction put in place in 1990 are anything but encouraging for the future.

In 1990, the Total New Construction dropped from a seasonally adjusted annual rate of almost $460 billion to less than $400 billion. Private Residential Construction took a similar $60 billion drop. Both Private Nonresidential Construction and Public Construction fluctuated between $90 billion and $100 billion for 1990.

Notes: *See Appendix A-17 for the Monthly Breakdown of New Construction Put in Place for 1990 and for the breakdown of the type of construction.

Membership Enrollment in Professional Organizations in the Construction Industry

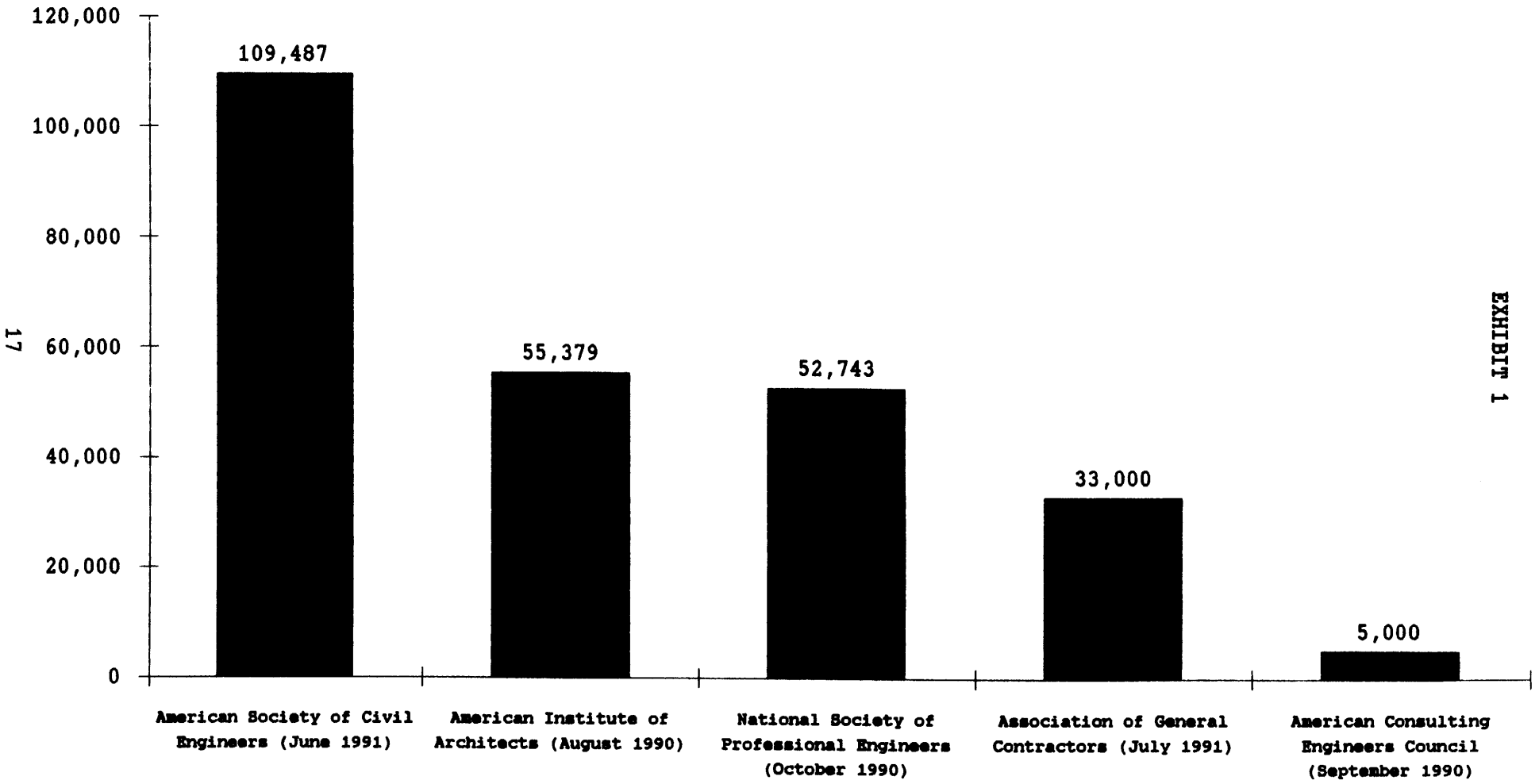


EXHIBIT 1

3.215/3:C 30-91-02

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Value of New Construction Put in Place

February 1991

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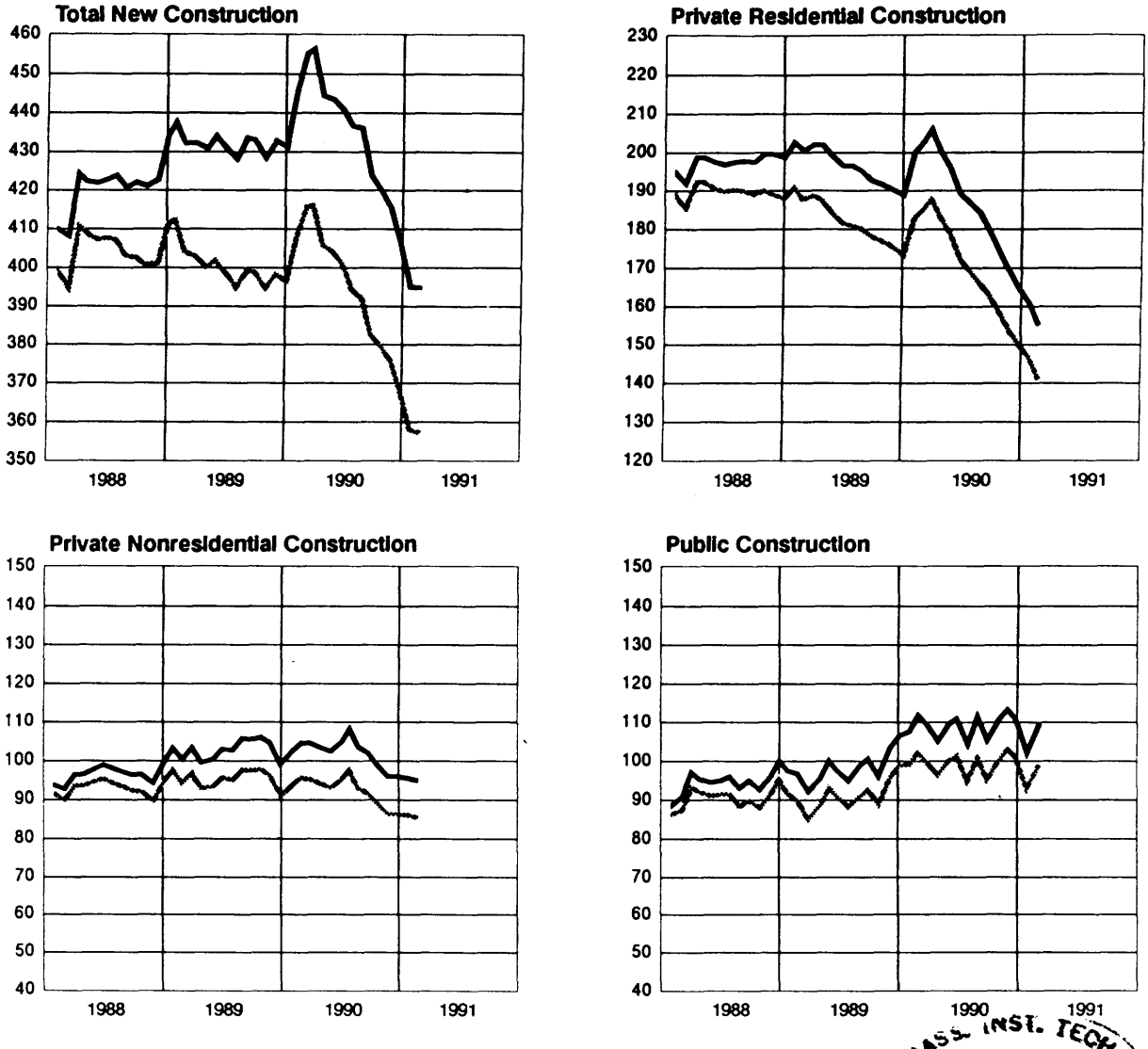
U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

C30-9102
Issued April 1991

Monthly Value of New Construction Put in Place

(Seasonally adjusted annual rate in billions of dollars)

Current dollars
1987 dollars



MASS. INST. TECH.

JUN 1 1 1991

Questions regarding these data may be directed to **Allan B. Meyer**, Progress Branch, Telephone 301-763-5717.
For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

CHAPTER II

EXECUTIVE EDUCATION PROGRAMS

In 1988, United States businesses spent over $30 billion to provide or participate in 17.6 million formal training and development courses for their employees.[1] Two forms of these courses were In-Company Executive Education Programs and the fastest growing segment of business management education in universities known as University-Based Executive Education Programs.

The increased demand for Executive Education Programs is the result of three major worldwide changes in the nature of management today: the changing competitive environment, the impact of changing technologies, and the shift in emphasis from manufacturing to service industries.[2] With these economic, social, technological and political changes, executives are compelled to have a wider base of knowledge and more intricate business skills.

2.1 IN-COMPANY EXECUTIVE EDUCATION PROGRAMS

In-Company Executive Education programs can help promote teamwork within an organization. These programs are developed and/or presented by in-house personnel, hired consultants, university faculty or a combination of these groups. In-company programs, typically held at a facility designated by the company, are designed specifically for the company, meeting their needs and requirements. The programs, therefor, represent the attitude and business values of the company and project a

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[1] Harvard Business Review, *Six Lessons for the Corporate Calssroom*, Harry B. Bernard, Cynthia A. Ingols, September-October 1988, p. 40.

[2] Bricker's International Directory, *University-Based Executive Programs*, Volume 1: Long-Term, 22nd Edition, Peterson's Guides, New Jersey, 1991, p. vii.

sense of direction, and a more solid understanding of the workings of the organization.

These programs are used not only to introduce new information, technology, business practices and curriculums but to also emphasize communication and interaction across the organization. In-Company programs are available to a large number of employees and often include participation from all management levels. Large decentralized companies find these programs beneficial by integrating executives from different geographical regions and executives levels or departments from within the company. This integration of managers is a socializing process that teaches organizational culture and norms, unwritten rules, and desired company specific behavior. Participants develop friendships and a common language which lends consistency to the organization.

In-Company programs are sometimes preferred over University-Based programs because companies feel that they are "getting more for their money". More managers can participate in these programs with less cost and interruption in daily routines. The program's formats are more flexible. Times, topics and locations can vary to best suit the company and participants. Classes can also be postponed or extended if needed. In-Company programs are sometimes used as morale boosters to generate unity and good feelings among managers and to project the company's attitude toward continual education and the encouragement of new ideas.

2.2 UNIVERSITY-BASED EXECUTIVE EDUCATION PROGRAMS

University-Based Executive Education Programs provide state-of-the-art training to broaden the business knowledge of managers or update executives whose formal educations were completed years ago. University-Based programs are both sharply-focused educational programs stressing business fundamentals and idea-expanding forums teaching new developments in management concepts, techniques, and business and technology interactions. These programs give executives a chance to gain unbiased knowledge of an extensive range of management principles.

Business environment concerns are analyzed by the universities and are taught unfettered by company policies and pressures. Executives are exposed to the viewpoints and perspectives of the university, program instructors, and other participating executives.

University-Based programs are customarily held at the sponsoring university. They are taught by faculty members, hired consultants, business professionals or a combination of these. Interested companies send executives to these universities to not only benefit from the educational factors but to partake in interaction with executives from similar and varying industries.

The experimental Sloan Fellows Program was the first known University-Based Executive Education Program. This program began in 1931 at the Massachusetts Institute of Technology in Cambridge, Massachusetts and was originally designed as an intensive twelve month program for mid-career executives. This educational notion was soon followed by the University of Iowa in 1940, Harvard University in 1943 and the University of Pittsburgh in 1949. By the end of the 1950's over two dozen other programs were founded. Simultaneously, In-Company programs were created to tailor educational demands to specific needs of the company and to reach a larger number of the company's executives. It soon became competitively important to be aware of and participate in any form of executive level education.

UNIVERSITY	YEAR EARLIEST PROGRAM WAS INAUGURATED	NUMBER OF PROGRAMS IN 1990 AND 1991
Massachusetts Inst. of Technology	1931	9
University of Iowa	1940	1
Harvard University	1943	14
University of Pittsburgh	1949	2
Aspen Institute	1950	5
Northwestern University	1951	22
Columbia University	1952	13
Indiana University	1952	10
Stanford University	1952	14
Cornell University	1953	3
Texas A&M University	1953	3
University of Georgia	1953	1

University of Houston	1953	5
University of North Carolina	1953	18
Carnegie Mellon University	1954	5
Emory University	1954	2
University of Hawaii	1954	1
University of Michigan	1954	40
Ohio State University	1955	1
University of California, L. A.	1955	5
Wabash College	1955	1
Menninger Management Institute	1956	4
Penn State University	1956	13
Williams College	1956	1
University of Chicago	1957	12
University of Illinois	1957	7
University of Virginia	1958	17
Georgia State University	1959	2
University of CA, Berkeley	1959	8
Northeastern University	1960	1
Louisiana State University	1961	1
Princeton University	1961	2
University of Arizona	1965	1
Rutgers University	1968	1
University of Minnesota	1971	3
University of Tennessee	1971	8
Dartmouth College	1972	6
University of Washington	1972	7
Colorado State University	1973	1
Boston University	1977	4
Simmons College	1977	3
University of New Hampshire	1977	1
Brookings Institute	1978	7
University of Pennsylvania	1978	18
Babson College	1979	6
Vanderbilt University	1979	6
Rice University	1980	4
Smith College	1980	1
University of Richmond	1981	1
University of Rochester	1981	4
Duke University	1982	6
Texas Christian University	1982	1
Cntr. for Creative Leadership	1984	9
Southern Methodist University	1984	2
University of Notre Dame	1984	4
Washington Campus	1984	1
California Institute of Technology	1985	8
Northern Illinois University	1985	1
Yale University	1986	1
Case Western University	1987	1
University of Maryland	1987	1

University of Texas at Austin	1987	5
Washington and Lee University	1987	1
George Washington University	1989	1
University of Miami	1989	1
Tulane University	1990	1

Most executive level managers in the initial decades of Executive Education Programs did not have a formal education in business or management. These early programs were, therefor, mini-MBA programs. Executive Education Programs were initially designed to introduce a variety of business ideas in one short time frame. Topics like finance and accounting, labor and human relations, production and marketing, social, economic and political responsibilities, and so forth were incorporated in one program. The objective was to educate the executive in all aspects of running a business while reinforcing the knowledge that was acquired from actual work experience.

Executive Education Programs no longer need to simulate mini-MBA programs. Executives are looking for programs to help fine tune and develop their existing skills and specialties. Programs that are offered can be as narrowly defined as *"International Management: Doing Business in Japan"* (University of Washington, Seattle, Washington) and *"Strategy Analysis for Finance and Marketing"* (University of Pennsylvania, Philadelphia, Pennsylvania) to broadly based courses such as *"Program for Management Development"* (Harvard University, Cambridge, Massachusetts) and *"Executive Development Program"* (University of Illinois, Urbana, Illinois).

Today there are more than sixty universities in the United States that offer Executive Education Programs and more that ninety universities world wide. Totally, there are almost four hundred different courses offered and over seventy-four industries participating in these courses. At the present there are many programs offered in the fields of Business, Administration, Economics, and Management. Of these programs, very few relate specifically to issues dealt with in Construction, Technology, Engineering, and Consulting.

In Peterson's 1990 and 1991 guides to University-Based Executive Education Programs known as Bricker's International Directory, Long and Short Term[3] sixty-six universities in the United States offered a total of 369 Executive Education Programs. The majority of these universities offered one, two or three programs. These programs are characterized and described according to topics discussed, length and size of program, and participation demographics. See Exhibit 3, 4, and 5 below (also Appendix A-3 to A-10) for the complete listing of universities, programs, and program details.

The topics most generally dealt with in universities today are geared toward General Business Managers and Functional Business Managers. These areas of interest are further broken down into specialized areas of concern as follows:

1. General Management Programs
   - A. General Management
   - B. Strategy/Policy
   - C. Business Environment
   - D. Humanities
   - E. Leadership and Organization
   - F. Technology
   - G. Government, Education and Health
   - H. Economics and Trade

2. Functional Management Programs
   - A. Finance and Accounting
   - B. Human Resources/Industrial Relations
   - C. Computers/Information Systems/Data Processing

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[3] a. Bricker's International Directory, *University-Based Executive Programs*, Volume 1: Long-Term, 22nd Edition, Peterson's Guides, New Jersey, 1991.

b. Bricker's Short-Term Executive Programs, 2nd Edition, Peterson's Guides, New Jersey, 1990.

D. Marketing/Sales
E. Operations/Manufacturing/Production
F. Transportation and Logistics
G. Research and Development, Engineering
H. Logistics/Purchasing

2.2.1 Program Lengths

The length of existing programs is from two days to fifty-two (52) weeks. Thirty-eight of the sixty-six universities offered only programs at least one week long. Twenty-one universities offered both long and short programs. Seven universities offered only short programs of two, three and/or four days. See Exhibit 6 below.

The seven (7) universities that only had programs less than one week were Case Western University, Northern Illinois University, University of Notre Dame, University of Rochester, University of Texas at Austin, Vanderbilt University, and Washington and Lee University. These Universities offered from one to six programs each. The remaining universities offered from 1 to 40 programs.

UNIVERSITY	NUMBER OF SHORT PROGRAMS OFFERED (< 1 WEEK) 1990	NUMBER OF LONG PROGRAMS OFFERED (>/= 1 WEEK) 1991	TOTAL NUMBER OF PROGRAMS OFFERED
University of Michigan	19	21	40
Northwestern University	10	12	22
University of North Carolina	15	3	18
University of Pennsylvania	2	16	18
University of Virginia	2	15	17
Harvard University	0	14	14
Stanford University	3	11	14
Columbia University	0	13	13
Penn State University	0	13	13
University of Chicago	10	2	12
Indiana University	7	3	10
Cntr. for Creative Leadership	3	6	9

Mass. Inst. of Technology	1	8	9
Cal. Institute of Technology	7	1	8
University of CA, Berkeley	0	8	8
University of Tennessee	0	8	8
Brookings Institute	6	1	7
University of Illinois	4	3	7
University of Washington	6	1	7
Babson College	0	6	6
Dartmouth College	1	5	6
Duke University	0	6	6
Vanderbilt University	6	0	6
Aspen Institute	3	2	5
Carnegie Mellon University	0	5	5
University of Cal., L. A.	1	4	5
University of Houston	3	2	5
University of Texas at Austin	5	0	5
Boston University	0	4	4
Menninger Management Institute	2	2	4
Rice University	3	1	4
University of Notre Dame	4	0	4
University of Rochester	4	0	4
Cornell University	0	3	3
Simmons College	0	3	3
Texas A&M University	0	3	3
University of Minnesota	0	3	3
Emory University	0	2	2
Georgia State University	1	1	2
Princeton University	0	2	2
Southern Methodist University	0	2	2
University of Pittsburgh	0	2	2
Case Western University	1	0	1
Colorado State University	0	1	1
George Washington University	0	1	1
Louisiana State University	0	1	1
Northeastern University	0	1	1
Northern Illinois University	1	0	1
Ohio State University	0	1	1
Rutgers University	0	1	1
Smith College	0	1	1
Texas Christian University	0	1	1
Tulane University	0	1	1
University of Arizona	0	1	1
University of Georgia	0	1	1
University of Hawaii	0	1	1
University of Iowa	0	1	1
University of Maryland	0	1	1
University of Miami	0	1	1
University of New Hampshire	0	1	1
University of Richmond	0	1	1

Wabash College	0	1	1
Washington and Lee University	1	0	1
Washington Campus	0	1	1
Williams College	0	1	1
Yale University	0	1	1
TOTAL	131	238	369

Nationally, there were a total of 369 programs being offered in 1990-91. The programs can be organized in units or sessions so that they are spread out over a longer period of time. For example a program might be three weeks long but held in one-week units over three years.

The most common length of time for existing Executive Education Programs is one week. One-hundred-twenty-six (126) of the 369 programs (over 34% of the total) were one week long. The next most common lengths of time for executive education programs were two days (59 programs total, 16%), three days (53 programs total, 14.4%), two weeks (50 programs total, 13.5%), four days and three weeks (17 programs total each, 4.6%), and four weeks (15 programs total, 4%). See Exhibit 7 below.

2.2.2 Program Participant Accommodation

Each session is designed for a specific number or range of participants. Fifty percent of the sessions will accommodate 30 to 40 participants. See Exhibits 8 and 9 below. Not surprisingly, over 70% of the programs can accommodate up to 45 participants. This is usually the maximum number of students that a typical classroom is best suited for. Universities that want to make use of their lecture halls will offer their executive seminar courses to a larger audience and indicate that their program(s) can accommodate from 70 to 200 participants. Many Universities offer the same programs more than once throughout the year.

This allows a larger total participation and greater flexibility for the interested companies.

2.2.3 Demographics of Companies and Participants

The demographics of the companies are described according to the industry from which they come and the size of the company. The demographics of the participants are described according to their management level, function within the company, age and income. See Appendix A-3 through A-10 for a full listing of universities and programs, and the associated demographics of the companies and participants.

2.2.3a Participation According to Industry

The participants of Executive Education Programs are employed with companies that are from a variety of industries. See Appendix A-9 and A-10 for Industry-Program relationships. In the sample of University-Based Executive Education Programs used for this study, the industries represented range from Aerospace to Wood Products. Of the existing programs, the industries that have been indicated to participate the most frequently are; Manufacturing, Tele/Communication, and Financial Services. The industries represented in these programs in order of greatest participation and the length of programs they participated in are listed below.

NUMBER OF SHORT PROGRAMS INDICATING PARTICIPATION FROM	NUMBER OF LONG PROGRAMS INDICATING PARTICIPATION FROM

Research	0	4	4
Restaurant & Hotel	0	4	4
Metal Fabrication	2	1	3
Non-Profit	1	2	3
Printing	2	1	3
Railroads	0	3	3
Trucking	0	3	3
Wood Products	1	2	3
Aviation	0	2	2
Distribution	0	2	2
Forest Products	0	2	2
Import-Export	0	2	2
Minerals	0	2	2
Private Industry	0	2	2
Rubber	1	1	2
Trading	0	2	2
Advertising	0	1	1
Contracting	0	1	1
Data Processing	0	1	1
Foreign Service	0	1	1
Home Products	0	1	1
Journalism	0	1	1
Marketing	0	1	1
Media	0	1	1
Natural Resources	0	1	1
Packaging	0	1	1
Photographic Products	0	1	1
Travel	0	1	1

2.2.3b Participation According to Company Size

A major factor in company participation in Executive Education Programs is the size of the company. Because of the expense involved in participation, many small companies can not only not afford the cost of tuition, but can not afford to have the employee absent from the day to day workings of the business.

The participants' companies have been grouped into three categories: *less than 1,000* employees, *from 1,000 to 10,000* employees, *and greater than 10,000* employees. Of the companies and programs that responded to this classification, the latter two groups participated in 296 programs

INDUSTRY	THIS INDUSTRY (< 1 Week) 1990	THIS INDUSTRY (>/= 1 Week) 1991	TOTAL
Manufacturing	53	137	190
Tele-Communication	37	130	167
Financial Services	33	98	131
Chemicals	14	74	88
Electronics	22	66	88
Computers	17	68	85
Business Services	36	45	81
Government	18	60	78
Utilities	8	66	74
Banking	13	58	71
Insurance	11	57	68
Health Care	31	25	56
Consumer Goods	18	37	55
Pharmaceutical	7	47	54
Retail and Wholesale	25	29	54
Food & Beverage	12	40	52
Automotive	11	31	42
Aerospace	10	31	41
Petroleum	2	35	37
Transportation	8	22	30
Energy	8	20	28
Education	9	18	27
Information Systems	0	21	21
Textiles	6	14	20
High Technology	8	11	19
Diverse	8	10	18
Construction	6	10	16
Military/Defense	3	12	15
Industrial	4	9	13
Publishing	5	8	13
Petro-Chemical	0	12	12
Oil & Gas	3	6	9
Agri-Business	0	8	8
Engineering	4	4	8
Machines and Tools	4	4	8
Real Estate Develop.	4	4	8
Consulting	2	5	7
Mining	0	7	7
Paper	3	4	7
Steel	2	5	7
Tobacco	1	6	7
Law	5	1	6
Bio-Technology	0	5	5
Entertainment	1	3	4
Plastics	2	2	4
Public Sector	2	2	4

each, the former participated in 245 programs. See Exhibit 10 below. As is illustrated in Exhibit 11 the majority of the programs are comprised of small percentages of each of the three company sizes. Most programs appear to be some combination of companies under 50% and, as is expected, the larger companies represent the largest percentages of class participants. Few programs indicate that their participants are from one company size classification. This in shown by the infrequency of programs indicating percent participation greater than 80%.

Companies with Less than 1,000 Employees
(See Exhibits 12a and 12b)

Of the 245 programs indicating participants from companies of this size, only 6 programs had 100% participation by these companies. That usually indicates that the program would be directly geared toward smaller businesses such as the University of Illinois' *"Simplified Strategy Planning for Small to Mid Sized Companies"* or the University of Pittsburgh's *"Executive Program for Expanding Companies"*. Almost 70% of the sample programs indicated participation of 10% or less from companies with less than 1,000 employees. Ninety percent of the programs with participants from the smaller companies had no more than 40% of the total class participants from these companies.

Companies with 1,000 to 10,000 Employees
(See Exhibits 13a and 13b)

Of the 296 programs indicating participants from companies of this size, only 2 programs had 100% participation by these companies. The largest number of programs, 31%, indicated having between 31% and 40% participation of companies having 1,000 to 10,000 employees. Eighty-five percent of the programs with participants from this category had between 11% and 50% of the total class participants from these companies.

Companies with Greater than 10,000 Employees
(See Exhibits 14a and 14b)

Of the 296 programs indicating participants from companies of this size, only 2 programs had 100% participation by these companies. The largest number of programs, 19%, indicated having between 51% and 60% participation of companies with more than 10,000 employees. Seventy-five percent of the programs with participants from this category had between 31% and 80% of the total class participants from these companies. This would prove, as stated earlier, that the larger companies can more readily afford to remove the executive from the normal work environment and invest in the development and improvement of both the individual's and organization's competitive advantage.

2.2.3c Participation According to Management Level

Companies should enroll their executives in programs best suited to the interests and management level of the participant. University programs located in Bricker's Directories describe the participating management levels as Entry Management Level, Middle Management Level, Upper-Middle Management Level and Senior Management Level. Of the universities that categorized their program participants this way, only 46 programs had participants holding Entry Management Level positions, 230 programs indicated having participants in Middle Management Positions, 324 programs indicated having participants in Upper-Middle Management Positions, and 293 programs indicated having participants in Senior Management positions. See Exhibit 15 below. As is illustrated in Exhibit 16 the majority of the programs are comprised of small percentages of each of the four managerial levels. Most programs appear to be some combination of managerial levels each under 50%. Few programs indicate that their participants are from one managerial level.

This is shown by the infrequency of programs indicating percent participation greater than 80%. This is an indication that many of the programs try to offer a more diverse curriculum to attract managers with all background and experience levels.

Entry Management Level
(See Exhibits 17a and 17b)

Of the 46 programs indicating participation of Entry Management Level executives only one program had as high as 76% of the total program participation as this management level. Over 50% of these programs indicated participation of 10% or less of Entry Level executives.

Middle Management Level
(See Exhibits 18a and 18b)

Of the 228 programs indicating participation of Middle Management Level executives only two programs indicated having 100% participation by Middle Managers. The largest number of programs, 19%, indicated having between 21% and 30% participation of this management level.

Upper-Middle Management Level
(See Exhibit 19a and 19b)

Of the 323 programs indicating participation of Upper-Middle Management Level executives only two programs indicated having 100% participation by Upper-Middle Managers. The participation ranges "31% to 40%" and "41% to 50%" were indicated to be the most frequent for this management level. Fifty-nine and fifty-eight programs, respectively, indicated that Upper-Middle Level executives comprise these percentages of the programs.

Senior Management Level
(See Exhibit 20a and 20b)

Of the 293 programs indicating participation of Senior Management Level executives eighteen programs indicated having 100% participation by Senior Managers. The participation range "11% to 20%" was indicated to be the most frequent for this management level. Seventy-one programs indicated that Senior Level executives comprise these percentages of the programs.

2.2.3d Participation According to Company Function

Companies are represented in each program by personnel from the various functional areas within the companies. These functional areas have been identified as: Administration, Finance/Accounting, General Management, Human Resources, Logistics, Marketing/Sales, Operations/Production, Purchasing, Technical, and Other. See Appendix A-7 and A-8 for the relationship of program topic to company function. Of the companies and programs that responded to this participation identification the following breakdown indicates the percentage participation of personnel in the various programs. See also Exhibit 21 at the end of Chapter II.

FUNCTIONAL AREA	NUMBER OF SHORT PROGRAMS WITH THESE PARTICIPANTS (< 1 Week) 1990	NUMBER OF LONG PROGRAMS WITH THESE PARTICIPANTS (>/= 1 Week) 1991	TOTAL NUMBER OF PROGRAMS
General Management	93	196	289
Operations/Production	74	165	239
Marketing/Sales	67	164	231
Finance/Accounting	60	151	211
Administration	70	128	198

Technical	49	132	181
Human Resources	33	112	145
Other	25	48	73
Logistics	0	7	7
Purchasing	0	2	2

As is illustrated in Exhibit 22 the majority of the programs are comprised of small percentages of the each of the functional areas. Most programs appear to be some combination of participants under 20% each. Few programs indicate that their participants are from one functional area. This is shown by the infrequency of programs indicating percent participation greater than 80%. As stated previously in this study, this is an indication that many of the universities try not to create programs that are too narrowly focused. The programs are designed to attract executives from every facet of the business environment, with different areas of expertise and experience level.

General Managers
(See Exhibits 23a and 23b)

Of the 289 programs indicating participation of General Managers only five programs (2%) indicated having 100% participation by these executives. The largest number of programs, 27%, indicated having between 11% and 20% participation of this functional area. Eighty percent of the 289 programs had less than 40% of the participants as General Managers.

Operations and Production Managers
(See Exhibits 24a and 24b)

Of the 239 programs indicating participation of Operations and Production Managers only three (1%) indicated having 100% participation by these executives. Ninety-one programs, 38% of the 239 programs, had

less than 10% of its class from operations and/or production. Over 70% of these programs had less than 20% of its participants from this area of business.

Marketing and Sales Managers
(See Exhibits 25a and 25b)

Two-Hundred-thirty-one programs had Marketing and Sales Managers partaking in the course. None of these were made up entirely of this type of executive. Over 60% of these classes were made up of no more than 20% of Marketing and Sales Managers.

Finance and Accounting Managers
(See Exhibits 26a and 26b)

Of the 211 programs that indicated have Financial and Accounting Managers, only two short programs (1%) had 100% of its class from this company function. Over 50% of the 211 programs had less than 10% of its total class from this area.

Administrative Managers
(See Exhibits 27a and 27b)

Only five (3%) of the 198 programs having Administrative Managers had 100% participation from this company department. As with the other functional areas, this function represented less than 10% of the class in almost 50% of the classes that these executive participated in. Almost 75% of these programs had less than 20% of its class from Administration.

Technical Managers

(See Exhibits 28a and 28b)

Technical Managers participated in 181 programs and comprised no more than 87% of a program. Almost 80% of the 181 programs had less than 20% of its total class population from the technical areas within a company.

Human Resources Managers
(See Exhibits 29a and 29b)

Of the 145 programs that indicated having executives from the Human Resources department, only four programs (3%) were comprised 100% of these managers. Almost 90% of the 145 programs had less than 20% of its total class population from Human Resources.

Logistics, Purchasing and Other Manager
(See Exhibits 30a through 30d)

Logistic Managers, Purchasing Managers and Other Managers participated in 7 programs, 2 programs, and 73 programs respectively. One program had 100% Purchasing Managers, but the other managers typically comprised less than 10% of the programs that they participated in. As has been repeatedly shown in all of the graphs, the majority of the programs are made up of less than 10% of the participants from each of the functional areas.

2.2.3e Participation According to Age

The ages of the participants that have attended Executive Education Programs range from 23 to 70 years old. Of the companies and programs that responded to participation identification over 23% of the programs

(67 programs) indicated an age range of their participants to be from 30 to 55 years old. This is 18% of the total 369 existing programs. Over 16% indicated a median age of 40 years old for their participants. This is almost 12% of the total 369 programs. Almost 91% of the responding companies and programs indicated median ages between 35 and 45 years old. See Exhibits 31 through 34.

2.2.4 Tuition and Other Expenses

University-Based Executive Education Programs are designed, as the name implies, to be taught at a university. This involves not only tuition expenses but transportation to and from the university, hotel or room expenses, meals, and books and materials. Few of the shorter programs include all of these necessities in the tuition listed in brochures. Thirty-four percent of the short programs do include lunches only, and nine percent include all meals. Only eighteen percent of the programs that are less than one week long include both rooms and meals in the cost of tuition. Usually the room is on campus and meals are in the cafeteria. The longer programs are different and over ninety-one percent of the programs include both room and meals in the tuition. The remaining programs usually offer meals only.

The inclusion of these necessities is reflected in the tuition. The two-day programs that do not include necessities other than lunches can cost from $350 to $1,250 and average about $760. Two-day programs that do include room and meals cost between $600 and $1,400 and the average cost is $1,100. Three-day programs that do not include rooms can cost between $500 and $2,200. The cost of these programs average about $1,073. Three-day programs that do include room and meals cost from $1,770 to $2,400 and average $1,866. The last of the short programs, the four-day programs, cost, without rooms, from $600 to $1,770 and average about $1,300. The tuition for four-day programs that do include room and meals cost from $1,770 to $3,200 and average $2,300.

The programs that are one week or longer can vary in tuition costs substantially from university to university. Most universities offer

packages that include class tuition, and room and meals. Programs that are one week long range in cost from $1,800 to $7,500 and average $3,465. These all-inclusive programs that are two weeks long cost from $1,695 to $8,950 and the average cost is $5,955. Three-week programs cost from $4,200 to $30,000 and average $8,343. Programs that are four week long cost from $9,950 to $14,800 and the average program cost is $12,417. The programs that are five weeks or longer range in cost from $8,800 to $29,850. The average cost of programs at these lengths is $15,820.

Exhibits 35 and 36 list the universities and their programs along with the program length and tuition expenses. The list also includes what is covered in the cost of tuition. As stated earlier, some universities furnish some meal, all meals, room and meals, or none of these. An "x" in the box would indicate that the literature definitely implies that this or these item(s) are included in the cost listed. An "o" would indicate that this or these item(s) are definitely not included in the cost listed. As stated earlier, tuition varies substantially from university to university but it usually remains consistent from program to program within one university.

2.3 ALTERNATIVE SOURCES OF EXECUTIVE EDUCATION PROGRAMS

Universities are not the only sources of Executive Education Programs. As mentioned earlier programs can be organized and held in-house by company training personnel, outside consultants, private training institutes or professional associations. At the present time, these alternative sources offer the widest selection of construction related educational programs. These outside sources offer various alternatives for participants and their companies. One alternative is for the participant to go to nationally designated sights to partake in seminars or courses with others in the construction industry. Another alternative is to have the seminars or courses administered to employees in a company designated location and to be focused on company specific

interests. These sort of programs have been indicated to be preferred by the construction industry for their flexibility and ability to adapt to individual companies.

Along with these institutions, there are many local colleges and universities that offer continuing education programs that touch on many issues relevant to the construction industry. These courses cover both management and technical concerns, are usually held at night, and are open to anyone. The following is a few of the more popular institutes and associations that offer continuing education programs. These programs differ from those described previously as University-Based Executive Education Programs because they are not always geared to upper management or senior executives. Many of these continuing education programs are open to any who want to attend, or all company personnel when given in-house. Often "Continuing Education Units" (CEU) are given for attending these seminars and courses. The programs are usually from one to five days long and under $1,000.

2.3.1 Construction Industry Institute

The Construction Industry Institute (CII), formed in 1983 by a group of major owners and contractors, pursues the objective of improving the cost effectiveness of the construction industry through directed research and implementation. Though comprising only a small percentage of the industry, the CII does represent some of the largest owners and contractors and task forces utilize these members along with academics to analyze and solve problems of concern.

The CII offers one week courses which have been developed by their University Short Course Action Team. These courses are taught by university faculty and industry professionals and targeted for experienced project managers. The program objectives are to analyze team dynamics, organizing and setting objectives, and managing uncertainty within the construction industry.

Pilot programs for the one week module took place in 1991. These program were:

* Optimizing Project Schedules
* Project Organization
  - Design Effectiveness
  - Contractibility
* Safety
  - Materials Management
  - Quality Management
  - Cost and Schedule Controls

New programs are planned for 1992 which include:

* Project Organization
  - Team Dynamics
  - Managing Uncertainty
  - Project Objective Setting
* Design Effectiveness
  - Objectives Matrix
  - Inputs to Design Impact on Project Outcome
  - Scope Definition
* Contractibility
  - Improving Project Contractibility
  - Modularization and Pre-Assembly

One CII task force has also been developing training modules. The objective is to create and market a self-contained training module for addressing each topic researched by the task force or in demand in the industry. The training module has been designed such that a company can purchase the training materials and conduct the course in-house. One eight-hour course being implemented by the CII involves Capital Project Planning. It covers the concerns of the professionals from the following disciplines: Project Managers/Engineer, Discipline Engineers, Procurement/Material Coordinators, Construction Managers/Engineers/ Superintendents, Contract Administrators, Project Controls Scheduler/Engineer, QA Manager/Coordinator, Field Construction Engineers, Facility Operators, Business Managers.

The task force has developed training modules that can be conducted effectively in-house with company personnel. There is a minimum preparation time for the courses and includes instructor's guides designed for the 'non-professional' trainer. The instructor's guide includes guidelines for selecting instructors, training tips on adult education, checklists for preparing and giving courses, slides and overheads with notes, case studies with videos, and module evaluation forms. Participants also receive various handouts and publications. The modules are entirely based upon CII research findings and recommendations and include real-life case studies that simulate multiple industries.

The training module can be used in several different ways depending on the particular needs of the company presenting the training. Three possible applications have been identified in the brochure distributed during the CII Annual Conference held in August 1991 at Monterey California.[4]

1. Initial Training for Entry Level Personnel

   The course could be used for new employees with one to five years experience to train them in the basic techniques available for optimizing the particular topic of interest such as Planning and Schedules. For this application, the instructor should be able to relate the material to the students on a basic level and should function more in the role of a teacher. The objective of the course would be to expose the participants to the optimum techniques of the particular topic and to give them practical experience in applying the techniques.

2. Refresher Training for Experienced Personnel

   The course could be used for personnel with five years or more experience as a refresher course to re-acquaint them with the optimization techniques of the particular subject chosen. This

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[4] Education for Implementation - Project Management Education Module Action Team

course could spend less time on the basics and concentrate more on the applications. The instructor would need to establish himself as a subject matter expert and be prepared to address real technical and specific issues relating to the training. Two instructors might be used, one who is a subject matter expert for presenting the technical material, and one who has more experience as a facilitator for leading the case study presentations. The objectives of this course would stress less the teaching of the material and would focus more on the sharing of experiences and applications of the techniques.

3. Project Planning Tool

Such courses like Schedule Optimization would be ideal as a starting point for the planning of a new project. By working through the training module, the project team could complete planning needed to properly initiate the project. The team could then meet periodically to review the project and update the planning. The application would require a facilitator rather than a teacher. The project team would already have a prerequisite knowledge. The objective would be to channel that knowledge using the format of the training module to develop a project plan.

2.3.2 Fails Management Institute

Since 1953, the Fails Management Institute (FMI) has been a management consulting and training firm working with and for general building contractors, civil constructors, trade specific prime contractors, subcontractors, construction management firms and others in the construction industry. FMI provides consulting and educational services to those who have a common interest in construction: owners, developers, government agencies, law firms, accounting groups, trade associations, software vendors, and surety and insurance companies. FMI has developed programs that they feel will help these groups work better

with each other in the construction industry. Their corporate brochure best identifies their clients and objectives:

Industry Segments

Contractors are the focal point of the construction industry. FMI serves the contracting segment both within the firm and in strengthening relations with the rest of the industry. FMI helps the contractor to better deal with the changing environment.

Manufacturers and distributors who provide construction materials and technological advances are an influential industry segment. FMI performs market research to help sources of supply identify profitable markets and channels of distributions.

Developers, engineers, and design groups are liaisons between owners and contractors. FMI understands their position and their character as professional firms. FMI provides these groups with the means to develop marketing plans, productivity improvement programs, and compensation systems

Owners, investors, and utilities want efficiency in their purchasing approach and timely execution of contracts - the most value for their construction spending. FMI provides procedures for building preferred bidders lists, and they help clients establish mutually acceptable guide lines for in-process reporting. For construction companies under contract to utilities, FMI provides employee training to boost productivity on power plant sites.

Support groups are attorneys, CPAs, bankers, sureties and insurance companies who are interested in the needs of contracting clients. FMI provides new employee training and continuing education for support group personnel.

Government is a large purchaser of construction services and also acts in a regulatory role. FMI aids local and federal governments in doing evaluations and reports on construction productivity issues as well as in training agency personnel.

The Fails Management Institute though located in Raleigh, North Carolina, offers 120 public seminars and programs dealing with a large

range of construction issues in many national locations. Topics are offered in from one to twenty-three cities a years. Usually averaging about three or four cities per course. FMI boasts of offering leading programs in popular resort locations such as Beaver Creek, Colorado and Palm Beach, Aruba.

All programs can be offered on an in-company basis too. FMI has given up to 400 client sponsored seminars in one year. FMI will work with company personnel to coordinate programs to meet the needs and requirements of the company. Programs will be custom designed in area such as topics, layout and presentation.

FMI states that they are the largest organization offering the most educational programs for the construction industry. The programs range in length from one day to five days. Typical enrollment fees are about $195 for a one day seminar to $595 for a two or three day seminar. There are discounts for multiple enrollment from one company. Materials and textbooks are usually included in the fees but travel, hotels and meals are not.

Courses are designed for various levels of managers and executives. Each program is fully described on FMI brochures.

COURSE NAME	ENROLLMENT FEE	DURATION OF COURSE
Business Continuation and Management Succession		5 days
Business Planning for Contractors		2 days
Construction Selling Skills	$495	2 days
Financial Management	$595	2 days
FMI Seminar Digest	$595	3 days
Introduction to Management in Construction		5 days
Job Leadership		1 day
Leadership Excellence		2 days
Mergers and Acquisitions		2 days
Job Profits	$195	1 day
Negotiating Skills	$595	2 days
Offensive Marketing	$495	2 days
On-The-Job Negotiating	$295	1 day
Presentation Skills Workshop		2 days
Pricing and Bidding Strategy		2 days
Profit Strategies		2 days
Strategic Planning		2 days
Tight Job Control		1 day
Young Managers Institute		2 days

How to Make Money in a Depressed Economy $595 2 days

2.3.3 Hughes Institute for Continuing Education

The Hughes Institute for Continuing Education is located in Milwaukee, Wisconsin and is a private organization serving the professional development needs of business and engineering personnel dealing with the electrical power systems for facilities. The Institute provides seminars and in-house workshops throughout the United States.

The seminars are designed to upgrade your expertise in Power Systems Engineering. The programs inform you of design requirements and common practices, standards and codes for equipment installation and utilization. They cover selection, application, installation, testing, maintenance, and troubleshooting of electrical apparatus and systems. Case studies and examples are used along with step-by-step methods to arrive at designs that deal effectively with normal and unexpected situations that arise.

The Hughes Institute feels that participants will benefit from taking these courses. Participants will improve their ability to evaluate, specify, and apply electrical equipment and systems. Better field performance, lower installation and maintenance costs, and increased user satisfaction and safety will result. The participant will be better able to contribute toward improving the design and operation of new and retrofit systems.

The programs are targeted toward electrical system designers, engineers, consulting engineers, and installation specialists who need to acquire an understanding of power distribution systems engineering and design. Programs are also designed for plant safety inspectors, municipal electrical inspectors and others responsible for electrical system inspection and approval.

Courses are available usually once a year, and in the past have been located in Orlando, Florida, San Francisco, California, San Diego, California and Atlanta, Georgia. All courses, in whole or in part, are

available for presentation at any company location. Courses are three, four and five days long and enrollment fees are from $595 to $845. There are discounts for multiple enrollment from one company. Enrollment fees include course materials and instruction only.

COURSE NAME	ENROLLMENT FEE	DURATION OF COURSE
Designing Electrical Systems for Facilities Lighting, Electrical Distribution and Motor Selection	$795	5 days
Grounding and Lightning Protection	$595	3 days
Substations, Switchgear, and Grounding	$795	5 days
Electrical Distribution Systems Design	$595	3 days
High and Medium Voltage Systems Protection and Coordination	$845	5 days
Power and Grounding for Computer Installation	$595	3 days
Power Systems Expansion and Design	$695	4 days
Low Voltage Power Systems Protection and Coordination	$845	5 days

2.3.4 American Institute of Chemical Engineers

The American Institute of Chemical Engineers (AIChE) has a main office in New York, New York. The AIChE offers numerous seminars and courses dealing with a wide range of aspects of chemical engineering. One-hundred-forty-four short programs are offered various times throughout the year and in several cities in the United States. Seminars and courses are one, two, three, and five days long but the majority of them are two days in length. The enrollment fees range from $325 to $2,595 and do not include travel, hotel, and meal expenses.

AIChE courses are technically orientated and appear to be very specifically focused on areas of chemical engineering. All courses have in-company capabilities and can be tailored to specific company needs. An example of a few courses are:

Chemical Plant Accidents

Adsorption

Atmospheric Diffusion Modeling

Compressors for Chemical Processes
Conveying of Bulk Solids
Emergency Response Planning for Fixed Chemical Facilities
Principles of Design Extraction
Fundamentals of Fire and Explosion Hazards Evaluation
Selecting Materials of Construction
Transport and Fate of Chemicals in the Environment
Water Quality Engineering for Industry

2.3.5 Associated General Contractors of America

The Associated General Contractors of America (AGC) is a professional organization with their main office in Washington, D.C and branch offices throughout the United States. The AGC's Management Conference Programs began in 1972 and are "presented by contractors for contractors". The conferences are each held once a year in cities such as Chicago, Illinois, New Orleans, Louisiana, Dallas, Texas, Minneapolis, Minnesota, and St. Louis, Missouri.

The programs are specifically targeted to contractors, and generally targeted toward owners, design professional, construction lawyers, and various managers and tradespeople. Management levels differ for each conference.

COURSE NAME	ENROLLMENT FEE	DURATION OF COURSE
Construction Contracts: How to Manage the Risks and Improve Owner-Contractor Working Relations	$400	3 days
Ownership Transfer of the Construction Company	$400	3 days
Advanced Management Program	$3,395	10 days
Marketing Construction Services	$400	3 days
Safety: The Bottom Line...Safety Pays	$425	3 days

2.3.6 Center for Continuing Education Building and Construction Technology Program

The Building and Construction Technology Program has been a part of Northeastern University's Center for Continuing Education since 1982. The Center offers comprehensive training through its on-site, training services, day and evening programs, satellite based services, video conferencing services, and corporate and executive meeting services.

The Building and Construction Technology Program offers a range of courses from introductory to advanced levels in the following fields:

Architecture/Construction Technology
Electrical, Fire Protection, and Plumbing Systems Design
HVAC Systems Design
Construction Superintendent
Construction Law and Management
Real Estate Development
Land Surveying
Facilities Management
Landscape Management
Hazardous Waste Management

Eighty-six different courses are offered at various times throughout the year in six locations within a 60 mile radius of Boston. Courses are held one night a week for eleven weeks. Each course is $485 and includes enrollment fees only. Textbooks and materials are not included in the fees.

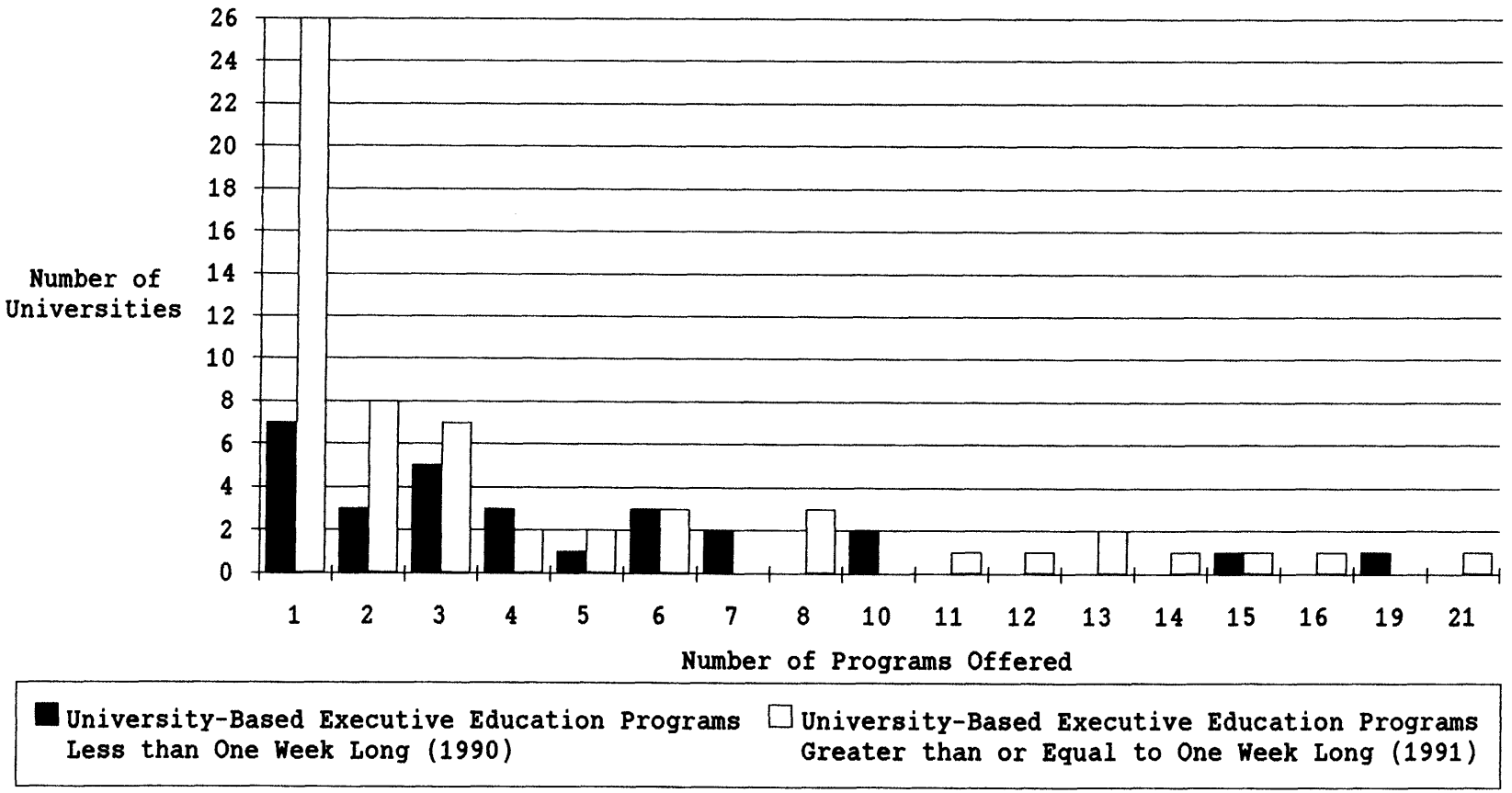
The courses are taught by instructors both from academia and the construction industry. Faculty members have included: experienced engineers, architects, real-estate developers, lawyers, consultants, facilities managers and system designers. All courses have the capabilities to be taught on an in-company basis.

2.3.7 Hartford Graduate Center

The Hartford Graduate Center is affiliated with Rensselaer Polytechnic Institute and offers continuing education programs dealing with many construction issues. The program is designed to appeal to all levels of construction personnel. Each class is targeted to a different trade, profession and/or management level. Classes are one, two, and three days long and are held at the Center's main location in Hartford, Connecticut. Enrollment fees are from $295 to $790 and the fees only cover the cost of taking the class. Transportation, hotel and meals are an extra cost.

COURSE NAME	ENROLLMENT FEE	DURATION OF COURSE
Construction Cost Control and Financial Management	$575	2 days
Construction Cost Estimating and Bidding Concepts	$575	2 days
Construction Project Management	$575	2 days
Advanced Topics in construction Estimating and Bidding	$295	1 days
Claims Avoidance and Preparation	$575	2 days
Value Engineering in Construction	$295	1 days
Construction Project Planning and Scheduling	$575	2 days
Construction Management	$295	1 days
Construction Law	$575	2 days
Computerized Scheduling	$295	1 days
Computer Aided Design and Drafting	$790	3 days
Construction Markets, Marketing and Business Growth Strategies	$575	2 days

Typical Number of Programs Offered in the Sixty-Six Universities Sampled.



UNIVERSITY-BASED EXECUTIVE PROGRAMS AVAILABLE IN 1990 *
(Programs less than one week)

	UNIVERSITY/INSTITUTE NAME		PROGRAM TITLE
1	Aspen Institute	A	The Future of the Corporation
		B	Weekends at Wye
		C	The Corporation and the Changing International System
2	Brookings Institute	A	Issues in Telecommunications Policy
		B	Federal budget: Fiscal Year 1991
		C	The U.S. in the World Economy: Policy Issues and Choices
		D	Financing National Health Care: Tradeoffs Between Access and Cost Control
		E	The National Security Agenda for the 1990's
		F	Science, Technology, and Industrial Productivity
3	California Institute of Technology	A	Artificial Intelligence: Understanding and Development Strategic Applications
		B	Manufacturing Cost Strategies: Meeting the Competitive Challenge
		C	Restructuring Your Manufacturing Operations: A Framework for Organizational Change
		D	Bld., Executing. & Intgrtd. Strategic Plan: Linking Markting, R&D,& Production Stratgies
		E	Managing Techn. as a Strategic Resource: Positioning for Competitive Advantage
		F	Just-in-time Manufacturing
		G	Manufacturing Strategies: Building for the Future
4	University of California, L. A.	A	Role of the Board of Directors
5	Case Western Reserve University	A	Advanced Management Program for M.B.A.'s
6	Center for Creative Leadership	A	Managing for Commitment
		B	Designing Systems for Executive Development
		C	Values in Action
7	University of Chicago	A	Creating New Products and Services
		B	Developing Marketing Plans
		C	Industrial Marketing
		D	Marketing Analysis and Tactical Decision Making
		E	Marketing Communications
		F	Marketing Strategy and Planning
		G	Measurements for Competitive Marketing Strategy

		H	Pricing Strategy and Tactics
		I	Sales Force Productivity Strategies
		J	Customer Satisfaction: Management Strategies and Tactics
8	Dartmouth College	A	Stategic Cost Accounting and Control
9	Georgia State University	A	Finance and Accounting for NOn-FinancialManagers
10	University of Houston	A	Advanced Purchasing Workshop
		B	Essentials of Purchasing
		C	Purchasing Negotiation Skills
11	University of Illinois	A	Fundamentals of Finance and Accounting for Non-Financial Executives
		B	Bond Analysis and Portfolio Management
		C	Pension Fund Management in Volatile Markets
		D	Simplified Strategic Planning for Small to Mid Sized Companies
12	Indiana University	A	Finance and Accounting for Non-Financial Managers
		B	Improving Management Skills
		C	Fundamentals fo Marketing Management
		D	Leadership for the 1990's
		E	Organizing and Managing for Customer Satisfaction
		F	Production Management: Inventory Control in the Computer Age
		G	Production Management: Manufacturing Management in the 1990's
13	Massachusetts Institute of Tech.	A	Current Issues in Information Systems
14	Menninger Management Institute	A	Managing Organizational Change and Resolving Conflict
		B	Work and Family: Understanding Change, Health and Growth
15	University of Michigan	A	Advanced Financial Analysis for Commercial Lending
		B	Financial Analysis, Planning and Control
		C	Basic Management for the Newly Appointed Manager
		D	Managing International Joint Ventures
		E	Project Management
		F	Classroom Training Techniques
		G	Employee Discipline and Grievance Handling
		H	How to Prepare and Win More Arbitration Cases
		I	Interviewing: A Strategic Approach
		J	Cost Effective Purchasing Management
		K	Business to Business Marketing Strategies
		L	Effective Sales Management
		M	Marketing for Non-Marketing Managers

		N	Strategies in Sales Management for Sales Executives
		O	Delegation and the Team Effort: People and Performance
		P	Effective Managerial Coaching and Counseling
		Q	Gaining Competitive Advantage
		R	Meeting the Japanese Challenge: Building Competitive Organizations
		S	Strategic Management of Technology
16	University of North Carolina	A	Finance for the Non-Financial Manager
		B	Total Quality Management
		C	Building the Winning Organization
		D	Customer Satisfaction: The New Competitive Edge
		E	Increasing Sales Force Productivity
		F	Making Your Marketing Strategy Work
		G	Marketing Professional Services: Advanced Strategies for Implementation
		H	Marketing Strategy and Planning
		I	Pricing Strategies for Maximized Profits
		J	Product Profiling
		K	Strategic Planning for the $10-to $50-Million Company
		L	Customer-Driven Manufacturing: The Manufacuring-Marketing Connection
		M	Increasing Productivity of Professional Services
		N	Just-inTime: Managing Lead Times and Delivery Reliability
		O	Manufacturing Strategy for competitive Advantage
17	Northern Illinois University	A	Vendor Certification
18	Northwestern University	A	Communicating with the Japanese Business World
		B	Advanced Futures and Options Strategies for Professional Financial Managers
		C	Credit Analysis and Financial Reporting
		D	Developing a Corporate Pension Strategy
		E	Managing Financial Risk with Futures and Options
		F	Strategic Financial Planning
		G	Decision-Making Strategies for Managers
		H	Negotiation Strategies for Managers
		I	Managing Communications in the Changing Marketplace
		J	The Art of Venturing: Entrepreneurship for the Businessperson
19	University of Notre Dame	A	Credit Analysis
		B	Finance for Non-Financial Managers
		C	Psychology of Persuasion

		D	Business Forecasting Using a PC
20	University of Pennsylvania	A	Chief Executives and Senior Officers of Family-Held Businesses
		B	The Next Generation of Family Members in Family-Held Businesses
21	Rice University	A	Finance and Accounting for Non-Financial Managers
		B	How to Manage the Sales Force
		C	Successful Negotiation Skills
22	University of Rochester	A	Management cost Accounting
		B	Advances in Manufacturing Systems Design
		C	Manufacturing costs and Performance Measurement
		D	Uptime Management: Reliability, Maintenance and Support
23	Stanford University	A	Financila seminar for Non-Financial Managers
		B	Program on Managing Innovation
		C	Program on Market Strategy for Technology-Based Companies
24	University of Texas at Austin	A	Accounting for Non-Accounting Managers
		B	Financial Decision Making: Integrated Strategies for the Non-Financial Managers
		C	Managing Salespeople for Performance
		D	Marketing Strategy for Competitive Advantage
		E	Customer Service: The New Competitive Advantage
25	Vanderbilt University	A	What Executives Should Know About Finance and Accounting
		B	Effective Management Techniques
		C	Managing the Manager
		D	Training the Trainer
		E	Essentials of Purchasing for the Newly Appointed Buyer
		F	Effective Marketing Techniques
26	University of Virginia	A	Leadership for Extraordinary Performance
		B	Managing Organizational and Individual Change
27	University of Washington	A	Finance and Accounting for Non-Financial Executives
		B	Marketing Research
		C	Marketing Strategy, Analysis and Decisions
		D	Sales Management and Strategies
		E	Managing Change
		F	Successful Negotiating Skills
28	Washington and Lee University	A	Institute for Family Business

* According to Bricker's Short-Term Executive Programs, Peterson's Guides, New Jersey, 1990

UNIVERSITY-BASED EXECUTIVE PROGRAMS AVAILABLE IN 1991*
(Programs longer than one week)

	UNIVERSITY/INSTITUTE NAME		PROGRAM TITLE
1	University of Arizona	A	Executive Development Course
2	Aspen Institute	A	Corporation in Contemporary Society
		B	Traditional Executive Seminar
3	Babson College	A	Developing Managerial Effectiveness
		B	Achieving Global Integration
		C	Technology Managers Program
		D	Managing and Developing Human Resources: a Strategic Perspective
		E	Market Segmentation Positioning and Competitive Advantage
		F	Changing Role of Procurement Management
4	Boston University	A	Managment Development Program
		B	Leadership Institute
		C	Strategic Human Resources Management in a Global Economy
		D	Implementing Manufacturing Strategy
5	Brookings Institute	A	Understanding Federal Government Operations
6	University of California, Berkeley	A	Executive Program
		B	Management Development, A Comprehensive Approach
		C	Corporate Financial Management and Strategy Program
		D	Executive Compensation
		E	Advanced Strategic Marketing
		F	Competitive Marketing Strategies for High-Tech Products
		G	Competitve Marketing Strategies for Industrial Products
		H	Competitive Marketing Strategies for Services
7	California Institute of Technology	A	Management of Technology and Innovation
8	University of California, Los Angeles	A	Advanced Executive Program
		B	Advanced Program in Human Resource Management
		C	Managing the Information Resource
		D	Engineering and Management Program
9	Carnegie Mellon University	A	Program for Executives

		B	Program for Technical Managers
		C	College Management Program
		D	Senior Executive Seminar
		E	Strategic Management of Technology Through the 1990's
10	Center for Creative Leadership	A	Dynamics of Strategy: Goals into Action
		B	Implementing Innovation
		C	Leadership at the Peak
		D	Leadership Development Program
		E	Managing the People Process: From Idea to Market Entry
		F	Workshop in Organizational Action
11	University of Chicago	A	Management Development Seminar
		B	Product Management: Analysis, Planning, Decision Making
12	Colorado State University	A	Executive Development Institute
13	Columbia University	A	Executive Program in Business Admisinstration: Managing the Enterprise
		B	Executive Program in International Management: Managing for Global Success
		C	Business Strategy
		D	International Strategy
		E	Leading and Managing People
		F	Managing Strategic Innovation and Change
		G	Accounting and Financial Management for the Non-Financial Executive
		H	Financial Management
		I	Human Resource Management
		J	Market Analysis for Competitive Advantage
		K	Marketing Management
		L	Sales Management
		M	Operations and Production Management
14	Cornell University	A	The Effective Executive
		B	Executive Development Program
		C	Managing the Next Generation of Manufacturing
15	Dartmouth College	A	Minority Business Executive Program
		B	Tuck Executive Program
		C	Dartmouth Institute
		D	Marketing Strategy Program
		E	Effective Management of Production Operations
16	Duke University	A	Advanced Managment Program

		B	Program for Manager Development
		C	Dynamics of Competitive Advantage
		D	Managerial Finance
		E	Strategic Human Resources Management Program
		F	Marketing Management Program
17	Emory University	A	Advanced Management Program
		B	Management Development Program
18	George Washington University	A	Managing in the Global Marketplace
19	University of Georgia	A	Executive Program
20	Georgia State University	A	Management Development Program
21	Harvard University	A	Advanced Management Program
		B	International Senior Management Program
		C	Owner/President Management Program
		D	Program for Management Development
		E	Executive Program in Competitive Strategy
		F	Institute for the Management of Lifelong Education
		G	Program for Senior Executive Fellows
		H	Program for Senior Executives in State and Local Government
		I	Program for Senior Managers in Government
		J	Contemporary Developments and Control
		K	Corporate Financial Management
		L	Managing the Information Services Resource
		M	Strategic Marketing Management Program
		N	Manufacturing in Corporate Strategy
22	University of Hawaii	A	Advanced Managment Program
23	University of Houston	A	Executive Development Program
		B	Managing Operations
24	University of Illinois	A	Executive Development Program
		B	Program for International Managers
		C	Specialized Program for International Managers
25	Indiana University	A	Managing Business Strategies Program
		B	Values, Choice, and Executive Action-An Executive Development Program
		C	Professional Manager Program
26	University of Iowa	A	Executive Development Program
27	Louisiana State University	A	Executive Program

28	University of Maryland	A	Executive Development Program
29	Massachusetts Institute of Technology	A	Program for Senior Executives
		B	Sloan Fellows Program
		C	Executive Program in Corporate Strategy
		D	Executive Program in Management Issues for Corporate Counsel
		E	Executive Program in Mangement of Complex Organizations
		F	Executive Program in Japanese Technology Management
		G	Executive Program in Financial Management
		H	Management of Research, Development, and Technology-Based Innovation
30	Menninger Management Institute	A	Executive Seminar
		B	Personal and Interpersonal Dimensions of Leadership
31	University of Miami	A	Minority Executive Program
32	University of Michigan	A	Executive Program
		B	Strategies for Global Competition
		C	Strategy: Formulation and Implementation
		D	Excellence in Service Management
		E	Successful Product Innovation
		F	Executive Communication
		G	Management of Managers
		H	Management II: A Mid-Management Development Program
		I	Corporate Financial Management
		J	Finance for the Non-Financial Manager
		K	Advanced Human Resource Executive Program
		L	Human Resource Executive Program
		M	Negotiating and Administering the Labor Contract
		N	Organizational Career Development
		O	Strategic Collective Bargaining
		P	Strategic Human Resource Planning
		Q	Applied Methods in Marketing Research
		R	Applied Product/Market Management
		S	Business to Business Marketing Strategies
		T	Strategic Marketing Planning
		U	Manufacturing Executive Program
33	University of Minnesota	A	Executive Program
		B	Management Institute

		C	Management Academy
34	University of New Hampshire	A	Executive Development Program
35	University of North Carolina	A	Executive Program
		B	Young Executives Institute
		C	Program for Technology Managers
36	Northeastern University	A	Executive Development Program
37	Northwestern University	A	Advanced Executive Program
		B	Advanced Transportation Management
		C	Executive Development Program
		D	Corporate Financial Strategy
		E	Merger Week
		F	Managing Human Resources in Restructuring Organizations
		G	Business to Business Marketing Strategy
		H	Consumer Marketing Strategy
		I	Increasing Sales Force Productivity
		J	Transportation Marketing Strategy
		K	Development Manufacturing's Strategic Potential
		L	Logistics/Distribution Management
38	Ohio State University	A	Executive Development Program
39	Penn State University	A	Executive Management Program
		B	Management Program for Women
		C	Managing the Global Enterprise Program
		D	Program for Executive Development
		E	Program for Strategic Leadership
		F	Financial Analysis for Strategic Management Program
		G	Human Resources Management Program
		H	Industrial Marketing Management Program
		I	Industrial Sales Management Program
		J	Manufacturing Strategy and Technology Program
		K	Program for Logistics Executives
		L	Strategic Purchasing Management Program
		M	Engineer/Scientist as Manager Program
40	University of Pennsylvania	A	Measuring and Managing Service Quality
		B	Wharton Advanced Management Program
		C	Implementing Strategy

		D	Strategic Management
		E	Strategy Analysis for Finance and Marketing
		F	International Forum
		G	Managing Organizational Change
		H	Managing Technology and Innovation
		I	Finance and Accounting for the Non-Financial Manager
		J	Financial Management
		K	Mergers and Acquisitions
		L	Pension Funds and Money Management
		M	Advanced Competitive Marketing Strategy
		N	Business/Industrial Marketing Strategy
		O	New Product Management: Development and Introduction
		P	Sales Force Management
41	University of Pittsburgh	A	Executive Program for Expanding Companies
		B	Management Program for Executives
42	Princeton University	A	Executive Education Program in Public Affairs
		B	"Ten Days at Princeton" Foreign Executive Development Program
43	Rice University	A	Advanced Management Institute
44	University of Richmond	A	Management Development Program
45	Rutgers University	A	Advanced Management Program
46	Simmons College	A	Managing with Influence
		B	Program for Developing Executives
		C	Program for Developing Managers
47	Smith College	A	Management Program
48	Southern Methodist University	A	Management of Managers: A Leadership Renewal Program
		B	Financial Management for Non-Financial Managers
49	Stanford University	A	Advanced Management College
		B	Executive Program
		C	Executive Program for Smaller Companies
		D	Sloan Program
		E	Executive Program in the Humanities
		F	Executive Program in Organizational Change
		G	Engineering Executive Program
		H	Financial Management Program
		I	Marketing Management Program

		J	Effective Management of Production Operations
		K	Manufacturing Strategy for Competitive Advantage
50	University of Tennessee	A	Executive Development Program
		B	Cost Management Institute
		C	Administrative and Service Institute for Productivity Through Quality
		D	Institute for Productivity Through Quality
		E	Senior Executive Institute for Productivity Through Quality
		F	Executive Development Program for Distribution Managers
		G	International Logistics Program
		H	Engineer/Scientist as Manager
51	Texas A & M University	A	Advanced Management Program
		B	Management Development Program
		C	Management Seminar
52	Texas Christian University	A	Managing Managers Program
53	Tulane University	A	Program for Managers
54	University of Virginia	A	Executive Program
		B	Managing Critical Resources
		C	McIntire Enterpreneurial Executive Institute
		D	Strategic Management for Line Managers
		E	Creating the High-Performance Workplace
		F	Young Managers' Program
		G	Evaluation of Capital Projects: Appraisal in Uncertain Environments
		H	Financial Management for Non-Financial Managers
		I	Mergers and Acquisitions: Strategy and Implementation
		J	The Art of Managing Human Resources
		K	The Power of Information: A Strategic Approach to Managing Information Resources
		L	Marketing and Sales Executives
		M	Marketing Strategy: Business to Business
		N	Sales Management and Marketing Strategy
		O	Manufacturing Management Program
55	Wabash College	A	Executive Program-A Personal Development Program
56	University of Washington	A	International Management: Doing Business in Japan
57	Washington Campus	A	Business and the Public Process: How Washington Works
58	Williams College	A	Executive Program
59	Yale University	A	Executive Management Program

* According to Bricker's International Directory, Long Term, Petersons Guides, New Jersey, 1991

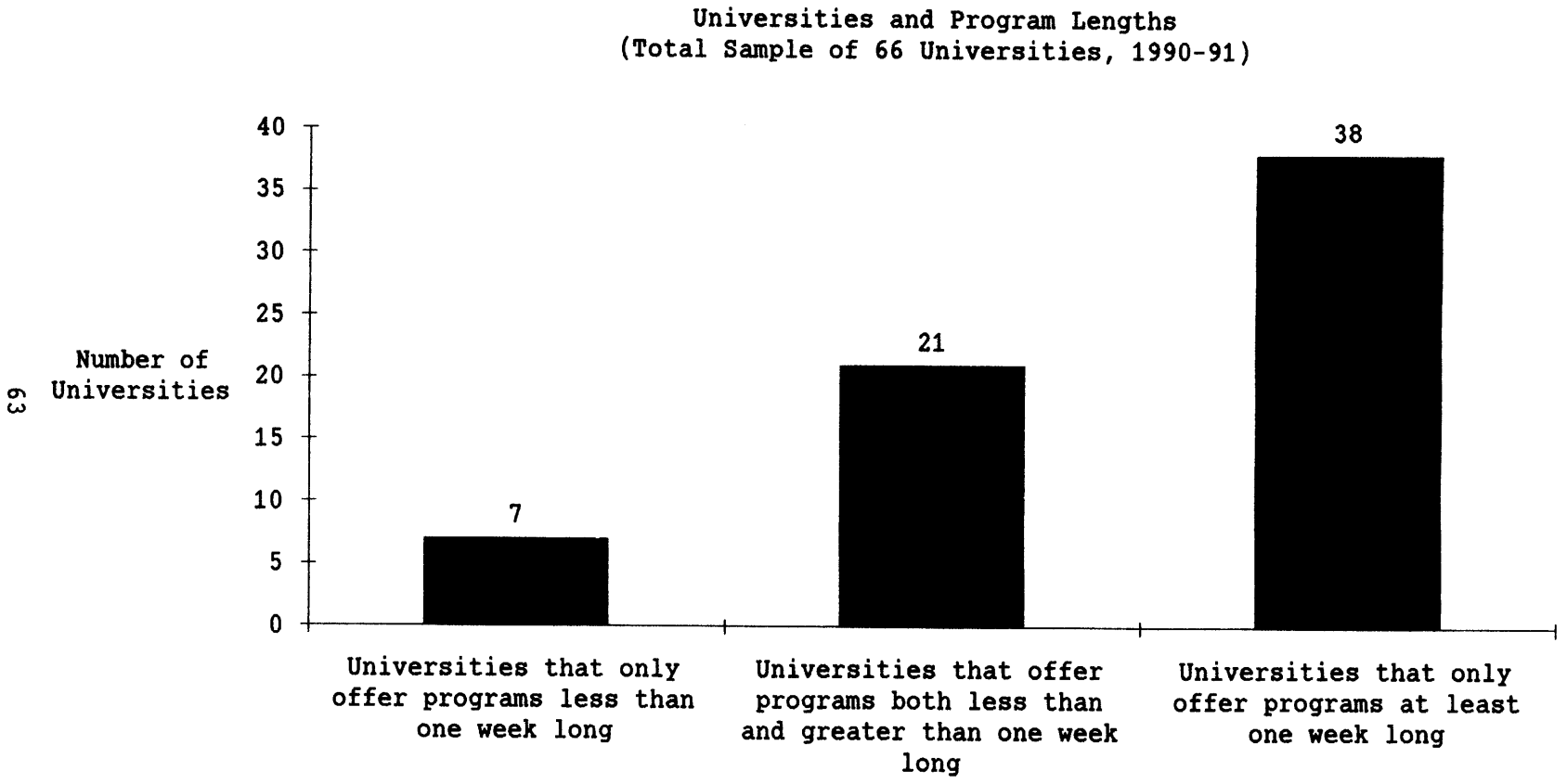
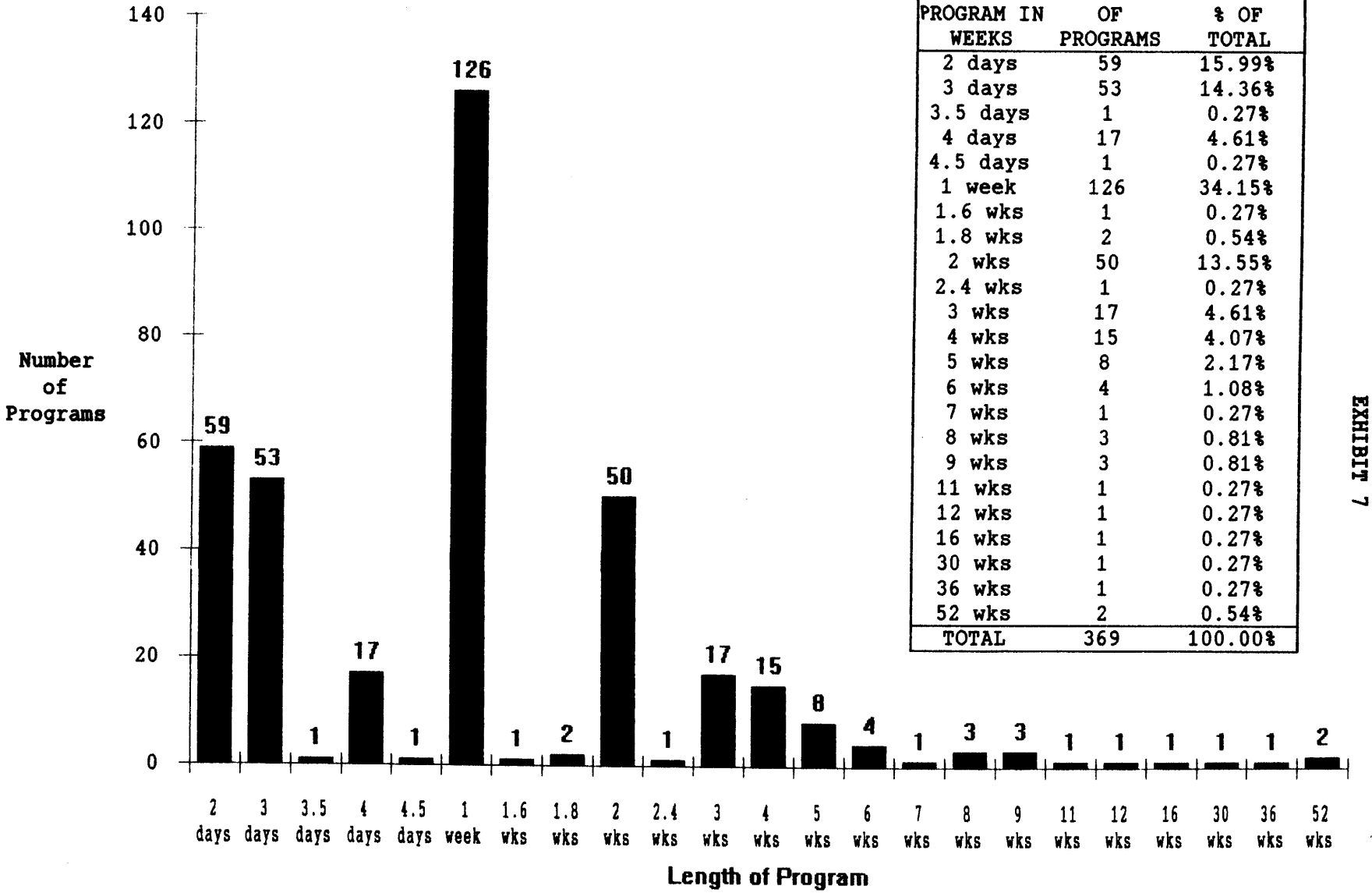

Universities and Program Lengths
(Total Sample of 66 Universities, 1990-91)
Number of Universities
40
35
30
25
20
15
10
5
0
7
21
38
Universities that only offer programs less than one week long
Universities that offer programs both less than and greater than one week long
Universities that only offer programs at least one week long

EXHIBIT 6

Length of Existing Executive Education Programs



LENGTH OF PROGRAM IN WEEKS	NO. OF PROGRAMS	% OF TOTAL
2 days	59	15.99%
3 days	53	14.36%
3.5 days	1	0.27%
4 days	17	4.61%
4.5 days	1	0.27%
1 week	126	34.15%
1.6 wks	1	0.27%
1.8 wks	2	0.54%
2 wks	50	13.55%
2.4 wks	1	0.27%
3 wks	17	4.61%
4 wks	15	4.07%
5 wks	8	2.17%
6 wks	4	1.08%
7 wks	1	0.27%
8 wks	3	0.81%
9 wks	3	0.81%
11 wks	1	0.27%
12 wks	1	0.27%
16 wks	1	0.27%
30 wks	1	0.27%
36 wks	1	0.27%
52 wks	2	0.54%
TOTAL	369	100.00%

EXHIBIT 7

University-Based Executive Education Programs and the Number of Participants the Programs are Designed for.

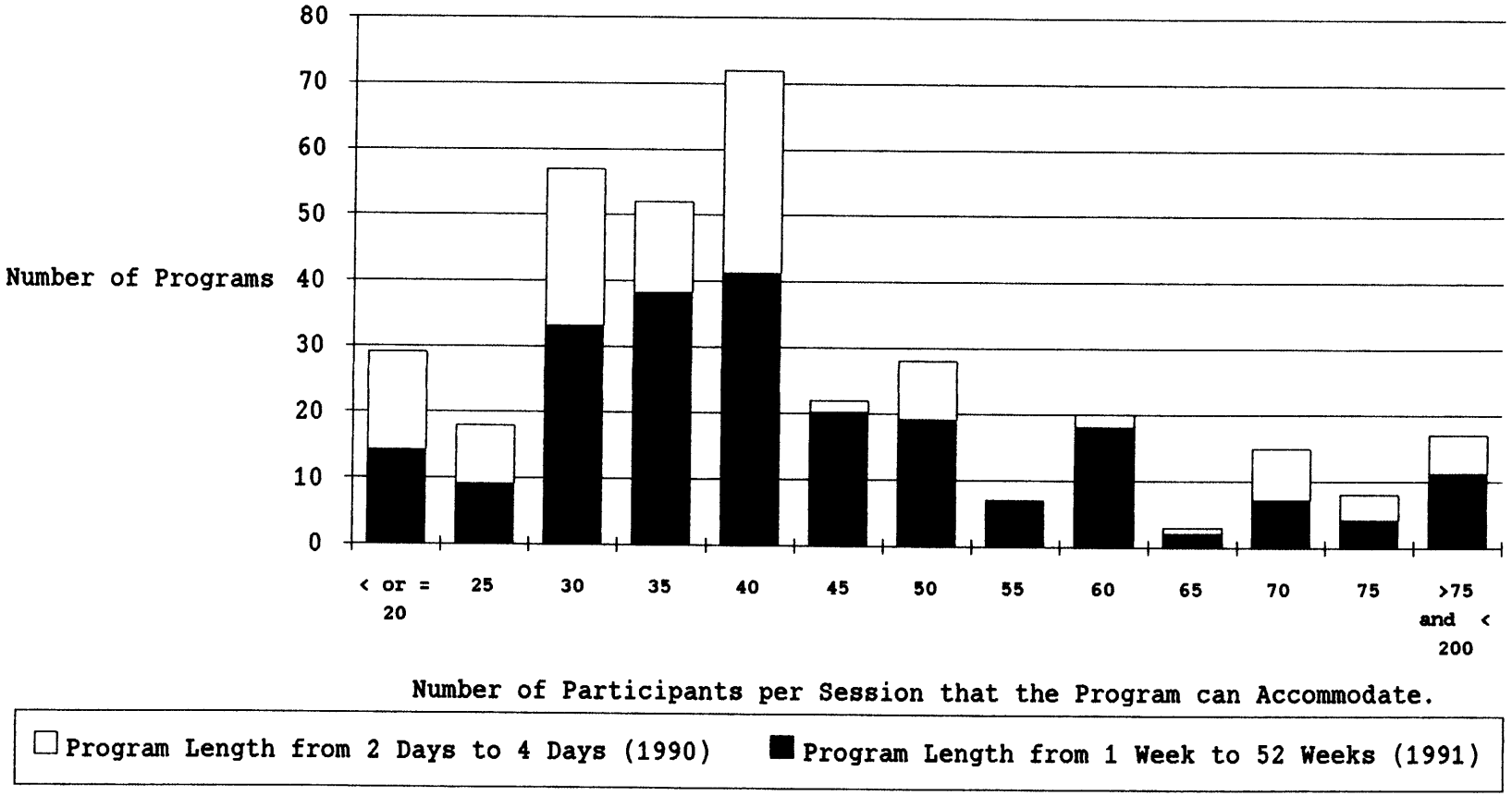


EXHIBIT 8

University-Bases Executive Education Programs Less than One Week Long and the Number of Participants the Programs are Designed for.

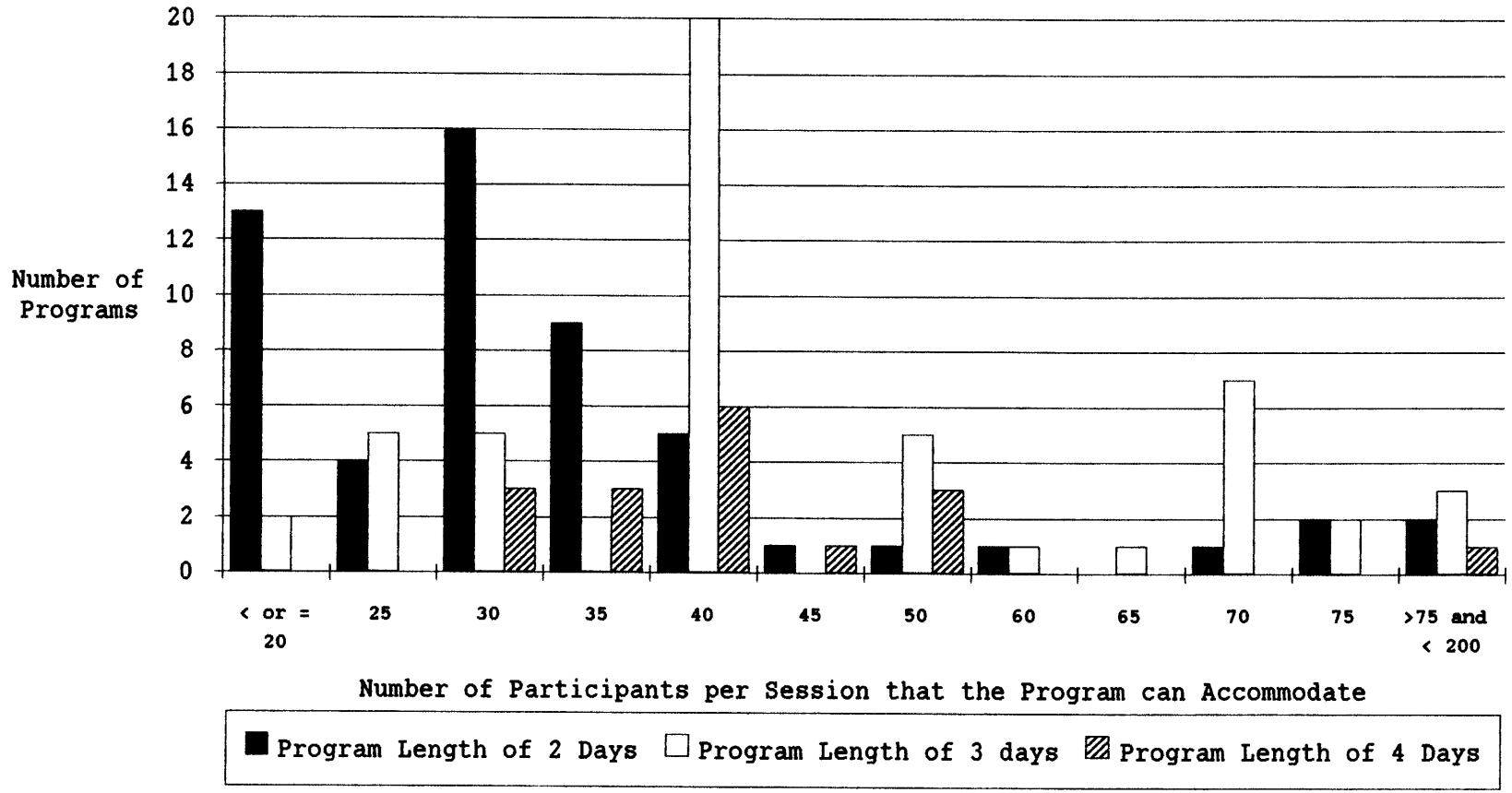
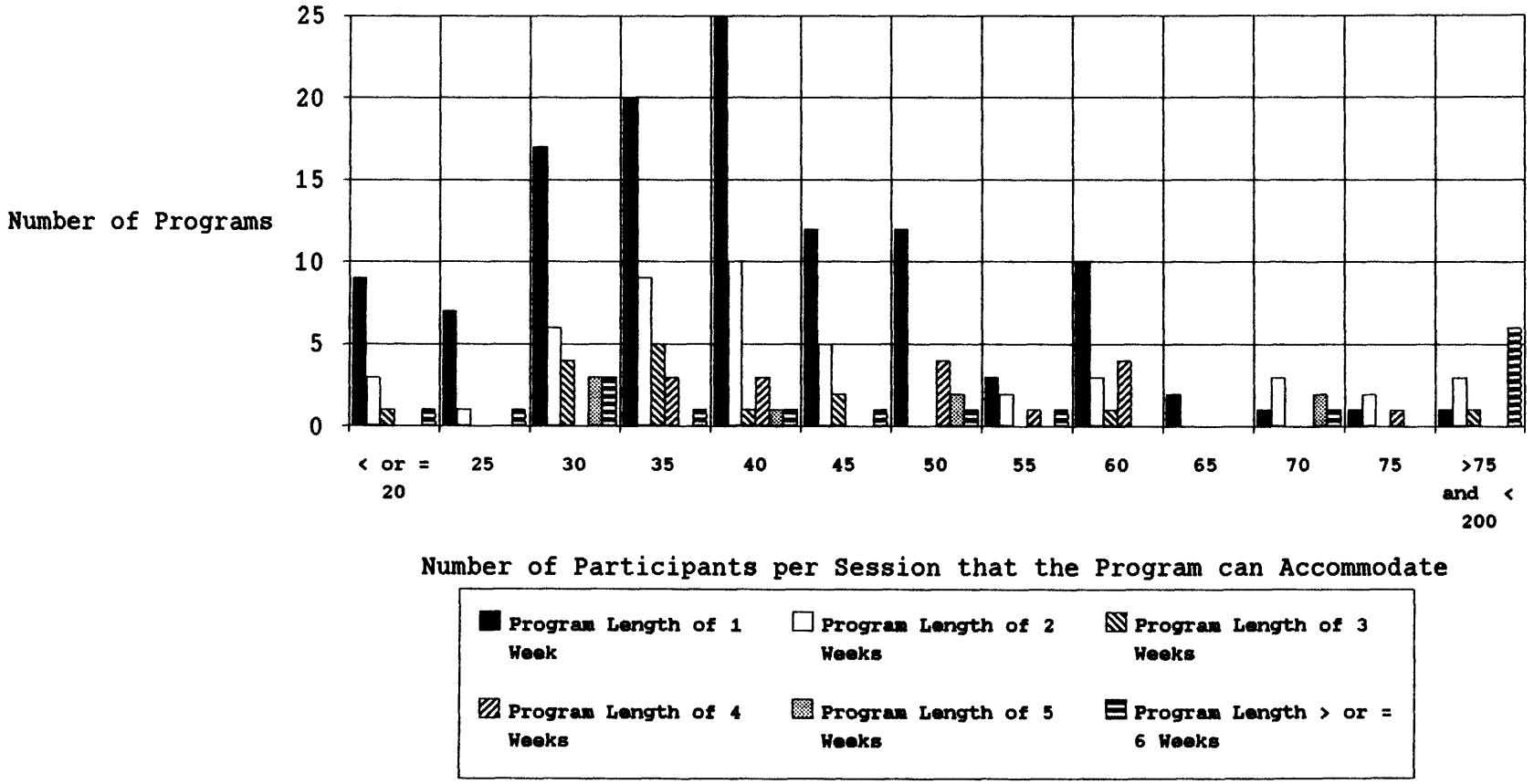


EXHIBIT 9a

University-Based Executive Education Programs One Week or Greater in Length and the Number of Participants the Programs are Designed for.



Total Number of Programs that had Participants from the Different Company Sizes.
The Length of the Programs is from 2 Days to 52 Weeks. (1990-1991)
(Taken from a list of 369 Programs. Participation is from 1% to 100% of the class total.)

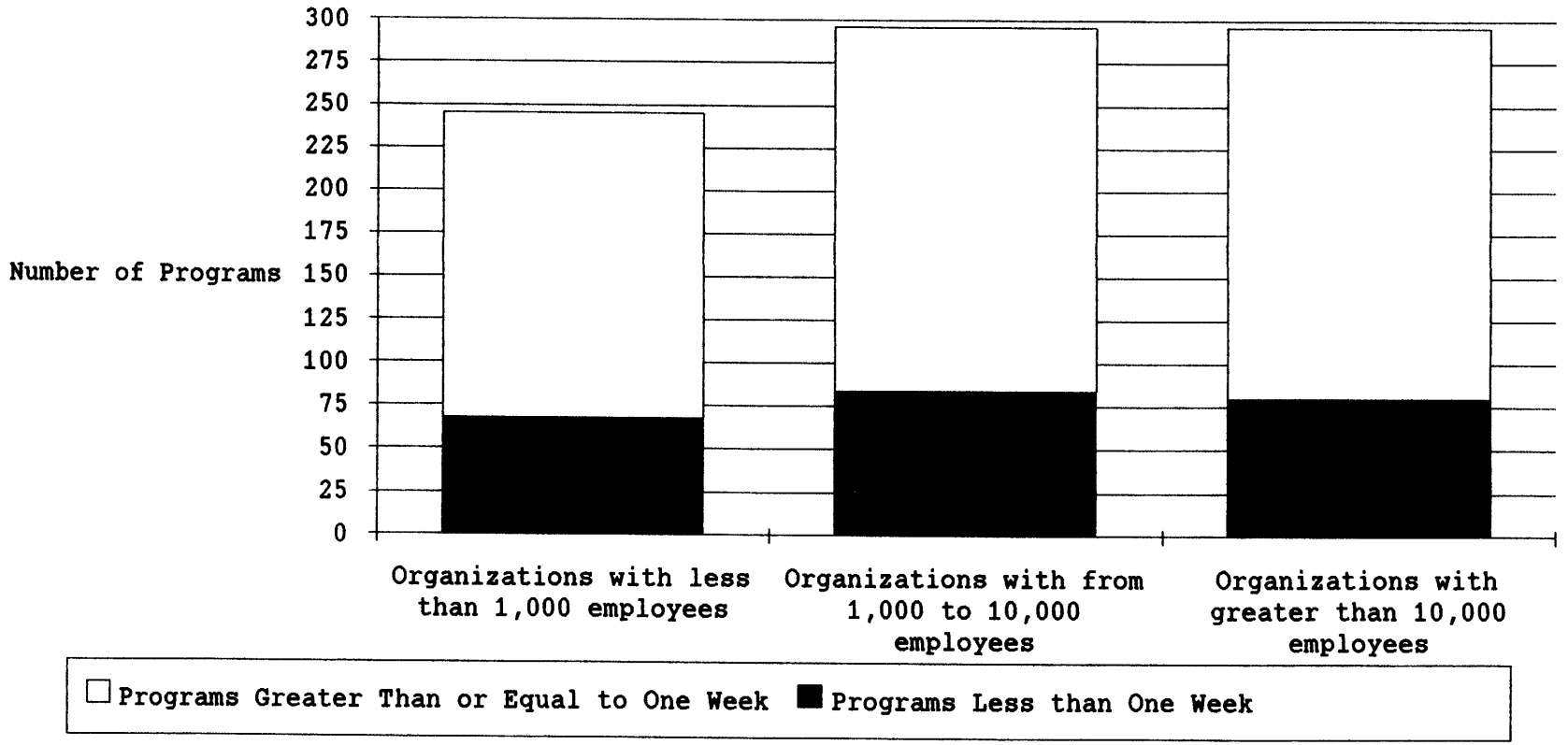


EXHIBIT 10

University-Based Executive Education Programs and
Company Participation in Programs of All Lengths.
(1990-1991)

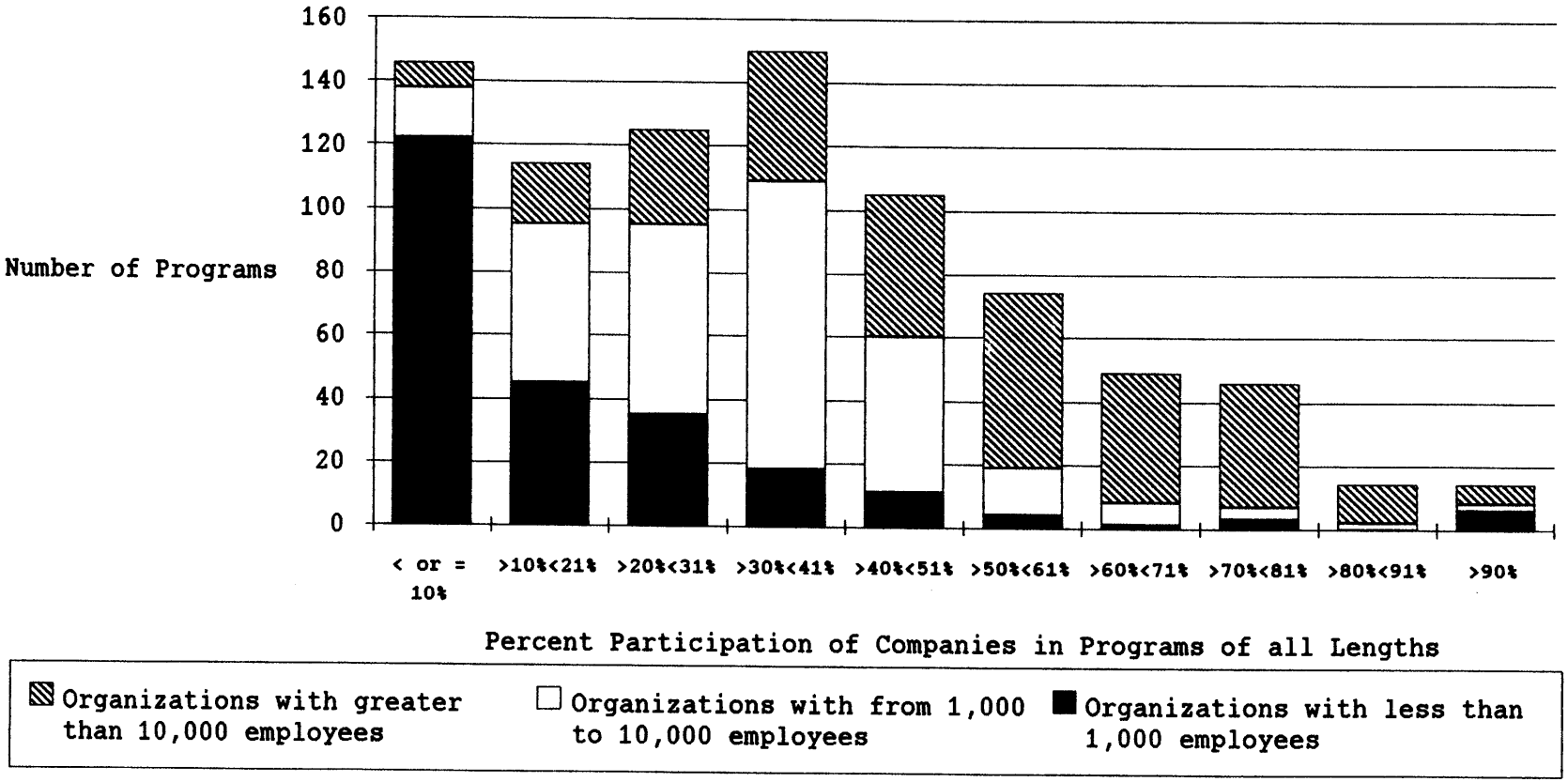
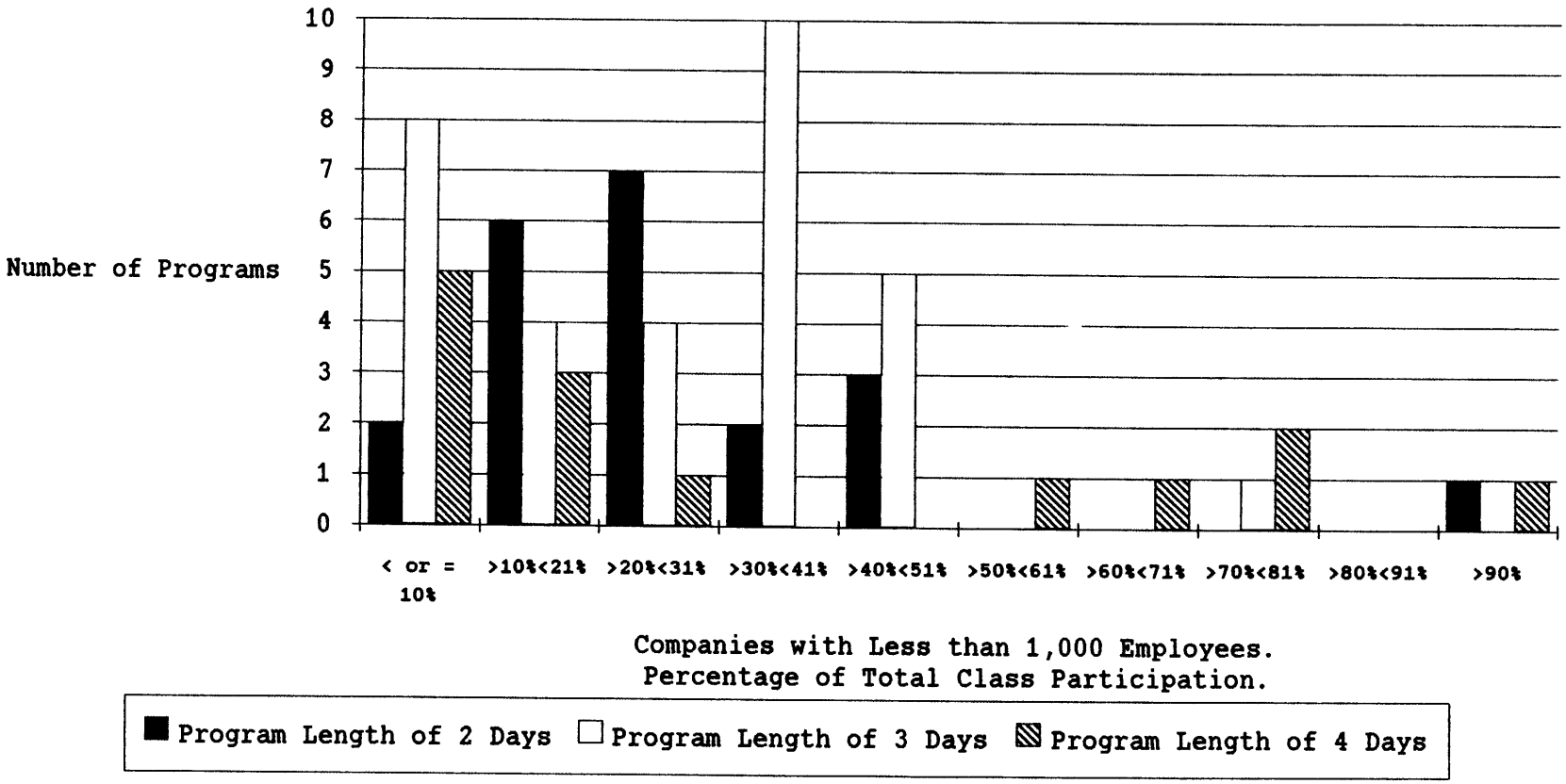
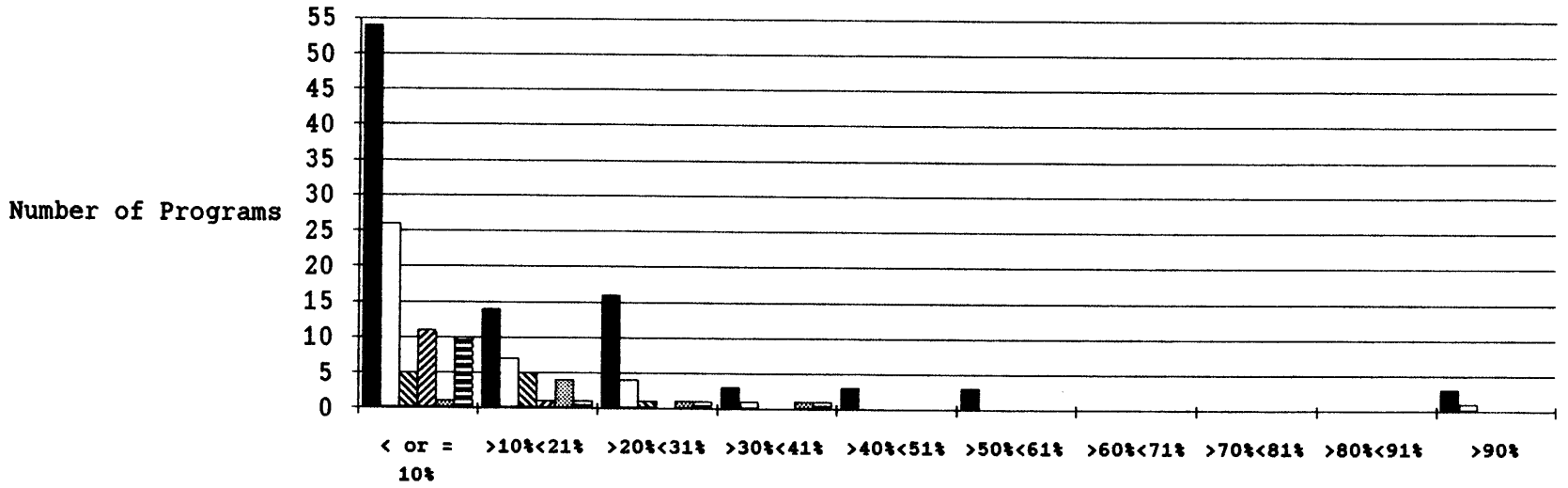


EXHIBIT 11

University-Based Executive Education Programs and Companies with Less Than 1,000 Employees
in Programs Less Than One Week. (1990)



University-Based Executive Education Programs and Companies with Less Than 1,000 Employees
in Programs Greater Than or Equal to One Week. (1991)



University-Based Executive Education Programs and Companies with 1,000 to 10,000 Employees
in Programs Less Than One Week. (1990)

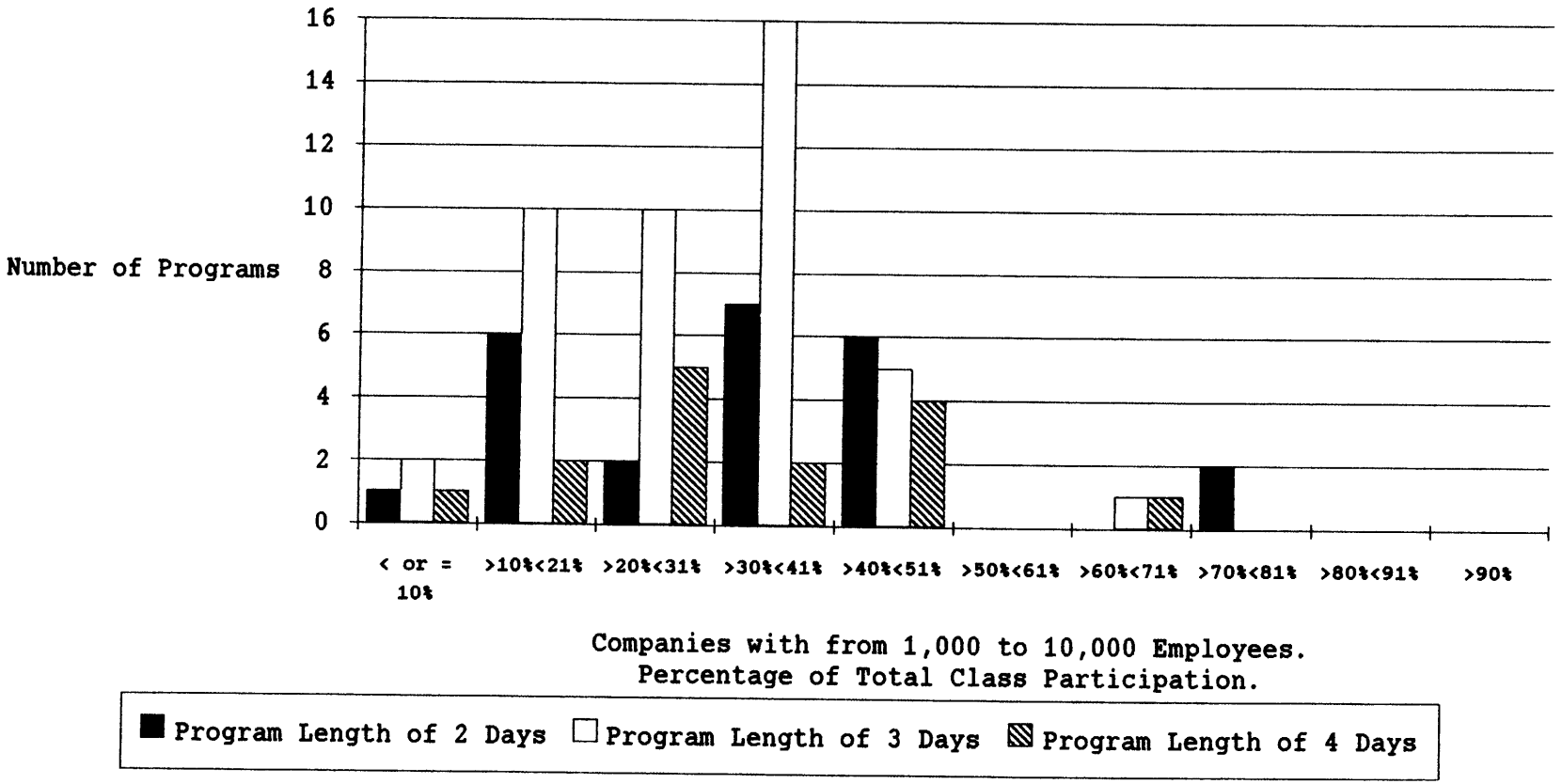
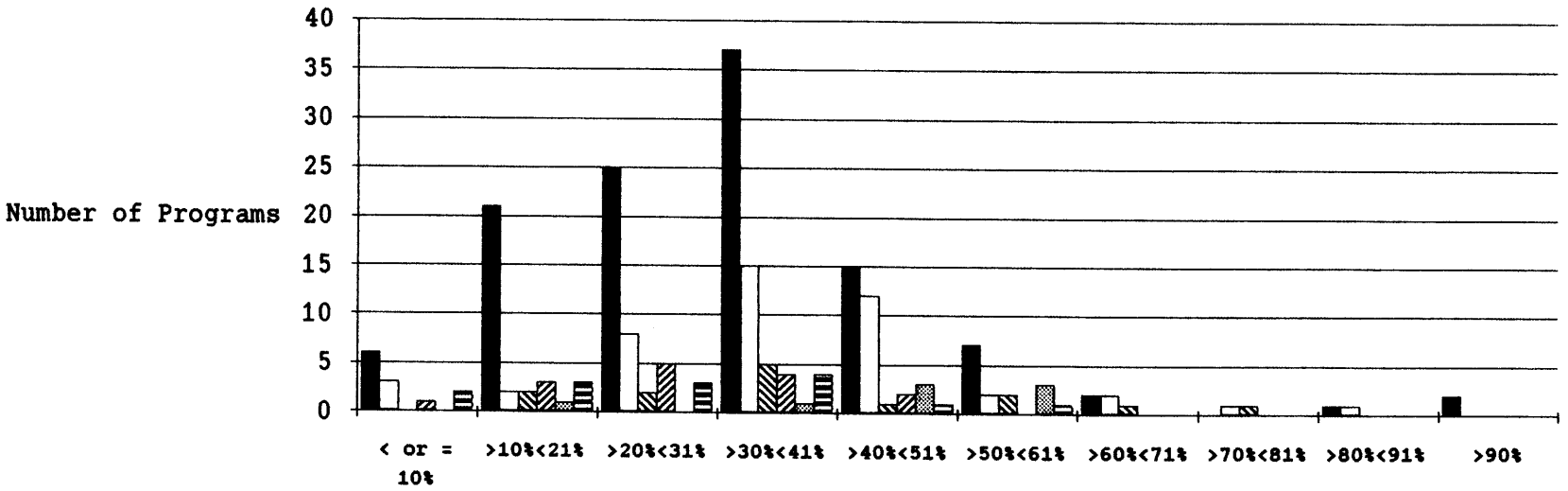


EXHIBIT 13a

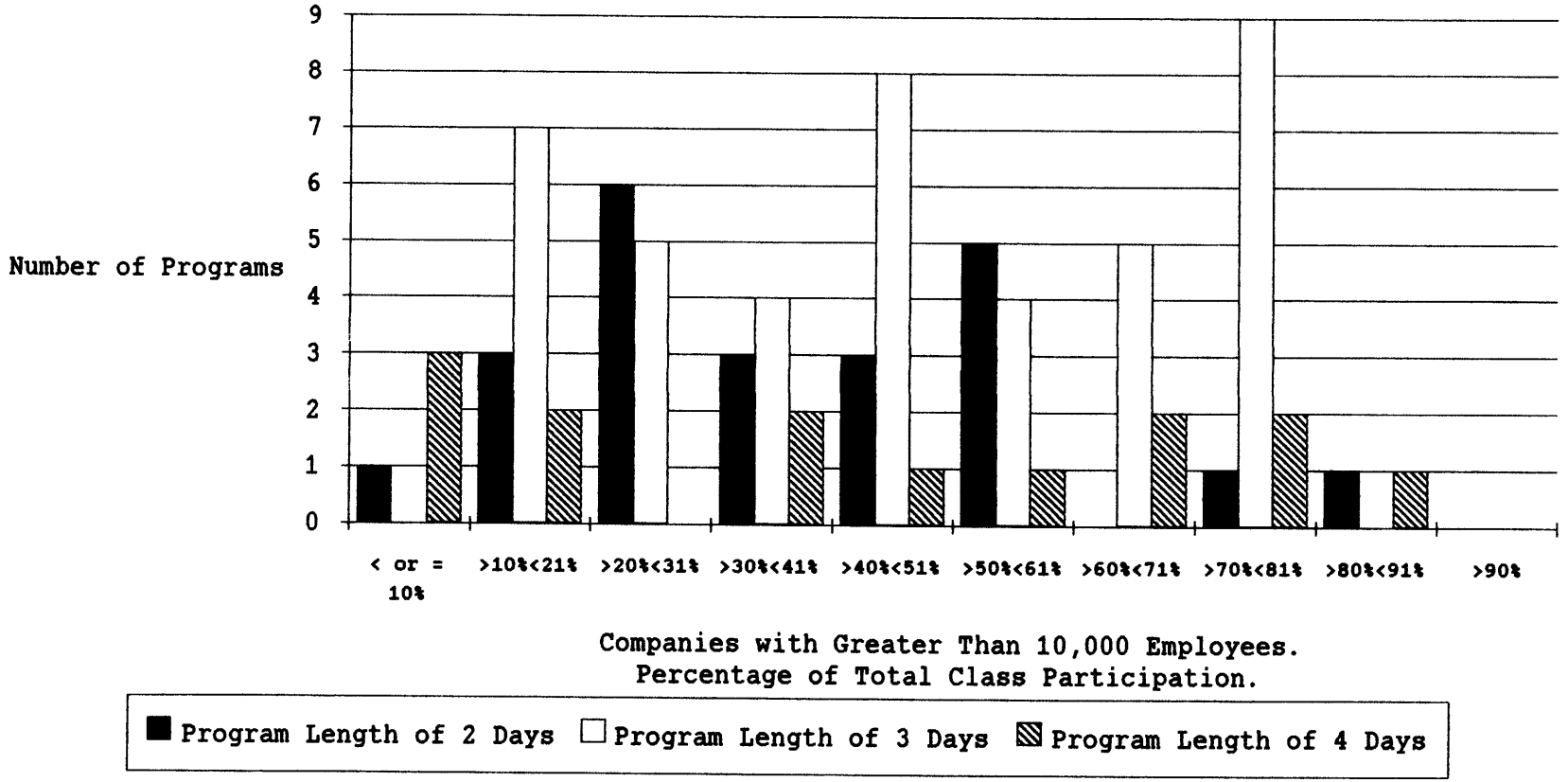
University-Based Executive Education Programs and Companies with 1,000 to 10,000 Employees.
in Programs Greater Than or Equal to One Week. (1991)



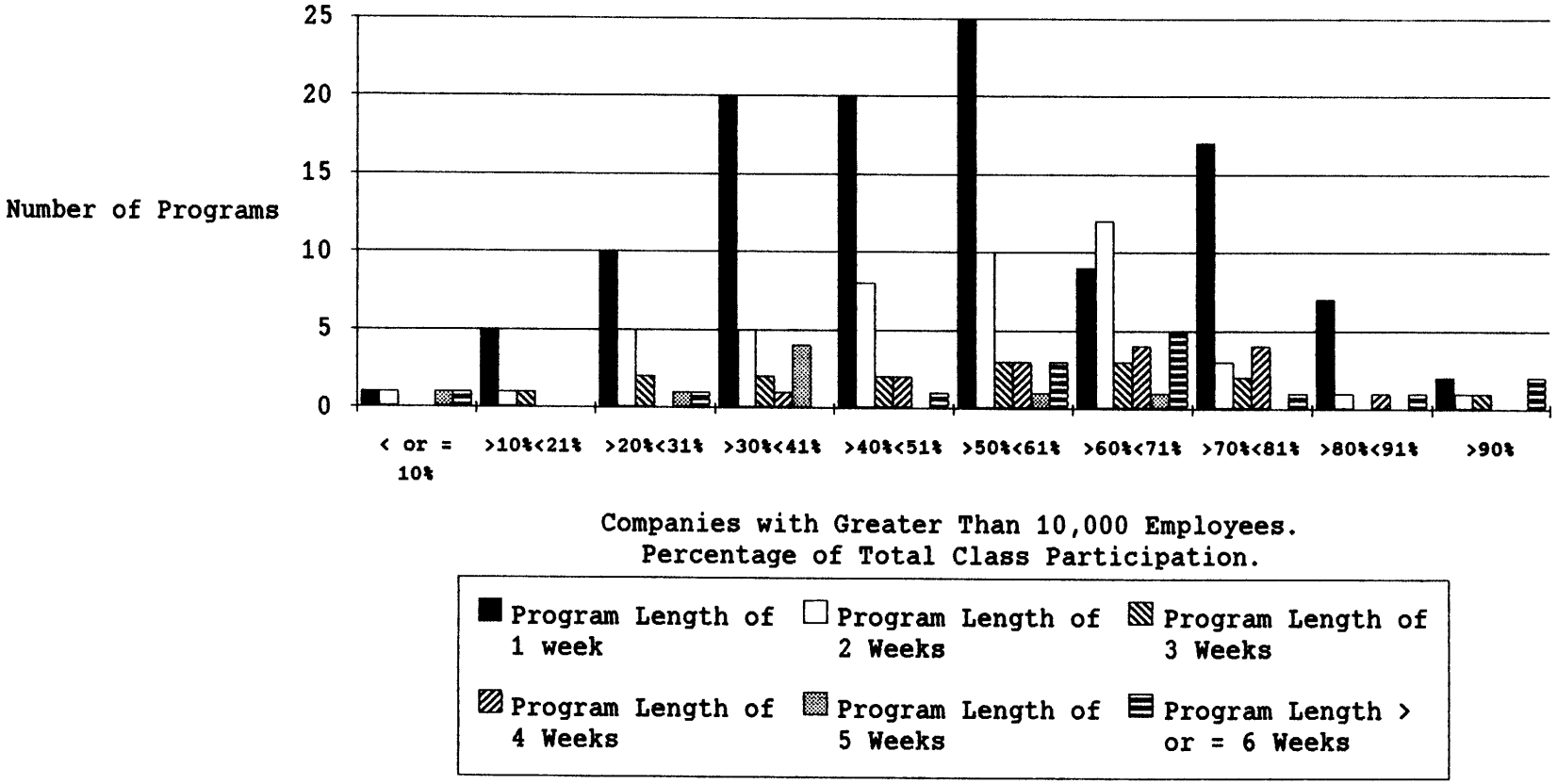
Companies with from 1,000 to 10,000 Employees.
Percentage of Total Class Participation.

Program Length of 1 week
Program Length of 2 Weeks
Program Length of 3 Weeks
Program Length of 4 Weeks
Program Length of 5 Weeks
Program Length > or = 6 Weeks

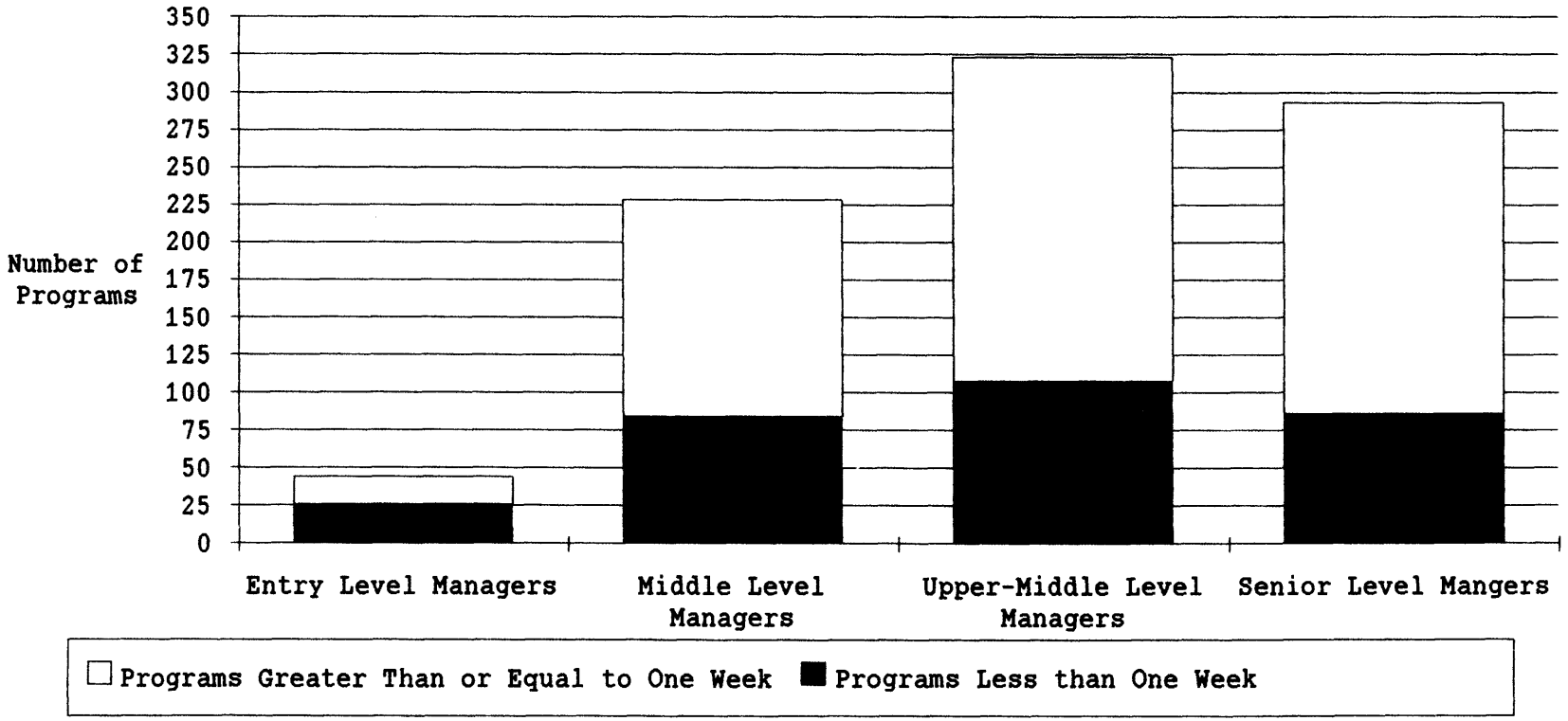
University-Based Executive Education Programs
and Companies with Greater Than 10,000 Employees
in Programs Less Than One Week. (1990)



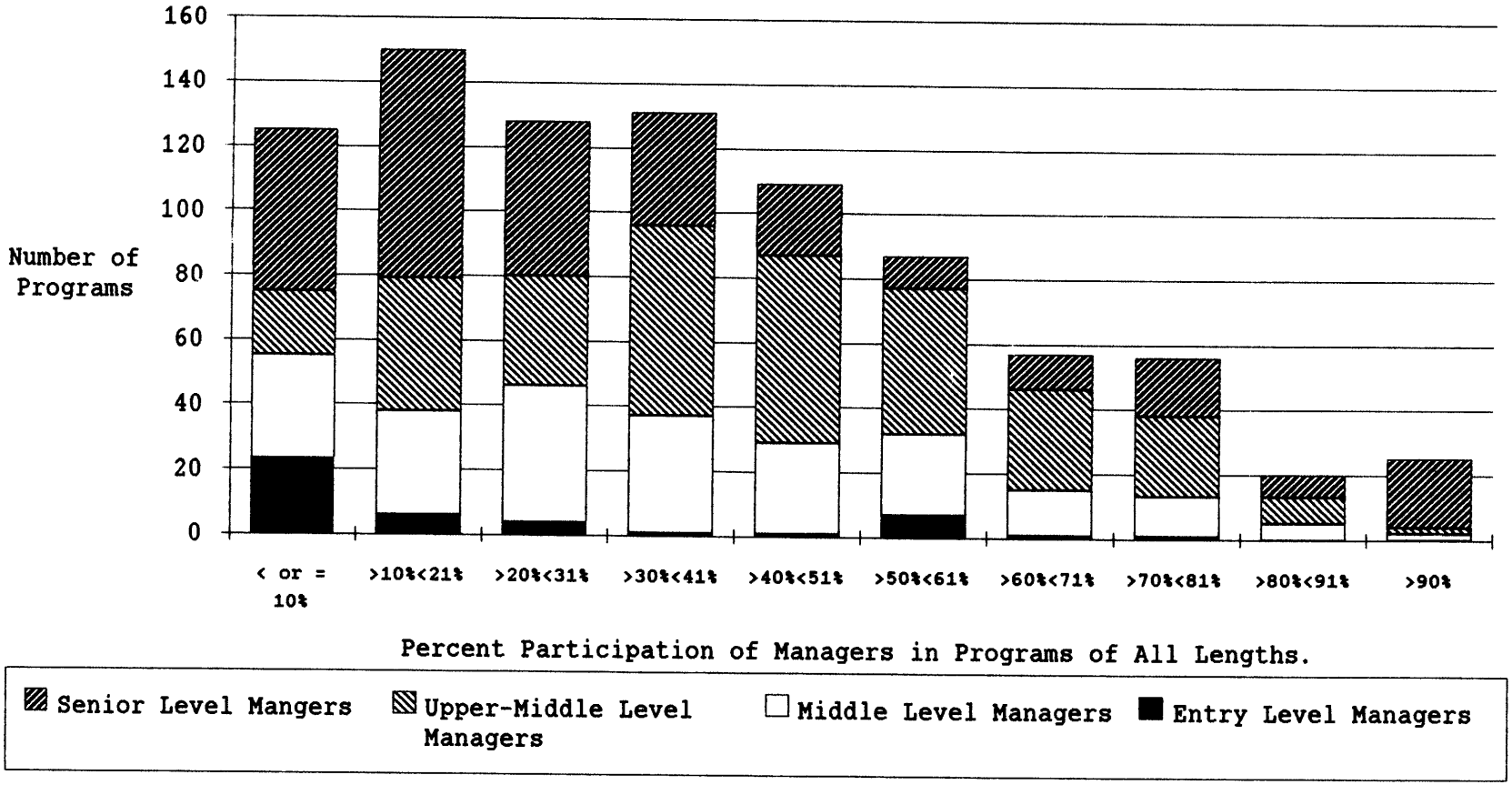
University-Based Executive Education Programs
and Companies with Greater Than 10,000 Employees
in Programs Greater Than or Equal to One Week. (1991)



Total Number of Programs that had Participants from the Different Management Levels.
The Length of the Programs is from 2 Days to 52 Weeks. (1990-1991)
(Taken from a list of 369 Programs. Participation is from 1% to 100% of the class total.)



University-Based Executive Education Programs and Management Participation in Programs of All Lengths.



University-Based Executive Education Programs and Entry Level Management
Participation in Programs Less Than One Week. (1990)

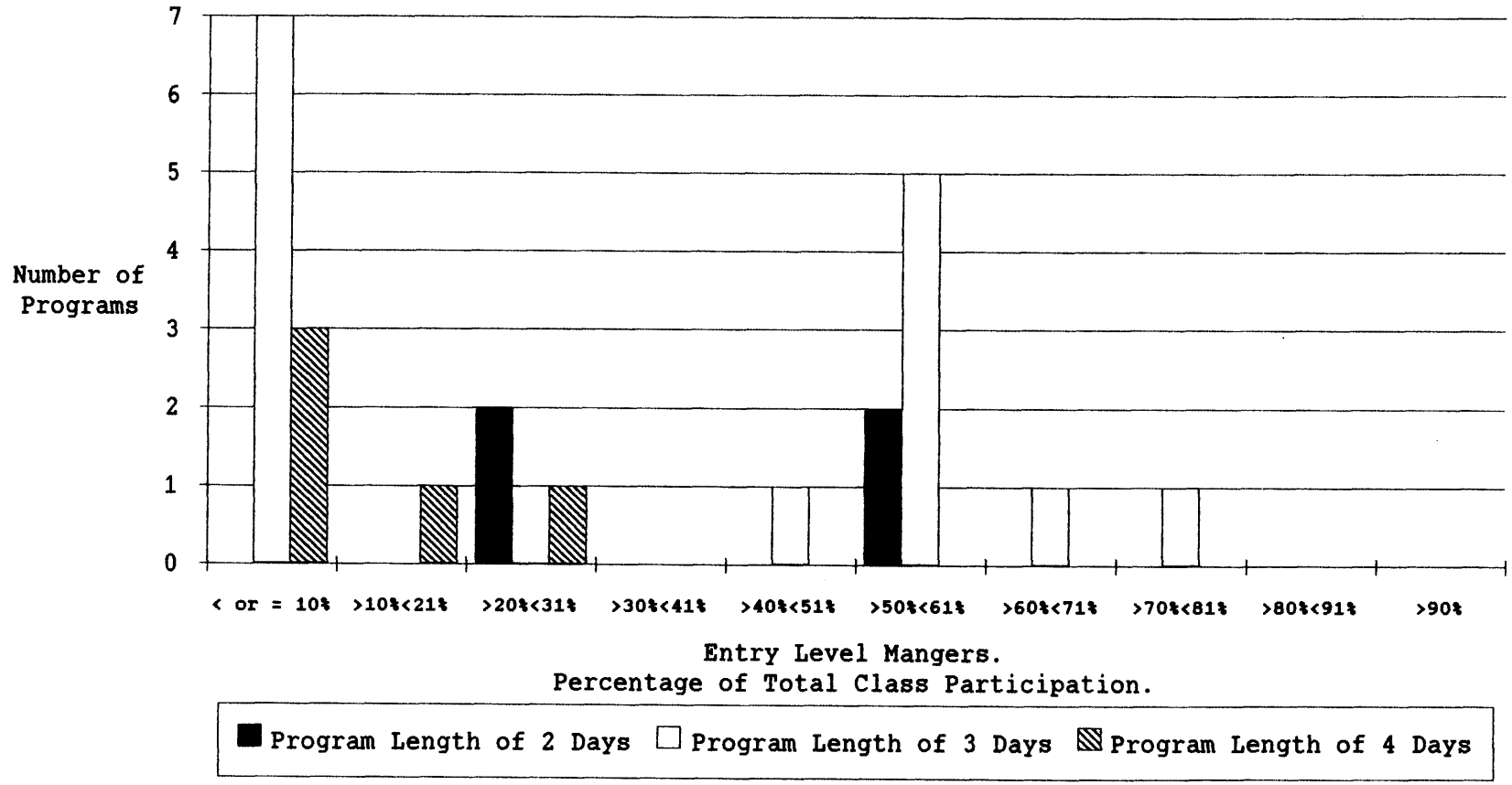


EXHIBIT 17a

University-Based Executive Education Programs and Entry Level Management
Participation in Programs Greater than or Equal to One Week. (1991)

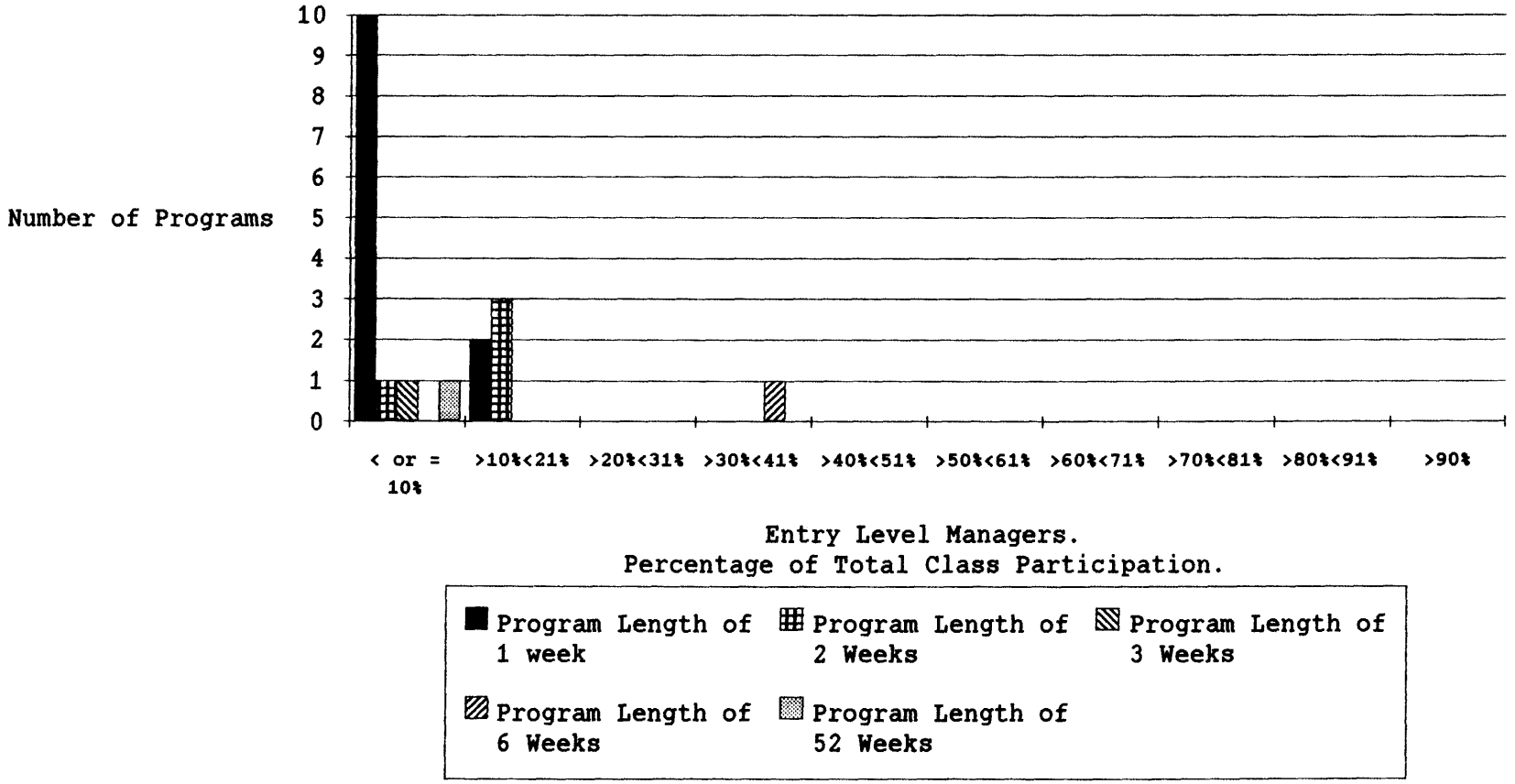


EXHIBIT 17b

University-Based Executive Education Programs and Middle Management
Particiaption in Programs Less Than One Week. (1990)

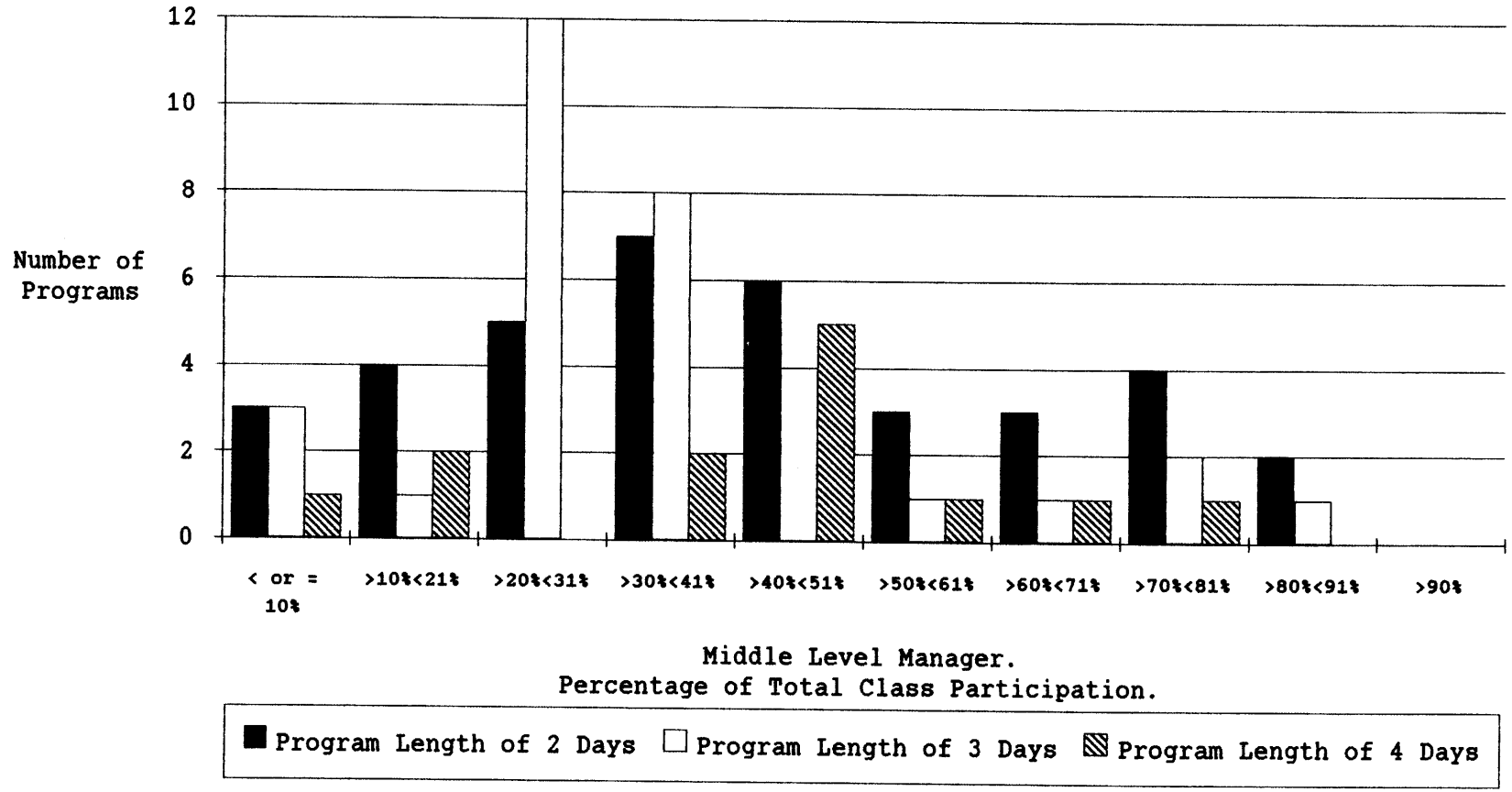


EXHIBIT 18a

University-Based Executive Education Programs and Middle Level Management
Participation in Programs Greater than or Equal to One Week. (1991)

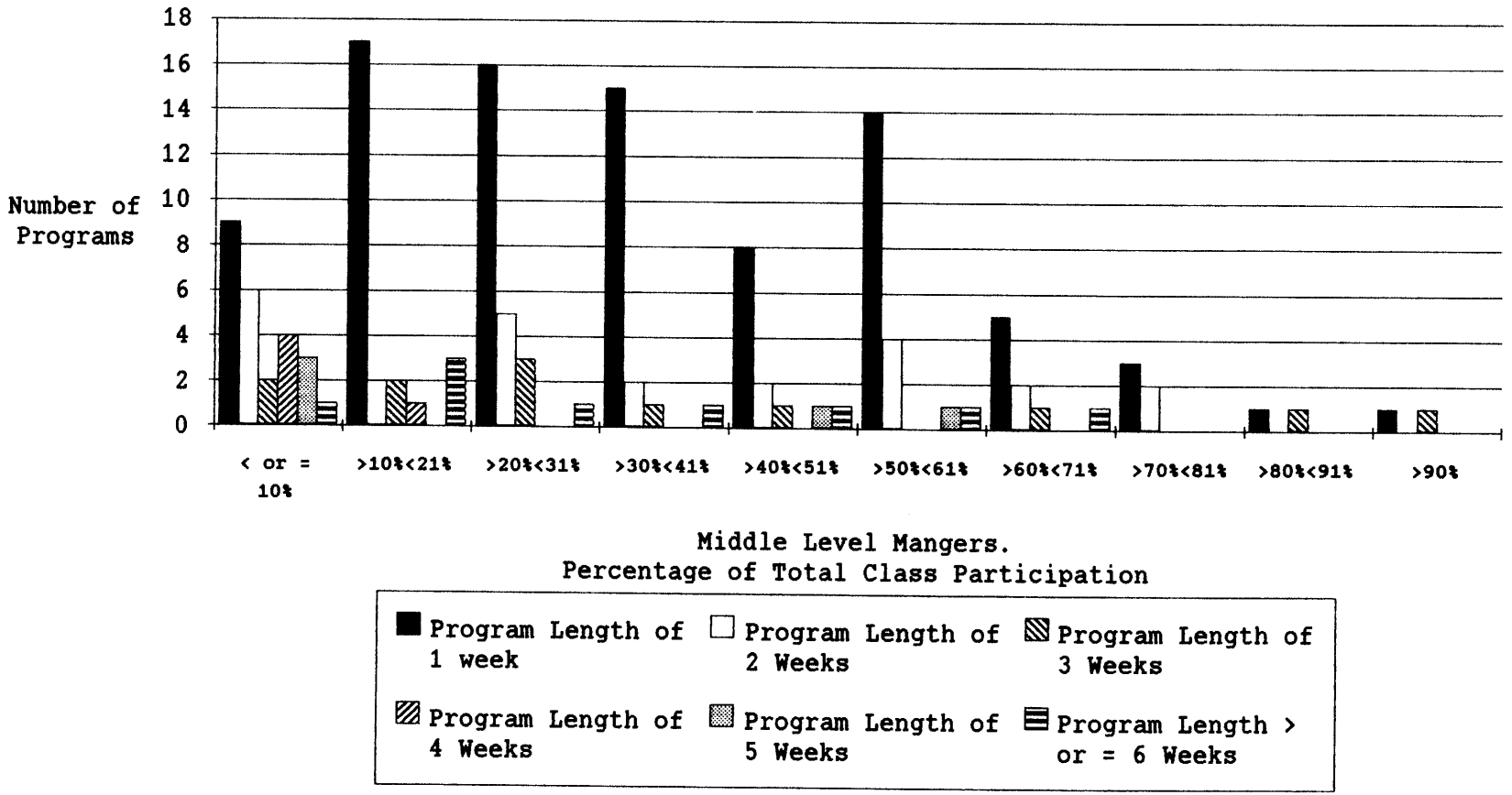


EXHIBIT 18b

University-Based Executive Education Programs and Upper-Middle Management
Participation in Programs Less Than One Week. (1990)

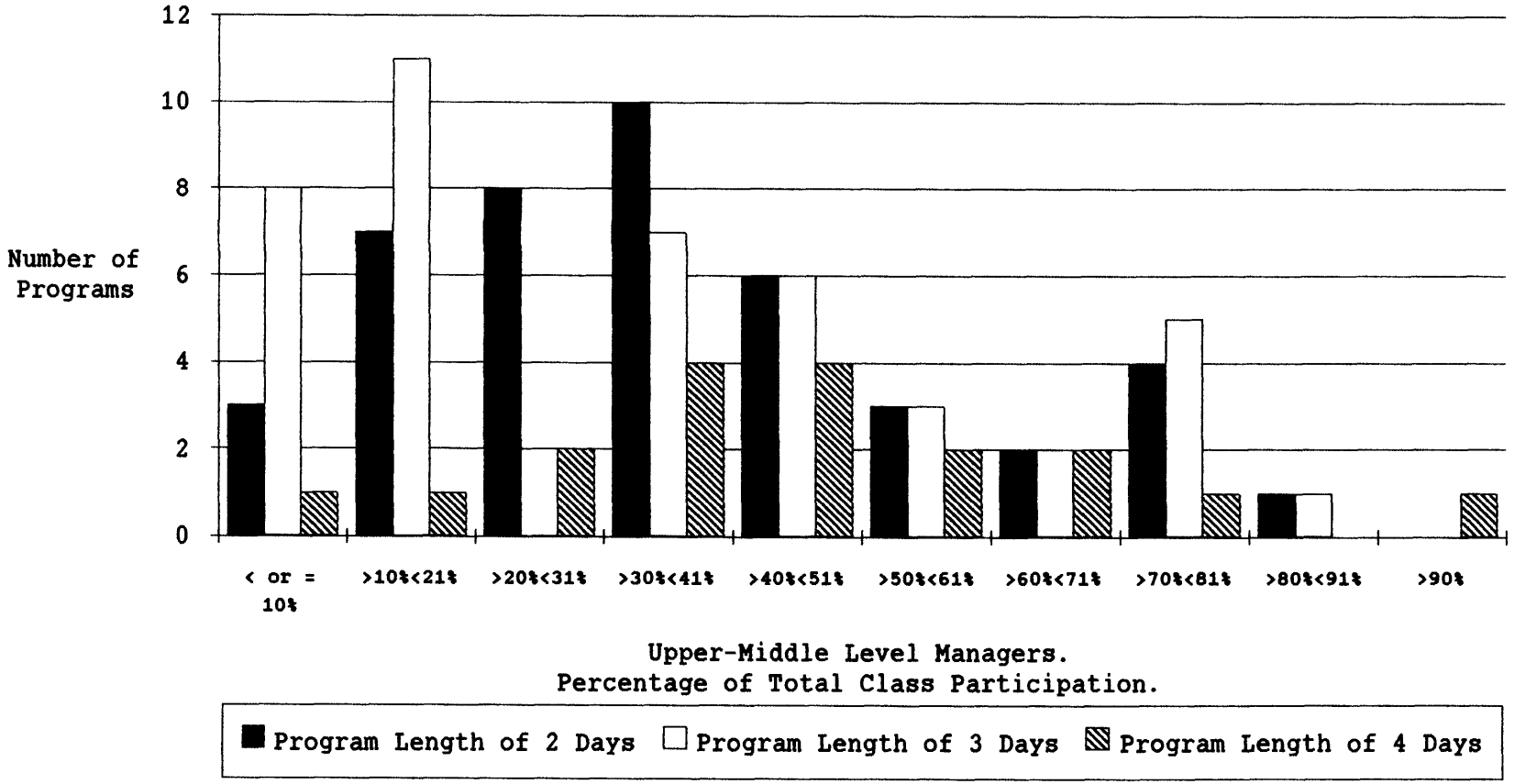
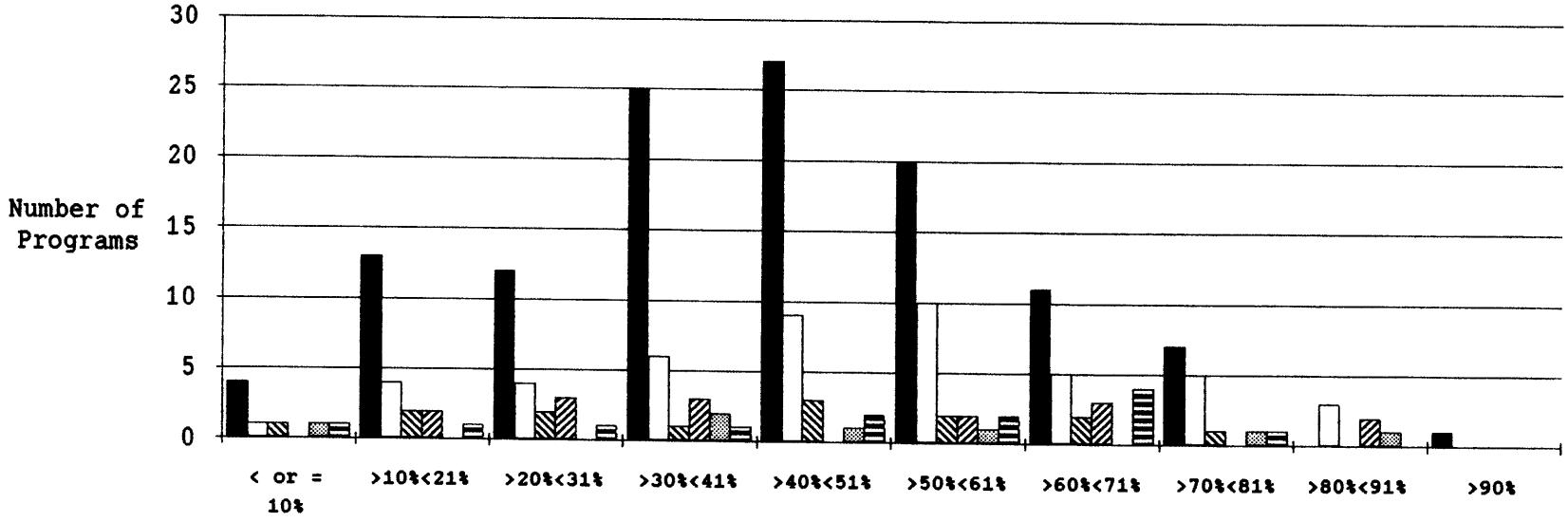
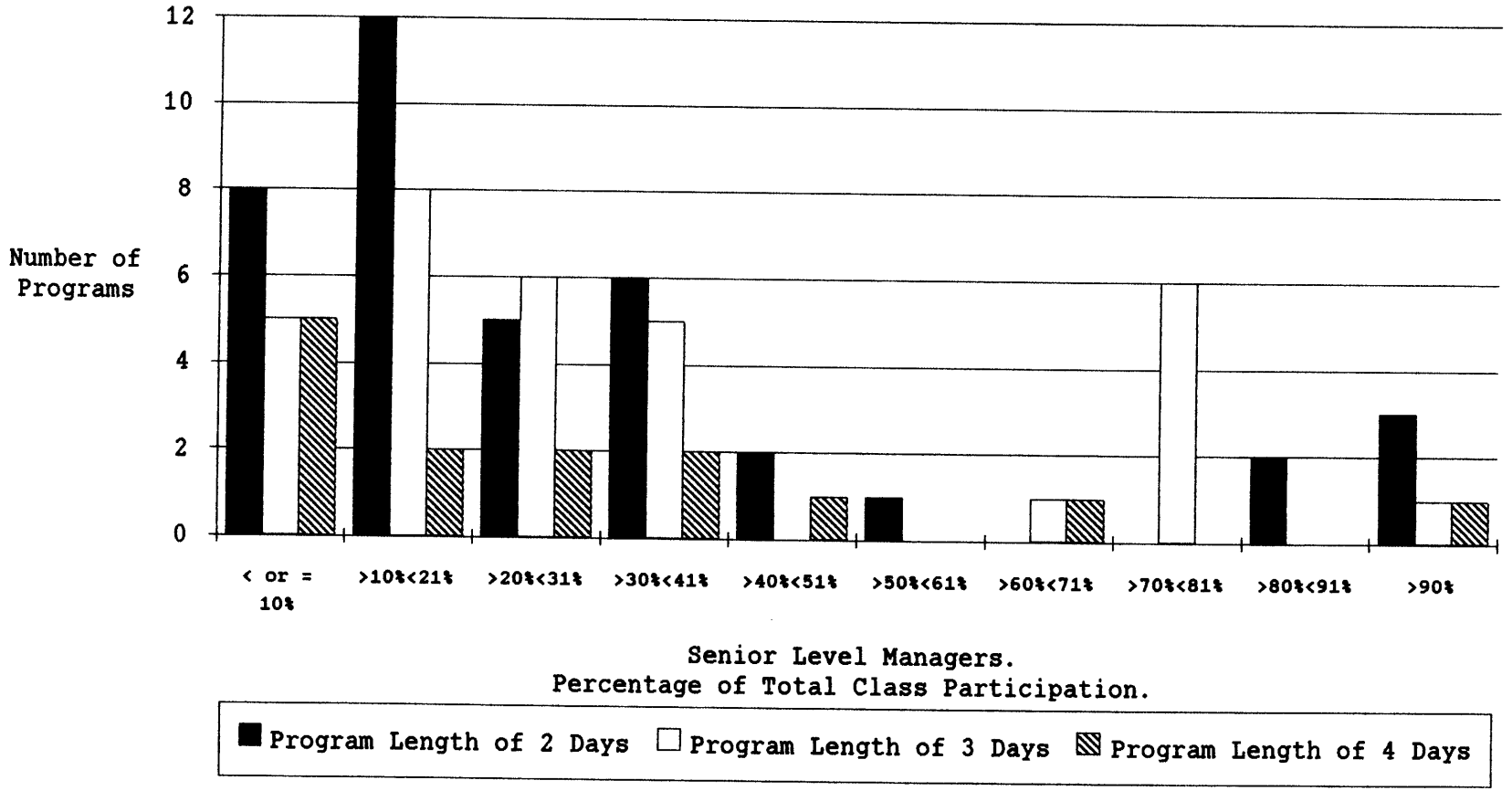


EXHIBIT 19a

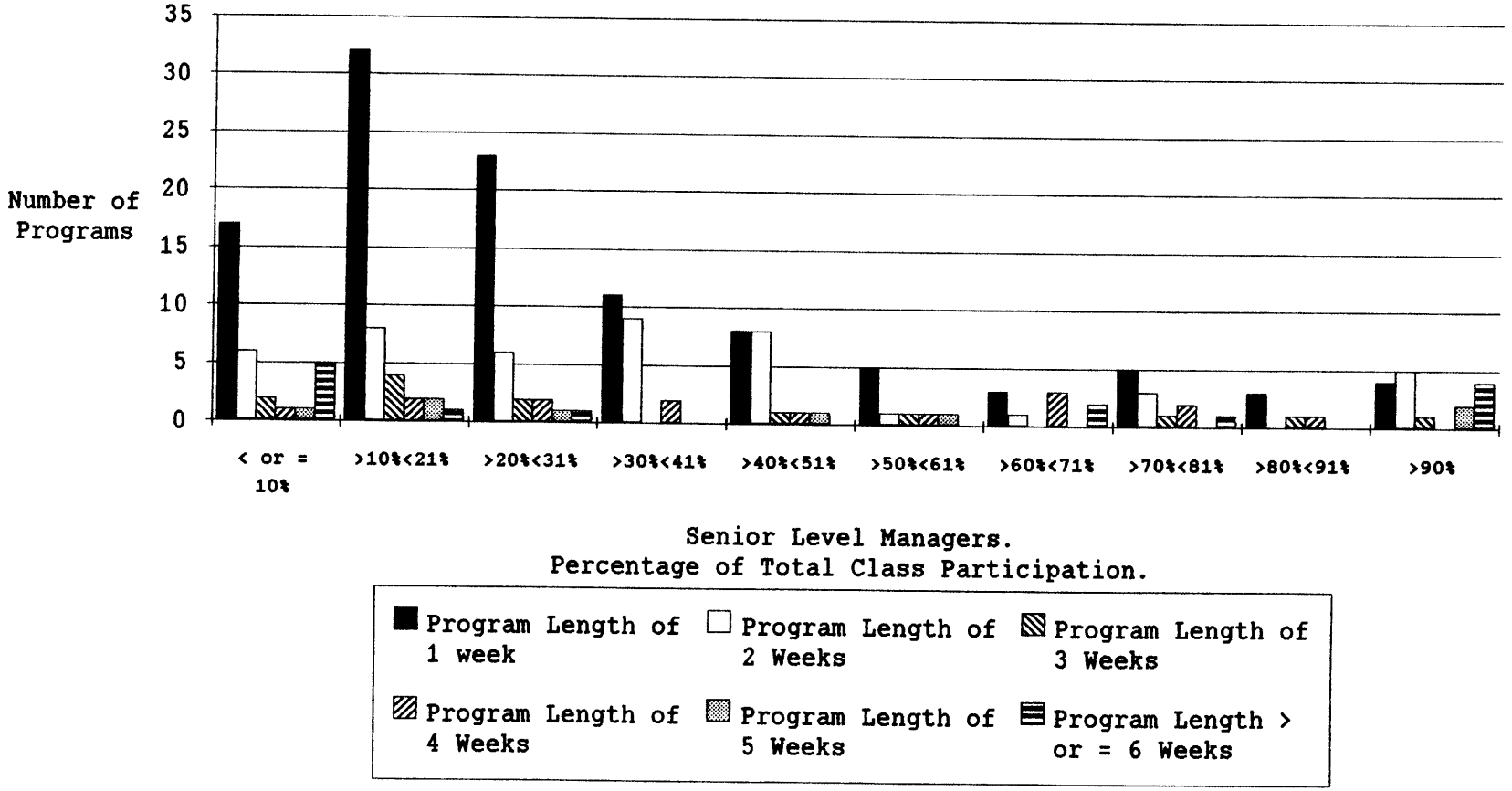
University-Based Executive Education Programs and Upper-Middle Management Participation in Programs Greater than or Equal to One Week. (1991)



University-Based Executive Education Programs and Senior Management Participation in Programs Less Than One Week Long. (1990)



University-Based Executive Education Programs and Senior Management Participation in Programs Greater than or Equal to One Week. (1991)



Total Number of Programs that had Participants from
the Different Functional Areas of a Company.
The Length of the Programs is from 2 Days to 52 Weeks. (1990-1991)
(Participation is from 1% to 100% of the class total.)

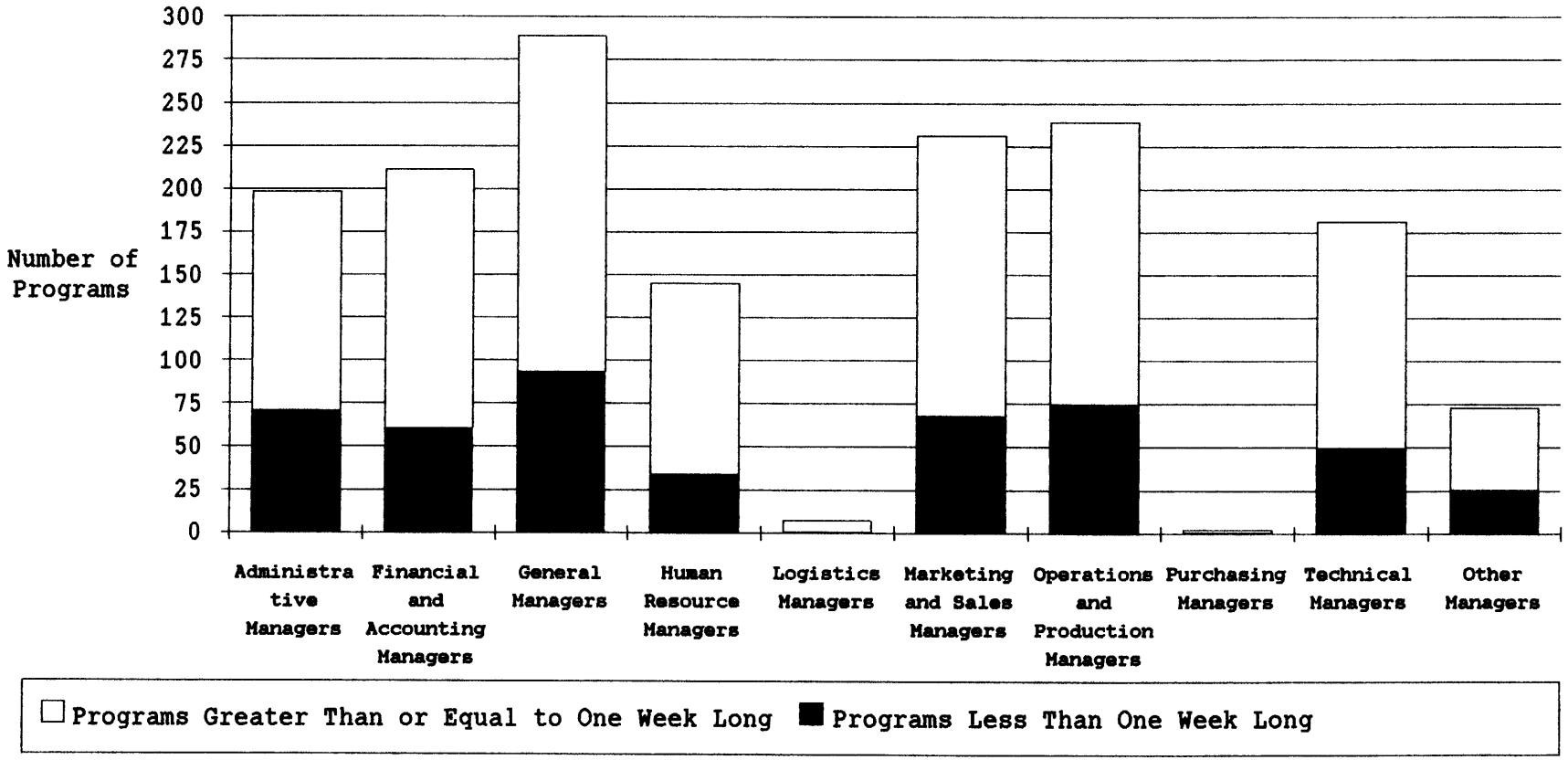
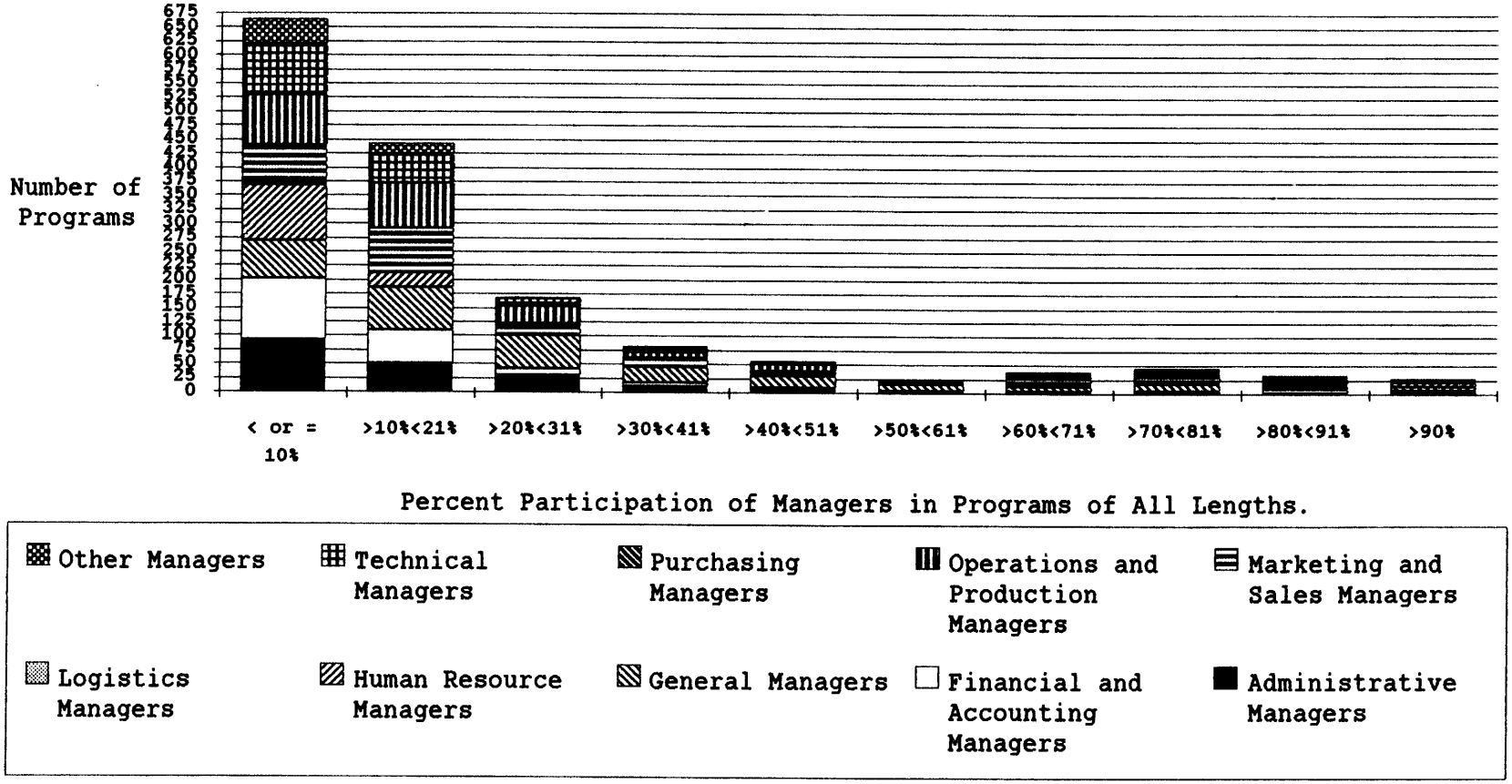


EXHIBIT 21

University-Based Executive Education Programs and Functional Manager Participation in Programs of All Lengths.



University-Based Executive Education Programs and General Managers
Participating in Programs Less than One Week. (1990)

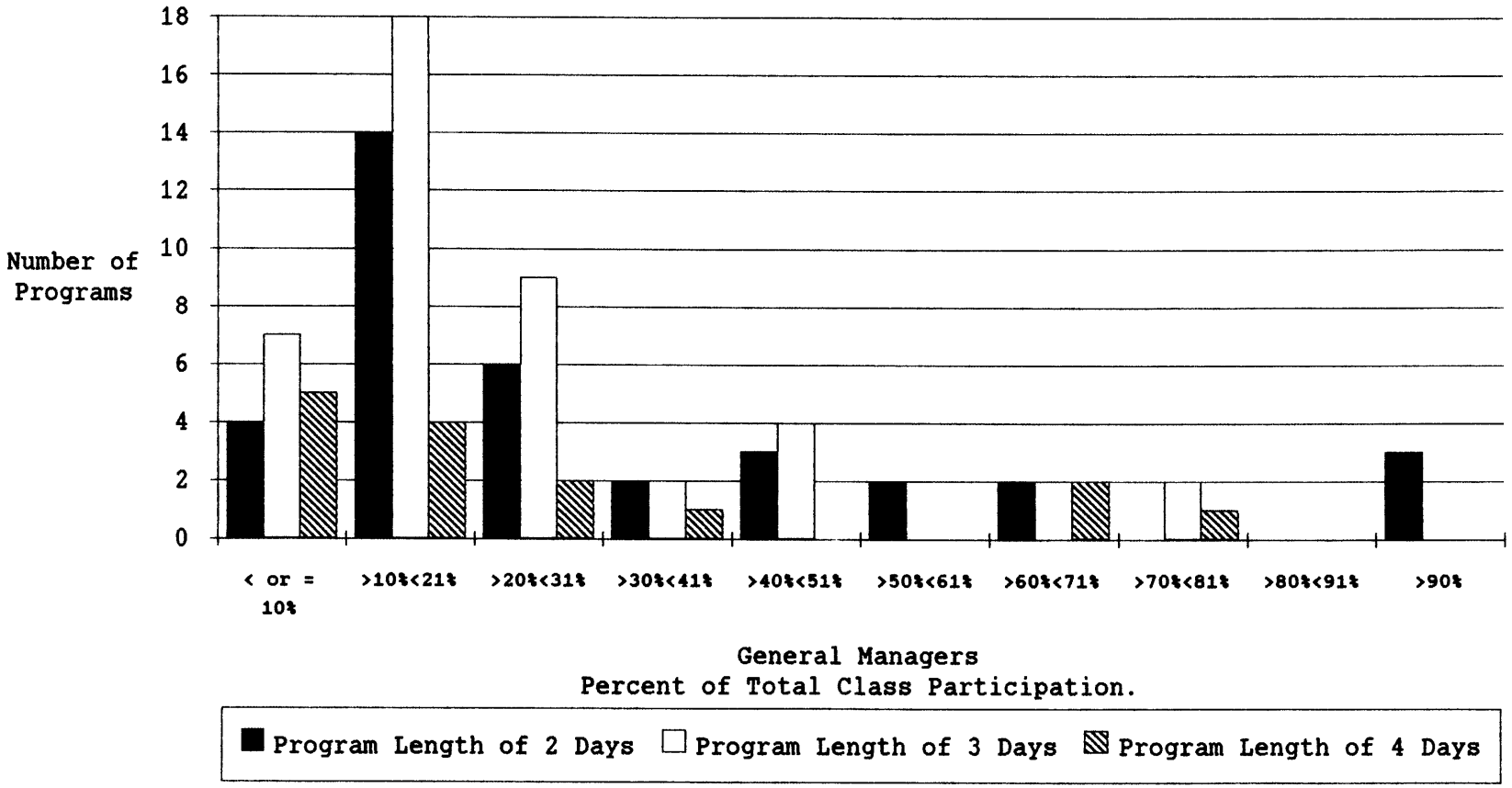


EXHIBIT 23a

University-Based Executive Education Programs and General Managers
Participating in Programs Greater than or Equal to One Week. (1991)

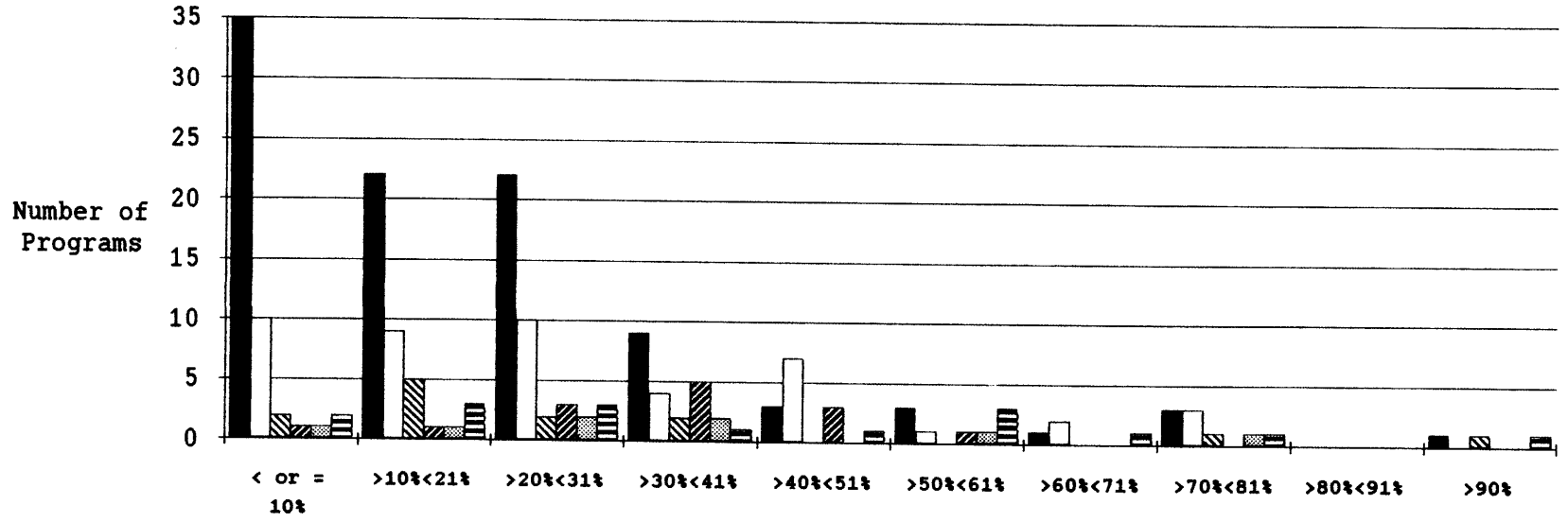


EXHIBIT 23b

University-Based Executive Education Programs and Operations and Production Managers
Participating in Programs Less than One Week. (1990)

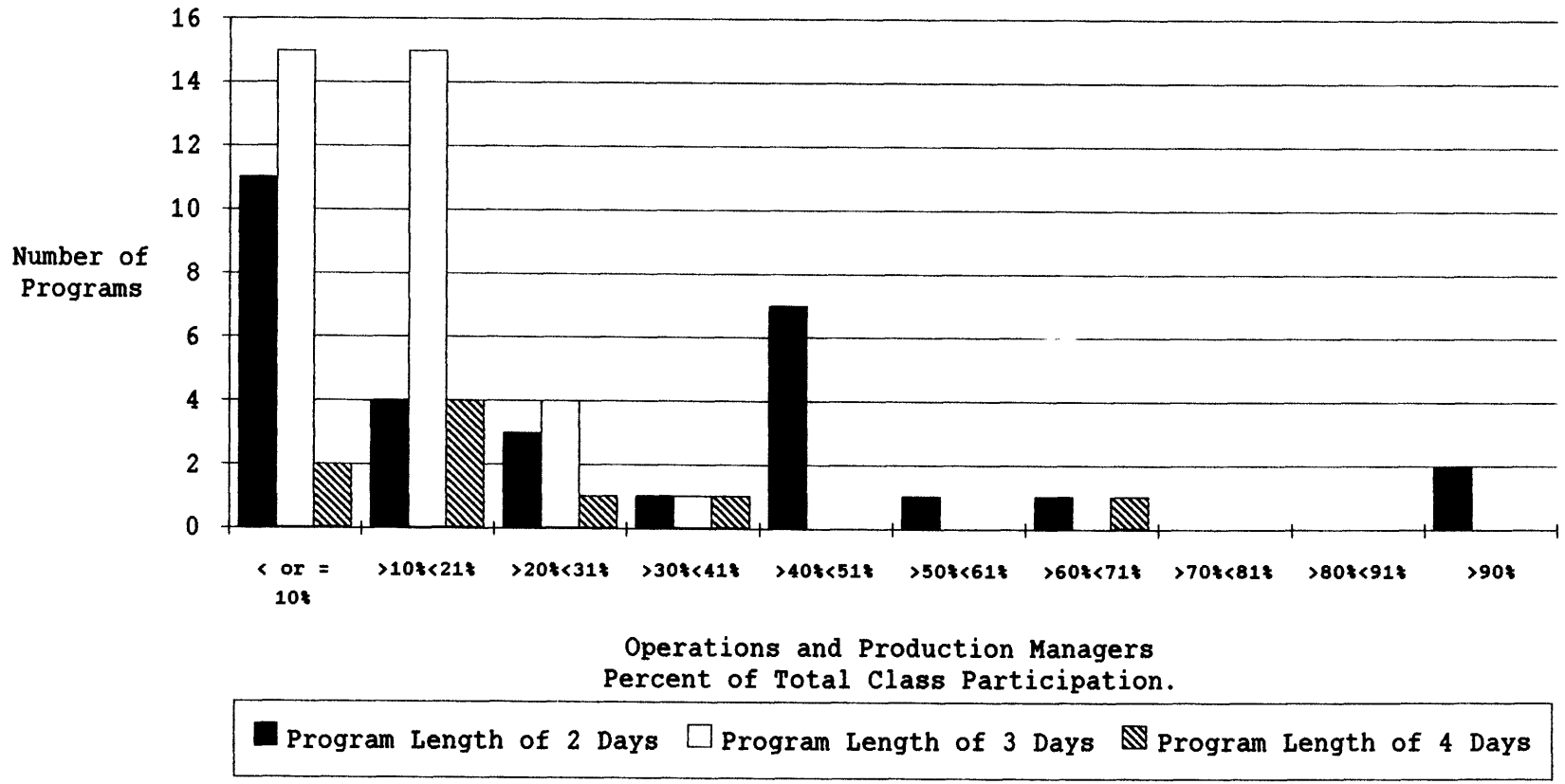


EXHIBIT 24a

University-Based Executive Education Programs and Operations and Production Managers
Participating in Programs Greater than or Equal to One Week. (1991)

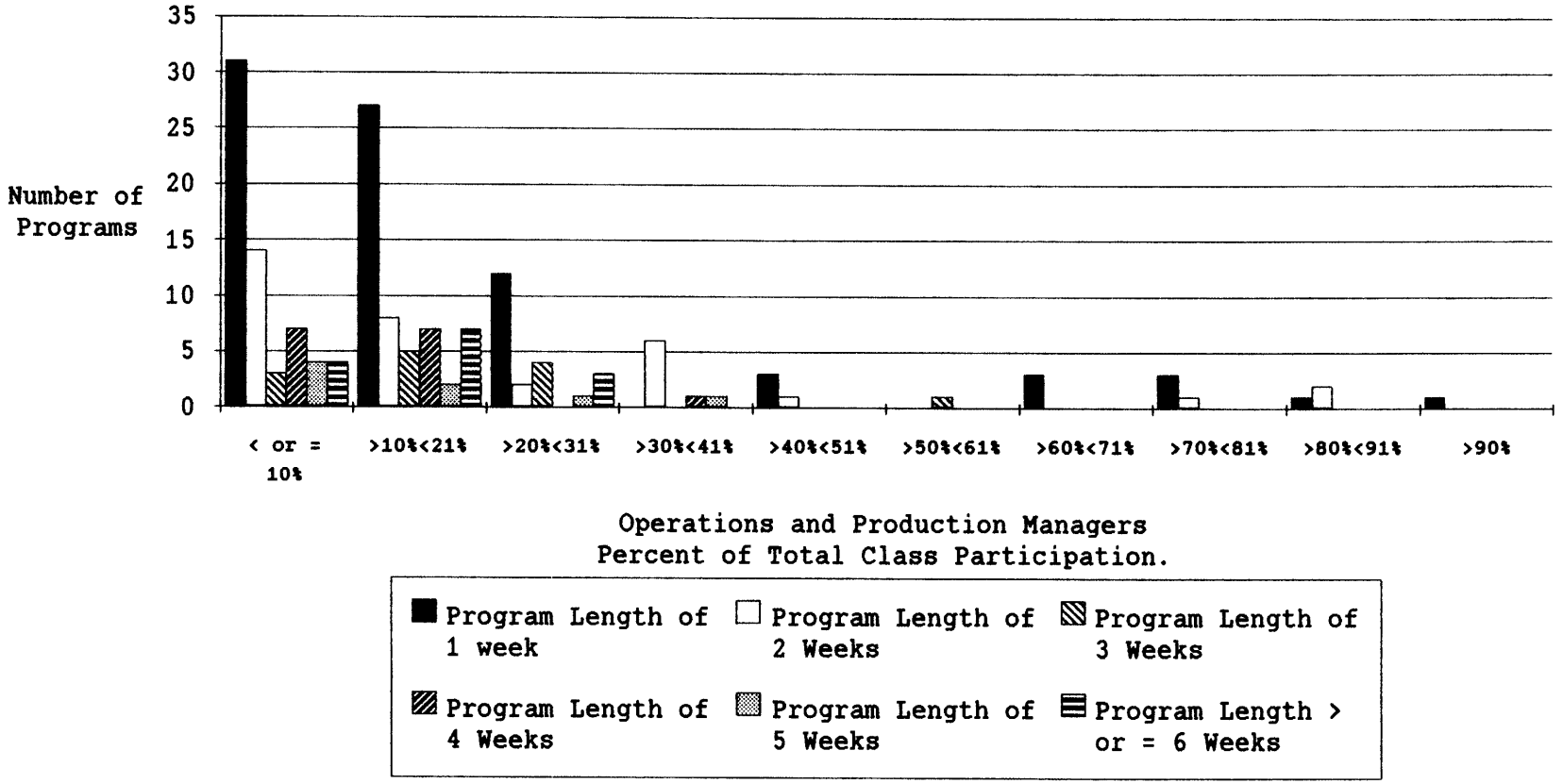


EXHIBIT 24b

University-Based Executive Education Programs and Marketing and Sales Managers Participating in Programs Less than One Week. (1990)

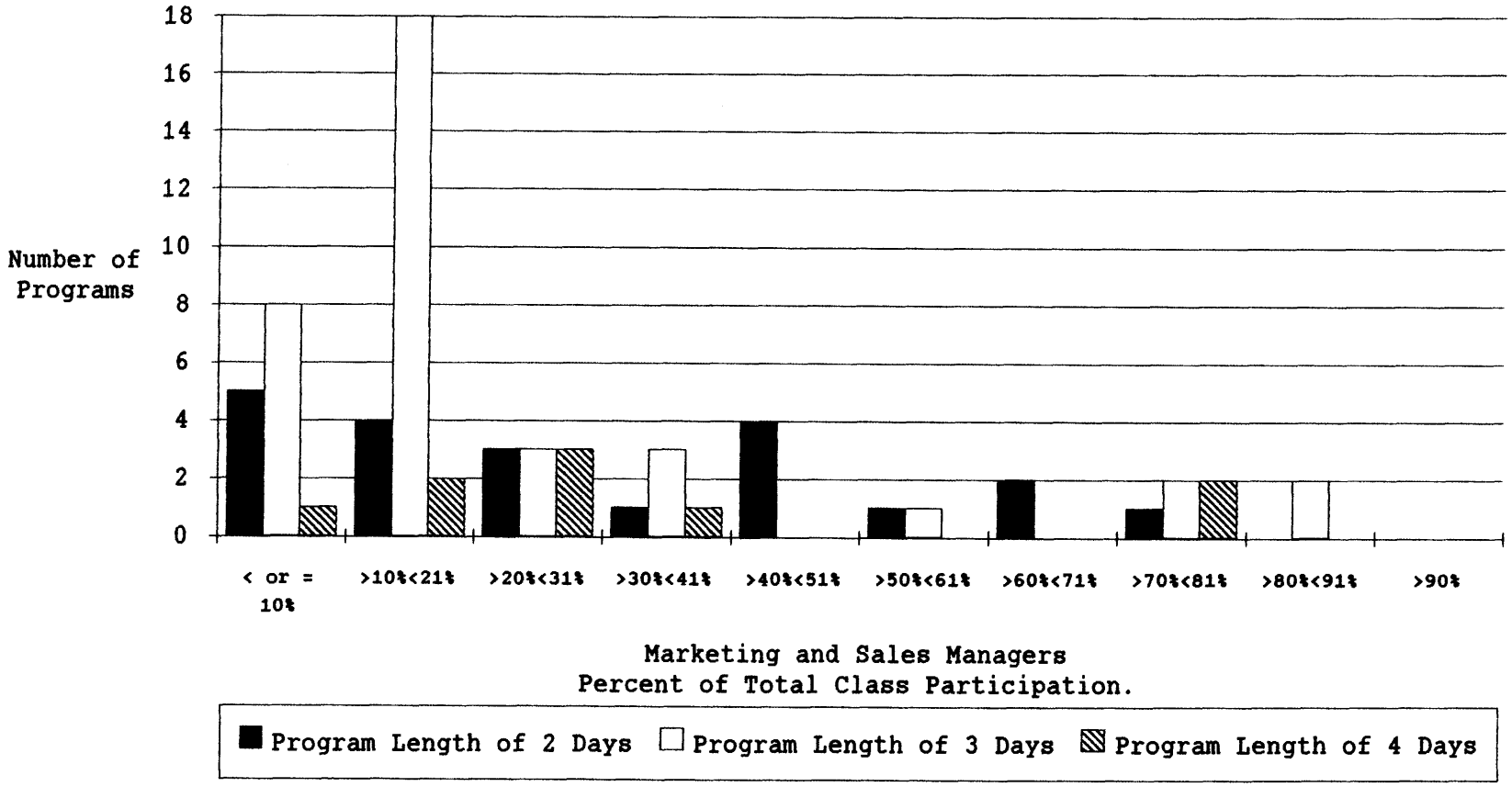


EXHIBIT 25a

University-Based Executive Education Programs and Marketing and Sales Managers Participating in Programs Greater than or Equal to One Week. (1991)

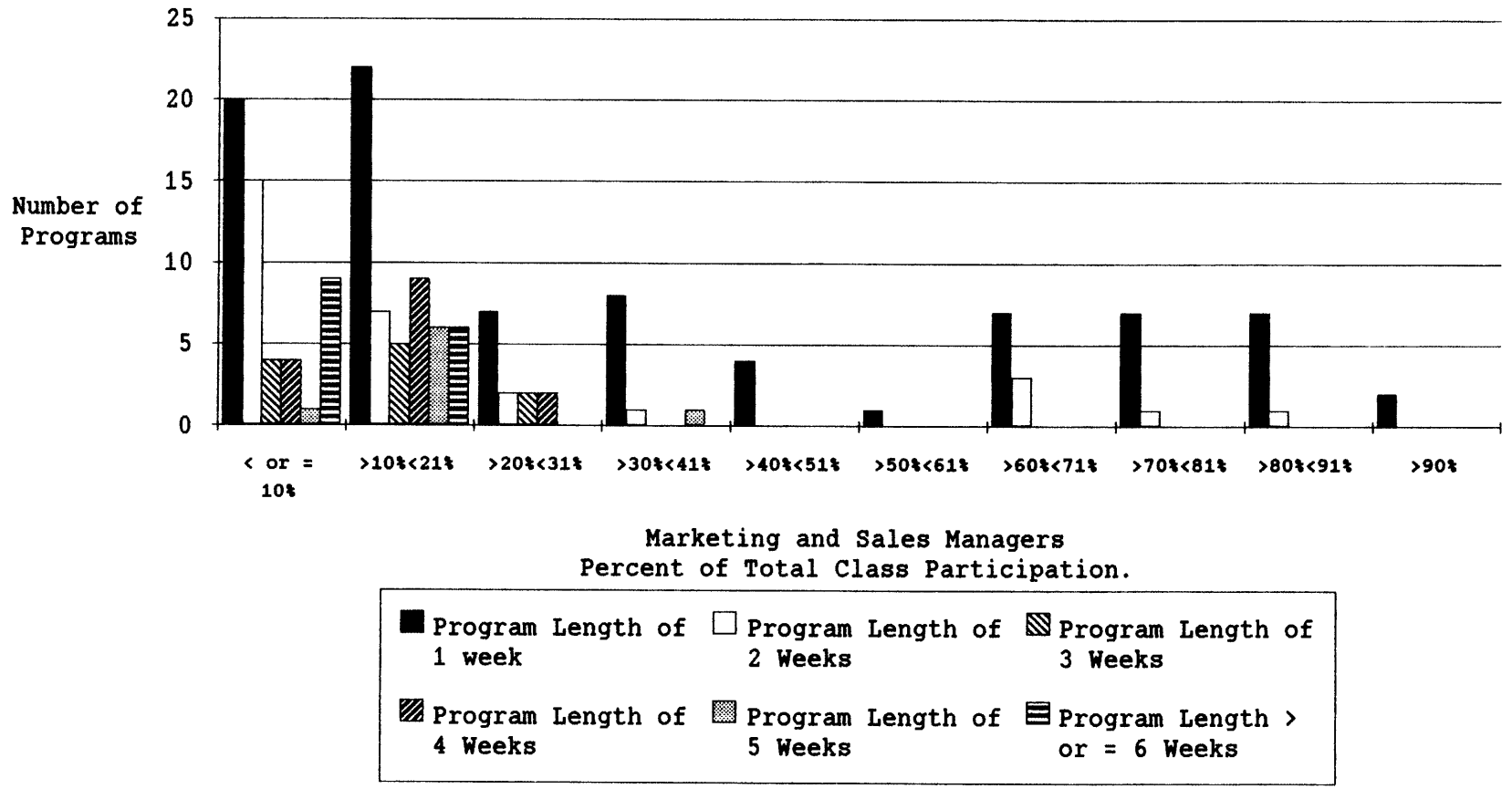


EXHIBIT 25b

University-Based Executive Education Programs and Financial and Accounting Managers
Participating in Programs Less than One Week. (1990)

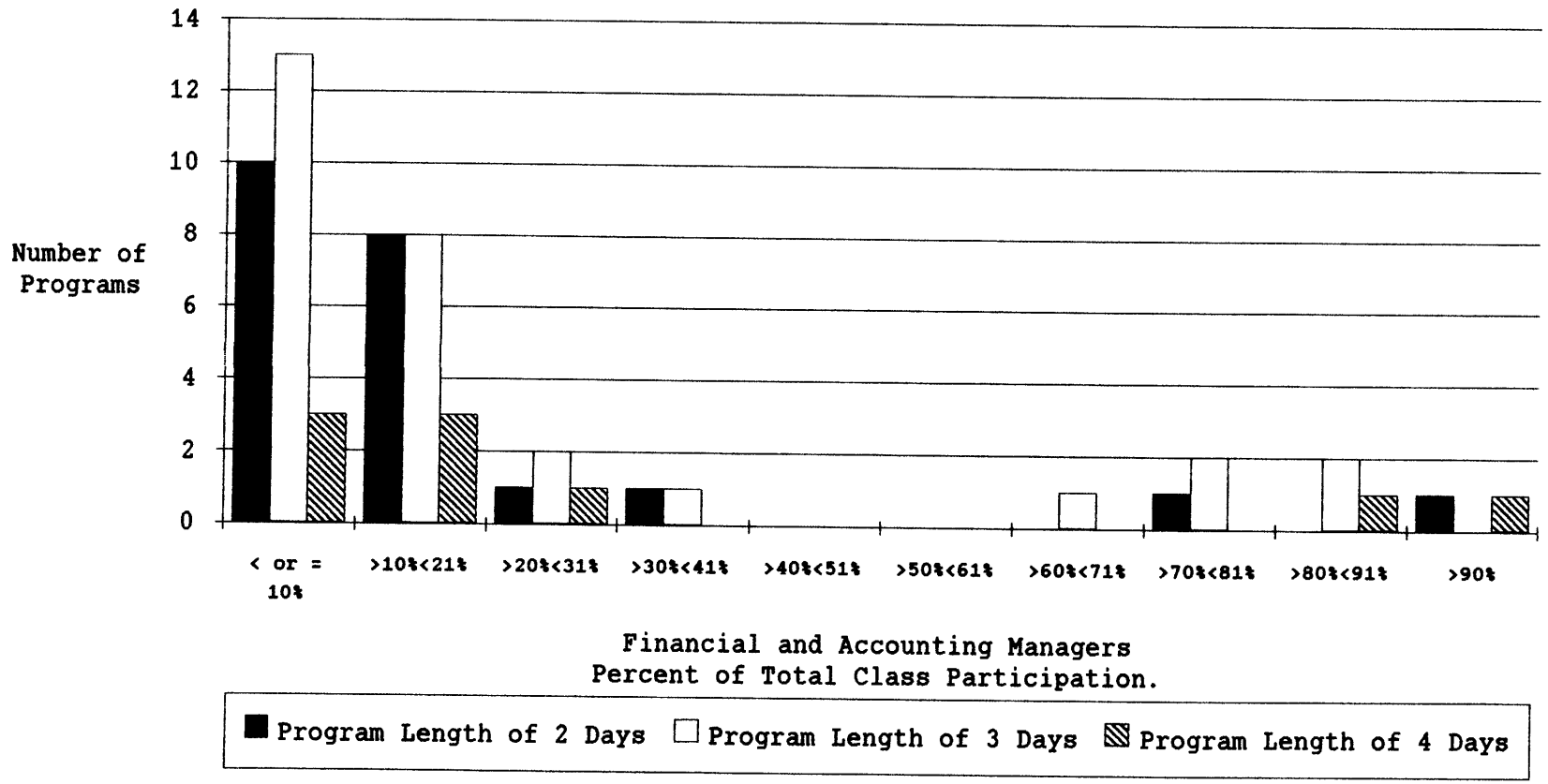
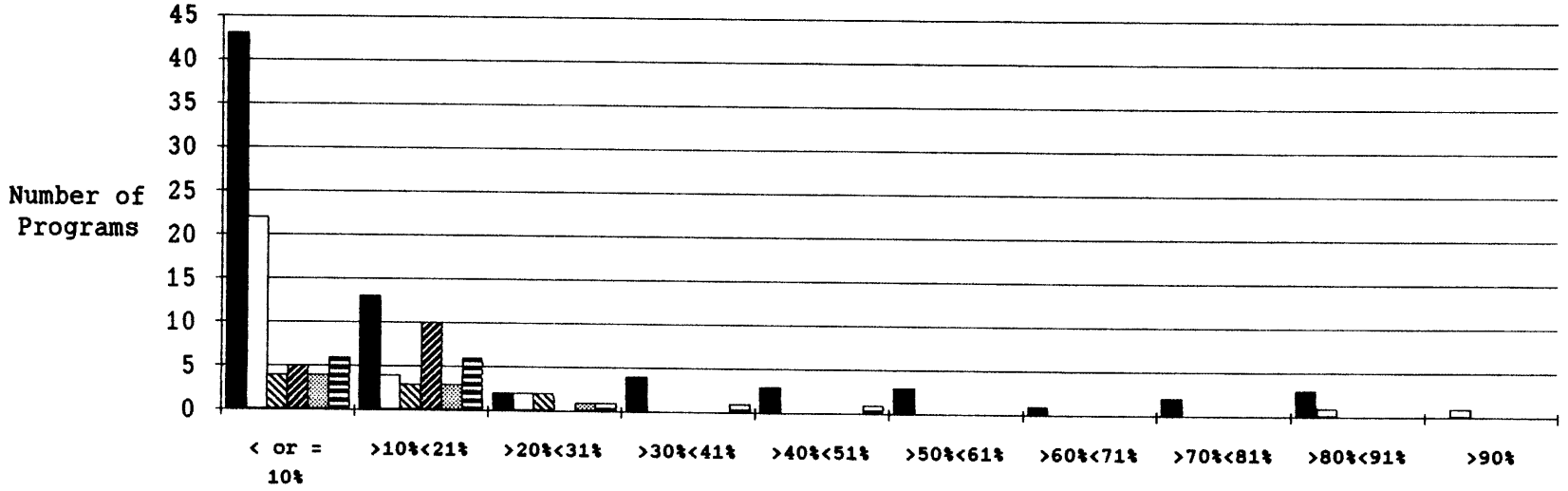


EXHIBIT 26a

University-Based Executive Education Programs and Financial and Accounting Managers
Participating in Programs Greater than or Equal to One Week. (1991)



Financial and Accounting Managers
Percent of Total Class Participation.

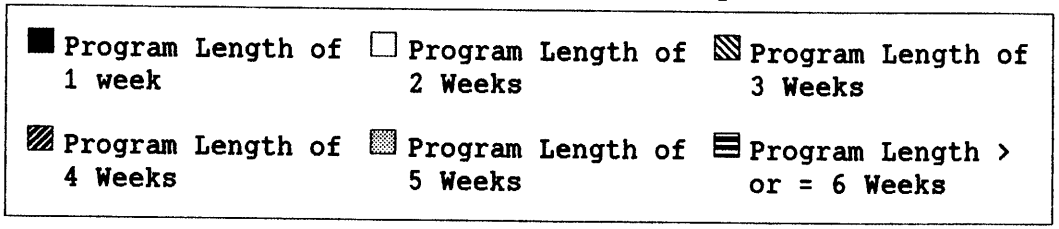
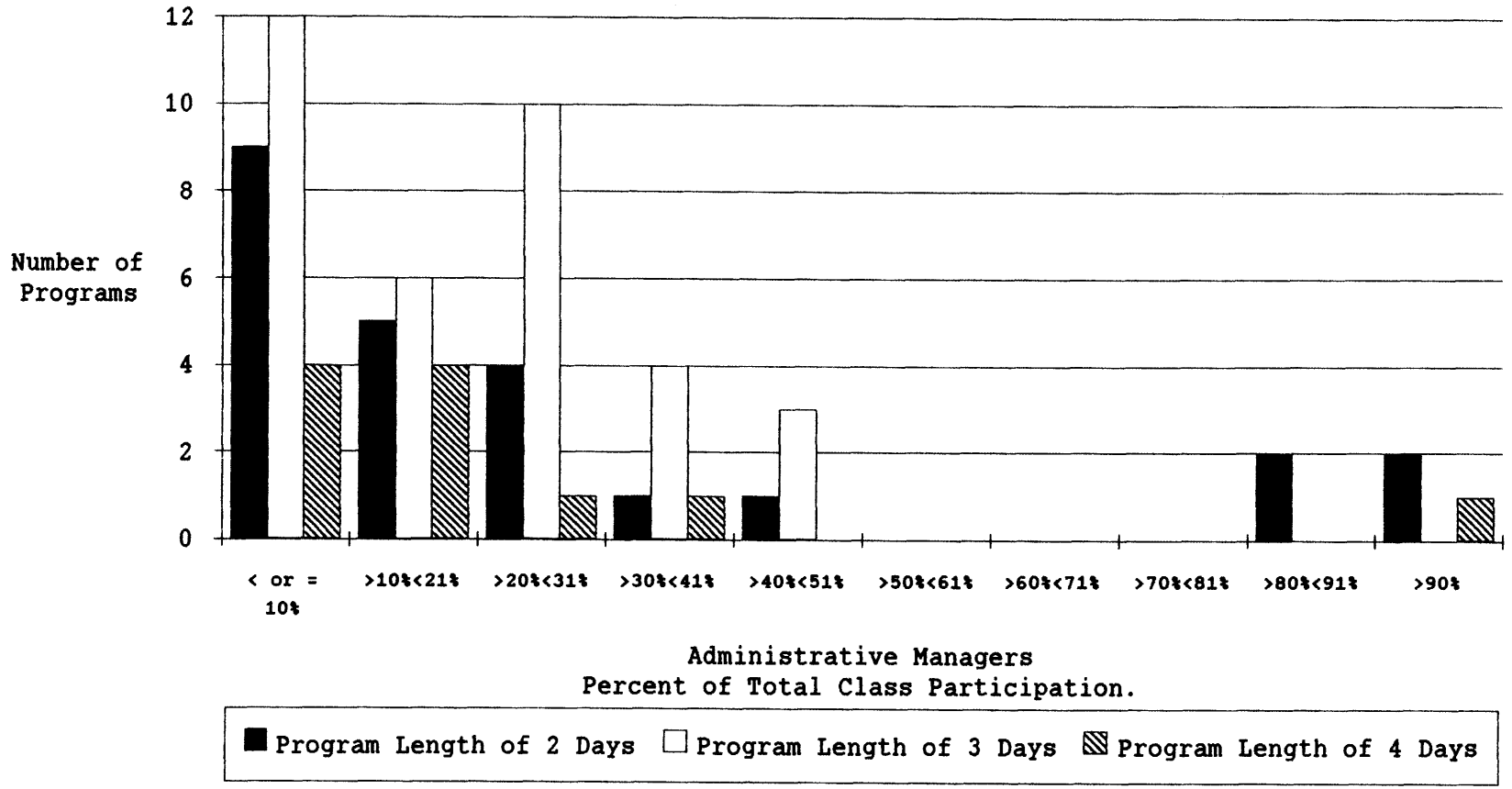


EXHIBIT 26b

University-Based Executive Education Programs and Administrative Managers
Participating in Programs Less than One Week.



University-Based Executive Education Programs and Administrative Managers Participating in Programs Greater than or Equal to One Week. (1991)

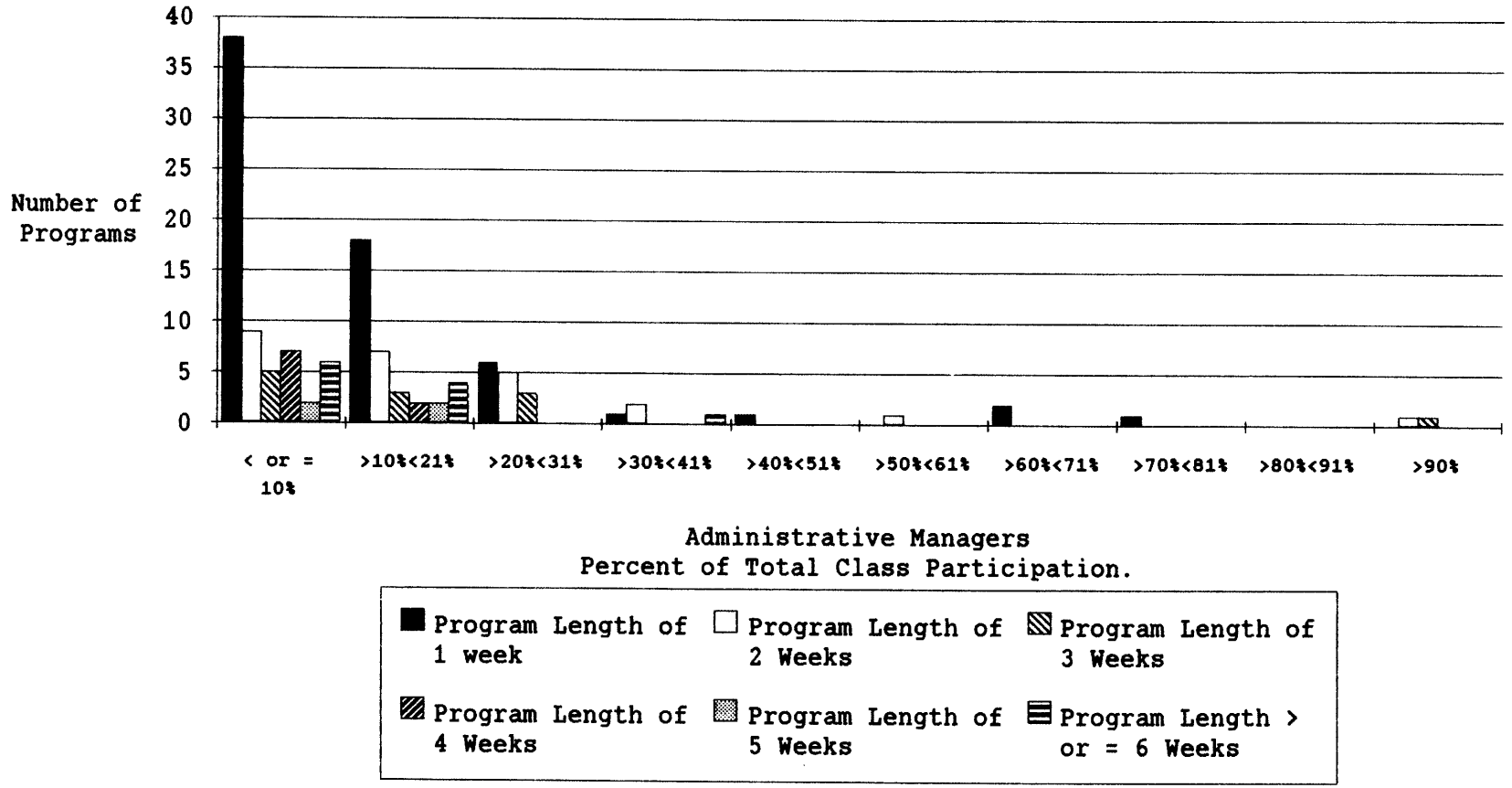


EXHIBIT 27b

University-Based Executive Education Programs and Technical Managers
Participating in Programs Less than One Week. (1990)

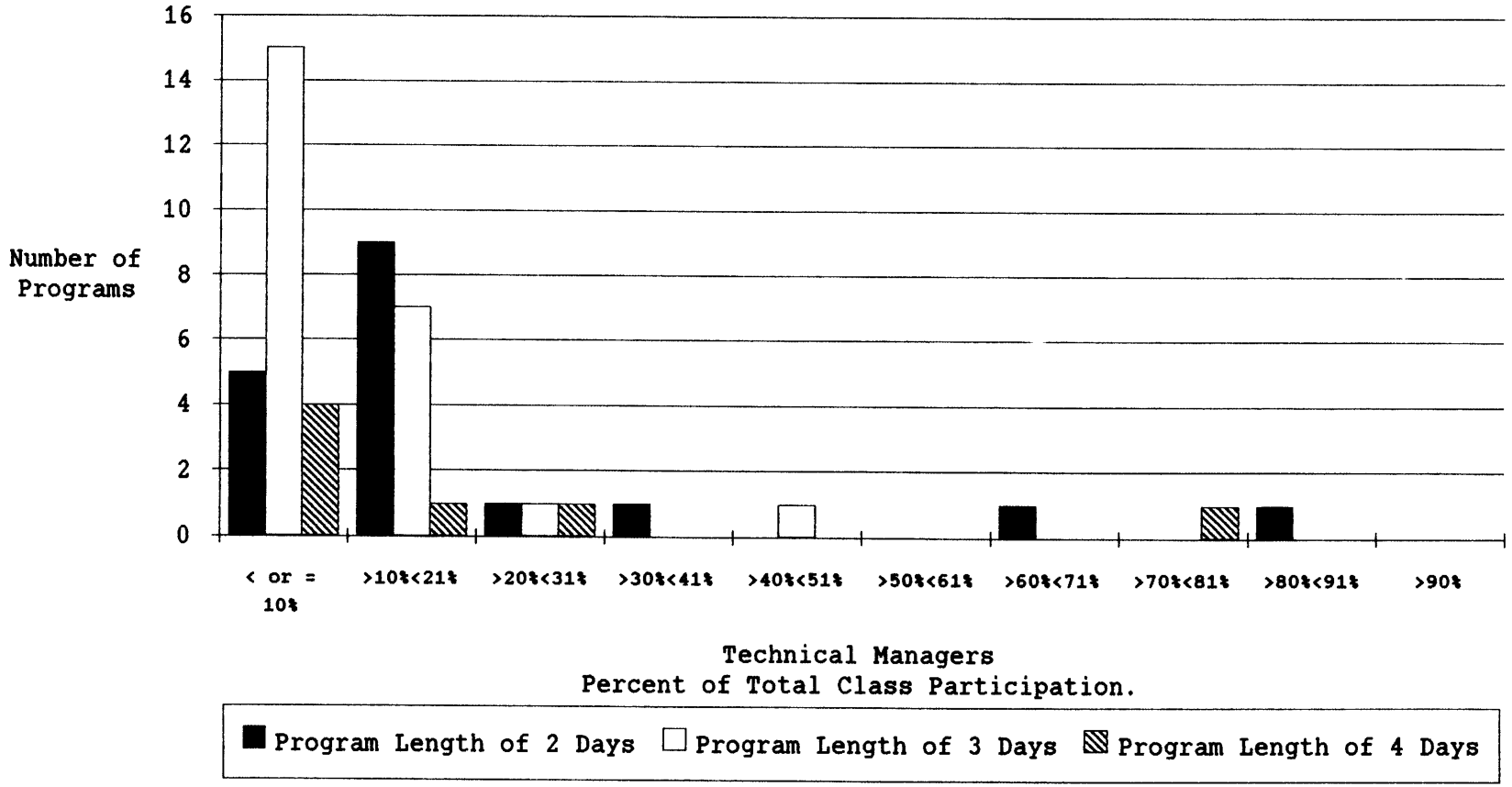
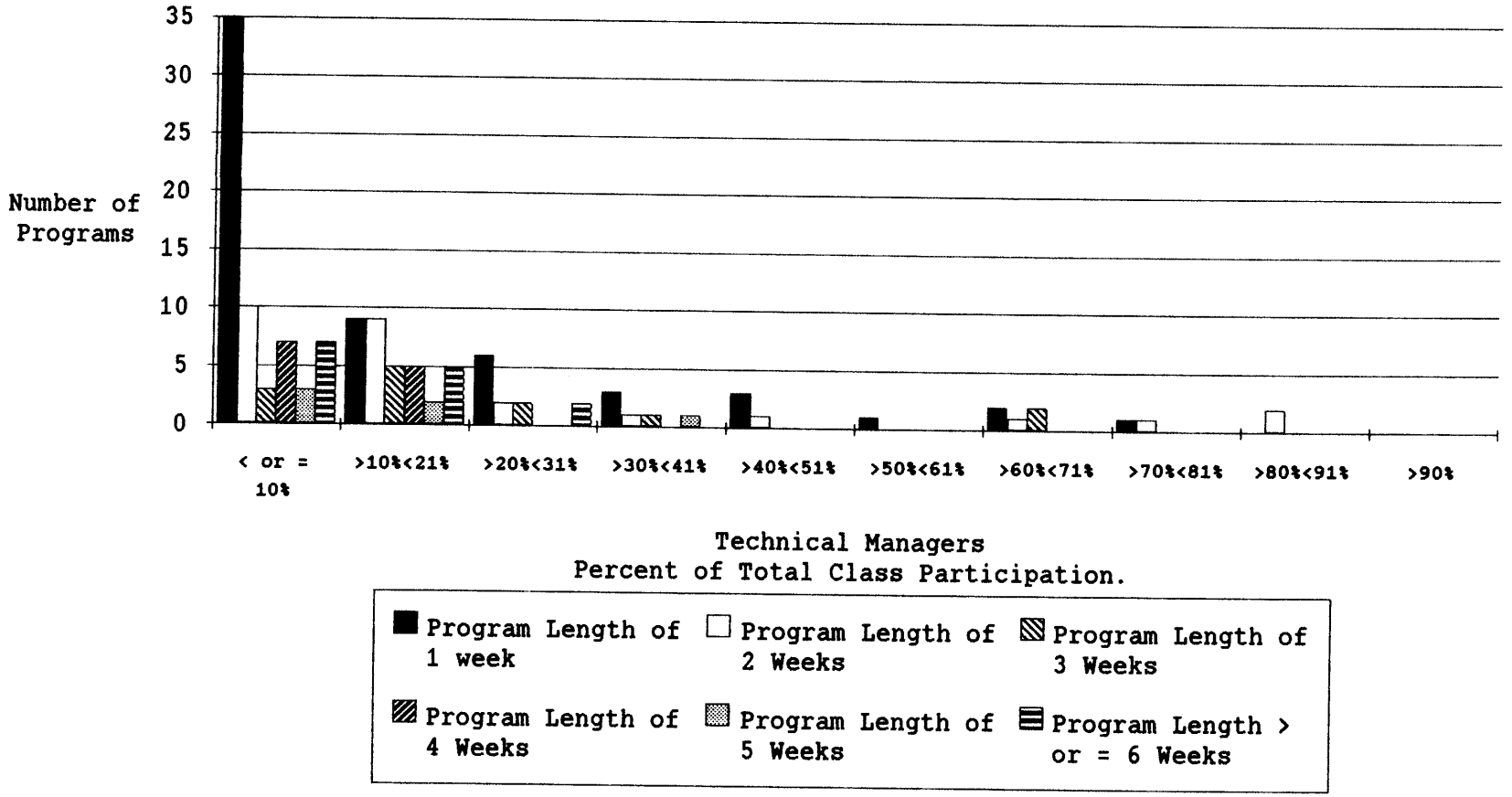


EXHIBIT 28a

University-Based Executive Education Programs and Technical Managers
Participating in Programs Greater than or Equal to One Week. (1991)



University-Based Executive Education Programs and Human Resource Managers
Participating in Programs Less than One Week. (1990)

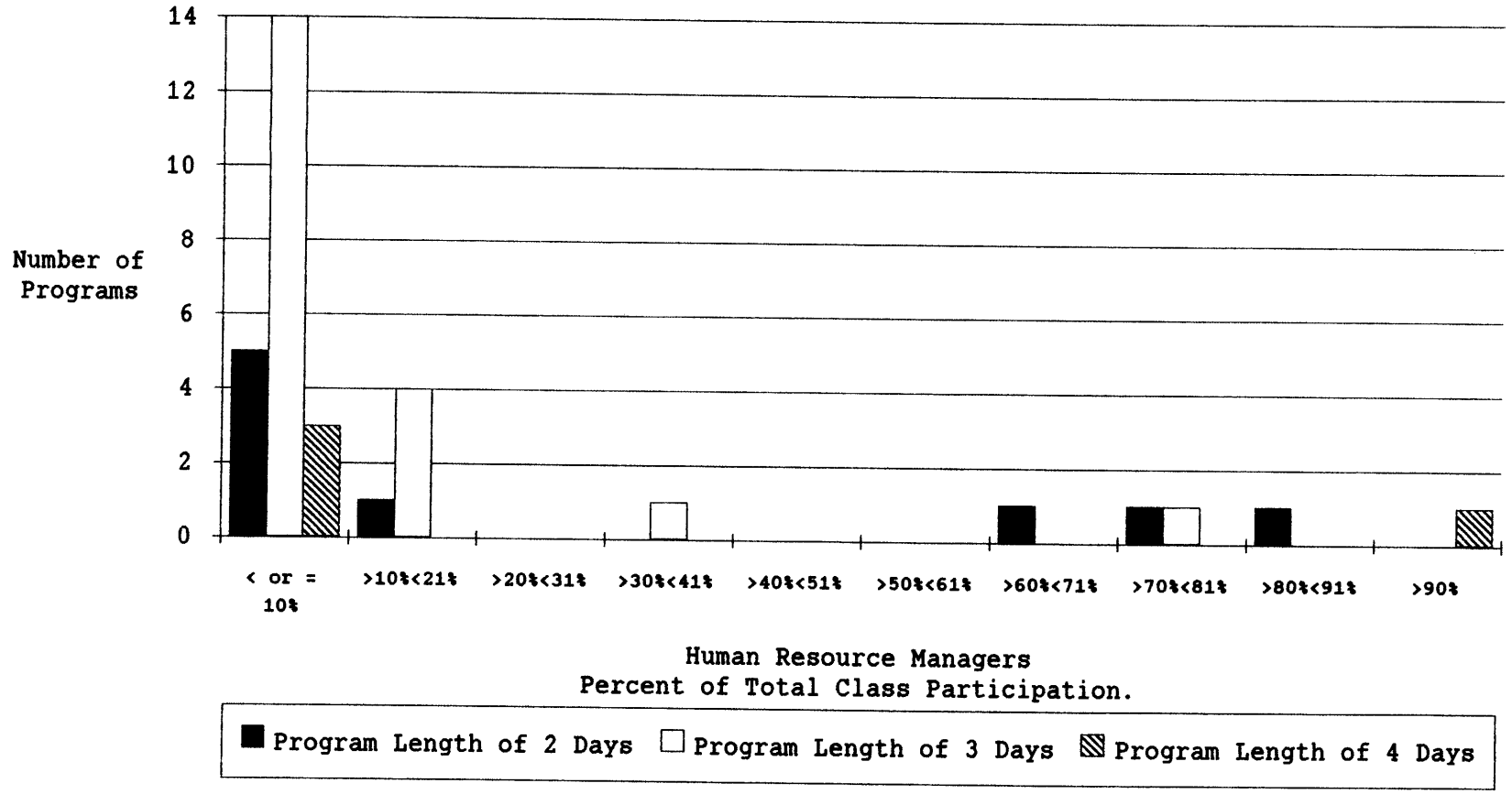


EXHIBIT 29a

University-Based Executive Education Programs and Human Resource Managers
Participating in Programs Greater than or Equal to One Week. (1991)

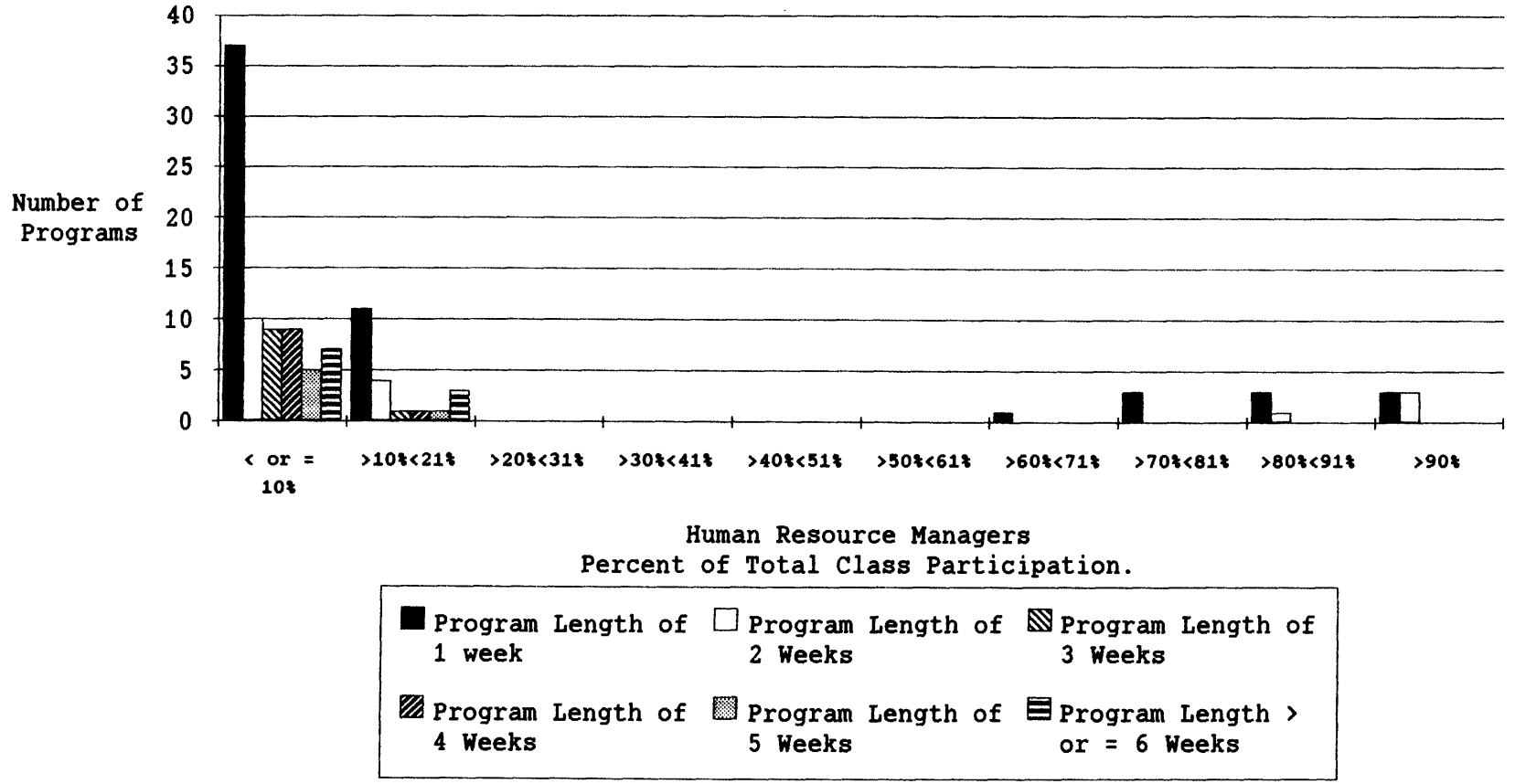


EXHIBIT 29b

University-Based Executive Education Programs and Logistics Managers
Participating in Programs Greater than or Equal to One Week. (1991)

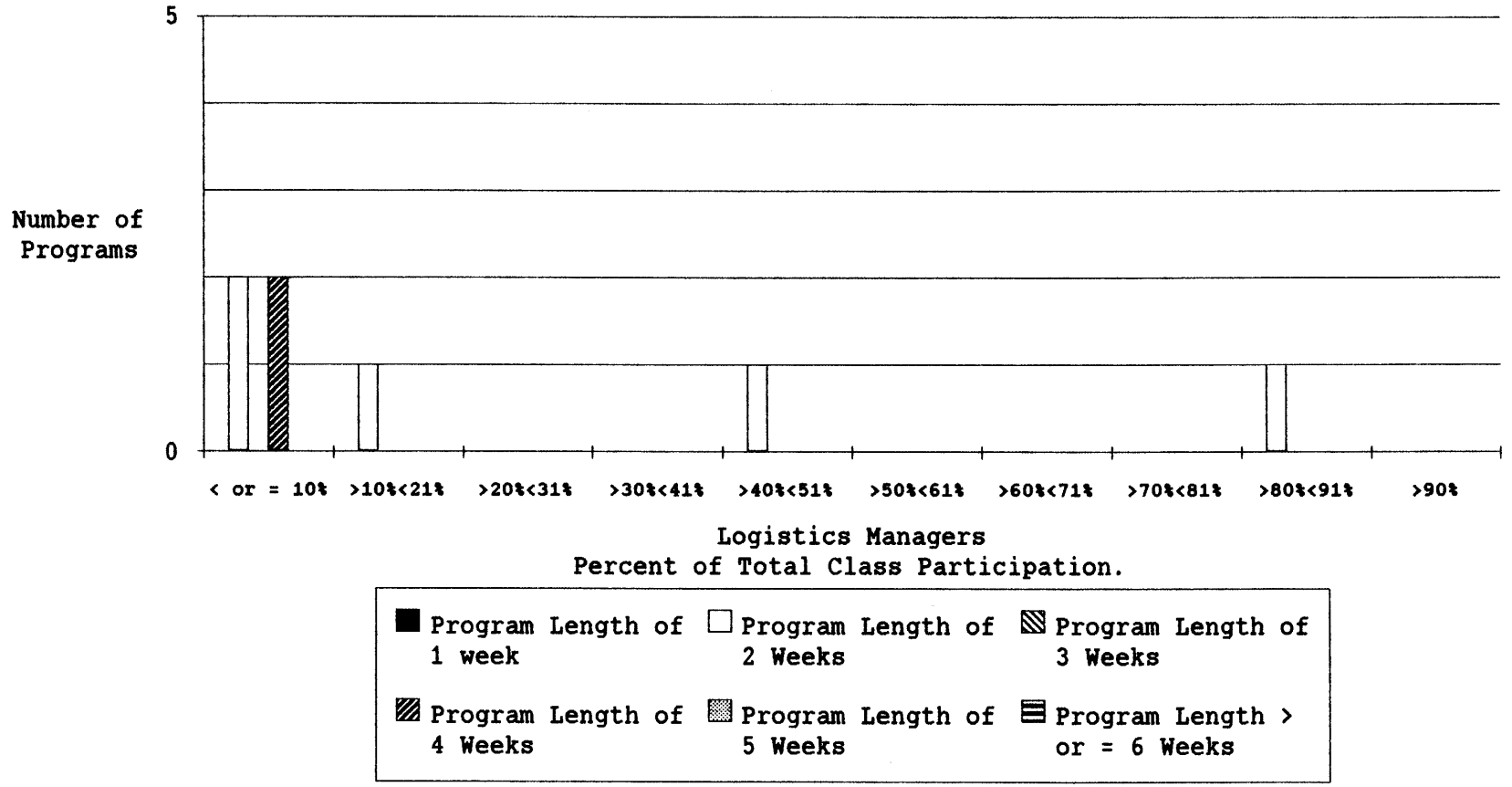


EXHIBIT 30a

University-Based Executive Education Programs and Purchasing Managers
Participating in Programs Greater than or Equal to One Week. (1991)

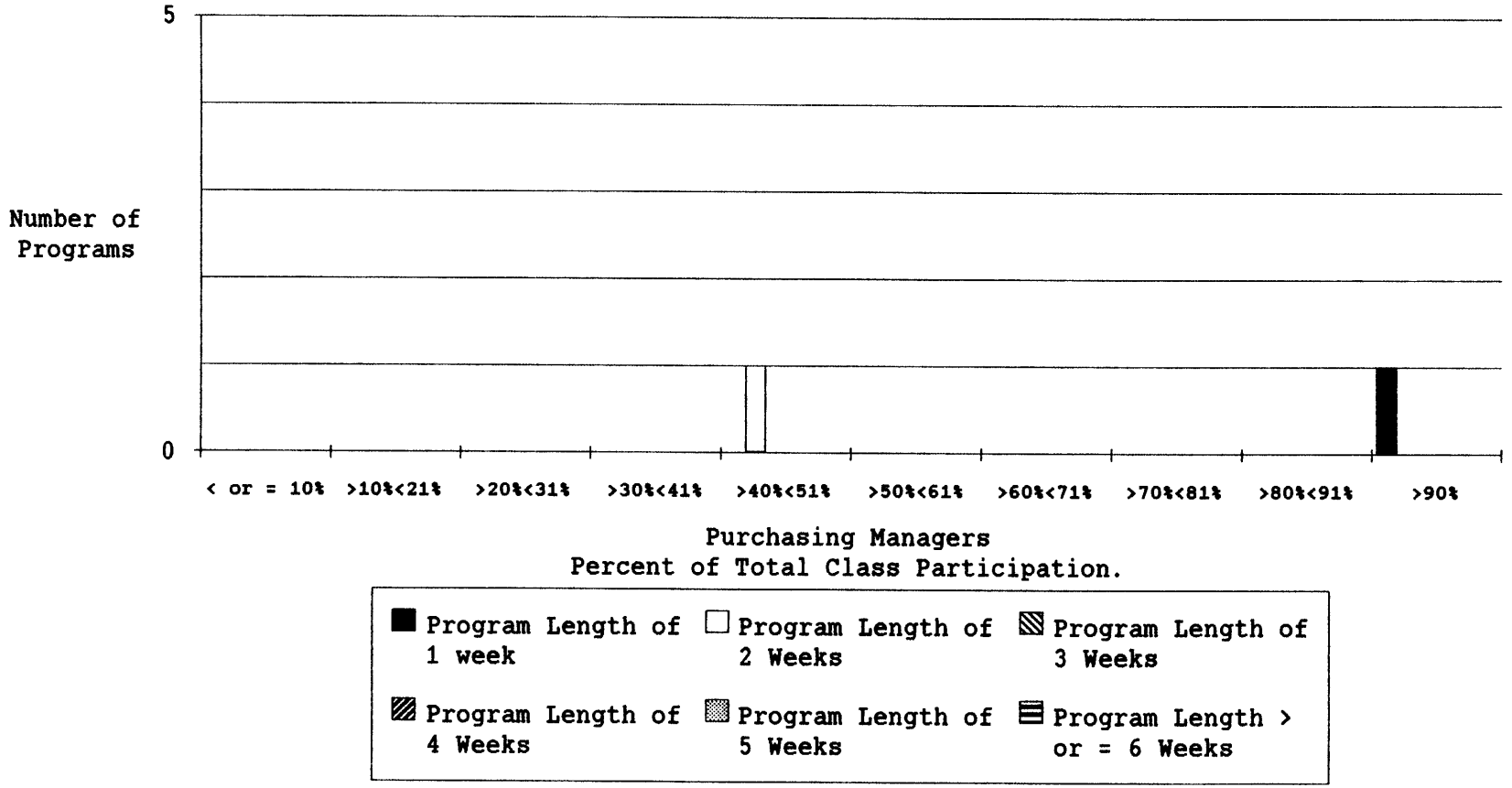
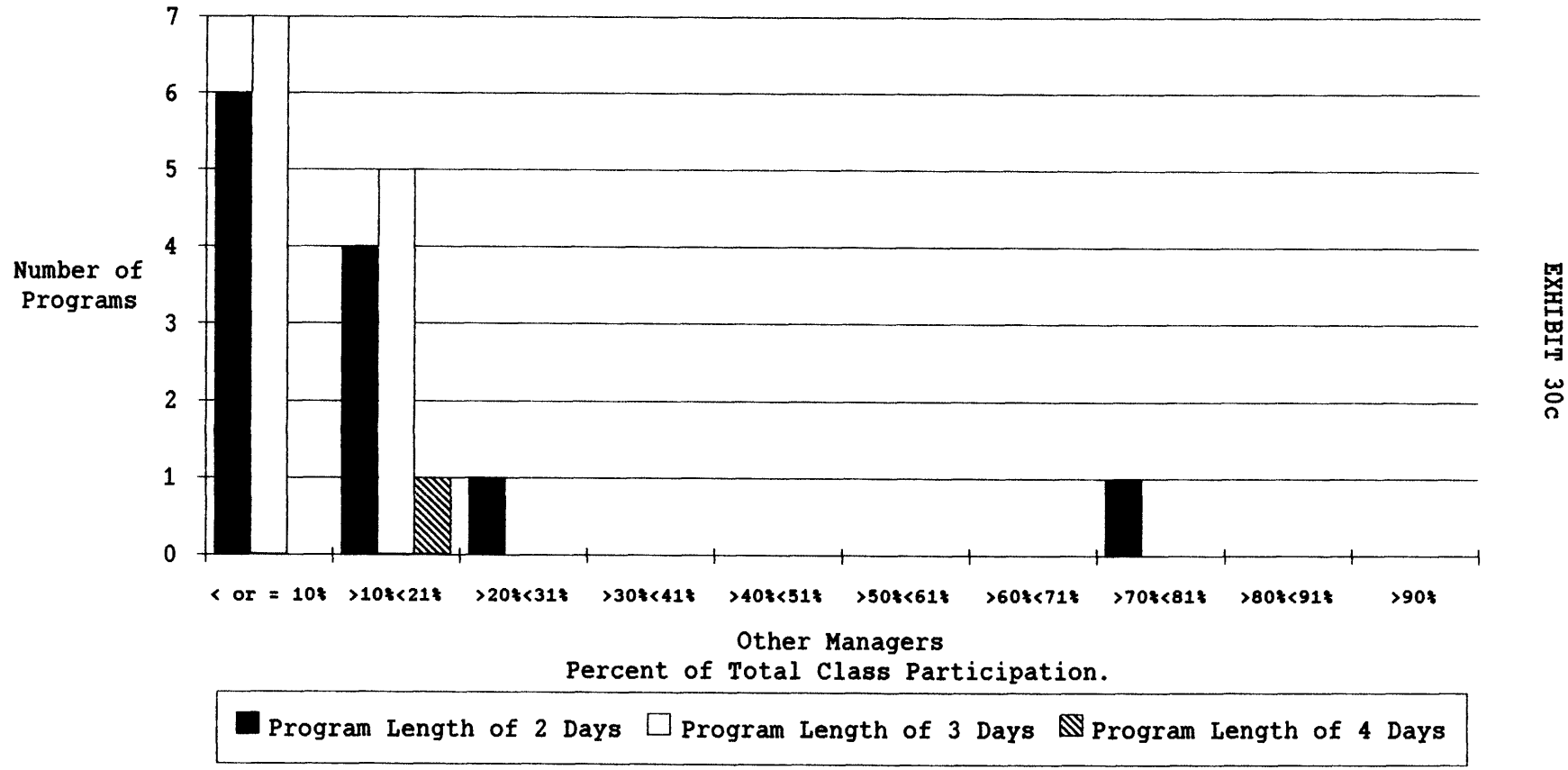


EXHIBIT 30b

University-Based Executive Education Programs and Other Managers
Participating in Programs Less than One Week. (1990)



University-Based Executive Education Programs and Other Managers
Participating in Programs Greater than or Equal to One Week. (1991)

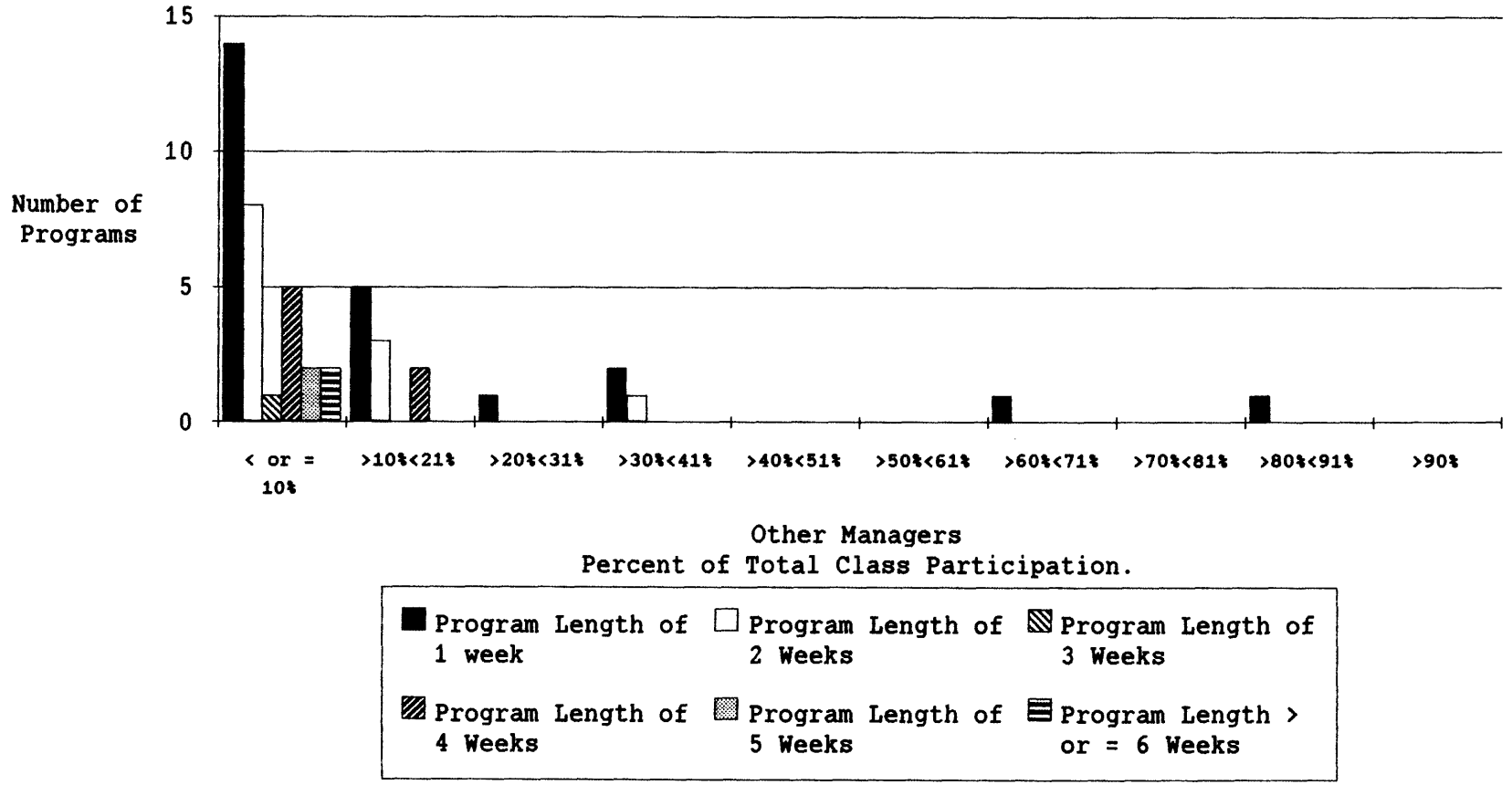


EXHIBIT 30d

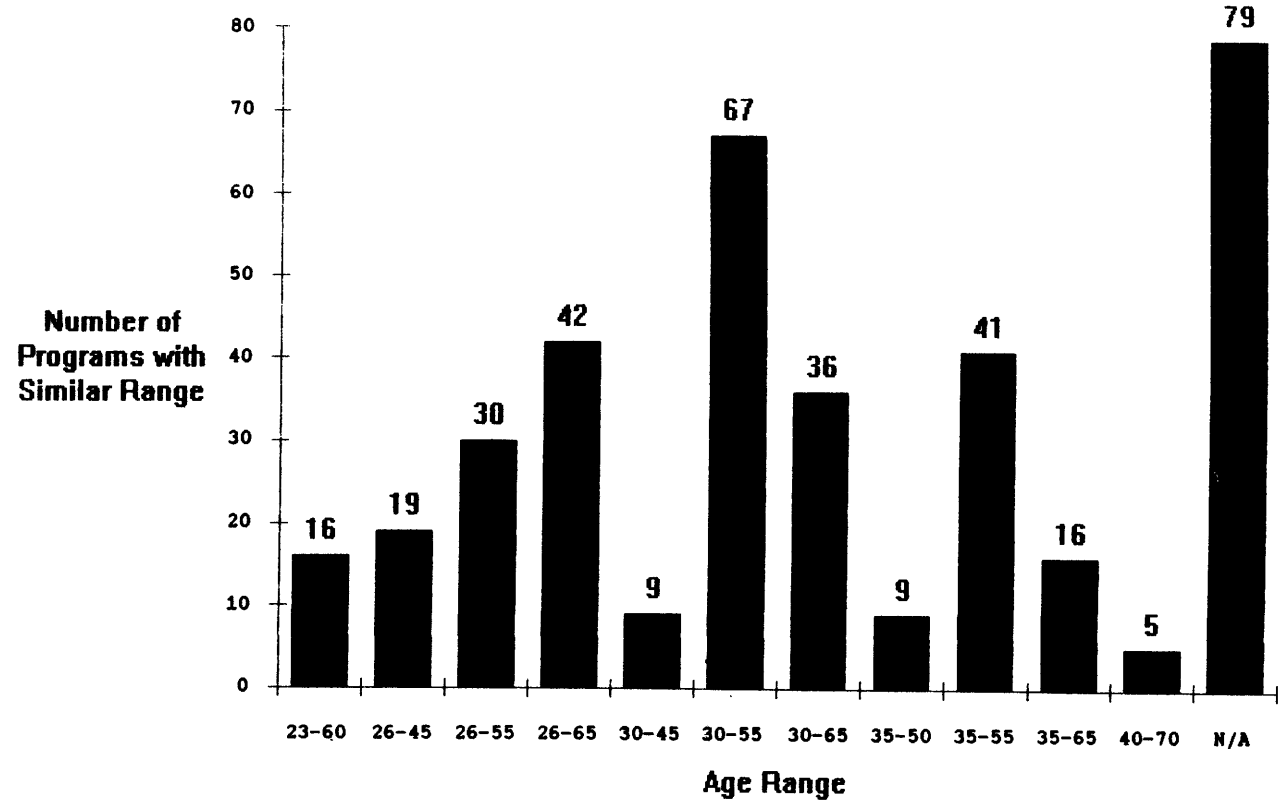
EXHIBIT 31

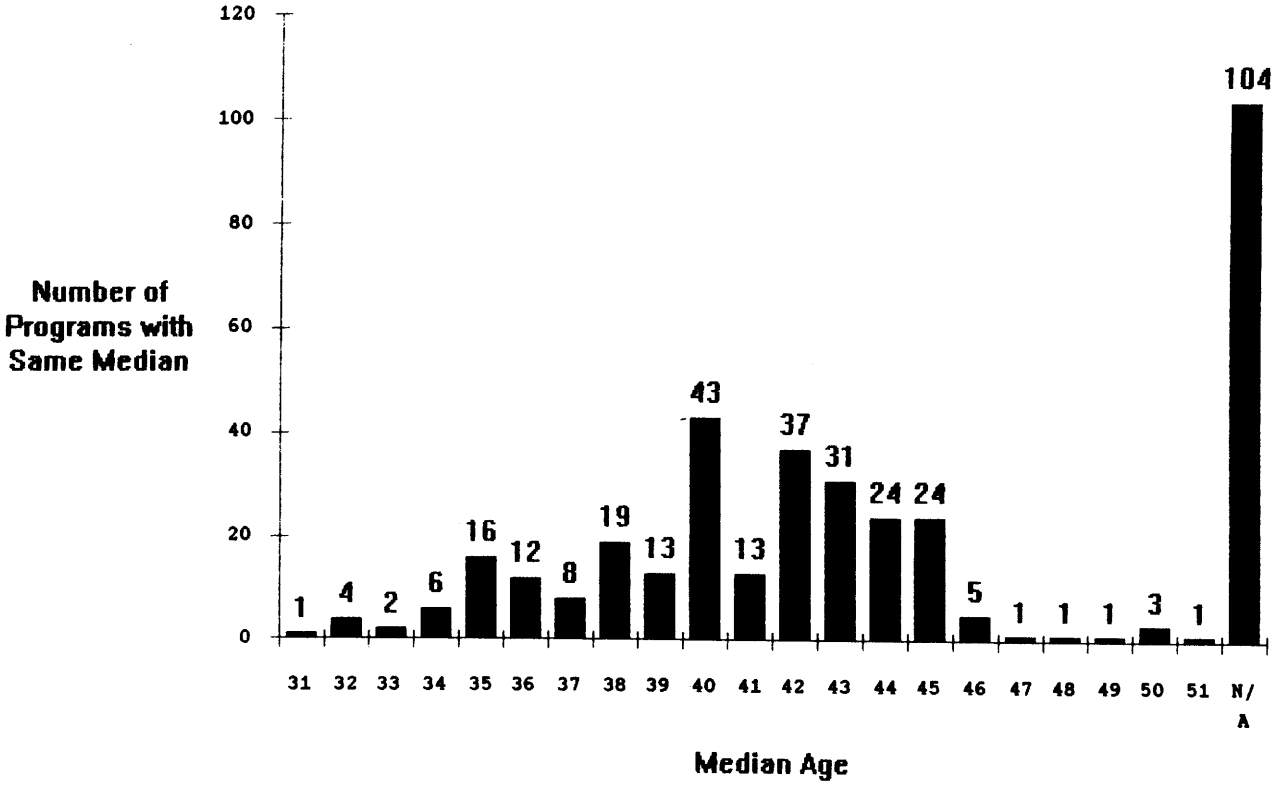
PARTICIPATION ACCORDING TO AGE

AGE RANGE	NUMBER OF PROGRAMS ITH SIM RANGE	% OF TOTAL	MEDIAN AGE	NUMBER OF PROGRAMS ITH SAM MEDIAN	% OF TOTAL
23-60	16	4.34%	31	1	0.27%
26-45	19	5.15%	32	4	1.08%
26-55	30	8.13%	33	2	0.54%
26-65	42	11.38%	34	6	1.63%
30-45	9	2.44%	35	16	4.34%
30-55	67	18.16%	36	12	3.25%
30-65	36	9.76%	37	8	2.17%
35-50	9	2.44%	38	19	5.15%
35-55	41	11.11%	39	13	3.52%
35-65	16	4.34%	40	43	11.65%
40-70	5	1.36%	41	13	3.52%
N/A	79	21.41%	42	37	10.03%
			43	31	8.40%
			44	24	6.50%
			45	24	6.50%
			46	5	1.36%
			47	1	0.27%
			48	1	0.27%
			49	1	0.27%
			50	3	0.81%
			51	1	0.27%
			N/A	104	28.18%
TOTAL	369	100.00%		369	100.00%

EXHIBIT 32

Age of Participants in Existing Executive Education Programs





University-Based Executive Education Programs Less than One Week Long
and the Median Age of the Participants.

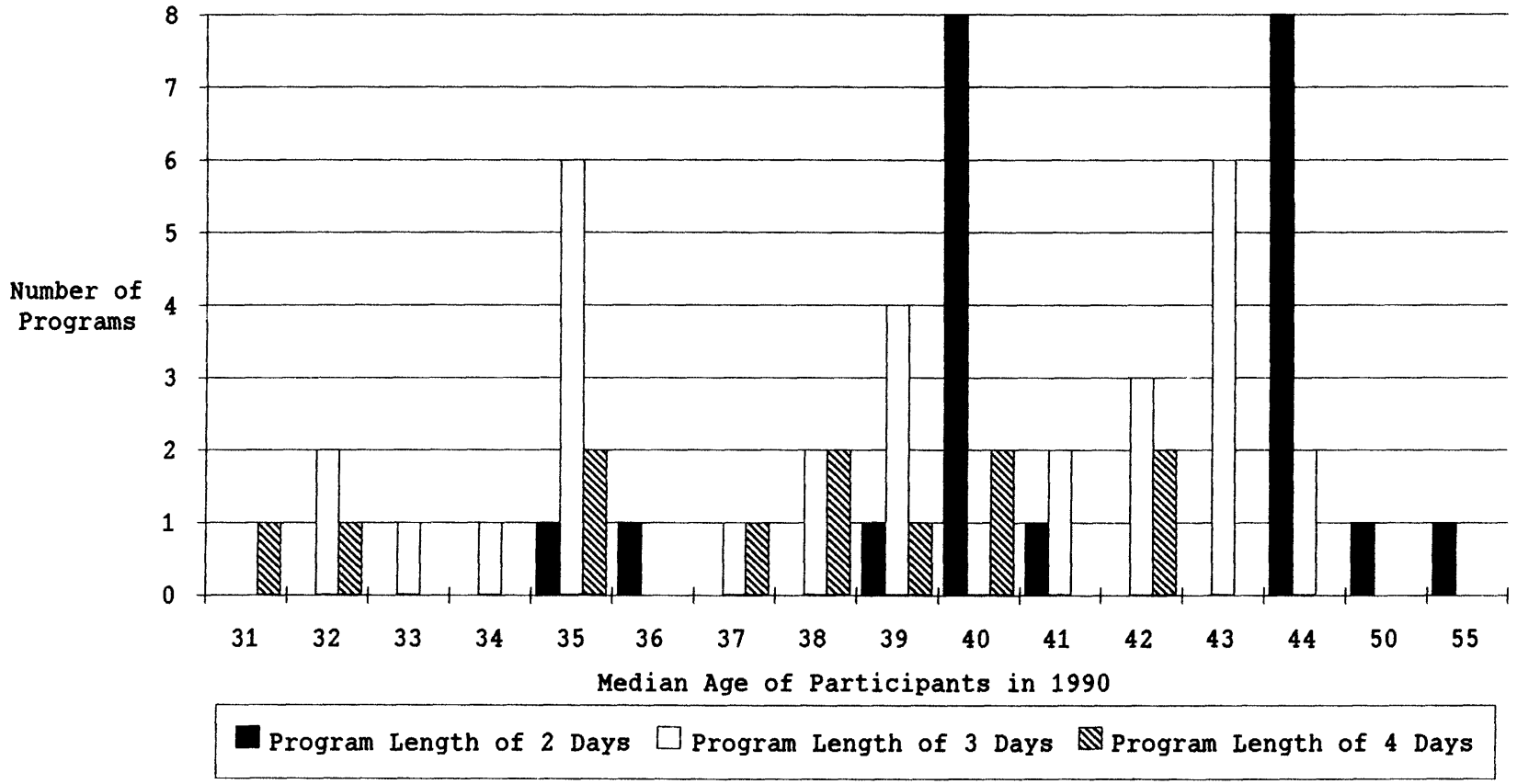


EXHIBIT 33a

University-Based Executive Education Programs One Week or Greater in Length and the Median Age of the Participants.

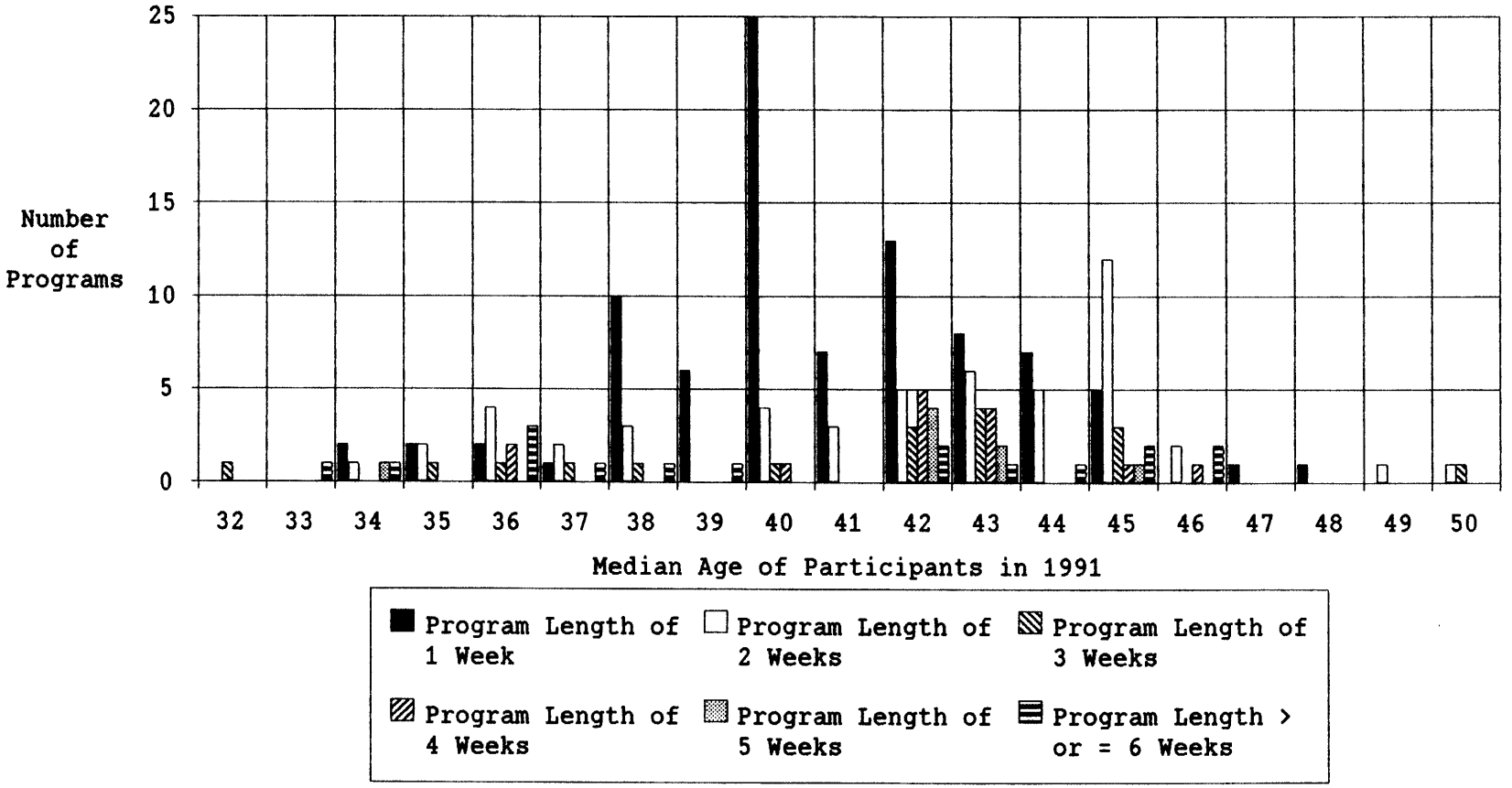


EXHIBIT 33b

University-Based Executive Education Programs (2 Days to 52 Weeks)
The Median Age and Managerial Levels of the Participants. (1990-1991)

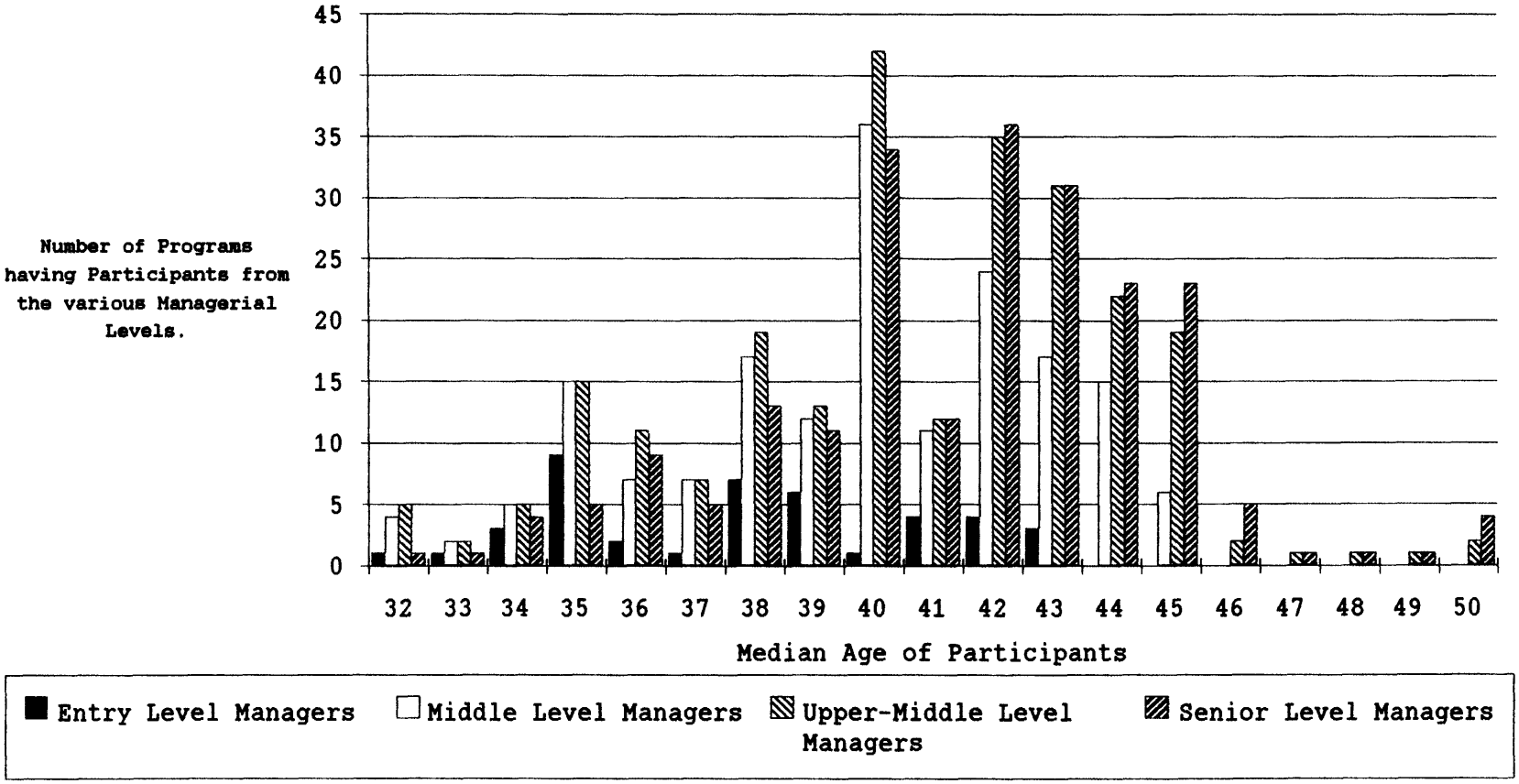


EXHIBIT 34a

University-Based Executive Education Programs Less Than One Week Long.
The Median Age and Managerial Levels of the Participants. (1990)

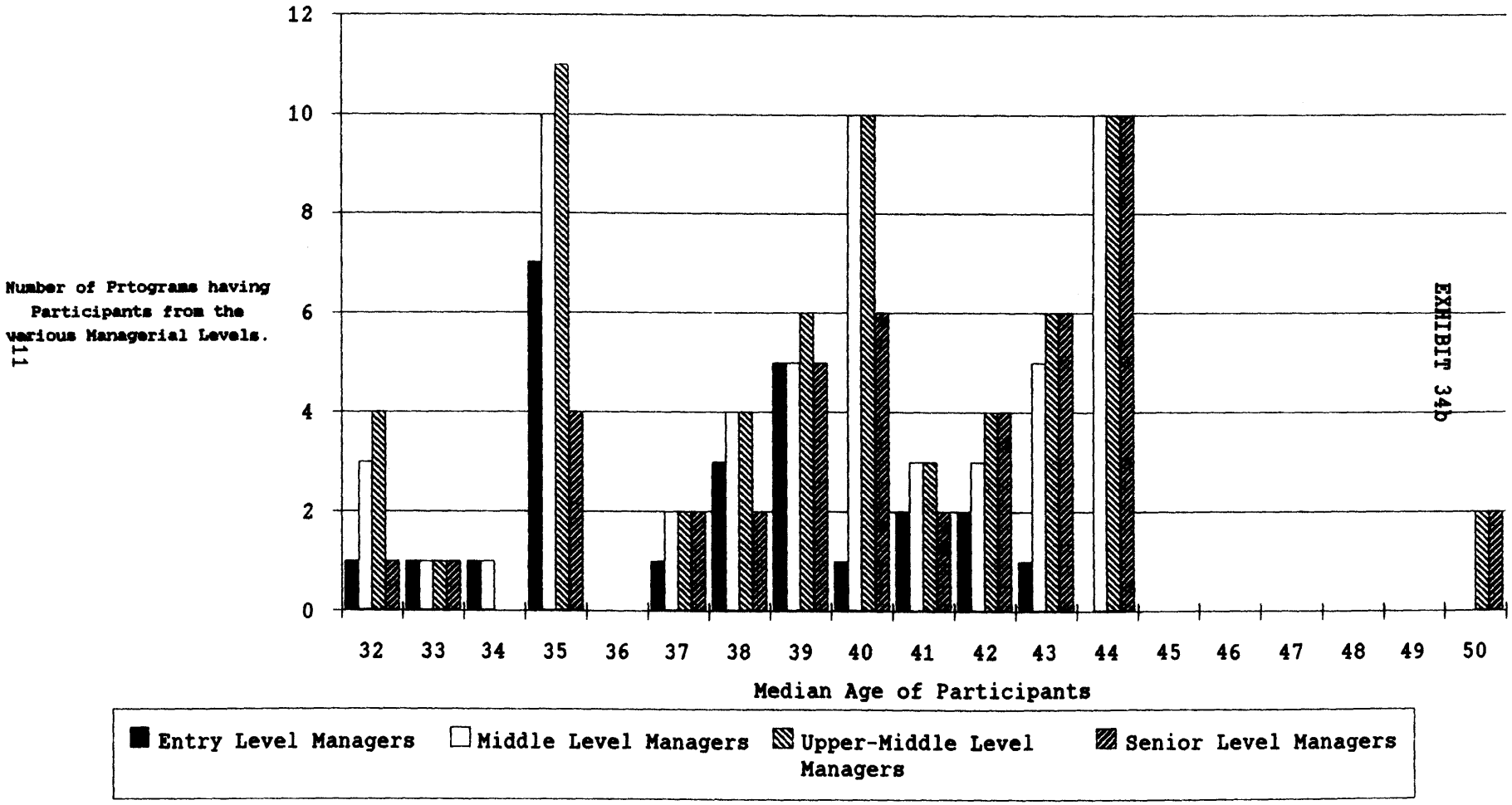


EXHIBIT 34b

University-Based Executive Education Programs Greater than or Equal to One Week.
The Median Age and Managerial Levels of the Participants. (1991)

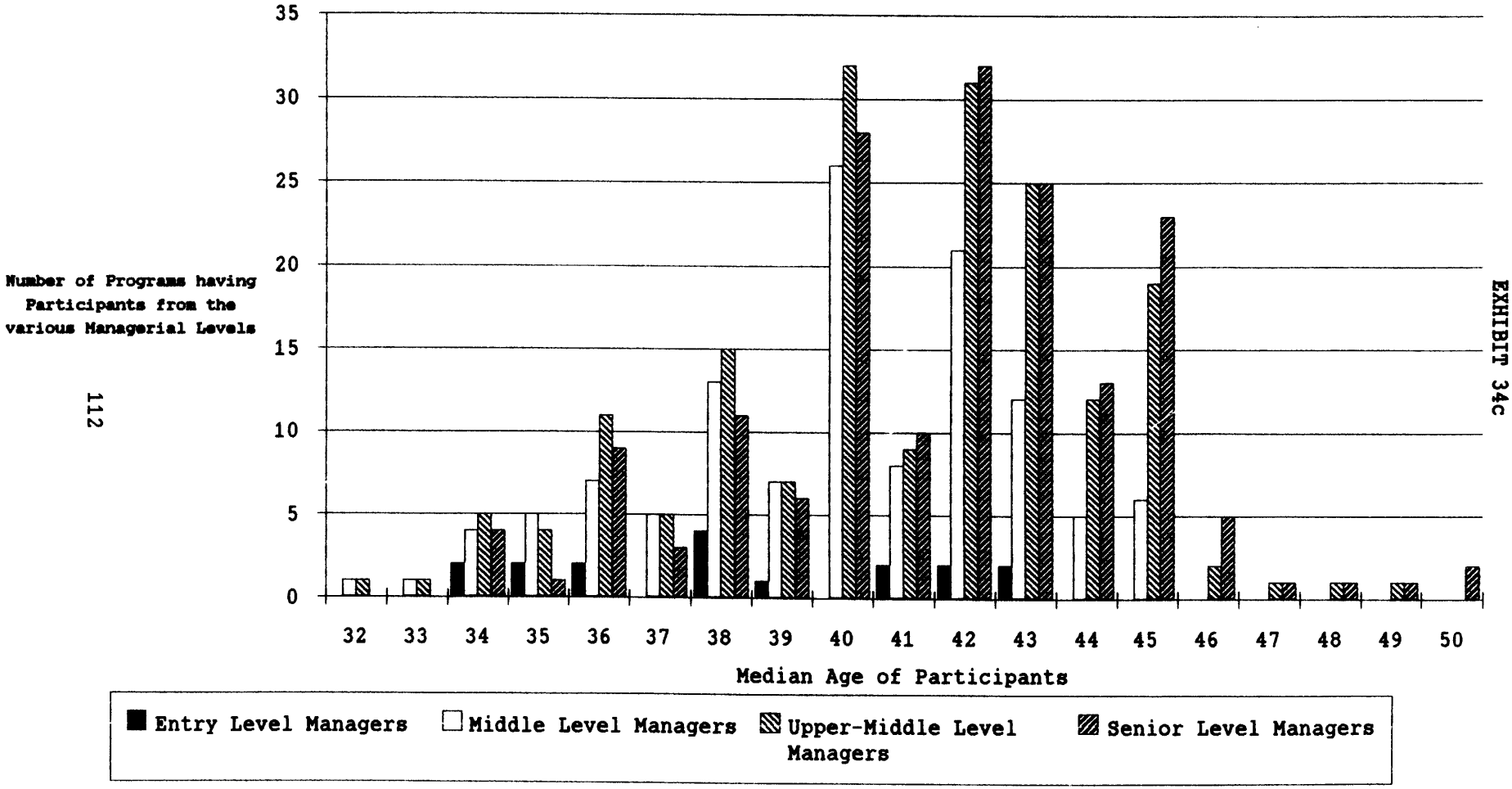


EXHIBIT 34c

EXHIBIT 35

Tuition of Programs Less Than One Week Long

UNIVERSITY-BASED EXECUTIVE PROGRAMS						
(Programs less than one week)						
				INCLUD.	INCLUD.	INCLUD.
		NO. OF		ROOM,	MEALS	SOME
UNIVERSITY/INSTITUTE NAME	PROGRAM TITLE	DAYS	TUITION	MEALS	ONLY	MEALS
Menninger Management Institute	Managing Organizational Change and Resolving Conflict	2	$350	O		
University of Washington	Marketing Research	2	$425	O		
University of Washington	Managing Change	2	$425	O		
University of Washington	Successful Negotiating Skills	2	$425	O		
Rice University	How to Manage the Sales Force	2	$495			X
Rice University	Successful Negotiation Skills	2	$495			X
University of Washington	Sales Management and Strategies	2	$495	O		
Indiana University	Production Management: Inventory Control in the Computer Age	2	$500			X
Indiana University	Production Management: Manufacturing Management in the 1990's	2	$500			X
University of Notre Dame	Credit Analysis	2	$525	O		
University of Notre Dame	Psychology of Persuasion	2	$525			X
University of Notre Dame	Business Forecasting Using a PC	2	$575			X
University of Houston	Advanced Purchasing Workshop	2	$595			X
University of Houston	Essentials of Purchasing	2	$595			X
University of Houston	Purchasing Negotiation Skills	2	$595			X
Aspen Institute	Weekends at Wye	2	$600	X		
University of Rochester	Management cost Accounting	2	$690			X
University of Rochester	Advances in Manufacturing Systems Design	2	$690			X
University of Rochester	Manufacturing costs and Performance Measurement	2	$690			X
University of Rochester	Uptime Management: Reliability, Maintenance and Support	2	$690			X
University of Illinois	Fundamentals of Finance and Accounting for Non-Financial Exec.	2	$695			X
Vanderbilt University	Managing the Manager	2	$695			X
Northern Illinois University	Vendor Certification	2	$795	O		
University of Chicago	Developing Marketing Plans	2	$795	O		
University of Chicago	Marketing Communications	2	$795	O		
University of Chicago	Measurements for Competitive Marketing Strategy	2	$795	O		
University of Chicago	Sales Force Productivity Strategies	2	$795	O		
University of Chicago	Customer Satisfaction: Management Strategies and Tactics	2	$795	O		

EXHIBIT 35

Tuition of Programs Less Than One Week Long Continued

University of Illinois	Simplified Strategic Planning for Small to Mid Sized Comp.	2	$795	O		
University of North Carolina	Total Quality Management	2	$795			X
University of North Carolina	Building the Winning Organization	2	$795			X
University of North Carolina	Customer Satisfaction: The New Competitive Edge	2	$795			X
University of North Carolina	Increasing Sales Force Productivity	2	$795			X
University of North Carolina	Making Your Marketing Strategy Work	2	$795			X
University of North Carolina	Market. Prof. Services: Advanced Strategies for Implementation	2	$795			X
University of North Carolina	Marketing Strategy and Planning	2	$795			X
University of North Carolina	Product Profiling	2	$795			X
University of North Carolina	Strategic Planning for the $10-to $50-Million Company	2	$795			X
University of North Carolina	Customer-Driven Manuf.: The Manufacuring-Marketing Connection	2	$795			X
University of North Carolina	Increasing Productivity of Professional Services	2	$795			X
University of North Carolina	Just-inTime: Managing Lead Times and Delivery Reliability	2	$795			X
University of North Carolina	Manufacturing Strategy for competitive Advantage	2	$795			X
University of Michigan	Employee Discipline and Grievance Handling	2	$900	O		
University of Michigan	How to Prepare and Win More Arbitration Cases	2	$900	O		
CA Institute of Technology	Artificial Intel.: Understanding and Dev. Strategic Appl.	2	$985	O		
CA Institute of Technology	Manuf. Cost Strategies: Meeting the Competitive Challenge	2	$985	O		
CA Institute of Technology	Bld., Exctng. & Intgrtd. Strategic Plan: Linking Mrktng., R&D,	2	$985	O		
CA Institute of Technology	Mngng. Techn. as a Strat. Resource: Positioning for Comp. Adv.	2	$985	O		
CA Institute of Technology	Just-in-time Manufacturing	2	$985	O		
CA Institute of Technology	Manufacturing Strategies: Building for the Future	2	$985	O		
University of CA, L. A.	Role of the Board of Directors	2	$995	O		
Aspen Institute	The Future of the Corporation	2	$1,000	X		
Aspen Institute	The Corporation and the Changing International System	2	$1,000	X		
Northwestern University	The Art of Venturing: Entrepreneurship for the Businessperson	2	$1,100		X	
CA Institute of Technology	Restructuring Your Manuf. Oper.: A Framework for Organ. Change	2	$1,200	O		
Center for Creative Leadership	Designing Systems for Executive Development	2	$1,200		X	
University of Illinois	Pension Fund Management in Volatile Markets	2	$1,250	O		
Northwestern University	Communicating with the Japanese Business World	2	$1,450	X		
Northwestern University	Strategic Financial Planning	2	$1,450	X		
University of Washington	Marketing Strategy, Analysis and Decisions	3	$500	O		
Georgia State University	Finance and Accounting for NOn-FinancialManagers	3	$655	O		
University of Washington	Finance and Accounting for Non-Financial Executives	3	$700	O		
University of Notre Dame	Finance for Non-Financial Managers	3	$725			X

EXHIBIT 35

Tuition of Programs Less Than One Week Long Continued

Indiana University	Finance and Accounting for Non-Financial Managers	3	$750			X
Indiana University	Improving Management Skills	3	$750			X
Indiana University	Fundamentals fo Marketing Management	3	$750			X
Indiana University	Leadership for the 1990's	3	$750			X
Indiana University	Organizing and Managing for Customer Satisfaction	3	$750			X
Vanderbilt University	Effective Management Techniques	3	$825			X
University of North Carolina	Finance for the Non-Financial Manager	3	$895			X
University of North Carolina	Pricing Strategies for Maximized Profits	3	$895	O		
University of Texas at Austin	Accounting for Non-Accounting Managers	3	$925	O		
University of Texas at Austin	Financ. Dcsn. Making: Integ. Strtegies for the Non-Financ. Mng	3	$925	O		
University of Texas at Austin	Managing Salespeople for Performance	3	$925	O		
University of Texas at Austin	Marketing Strategy for Competitive Advantage	3	$925	O		
University of Texas at Austin	Customer Service: The New Competitive Advantage	3	$925	O		
University of Illinois	Bond Analysis and Portfolio Management	3	$950	O		
University of Chicago	Creating New Products and Services	3	$975	O		
University of Chicago	Industrial Marketing	3	$975	O		
University of Chicago	Marketing Analysis and Tactical Decision Making	3	$975	O		
University of Chicago	Marketing Strategy and Planning	3	$975	O		
University of Chicago	Pricing Strategy and Tactics	3	$975	O		
Brookings Institute	Issues in Telecommunications Policy	3	$990		X	
Brookings Institute	Federal budget: Fiscal Year 1991	3	$990		X	
Brookings Institute	The U.S. in the World Economy: Policy Issues and Choices	3	$990		X	
Brookings Institute	Financ. Nation. Health Care: Tradeoffs - Access and Cost Contr	3	$990		X	
Brookings Institute	Tne National Security Agenda for the 1990's	3	$990		X	
Brookings Institute	Science, Technology, and Industrial Productivity	3	$990		X	
University of Michigan	Classroom Training Techniques	3	$1,050	O		
University of Michigan	Interviewing: A Strategic Approach	3	$1,050	O		
Center for Creative Leadership	Values in Action	3	$1,250		X	
University of Michigan	Advanced Financial Analysis for Commercial Lending	3	$1,350	O		
University of Michigan	Basic Management for the Newly Appointed Manager	3	$1,350	O		
University of Michigan	Effective Managerial Coaching and Counseling	3	$1,350	O		
University of Michigan	Managing International Joint Ventures	3	$1,380	O		
University of Michigan	Marketing for Non-Marketing Managers	3	$1,380			X
University of Michigan	Meeting the Japanese Challenge: Building Competitive Organizat	3	$1,380	O		
Center for Creative Leadership	Managing for Commitment	3	$1,500		X	

EXHIBIT 35

Tuition of Programs Less Than One Week Long Continued

Stanford University	Financial seminar for Non-Financial Managers	3	$1,600			X
University of Michigan	Effective Sales Management	3	$1,770	X		
University of Michigan	Strategies in Sales Management for Sales Executives	3	$1,770	X		
University of Michigan	Delegation and the Team Effort: People and Performance	3	$1,770	O		
University of Michigan	Strategic Management of Technology	3	$1,770	X		
Northwestern University	Advanced Futures and Options Strategies for Prof. Financial Man	3	$1,825	X		
Northwestern University	Credit Analysis and Financial Reporting	3	$1,825	X		
Northwestern University	Managing Financial Risk with Futures and Options	3	$1,825	X		
Northwestern University	Decision-Making Strategies for Managers	3	$1,825	X		
Northwestern University	Negotiation Strategies for Managers	3	$1,825	X		
Northwestern University	Managing Communications in the Changing Marketplace	3	$1,825	X		
Stanford University	Program on Managing Innovation	3	$2,200		X	
Stanford University	Program on Market Strategy for Technology-Based Companies	3	$2,200		X	
University of Pennsylvania	Chief Executives and Senior Officers of Family-Held Businesses	3	$2,400	X		
Mass. Institute of Techn.	Current Issues in Information Systems	3.5	$2,400			X
Menninger Management Inst.	Work and Family: Understanding Change, Health and Growth	4	$600	O		
Vanderbilt University	Training the Trainer	4	$825			X
Rice University	Finance and Accounting for Non-Financial Managers	4	$995			X
Vanderbilt University	Essentials of Purchasing for the Newly Appointed Buyer	4	$1,025			X
Washington and Lee University	Institute for Family Business	4	$1,350	O		
Case Western Reserve Univ.	Advanced Management Program for M.B.A.'s	4	$1,500	O		
University of Michigan	Cost Effective Purchasing Management	4	$1,640	O		
Vanderbilt University	Effective Marketing Techniques	4	$1,650			X
University of Michigan	Financial Analysis, Planning and Control	4	$1,770	O		
University of Michigan	Business to Business Marketing Strategies	4	$1,770	X		
University of Virginia	Leadership for Extraordinary Performance	4	$2,000	X		
University of Virginia	Managing Organizational and Individual Change	4	$2,000	X		
Northwestern University	Developing a Corporate Pension Strategy	4	$2,300	X		
University of Michigan	Project Management	4	$2,360	X		
University of Michigan	Gaining Competitive Advantage	4	$2,360	X		
University of Pennsylvania	The Next Generation of Family Members in Family-Held Businesses	4	$2,400	X		
Dartmouth College	Stategic Cost Accounting and Control	4	$3,200	X		
Vanderbilt University	What Executives Should Know About Finance and Accounting	4.5	$1,650			X

EXHIBIT 36

Tuition of Programs Greater Than or Equal to One Week

UNIVERSITY-BASED EXECUTIVE PROGRAMS						
(Programs longer than one week)						
		NO.		INCLUD.	INCLUD.	
		OF		ROOM,	MEALS	INCLUD.
UNIVERSITY/INSTITUTE NAME	PROGRAM TITLE	WEEKS	TUITION	MEALS	ONLY	AIRFARE
Texas A&M University	Management Seminar	1	$1,250	O		
University of California, L. A.	Engineering and Management Program	1	$1,795	O		
Indiana University	Values, Choice, and Executive Action-An Executive Devel. Progra	1	$1,800	X		
University of Miami	Minority Executive Program	1	$1,850	X		
Center for Creative Leadership	Implementing Innovation	1	$1,950	X		
University of Houston	Managing Operations	1	$1,950	O		
University of Pittsburgh	Executive Program for Expanding Companies	1	$2,000	O		
Dartmouth College	Minority Business Executive Program	1	$2,200	X		
Texas Christian University	Managing Managers Program	1	$2,250	X		
University of Virginia	McIntire Enterpreneurial Executive Institute	1	$2,250	X		
Northwestern University	Transportation Marketing Strategy	1	$2,290		X	
Northwestern University	Logistics/Distribution Management	1	$2,290	X		
University of Chicago	Product Management: Analysis, Planning, Decision Making	1	$2,295	X		
Cornell University	The Effective Executive	1	$2,495	X		
George Washington University	Managing in the Global Marketplace	1	$2,500		X	
Georgia State University	Management Development Program	1	$2,500	X		
Rutgers University	Advanced Management Program	1	$2,500	X		
University of Tennessee	Engineer/Scientist as Manager	1	$2,500	X		
Carnegie Mellon University	Strategic Management of Technology Through the 1990's	1	$2,600	X		
Center for Creative Leadership	Dynamics of Strategy: Goals into Action	1	$2,600		X	
Washington Campus	Business and the Public Process: How Washington Works	1	$2,600	O		
University of California, L. A.	Advanced Program in Human Resource Management	1	$2,695	X		
Simmons College	Managing with Influence	1	$2,750	X		
University of Virginia	Strategic Management for Line Managers	1	$2,750	X		
University of Virginia	Mergers and Acquisitions: Strategy and Implementation	1	$2,750	X		
Babson College	Changing Role of Procurement Management	1	$2,800	X		
University of Tennessee	Executive Development Program for Distribution Managers	1	$2,800	X		
University of Tennessee	International Logistics Program	1	$2,800	X		

EXHIBIT 36

Tuition of Programs Greater Than or Equal to One Week Continued

Cornell University	Managing the Next Generation of Manufacturing	1	$2,850	X		
Southern Methodist University	Financial Management for Non-Financial Managers	1	$2,950	X		
Center for Creative Leadership	Managing the People Process: From Idea to Market Entry	1	$2,974	X		
Northwestern University	Corporate Financial Strategy	1	$3,100	X		
Northwestern University	Managing Human Resources in Restructuring Organizations	1	$3,100	X		
Northwestern University	Development Manufacturing's Strategic Potential	1	$3,100	X		
University of CA, Berkeley	Competitve Marketing Strategies for Industrial Products	1	$3,100	X		
CA. Institute of Technology	Management of Technology and Innovation	1	$3,150	X		
Babson College	Achieving Global Integration	1	$3,200	X		
Babson College	Managing and Devel. Human Resources: a Strategic Perspective	1	$3,200	X		
Babson College	Market Segmentation Positioning and Competitive Advantage	1	$3,200	X		
Duke University	Dynamics of Competitive Advantage	1	$3,200	X		
Duke University	Managerial Finance	1	$3,200	X		
Penn State University	Management Program for Women	1	$3,200	X		
Penn State University	Industrial Sales Management Program	1	$3,200	X		
University of CA, Berkeley	Management Development, A Comprehensive Approach	1	$3,250	X		
University of Michigan	Management II: A Mid-Management Development Program	1	$3,250	X		
University of Michigan	Applied Methods in Marketing Research	1	$3,250	X		
University of Virginia	Creating the High-Performance Workplace	1	$3,250	X		
University of Virginia	Eval. of Capital Projects: Appraisal in Uncertain Environments	1	$3,250	X		
University of Virginia	Financial Management for Non-Financial Managers	1	$3,250	X		
University of Virginia	The Art of Managing Human Resources	1	$3,250	X		
University of Virginia	The Power of Info.: A Strategic appr. to Manag. Info. Resource	1	$3,250	X		
University of Virginia	Marketing Strategy: Business to Business	1	$3,250	X		
University of Virginia	Sales Management and Marketing Strategy	1	$3,250	X		
University of Washington	International Management: Doing Business in Japan	1	$3,250	O		
University of CA, Berkeley	Advanced Strategic Marketing	1	$3,300	X		
Aspen Institute	Traditional Executive Seminar	1	$3,400	X		
University of California, L. A.	Managing the Information Resource	1	$3,490	X		
Boston University	Strategic Human Resources Management in a Global Economy	1	$3,500	X		
Boston University	Implementing Manufacturing Strategy	1	$3,500	X		
Center for Creative Leadership	Workshop in Organizational Action	1	$3,500	X		
Dartmouth College	Effective Management of Production Operations	1	$3,500	X		
University of Tennessee	Cost Management Institute	1	$3,500	X		
University of Tennessee	Senior Executive Institute for Productivity Through Quality	1	$3,500	X		

EXHIBIT 36

Tuition of Programs Greater Than or Equal to One Week Continued

Northwestern University	Business to Business Marketing Strategy	1	$3,550	X		
Northwestern University	Consumer Marketing Strategy	1	$3,550	X		
Northwestern University	Increasing Sales Force Productivity	1	$3,550	X		
Dartmouth College	Marketing Strategy Program	1	$3,600	X		
University of CA, Berkeley	Corporate Financial Management and Strategy Program	1	$3,600	X		
University of CA, Berkeley	Executive Compensation	1	$3,600	X		
University of CA, Berkeley	Competitive Marketing Strategies for High-Tech Products	1	$3,600	X		
University of CA, Berkeley	Competitive Marketing Strategies for Services	1	$3,600	X		
University of Michigan	Strategies for Global Competition	1	$3,600	X		
University of Michigan	Strategy: Formulation and Implementation	1	$3,600	X		
University of Michigan	Excellence in Service Management	1	$3,600	X		
University of Michigan	Successful Product Innovation	1	$3,600	X		
University of Michigan	Executive Communication	1	$3,600	X		
University of Michigan	Management of Managers	1	$3,600	X		
University of Michigan	Finance for the Non-Financial Manager	1	$3,600	X		
University of Michigan	Negotiating and Administering the Labor Contract	1	$3,600	X		
University of Michigan	Organizational Career Development	1	$3,600	X		
University of Michigan	Strategic Collective Bargaining	1	$3,600	X		
University of Michigan	Strategic Human Resource Planning	1	$3,600	X		
University of Michigan	Applied Product/Market Management	1	$3,600	X		
University of Michigan	Business to Business Marketing Strategies	1	$3,600	X		
University of Michigan	Strategic Marketing Planning	1	$3,600	X		
Menninger Management Institute	Executive Seminar	1	$3,700	X		
Menninger Management Institute	Personal and Interpersonal Dimensions of Leadership	1	$3,700	X		
Stanford University	Effective Management of Production Operations	1	$3,700	X		
Brookings Institute	Understanding Federal Government Operations	1	$3,740	X		
Columbia University	International Strategy	1	$3,750	X		
Columbia University	Managing Strategic Innovation and Change	1	$3,750	X		
Columbia University	Accounting and Financial Manag. for the Non-Financial Exec.	1	$3,750	X		
Columbia University	Financial Management	1	$3,750	X		
Columbia University	Human Resource Management	1	$3,750	X		
Columbia University	Market Analysis for Competitive Advantage	1	$3,750	X		
Columbia University	Marketing Management	1	$3,750	X		
Columbia University	Sales Management	1	$3,750	X		
Columbia University	Operations and Production Management	1	$3,750	X		

EXHIBIT 36

Tuition of Programs Greater Than or Equal to One Week Continued

University of Pennsylvania	Measuring and Managing Service Quality	1	$3,750	X		
University of Pennsylvania	Implementing Strategy	1	$3,750	X		
University of Pennsylvania	Strategic Management	1	$3,750	X		
University of Pennsylvania	Strategy Analysis for Finance and Marketing	1	$3,750	X		
University of Pennsylvania	Managing Organizational Change	1	$3,750	X		
University of Pennsylvania	Managing Technology and Innovation	1	$3,750	X		
University of Pennsylvania	Finance and Accounting for the Non-Financial Manager	1	$3,750	X		
University of Pennsylvania	Financial Management	1	$3,750	X		
University of Pennsylvania	Mergers and Acquisitions	1	$3,750	X		
University of Pennsylvania	Pension Funds and Money Management	1	$3,750	X		
University of Pennsylvania	Advanced Competitive Marketing Strategy	1	$3,750	X		
University of Pennsylvania	Business/Industrial Marketing Strategy	1	$3,750	X		
University of Pennsylvania	New Product Management: Development and Introduction	1	$3,750	X		
University of Pennsylvania	Sales Force Management	1	$3,750	X		
Stanford University	Advanced Management College	1	$3,900	X		
Mass. Institute of Techn.	Executive Program in Corporate Strategy	1	$4,000	X		
Mass. Institute of Techn.	Executive Program in Manage. Issues for Corporate Counsel	1	$4,000	X		
Mass. Institute of Techn.	Executive Program in Mangement of Complex Organizations	1	$4,000	X		
Mass. Institute of Techn.	Executive Program in Japanese Technology Management	1	$4,000	X		
Mass. Institute of Techn.	Executive Program in Financial Management	1	$4,000	X		
Northwestern University	Merger Week	1	$4,100	X		
Center for Creative Leadership	Leadership Development Program	1	$4,200	X		
University of Michigan	Corporate Financial Management	1	$4,200	X		
Columbia University	Leading and Managing People	1	$4,500	X		
Harvard University	Contemporary Developments and Control	1	$4,500	X		
Stanford University	Manufacturing Strategy for Competitive Advantage	1	$4,900	X		
Aspen Institute	Corporation in Contemporary Society	1	$5,300	X		
Center for Creative Leadership	Leadership at the Peak	1	$6,490	X		
Harvard University	Executive Program in Competitive Strategy	1	$7,500	X		
University of Minnesota	Management Academy	1.6	$1,800	O		
Stanford University	Executive Program in the Humanities	1.8	$5,200	X		
Colorado State University	Executive Development Institute	2	$1,695	X		
Texas A&M University	Management Development Program	2	$2,800		X	
Harvard University	Institute for the Management of Lifelong Education	2	$2,980	X		
University of Richmond	Management Development Program	2	$3,950	X		

EXHIBIT 36

Tuition of Programs Greater Than or Equal to One Week Continued

Emory University	Management Development Program	2	$3,975		X	
University of Iowa	Executive Development Program	2	$4,200	X		
Tulane University	Program for Managers	2	$4,250	X		
University of Georgia	Executive Program	2	$4,250	X		X
Princeton University	"Ten Days at Princeton" Foreign Exec. Development Program	2	$4,500	X		
University of Tennessee	Admin. and Service Inst. for Productivity Through Quality	2	$4,500	X		
Rice University	Advanced Management Institute	2	$4,580	X		
Northwestern University	Advanced Transportation Management	2	$4,650		X	
Babson College	Developing Managerial Effectiveness	2	$4,900	X		
Southern Methodist University	Management of Managers: A Leadership Renewal Program	2	$4,950	X		
Carnegie Mellon University	Program for Technical Managers	2	$5,100	X		
University of Maryland	Executive Development Program	2	$5,200	X		
Penn State University	Financial Analysis for Strategic Management Program	2	$5,300	X		
Penn State University	Program for Logistics Executives	2	$5,300	X		
Penn State University	Strategic Purchasing Management Program	2	$5,300	X		
Boston University	Managment Development Program	2	$5,400	X		
Babson College	Technology Managers Program	2	$5,500	X		
Penn State University	Program for Strategic Leadership	2	$5,900	X		
Penn State University	Human Resources Management Program	2	$5,900	X		
Penn State University	Industrial Marketing Management Program	2	$5,900	X		
Penn State University	Manufacturing Strategy and Technology Program	2	$5,900	X		
Penn State University	Engineer/Scientist as Manager Program	2	$5,900	X		
Duke University	Program for Manager Development	2	$6,000	X		
Duke University	Strategic Human Resources Management Program	2	$6,000	X		
Duke University	Marketing Management Program	2	$6,000	X		
University of Virginia	Managing Critical Resources	2	$6,400	X		
University of Virginia	Marketing and Sales Executives	2	$6,400	X		
University of Virginia	Manufacturing Management Program	2	$6,400	X		
Penn State University	Managing the Global Enterprise Program	2	$6,900	X		
University of Michigan	Human Resource Executive Program	2	$7,200	X		
University of Michigan	Manufacturing Executive Program	2	$7,200	X		
Columbia University	Business Strategy	2	$7,500	X		
Dartmouth College	Dartmouth Institute	2	$7,500	X		
Harvard University	Corporate Financial Management	2	$7,500	X		
Harvard University	Managing the Information Services Resource	2	$7,500	X		

EXHIBIT 36

Tuition of Programs Greater Than or Equal to One Week Continued

Harvard University	Strategic Marketing Management Program	2	$7,500	X		
Harvard University	Manufacturing in Corporate Strategy	2	$7,500	X		
University of CA, L. A.	Advanced Executive Program	2	$7,500	X		
University of Michigan	Advanced Human Resource Executive Program	2	$7,600	X		
Stanford University	Executive Program for Smaller Companies	2	$7,950	X		
Stanford University	Financial Management Program	2	$7,950	X		
Stanford University	Marketing Management Program	2	$7,950	X		
Mass. Institute of Techn.	Manag. of R. & D., and Technology-Based Innovation	2	$8,000	O		
Stanford University	Executive Program in Organizational Change	2	$8,950	X		
Stanford University	Engineering Executive Program	2.4	$6,200	X		
Carnegie Mellon University	College Management Program	3	$4,200	X		
University of Minnesota	Management Institute	3	$4,800	O		
Carnegie Mellon University	Senior Executive Seminar	3	$4,900	X		
Texas A&M University	Advanced Management Program	3	$5,300		X	
University of New Hampshire	Executive Development Program	3	$5,700	X		
Indiana University	Managing Business Strategies Program	3	$6,500	X		
Indiana University	Professional Manager Program	3	$6,500	X		
Harvard University	Program for Senior Managers in Government	3	$6,700	X		
University of Tennessee	Institute for Productivity Through Quality	3	$6,700	X		
University of Chicago	Management Development Seminar	3	$6,900	X		
Harvard University	Program for Senior Executives in State and Local Government	3	$7,000	X		
Simmons College	Program for Developing Managers	3	$7,000	X		
University of Virginia	Young Managers' Program	3	$8,500	X		
Northwestern University	Executive Development Program	3	$10,000	X		
University of Pennsylvania	International Forum	3	$30,000	X		
University of Tennessee	Executive Development Program	3.6	$8,700	X		
University of Houston	Executive Development Program	4	$9,950	X		
Ohio State University	Executive Development Program	4	$10,000	X		
University of Illinois	Executive Development Program	4	$10,000	X		
Emory University	Advanced Management Program	4	$11,000	X		
University of CA, Berkeley	Executive Program	4	$11,500	X		
Duke University	Advanced Managment Program	4	$12,000	X		
Penn State University	Executive Management Program	4	$12,500	X		
Penn State University	Program for Executive Development	4	$12,500	X		
Boston University	Leadership Institute	4	$13,500	X		

EXHIBIT 36

Tuition of Programs Greater Than or Equal to One Week Continued

Columbia University	Exec. Program in Business Admin.: Man. the Enterprise	4	$13,500	X		
Columbia University	Exec. Program in International Manag.: Man. for Global Success	4	$13,500	X		
Northwestern University	Advanced Executive Program	4	$13,500	X		
University of Michigan	Executive Program	4	$13,500	X		
Yale University	Executive Management Program	4	$14,500	X		
Dartmouth College	Tuck Executive Program	4	$14,800	X		
University of Minnesota	Executive Program	5	$7,600	O		
Williams College	Executive Program	5	$8,800	X		
University of North Carolina	Young Executives Institute	5	$9,000	X		
University of North Carolina	Executive Program	5	$10,500	X		
Northeastern University	Executive Development Program	5	$10,700	X		
University of Hawaii	Advanced Managment Program	5	$11,000	X		
University of Pittsburgh	Management Program for Executives	5	$11,500	X		
Cornell University	Executive Development Program	5	$12,500	X		
University of Pennsylvania	Wharton Advanced Management Program	5	$18,250	X		
Louisiana State University	Executive Program	6	$3,500	X		
Smith College	Management Program	6	$13,900	X		
Carnegie Mellon University	Program for Executives	6	$16,100	X		
University of Virginia	Executive Program	6	$18,000	X		
Wabash College	Executive Program-A Personal Development Program	7	$9,000	X		
Harvard University	Program for Senior Executive Fellows	8	$15,500	X		
Simmons College	Program for Developing Executives	8	$17,500	X		
Stanford University	Executive Program	8	$22,600	X		
University of Arizona	Executive Development Course	9	$2,900	X		
Harvard University	International Senior Management Program	9	$27,500	X		
Harvard University	Owner/President Management Program	9	$29,625	X		
Mass. Institute of Techn.	Program for Senior Executives	9	$29,850	X		
Harvard University	Advanced Management Program	11	$29,000	X		
Harvard University	Program for Management Development	12	$29,000	X		
University of North Carolina	Program for Technology Managers	15	$5,745	X		
University of Illinois	Specialized Program for International Managers	18	$5,900	O		
Princeton University	Executive Education Program in Public Affairs	30	$15,540	O		
Stanford University	Sloan Program	39	$34,900	O		
University of Illinois	Program for International Managers	52	$17,700	X		
Mass. Institute of Techn.	Sloan Fellows Program	52	$36,500	O		

CHAPTER III

SURVEY

3.1 Introduction

This survey was designed to obtain a response from a sample of companies doing work in the field of construction. The focus was on Executive Education Programs, both in-company and university-based. The information retrieved from the questionnaire would help in assessing the interest in, existing participation in, and possible demand for these educational programs in the construction industry.

There were two mailings of the survey. The first was in the spring of 1991. Five Hundred companies were selected from the Center for Construction Research and Education's mailing list that were believed to be design firms, construction companies or construction management firms. The companies were then chosen if there was an individual identified as a contact person. The individual preferably had the title of President, Vice President, Chief Executive Officer, Director of Human Resources or the like. The first mailing resulted in 82 responses (16.4%). Sixty-six (13.2%) of the responses were completed surveys used in the final analysis. Forty-two (63.6% of the 66) respondents identified themselves and their companies, therefor 24 (36.4% of the 66) were anonymous. The remaining 16 returned surveys of the total responses were unusable and returned for various reasons such as the individual has left the company or retired or is not interested in completing the questionnaire.

The second round of surveys was mailed in the early part of the summer of 1991. Again five-hundred names and companies were selected. This time the sources were *Engineering News Record's* "Top 500 Design Firms", "Top 400 Contractors", "Top 100 Construction Management Firms", the American Consulting Engineers Council's Directory, and other minor secondary sources. I endeavored not to repeat any companies both in a mailing and with the previous mailing. Again officers of the companies

or Human Resources/Training and Development personnel were identified to direct the questionnaire to.

This mailing also resulted in 82 responses. Seventy-two (14.4%) of the responses were completed and used in the analysis. Thirty-four (47.2% of the 72) respondents identified themselves, therefor 38 (52.8% of the 72) were anonymous. The remaining 10 returned surveys were unusable for basically the same reasons as the first mailing.

The survey analysis was based on a total of 1000 initial mailings and a response of 138 (13.8%) completed, useable questionnaires. The analysis will be broken down into five parts. The first will involve information about the respondent. The second part will cover aspects about the respondent's company that help identify the interests of that company. The third part will be an overview of Executive Education Programs and the companies' interest in and participation in these educational programs. The fourth part will analyze the respondent's ideas about their company's participation in In-Company Executive Education Programs. The last section will analyze the respondent's ideas about the company's participation in University-Based Executive Education Programs. Each section begins with a brief discussion of the findings followed by related charts and tables.

Each of the one-thousand companies received a small packet of material. First was a cover letter informing the recipient of my intention in addressing the survey to him or her and instruction on redirecting the questionnaire to the appropriate person or department if they are unable to complete the questionnaire themselves. Next was a page describing my intent for gathering information on company participation in and demand for executive education programs, both in-company and university-based. A deadline for returning the questionnaire was given for each mailing. A return postage paid envelope was included. The questionnaire consisted of 24 questions and was printed on both sides of two legal size sheets of paper. See Appendix A-11.

This report presents a statistical summary of the research findings. It is not intended to be an in-depth analytical treatment of the survey results, but rather a descriptive discussion of trends in the

construction field toward executive education and development. The completed questionnaire results for each company and question is located in the Appendix. See A-12a through A-12f. This twenty-three page exhibit lists the 138 respondents randomly, but, identifies their particular response to each question according to their number.

The 1991 survey was designed to chart executive education and development trends across three major construction industry groups: Design Firms, Contraction Companies, and Construction Management Firms. The 1000 companies receiving the questionnaire were selected from the mailing lists and sources described above. This report presents a composite analysis of the survey findings. Where appropriate and where noticeable differences were found, comparative results across the three subgroups are reported.

3.2 RESPONDENTS

As stated in the introduction to this section, the surveys were addressed to the officers or Human Resources/Training and Development personnel for each company. The questionnaire could then be completed by that person or passed to a more relevant person. The 138 participating individuals completing the questionnaire for each respective company are profiled in Exhibits 36, 37 and 38. The position titles and functional areas of the individual respondents are depicted in Exhibits 37 and 38. The ages of the respondents are in Exhibit 39.

Over 60% (of the total 138 usable questionnaires) of the respondents were Presidents or Vice Presidents of their companies. A few Presidents indicated that they were also the company's CEO or a Chairman of the Board. About half of the Vice Presidents indicated that they were *Executive* Vice Presidents or VP's of particular divisions such as Operations or Research and Development. Managers made up almost 11% of the sampling. Of the 15 Managers, one third were from the Human Resources department. Almost half were from Operations and the remaining were from technical departments such as Research and Development or Contracts and Project Administration.

Chairmen and CEO's comprised over 9% of the sample. Human Resource directors were over 50% of the respondents that indicated that they were directors which comprised almost 8% of the total. Partners were respondents to 8 (5.8%) of the questionnaires. Engineers were respondents only twice. Titles that did not fall into these categories were classified as "Other" and comprised 2% of the total.

The respondents were asked to indicate which functional area from within the company they work. It was sometimes difficult to distinguish between the Executive Office, the Corporate Office, General Management, and Administration. Many times presidents or CEOs indicated they did it all and I would group them in the Executive Office category (21.74%) unless they made a specific reference to Administration or another group. For the most part, I put respondents in the group that I felt best fit their description of their job function.

Though only 1.45% of the respondents indicated that they were engineers, almost 19% (second largest group) indicated that their function within the company was Technical, Engineering or Architectural. General Management, Administration, Human Resources, Corporate Office, and Operations where very close in representation and in total comprised over 50% of the total sampling. Only 9 individuals (5.52%) worked in Marketing and Sales or Finance.

Ninety percent of the respondents were men, while only 8% were women, leaving 2% unidentified. The ages of the respondents ranged from 25 to 80. The largest number of respondents, 50%, were between the ages of 45 and 59. Seventy-five percent of the respondents were between the ages of 40 and 64.

3.3 THE COMPANIES

The respondents were asked to classify their companies either as a Design Firm, a Construction Company or a Construction Management Firm. These subgroupings were then used along with the total sampling to analyze main trade practices, number of salaried employees, total company billings, and billings according to classification of work.

These analyses are diagramed in Exhibits 40 through 51 located at the end of the chapter.

(See Exhibit 40) Sixty-six (47.83%) respondents indicated that their companies were Design Firms. Construction Companies were represented by 59 (42.75%) of the respondents and Construction Management Firms were represented by 7 (5.07%) of the respondents. A little over 4% of the respondents indicated various combinations of these three classifications or they left the question blank.

(See Exhibits 41, 42a, 42b, 42c) The respondents were given fourteen trade practices to choose from in identifying what their company's main area of concentration is. The fourteen trade practices were then condensed to best reflect the responses.

Engineer/Architect: formerly Engineer-Architect, Architect-Engineer, Architect

Engineer/Design Construction: formerly Engineer-Constructors, Design-Constructors

Consulting Engineer: formerly Pure Consulting Engineer, Soils/Geotechnical Engineer

Construction Manager: formerly Project Manager, Pure Construction Manager

Prime/General Constructor: formerly Prime Contractor, General Contractor

Subcontractor remains as such

Other: were respondents who did not complete this section or indicated other practices.

The group with the largest representation was Prime/General Contractors. Fifty-one of 138 respondents (36.96%) chose this area of concentration to best describe their company's main trade practice. Consulting Engineers were the next largest representing 38 (27.54%) of the 138 respondents. Engineer/Architects comprised 26 companies which was 18.84% of the total. Subcontractors and Construction Managers were the smallest groups representing 3.62% and 2.17% respectively.

The total number of respondents were then broken down into their subgroupings; Design Firm, Construction Company, Construction Management

Firm. Each subgrouping was then analyzed by main trade practices. Fifty-three percent of the Design Firms chose Consulting Engineer as their main trade. Engineer/Architect as 37.88% of the total and Engineer/Design Constructors and Construction Manager complete this subgrouping with 7.58% and 1.52% respectively.

The Construction Company subgrouping was comprised mostly of Prime/General Contractors (77.97%). This represented 108 companies. Engineer/Design Constructors, Subcontractor, and Consulting Engineer completes this subgrouping with representation of 11.86%, 8.47%, and 1.69% respectively.

The seven construction Management Firms were concentrating in the areas of Prime/General Contractor (42.86%), Consulting Engineer (28.57%) and Construction Manager (29.57%).

(See Exhibits 43, 44, 45a, 45b, 45c) The number of salaried employees for all companies responding ranged from 0 to 4000. Almost 50% of the 138 companies have between 0 and 100 salaried employees. Seventy-five percent of the companies have less than 300 salaried employees. There was then a gap between 300 and 500 employees making the next largest group, at 14.5%, the companies with from 500 to 4000 employees.

The breakdown of the subgroupings by number of salaried employees followed closely to the percentages of the total sampling. The largest number in all three subgroupings was the 0 to 100 salaried employees range. Breaking this down further shows that among the 66 Design Firms, companies having between 11 and 25 salaried employees made up almost 25% of the total, followed closely by firms having 26 to 50 salaried employees. The Construction Company subgrouping indicate having over 35% representation in the group of 0 to 10 salaried employees. The next largest was companies having 11 to 25 salaried employees with over 25% of the total 59 companies. The Construction Management Firms were combined with the subgroup representing "Other" companies. Within this group companies with from 26 to 50 salaried employees comprised 38.46% of the total and all other ranges were equal at 15.38%.

(See Exhibits 46 through 51.) The respondents were asked to indicate their company's billing for 1990. Thirty-one percent of the

billing ranged from $2 million to $19.99 million. Twenty-one percent of the billings ranged from $50 million to $99.99 million. Over 83% of the total billings ranged from $2 million to $299.99 million.

The respondents then completed the question classifying the billings according to specific areas of the construction industry. The respondent was to use percentages to indicate all areas in which their company worked. Using the total sampling of 138 companies, the most common response, with 62% of the companies doing some proportion of their work in this area, was General Building. About 40% of the respondents' companies worked in the fields of Transportation and/or Sewer/Waste Control. Twenty to thirty percent of the companies did work in Water Supply Systems, Industrial Process/Petrochemicals, Hazardous Waste, Manufacturing Plants and/or Power Systems. Some other areas of work which contributed to their billings were heavy construction and highways, surveying, site planning, environmental reports, mining, marine design and fisheries.

The companies proved to be very diverse in their activities and this is illustrated in Exhibits 47b, 48b, 49b, and 50b. Respondents indicated what percent each activity comprised their total billings. The largest percentage group was "</= 10%" meaning that the companies billings were made up of 10% or less of a number of different activities as opposed to 50% or more of one or two activities.

There were, however, a good number of companies that did specialize in one activity. Their response would indicate billings of 100% in an area. The most popular area in this group is General Building (55%). Next would be Transportation and Industrial Process/Petrochemicals each with 12% of this group.

The individual subgrouping's breakdown approximately repeats the findings from the total sampling. General Building accounts for the largest area of billings by the most responding companies, followed by Transportation and Sewer/Waste Control. The subgroupings also showed to be very divers in their activities because, again, most companies participated in each of these activities less than or equal to 10% of their total billings.

3.4 EXECUTIVE EDUCATION PROGRAMS

The term "Executive Education Programs" refers to the training, development, and enhancement of engineering, architectural, consulting and contracting skills in the construction field for middle-level management and senior-level management. The respondents were asked to complete this questionnaire, for both In-Company Executive Education Programs and University-Based Executive Education Programs, with this definition in mind and for employees that fit this definition. The results of the participating individuals completing these questions for each respective company are profiled in Exhibits 52 through 55.

Only six of the fifty-nine Construction Companies, twelve of the sixty-six Design Firms and two of the seven Construction Management Firms had formal requirements for their middle-level and senior-level managers to participate in some form of Executive Education Program. Over 85% of the total 138 companies had no such requirement but often sponsored or encouraged some form of educational development program.

Of the salaried employees within each company only a small percentage of each were eligible to participate in Executive Education Programs. Over 80% of the 138 companies stated having less than 100 eligible employees.

Over 45% of the total 138 companies stated that they do offer or can offer in-company and university-based programs. Almost 19% stated that they use only in-company programs. Over 15% stated that they use university-based programs only. Twenty percents indicated that no executive education programs are offered.

The proportions are similar when you break this sampling into the subgroupings. Again, the majority of the Design Firms (50%), the Construction Companies (42.37%) and the Construction Management Firms (71.42%) all indicate that both forms of executive programs are offered or can be offered. Over 25% of the Design Firms state that only in-company programs are offered. While 13.56% and 14.29% of the Construction Companies and Construction Management Firms offer only in-company programs. Over 18% of the Construction Companies offer only

university-based programs only, while 10.6% of the Design Firms only offer these programs. The Construction Management Firms indicate that they do not offer University-Based Executive Education Programs.

Executive Education Programs Offered by Companies

INDUSTRY SEGMENT	NONE	UNIVERSITY & IN-COMPANY	UNIVERSITY ONLY	IN-COMPANY ONLY
Overall Industry	20.29%	45.65%	15.22%	18.84%
Design Firms	13.63%	50%	10.61%	25.76%
Construction Companies	25.43%	42.37%	18.64%	13.56%
Construction Management Firms	14.29%	71.42%	0%	14.29%

Respondents were asked to review a list of potential program topics and subject matter that could be incorporated in Executive Education Programs. The respondents were asked to indicate to what extent they believed each topic is valued by their company. A number range was given with "1" being not valued or the least valued and "5" being the most valued. The following is the list of topics and their score in order of most valued to least valued.

	PROGRAM TOPICS AND SUBJECT MATTER	SCORE
1.	Project Management	560
2.	Leadership, Motivation, Communication	537
3.	Project Control, Scheduling, Estimating	521
4.	Corporate/Business Strategy Development	488
5.	Executive Decision Making	480
6.	General Management	479
7.	Marketing	468
8.	Emerging Technologies and Technology Trends	458
9.	Emerging Markets and Market Trends	450

10.	Law in the Construction Industry	420
11.	Strategy Implementation	416
12.	Finance and Accounting	410
13.	Organizational Change and Development	405
14.	Human Resource Management	403
15.	Production and Operations Management	386
16.	Information and Decision Support Systems	380
17.	Technology Management	362
18.	Executive Computer Skills	342
19.	Sales Management	340
20.	Business-Government Relations	312
21.	Logistics Management	310
22.	Mergers, Acquisitions and Divestitures	278
23.	Research and Development Management	262
24.	Global Business Environment	258
25.	International Finance	218
26.	World Trade and Economics	209
27.	Humanities and Liberal Arts	204

The top ten topics of interest for Design Firms, Construction Companies and Construction Management Firms are separately listed below. Note that approximately 80% of the top ten topics are identical among subgroupings. One difference is that Emerging Markets and Market Trends, and Human Resource Management falls within the top ten for Design Firms only. Law in the Construction Industry is found in Construction Companies' and Construction Management Firms' top ten rankings only. Strategy Implementation is only located in the top ten ranking for Construction Companies. Production and Operations Management, and Organizational Change and Development are topics found only in Construction Management Firms' top ten list.

	DESIGN FIRMS' TOP TEN LIST OF PROGRAM TOPICS AND SUBJECT MATTER	SCORE
1.	Project Management	272
2.	Leadership, Motivation, Communication	244

3.	Project Control, Scheduling, Estimating	244
4.	Corporate/Business Strategy Development	236
5.	Marketing	223
6.	General Management	222
7.	Emerging Markets and Market Trends	219
8.	Emerging Technologies and Technology Trends	213
9.	Executive Decision Making	211
10.	Human Resource Management	188

	CONSTRUCTION COMPANIES' TOP TEN LIST OF PROGRAM TOPICS AND SUBJECT MATTER	SCORE
1.	Leadership, Motivation, Communication	240
2.	Project Management	235
3.	Project Control, Scheduling, Estimating	224
4.	Executive Decision Making	221
5.	Corporate/Business Strategy Development	211
6.	Emerging Technologies and Technology Trends	203
7.	General Management	202
8.	Law in the Construction Industry	201
9.	Marketing	201
10.	Strategy Implementation	191

	CONSTRUCTION MANAGEMENT FIRMS' TOP TEN LIST OF PROGRAM TOPICS AND SUBJECT MATTER	SCORE
1.	Leadership, Motivation, Communication	30
2.	Project Management	29
3.	General Management	28
4.	Project Control, Scheduling, Estimating	28
5.	Emerging Technologies and Technology Trends	25
6.	Executive Decision Making	25
7.	Law in the Construction Industry	25
8.	Production and Operations Management	24
9.	Marketing	23

Other topics of interests that were mentioned by at least one of the respondents were: Ethics in Business, Listening Training, Labor-Management Relations, Presentation Skills, Quality Assurance, and How to Perform Construction Work Outside the United States.

3.4.1 IN-COMPANY EXECUTIVE EDUCATION PROGRAMS

The respondents were asked to complete this section according to what they believe best represents their company's actions and attitudes towards In-Company Executive Education Programs. Of the 138 respondents, only 75% on average answered this section of the questionnaire, therefor the analysis reflects this response. The graphs represent participation by each of the subgroupings. These analyses are diagramed in Exhibits 56 through 63.

In-Company Executive Education Programs were offered and/or available to eligible executives by eighty-nine (64.5%) of the responding companies. Fifty-six percent of these are Design Firms, 37.08% are Construction Companies, and 6.74% are Construction Management Firms.

Forty percent of the companies completing this section of the questionnaire stated that only top managers select the Executive Education Programs and individuals to participate in these programs. Fifteen percent of the companies stated that only immediate supervisors are responsible for this task. Only 9% of the companies felt that all levels of management as well as the participant should have some input in who participates in in-company programs and what the programs should be. Another 9% felt that everyone superior to the individual should choose the contents of the program and who attends.

Eighty-five percent of the respondents said that in-company programs are offered and available to both middle-level managers and senior-level managers. Thirty percent of the respondents said that these programs

are only available to middle-level managers while only 2% stated that only senior level managers are eligible for these programs.

The median number of in-company program enrollment during 1990 for the survey population as a whole was twenty but in this particular year, 30% of the companies had between 26 and 100 participants in these programs. From one to five years ago the median number was twenty-five. From five to ten years ago the median number of participants was twenty. In the last two time periods, the largest number of participants were in the "26 to 100" category.

The companies' level of activity in In-Company Executive Education Programs was shown to have no current intent to change in 36% of the sampling. More than 21% of the survey respondents expected their level of in-company activities to increase by more than 10% while an additional 20% expected an increase of up to and including 10%.

An analysis of the typical desired length of in-company programs is given in Exhibit 61. Of the 138 companies, almost 50% indicated that the preferred length of in-company programs was from one to two days. Almost 30% preferred three to five days with 2% preferring programs longer than two weeks.

Traditionally, four groups of people have played major roles in the development and delivery of In-Company Executive Education Programs; corporate training staff, other company personnel, professional consultants, university faculty. Survey participants were asked to indicate the degree to which each of these resource groups was relied upon in the development and delivery of their company's in-company executive education efforts.

The various levels of involvement for each group in the development of in-company programs is on Exhibit 62. Professional consultants were shown to have at least 30% of the responsibility for the development of such programs by 19% of the companies. Company personnel other than training show to be active in this development also, with 15% of the companies relying on these personnel to contribute to 50% of the development of programs.

Analysis of the data on the delivery of in-company programs presented a very similar scenario. Again professional consultants

participated in the delivery of at least 30% of the programs almost 20% of the time. Again company personnel other than training seemed to deliver at least 50% of the program material for 16% of the companies.

3.4.2 UNIVERSITY-BASED EXECUTIVE EDUCATION PROGRAMS

Like the previous section, the respondents were asked to complete this section according to what they believe best represents their company's actions and attitudes towards University-Based Executive Education Programs. Of the total 138 respondents, only 70% on average answered this section of the questionnaire, therefor the analysis reflects this response. The graphs represent participation by each of the subgroupings. These analyses are diagramed in Exhibits 64 through 69.

University-Based Executive Education Programs were offered and/or available to eligible executives by eighty-four (60.9%) of the responding companies. Over forty-seven percent of these are Design Firms, 42.86% are Construction Companies, and 5.95% are Construction Management Firms.

As in contrast to in-company programs, the individuals have more input in their participation in and the selection of university-based programs. Thirty-four percent of the companies completing this section of the questionnaire stated that the individual participant identifies the desire to attend a university-based program. Thirty-one percent of the companies stated that the suggestion and responsibility for selecting programs and participants lies with the top managers. Almost eight percent of the companies stated that only immediate supervisors are responsible for this task. Eleven percent of the companies felt that all levels of management as well as the participant should have some input in who participates in university-based programs and what the programs should be. The rest of the categories, being combinations of the above, represent 2% to 4% of the total companies.

Eighty percent of the respondents said that University-Based Executive Education Programs are offered and available to both middle-level managers and senior-level managers. As in contrast to in-company programs, over 16% of the respondents said that these programs are only available to senior-level managers while 4% stated that only middle-level managers are eligible for these programs.

The median number of university-based program enrollment during 1990 for the survey population as a whole was three and in this particular year, 63% of the companies had between one and five participants in these programs. From one to five years ago the median number was eight. From five to ten years ago the median number of participants was also eight. In the last two time periods, the largest number of participants were in the "</= 5" category.

The companies' level of activity in University-Based Executive Education Programs was shown to have no current intent to change in 41.5% of the sampling. Almost 18% of the survey respondents expected their level of university-based activities to increase by more than 10% while an additional 32% expected an increase of up to and including 10%.

An analysis of the typical desired length of university-based programs is given in Exhibit 69. Of the 138 companies, 33% indicated that the preferred length of university-based programs was from three to five days. Almost 20% preferred one to two days with 18% preferring programs longer than two weeks. This is quite different than in-company programs which show to be more desirable if they are shorter.

3.4.3 Perceived Benefits of Executive Education Programs

The respondents of the survey were asked what they perceived the benefits are to both In-Company and University-Based Executive Education Programs. Beyond the educational value of both programs, most respondents quite sensible stated that In-Company Programs are more company specific and as such represent the company's philosophy and culture better. The company's needs are also met by having these

programs flexible, convenient, accessible and less costly. Just as praiseworthy were the additional benefits to University-Based Programs. Respondents felt that solid training and development is achieved in a academic setting away from the distractions of the office. Outside exposure to other viewpoints and networking with leaders in the industry can be as vital and enlightening as learning about new technologies and business strategies.

Generally, the respondents felt that the two types of programs work best as complementary components to the development of executives and business strategies. Companies benefit most when executives are exposed to both educational programs. In-Company programs are important to shape the individual into the manager the company needs to operate and function and University-Based programs are important to develop the manager into the executive the company needs to survive in the industry.

Perceived Benefits of In-Company Programs

Benefit	Response Frequency
Program more specific to the company and its needs. Acquire company specific knowledge, policies, practices, business strategy, philosophy, and style. Uniform presentation of customized topics.	49%
Improve productivity, manager effectiveness, strengthens the organization by increasing quality and enhancing revenues and profit.	44%
Flexibility to company schedule. Lower cost to educate more. Savings on time away from clients and the office. Convenience of in-house location.	33%
Provide interaction with company personnel. Improve in-house communication and morale.	21%

Perceived Benefits of University-Based Programs

	Response

Benefit	Frequency
Professional instruction in an academic setting. Learning new technologies, management information and business technics. A broader base of resources and information. Expertise in areas in which the company is not capable of providing.	73%
Develop networking capabilities with executives from other companies and industries. Learn how others are dealing with business problems and situations.	36%
Improve productivity, upgrade manager skills, effectiveness and motivation, strengthens the organization by increasing quality and enhancing revenues and profit.	25%
More able to concentrate on learning when away from the distractions of the office and the normal work environment.	21%
Improves relationship between executive and company. Participation is seen as a benefit	8%
Easy to plan for and participate in. Costs and time frames are set. Planning is done by others.	6%

NOTES:

* Respondents could indicate more than one benefit in each type of program.
* See Appendix A-13 and A-14 for the complete listing of perceived benefits from the respondents.

3.4.4 Additional Comments

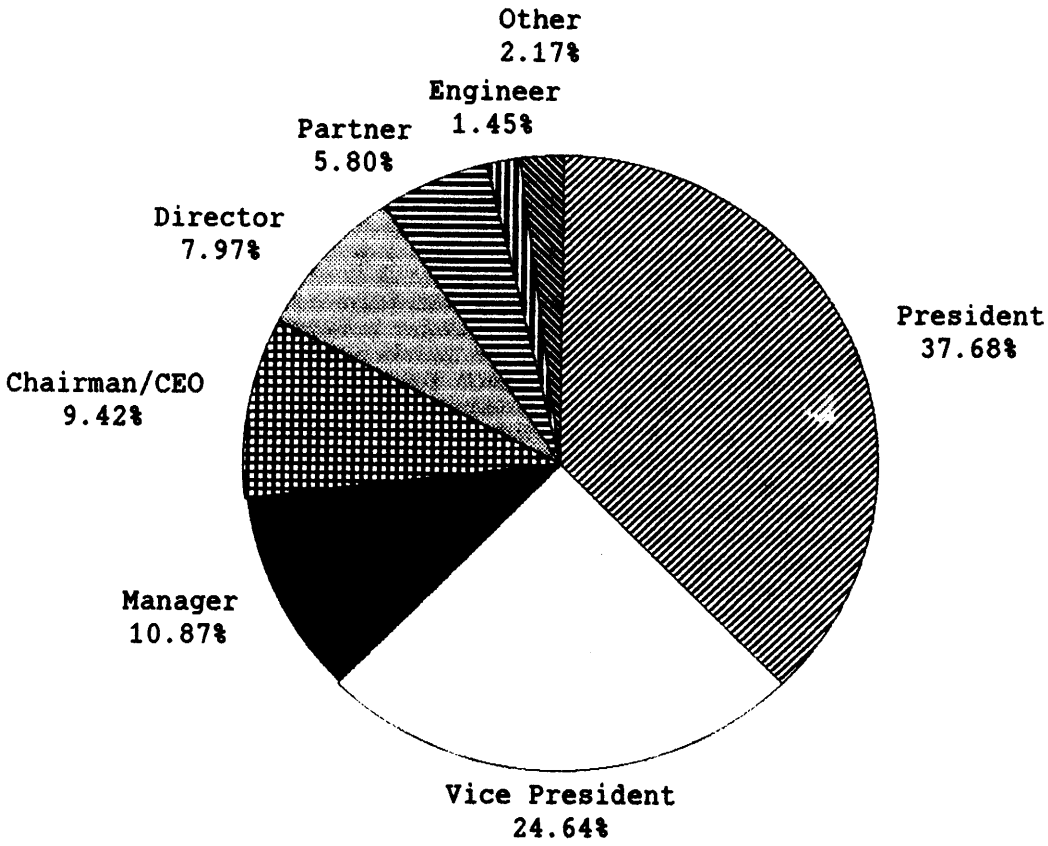
At the end of the survey respondents were given the opportunity to write additional comments. Usually the comments were a more personal opinion of the company's efforts to further educate their managers and executives. "I have tried to put together a university program for our facility. To be administered on Saturdays. This was at the instruction of executive management. I found that local universities utilize an adjunct faculty, not really connected to the university, for this

purpose. That coupled with the logistics of Saturday scheduling doomed this effort. I personally feel that sending a few executives at a time to proven university programs is the best for our purposes."

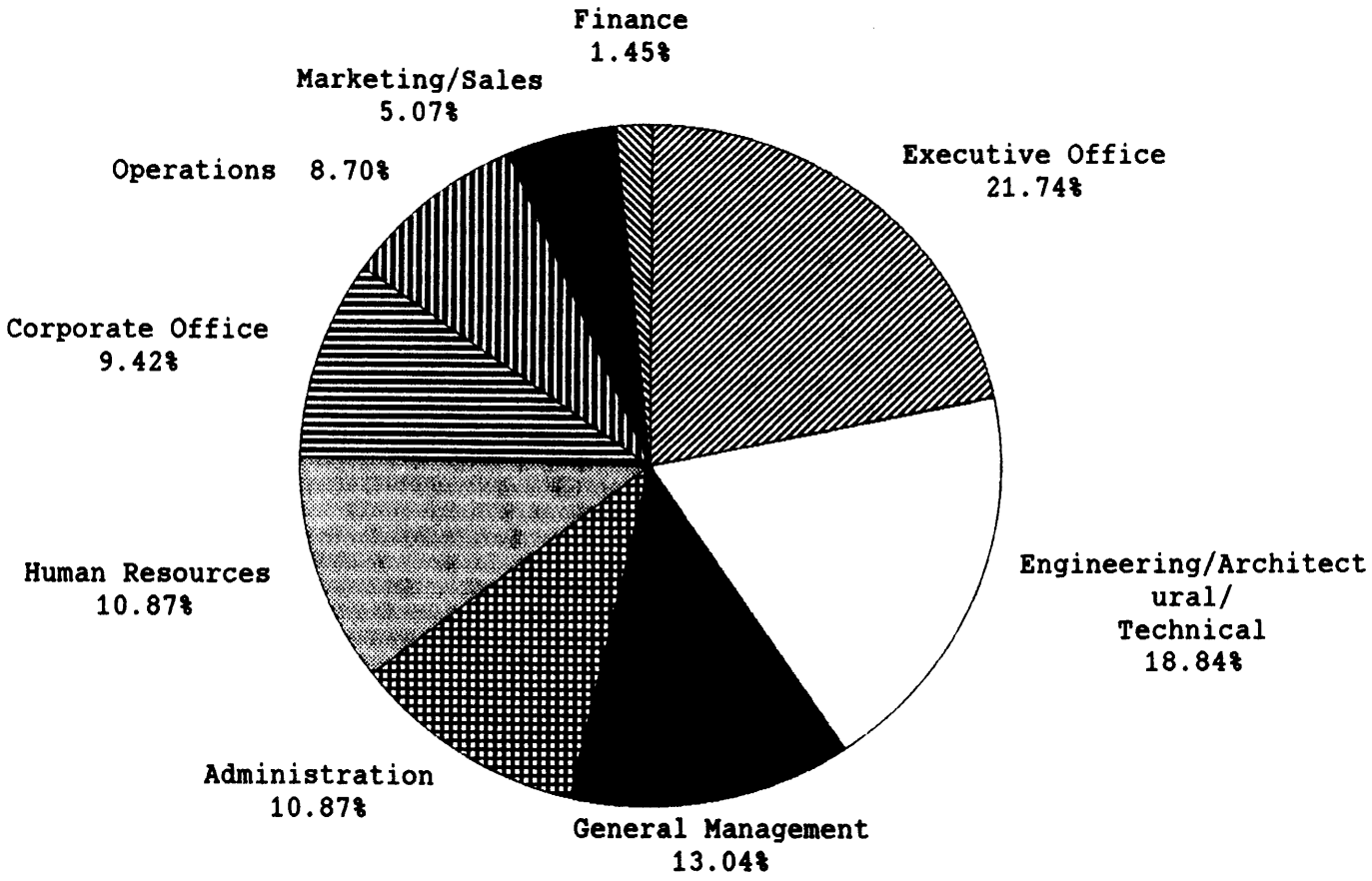
Many respondents indicated that their company has participated in seminars and courses organized by consulting agencies, institutions or professional societies. The Associated General Contractors of America, the American Society of Civil Engineers, and the Fails Management Institute were three such organizations that were mentioned. "Over the past two years, the importance of professional society participation as part of individual education has received increasing emphasis within this company." "We've been much more successful bringing in industry consultants to provide training programs, compared to sending people to college campuses."

In general the comments throughout the survey were positive views of the two forms of executive education. (See Appendix A-15 for the complete list of additional comments.) Occasionally, though, there were negative attitudes towards academic settings. "University based programs are much higher priced. So much [of the course] is not applicable, but not all of it is bad." "Most university-based programs are too academic and are taught by people who have never made a mistake in the real world. We do a better job with in-house people who are practitioners with a lot of experience." "Executive training programs tend to be expensive and in many cases cost prohibitive for the small to medium size firms, especially in todays economic conditions."

Title of Respondents - All Companies
(Total = 138 Companies)



Functional Area of Respondents - All Companies
(Total = 138 Companies)



Age of Respondents for all Companies
(Total = 138 Companies)

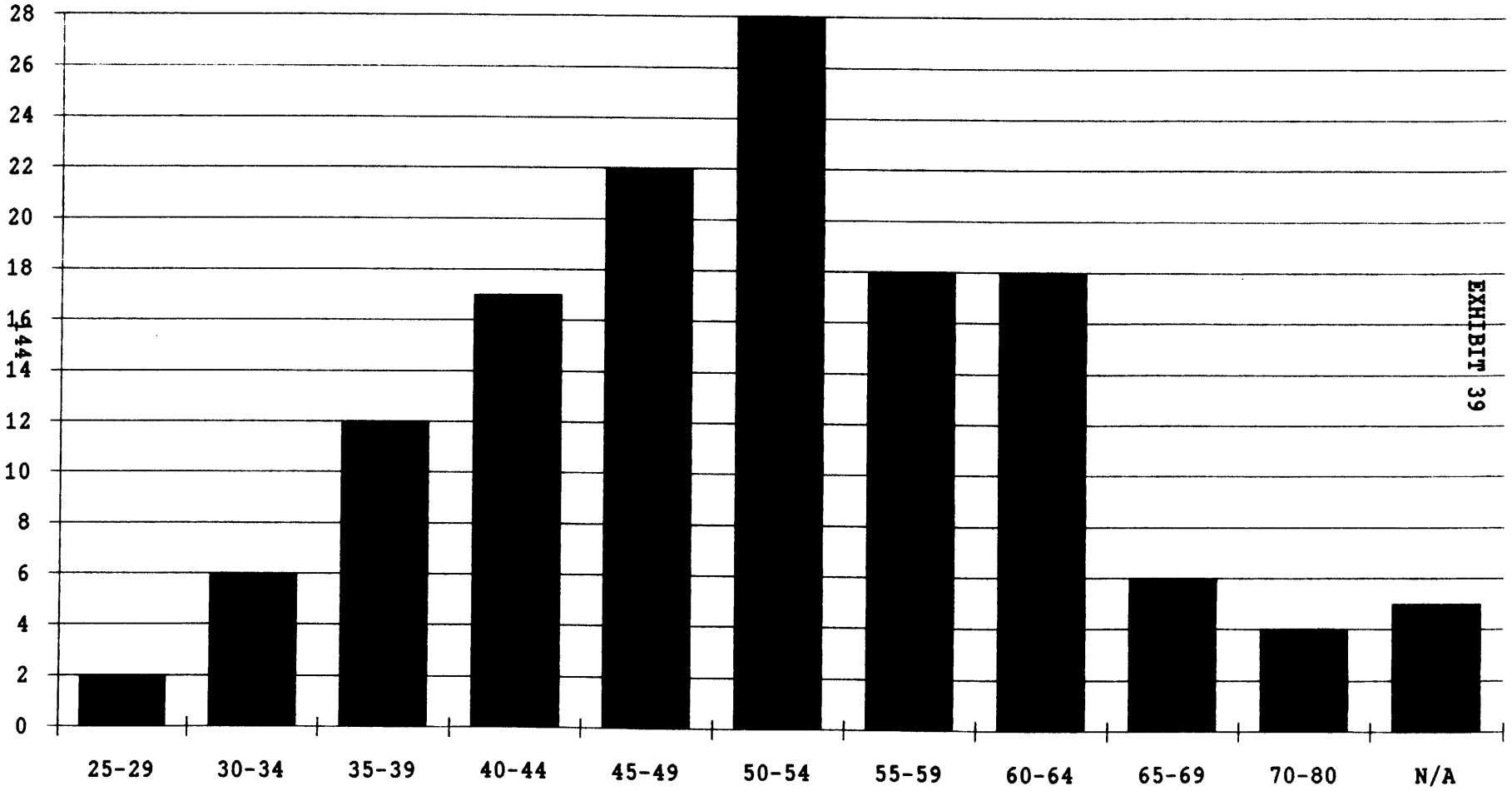
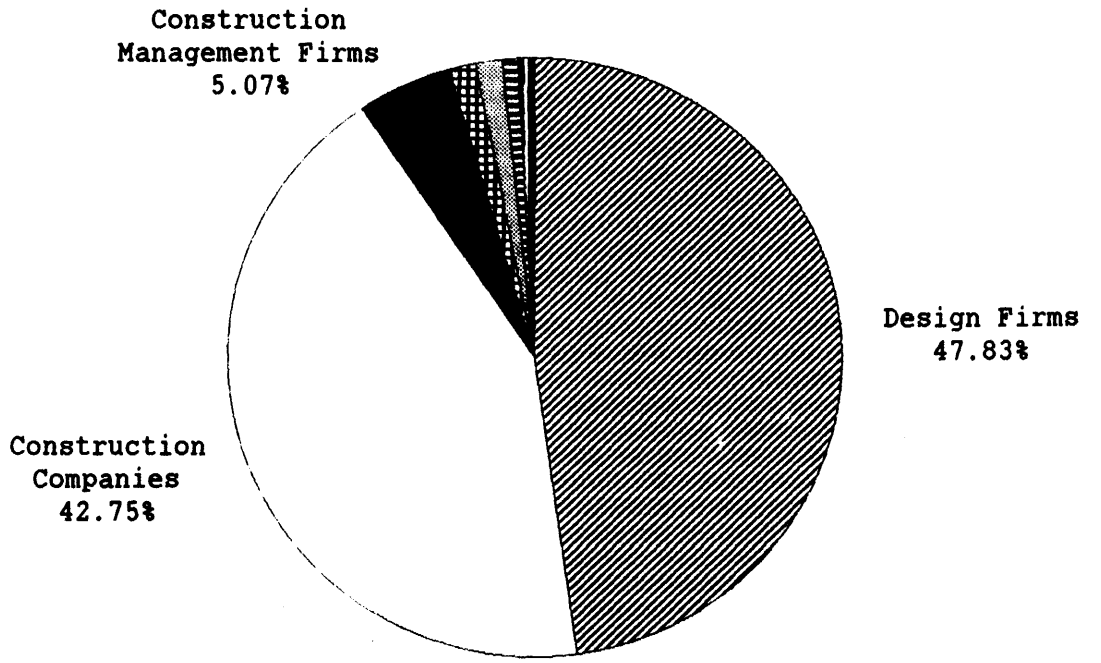
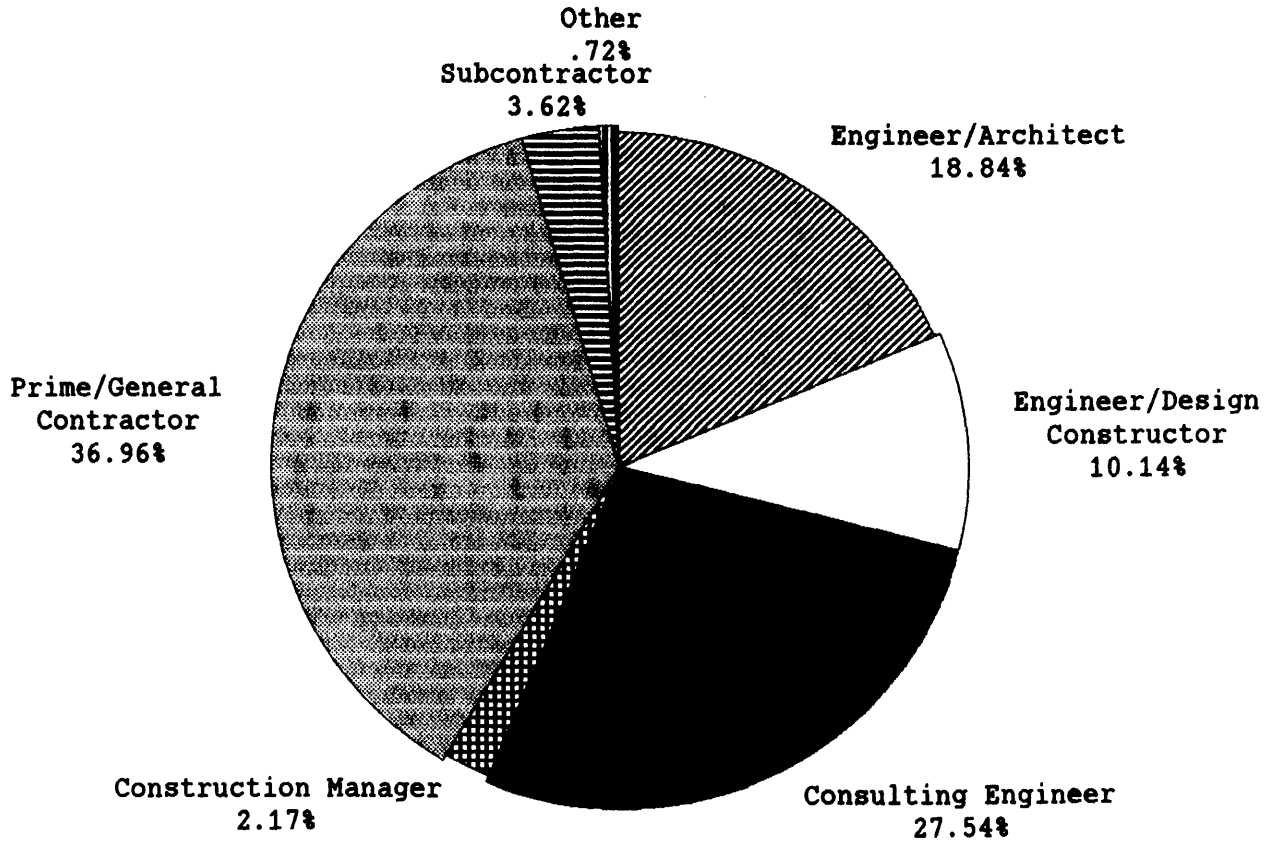


EXHIBIT 39

Construction Industry - Respondent Subgrouping
(Total = 138 Companies)



Construction Industry - Total Respondents by Main Trade Practice
(Total = 138 Companies)



Design Firms by Main Trade Practice
(Total = 66 Companies)

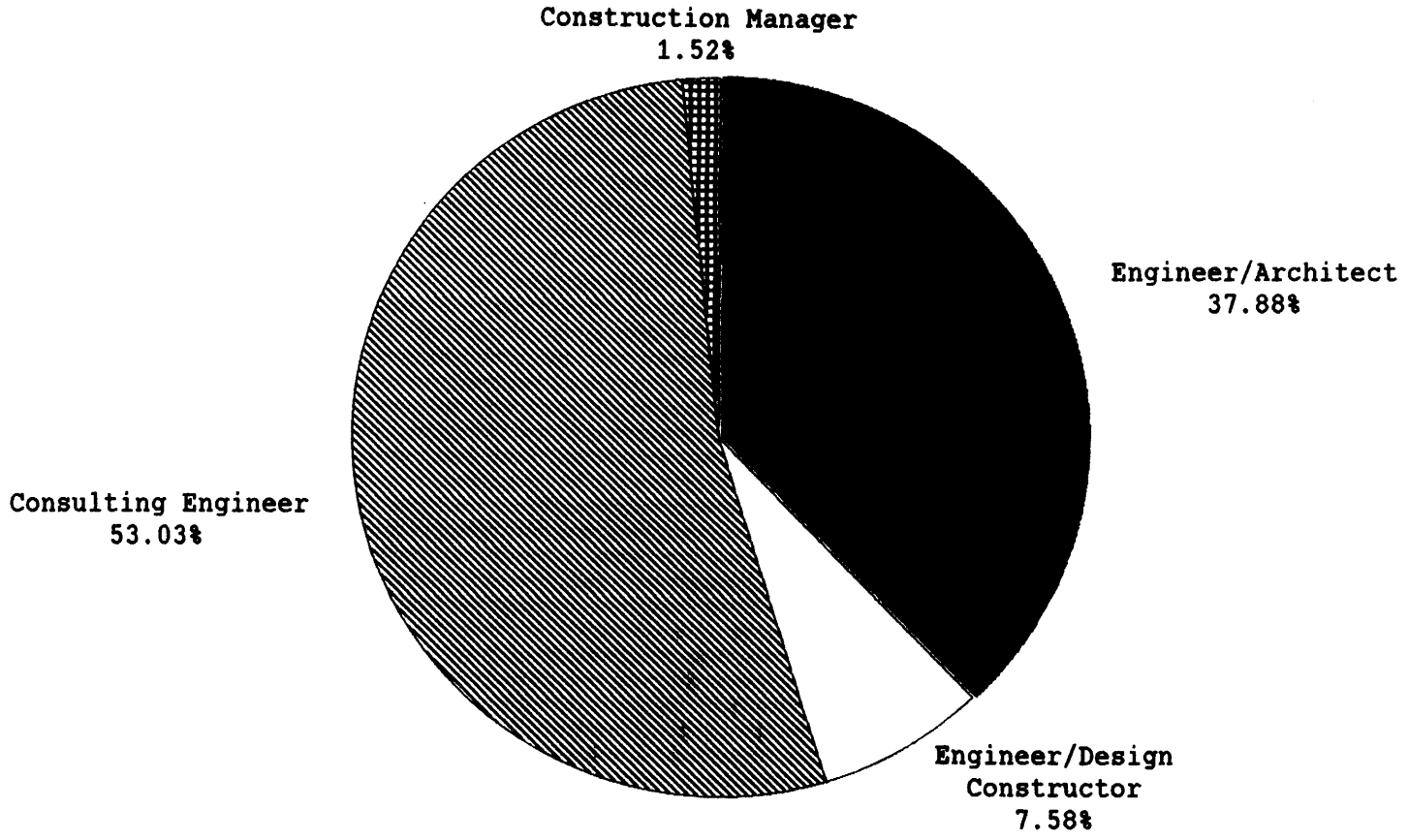
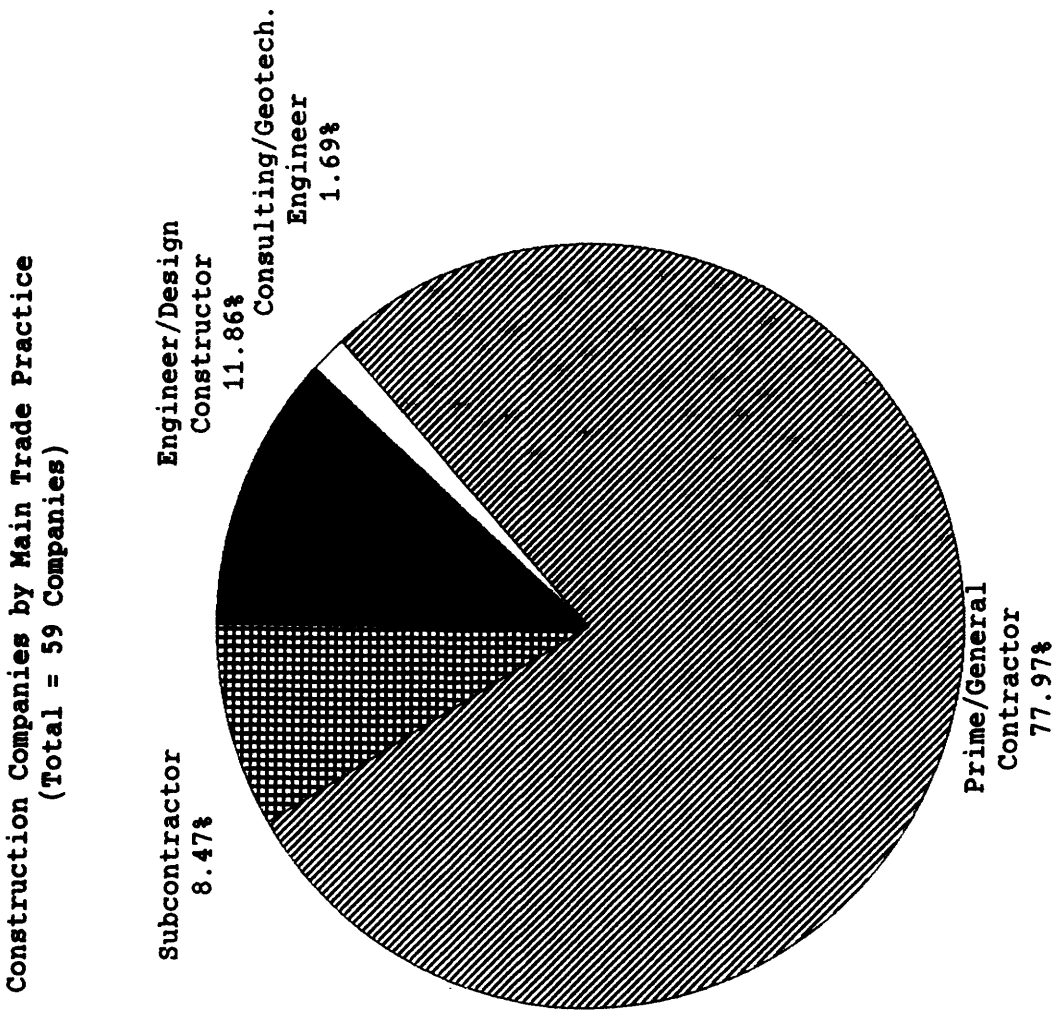


EXHIBIT 42a

EXHIBIT 42b


Construction Companies by Main Trade Practice
(Total = 59 Companies)
Engineer/Design Constructor 11.86%
Consulting/Geotech. Engineer 1.69%
Subcontractor 8.47%
Prime/General Contractor 77.97%

Construction Management Firms by Main Trade Practice
(Total = 7 Companies)

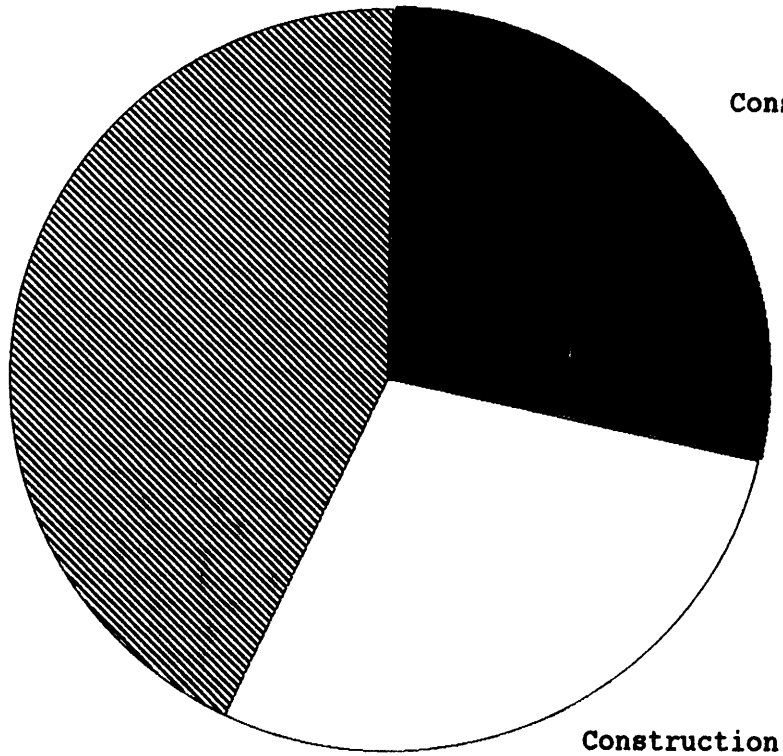
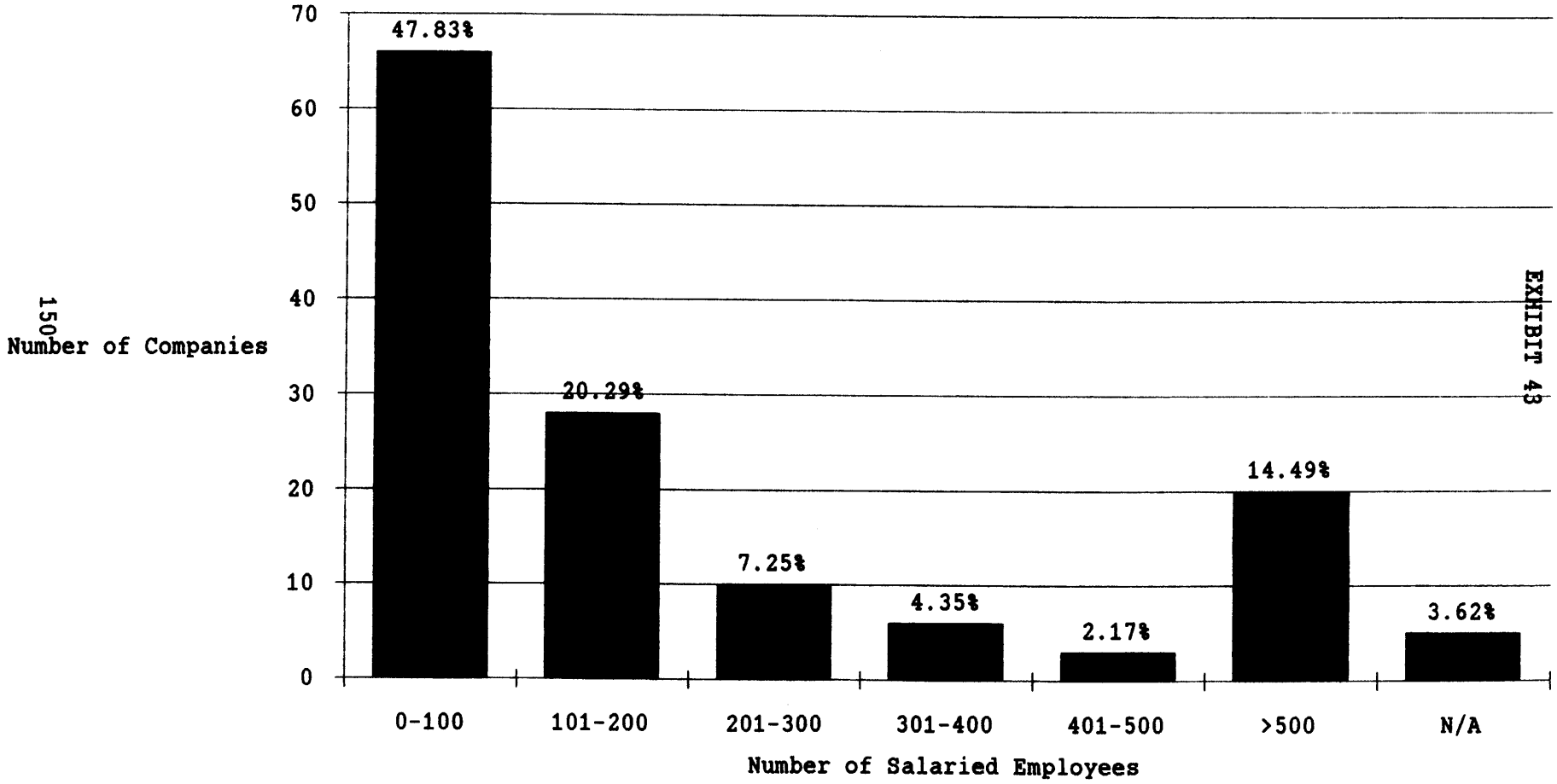


EXHIBIT 42c

Number of Salaried Employees - All Companies
and Percent of Total
(Total = 138 Companies)

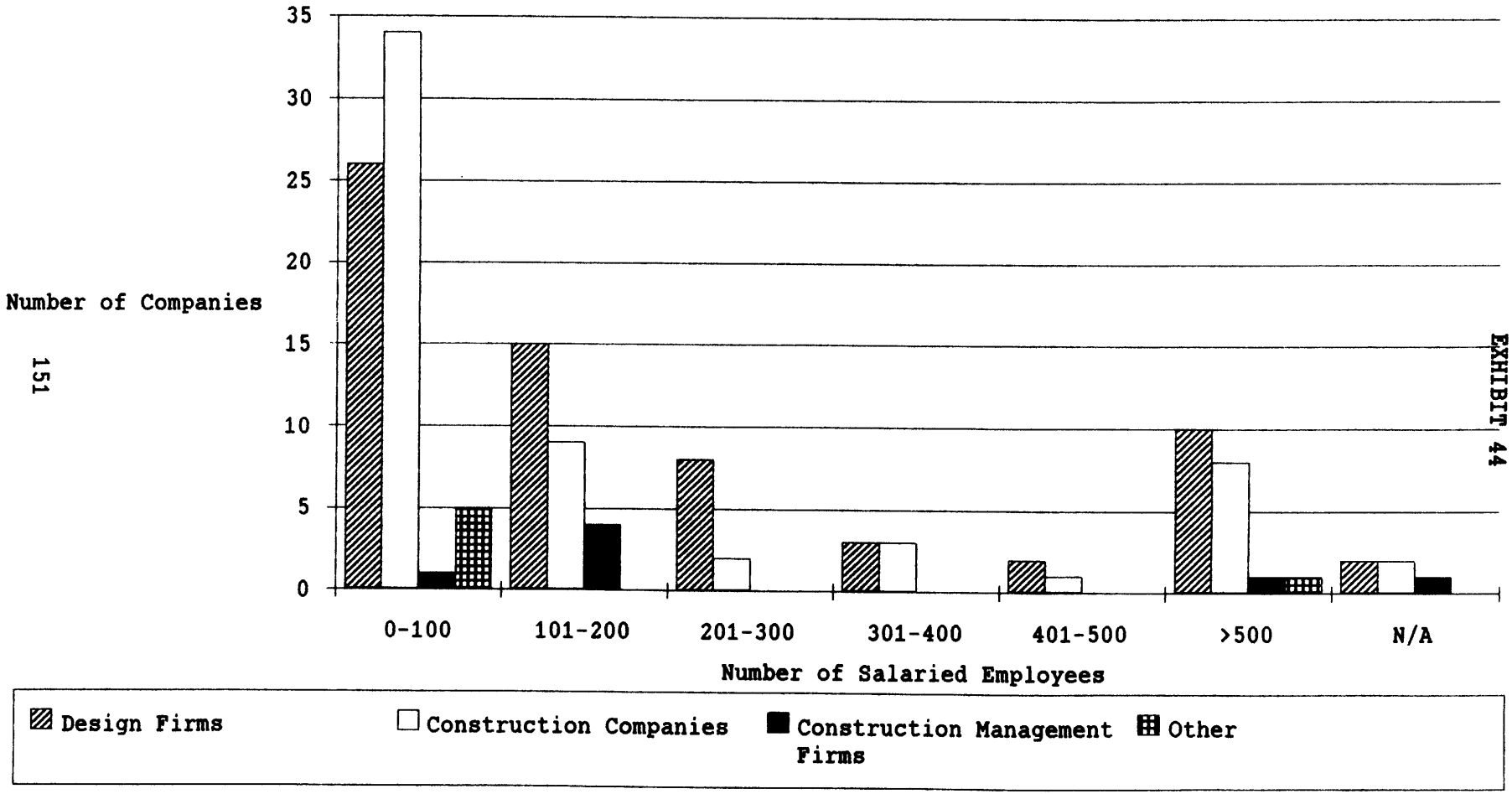


150

EXHIBIT 43

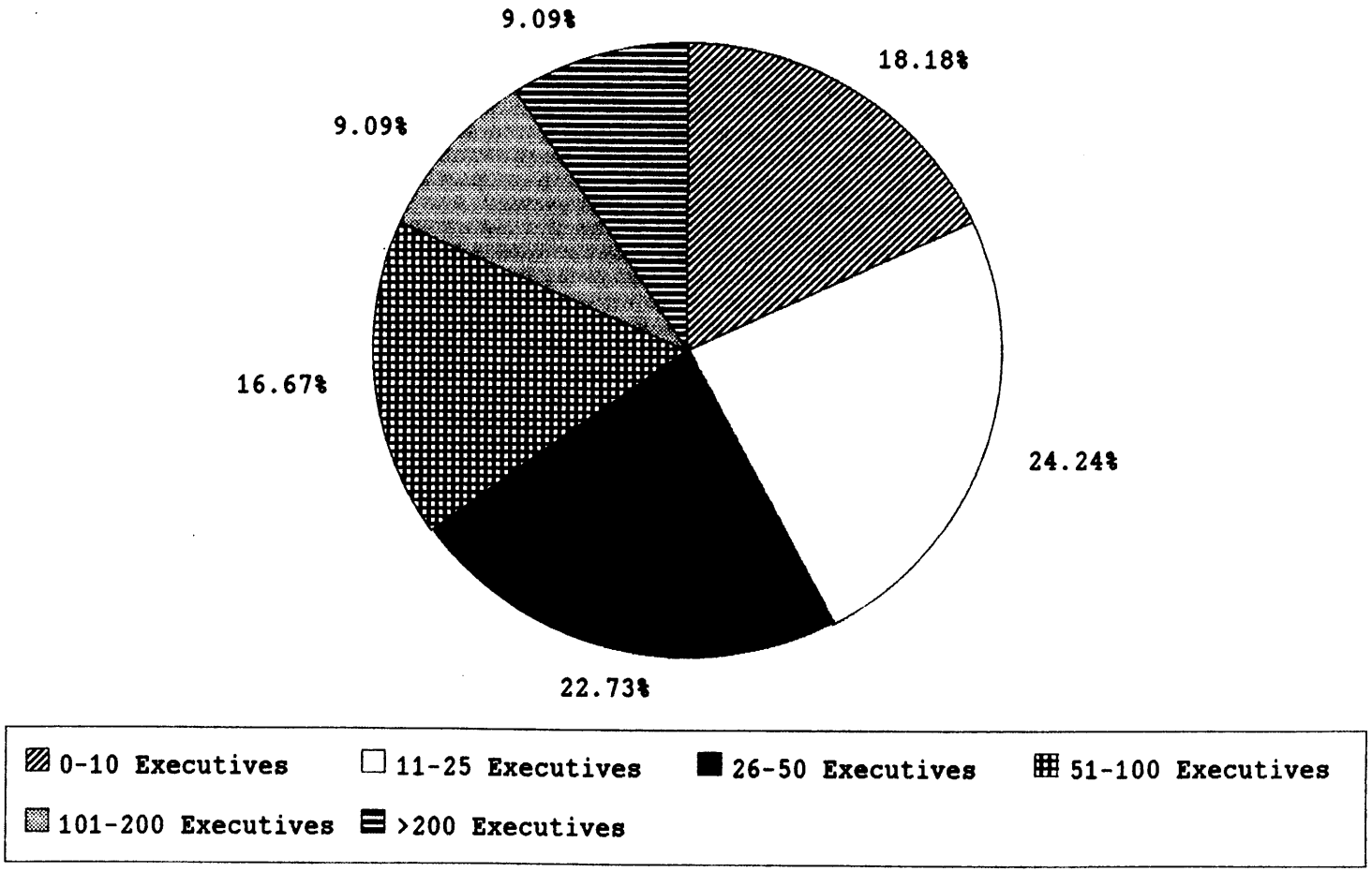
EXHIBIT 44

Number of Salaried Employees by Subgroupings
(Total = 138 Companies)



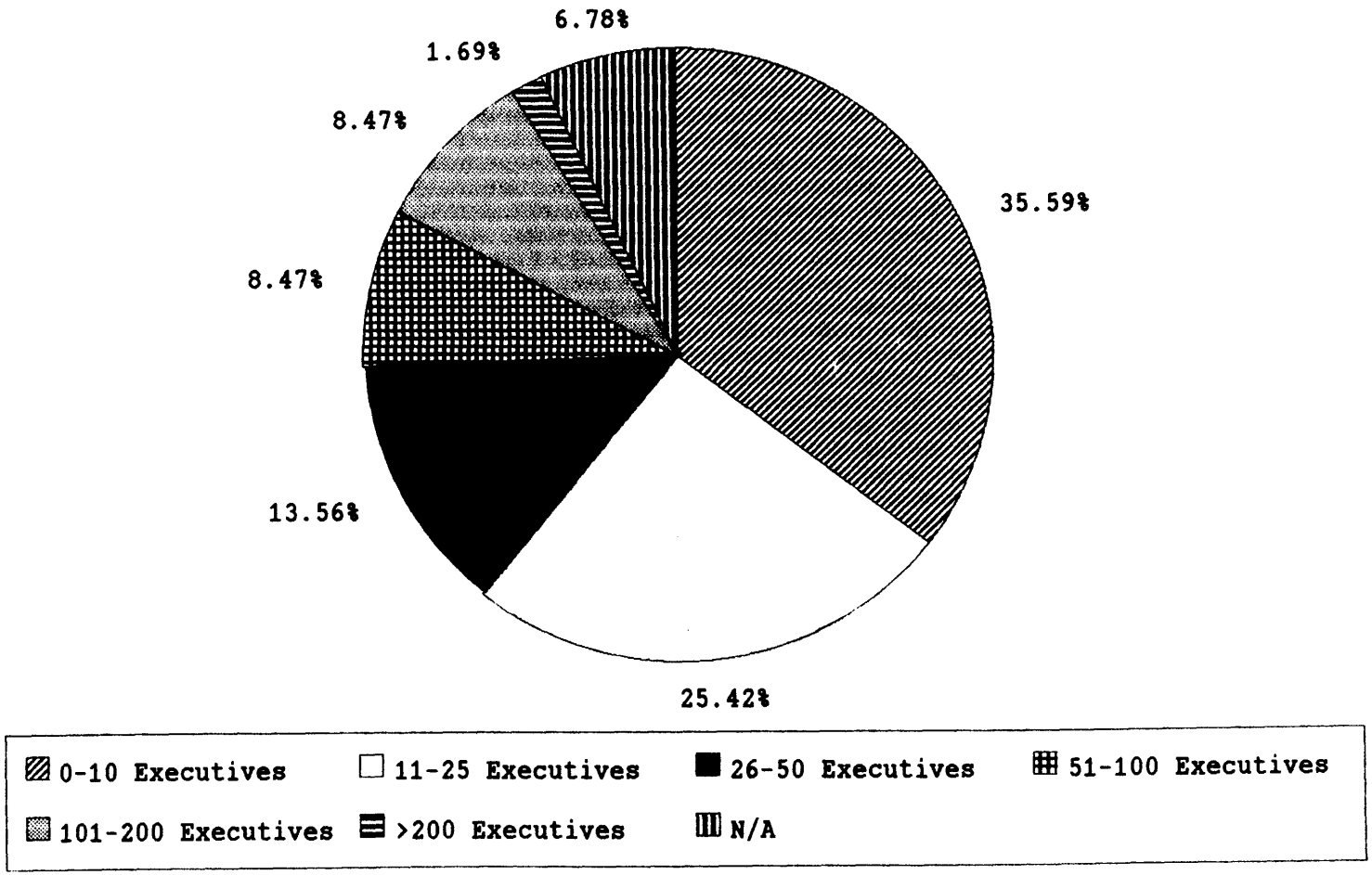
Number of Salaried Employees in Design Firms

(Total = 66 Companies)



Number of Salaried Employees in Construction Companies

(Total = 59 Companies)



Number of Salaried Employees in Construction Management Firms
(and other various firms)

(Total = 13 Companies)

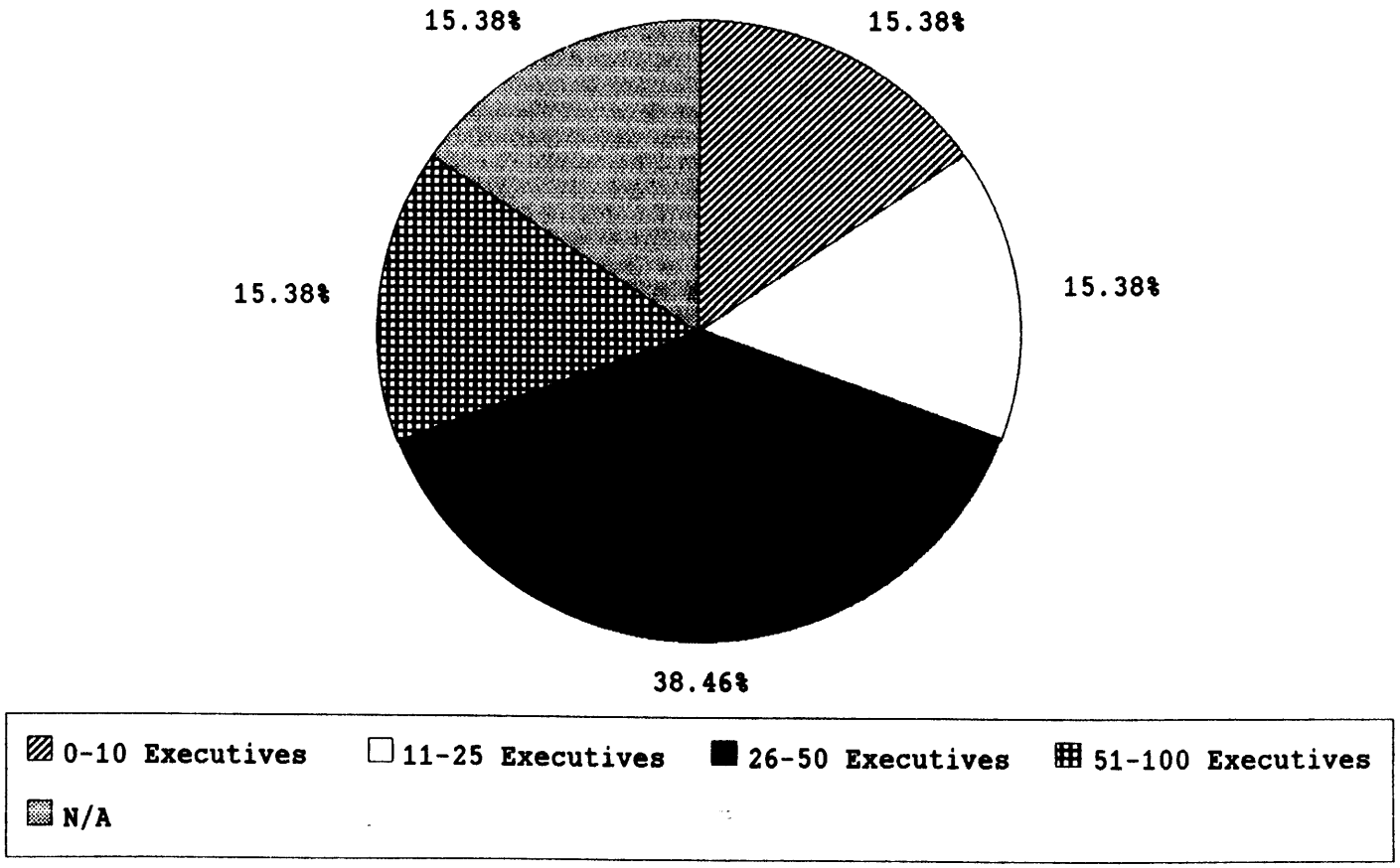


EXHIBIT 45c

EXHIBIT 46a

Total Billings for 1990 for all Companies
(Total = 138 Companies)

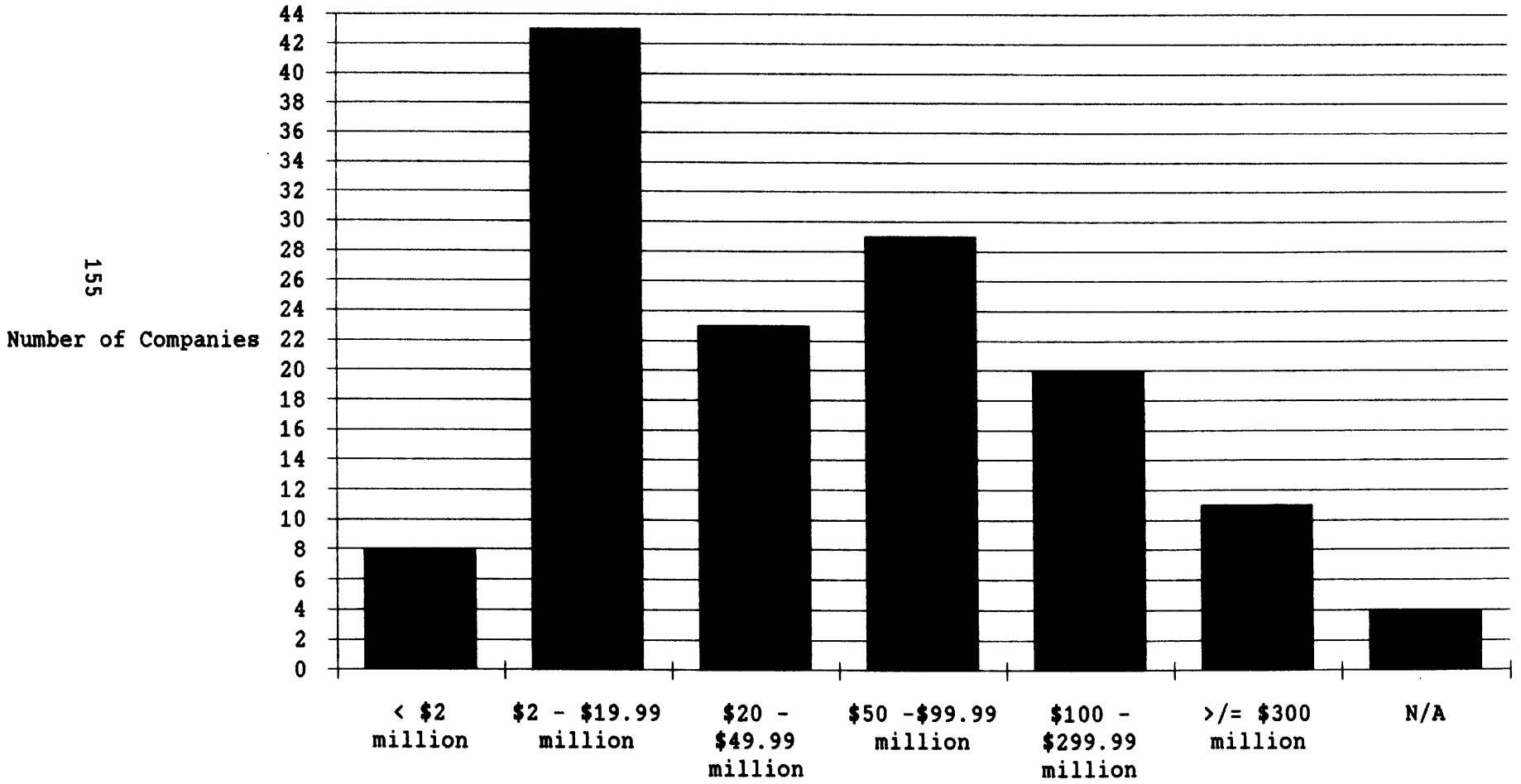
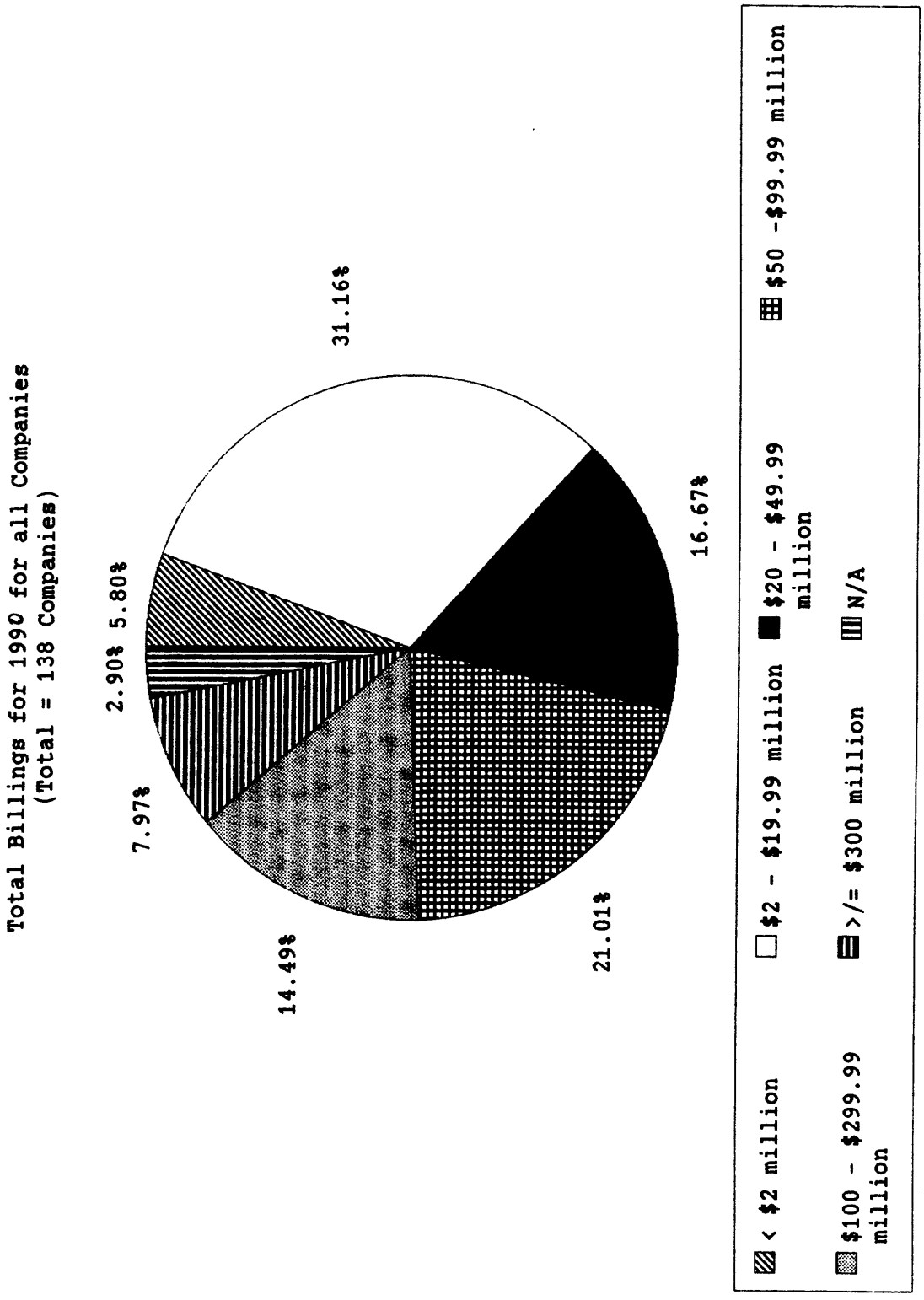


EXHIBIT 46b


Total Billings for 1990 for all Companies
(Total = 138 Companies)
31.16%
16.67%
21.01%
14.49%
7.97%
2.90%
5.80%
< $2 million
$2 - $19.99 million
$20 - $49.99 million
$50 -$99.99 million
$100 - $299.99 million
>/= $300 million
N/A

Company Billings According to Classification of Work.
All Construction Industry Respondents.

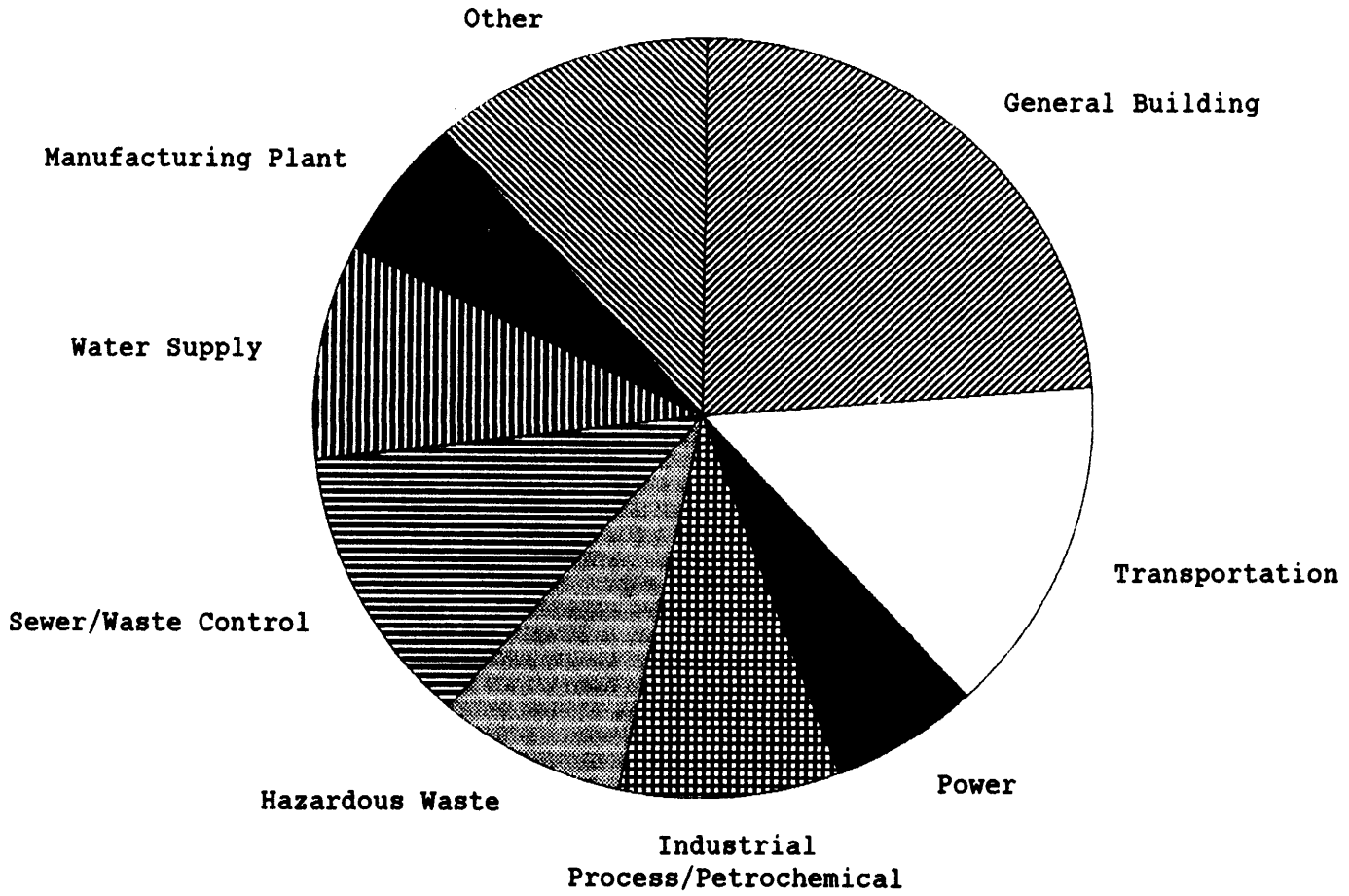


EXHIBIT 47a

Company Billings According to Percentage of Classifications of Work.
All Construction Industry Respondents.

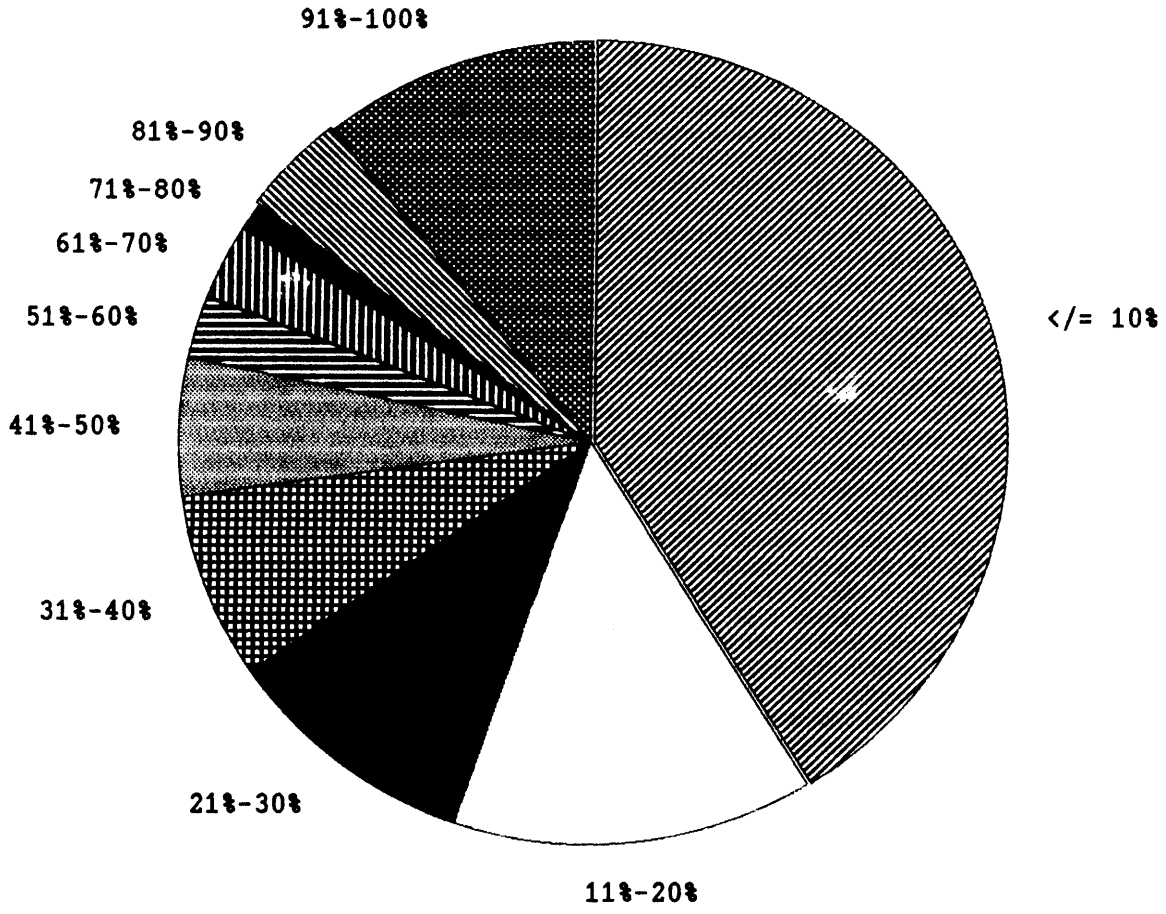


EXHIBIT 47b

Design Firm's Billings According to Classification of Work.

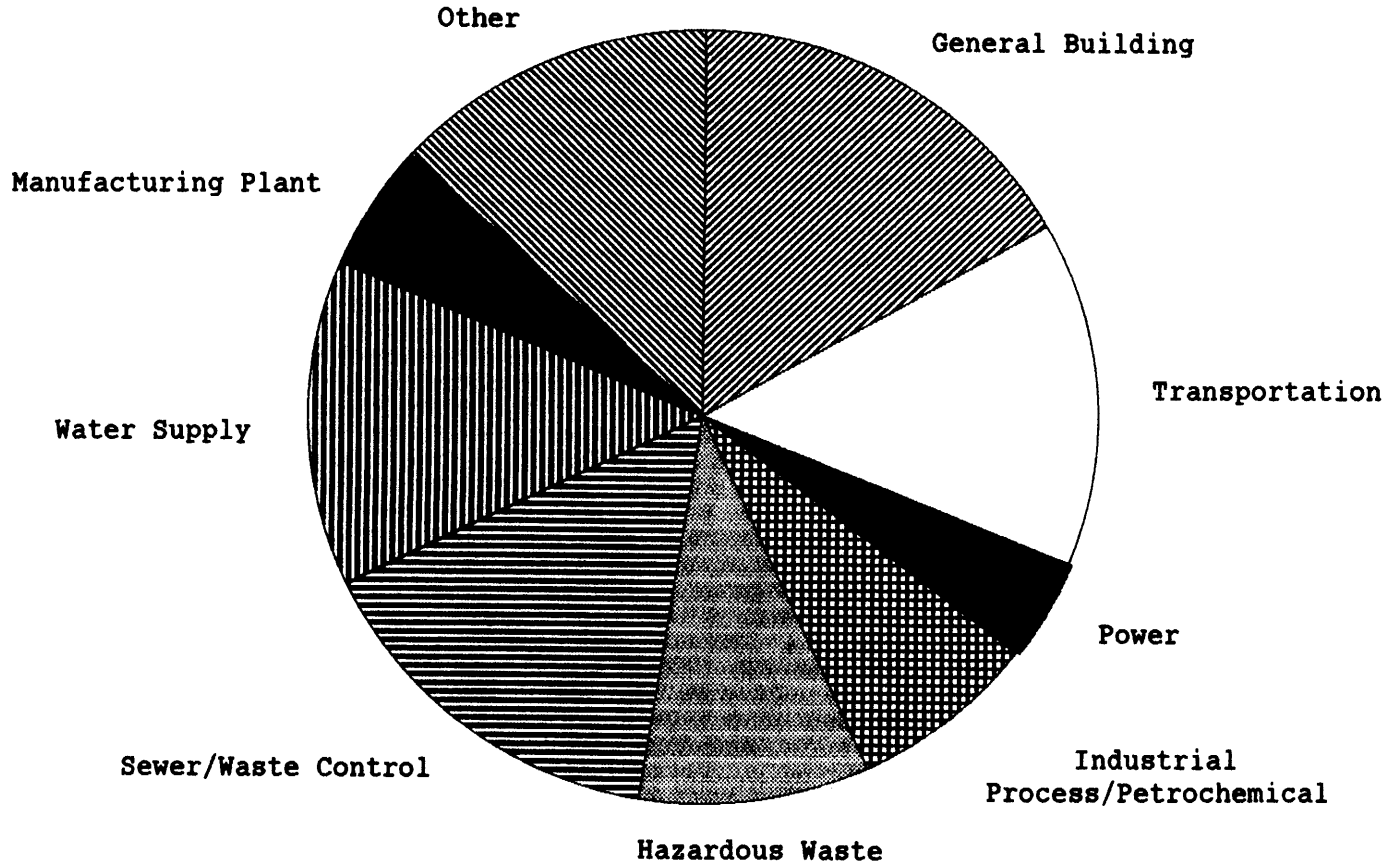


EXHIBIT 48a

Design Firms' Billings According to Percentage of Classifications of Work.

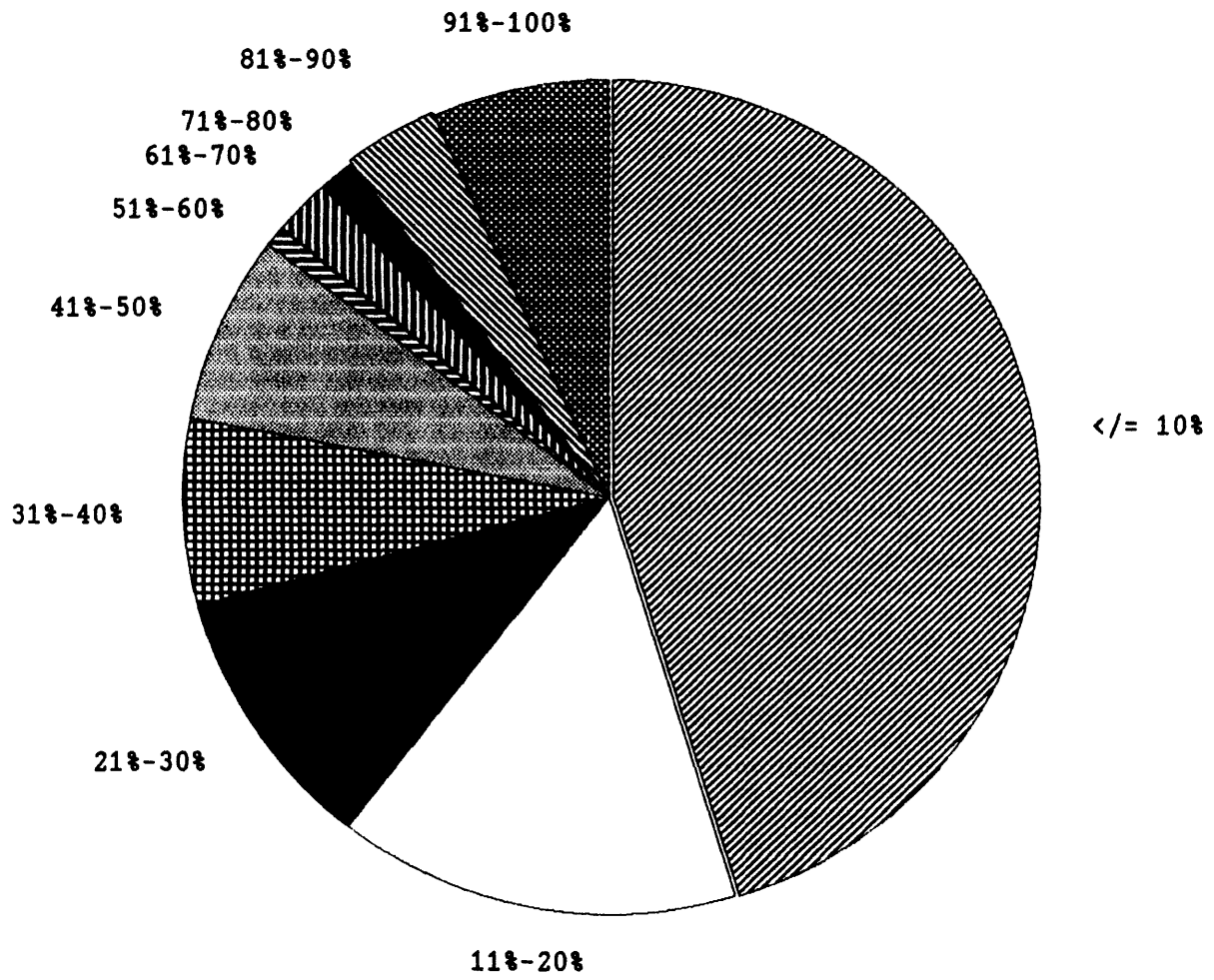


EXHIBIT 48b

Construction Company's Billings According to Classification of Work.

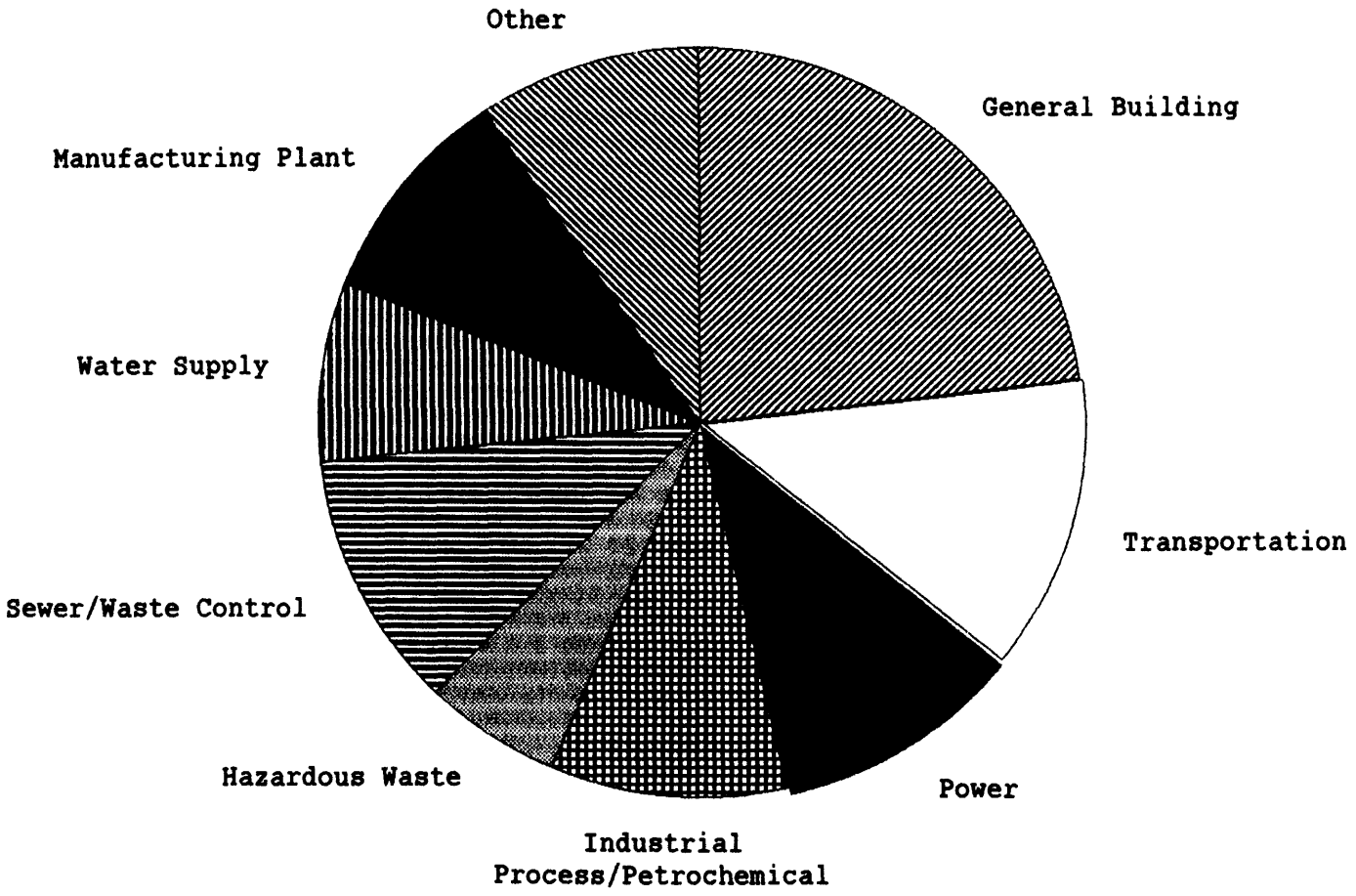


EXHIBIT 49a

Construction Companies' Billings According to Percentage of Classifications of Work.

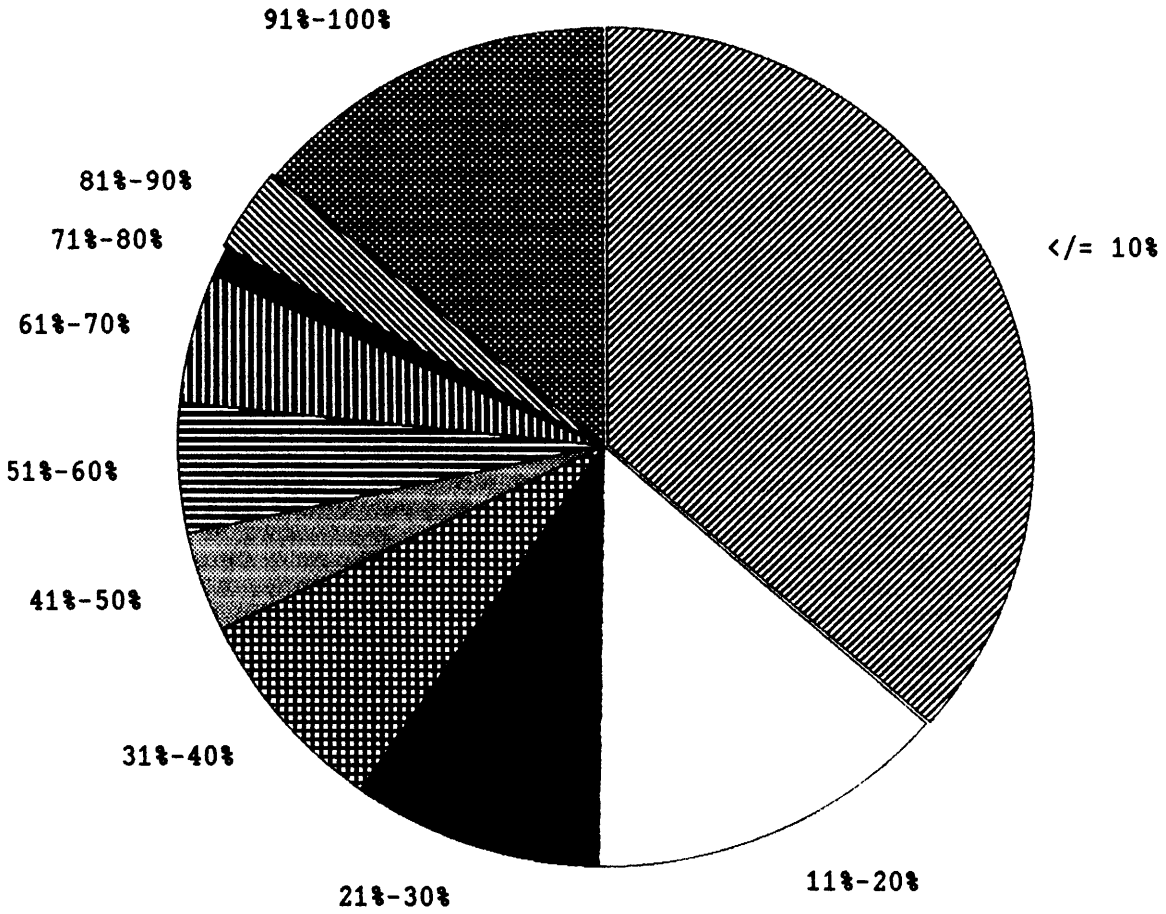


EXHIBIT 49b

Construction Management Firm's Billings According to Classification of Work.

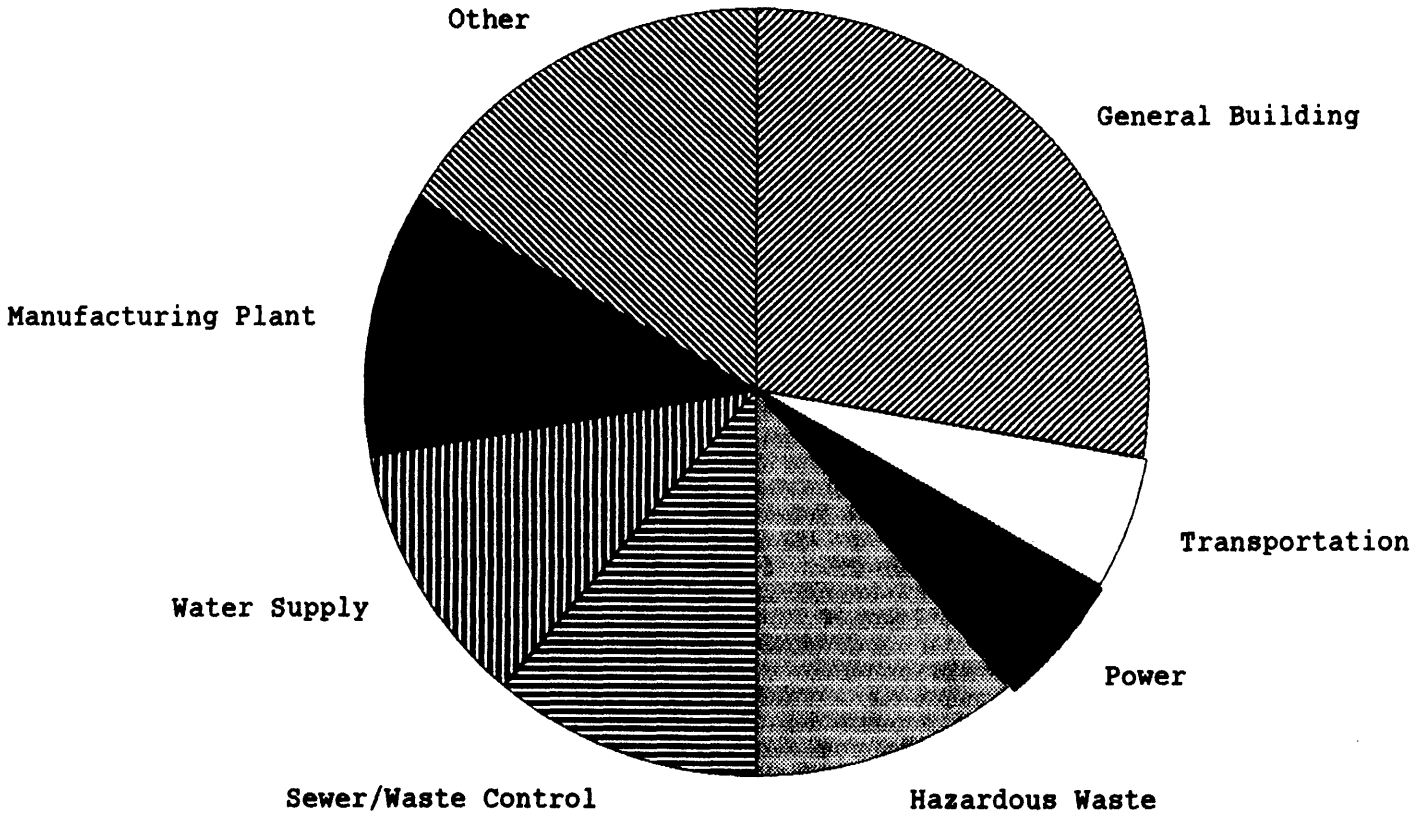


EXHIBIT 50a

Construction Management Firms' Billings According to Percentage of Classifications of Work.

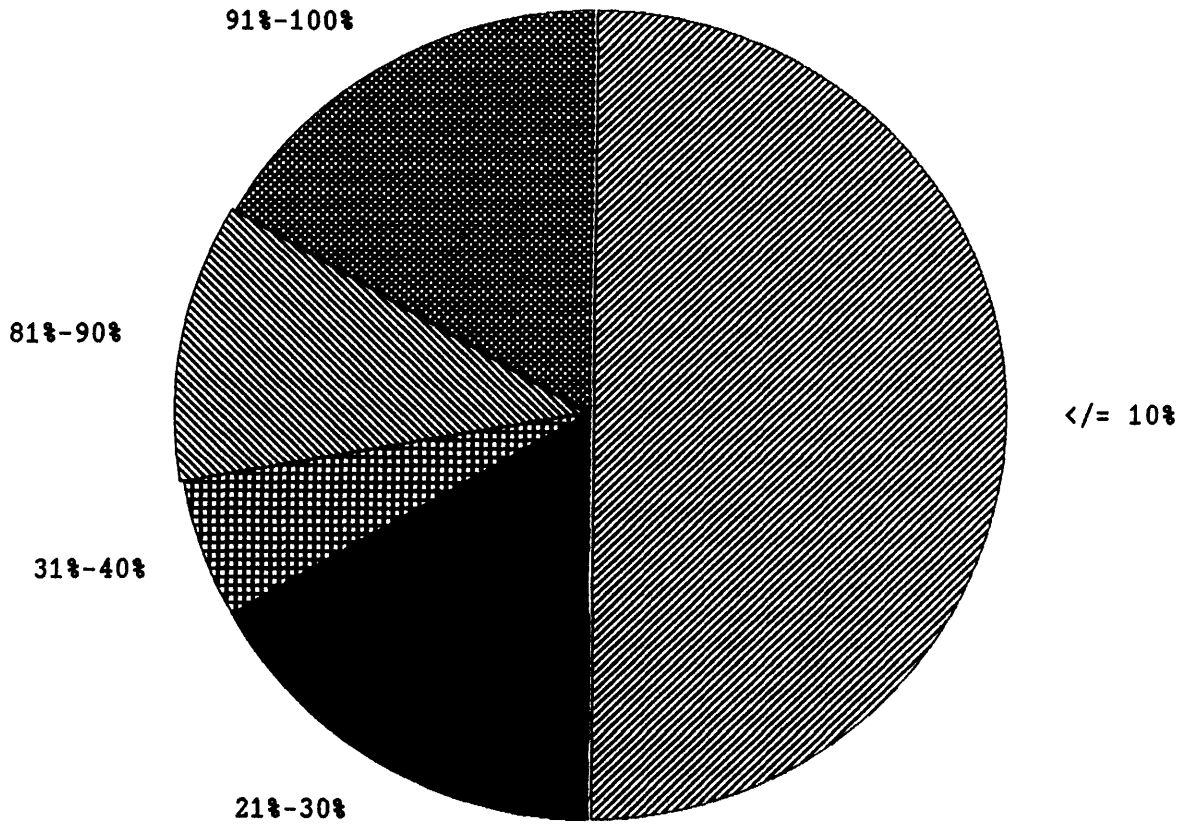


EXHIBIT 50b

Other Companies' Billings According to Classification of Work.

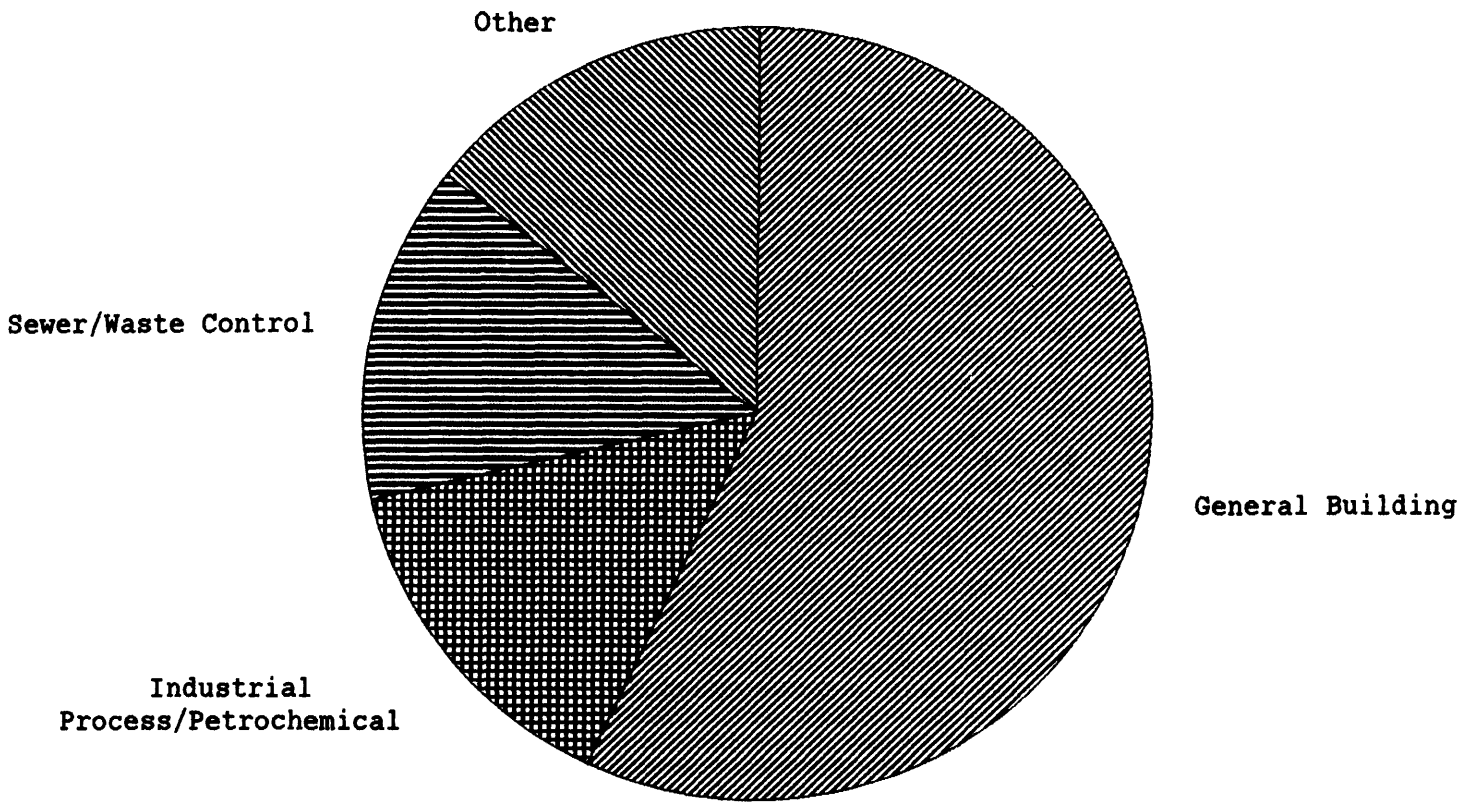


EXHIBIT 51a

Other Companies' Billings According to Percentage of Classifications of Work.

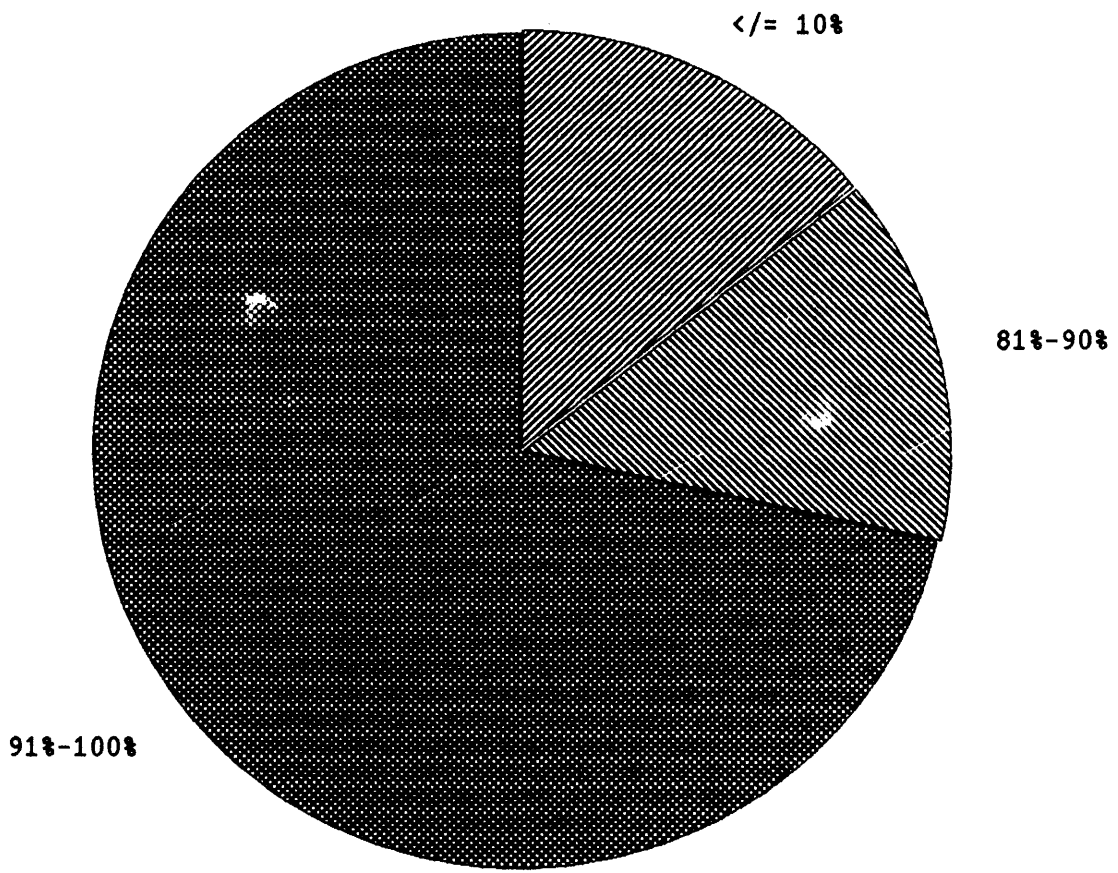


EXHIBIT 51b

Formal Requirements for Participation in Executive Education Programs
(Total = 138 Companies)

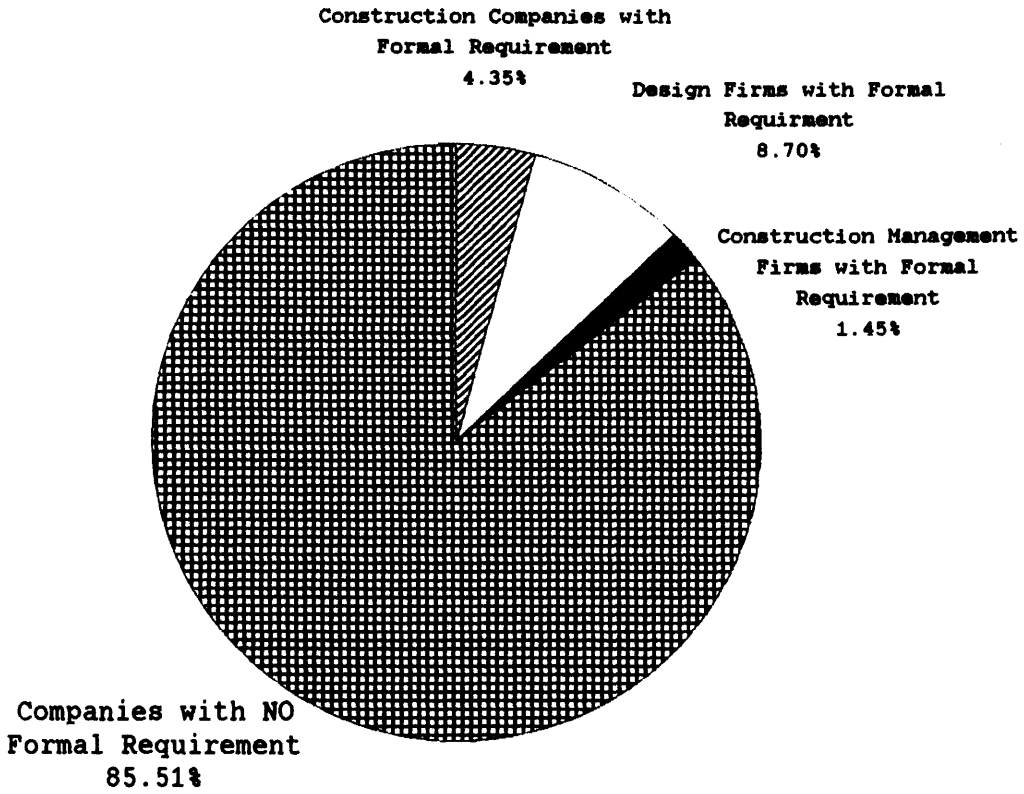


EXHIBIT 52

Number of Salaried Employees Eligible to Participate
in Executive Education Programs - All Companies
and Percent of Total
(Total = 138 Companies)

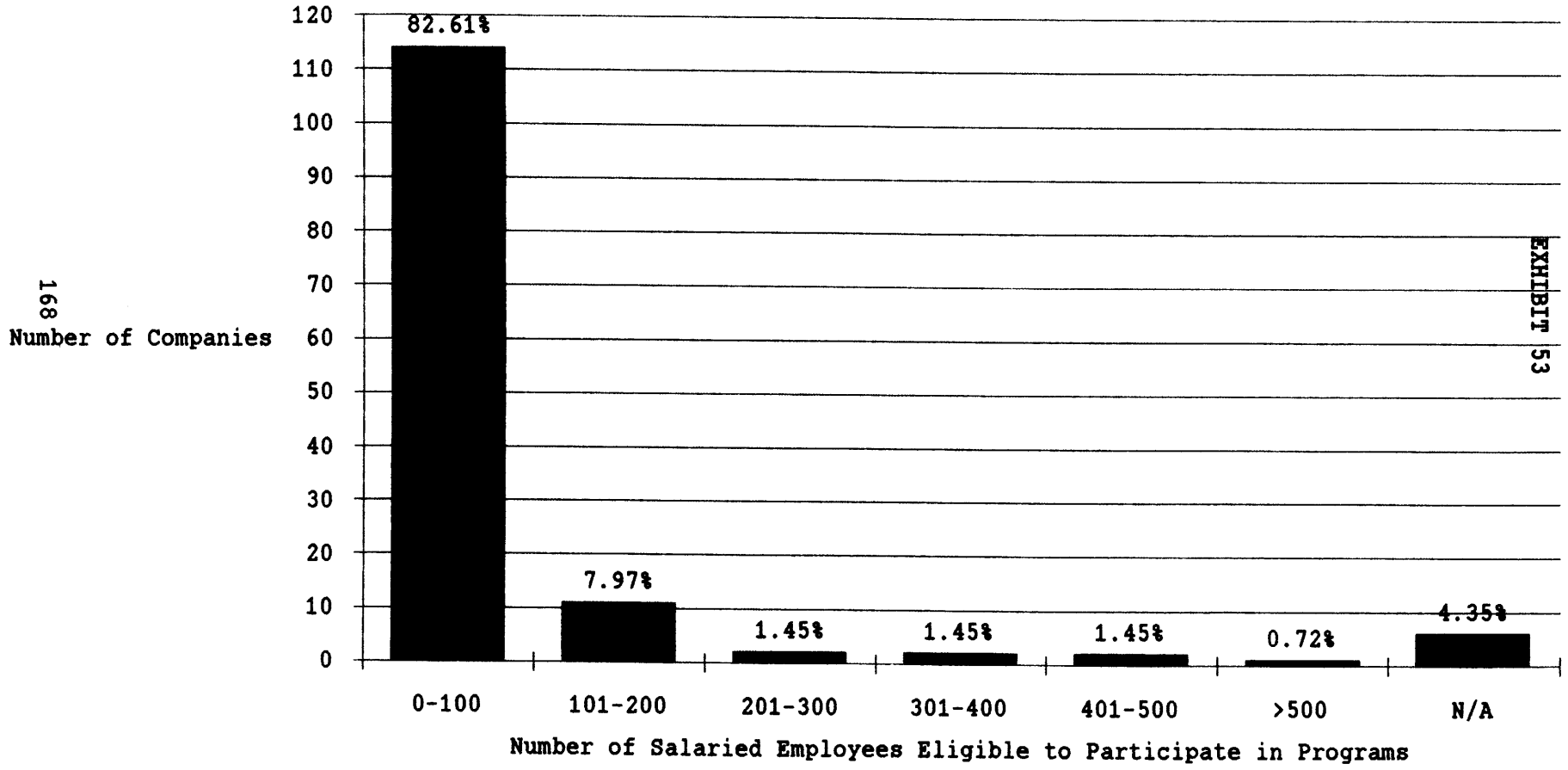


EXHIBIT 53

Executive Education Programs Offered in the Construction Industry
(Total = 138 Companies)

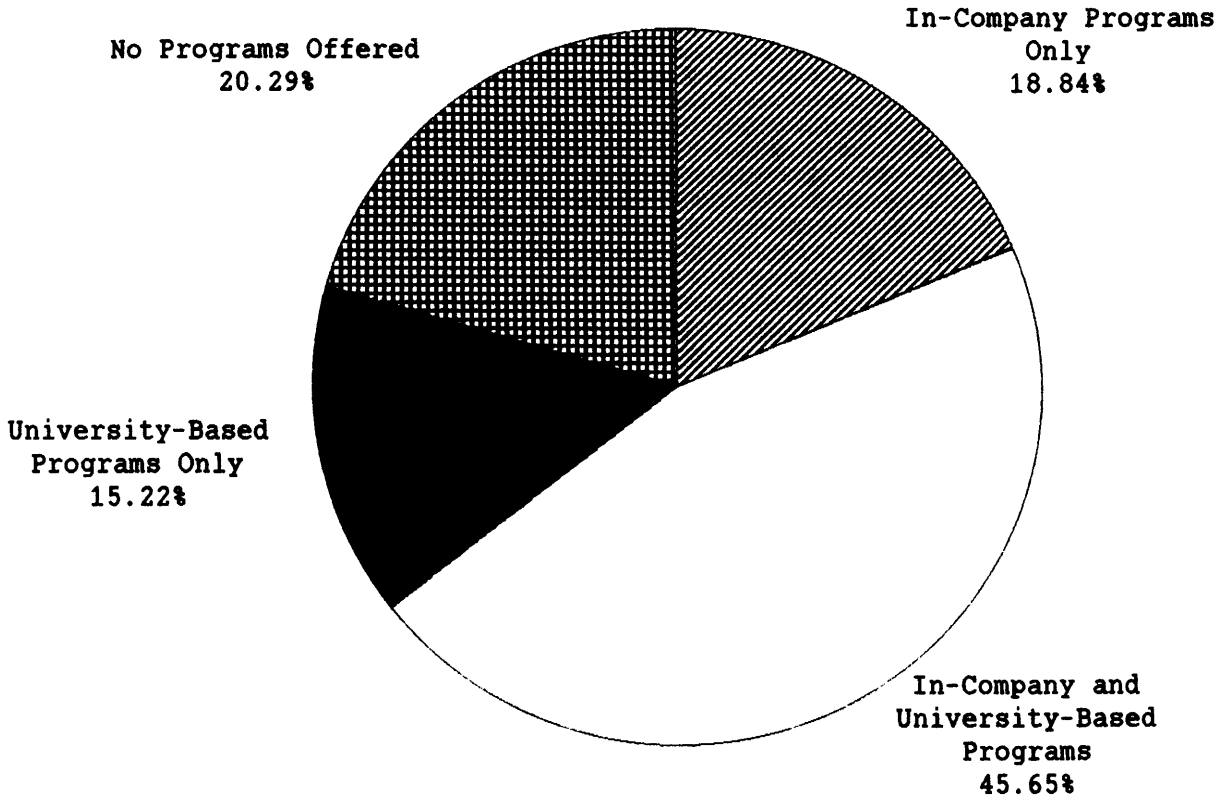


EXHIBIT 54

Design Firms Offering Executive Education Programs
(Total = 66 Companies)

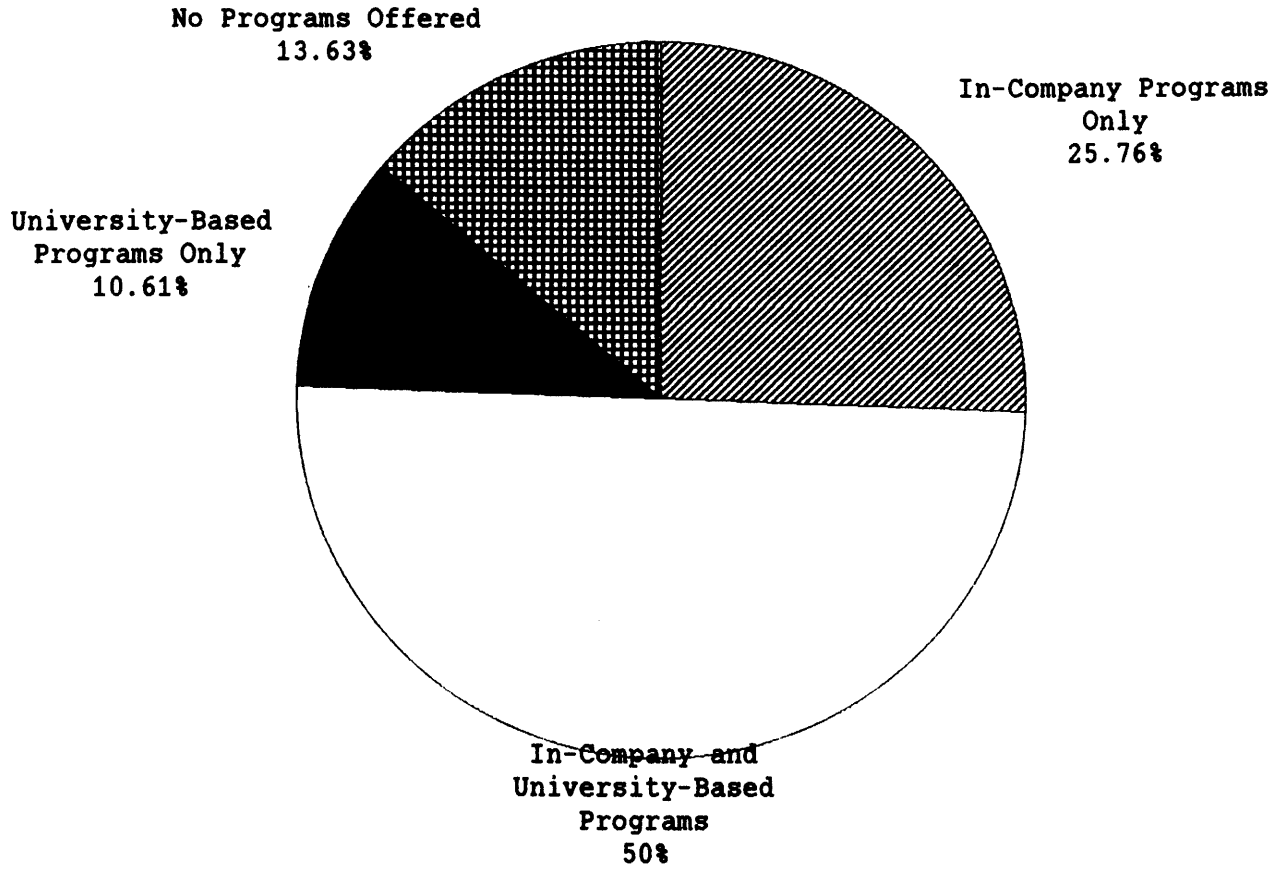


EXHIBIT 55a

Construction Companies Offering Executive Education Programs
(Total = 59 Companies)

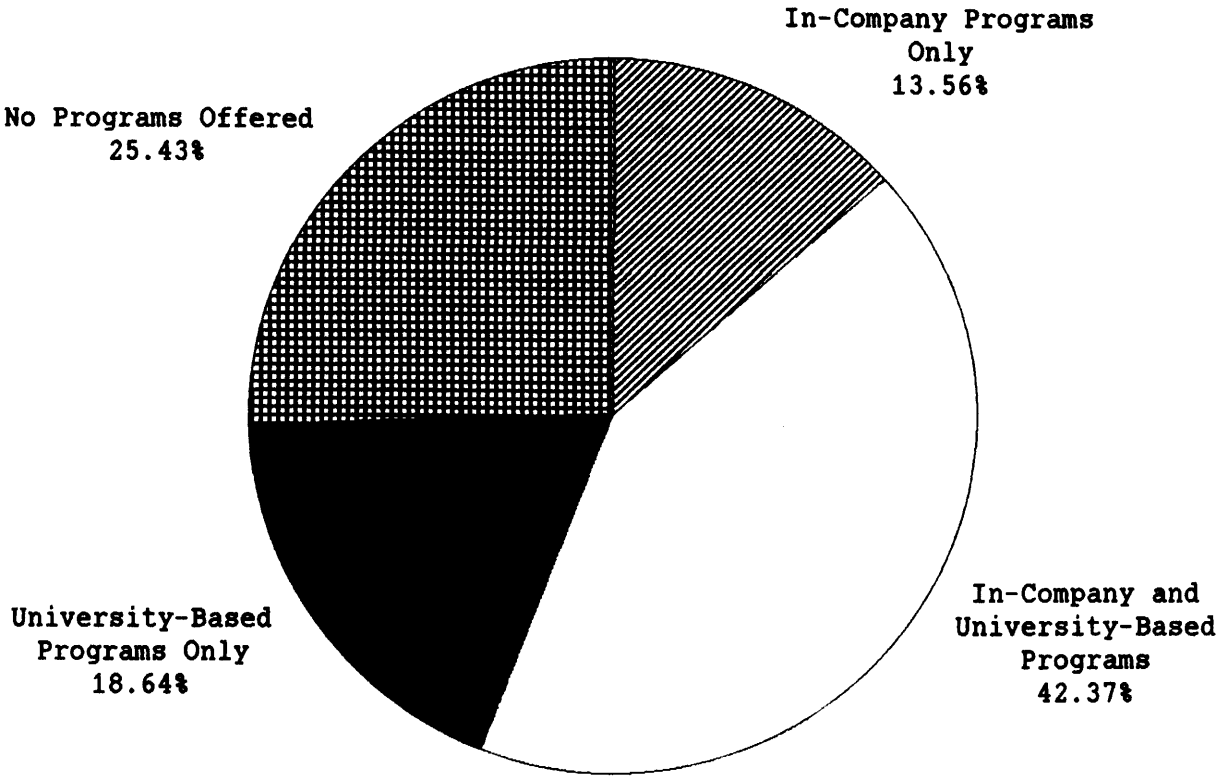


EXHIBIT 55b

Construction Management Firms Offering Executive Education Programs
(Total = 7 Companies)

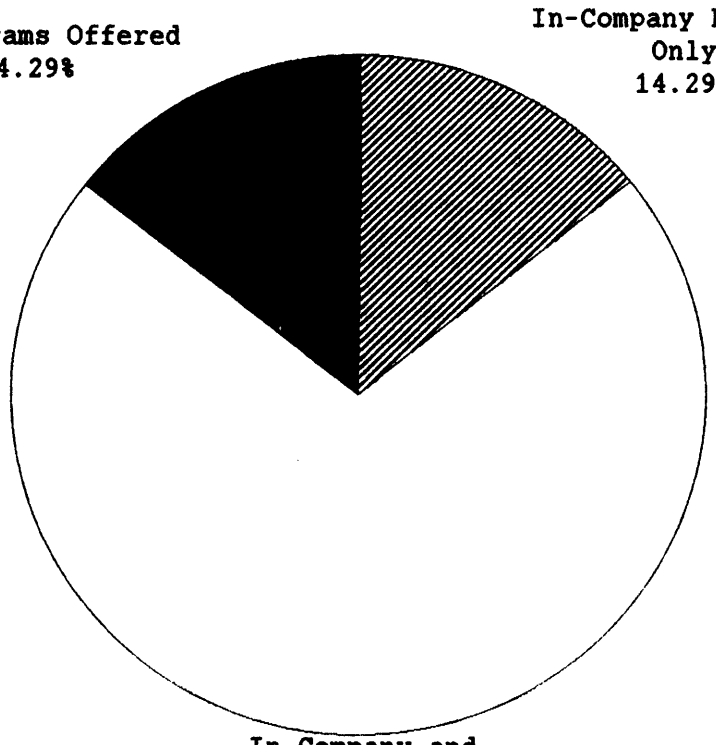
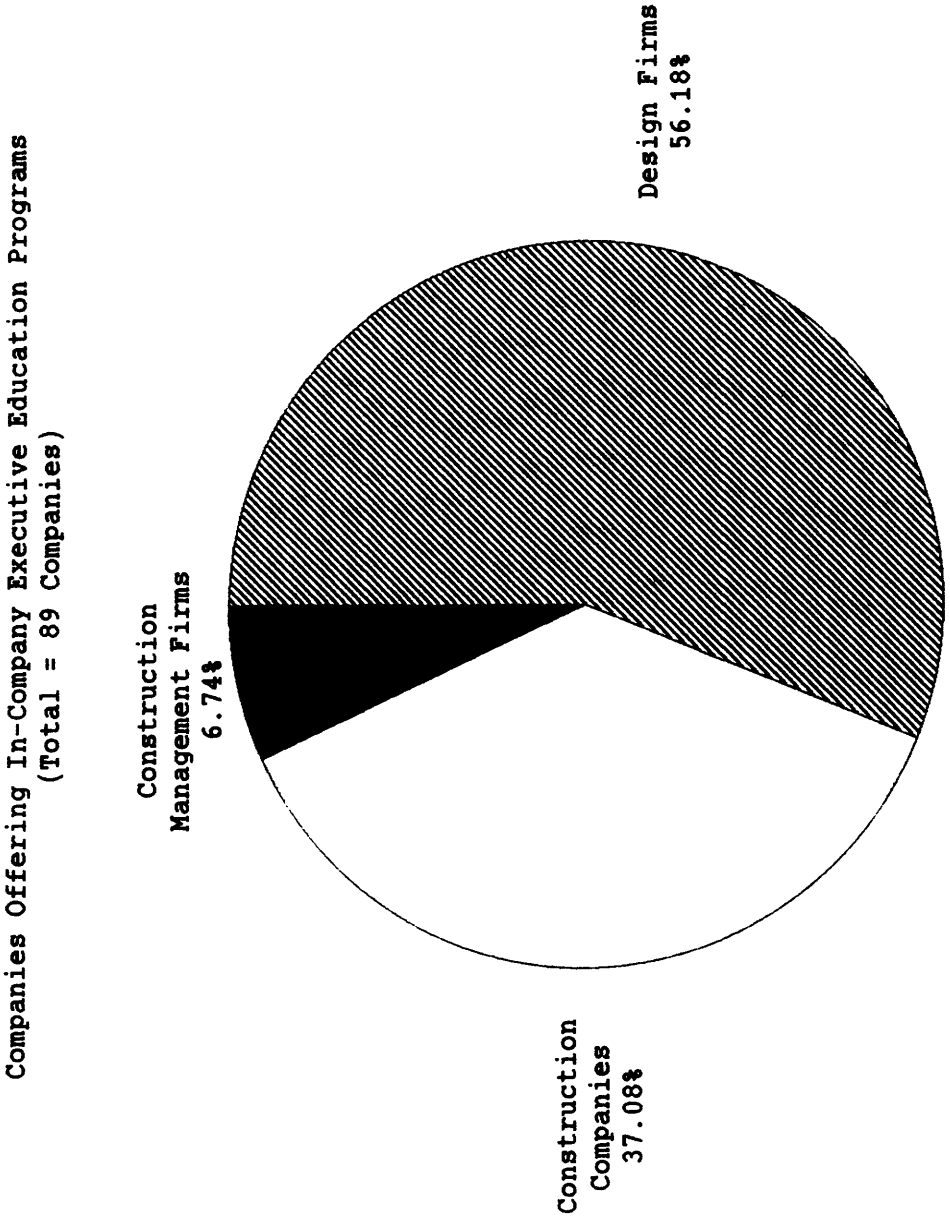


EXHIBIT 55c

EXHIBIT 56


Companies Offering In-Company Executive Education Programs
(Total = 89 Companies)
Design Firms
56.18%
Construction
Management Firms
6.74%
Construction
Companies
37.08%

Personnel Involved in Selecting the Programs and Possible Participants of In-Company Executive Education Programs.
(All Construction Industry Respondents.)

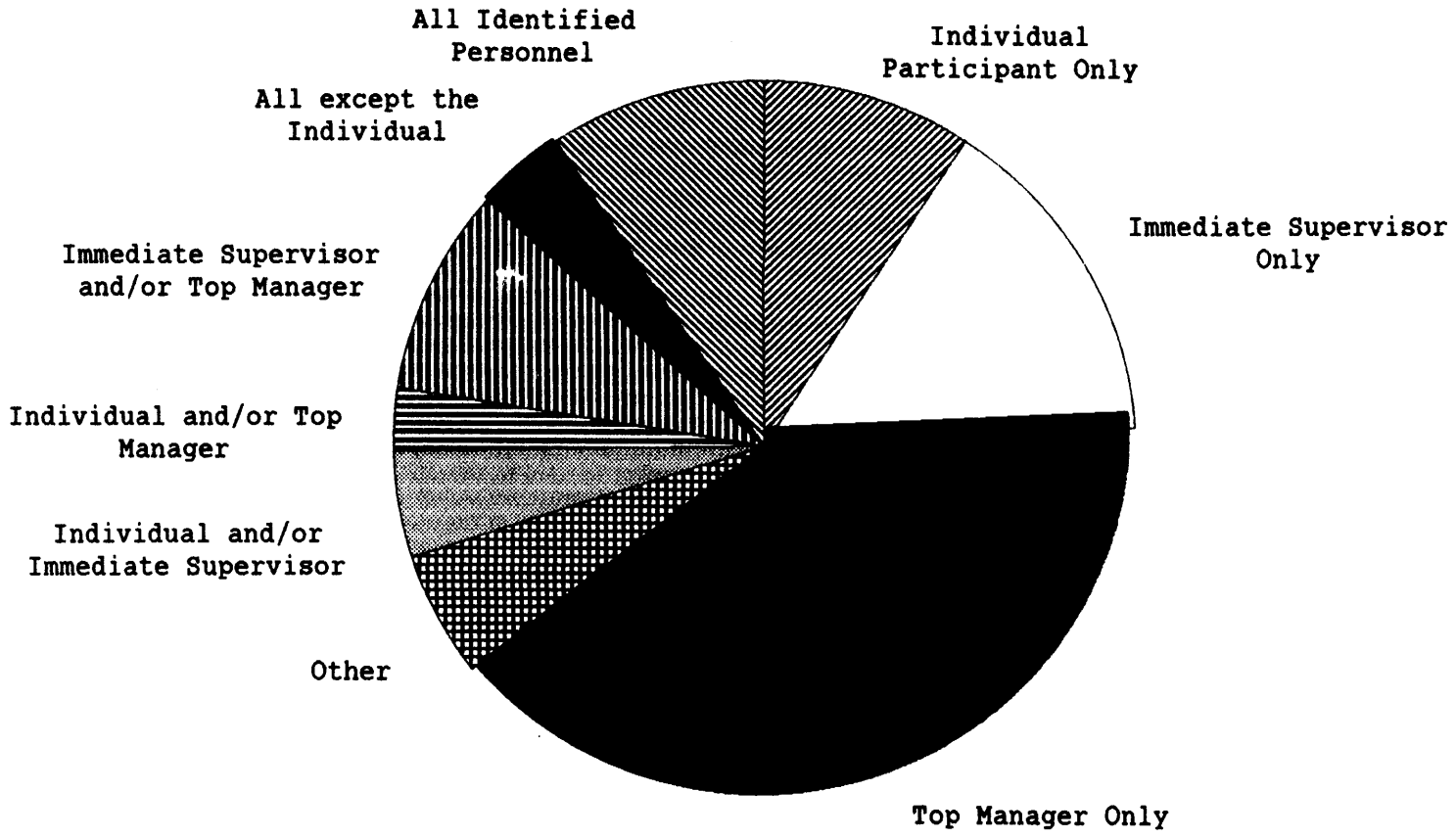


EXHIBIT 57

Management Levels to which In-Company Executive Education Programs are Offered.
(All Construction Industry Respondents.)

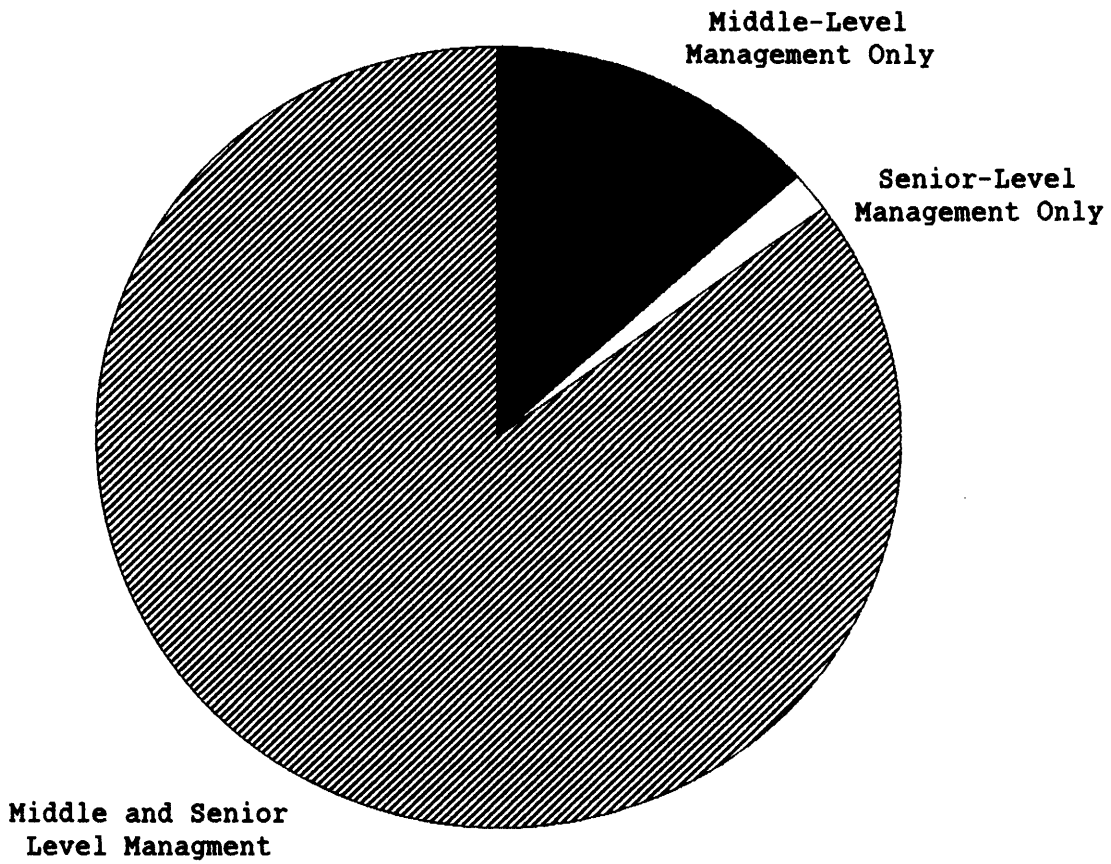


EXHIBIT 58

Number of Eligible Personnel in Respondent's Company that have Participated in In-Company Executive Education Programs.
(Total = 138 Companies)

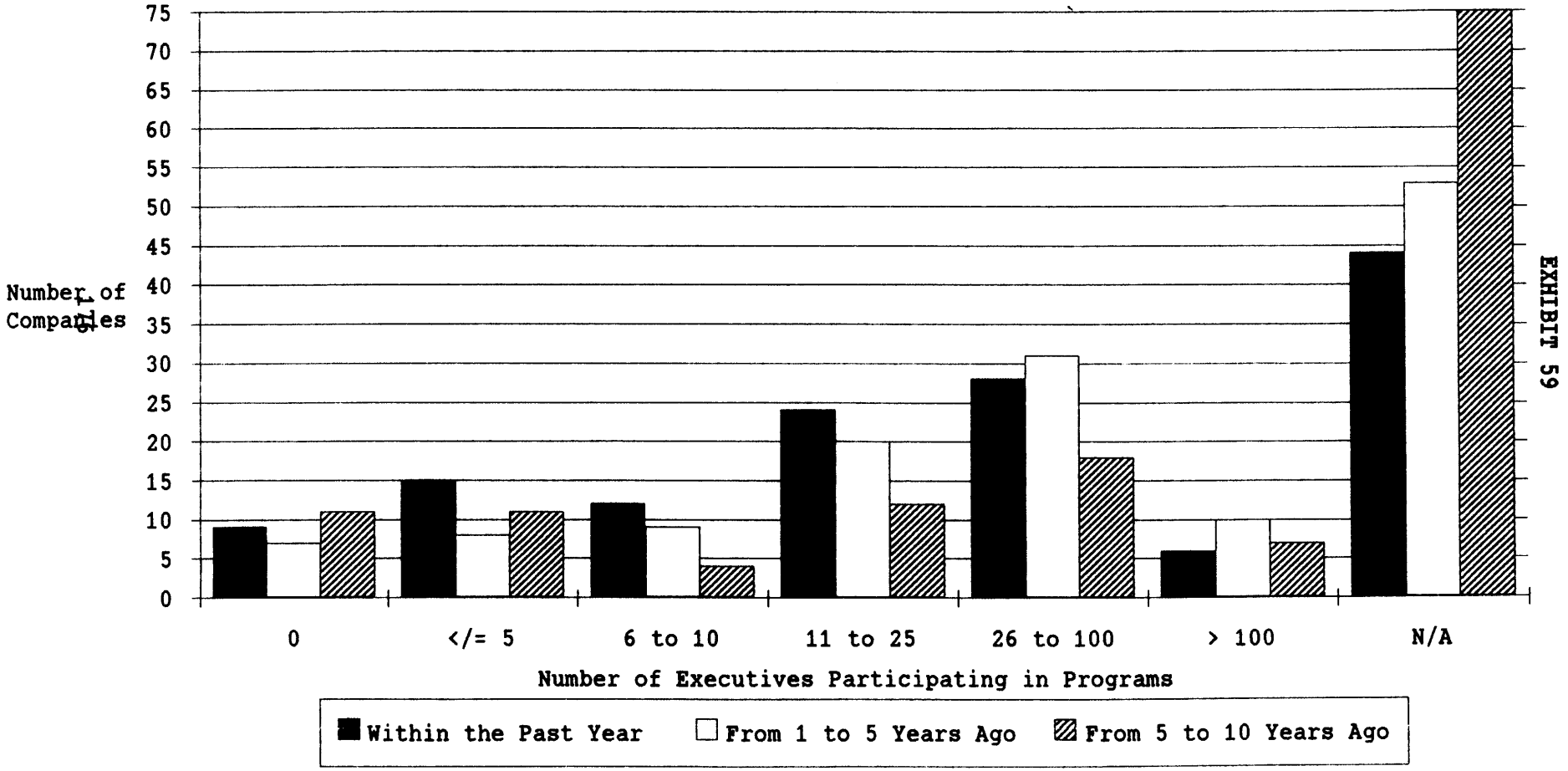


EXHIBIT 59

Company Expectations of Increasing Participation in In-Company Executive Education Programs.
(Total = 138 Companies)

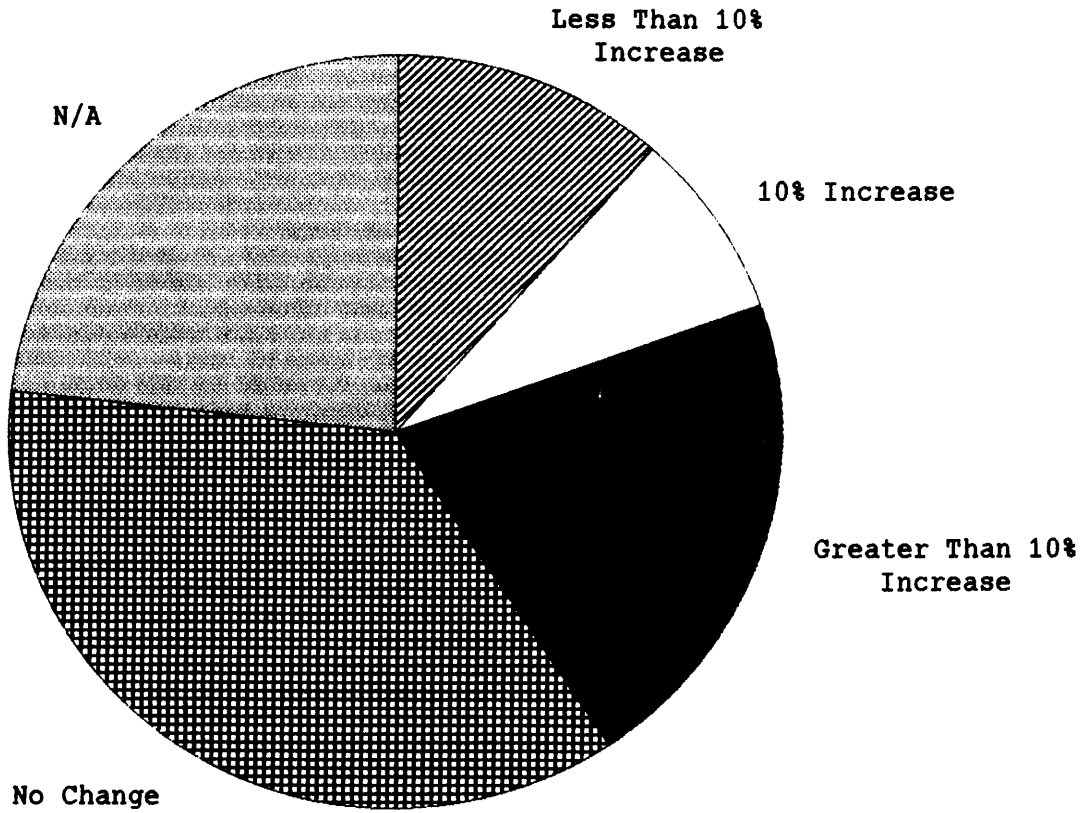


EXHIBIT 60

The Companies' Desired Length of Time for In-Company Executive Education Programs.
(Total = 138 Companies)

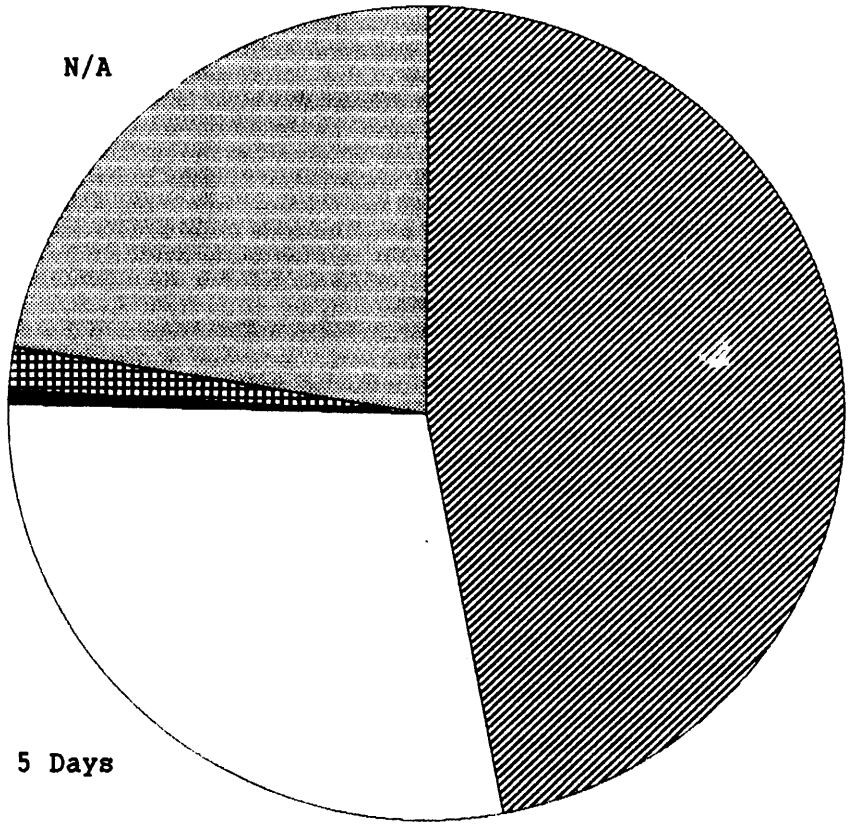


EXHIBIT 61

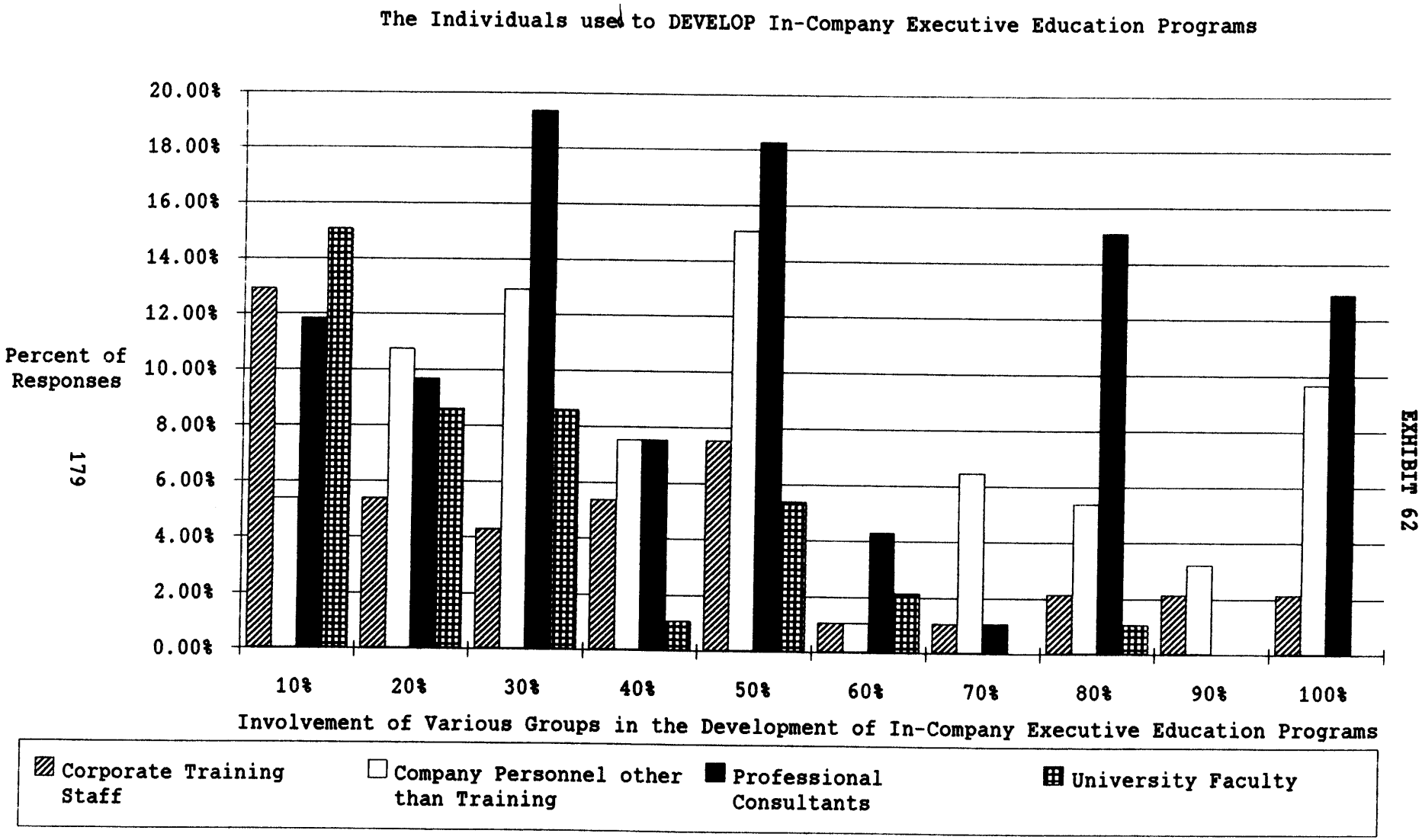

The Individuals used to DEVELOP In-Company Executive Education Programs
Percent of Responses
20.00%
18.00%
16.00%
14.00%
12.00%
10.00%
8.00%
6.00%
4.00%
2.00%
0.00%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Involvement of Various Groups in the Development of In-Company Executive Education Programs
Corporate Training Staff
Company Personnel other than Training
Professional Consultants
University Faculty

EXHIBIT 62

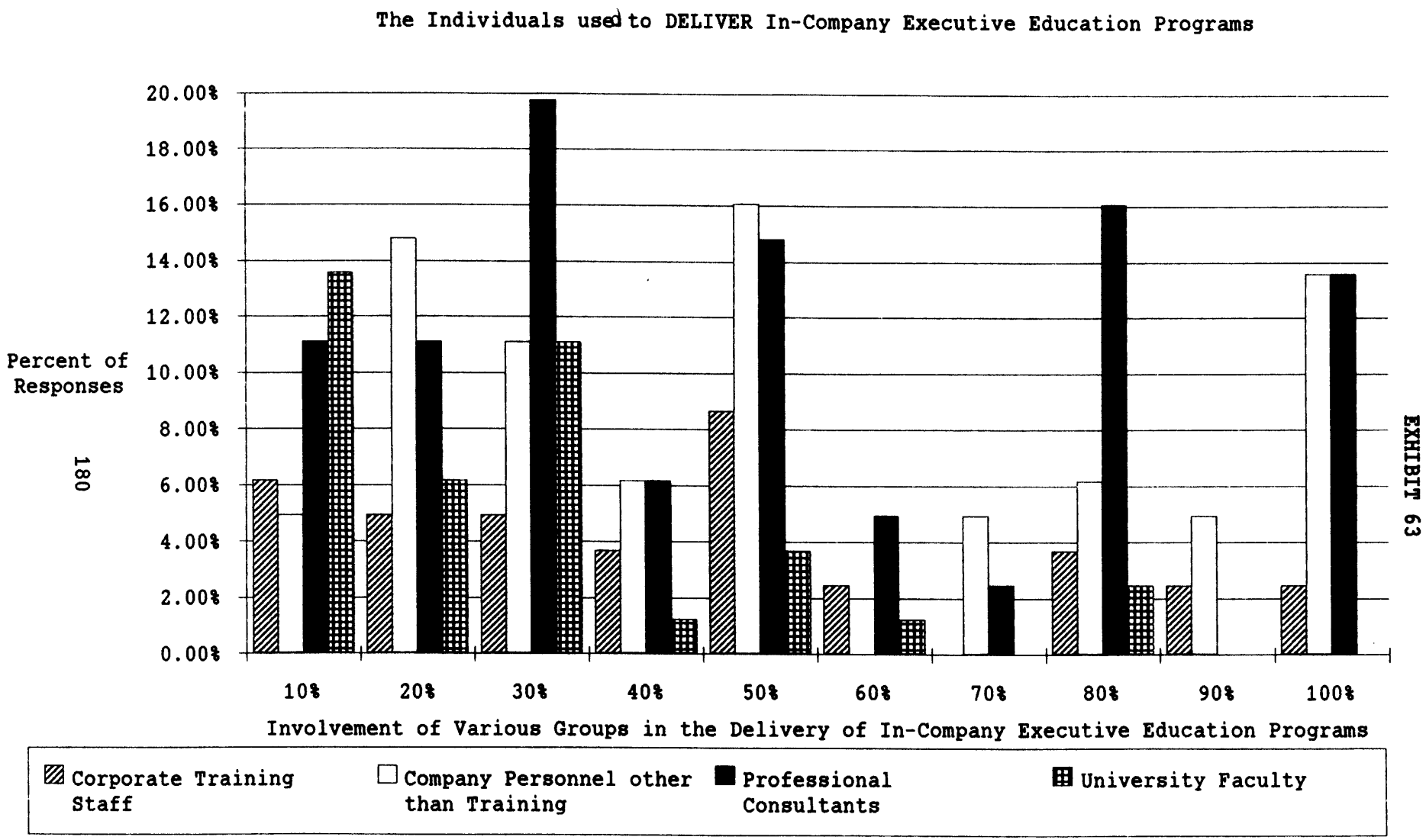

The Individuals used to DELIVER In-Company Executive Education Programs
Percent of Responses
20.00%
18.00%
16.00%
14.00%
12.00%
10.00%
8.00%
6.00%
4.00%
2.00%
0.00%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Involvement of Various Groups in the Delivery of In-Company Executive Education Programs
Corporate Training Staff
Company Personnel other than Training
Professional Consultants
University Faculty

EXHIBIT 63

Companies Offering University-Based Executive Education Programs
(Total = 84 Companies)

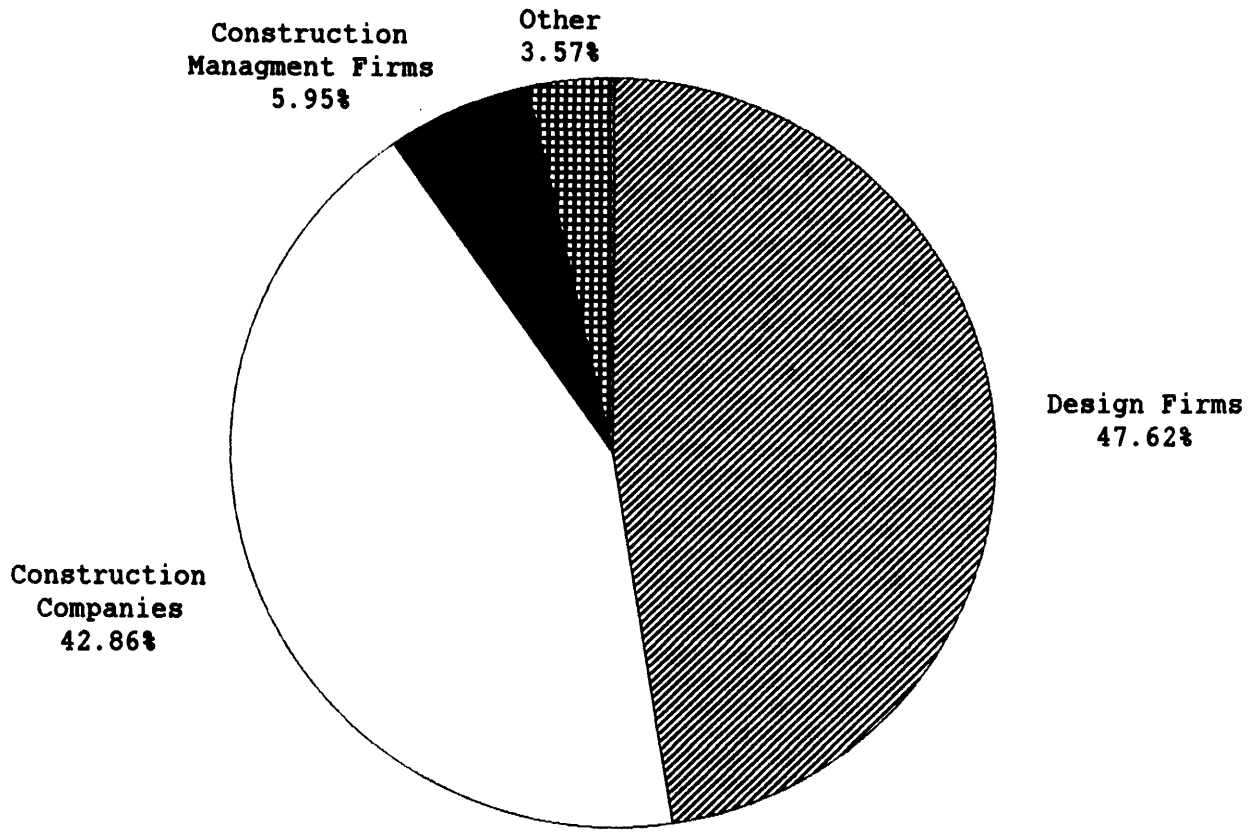


EXHIBIT 64

Personnel Involved in Selecting the Programs and Possible Participants of University Based Executive Education Programs.
(All Construction Industry Respondents.)

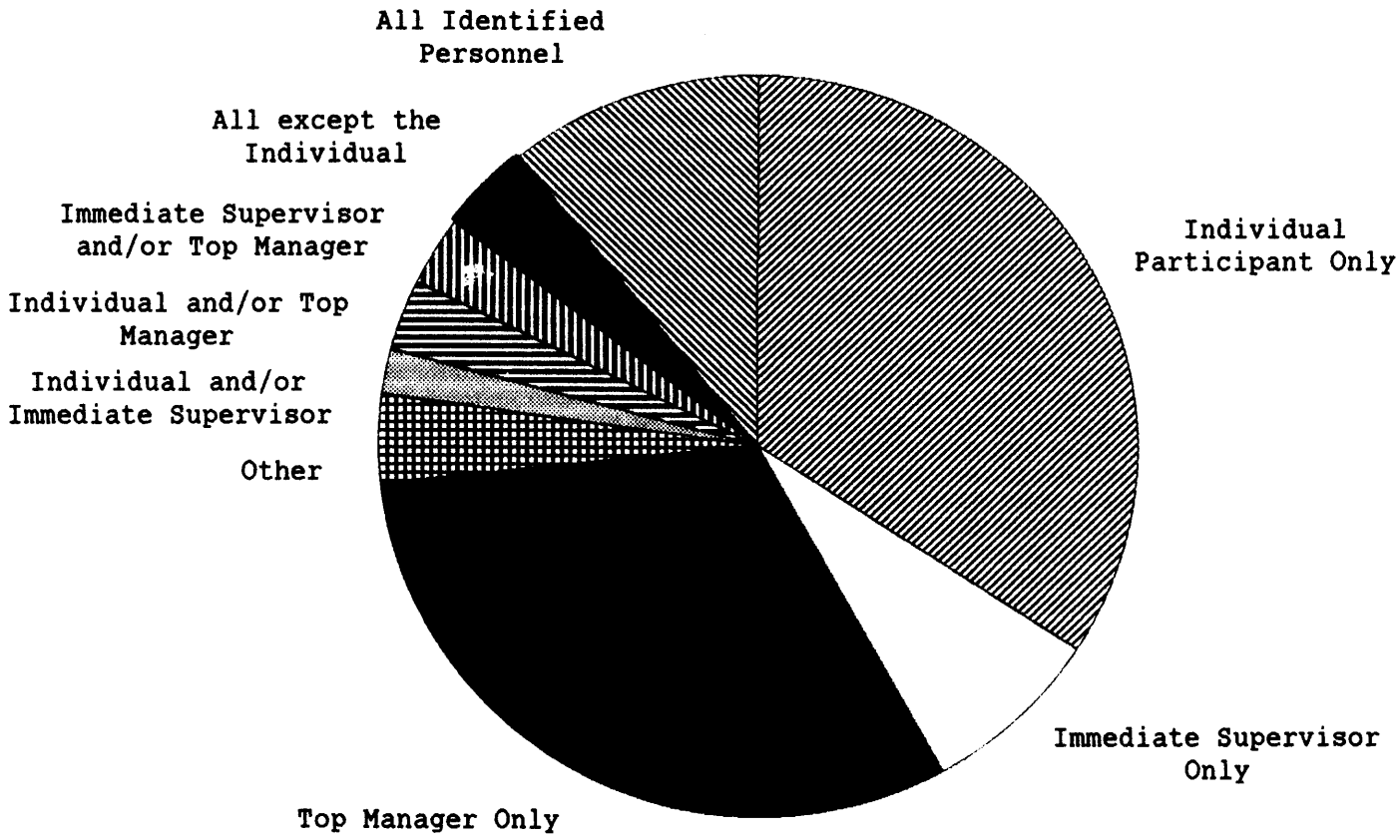


EXHIBIT 65

Management Levels to which University-Based Executive Education Programs are Offered.
(All Construction Industry Respondents.)

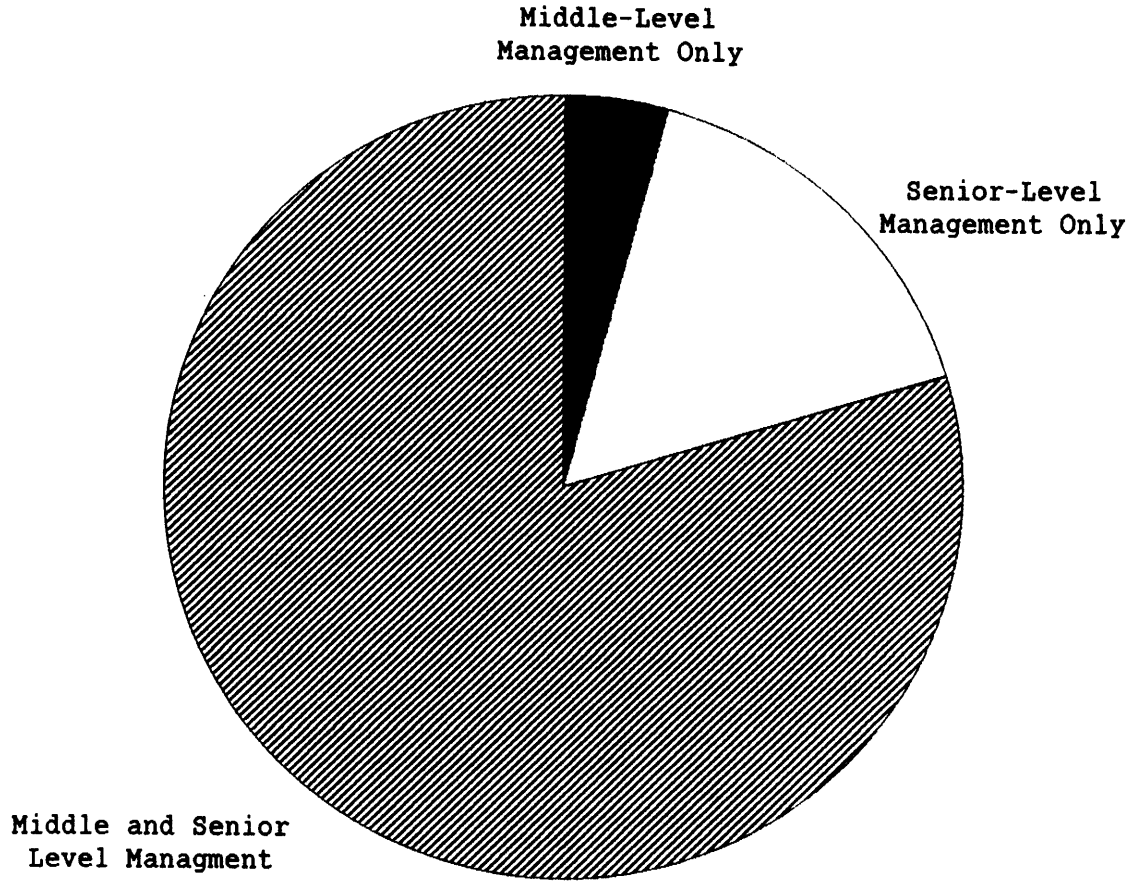


EXHIBIT 66

Number of Eligible Personnel in Respondent's Company that have Participated in University Based Executive Education Programs.
(Total = 138 Companies)

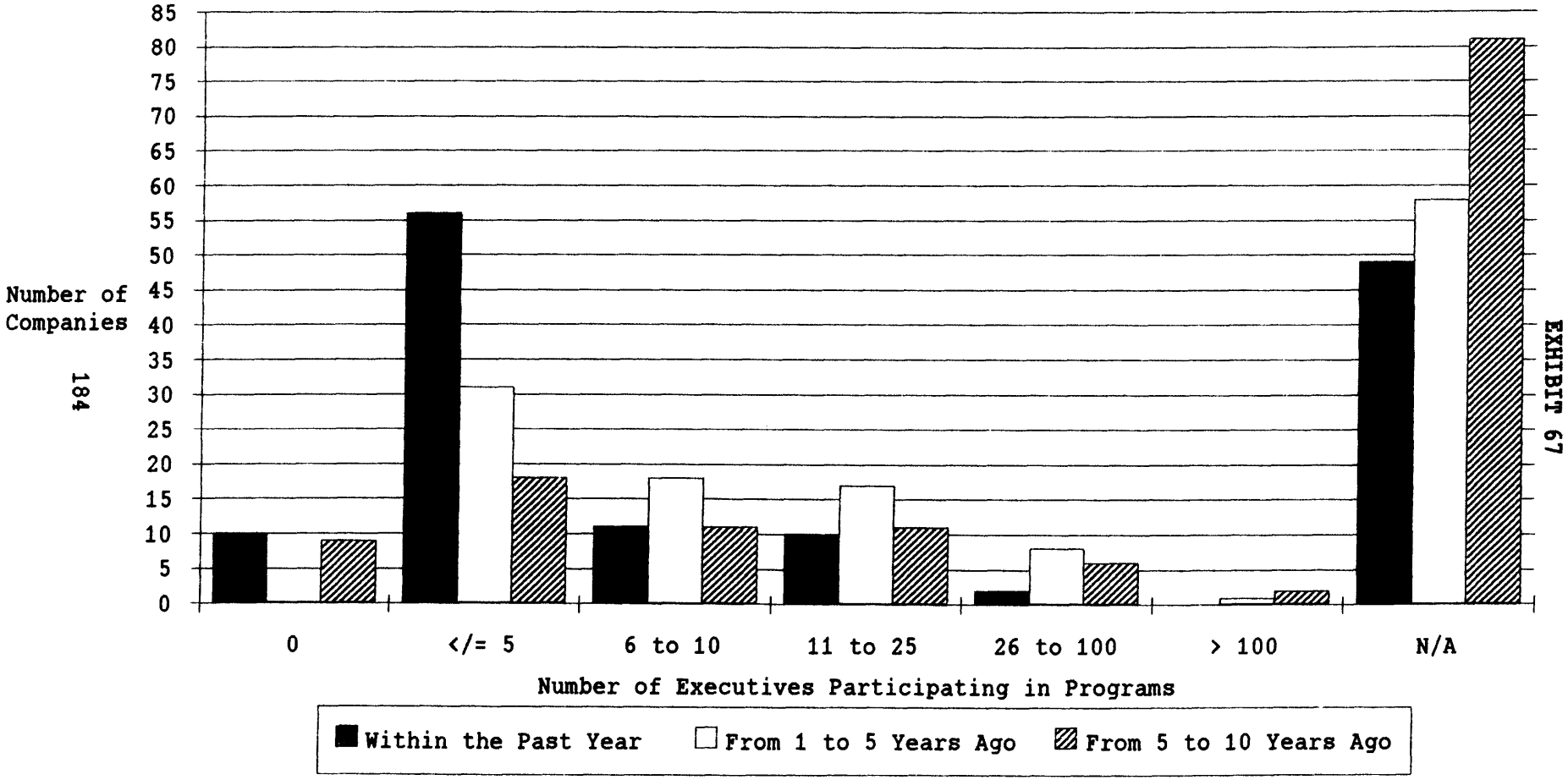


EXHIBIT 67

Company Expectations of Increasing Participation in University-Based Executive Education Programs.
(Total = 138 Companies)

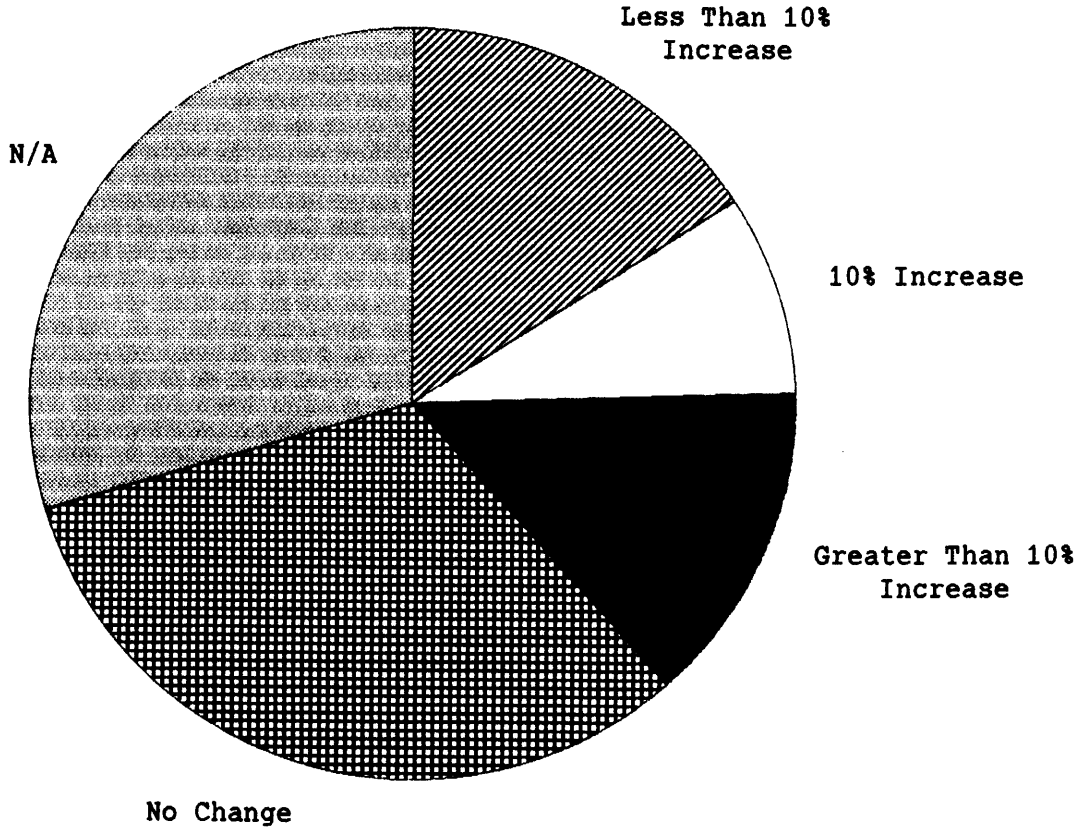


EXHIBIT 68

The Companies' Desired Length of Time for University-Based Executive Education Programs.
(Total = 138 Companies)

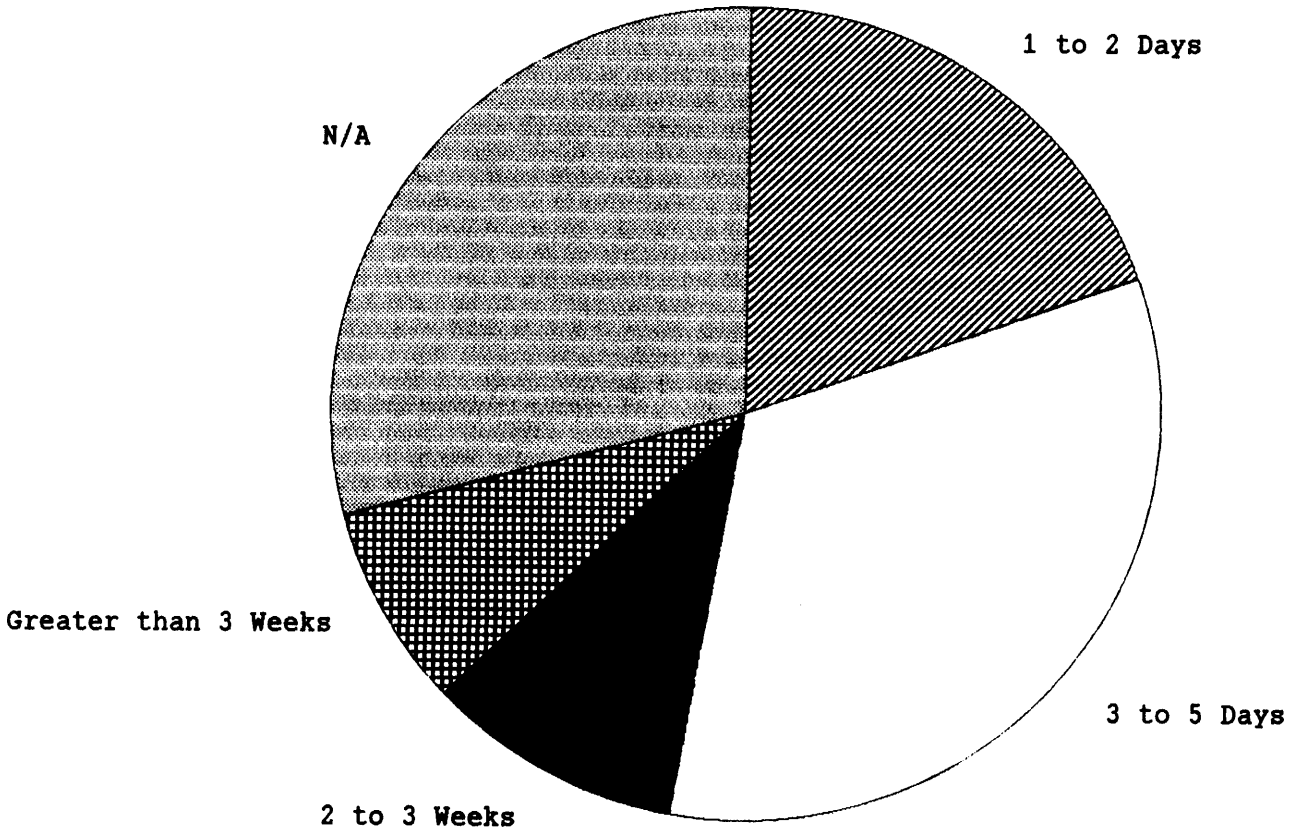


EXHIBIT 69

CHAPTER IV

CONCLUSION

To be successful in todays highly competitive construction industry, businesses have to follow a strategy that includes the development and refinement of its managers and executives. Executive education is a vital element in building a company's competitive advantage. Both in-company and university-based programs help to broaden the views of the men and women who run businesses. Better understanding their roles as managers, improving their decision making capabilities and their effectiveness in analyzing business problems and formulating policies are only a few of the benefits obtained from an on going state-of-the-art education.

Executive education programs can be university-based, in-company, or developed and delivered by private organizations or societies. In-company programs are sometimes preferred for the conveniences they offer. Programs are held at company-specific locations and cover topics most relevant to the company. Programs are tailored to the companies' needs. Program participants, lengths and times offered are flexible and adaptable to accommodate any change or demand. Interaction and communication channels among co-workers increases as well as general morale and camaraderie. University-based and other alternative education opportunities away from the office are preferred for their ability to handle a broad-base of technical information in an academic or professional setting. Interaction and networking with outside companies and industries is viewed as a valuable addition to the educational experience. University-based programs are more structured and elaborate. Executives obtain new ideas from outside sources and often view old problems in a fresh and enlightened way.

Nearly all University-Based Executive Education Programs offered today, as described in Peterson's Guides, Bricker's International Directories, Long and Short Term, are General Management Programs and

Functional Management Programs. These topics, though necessary for all well run businesses are not directed to the specific interests of the construction industry. Why haven't these sixty-six universities developed construction related programs? Is there a demand for such programs? Is the demand being met by private organizations and consulting companies?

The conclusions that can be derived from the research done for this paper is that there is a demand for business management courses and construction-specific courses for managers and executives but the demand is being met by the programs put out by universities and professional societies and private consulting institutions. Technical and trade-specific issues are covered at in-company programs where the company has the opportunity to get its views across to the entire staff. General construction management and executive programs are covered at seminars and taken by ambitious executives who request to participate in the programs delivered by the societies or organizations that they are familiar with.

The construction industry is very diverse and the interests and demands of the people working in the various sectors of the industry are as equally diverse. Architects, Engineers and Construction Managers work in areas such as highways, buildings, waste disposal, water resources, and the environment. Their interests could be as specific as coastal planning, chemical processing, landscaping, petroleum, surveying, structural engineering or planning. One thing that these professionals have in common is that they need good human relation skills to manage their staffs, good management skills to run a business and good business skills to be competitive in todays economy.

The courses offered at the sixty-six universities researched for this paper offer the broad topics needed for construction industry professionals to develop and/or refine their business skills. The courses appeal to all sectors of the business community and are most useful and effective because of this broad approach. These courses have the capability of teaching not only general managers, human resource professionals or financial accountants, but also technical people the

skills to be effective managers. One thing apparently lacking in these existing programs is the relationship and references to the construction industry. Construction case studies could be used to help make more identifiable the business problems and solutions of the industry.

Executives and all levels of management in the construction industry can refine their technical knowledge and skills in programs held by well known organizations and associations such as the Fails Management Institute and the Associated General Contractors of America. These courses are often taught by industry professionals and are directly related to both broad and narrowly focused issues of the construction industry. The general feeling arrived at from this research is that top executives utilize these programs to shape and develop new technical professional into middle managers and to perfect middle managers into more diverse, productive and knowledgeable middle managers.

Participation in all forms of education described in this paper is believed to be the most effective way to develop a well rounded and effective professional. The utilization of these programs at the appropriate time in a professional's career, along with the experience acquired through real working conditions, will help create a productive, knowledgeable and valuable executive that will greatly benefit any company.

Both the information acquired from existing University-Based Executive Education Programs and the responses to the survey resulted in an understanding of what executive are looking for in educational programs. The following chart represents the two most common responses to some of the questions put forth by this research.

	1st Top Response	2nd Next Response
EXISTING DATA UNIVERSITY-BASED PROGRAMS		
Desired program length	1 week	2 days
Number of participants accomodated per class	40 people	30 people
Size of company sending participants	> 1,000 employees	-
Industry respresented by participants	Manufacturing	Tele-communication
Managment level of participant	Upper-Middle Level	Senior Level
Functional area of the participant	General Management	Operations/ Production
Median age of the participant	40	-
SURVEY		
Respondent's company classification	Design Firm	Construction Company
Main trade practice	Prime/ General Contractor	Consulting Engineer
Company size	< 100 salaried employees	101 - 200 salaried employees
Total billing for 1990	$2 million to $19.99 million	$50 million to $99.99 million
Work area	General Building	Transportation or Sewer/Waste Control
Formal education requirement or executives	NO	-
Topics of interest	Project Management	Leadership, Motivation, Communication
In-Company Programs		
Selection of programs and participants	Top Managers	Immediate Supervisors
Participant's management level	Middle and Senior	-
Desired length of program	1 to 2 days	3 to 5 days
University-Based Programs		
Selection of programs and participants	Individual Participant	Top Managers
Participant's management level	Middle and Senior	-
Desired length of program	3 to 5 days	1 to 2 days

Some basic conclusions can be identified. The most preferred length of time for all forms of executive education is from 2 to 5 days. Executive education programs are most readily available to the upper levels of management though companies utilize the trade-specific courses or basic management courses to invest in entry level managers and prepare them for more responsibility within the company.

Topics of interest tend to be business and general management oriented, but, it is assumed that executives would like the educational approach to relate to construction issues. Project Management was the highest ranked topic in the survey followed closely by Leadership, Motivation, and Communication Effectiveness. These courses, though general business topics, can be easily adapted to the construction industry. It is believed that courses encompassing a broader base of information are more effective and desired. Executives want to see the whole picture and have a basic understanding of the parts and how the parts work together. Topics such as Project Management would cover an infinite number of issues within the industry and would therefor be appropriate not only construction managers, contractors, or designers but also support professionals such as manufacturers or supplier.

Due to the number and type of survey respondents, it is not clear exactly which sector of the construction industry participates most in executive education programs; Design Firms or Construction Companies. Both groups equally indicated that they are interested in these various forms of education. Design professional tend to imply that they are more inclined to participate in University-Based Programs. Construction Companies more readily stated that In-Company Programs are most preferred and are best suited to their needs but programs put on by private organizations or associations were also utilized. Given the economic conditions it can further be assumed that larger companies with a greater budget for training and development can participate more frequently and diversely. Given the cyclical nature of the construction industry two opposing conclusions can be made. During tight economic condition companies will: 1. limit the amount of money spent on all forms of development and training, or 2: take advantage of

the slower times to have their managers participate in development programs to help gear up for the inevitable upswing in the economy. Further market trends should be analyzed to better determine these actions.

Executive Education is a vital tool for building competitive advantage and for competing in a global, technologically driven marketplace. The benefits of executive education are vast. Participants in these programs broaden their knowledge, increase their ability to manage new technologies, identify strategies that make the most of limited resources, explore new tools and techniques, build their capacity for conceptual thinking, improve their leadership skills and expand their vision and values. They greatly benefit both themselves and the companies they work for by being able to see the picture, not only for it parts but more importantly, as a whole.

A P P E N D I X

MEMBERSHIP ENROLLMENT ACTIVITY COUNT BY SECTIONS AND STATES

U.S.	SECT #	SECTION(S)	TOT. MEM BY SECT. EXCLUDING STUDENTS	STUDENT MEMBERS BY SECT.	AS	AT	CO	EY	EM	EE	GT	HW	HY	IR	ME	MT	PL	ST	SU	UP	UT	WR	WW	CS	CR	CP	FE	LE	RE
ME	71	ME	547	27	5	16	220	63	24	158	125	132	111	94	92	26	34	188	117	67	61	112	56	60	44	66	21	26	34
NH	76	NH	584	99	17	25	230	56	37	154	134	156	124	108	125	26	39	194	138	117	82	143	72	61	59	88	25	33	63
VT	79	VT	232	72	7	10	91	20	17	86	48	50	56	49	50	7	17	91	50	45	29	67	16	20	25	36	15	15	21
MA	39	BOSTON	2787	546	62	82	1071	252	231	868	677	473	551	498	545	99	161	969	433	477	375	671	340	318	122	390	147	162	209
RI	46	RI	312	28	9	9	119	17	26	91	78	75	63	63	66	17	26	116	47	65	62	51	53	37	14	49	13	24	36
CT	09	CT	1205	191	44	25	499	104	115	289	227	253	225	208	239	47	61	474	230	212	172	200	127	127	46	161	55	56	81
NY	03	BUFFALO	371	104	4	5	150	35	35	86	80	88	74	62	79	17	19	139	69	51	46	76	45	42	21	59	15	22	27
NY	20	ITHICA	178	81	8	4	70	20	30	56	42	45	37	31	43	15	19	87	35	24	25	36	15	33	8	30	14	16	22
NY	28	METRO.	3014	466	73	137	1357	256	326	558	604	587	366	328	661	89	146	1384	298	548	579	428	335	368	105	424	197	198	235
NY	33	MOHAWK-HUDSON	806	180	15	24	326	63	70	251	166	233	148	125	185	30	47	274	133	164	153	161	66	105	41	106	47	47	60
NY	48	ROCHESTER	297	17	4	9	133	21	23	80	57	77	60	58	74	5	26	112	58	74	63	77	27	40	19	58	16	19	21
NY	56	SYRACUSE	391	86	12	12	163	43	53	116	95	83	82	61	84	16	25	165	58	56	46	100	36	49	32	56	29	22	40
		TOTAL FOR NY	5057	934	116	191	2199	438	537	1147	1044	1113	767	665	1126	172	282	2161	651	917	912	878	524	637	226	733	318	324	405
NJ	68	NJ	3177	462	60	103	1331	265	248	803	668	582	586	528	738	112	235	1193	452	663	481	630	318	401	114	425	168	171	221
PA	78	CENTRAL PENN	651	132	13	12	240	62	55	147	127	167	175	110	147	30	40	259	125	120	133	151	61	79	22	102	25	39	80
PA	24	LEHIGH VALLEY	350	98	8	10	151	32	39	82	68	85	80	81	76	18	35	185	76	60	39	77	36	56	22	55	24	31	40
PA	44	PHILADELPHIA	1403	237	28	32	571	137	116	342	311	230	251	221	325	47	87	579	195	252	221	283	127	182	55	222	79	76	115
PA	45	PITTSBURGH	1162	117	20	28	499	102	149	300	325	209	192	170	285	48	62	522	204	147	149	199	81	164	43	213	61	72	122
		TOTAL FOR PA	3566	584	69	82	1461	333	359	871	831	691	698	582	833	143	224	1545	600	579	542	710	305	481	142	592	189	218	357
OH	66	AKRON-CANTON	259	41	10	6	106	32	32	62	57	66	48	36	60	16	15	11	52	41	28	41	21	35	10	42	12	16	28
OH	05	CENTRAL OHIO	459	115	8	14	212	50	51	136	117	107	113	80	96	26	34	206	97	75	60	115	34	56	18	66	25	24	45
OH	06	CINCINNATI	402	108	7	9	197	24	36	104	113	60	71	66	110	19	19	185	64	53	43	79	37	50	15	70	22	22	46
OH	07	CLEVELAND	601	112	26	19	276	51	78	144	149	135	100	86	152	35	35	281	117	115	95	111	56	89	28	112	42	38	51
OH	10	DAYTON	299	41	14	19	143	14	24	69	45	68	55	63	68	18	22	116	73	56	49	66	10	31	8	43	12	17	23
OH	60	TOLEDO	284	100	5	11	111	24	31	91	53	76	68	60	65	13	24	118	58	46	46	67	30	50	17	52	20	28	30
		TOTAL FOR OH	2304	517	70	78	1045	195	252	606	534	512	455	391	551	127	149	1023	461	386	321	479	188	311	96	385	133	145	223
IN	17	IN	992	399	27	40	420	76	86	215	188	258	181	181	221	49	44	429	212	184	164	181	69	120	45	149	56	46	70
IL	16	IL	2433	264	58	88	989	259	249	505	574	526	382	396	571	112	165	1085	303	421	452	448	188	309	112	377	166	184	213
IL	04	CENT. ILL	584	257	13	32	210	36	82	135	161	170	137	115	123	46	25	255	102	77	114	112	41	67	27	96	42	36	60
		TOTAL FOR IL	3017	521	71	120	1199	295	331	640	735	696	519	511	694	158	190	1340	405	498	566	560	229	376	139	473	208	220	273
MI	30	MI	1633	406	43	47	701	144	181	454	386	327	297	281	384	103	119	656	256	263	238	342	161	214	88	272	97	101	132
WI	64	WI	1215	287	21	34	490	84	108	351	232	306	225	199	308	63	84	442	218	246	217	254	92	170	73	189	71	60	111
MN	40	MN	1060	194	20	51	417	73	75	231	223	236	231	204	235	57	51	388	146	172	185	217	74	113	68	148	62	41	74
MN	12	DULUTH	106	12	2	3	47	6	6	29	20	31	23	18	18	6	3	37	24	15	24	18	15	8	14	13	4	9	9
		TOTAL FOR MN	1166	206	22	54	464	79	81	260	243	267	254	222	253	63	54	425	170	187	209	235	89	121	82	161	66	50	83
IA	19	IA	485	67	11	20	177	24	42	122	83	176	113	96	108	27	32	185	105	99	114	103	22	60	21	73	29	23	46
IA	61	QUAD-CITY	172	6	2	4	63	17	10	41	36	42	34	38	53	7	14	66	35	32	25	50	32	16	8	24	5	11	11
		TOTAL FOR IA	657	73	13	24	240	41	52	163	119	218	147	134	161	34	46	251	140	131	139	153	54	76	29	97	34	34	57
MO	31	MID-MISSOURI	249	113	8	3	113	19	30	60	70	69	58	46	60	20	15	112	66	30	40	44	14	30	8	34	14	16	25
MO	21	KANSAS CITY	1152	79	16	34	391	87	82	294	228	223	232	221	253	44	81	432	154	162	177	252	63	127	38	154	58	43	66
MO	50	ST. LOUIS	918	196	28	26	393	68	102	221	212	192	170	154	250	38	59	402	172	162	130	167	85	143	43	155	59	80	86
		TOTAL FOR MO	2319	388	52	63	897	174	214	575	510	484	460	421	563	102	155	946	392	354	347	463	162	300	89	343	131	139	177

MEMBERSHIP ENROLLMENT ACTIVITY COUNT BY SECTIONS AND STATES

U.S.	SECT #	SECTION(S)	TOT. MEM BY SECT. EXCLUDING STUDENTS	STUDENT MEMBERS BY SECT.	AS	AT	CO	EY	EM	EE	GT	HW	HY	IR	ME	MT	PL	ST	SU	UP	UT	WR	WW	CS	CR	CP	FE	LE	RE
ND	82	ND	106	45	5	4	57	13	10	31	33	27	29	25	30	5	3	50	31	20	15	33	5	11	8	19	3	6	9
SD	77	SD	102	57	6	5	74	14	25	30	29	55	43	37	40	16	15	66	45	24	32	42	8	22	6	32	6	6	18
NE	36	NE	447	72	9	18	180	49	39	93	104	99	98	99	113	32	29	183	67	69	80	106	32	59	26	68	32	23	38
KS	22	KS	495	79	16	17	164	51	38	68	83	178	118	88	102	30	42	166	106	81	113	71	22	59	13	70	16	26	36
DE	74	DE	250	38	2	4	83	18	18	61	56	38	46	39	46	10	15	99	32	37	24	54	31	16	5	21	14	11	14
MD	27	MD	1529	88	25	45	373	92	81	208	302	405	309	242	341	57	101	514	238	301	291	310	177	188	42	196	68	68	89
DC	11	DC	3014	234	87	171	1019	300	258	703	577	624	571	544	776	123	153	991	326	630	547	672	383	372	132	429	143	184	328
VA	62	VA	1684	335	36	48	648	128	101	298	309	320	346	301	383	71	121	800	275	339	237	384	196	178	64	215	68	80	122
WV	63	WV	342	79	5	8	149	26	21	94	93	83	64	62	80	25	32	115	84	43	40	60	16	32	16	44	19	12	22
NC	38	NC	1532	177	25	46	609	140	122	288	307	305	288	247	331	75	98	643	256	271	212	309	150	190	49	230	80	84	121
SC	54	SC	848	197	17	20	345	69	68	197	176	155	141	176	169	54	55	367	129	135	101	151	89	104	19	106	48	53	66
GA	14	GA	1576	314	46	84	903	178	180	507	544	563	421	361	507	88	118	807	317	371	285	418	198	303	58	325	76	111	172
FL	13	FL	2785	345	52	96	919	126	144	661	481	614	694	666	519	117	161	815	371	544	458	657	298	265	58	348	110	94	161
FL	29	S. FL.	1349	131	26	58	475	61	83	295	234	305	213	276	306	45	90	480	179	289	203	250	157	143	39	174	69	46	78
		TOTAL FOR FL	4134	476	78	154	1394	186	227	989	715	919	817	942	825	162	251	1295	550	833	661	907	455	408	95	522	179	140	239
KY	23	KY	534	179	13	16	200	26	39	113	149	148	120	109	103	34	37	184	147	107	93	106	24	62	19	88	26	34	40
TN	58	TN VALLEY	1619	345	53	49	397	171	148	348	276	298	335	273	358	69	90	642	293	262	175	332	128	209	59	229	61	92	144
AL	01	AL	1064	242	36	34	418	103	108	238	213	254	189	183	226	63	77	460	219	143	123	207	113	128	31	152	44	54	83
MS	81	MS	605	78	10	17	157	27	74	103	103	85	171	140	104	45	30	177	95	66	55	117	149	53	18	94	15	34	86
AR	69	AR	308	93	1	12	130	24	21	85	78	73	75	66	62	19	12	125	51	46	36	76	22	33	9	45	18	15	21
LA	26	LA	1306	225	26	35	520	63	107	228	226	256	203	245	277	54	146	607	285	188	165	217	234	147	49	182	73	68	95
OK	41	OK	620	116	14	24	196	59	33	115	120	145	141	126	118	26	70	220	111	97	96	121	47	53	18	74	29	23	47
TX	59	TX	5423	685	109	176	2011	469	466	1092	1102	1048	1136	1071	1223	298	546	2094	970	1046	813	1102	551	676	206	804	271	294	408
MT	34	MT	287	63	1	17	126	27	14	66	57	89	67	71	64	16	29	83	76	53	54	58	7	32	23	39	12	17	19
ID	67	ID	279	15	2	8	110	37	17	55	56	52	63	63	54	15	27	89	52	33	40	66	13	23	12	27	16	15	15
WY	65	WY	224	45	6	6	101	21	14	73	56	65	73	80	58	17	30	69	65	41	41	80	8	27	15	37	6	7	20
CO	08	CO	2324	334	58	77	775	230	177	387	371	424	381	731	483	123	226	705	318	376	347	745	160	260	125	359	160	153	220
NM	37	NM	602	43	28	27	202	39	89	114	154	128	134	134	131	35	28	206	102	111	84	148	32	66	23	78	35	42	68
AZ	02	AZ	1468	181	19	50	462	97	88	284	298	367	390	387	311	65	104	397	261	306	298	369	83	162	51	210	51	83	110
UT	18	UT	534	264	21	17	218	51	27	137	130	121	177	208	99	28	75	190	155	131	86	196	37	62	19	93	26	50	36
NV	80	NV	406	148	7	17	174	39	28	77	88	96	108	108	78	31	47	129	93	103	68	107	22	43	24	40	22	33	34
AK	73	AK	585	135	8	34	267	49	32	148	170	156	128	104	172	30	70	167	149	89	110	135	100	66	258	87	27	59	46
WA	72	COLUMBIA	211	29	5	8	68	39	21	57	42	37	64	61	46	7	16	74	24	23	18	66	14	24	4	37	7	9	18
WA	55	INLAND EMP.	250	102	8	33	119	39	28	86	68	86	79	79	52	19	17	103	63	54	44	79	26	28	22	48	18	22	28
WA	53	SEATTLE	1630	227	66	82	582	174	137	385	360	273	379	340	326	67	128	541	207	246	266	389	245	199	138	230	77	137	110
WA	57	TACOMA	348	45	8	32	114	38	19	72	68	85	79	68	73	17	18	122	57	63	70	76	38	33	13	48	20	19	20
		TOTAL FOR WA	2447	406	87	115	883	250	205	600	518	480	650	548	497	110	179	840	351	386	398	610	323	284	177	363	122	187	176
OR	42	OR	1076	256	13	36	565	117	109	408	242	216	264	229	230	38	86	371	186	181	171	275	135	118	71	154	37	75	79
CA	25	L.A.	5469	731	210	181	1978	399	466	1400	1064	986	1347	1123	1185	202	560	1843	801	1077	764	1165	581	551	201	679	221	499	392
CA	49	SACRAMENTO	1701	278	24	39	536	145	102	381	329	376	488	502	284	75	124	515	278	295	255	468	115	150	47	193	47	138	107
CA	51	SAN DIEGO	1083	157	20	29	346	42	54	215	204	215	284	259	200	44	108	313	232	268	153	209	118	108	39	135	58	89	62
CA	52	SAN FRAN.	5172	787	135	197	1945	495	478	1087	1324	804	1025	1017	1089	198	405	1906	669	858	710	1041	591	527	207	677	300	558	372
		TOTAL FOR CA	13415	1953	397	448	4701	1072	1124	2813	2940	2281	3144	2892	2698	519	1197	4577	1980	2499	1882	2883	1405	1336	494	1684	626	1284	933
HI	15	HI	823	44	15	64	481	92	78	256	241	287	319	242	336	32	124	479	140	295	168	231	206	134	35	156	40	83	99
PR	47	PR	281	37	2	8	109	8	22	68	76	94	49	42	87	6	18	123	40	63	22	49	39	35	5	44	10	31	25
		TOT. FOR U.S. SECTIONS	83196	14055	1966	2881	30064	6861	7189	17999	16543	16376	18391	3769	6201	31273	13567	15167	12880	17876	8455	9761	3708	11925	4228	5361	6831

U.S.	SECT #	SECTION(S)	TOT. MEM BY SECT. EXCLUDING STUDENTS	STUDENT MEMBERS BY SECT.	MEMBERSHIP ENROLLMENT ACTIVITY COUNT BY SECTIONS AND STATES																									
					AS	AT	CO	EY	EM	EE	GT	HW	HY	IR	ME	MT	PL	ST	SU	UP	UT	WR	WW	CS	CR	CP	FE	LE	RE
CANADA																														
QUEBEC	92	QUE. SECT.	185	2	4	5	75	35	31	31	66	19	37	32	37	9	11	80	5	18	21	35	23	27	17	24	1	14	24
E. CAN.	93	EAST SECT.	43	0	0	1	11	4	4	8	13	7	11	6	5	3	2	16	1	1	3	8	11	9	8	6	2	4	7
M. CAN.	94	MID. SECT.	524	1	7	12	157	53	84	99	154	54	94	97	79	12	26	215	21	69	51	90	76	57	45	63	13	27	54
W. CAN.	95	WEST SECT.	334	1	2	10	100	40	59	61	112	45	87	88	81	7	32	131	16	40	31	66	65	48	50	55	8	28	38
		TOT. FOR CANA	1086	4	13	28	343	132	178	199	347	125	229	223	202	31	71	442	43	128	106	199	175	141	120	148	24	73	123
MEXICO	70	MEX. SECT.	125	2	1	3	51	18	20	17	41	10	26	28	26	2	10	47	13	16	10	20	16	20	4	23	1	12	18
PANAMA	43	PANAMA SECT.	42	0	0	0	23	3	6	3	10	6	2	2	8	2	1	24	2	5	2	5	2	4	1	4	0	2	3
COLOMBIA	75	COLOMBIA	177	4	0	6	47	25	7	20	49	22	33	38	23	6	5	45	10	23	10	28	16	17	2	23	1	13	9
FOREIGN	96	ALL FOREIGN	5961	95	63	144	2181	488	679	878	1804	808	878	1108	996	188	337	2235	351	717	564	1047	826	785	145	776	94	370	579
APO/FPO	91	MILITARY	370	11	16	25	217	34	20	85	66	62	52	43	128	12	16	114	52	83	44	74	51	39	15	47	15	20	18
T.T.	97	US TERRITORY	25	2	2	1	12	3	3	4	2	2	3	6	5	0	1	9	3	7	4	8	4	5	1	2	1	1	2
		GRAND TOTAL	90921	14163	2083	3131	34068	7694	8022	20632	20490	18341	18866	17818	19779	4010	6642	34189	14041	16146	13620	19257	9545	10772	3996	12948	4364	5852	7383

JOURNALS SUBSCRIBERS
(MEMBERS AND NON-MEMBERS WHO SUBSCRIBE TO THE FOLLOWING JOURNALS)

			190		6443	1107	1752	4138	6671		3166	2138	3082	192		5816	1621	1935		2252	1750		375	2622				

MEMBERSHIP COUNT BY ZONES AND DISTRICTS

ZONE I

DISTRICT NUMBER		DISTRICT TOTAL
1	NEW JERSEY (3639); METROPOLITAN (3480); BUFFALO (475); ITHACA (259); MOHAWK-HUDSON (986) ROCHESTER (314); SYRACUSE (477); PUERTO RICO (358); QUEBEC (187)	10175
2	CONNECTICUT (1396); MAINE (574); BOSTON (3333); NEW HAMPSHIRE (683) RHODE ISLAND (340); VERMONT (304); E. CANADA (43)	6673
4	CENTRAL PENN (783); LEHIGH VALLEY (448); PHILADELPHIA (1640); PITTSBURGH (1279)	4150
5	NATIONAL CAPITAL (3248) DELAWARE (288); MARYLAND (1617)	5153
	TOTAL ZONE I	26151

ZONE II

6	NORTH CAROLINA (1709); SOUTH CAROLINA (1045); VIRGINIA (2019); W. VIRGINIA (421)	5194
7	AKRON-CANTON (300); CENTRAL OHIO (574); CINCINNATI (510); CLEVELAND (713); DAYTON (340); TOLEDO (384); MICHIGAN (2039)	4860
9	TENNESSEE (1959); KENTUCKY (713); INDIANA (1391)	4063
10	FLORIDA (3130); SOUTH FLORIDA (1480); GEORGIA (1884)	6494
14	ALABAMA (1306); ARKANSAS (401) LOUISIANA (1530); MISSISSIPPI (683)	3920
	TOTAL ZONE II	24531

ZONE III

DISTRICT NUMBER		DISTRICT TOTAL
8	N. DAKOTA (151); DULUTH (118); MINNESOTA (1254); WISCONSIN (1502); CENTRAL ILLINOIS (841); ILLINOIS (2697); QUAD-CITY (174); MID. CANADA (495)	7232
15	TEXAS (6308); NEW MEXICO (645); OKLAHOMA (736); MEXICO (127)	7816
16	WYOMING (269); COLORADO (2658); S. DAKOTA (259); NEBRASKA (519); KANSAS (565) IOWA (552); KANSAS CITY (1231); MID MISSOURI (362); ST. LOUIS (1141)	7556
	TOTAL ZONE III	22604

ZONE IV

11	ARIZONA (1629); HAWAII (867); NEVADA (556) LOS ANGELES (6190) SACRAMENTO (1979); SAN DIEGO (1240); SAN FRANCISCO (5959); UTAH (798)	19218
12	ALASKA (720); MONTANA (350); OREGON (1332); COLUMBIA (240); SEATTLE (1857) INLAND EMPIRE (367); TACOMA (391); SOUTHERN IDAHO (294); WEST. CANADA (335)	5886
	TOTAL ZONE IV	25104

INTERNATIONAL

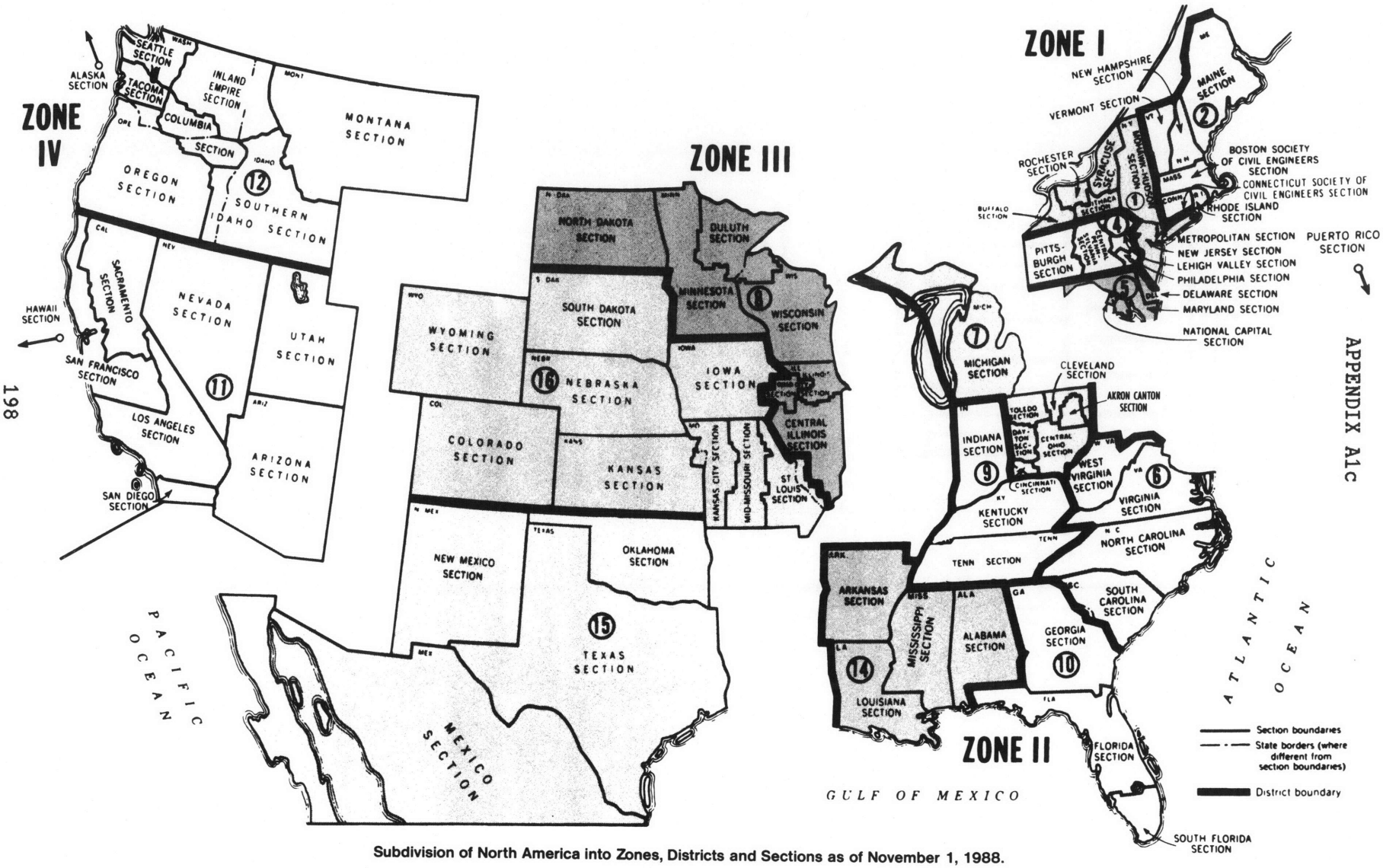
FOREIGN	PANAMA (42); REP. OF COLUMBIA (181); APOs (381); US TERRITORY (27) ALL OTHERS OUTSIDE OF NORTH AMERICA (6056)	6687
	GRAND TOTAL ASCE MEMBERSHIP	105077

AS = AEROSPACE, AT = AIR TRANSPORTATION, CO = CONSTRUCTION, EY = ENERGY, EM = ENG. MECHANICS, EE = ENVIRONMENTAL ENG., GT = GEOTECHNICAL, HW = HIGHWAY, IR = IRRIGATION AND DRAINAGE, HY = HYDRAULICS, PL = PIPELINE, STRUCTURAL = ST, SU = SURVEYING, UP = URBAN PLANNING, UT = URBAN TRANSPORTATION, WR = WATER RESOURCES, WW = WATER WAY & COASTAL, CS = CODES & STANDARD, CR = COLD REGIONS, CP = COMPUTER PRACTICES, FE = FORENSIC, RE = RESEARCH, MT = MATERIAL, LIFELINE & EARTHQUAKE

BUSINESS/POSITION BREAKDOWN

ENGINEERING EMPLOYMENT	TOTAL OCCUPATIONAL	OWNERS, PRES., V.P. GEN. MANGRS., & MILIT. OFFICERS	PROJ. MGRS. COORDS. CHIEF, & STAFF ENGRS.	STAFF ARCH., DESIGN, DRAFTS	CONST. SUPT., SUPERVISORS, STAFF PERSNNL	DEPT. HEADS DEPT. MNGRS.	OTHER PERSONNEL & CO. ADDRESS
ENG. PRIVATE PRACTICE-CONSULT. ENG	35459	14916	16377	1557	101	1045	1463
ENG. PRIVATE PRACTICE-ENG. ARCH.	3958	1436	1847	273	27	183	192
ENG. PRIVATE PRACTICE-BUILDING	2069	995	719	69	65	113	108
ENG. PRIVATE PRACTICE-NON BUILDING	2154	778	895	107	90	165	119
ENG. PRIVATE PRACTICE-BOTH	2294	759	1054	92	65	190	134
SUB TOTAL	45934	18884	20892	2098	348	1696	2016
ENG. GOT. FEDERAL	6956	477	4641	395	76	549	818
ENG. GOVT./STATE, COUNTY & TOWN	6640	423	4219	781	141	523	553
ENG. GOVT. MUNICIPAL	3651	382	2339	332	47	367	184
ENG. GOVT FOREIGN	1636	541	655	62	9	166	203
SUB TOTAL	18883	1823	11854	1570	273	1065	1758
ENG. GENERAL INDUSTRY	6466	812	3874	471	102	708	499
ENG. SCHOOL INSTRUCTORS	4601	286	219	22	6	92	3976
ENG. STUDENTS	14822	14	45	16	11	8	14728
ENG. ASSOC. PROD. MATERIALS	1107	316	490	68	8	126	99
ENG. REPRESENTATIVES	769	294	325	23	6	50	71
ENG. MANUFACTURE CONSTR. EQUIP.	411	149	159	18	2	41	42
OTHER ENG. ALLIED TO FIELD	8491	515	835	98	51	168	6824
TOTALS	101484	23093	38693	4384	807	4494	30013

APPENDIX A1b



Subdivision of North America into Zones, Districts and Sections as of November 1, 1988.

APPENDIX A2

NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

MEMBERSHIP LIST JULY 1990

STATE COUNTS			
AK	261	MT	130
AL	619	NC	1,615
AR	463	ND	176
AZ	621	NE	449
CA	2,656	NH	201
CO	694	NJ	2,160
CT	609	NM	469
DC	106	NV	280
DE	170	NY	3,015
FL	4,247	OH	2,514
GA	1,215	OK	1,144
HI	302	OR	326
IA	629	PA	2,894
ID	307	RI	193
IL	2,509	SC	640
IN	857	SD	219
KS	709	TN	961
KY	994	TX	5,341
LA	952	UT	122
MA	877	VA	1,707
MD	922	VT	105
ME	161	WA	546
MI	1,878	WI	1,093
MN	908	WV	376
MO	1,668	WY	115
MS	618		
		TOTAL	52,125

SPECIALTY SELECTS AND COUNTS	
Aerospace	330
Agricultural	311
Architectural	325
Chemical	1,435
Civil	17,146
Computer	270
Electrical	6,069
Electronics	583
Industrial	916
Materials	185
Mechnical	8,108
Manufacturing	471
Petroleum	573
Structural	1,822

AREAS OF PRACTICE	
Construction	5,443
Education	1,473
Government	6,597
Industry	15,069
Private Practice	19,523

UNIVERSITY-BASED EXECUTIVE PROGRAMS AVAILABLE IN 1990 *
(Programs less than one week)

	UNIVERSITY/INSTITUTE NAME		PROGRAM TITLE
1	Aspen Institute	A	The Future of the Corporation
		B	Weekends at Wye
		C	The Corporation and the Changing International System
2	Brookings Institute	A	Issues in Telecommunications Policy
		B	Federal budget: Fiscal Year 1991
		C	The U.S. in the World Economy: Policy Issues and Choices
		D	Financing National Health Care: Tradeoffs Between Access and Cost Control
		E	The National Security Agenda for the 1990's
		F	Science, Technology, and Industrial Productivity
3	California Institute of Technology	A	Artificial Intelligence: Understanding and Development Strategic Applications
		B	Manufacturing Cost Strategies: Meeting the Competitive Challenge
		C	Restructuring Your Manufacturing Operations: A Framework for Organizational Change
		D	Bld., Executing. & Intgrtd. Strategic Plan: Linking Markting, R&D,& Production Stratgies
		E	Managing Techn. as a Strategic Resource: Positioning for Competitive Advantage
		F	Just-in-time Manufacturing
		G	Manufacturing Strategies: Building for the Future
4	University of California, L. A.	A	Role of the Board of Directors
5	Case Western Reserve University	A	Advanced Management Program for M.B.A.'s
6	Center for Creative Leadership	A	Managing for Commitment
		B	Designing Systems for Executive Development
		C	Values in Action
7	University of Chicago	A	Creating New Products and Services
		B	Developing Marketing Plans
		C	Industrial Marketing
		D	Marketing Analysis and Tactical Decision Making
		E	Marketing Communications
		F	Marketing Strategy and Planning
		G	Measurements for Competitive Marketing Strategy

		H	Pricing Strategy and Tactics
		I	Sales Force Productivity Strategies
		J	Customer Satisfaction: Management Strategies and Tactics
8	Dartmouth College	A	Stategic Cost Accounting and Control
9	Georgia State University	A	Finance and Accounting for NOn-FinancialManagers
10	University of Houston	A	Advanced Purchasing Workshop
		B	Essentials of Purchasing
		C	Purchasing Negotiation Skills
11	University of Illinois	A	Fundamentals of Finance and Accounting for Non-Financial Executives
		B	Bond Analysis and Portfolio Management
		C	Pension Fund Management in Volatile Markets
		D	Simplified Strategic Planning for Small to Mid Sized Companies
12	Indiana University	A	Finance and Accounting for Non-Financial Managers
		B	Improving Management Skills
		C	Fundamentals fo Marketing Management
		D	Leadership for the 1990's
		E	Organizing and Managing for Customer Satisfaction
		F	Production Management: Inventory Control in the Computer Age
		G	Production Management: Manufacturing Management in the 1990's
13	Massachusetts Institute of Tech.	A	Current Issues in Information Systems
14	Menninger Management Institute	A	Managing Organizational Change and Resolving Conflict
		B	Work and Family: Understanding Change, Health and Growth
15	University of Michigan	A	Advanced Financial Analysis for Commercial Lending
		B	Financial Analysis, Planning and Control
		C	Basic Management for the Newly Appointed Manager
		D	Managing International Joint Ventures
		E	Project Management
		F	Classroom Training Techniques
		G	Employee Discipline and Grievance Handling
		H	How to Prepare and Win More Arbitration Cases
		I	Interviewing: A Strategic Approach
		J	Cost Effective Purchasing Management
		K	Business to Business Marketing Strategies
		L	Effective Sales Management
		M	Marketing for Non-Marketing Managers

		N	Strategies in Sales Management for Sales Executives
		O	Delegation and the Team Effort: People and Performance
		P	Effective Managerial Coaching and Counseling
		Q	Gaining Competitive Advantage
		R	Meeting the Japanese Challenge: Building Competitive Organizations
		S	Strategic Management of Technology
16	University of North Carolina	A	Finance for the Non-Financial Manager
		B	Total Quality Management
		C	Building the Winning Organization
		D	Customer Satisfaction: The New Competitive Edge
		E	Increasing Sales Force Productivity
		F	Making Your Marketing Strategy Work
		G	Marketing Professional Services: Advanced Strategies for Implementation
		H	Marketing Strategy and Planning
		I	Pricing Strategies for Maximized Profits
		J	Product Profiling
		K	Strategic Planning for the $10-to $50-Million Company
		L	Customer-Driven Manufacturing: The Manufacuring-Marketing Connection
		M	Increasing Productivity of Professional Services
		N	Just-inTime: Managing Lead Times and Delivery Reliability
		O	Manufacturing Strategy for competitive Advantage
17	Northern Illinois University	A	Vendor Certification
18	Northwestern University	A	Communicating with the Japanese Business World
		B	Advanced Futures and Options Strategies for Professional Financial Managers
		C	Credit Analysis and Financial Reporting
		D	Developing a Corporate Pension Strategy
		E	Managing Financial Risk with Futures and Options
		F	Strategic Financial Planning
		G	Decision-Making Strategies for Managers
		H	Negotiation Strategies for Managers
		I	Managing Communications in the Changing Marketplace
		J	The Art of Venturing: Entrepreneurship for the Businessperson
19	University of Notre Dame	A	Credit Analysis
		B	Finance for Non-Financial Managers
		C	Psychology of Persuasion

		D	Business Forecasting Using a PC
20	University of Pennsylvania	A	Chief Executives and Senior Officers of Family-Held Businesses
		B	The Next Generation of Family Members in Family-Held Businesses
21	Rice University	A	Finance and Accounting for Non-Financial Managers
		B	How to Manage the Sales Force
		C	Successful Negotiation Skills
22	University of Rochester	A	Management cost Accounting
		B	Advances in Manufacturing Systems Design
		C	Manufacturing costs and Performance Measurement
		D	Uptime Management: Reliability, Maintenance and Support
23	Stanford University	A	Financila seminar for Non-Financial Managers
		B	Program on Managing Innovation
		C	Program on Market Strategy for Technology-Based Companies
24	University of Texas at Austin	A	Accounting for Non-Accounting Managers
		B	Financial Decision Making: Integrated Strategies for the Non-Financial Managers
		C	Managing Salespeople for Performance
		D	Marketing Strategy for Competitive Advantage
		E	Customer Service: The New Competitive Advantage
25	Vanderbilt University	A	What Executives Should Know About Finance and Accounting
		B	Effective Management Techniques
		C	Managing the Manager
		D	Training the Trainer
		E	Essentials of Purchasing for the Newly Appointed Buyer
		F	Effective Marketing Techniques
26	University of Virginia	A	Leadership for Extraordinary Performance
		B	Managing Organizational and Individual Change
27	University of Washington	A	Finance and Accounting for Non-Financial Executives
		B	Marketing Research
		C	Marketing Strategy, Analysis and Decisions
		D	Sales Management and Strategies
		E	Managing Change
		F	Successful Negotiating Skills
28	Washington and Lee University	A	Institute for Family Business

* According to Bricker's Short-Term Executive Programs, Peterson's Guides, New Jersey, 1990

UNIVERSITY-BASED EXECUTIVE PROGRAMS AVAILABLE IN 1991*
(Programs longer than one week)

	UNIVERSITY/INSTITUTE NAME		PROGRAM TITLE
1	University of Arizona	A	Executive Development Course
2	Aspen Institute	A	Corporation in Contemporary Society
		B	Traditional Executive Seminar
3	Babson College	A	Developing Managerial Effectiveness
		B	Achieving Global Integration
		C	Technology Managers Program
		D	Managing and Developing Human Resources: a Strategic Perspective
		E	Market Segmentation Positioning and Competitive Advantage
		F	Changing Role of Procurement Management
4	Boston University	A	Managment Development Program
		B	Leadership Institute
		C	Strategic Human Resources Management in a Global Economy
		D	Implementing Manufacturing Strategy
5	Brookings Institute	A	Understanding Federal Government Operations
6	University of California, Berkeley	A	Executive Program
		B	Management Development, A Comprehensive Approach
		C	Corporate Financial Management and Strategy Program
		D	Executive Compensation
		E	Advanced Strategic Marketing
		F	Competitive Marketing Strategies for High-Tech Products
		G	Competitve Marketing Strategies for Industrial Products
		H	Competitive Marketing Strategies for Services
7	California Institute of Technology	A	Management of Technology and Innovation
8	University of California, Los Angeles	A	Advanced Executive Program
		B	Advanced Program in Human Resource Management
		C	Managing the Information Resource
		D	Engineering and Management Program
9	Carnegie Mellon University	A	Program for Executives

		B	Program for Technical Managers
		C	College Management Program
		D	Senior Executive Seminar
		E	Strategic Management of Technology Through the 1990's
10	Center for Creative Leadership	A	Dynamics of Strategy: Goals into Action
		B	Implementing Innovation
		C	Leadership at the Peak
		D	Leadership Development Program
		E	Managing the People Process: From Idea to Market Entry
		F	Workshop in Organizational Action
11	University of Chicago	A	Management Development Seminar
		B	Product Management: Analysis, Planning, Decision Making
12	Colorado State University	A	Executive Development Institute
13	Columbia University	A	Executive Program in Business Admisinstration: Managing the Enterprise
		B	Executive Program in International Management: Managing for Global Success
		C	Business Strategy
		D	International Strategy
		E	Leading and Managing People
		F	Managing Strategic Innovation and Change
		G	Accounting and Financial Management for the Non-Financial Executive
		H	Financial Management
		I	Human Resource Management
		J	Market Analysis for Competitive Advantage
		K	Marketing Management
		L	Sales Management
		M	Operations and Production Management
14	Cornell University	A	The Effective Executive
		B	Executive Development Program
		C	Managing the Next Generation of Manufacturing
15	Dartmouth College	A	Minority Business Executive Program
		B	Tuck Executive Program
		C	Dartmouth Institute
		D	Marketing Strategy Program
		E	Effective Management of Production Operations
16	Duke University	A	Advanced Managment Program

		B	Program for Manager Development
		C	Dynamics of Competitive Advantage
		D	Managerial Finance
		E	Strategic Human Resources Management Program
		F	Marketing Management Program
17	Emory University	A	Advanced Management Program
		B	Management Development Program
18	George Washington University	A	Managing in the Global Marketplace
19	University of Georgia	A	Executive Program
20	Georgia State University	A	Management Development Program
21	Harvard University	A	Advanced Management Program
		B	International Senior Management Program
		C	Owner/President Management Program
		D	Program for Management Development
		E	Executive Program in Competitive Strategy
		F	Institute for the Management of Lifelong Education
		G	Program for Senior Executive Fellows
		H	Program for Senior Executives in State and Local Government
		I	Program for Senior Managers in Government
		J	Contemporary Developments and Control
		K	Corporate Financial Management
		L	Managing the Information Services Resource
		M	Strategic Marketing Management Program
		N	Manufacturing in Corporate Strategy
22	University of Hawaii	A	Advanced Managment Program
23	University of Houston	A	Executive Development Program
		B	Managing Operations
24	University of Illinois	A	Executive Development Program
		B	Program for International Managers
		C	Specialized Program for International Managers
25	Indiana University	A	Managing Business Strategies Program
		B	Values, Choice, and Executive Action-An Executive Development Program
		C	Professional Manager Program
26	University of Iowa	A	Executive Development Program
27	Louisiana State University	A	Executive Program

28	University of Maryland	A	Executive Development Program
29	Massachusetts Institute of Technology	A	Program for Senior Executives
		B	Sloan Fellows Program
		C	Executive Program in Corporate Strategy
		D	Executive Program in Management Issues for Corporate Counsel
		E	Executive Program in Mangement of Complex Organizations
		F	Executive Program in Japanese Technology Management
		G	Executive Program in Financial Management
		H	Management of Research, Development, and Technology-Based Innovation
30	Menninger Management Institute	A	Executive Seminar
		B	Personal and Interpersonal Dimensions of Leadership
31	University of Miami	A	Minority Executive Program
32	University of Michigan	A	Executive Program
		B	Strategies for Global Competition
		C	Strategy: Formulation and Implementation
		D	Excellence in Service Management
		E	Successful Product Innovation
		F	Executive Communication
		G	Management of Managers
		H	Management II: A Mid-Management Development Program
		I	Corporate Financial Management
		J	Finance for the Non-Financial Manager
		K	Advanced Human Resource Executive Program
		L	Human Resource Executive Program
		M	Negotiating and Administering the Labor Contract
		N	Organizational Career Development
		O	Strategic Collective Bargaining
		P	Strategic Human Resource Planning
		Q	Applied Methods in Marketing Research
		R	Applied Product/Market Management
		S	Business to Business Marketing Strategies
		T	Strategic Marketing Planning
		U	Manufacturing Executive Program
33	University of Minnesota	A	Executive Program
		B	Management Institute

		C	Management Academy
34	University of New Hampshire	A	Executive Development Program
35	University of North Carolina	A	Executive Program
		B	Young Executives Institute
		C	Program for Technology Managers
36	Northeastern University	A	Executive Development Program
37	Northwestern University	A	Advanced Executive Program
		B	Advanced Transportation Management
		C	Executive Development Program
		D	Corporate Financial Strategy
		E	Merger Week
		F	Managing Human Resources in Restructuring Organizations
		G	Business to Business Marketing Strategy
		H	Consumer Marketing Strategy
		I	Increasing Sales Force Productivity
		J	Transportation Marketing Strategy
		K	Development Manufacturing's Strategic Potential
		L	Logistics/Distribution Management
38	Ohio State University	A	Executive Development Program
39	Penn State University	A	Executive Management Program
		B	Management Program for Women
		C	Managing the Global Enterprise Program
		D	Program for Executive Development
		E	Program for Strategic Leadership
		F	Financial Analysis for Strategic Management Program
		G	Human Resources Management Program
		H	Industrial Marketing Management Program
		I	Industrial Sales Management Program
		J	Manufacturing Strategy and Technology Program
		K	Program for Logistics Executives
		L	Strategic Purchasing Management Program
		M	Engineer/Scientist as Manager Program
40	University of Pennsylvania	A	Measuring and Managing Service Quality
		B	Wharton Advanced Management Program
		C	Implementing Strategy

		D	Strategic Management
		E	Strategy Analysis for Finance and Marketing
		F	International Forum
		G	Managing Organizational Change
		H	Managing Technology and Innovation
		I	Finance and Accounting for the Non-Financial Manager
		J	Financial Management
		K	Mergers and Acquisitions
		L	Pension Funds and Money Management
		M	Advanced Competitive Marketing Strategy
		N	Business/Industrial Marketing Strategy
		O	New Product Management: Development and Introduction
		P	Sales Force Management
41	University of Pittsburgh	A	Executive Program for Expanding Companies
		B	Management Program for Executives
42	Princeton University	A	Executive Education Program in Public Affairs
		B	"Ten Days at Princeton" Foreign Executive Development Program
43	Rice University	A	Advanced Management Institute
44	University of Richmond	A	Management Development Program
45	Rutgers University	A	Advanced Management Program
46	Simmons College	A	Managing with Influence
		B	Program for Developing Executives
		C	Program for Developing Managers
47	Smith College	A	Management Program
48	Southern Methodist University	A	Management of Managers: A Leadership Renewal Program
		B	Financial Management for Non-Financial Managers
49	Stanford University	A	Advanced Management College
		B	Executive Program
		C	Executive Program for Smaller Companies
		D	Sloan Program
		E	Executive Program in the Humanities
		F	Executive Program in Organizational Change
		G	Engineering Executive Program
		H	Financial Management Program
		I	Marketing Management Program

		J	Effective Management of Production Operations
		K	Manufacturing Strategy for Competitive Advantage
50	University of Tennessee	A	Executive Development Program
		B	Cost Management Institute
		C	Administrative and Service Institute for Productivity Through Quality
		D	Institute for Productivity Through Quality
		E	Senior Executive Institute for Productivity Through Quality
		F	Executive Development Program for Distribution Managers
		G	International Logistics Program
		H	Engineer/Scientist as Manager
51	Texas A & M University	A	Advanced Management Program
		B	Management Development Program
		C	Management Seminar
52	Texas Christian University	A	Managing Managers Program
53	Tulane University	A	Program for Managers
54	University of Virginia	A	Executive Program
		B	Managing Critical Resources
		C	McIntire Enterpreneurial Executive Institute
		D	Strategic Management for Line Managers
		E	Creating the High-Performance Workplace
		F	Young Managers' Program
		G	Evaluation of Capital Projects: Appraisal in Uncertain Environments
		H	Financial Management for Non-Financial Managers
		I	Mergers and Acquisitions: Strategy and Implementation
		J	The Art of Managing Human Resources
		K	The Power of Information: A Strategic Approach to Managing Information Resources
		L	Marketing and Sales Executives
		M	Marketing Strategy: Business to Business
		N	Sales Management and Marketing Strategy
		O	Manufacturing Management Program
55	Wabash College	A	Executive Program-A Personal Development Program
56	University of Washington	A	International Management: Doing Business in Japan
57	Washington Campus	A	Business and the Public Process: How Washington Works
58	Williams College	A	Executive Program
59	Yale University	A	Executive Management Program

* According to Bricker's International Directory, Long Term, Petersons Guides, New Jersey, 1991

UNIVERSITY-BASED EXECUTIVE PROGRAMS AVAILABLE IN 1990 *
(Programs less than one week)

	UNIVERSITY OR INSTITUTE NAME	**	DURATION	NO. OF PARTICIP. /SESSION	AGE RANGE	MEDIAN AGE	SALARY RANGE	MANAGEMENT LEVEL			
								ENTRY	MIDDLE	UPPER MIDDLE	SENIOR
1	Aspen Institute	A	2 days	15-20	35-65	50	N/A			65%	35%
		B	2 days	15-20	45-865	N/A	N/A			15%	85%
		C	2 days	15-20	40-70	55	N/A			40%	60%
2	Brookings Institute	A	3 days	35-70	N/A	N/A	N/A			20%	80%
		B	3 days	35-70	35-55	N/A	N/A			20%	80%
		C	3 days	35-70	35-55	N/A	N/A			20%	80%
		D	3 days	35-70	35-55	N/A	N/A			20%	80%
		E	3 days	35-70	35-55	N/A	N/A			20%	80%
		F	3 days	35-70	N/A	N/A	N/A			20%	80%
3	CA. Institute of Tech.	A	2 days	32	30-55	44	N/A		63%	19%	18%
		B	2 days	30	30-55	44	N/A		47%	13%	40%
		C	2 days	20	30-55	44	N/A		60%	20%	20%
		D	2 days	30	30-55	44	N/A		43%	21%	36%
		E	2 days	32	30-55	44	N/A		46%	33%	21%
		F	2 days	32	30-55	44	N/A		75%	9%	16%
		G	2 days	32	30-55	44	N/A		19%	51%	30%
4	University of CA.. LA	A	2 days	35	35-55	N/A	N/A				100%
5	Case Western Reserve U.	A	4 days	30	40-42	N/A	N/A			70%	30%
6	Cntr for Creative Leadership	A	3 days	24	24-62	43	N/A	8%	24%	44%	24%
		B	2 days	18	31-63	44	N/A		17%	45%	38%
		C	3 days	18	26-64	42	N/A	2%	29%	37%	32%
7	University of Chicago	A	3 days	50	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		B	2 days	100	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		C	3 days	30	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		D	3 days	75	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		E	2 days	30	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		F	3 days	90	N/A	N/A	N/A	N/A	N/A	N/A	N/A

		G	2 days	75	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		H	3 days	100	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		I	2 days	100	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		J	2 days	75	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	Dartmouth College	A	4 days	45-50	35-50	42	95,000-220,000			30%	70%	
9	Georgia State University	A	3 days	30	29-57	43	N/A		15%	55%	30%	
10	University of Houston	A	2 days	40	N/A	N/A	N/A		75%	25%		
		B	2 days	35	N/A	N/A	N/A		75%	25%		
		C	2 days	18	N/A	N/A	N/A		85%	15%		
11	University of Illinois	A	2 days	40	N/A	N/A	N/A		80%		20%	
		B	3 days	30	25-60	40	N/A		50%	50%		
		C	2 days	30	30-50	40	N/A		25%	75%		
		D	2 days	45	30-55	40	N/A				100%	
12	Indiana University	A	3 days	40	25-50	35	N/A	60%	30%	10%		
		B	3 days	40	25-50	35	N/A	60%	30%	10%		
		C	3 days	40	25-50	35	N/A	60%	30%	10%		
		D	3 days	40	25-50	35	N/A	60%	30%	10%		
		E	3 days	40	25-50	35	N/A	60%	30%	10%		
		F	2 days	40	25-50	35	N/A	60%	30%	10%		
		G	2 days	40	25-50	35	N/A	60%	30%	10%		
13	MA. Institute of Tech.	A	3.5 days	200	30-60	40	N/A		50%	40%	10%	
14	Menninger Management Inst.	A	2 days	40	N/A	N/A	N/A		20%	40%	40%	
		B	4 days	40	N/A	N/A	N/A			50%	50%	
15	University of Michigan	A	3 days	30	25-42	32	N/A		85%	15%		
		B	4 days	38	26-60	39	30,000-110,000	15%	50%	25%	10%	
		C	3 days	38	22-60	33	20,000-124,000	68%	23%	6%	3%	
		D	3 days	38	27-50	37	N/A		35%	40%	25%	
		E	4 days	28	25-55	32	27,000-63,000		65%	35%		
		F	3 days	35	23-58	34	14,000-70,000	76%	24%			
		G	2 days	30	30-55	40	40,000-80,000		70%	30%		
		H	2 days	30	30-55	40	30,000-75,000		70%	30%		
		I	3 days	26	24-45	32	21,000-60,000	50%	40%	10%		
		J	4 days	36	23-59	40	20,000-130,000	5%	80%	15%		
		K	4 days	39	24-61	38	24,000-120,000	5%	60%	35%		
		L	3 days	40	25-60	39	30,000-98,000	5%	55%	40%		

		M	3 days	40	28-58	39	30,000-125,000	3%	73%	20%	4%
		N	3 days	38	27-62	41	32,000-112,000	5%	35%	60%	
		O	3 days	38	25-59	38	30,000-75,000		80%	20%	
		P	3 days	38	24-58	38	25,000-120,000	9%	66%	21%	4%
		Q	4 days	38	29-62	38	29,000-102,000	5%	35%	55%	5%
		R	3 days	38	24-59	41	24,000-120,000		35%	45%	20%
		S	3 days	38	28-60	42	30,000-135,000	10%	50%	40%	
16	Univ. of North Carolina	A	3 days	20	35-55	N/A	N/A			5%	95%
		B	2 days	20	25-62	N/A	N/A		52%	33%	15%
		C	2 days	35	35-55	N/A	N/A			15%	85%
		D	2 days	20	25-62	N/A	N/A		47%	21%	32%
		E	2 days	20	25-62	N/A	N/A		50%	44%	6%
		F	2 days	20	35-55	N/A	N/A			50%	50%
		G	2 days	25	25-62	N/A	N/A		33%	58%	9%
		H	2 days	15	N/A	N/A	N/A		27%	46%	27%
		I	3 days	25	25-62	N/A	N/A			85%	15%
		J	2 days	30	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		K	2 days	60	25-62	N/A	N/A				100%
		L	2 days	30	25-62	N/A	N/A		32%	50%	18%
		M	2 days	35	35-55	N/A	N/A			85%	15%
		N	2 days	20	25-62	N/A	N/A		50%	28%	22%
		O	2 days	20	25-62	N/A	N/A		86%	14%	
17	Northern Illinois Univ.	A	2 days	35	N/A	N/A	N/A			50%	50%
18	Northwestern University	A	2 days	50	N/A	N/A	N/A		10%	80%	10%
		B	3 days	50	N/A	N/A	N/A			80%	20%
		C	3 days	75	N/A	N/A	N/A		10%	80%	10%
		D	4 days	40	N/A	N/A	N/A		10%	80%	10%
		E	3 days	65	N/A	N/A	N/A		10%	70%	20%
		F	2 days	70	N/A	N/A	N/A		10%	70%	20%
		G	3 days	50	N/A	N/A	N/A			80%	20%
		H	3 days	50	N/A	N/A	N/A		10%	80%	10%
		I	3 days	50	N/A	N/A	N/A			80%	20%
		J	2 and 3 days	N/A	N/A	N/A	N/A		10%	80%	10%
19	University of Notre Dame	A	2 days	35	26-60	36	N/A	N/A	N/A	N/A	N/A
		B	3 days	40	N/A	N/A	N/A		50%	50%	

		C	2 days	35	N/A	N/A	N/A	30%	20%	40%	10%
		D	2 days	35	N/A	N/A	N/A		30%	60%	10%
20	Univ. of Pennsylvania	A	3 days	25	16-55	39	40,000-130,000			33%	67%
		B	4 days	45	21-55	31	40,000-130,000			67%	33%
21	Rice University	A	4 days	50	28-51	37	41,000-93,000	27%	18%	18%	37%
		B	2 days	32	34-37	39	38,000-105,000	13%	56%	21%	10%
		C	2 days	30	32-49	41	46,000-83,000	25%	35%	31%	9%
22	University of Rochester	A	2 days	30	30-50	40	N/A		40%	40%	20%
		B	2 days	30	30-50	40	N/A		40%	40%	20%
		C	2 days	30	30-50	40	N/A		40%	40%	20%
		D	2 days	30	30-50	40	N/A		40%	40%	20%
23	Stanford University	A	3 days	70	29-60	39	N/A	25%	40%	20%	15%
		B	3 days	60	34-60	43	N/A			70%	30%
		C	3 days	80	29-58	43	N/A		35%	40%	25%
24	Univ. of Texas at Austin	A	3 days	40	31-57	42	N/A		25%	41%	34%
		B	3 days	40	33-56	44	N/A		35%	30%	35%
		C	3 days	40	35-57	43	N/A		33%	41%	26%
		D	3 days	40	35-54	43	N/A		45%	15%	40%
		E	3 days	40	33-52	44	N/A		24%	57%	19%
25	Vanderbilt University	A	4.5 days	35	25-55	35	N/A		40%	45%	15%
		B	3 days	35	25-55	35	N/A		25%	40%	35%
		C	2 days	35	25-55	35	N/A			75%	25%
		D	4 days	35	N/A	N/A	N/A		50%	50%	
		E	4 days	20-25	N/A	N/A	N/A			100%	
		F	4 days	35	25-55	35	N/A		45%	35%	20%
26	University of Virginia	A	4 days	35-40	N/A	N/A	N/A		50%	45%	5%
		B	4 days	N/A	N/A	N/A	N/A		20%	55%	25%
27	University of Washington	A	3 days	30	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		B	2 days	25	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		C	3 days	25	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		D	2 days	30	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		E	2 days	25	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		F	2 days	25	N/A	N/A	N/A	N/A	N/A	N/A	N/A
28	Washington and Lee Univ.	A	4 days	50	23-63	42	N/A				100%

* According to Bricker's Short-Term Executive Programs, Peterson's Guides, New Jersey, 1990.

** See previous Exhibit for Program Titles.

UNIVERSITY-BASED EXECUTIVE PROGRAMS AVAILABLE IN 1991 *
(Programs longer than one week)

	UNIVERSITY OR INSTITUTE NAME	**	DURATION	NO. OF PARTIC. /SESSION	AGE RANGE	MEDIAN AGE	SALARY RANGE	MANAGEMENT LEVEL			
								ENTRY	MIDDLE	UPPER MIDDLE	SENIOR
1	University of Arizona	A	9 days	40	34-54	41	N/A	0%	10%	45%	45%
2	Aspen Institute	A	1 week	15-20	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		B	1 or 2 weeks	15-20	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3	Babson College	A	2 weeks	35	30-45	37	N/A		75%	25%	
		B	1 week	30	35-55	40	N/A			100%	
		C	2-1 week units	35	29-42	36	35,000-109,000		55%	45%	
		D	1 week	N/A	35-50	40	N/A			50%	50%
		E	1 week	40	35-55	40	N/A			10%	90%
		F	1 week	30	35-55	40	N/A		90%	10%	
4	Boston University	A	2-1 week sessions	40	28-58	35	35,000-55,000	15%	80%	5%	
		B	2-2 week modules	35	35-50	40	75,000-120,000			90%	10%
		C	1 week	40	33-45	38	65,000-100,000		25%	60%	15%
		D	1 week	40-45	37-48	43	75,000-150,000			42%	58%
5	Brookings Institute	A	1 week	40	35-60	45	N/A			30%	70%
6	University of CA. Berkeley	A	4 weeks	60	35-50	43	N/A		5%	55%	40%
		B	1 week	50	33-50	38	N/A			70%	30%
		C	1 week	40	35-55	45	60,000-150,000			30%	70%
		D	1 week	36	35-53	42	50,000-150,000		10%	60%	30%
		E	1 week	30	35-55	44	60,000-200,000			58%	42%
		F	1 week	60	30-50	45	50,000-150,000		25%	50%	25%
		G	1 week	50	32-52	40	N/A		10%	75%	15%
		H	1 week	40	28-50	40	45,000-150,000		25%	50%	25%
7	CA. Institute of Tech.	A	1 week	44	35-55	44	N/A		39%	27%	34%
8	University of CA., Los Angeles	A	2 weeks	40	35-55	45	N/A				100%
		B	1 week	45	N/A	N/A	N/A			70%	30%
		C	1 week	60	35-50	42	N/A			50%	50%
		D	1 week	35	N/A	N/A	N/A	20%	60%	20%	

9	Carnegie Mellon Univ.	A	6 weeks	36	35-55	43	50,000-165,000		15%	70%	15%
		B	2 weeks	25-30	34-54	40	85,000-200,000			85%	15%
		C	3 weeks	25-35	31-52	42	28,000-65,000	5%	25%	50%	20%
		D	3 weeks	35	35-60	45	40,000-75,000	N/A	N/A	N/A	N/A
		E	1 week	35	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10	Cntr for Creative Leadership	A	1 week	24	27-57	41	N/A	5%	15%	40%	40%
		B	1 week	N/A	30-58	43	N/A	1%	26%	41%	32%
		C	1 week	12	35-66	47	N/A			6%	94%
		D	1 week	24	25-65	42	N/A	10%	29%	40%	21%
		E	1 week	24	27-58	41	N/A	5%	45%	40%	10%
		F	1 week	20	26-62	38	N/A	7%	38%	37%	18%
11	University of Chicago	A	3 weeks	40-45	28-60	43	44,000-210,000		6%	46%	48%
		B	1 week	30	25-58	36	44,000-130,000		15%	65%	20%
12	Colorado State Univ.	A	2-1week phases	20	30-50	43	33,000-116,000	5%	53%	16%	26%
13	Columbia University	A	4 weeks	75	33-57	45	N/A			25%	75%
		B	4 weeks	50	34-56	42	N/A			30%	70%
		C	2 weeks	75	30-55	42	N/A		25%	42%	33%
		D	1 week	N/A	27-55	44	N/A		30%	55%	15%
		E	1 week	36	32-58	43	N/A			44%	56%
		F	1 week	50	33-63	43	N/A		15%	55%	30%
		G	1 week	70	27-57	39	N/A		40%	37%	23%
		H	1 week	35	28-55	42	N/A		10%	60%	30%
		I	1 week	50	29-53	37	N/A		30%	55%	15%
		J	1 week	40	26-53	40	50,000-100,000		35%	54%	11%
		K	1 week	60	28-57	39	50,000-200,000+		17%	63%	20%
		L	1 week	60	28-60	40	50,000-200,000		40%	42%	18%
		M	1 week	30	28-59	43	50,000-200,000		30%	50%	20%
14	Cornell University	A	1 week	40	30-60	40	N/A		60%	40%	
		B	5 weeks	70	30-55	42	40,000-160,000		10%	60%	30%
		C	1 week	35	32-54	43	N/A			75%	25%
15	Dartmouth College	A	1 week	60	30-55	42	45,000-160,000			20%	80%
		B	4 weeks	66	35-55	43	90,000-220,000			30%	70%
		C	2 weeks	45	36-57	45	50,000-120,000			60%	40%
		D	1 week	55	32-50	40	85,000-190,000		20%	40%	40%
		E	1 week	45	N/A	N/A	N/A		23%	54%	23%

16	Duke University	A	(2-2 wk, or 4-1 wk)	55	35-55	43	N/A			35%	65%	
		B	2 wks or 2-1 wk	60	30-45	37	N/A		25%	70%	5%	
		C	1 week	55	30-45	36	N/A		30%	55%	15%	
		D	1 week	55	30-45	40	N/A		65%	30%	5%	
		E	2 weeks	55	35-50	42	N/A		10%	40%	50%	
		F	2 weeks	55	30-45	36	N/A		30%	65%	5%	
17	Emory University	A	4 weeks	40	35-58	40	60,000-150,000		10%	65%	25%	
		B	2-1 week units	45	26-55	36	35,000-90,000		65%	30%	5%	
18	George Washington Univ.	A	1 week	20	N/A	N/A	N/A			62%	38%	
19	University of Georgia	A	2 weeks	20	38-43	40	N/A		10%	75%	15%	
20	Georgia State University	A	1 week	48	26-55	N/A	N/A		40%	40%	20%	
21	Harvard University	A	11 weeks	160	36-56	46	100,000-250,000				100%	
		B	9 weeks	96	37-55	46	100,000-300,000				100%	
		C	3-3 wk units	100-120	30-65	42	N/A				100%	
		D	12 weeks	125	30-44	37	N/A			70%		
		E	1 week	60	27-60	44	45,000-250,000		22%	39%	39%	
		F	2 weeks	75-80	32-60	45	N/A		7%	45%	48%	
		G	8 weeks	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
		H	3 weeks	N/A	28-50	43	N/A			20%	80%	
		I	3 weeks	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
		J	1 week	60	N/A	N/A	50,000-200,000				100%	
		K	2 weeks	60	36-50	44	60,000-250,000			28%	72%	
		L	2 weeks	120	35-55	45	50,000-250,000			65%	35%	
		M	2 weeks	60	33-61	45	50,000-250,000		4%	75%	21%	
		N	2 weeks	70	35-55	44	50,000-200,000			60%	40%	
22	University of Hawaii	A	5 weeks	66	34-54	42	65,000-150,000		5%	50%	45%	
23	University of Houston	A	4 weeks	35	31-51	36	38,000-140,000		10%	70%	20%	
		B	1 week	20	32-48	41	38,000-100,000		15%	50%	35%	
24	University of Illinois	A	4 weeks	30-36	36-55	42	55,000-140,000		10%	65%	25%	
		B	12 months	25	26-45	33	N/A		55%	45%		
		C	4 months	20	28-42	34	N/A		18%	55%	27%	
25	Indiana University	A	3 weeks	35	35-58	43	55,000-150,000		25%	60%	15%	
		B	1 week	20	30-58	45	75,000-400,000		19%	36%	45%	
		C	3 weeks	35	33-53	42	50,000-120,000		50%	40%	10%	
26	University of Iowa	A	2 weeks	30	32-54	43	35,000-150,000		24%	37%	39%	

27	Louisiana State Univ.	A	3-2 wk summers	70	30-55	42	40,000-130,000			33%	67%
28	University of Maryland	A	2 weeks	35	30-50	42	N/A			40%	60%
29	MA. Institute of Technology	A	9 weeks	50	38-55	45	N/A				100%
		B	12 months	56	30-48	36	30,000-200,000	5%	15%	70%	10%
		C	1 week	50	30-57	40	N/A		5%	35%	60%
		D	1 week	25-30	N/A	N/A	N/A				100%
		E	1 week	30	N/A	N/A	N/A			80%	20%
		F	1 week	25-30	N/A	N/A	N/A			25%	75%
		G	1 week	45	30-60	40	75,000-200,000		15%	55%	30%
		H	2 weeks	70	N/A	N/A	N/A			50%	50%
30	Menninger Management Inst.	A	1 week	N/A	27-58	42	50,000-250,000			64%	36%
		B	1 week	24	34-64	43	N/A			60%	40%
31	University of Miami	A	1 week	60	28-60		N/A			20%	80%
32	University of Michigan	A	4 weeks	55-60	36-56	42	60,000-248,000			20%	80%
		B	1 week	45	N/A	N/A	N/A		42%	33%	25%
		C	1 week	45	34-61	N/A	41,000-117,000		20%	47%	33%
		D	1 week	35	N/A	N/A	N/A		15%	4000%	500%
		E	1 week	35	25-59	38	26,000-100,000	5%	40%	45%	10%
		F	1 week	20	31-61	40	37,000-105,000		60%	30%	10%
		G	1 week	38	28-60	40	30,000-158,000		35%	55%	10%
		H	1 week	35	28-59	38	35,000-155,000		80%	20%	
		I	1 week	40	36-58	44	60,000-202,000			25%	75%
		J	1 week	40	30-60	40	30,000-165,000		30%	50%	20%
		K	2 weeks	30	42-58	49	86,000-200,000			20%	80%
		L	2 weeks	35	35-55	42	45,000-110,000		40%	40%	20%
		M	1 week	45	26-60	39	30,000-110,000	15%	50%	25%	10%
		N	1 week	35-40	35-52	40	45,000-100,000		40%	40%	20%
		O	1 week	32	36-57	42	50,000-100,000		30%	40%	30%
		P	1 week	35-40	25-58	38	25,000-120,000		50%	20%	30%
		Q	1 week	35	N/A	N/A	N/A		57%	19%	24%
		R	1 week	32	30-51	N/A	45,000-122,000			75%	25%
		S	1 week	39	24-61	38	24,000-120,000	5%	60%	35%	
		T	1 week	40	26-60	38	25,000-120,000	10%	60%	20%	10%
		U	2 weeks	45	38-55	45	N/A			75%	25%
33	University of Minnesota	A	5-1 week units	40	31-53	43	N/A			40%	60%

		B	3-1 week units	35	30-55	40	N/A		22%	56%	22%
		C	8 days	40	28-52	34	N/A	20%	58%	22%	
34	Univ. of New Hampshire	A	3 weeks	22	32-49	42	N/A		15%	65%	20%
35	Univ. of North Carolina	A	5-1 week units	50	35-58	43	N/A			6%	94%
		B	5-1 week units	50	26-43	34	N/A		5%	87%	8%
		C	5-3 day units	45	28-45	36	N/A			10%	90%
36	Northeastern University	A	1-2 wk unit & 3-1 wk	32	30-55	41	N/A		25%	60%	15%
37	Northwestern University	A	4 weeks	60	36-55	46	90,000-200,000			15%	85%
		B	2 weeks	45	29-58	40	35,000-90,000		33%	42%	25%
		C	3 weeks	60	33-48	38	60,000-150,000		70%	30%	
		D	1 week	50	N/A	N/A	N/A		10%	70%	20%
		E	1 week	75	N/A	N/A	N/A			80%	20%
		F	1 week	50	N/A	N/A	N/A		30%	70%	
		G	1 week	65	N/A	N/A	N/A		10%	70%	20%
		H	1 week	60	N/A	N/A	N/A		20%	60%	20%
		I	1 week	60	N/A	N/A	N/A		20%	60%	20%
		J	1 week	45	30-60	41	33,000-91,000		33%	47%	20%
		K	1 week	50	N/A	N/A	N/A			80%	20%
		L	1 week	45	30-60	40	35,000-90,000		58%	35%	7%
38	Ohio State University	A	2-2 wk units over 2 yrs	50	30-54	42	N/A			40%	60%
39	Penn State University	A	4 wks or 4-1 wk	46	38-54	43	N/A			59%	41%
		B	1 week	20-30	28-46	35	N/A		100%		
		C	2 weeks	N/A	35-51	44	N/A			60%	40%
		D	4 weeks	42	29-41	36	N/A			88%	12%
		E	2 weeks	25-35	34-55	46	N/A			67%	33%
		F	10 days	25	35-52	44	N/A			51%	49%
		G	2 weeks	25-35	34-55	45	N/A			80%	20%
		H	2 weeks	30-40	38-55	41	N/A			57%	43%
		I	1 week	20-30	33-57	40	N/A			76%	24%
		J	2 weeks	25-35	32-56	43	N/A			80%	20%
		K	10 days	20-30	32-55	43	N/A			60%	40%
		L	10 days	20-30	33-55	45	N/A			53%	47%
		M	2 weeks	35-45	33-50	38	N/A			83%	17%
40	Univ. of Pennsylvania	A	1 week	N/A	30-53	42	55,000-175,000		22%	54%	24%
		B	5 weeks	N/A	35-59	45	85,000-400,000				100%

		C	1 week	30	26-57	42	40,000-150,000		39%	35%	26%
		D	1 week	40	26-60	43	40,000-150,000		45%	45%	10%
		E	1 week	35	29-60	40	40,000-130,000		52%	40%	8%
		F	3-1 week units	30	40-70	50	100,000-800,000				100%
		G	1 week	25	32-57	44	55,000-150,000		32%	52%	16%
		H	1 week	35	29-59	42	40,000-150,000		62%	36%	2%
		I	1 week	50	23-60	42	40,000-130,000		36%	45%	19%
		J	1 week	35	29-53	39	40,000-130,000		45%	44%	11%
		K	1 week	40	25-62	40	40,000-130,000		37%	46%	17%
		L	1 week	30	25-63	39	40,000-130,000		42%	47%	11%
		M	1 week	35	28-60	39	50,000-150,000		52%	48%	
		N	1 week	50	26-60	41	40,000-130,000		58%	34%	8%
		O	1 week	35	27-59	38	40,000-130,000		79%	21%	
		P	1 week	50	28-61	40	40,000-130,000		53%	44%	3%
41	University of Pittsburgh	A	1 week	30	27-43	34	N/A			12%	88%
		B	5 weeks	30	31-55	42	N/A		58%	72%	20%
42	Princeton University	A	30 weeks	20-30	30-50	N/A	N/A		10%	80%	10%
		B	10 days	40	35-55	45	N/A			35%	65%
43	Rice University	A	2 weeks	32	32-54	43	65,000-230,000		7%	55%	38%
44	University of Richmond	A	2 weeks	36	29-53	38	N/A		55%	40%	5%
45	Rutgers University	A	1 week	20	29-49	40	45,000-85,000		60%	40%	
46	Simmons College	A	1 week	N/A	25-50	35	28,000-85,000		48%	52%	
		B	8 weeks	30	26-45	39	36,000-160,000		44%	53%	3%
		C	3 weeks	30	29-48	37	23,000-56,000		100%		
47	Smith College	A	2-3 wk units 2 yrs	45	29-49	36	40,000-100,000	25%	70%	5%	
48	Southern Methodist Univ.	A	2 weeks	40	32-58	45	40,000-140,000			50%	50%
		B	1 week	40	25-54	40	32,000-82,200		10%	48%	42%
49	Stanford University	A	1 week	120	28-56	44	N/A		35%	50%	15%
		B	8 weeks	180-190	38-55	45	N/A			20%	80%
		C	2 weeks	130	30-62	45	N/A				100%
		D	9 months	42	29-46	37	N/A		25%	65%	10%
		E	9 days	20	41-57	50	N/A				100%
		F	2 weeks	42	35-56	46	N/A				100%
		G	12 days	40	33-58	45	N/A		14%	66%	20%
		H	2 weeks	66	32-56	44	N/A				100%

		I	2 weeks	110	32-55	45	N/A			20%	80%
		J	1 week	65	32-54	38	N/A		70%	20%	10%
		K	1 week	35	30-59	45	N/A			40%	60%
50	University of Tennessee	A	3-1 wk & 1-3 day	38	33-56	43	45,000-150,000			75%	25%
		B	1 week	36	32-53	41	40,000-90,000		10%	20%	70%
		C	2-1 week units	36	30-60	35	28,000-60,000	20%	65%	15%	
		D	3-1 week units	80	28-65	35	28,000-56,000		40%	50%	10%
		E	1 week	40	35-55	48	50,000-150,000			20%	80%
		F	1 week	35	30-50	40	35,000-85,000		5%	60%	35%
		G	1 week	36	30-56	42	40,000-100,000		20%	60%	20%
		H	1 week	25	28-45	34	N/A	10%	55%	25%	10%
51	Texas A & M University	A	3 weeks	30	35-60	45	80,000-235,000		10%	30%	60%
		B	2 weeks	40	33-60	40	50,000-120,000		45%	47%	8%
		C	1 week	40	N/A	N/A	N/A	10%	80%	10%	
52	Texas Christian Univ.	A	1 week	25	30-60	N/A	40,000-125,000			40%	60%
53	Tulane University	A	2 weeks	40	29-54	36	22,300-130,000		45%	45%	10%
54	University of Virginia	A	6 weeks	100	31-56	44	42,800-370,000			30%	70%
		B	2 weeks	N/A	29-53	43	N/A		20%	55%	25%
		C	1 week	N/A	30-62	41	N/A				100%
		D	1 week	45	N/A	N/A	N/A		20%	50%	30%
		E	1 week	40	N/A	N/A	N/A		60%	25%	15%
		F	3 weeks	30	27-40	32	N/A		86%	14%	
		G	1 week	45	N/A	N/A	N/A		30%	40%	30%
		H	1 week	40	N/A	N/A	N/A		20%	50%	30%
		I	1 week	30	N/A	N/A	N/A			50%	50%
		J	1 week	40	N/A	N/A	N/A		70%	20%	10%
		K	1 week	40	N/A	N/A	N/A			50%	50%
		L	2 weeks	N/A	33-54	38	N/A		16%	62%	22%
		M	1 week	40	N/A	N/A	N/A		15%	70%	15%
		N	1 week	40	N/A	N/A	N/A		15%	70%	15%
		O	2 weeks	N/A	35-52	42	N/A			84%	16%
55	Wabash College	A	7 weeks over 3 years	N/A	31-58	38	N/A		40%	50%	10%
56	Univ. of Washington	A	1 week	25-30	N/A	N/A	N/A		65%	25%	10%
57	Washington Campus	A	1 week	N/A	29-62	42	45,000-300,000			15%	85%
58	Williams College	A	5 weeks	30	31-59	42	75,000-150,000		45%	40%	15%

59	Yale University	A	4 weeks	50	33-54	42	36,000-250,000		20%	40%	40%

* According to Bricker's International Directory, Long Term, Peterson's Guides, New Jersey, 1991.

** See previous Exhibit for Program Titles.

UNIVERSITY-BASED EXECUTIVE PROGRAMS AVAILABLE IN 1990 *

(Programs less than one week)

	UNIVERSITY OR INSTITUTE NAME	**	COMPANY FUNCTIONS REPRESENTED										SIZE OF ORGANIZATION		
			ADMINISTRATION	FINANCE AND ACCOUNTING	GENERAL MANAGEMENT	HUMAN RESOURCES	LOGISTICS	MARKETING AND SALES	OPERATIONS AND PRODUCTION	PURCHASING	TECHNICAL	OTHER	< 1,000	1,000-10,000	>10,000
1	Aspen Institute	A	100%										25%	50%	25%
		B		15%	70%	5%			10%				25%	40%	35%
		C	100%										25%	50%	25%
2	Brookings Institute	A	25%	10%	25%			20%	20%					20%	80%
		B	25%	10%	25%			20%	20%					20%	80%
		C	25%	10%	25%			20%	20%					20%	80%
		D	25%	10%	25%			20%	20%					20%	80%
		E	25%	10%	25%			20%	20%					20%	80%
		F	25%	10%	25%			20%	20%					20%	80%
3	California Institute of Tech.	A			4%				9%		87%		N/A	N/A	N/A
		B	5%	36%	15%			1%	30%		13%		N/A	N/A	N/A
		C											N/A	N/A	N/A
		D	2%	2%	46%			11%	5%		34%		N/A	N/A	N/A
		E	4%	3%	22%			3%	5%		63%		N/A	N/A	N/A
		F		9%	11%				64%		16%		N/A	N/A	N/A
		G	4%	6%	19%				48%		23%		N/A	N/A	N/A
4	University of California, LA	A			100%								50%	50%	
5	Case Western Reserve U.	A	33%	17%	16%			17%	17%				55%	28%	17%
6	Center for Creative Leadership	A	40%	3%		6%		6%	22%		12%	11%	49%	24%	27%
		B	11%			85%			2%			2%	15%	35%	50%
		C	33%			20%		7%	33%			7%	19%	36%	45%
7	University of Chicago	A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		B	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

		C	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		D	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		E	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		F	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		G	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		H	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		I	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		J	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	Dartmouth College	A		100%										5%	10%	85%		
9	Georgia State University	A	20%	10%	40%	5%		10%	10%		5%			50%	50%			
10	University of Houston	A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		B	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		C	10%						10%			80%		10%	50%	40%		
11	University of Illinois	A	10%	10%	20%				50%		10%				80%	20%		
		B	20%	80%										10%	70%	20%		
		C		100%										25%	50%	25%		
		D	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		100%				
12	Indiana University	A	10%	20%	20%	10%		20%	10%		10%			40%	40%	20%		
		B	10%	20%	20%	10%		20%	10%		10%			40%	40%	20%		
		C	10%	20%	20%	10%		20%	10%		10%			40%	40%	20%		
		D	10%	20%	20%	10%		20%	10%		10%			40%	40%	20%		
		E	10%	20%	20%	10%		20%	10%		10%			40%	40%	20%		
		F	10%	20%	20%	10%		20%	10%		10%			40%	40%	20%		
		G	10%	20%	20%	10%		20%	10%		10%			40%	40%	20%		
13	Massachusetts Institute of Tec	A	10%	10%	5%						75%				20%	80%		
14	Menninger Management Institute	A	30%	5%	20%	10%		5%	30%					N/A	N/A	N/A		
		B	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A		
15	University of Michigan	A	15%	70%				15%						25%	50%	25%		
		B		30%	30%			10%	20%		10%			30%	50%	20%		
		C	1%	14%	15%	5%		16%	20%		11%	18%		10%	16%	74%		
		D	30%		35%			20%	15%					20%	40%	40%		
		E	15%		35%				25%		25%			20%	35%	45%		
		F		2%	9%	34%		12%	11%		13%	19%		17%	39%	44%		
		G	30%			70%								25%	25%	50%		
		H	20%			80%								20%	40%	40%		
		I	10%		10%	80%								30%	40%	30%		
		J			20%				70%		10%			20%	45%	35%		
		K	5%		5%			80%			10%			10%	50%	40%		
		L			5%	2%		85%	3%		5%			5%	50%	45%		
		M	3%	10%	20%	2%		35%	15%		15%			5%	38%	57%		

		N				10%			90%						5%	45%	50%
		O		10%	5%	30%	10%		5%	30%		10%			10%	30%	60%
		P		5%	8%	11%	20%		16%	20%		5%	15%		15%	22%	63%
		Q			15%	20%	5%		35%	10%			15%		5%	25%	70%
		R		20%	20%	30%				20%		10%			25%	25%	50%
		S			5%	20%	5%		5%	10%		50%	5%		5%	25%	70%
16	University of North Carolina	A			25%	75%									75%	25%	
		B				24%	5%			57%		14%			N/A	N/A	N/A
		C		90%					10%							75%	25%
		D				53%			31%	16%					N/A	N/A	N/A
		E				56%			44%						N/A	N/A	N/A
		F				35%			65%						N/A	N/A	N/A
		G				42%			50%	8%					N/A	N/A	N/A
		H				27%			73%						N/A	N/A	N/A
		I		15%		50%			25%	10%					N/A	N/A	N/A
		J		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A
		K				95%							5%		N/A	N/A	N/A
		L				36%			23%	41%					N/A	N/A	N/A
		M		85%		15%										10%	90%
		N				66%				34%					N/A	N/A	N/A
		O								100%					N/A	N/A	N/A
17	Northern Illinois University	A								100%					NA	N/A	N/A
18	Northwestern University	A		11%	6%	48%			23%	3%		6%	3%		10%	30%	60%
		B			90%	10%										40%	60%
		C			90%	10%										50%	50%
		D			90%	10%										20%	80%
		E			80%	20%										30%	70%
		F			78%	5%							17%			20%	80%
		G		8%	34%	19%	8%		12%	8%		8%	3%		10%	20%	70%
		H		29%	26%	9%	12%		9%	9%			6%			20%	80%
		I				20%			80%							30%	70%
		J		15%	15%	26%			10%	4%		11%	19%		30%	20%	50%
19	University of Notre Dame	A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		50%	40%	10%
		B					20%		20%	20%		20%	20%		N/A	N/A	N/A
		C		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A
		D		50%	25%					25%					N/A	N/A	N/A
20	University of Pennsylvania	A		7%	14%	76%				3%					49%	35%	16%
		B		20%	15%	20%	6%		28%	11%					76%	21%	3%
21	Rice University	A		9%	9%	9%			27%	36%		10%			64%	27%	9%
		B				12%			61%	12%		9%	6%		28%	46%	26%

		C		12%	3%	6%			42%	18%		15%	4%		42%	34%	24%
22	University of Rochester	A			15%	15%				50%		20%			20%	20%	60%
		B			15%	15%				50%		20%			20%	20%	60%
		C			15%	15%				50%		20%			20%	20%	60%
		D			15%	15%				50%		20%			20%	20%	60%
23	Stanford University	A		20%		20%			25%	20%		15%			34%	35%	31%
		B				50%				25%		25%			40%	30%	30%
		C				20%			80%						26%	34%	40%
24	University of Texas at Austin	A		31%		22%			9%	22%		13%	3%		41%	9%	50%
		B		49%		11%			23%	11%		6%			38%	8%	54%
		C		26%		15%			55%	4%					41%	33%	26%
		D		27%		18%			36%	5%		5%	9%		32%	36%	32%
		E		43%		14%	5%		33%			5%			33%	19%	48%
25	Vanderbilt University	A		30%		70%									N/A	N/A	N/A
		B		50%		50%										25%	75%
		C				100%									N/A	N/A	N/A
		D					100%								75%	25%	
		E		100%											N/A	N/A	N/A
		F		10%		10%			80%						20%	70%	10%
26	University of Virginia	A		20%		70%				10%					6%	42%	52%
		B		11%	10%	28%	4%		14%	20%		13%			6%	31%	63%
27	University of Washington	A		32%		45%			10%	3%		6%	4%		N/A	N/A	N/A
		B		5%		26%			53%				16%		N/A	N/A	N/A
		C		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A
		D		25%	5%	20%			45%				5%		N/A	N/A	N/A
		E		33%		22%	11%		11%				23%		N/A	N/A	N/A
		F		25%	8%	8%			29%	17%			13%		N/A	N/A	N/A
28	Washington and Lee University	A				75%			25%						100%		

* According to Bricker's Short-Term Executive Programs, Peterson's Guides, New Jersey, 1990.

** See previous Exhibit for Program Titles.

UNIVERSITY-BASED EXECUTIVE PROGRAMS AVAILABLE IN 1991*

(Programs longer than one week)

			COMPANY FUNCTIONS REPRESENTED										SIZE OF ORGANIZATION		
	UNIVERSITY OR INSTITUTE NAME	**	ADMINISTRATION	FINANCE AND ACCOUNTING	GENERAL MANAGEMENT	HUMAN RESOURCES	LOGISTICS	MARKETING AND SALES	OPERATIONS AND PRODUCTION	PURCHASING	TECHNICAL	OTHER	< 1,000	1,000-10,000	> 10,000
1	University of Arizona	A	25%	15%	25%	10%		10%	5%		10%		25%	50%	25%
2	Aspen Institute	A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A
		B	N/A	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A
3	Babson College	A	25%	10%		20%		15%	10%		20%			35%	65%
		B	62%		8%	15%			15%					2%	98%
		C			10%				40%		50%			30%	70%
		D			5%	95%								50%	50%
		E						50%			50%			10%	90%
		F								100%				10%	90%
4	Boston University	A		10%	15%	5%		15%	20%		35%		5%	80%	15%
		B		10%		20%		30%	40%					50%	50%
		C				90%						10%	5%	85%	10%
		D	7%		23%			10%	30%		30%		8%	15%	77%
5	Brookings Institute	A	25%	20%	25%				5%		25%				100%
6	University of California, Berkeley	A	10%	10%	40%			10%	10%		20%		20%	40%	40%
		B	25%		25%	20%		10%	20%				10%	30%	60%
		C		75%	20%				5%				10%	40%	50%
		D	5%	10%		15%						70%		20%	80%
		E			5%			85%			10%		10%	50%	40%
		F	5%		10%			75%	5%		5%			40%	60%
		G			10%			70%	10%		10%		10%	40%	50%
		H	5%		5%	5%		80%			5%		5%	45%	50%
7	California Institute of Tech.	A	7%	2%	7%	2%		5%	9%		68%		5%	15%	80%
8	University of California,	A		25%	50%								N/A	N/A	N/A

	Los Angeles	B				100%								70%	30%
		C		10%				10%	15%		65%			60%	40%
		D	3%		6%	2%		4%	10%		75%		5%	15%	80%
9	Carnegie Mellon University	A	7%	12%	18%	7%		14%	24%		18%		10%	20%	70%
		B			20%				10%		70%			10%	90%
		C	100%										5%		95%
		D		10%	73%	2%		5%	10%				4%	70%	26%
		E	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10	Center for Creative Leadership	A	40%			10%		15%			25%	12%	30%	49%	21%
		B	29%	4%		6%		19%	19%		9%	14%	21%	36%	43%
		C	72%	3%		6%		10%			6%	3%	22%	47%	31%
		D	30%	7%		10%		15%	12%		11%	15%	30%	40%	30%
		E	15%		5%	5%		5%	20%		50%		26%	32%	42%
		F	30%			10%		10%	20%		20%	10%	24%	50%	26%
11	University of Chicago	A	10%	11%	40%	2%		12%	15%		10%		5%	29%	66%
		B	5%		10%			85%					5%	45%	50%
12	Colorado State University	A	21%	10%	32%			32%	5%				21%	5%	74%
13	Columbia University	A		16%	45%			10%	12%			17%		16%	84%
		B		20%	49%			13%	9%			9%	4%	16%	80%
		C		6%	27%			25%	10%			32%	20%	20%	60%
		D		8%	24%	4%		36%				28%	4%	20%	76%
		E		19%	36%			25%	14%			6%	30%	30%	40%
		F		9%	16%	13%		13%	13%			36%	3%	14%	83%
		G		3%	25%			40%	13%			19%	10%	25%	65%
		H		71%	11%			3%	6%			9%	13%	25%	62%
		I			4%	88%							8%	36%	56%
		J		3%	3%			65%	11%		8%	10%	6%	41%	53%
		K		3%	12%			74%				11%	8%	35%	57%
		L			5%			92%	1%			2%	8%	27%	65%
		M		7%	20%			7%	63%			3%	9%	22%	69%
14	Cornell University	A	15%	15%	25%	15%		10%	10%		10%		20%	20%	60%
		B	13%	22%	16%	3%		13%	21%		12%		5%	35%	60%
		C		30%	40%						30%		5%	5%	90%
15	Dartmouth College	A	20%		80%								100%		
		B	5%	19%	35%	5%		20%	8%		8%		10%	30%	60%
		C	3%	27%	27%			11%	7%		25%		2%	48%	50%
		D			30%			70%					10%	10%	80%
		E			27%				62%		11%		N/A	N/A	N/A
16	Duke University	A	5%	12%	53%	3%		9%	5%		9%	4%	5%	40%	55%
		B	33%	10%	25%	2%		15%	5%		5%	5%	10%	35%	55%

		C		10%	4%	25%	2%		40%	8%		3%	8%		5%	45%	50%
		D			20%	76%	1%		3%						15%	55%	30%
		E		3%		14%	83%									30%	70%
		F		12%	4%	20%			64%						5%	35%	60%
17	Emory University	A		15%	10%	25%	5%		15%	15%		15%			10%	35%	55%
		B		10%	15%	25%	5%		10%	20%		15%			15%	30%	55%
18	George Washington University	A		8%		23%	8%		15%	15%			31%		8%	15%	77%
19	University of Georgia	A		20%	5%	60%	5%		5%			5%			10%	65%	25%
20	Georgia State University	A			40%	20%	14%		14%	6%		6%			10%	40%	50%
21	Harvard University	A			10%	55%	10%		10%	15%					5%	20%	75%
		B			13%	61%			8%			11%	7%			5%	95%
		C				100%									N/A	N/A	N/A
		D		10%	25%	20%	5%		15%	20%		5%			5%	35%	60%
		E		8%	14%	43%			20%	12%		3%			23%	38%	39%
		F		100%											14%	56%	30%
		G		N/A	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A		N/A	N/A	N/A
		H		N/A	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A		N/A	N/A	N/A
		I		N/A	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A		N/A	N/A	N/A
		J		8%		5%			62%	21%		4%				100%	
		K			93%	7%									5%	20%	75%
		L		12%	4%	5%						79%			N/A	N/A	N/A
		M			4%	34%			62%						N/A	N/A	N/A
		N				14%				86%					N/A	N/A	N/A
22	University of Hawaii	A		5%	20%	40%	5%		20%	10%					15%	50%	35%
23	University of Houston	A		10%	20%	10%			20%	20%		15%	5%		5%	50%	45%
		B		15%	15%					70%						40%	60%
24	University of Illinois	A			14%	40%	8%		12%	16%		10%			5%	25%	70%
		B		14%	31%	23%	6%		14%	9%		3%			23%	32%	45%
		C			50%	26%			8%	8%		8%			34%	58%	8%
25	Indiana University	A		8%	4%	14%	4%		19%	26%		25%				45%	55%
		B		64%			9%		27%						18%	64%	18%
		C		11%	23%		3%		12%	28%		23%				40%	60%
26	University of Iowa	A		34%		37%			10%	14%		5%			29%	32%	39%
27	Louisiana State University	A		11%	5%	35%	2%		7%	27%		13%			N/A	N/A	N/A
28	University of Maryland	A				80%				10%		10%				90%	10%
29	Massachusetts Institute of Technology	A		5%	10%	45%	5%		5%	15%		10%	5%		5%	30%	65%
		B			10%	60%	5%		10%	5%		10%			5%	25%	70%
		C		N/A	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A		N/A	N/A	N/A
		D		N/A	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A			15%	85%
		E		20%	9%	59%	3%			3%			6%		16%	24%	60%

		F	2%	11%	50%				25%		12%			40%	60%
		G	10%	65%	15%	5%		5%					20%	40%	40%
		H	3%		7%	3%		5%			82%		10%	10%	80%
30	Menninger Management Institute	A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	10%	40%	50%
		B	20%		70%				10%				N/A	N/A	N/A
31	University of Miami	A	10%	10%	80%									60%	40%
32	University of Michigan	A	10%	10%	40%	5%		15%	10%		10%		10%	10%	80%
		B	23%		17%	18%		42%					16%	42%	42%
		C	13%	10%	27%	13%		17%	15%		5%		6%	30%	64%
		D	45%	33%	28%	11%		17%	11%				20%	40%	40%
		E		5%	10%			50%	15%		20%		10%	45%	45%
		F	6%	8%	22%	8%		21%	13%		22%		3%	38%	59%
		G	8%	10%	30%	4%		16%	24%		8%		4%	14%	82%
		H	10%	10%	30%	10%		10%	15%		15%		10%	30%	60%
		I		90%	10%								10%	50%	40%
		J	10%	5%	20%	5%		35%	20%		5%		10%	40%	50%
		K				100%								30%	70%
		L	6%			94%							10%	40%	50%
		M	10%		10%	80%							10%	40%	50%
		N	20%			80%							10%	30%	60%
		O			10%	80%			10%				10%	40%	50%
		P	3%		5%	90%			2%				5%	25%	70%
		Q	10%	5%	5%	5%		60%			10%	5%	7%	43%	50%
		R		4%	25%			64%			7%			20%	80%
		S	5%		5%			80%			10%		10%	50%	40%
		T	5%	5%	10%			70%			10%		5%	35%	60%
		U			42%				46%		12%		10%	40%	50%
33	University of Minnesota	A		10%	55%			15%	5%		15%		15%	60%	25%
		B		14%	36%	12%		10%	15%		13%		22%	39%	39%
		C		10%	44%			10%	14%		22%		20%	45%	35%
34	University of New Hampshire	A	10%	5%	25%	10%		5%	25%		20%		20%	15%	65%
35	University of North Carolina	A		13%	40%	8%		17%	13%		9%		40%	52%	8%
		B		8%	23%	1%		31%	31%		6%			60%	40%
		C			10%				27%		63%			77%	23%
36	Northeastern University	A	13%	5%	11%	3%		15%	37%		16%		5%	35%	60%
37	Northwestern University	A	5%	13%	50%	2%		13%	5%		10%	2%		25%	75%
		B	2%	7%	49%			7%	35%				9%	32%	59%
		C	24%	15%	3%	3%		15%	15%		15%	10%		20%	80%
		D		90%	10%									20%	80%
		E	20%	55%	20%			5%						20%	80%

		F				100%									20%	80%
		G			10%			90%							20%	80%
		H			6%			94%							20%	80%
		I			10%			90%						5%	10%	85%
		J	7%	25%	25%	1%		35%	5%		2%			20%	49%	40%
		K			20%				80%						20%	80%
		L	6%	14%	25%	3%		25%	24%		3%			11%	30%	59%
38	Ohio State University	A	10%	15%	30%	10%		15%	13%		7%			10%	25%	65%
39	Penn State University	A		7%	28%	1%	3%	15%	20%		15%	11%		7%	26%	67%
		B		5%							10%	85%		10%	55%	35%
		C		5%	41%		18%	23%			5%	8%		4%	37%	59%
		D		14%	19%		5%	29%	17%		7%	9%		6%	31%	63%
		E		17%	23%	3%		10%	17%		17%	13%		8%	23%	69%
		F			23%		8%	8%	39%		8%	14%		6%	40%	54%
		G			7%	93%									30%	70%
		H		3%	18%			76%				3%		6%	49%	45%
		I		4%	11%			81%	4%					5%	40%	55%
		J					7%		75%		14%	4%		5%	34%	61%
		K		4%	4%		88%		4%					4%	44%	52%
		L			9%		43%			44%		4%		3%	36%	61%
		M						3%	3%		86%	8%		13%	22%	65%
40	University of Pennsylvania	A	9%	3%	52%			23%	6%		7%			46%	36%	18%
		B		10%	75%			8%	5%			2%		18%	44%	38%
		C	10%	18%	36%	2%		20%	9%		5%			28%	37%	35%
		D	11%	13%	42%	3%		18%	9%		4%			29%	34%	37%
		E	5%	31%	14%			47%	3%					28%	33%	39%
		F			100%									10%	40%	50%
		G	11%	6%	38%	9%		13%	14%		9%			35%	35%	30%
		H	11%	5%	29%			11%	10%		34%			15%	30%	55%
		I	5%	6%	37%	3%		33%	11%		5%			40%	30%	30%
		J	4%	56%	19%	3%		11%	7%					24%	38%	38%
		K	8%	43%	29%			16%			4%			41%	26%	33%
		L	12%	49%	17%			18%	4%					52%	29%	19%
		M		4%	15%			73%	8%					54%	19%	27%
		N		3%	17%			75%	5%					24%	23%	53%
		O		3%	10%			65%	12%		10%			28%	31%	41%
		P		1%	16%			80%	3%					53%	34%	13%
41	University of Pittsburgh	A	13%	7%	27%			13%	27%		13%			100%		
		B	16%	8%	26%	14%		12%	#####		10%			16%	16%	68%
42	Princeton University	A	20%		80%										40%	60%

		B	5%	10%	80%				5%							100%
43	Rice University	A			45%			10%	17%		10%	18%		13%	21%	66%
44	University of Richmond	A	10%	15%	5%	5%		10%	35%		20%			10%	65%	25%
45	Rutgers University	A	5%	20%	20%	15%		5%	20%		15%			5%	35%	60%
46	Simmons College	A	20%	8%		10%		17%	14%		31%				21%	79%
		B	32%	17%		17%		6%	17%		11%			6%		94%
		C	30%		15%	10%		10%	15%		20%			20%		80%
47	Smith College	A		5%	10%	20%		20%	15%		30%			10%	25%	65%
48	Southern Methodist University	A	15%	10%	25%	15%		10%	25%					10%	45%	45%
		B	16%	9%	9%	12%		22%	25%		7%			26%	53%	21%
49	Stanford University	A	9%	12%	24%	6%		17%	11%		21%			35%	35%	30%
		B	9%	10%	56%			10%	8%		7%			2%	38%	60%
		C	5%	10%	65%			5%	10%		5%			100%		
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		F	25%		50%				25%					5%	50%	45%
		G	9%		16%				6%		69%			20%	37%	43%
		H		85%	15%									5%	45%	50%
		I		10%	20%			65%	5%					5%	45%	50%
		J	2%	2%	5%			2%	85%		4%			20%	60%	20%
		K		5%	40%				50%		5%			10%	20%	70%
50	University of Tennessee	A	16%	8%	16%	8%		20%	16%		16%			20%	60%	20%
		B		90%					10%					10%	30%	60%
		C	60%						40%						35%	65%
		D	5%						60%		35%			2%	60%	38%
		E			10%			10%	80%						35%	65%
		F							100%					10%	30%	60%
		G			20%				80%						25%	75%
		H			10%				45%		45%			20%	40%	40%
51	Texas A & M University	A	30%		20%			30%	10%		10%				30%	70%
		B	13%		32%			16%	19%		20%			6%	56%	38%
		C	20%	8%		10%		20%	22%		18%	2%		3%	57%	40%
52	Texas Christian University	A		15%	40%	5%		15%	25%					50%		50%
53	Tulane University	A	25%	5%	30%	15%		5%	5%		10%	5%		25%	50%	25%
54	University of Virginia	A	11%	15%	30%			17%	17%		10%			5%	10%	85%
		B	11%	10%	28%	4%		14%	20%		13%			6%	31%	63%
		C			100%									100%		
		D	10%		35%	10%		25%	10%		10%			6%	31%	63%
		E	10%	10%	10%	10%		10%	50%					10%	30%	60%
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		K		10%		10%				20%		60%			10%	30%	60%
		L			5%	5%			90%						5%	49%	55%
		M							90%				10%		10%	40%	50%
		N							90%				10%		10%	40%	50%
		O				10%				90%					15%	45%	40%
55	Wabash College	A		10%	15%	10%	15%		10%	25%		15%			20%	50%	30%
56	University of Washington	A			40%	8%	8%		40%	4%		40%				100%	
57	Washington Campus	A		5%	10%	60%	5%		5%	10%		5%			5%	15%	80%
58	Williams College	A		7%	20%	4%	10%		14%	10%		31%	4%		24%	48%	36%
59	Yale University	A		17%	18%	31%	8%		6%	8%		12%			6%	15%	79%

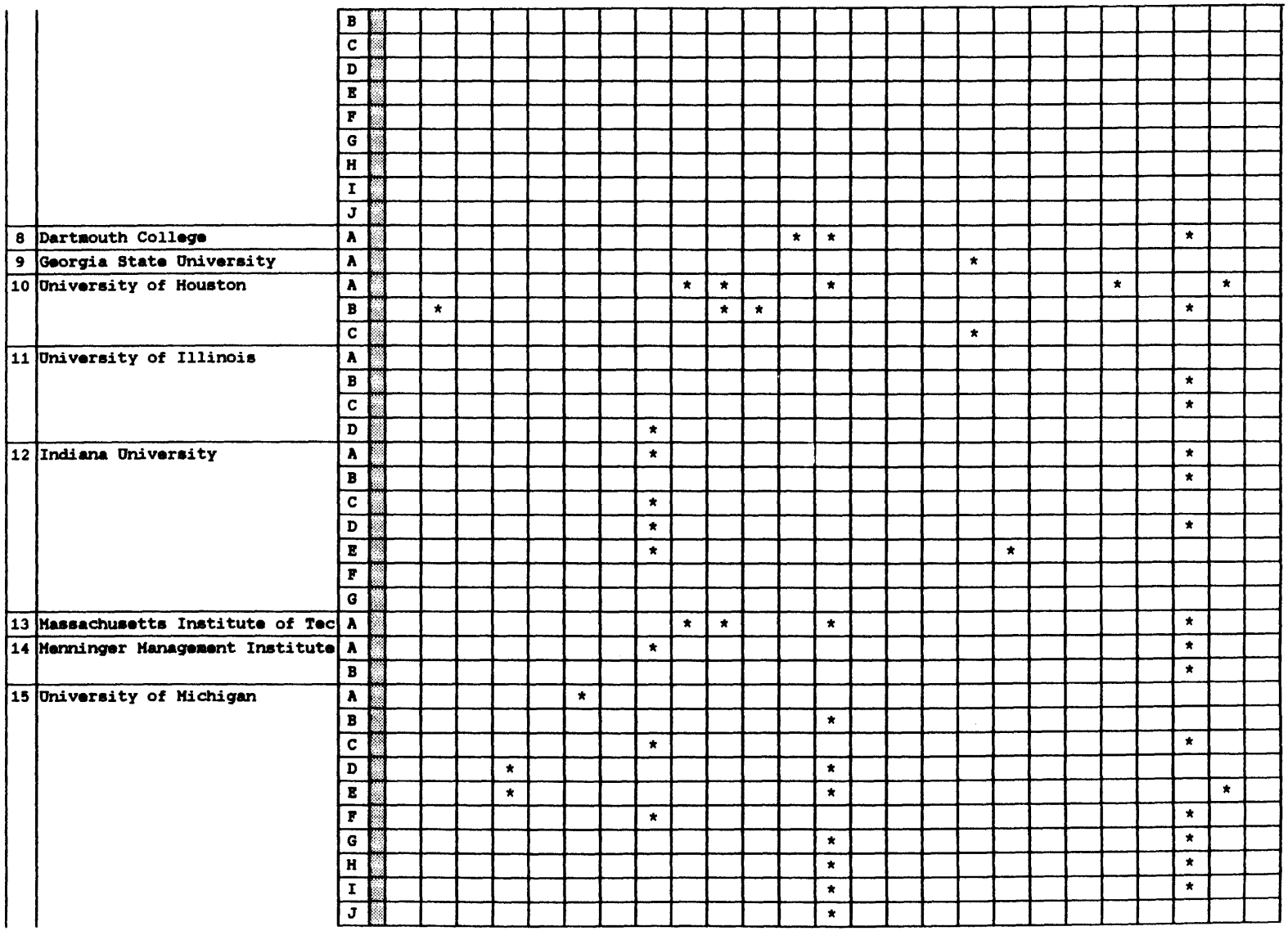
* According to Bricker's International Directory, Long Term, Peterson's Guides, New Jersey, 1991.

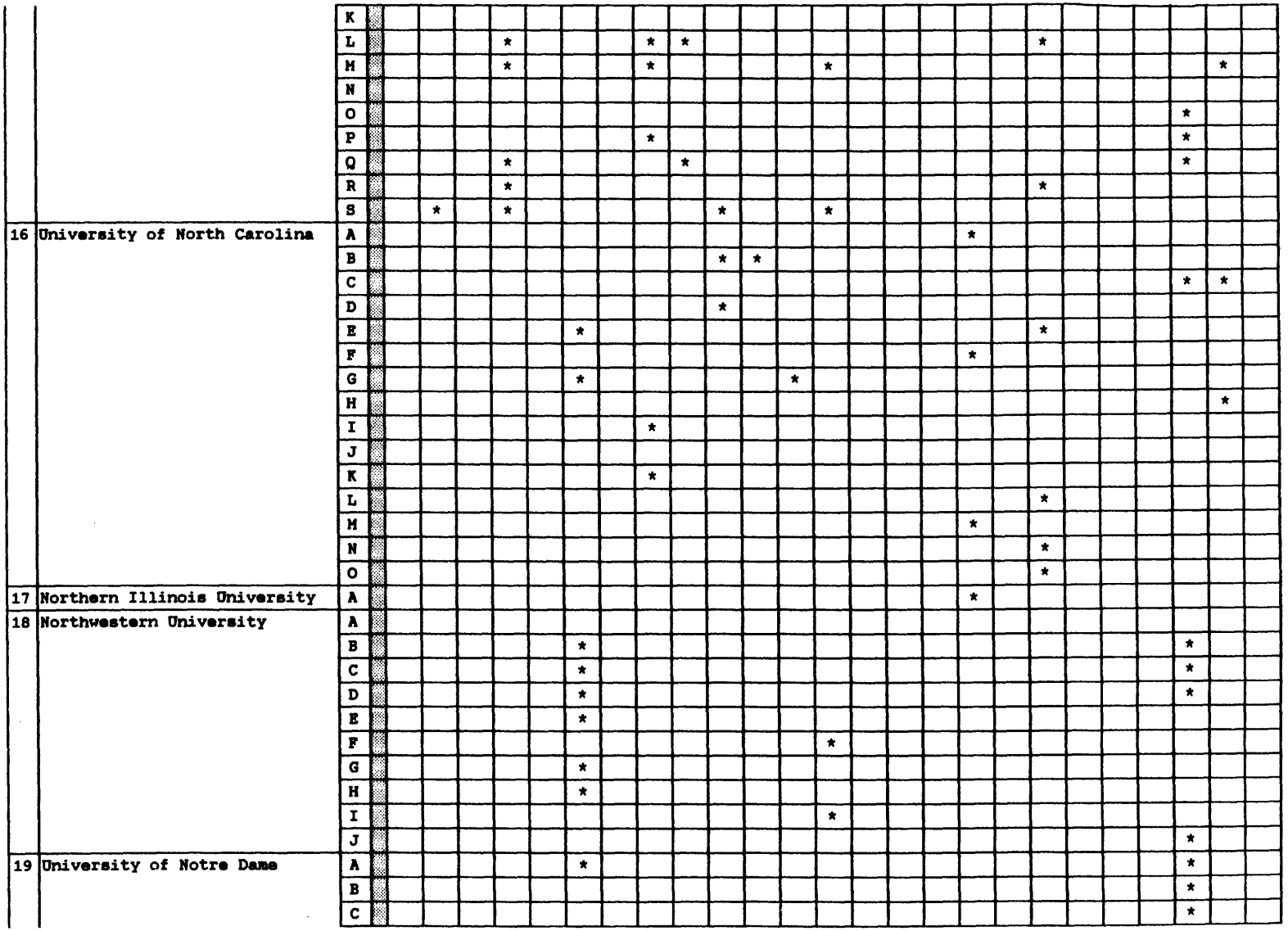
** See previous Exhibit for Program Titles.

UNIVERSITY-BASED EXECUTIVE PROGRAMS AVAILABLE IN 1990*

(Programs less than one week)

	UNIVERSITY OR INSTITUTE NAME	**	PRINCIPAL INDUSTRIES REPRESENTED																										
			ADVERTISING	AEROSPACE	AGRI-BUSINESS	AUTOMOTIVE	AVIATION	BANKING	BIO-TECHNOLOGY	BUSINESS SERVICES	CHEMICALS	COMPUTERS	CONSTRUCTION	CONSULTING	CONSUMER GOODS	CONTRACTING	DATA PROCESSING	DISTRIBUTION	DIVERSE	EDUCATION	ELECTRONICS	ENERGY	ENGINEERING	ENTERTAINMENT	FINANCIAL SERVICES	FOOD & BEVERAGES	FOREIGN SERVICE
1	Aspen Institute	A																											
		B								*															*			
		C																											
2	Brookings Institute	A										*																	
		B										*								*									
		C																											
		D																											
		E																											
		F																											
3	California Institute of Tech.	A		*																	*								
		B		*							*										*					*			
		C		*																	*					*			
		D		*																	*								
		E		*							*										*					*			
		F		*											*						*					*			
		G		*											*						*					*			
4	University of California, LA	A											*									*			*				
5	Case Western Reserve U.	A						*		*											*								
6	Center for Creative Leadership	A								*										*									
		B								*																			
		C								*										*									
7	University of Chicago	A																											


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8 Dartmouth College A
9 Georgia State University A
10 University of Houston A
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11 University of Illinois A
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12 Indiana University A
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13 Massachusetts Institute of Tec A
14 Menninger Management Institute A
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15 University of Michigan A
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16 University of North Carolina
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17 Northern Illinois University
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18 Northwestern University
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19 University of Notre Dame
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20	University of Pennsylvania	A									*	*																	
		B																	*										
21	Rice University	A								*		*										*	*						
		B							*	*	*	*										*	*						
		C							*	*	*	*										*	*						
22	University of Rochester	A				*				*											*								
		B				*				*											*								
		C				*				*											*								
		D				*				*											*								
23	Stanford University	A						*							*						*						*		
		B										*																	
		C		*																	*								
24	University of Texas at Austin	A							*											*		*							
		B							*											*		*							
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25	Vanderbilt University	A							*																				
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		F							*																				
26	University of Virginia	A							*												*								
		B					*				*																		
27	University of Washington	A							*		*																*		
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28	Washington and Lee University	A																											
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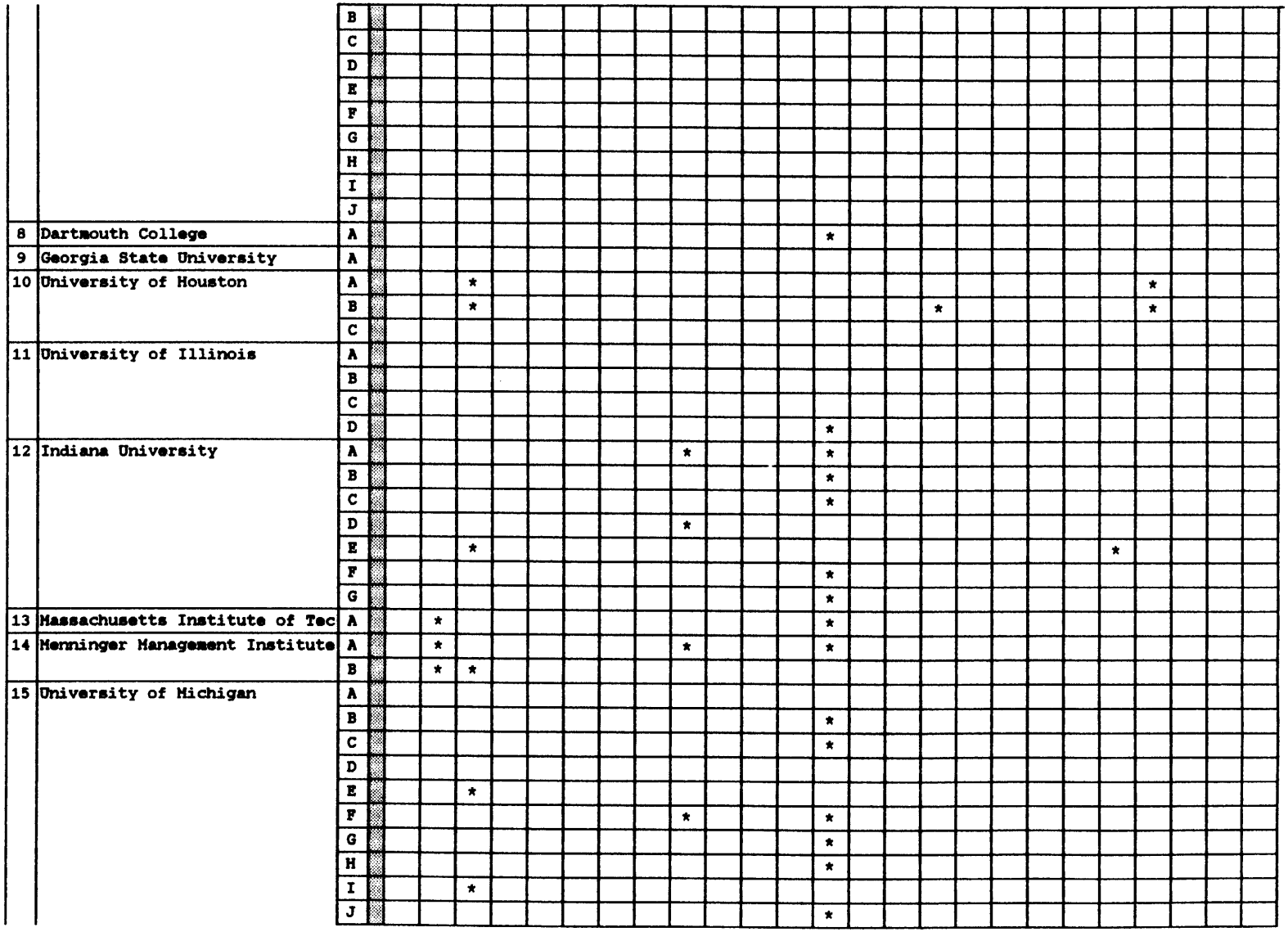
* According to Bricker's Short-Term Executive Programs, Peterson's Guides, New Jersey, 1990.

** See previous Exhibit for Program Titles.

UNIVERSITY-BASED EXECUTIVE PROGRAMS AVAILABLE IN 1990*

(Programs less than one week) (Continued)

	UNIVERSITY OR INSTITUTE NAME	**	PRINCIPAL INDUSTRIES REPRESENTED																											
			FOREST PRODUCTS	GOVERNMENT	HEALTH CARE	HIGH-TECHNOLOGY	HOME PRODUCTS	IMPORT-EXPORT	INDUSTRIAL	INFORMATION SYSTEMS	INSURANCE	JOURNALISM	LAW	MACHINES & TOOLS	MANUFACTURING	MARKETING	MEDIA	METAL FABRICATION	MILITARY	MINERALS	MINING	NATURAL RESOURCES	NON-PROFIT	OIL & GAS	PACKAGING	PAPER	PETRO-CHEMICAL
1	Aspen Institute	A																												
		B											*		*															
		C																												
2	Brookings Institute	A		*																										
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		F		*											*				*											
3	California Institute of Tech.	A		*	*																									
		B																												
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		D			*				*																					
		E																												
		F							*																					
		G			*																									
4	University of California, LA	A																												
5	Case Western Reserve U.	A			*										*															
6	Center for Creative Leadership	A		*																										
		B													*															
		C		*																										
7	University of Chicago	A																												


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8 Dartmouth College
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9 Georgia State University
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10 University of Houston
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11 University of Illinois
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12 Indiana University
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13 Massachusetts Institute of Tec
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14 Menninger Management Institute
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15 University of Michigan
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16	University of North Carolina	A																												
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17	Northern Illinois University	A																												
18	Northwestern University	A										*						*												
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19	University of Notre Dame	A																												
		B																*												
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		D													*														
20	University of Pennsylvania	A													*														
		B																											
21	Rice University	A			*																								
		B			*																								
		C			*																								
22	University of Rochester	A												*	*														
		B												*	*														
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		D												*	*														
23	Stanford University	A																											
		B			*										*														
		C			*																								
24	University of Texas at Austin	A		*	*	*																							
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		E		*	*	*																							
25	Vanderbilt University	A													*														
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26	University of Virginia	A													*														
		B																											
27	University of Washington	A			*								*		*													*	
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28	Washington and Lee University	A								*					*														
			0	18	31	8	0	0	4	0	11	0	5	4	53	0	0	2	3	0	0	0	1	3	0	3	0

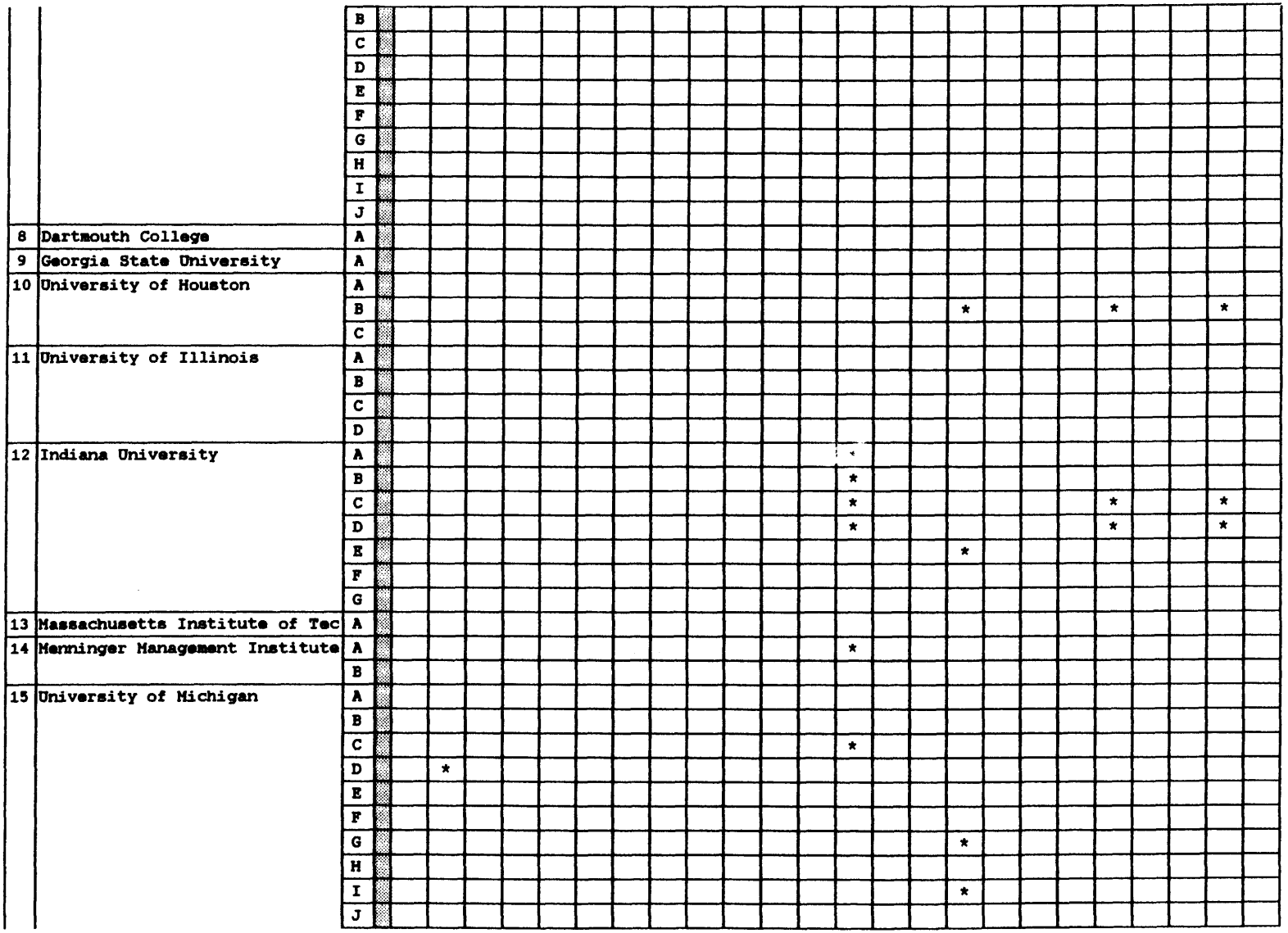
* According to Bricker's Short-Term Executive Programs, Peterson's Guides, New Jersey, 1990.

** See previous Exhibit for Program Titles.

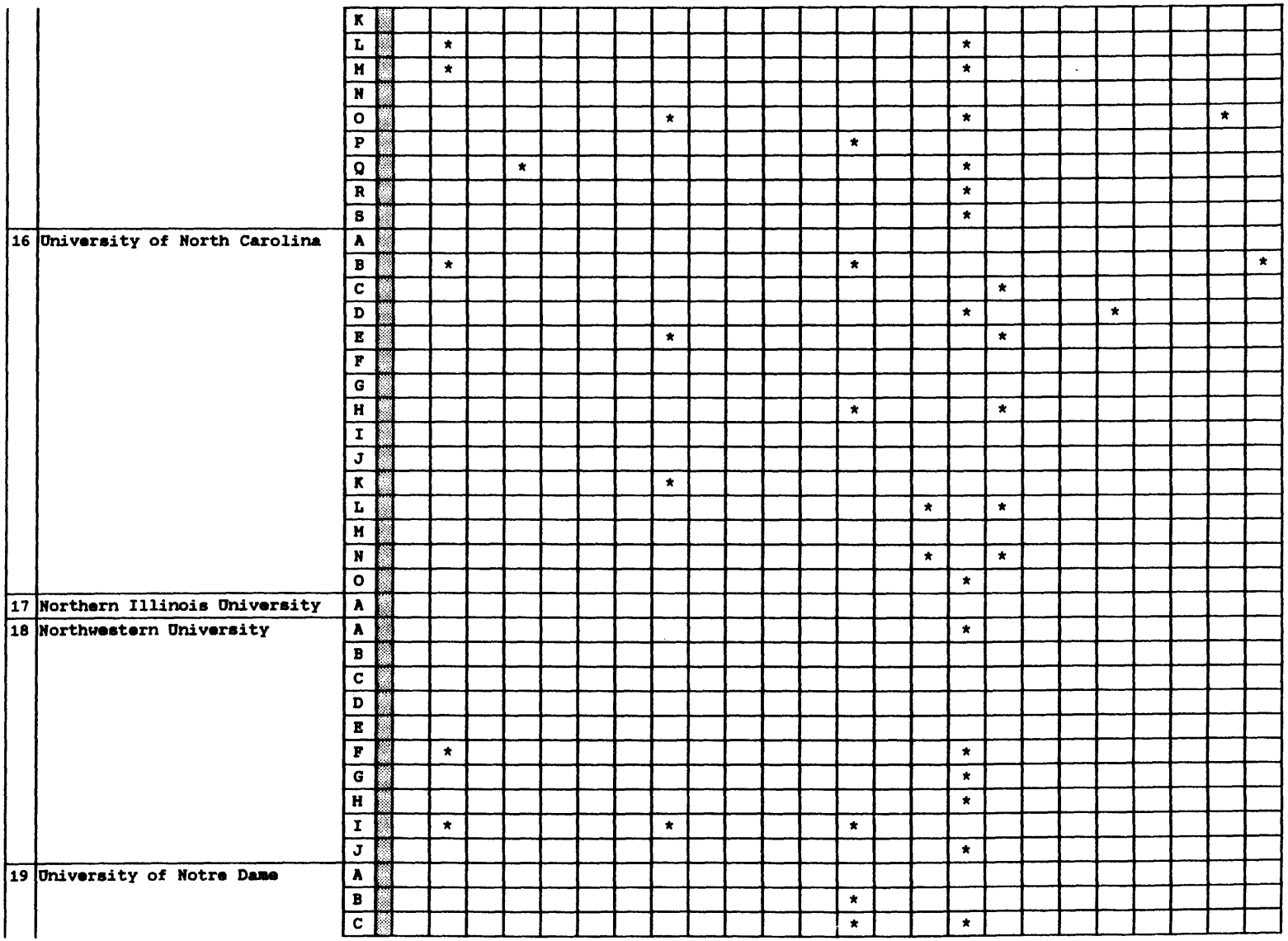
UNIVERSITY-BASED EXECUTIVE PROGRAMS AVAILABLE IN 1990*

(Programs less than one week) (Continued)

	UNIVERSITY OR INSTITUTE NAME	**	PETROLEUM	PHARMACEUTICALS	PROFESSIONAL SERVICES	PLASTICS	PRINTING	PRIVATE INDUSTRY	PUBLIC SECTOR	PUBLISHING	RAILROADS	REAL-ESTATE DEVELOPMENT	RESEARCH	RESTAURANT HOTEL	RETAIL	RUBBER	STEEL	TELE-COMMUNICATIONS	TEXTILES	TOBACCO	TRADING	TRANSPORTATION	TRAVEL	TRUCKING	UTILITIES	WOOD PRODUCTS
1	Aspen Institute	A																								
		B																*								
		C																								
2	Brookings Institute	A																*								
		B																*								
		C																*								
		D																								
		E																								
		F																								
3	California Institute of Tech.	A																							*	
		B	*																							
		C																							*	
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		E	*																							
		F																								
		G																								
4	University of California, LA	A																								
5	Case Western Reserve U.	A																							*	
6	Center for Creative Leadership	A																								
		B																*								
		C																								
7	University of Chicago	A																								



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		I																													
		J																													
8	Dartmouth College	A																													
9	Georgia State University	A																													
10	University of Houston	A																													
		B																		*				*			*				
		C																													
11	University of Illinois	A																													
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12	Indiana University	A																													
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		C																*						*			*				
		D																*						*			*				
		E																		*											
		F																													
		G																													
13	Massachusetts Institute of Tec	A																													
14	Menninger Management Institute	A																*													
		B																													
15	University of Michigan	A																													
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		C																*													
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16 University of North Carolina
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17 Northern Illinois University
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18 Northwestern University
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19 University of Notre Dame
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		D																									
20	University of Pennsylvania	A															*										
		B																									
21	Rice University	A										*															
		B										*										*					
		C										*										*					
22	University of Rochester	A																									
		B																									
		C																									
		D																									
23	Stanford University	A															*										
		B															*										
		C															*										
24	University of Texas at Austin	A													*												
		B													*												
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25	Vanderbilt University	A																									
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26	University of Virginia	A													*						*						
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27	University of Washington	A													*						*						
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28	Washington and Lee University	A													*												
			2	7	0	2	2	0	2	5	0	4	0	0	25	1	2	37	6	1	0	8	0	0	8	1

* According to Bricker's Short-Term Executive Programs, Peterson's Guides, New Jersey, 1990.

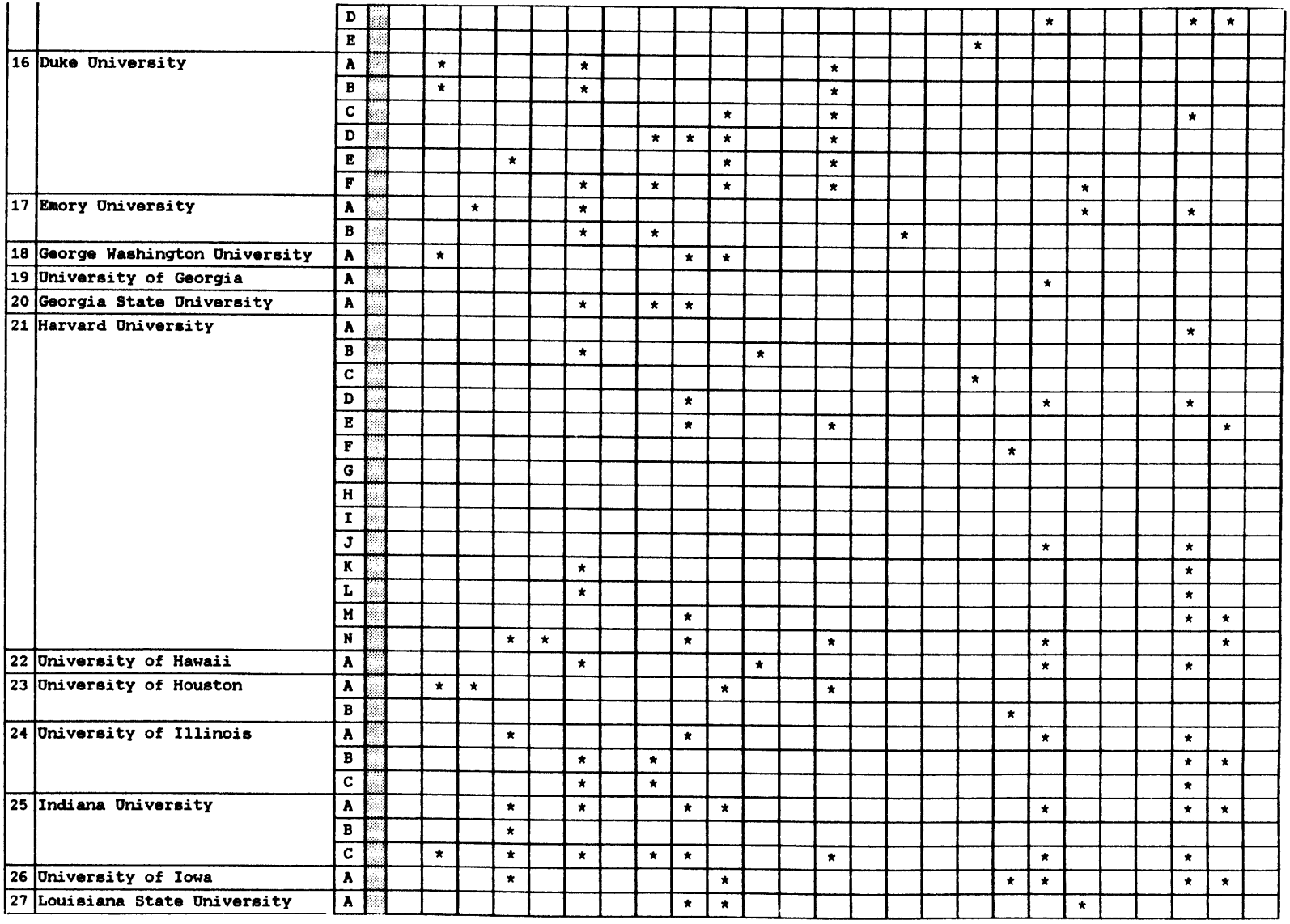
** See previous Exhibit for Program Titles.

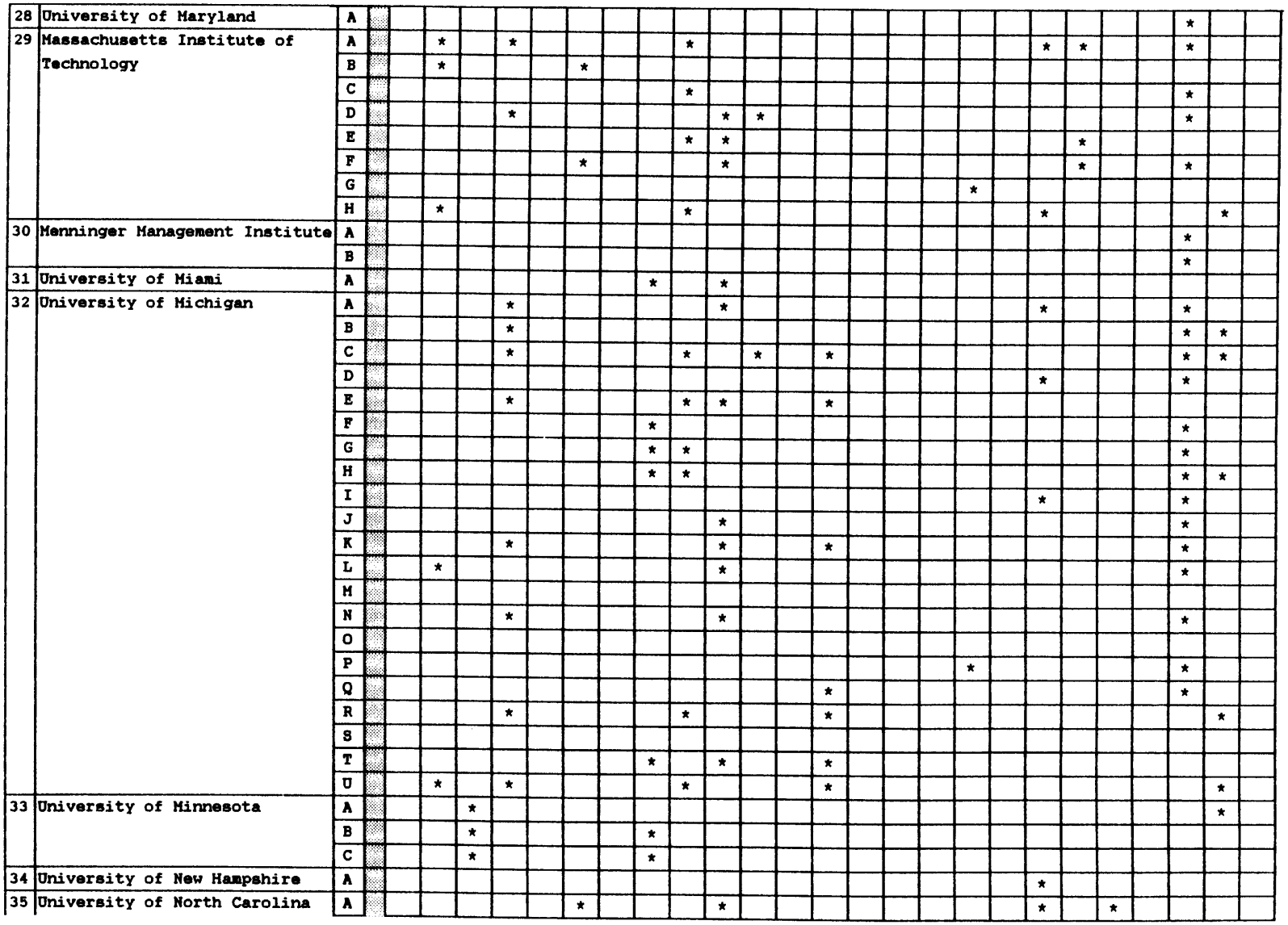
UNIVERSITY-BASED EXECUTIVE PROGRAMS AVAILABLE IN 1991*

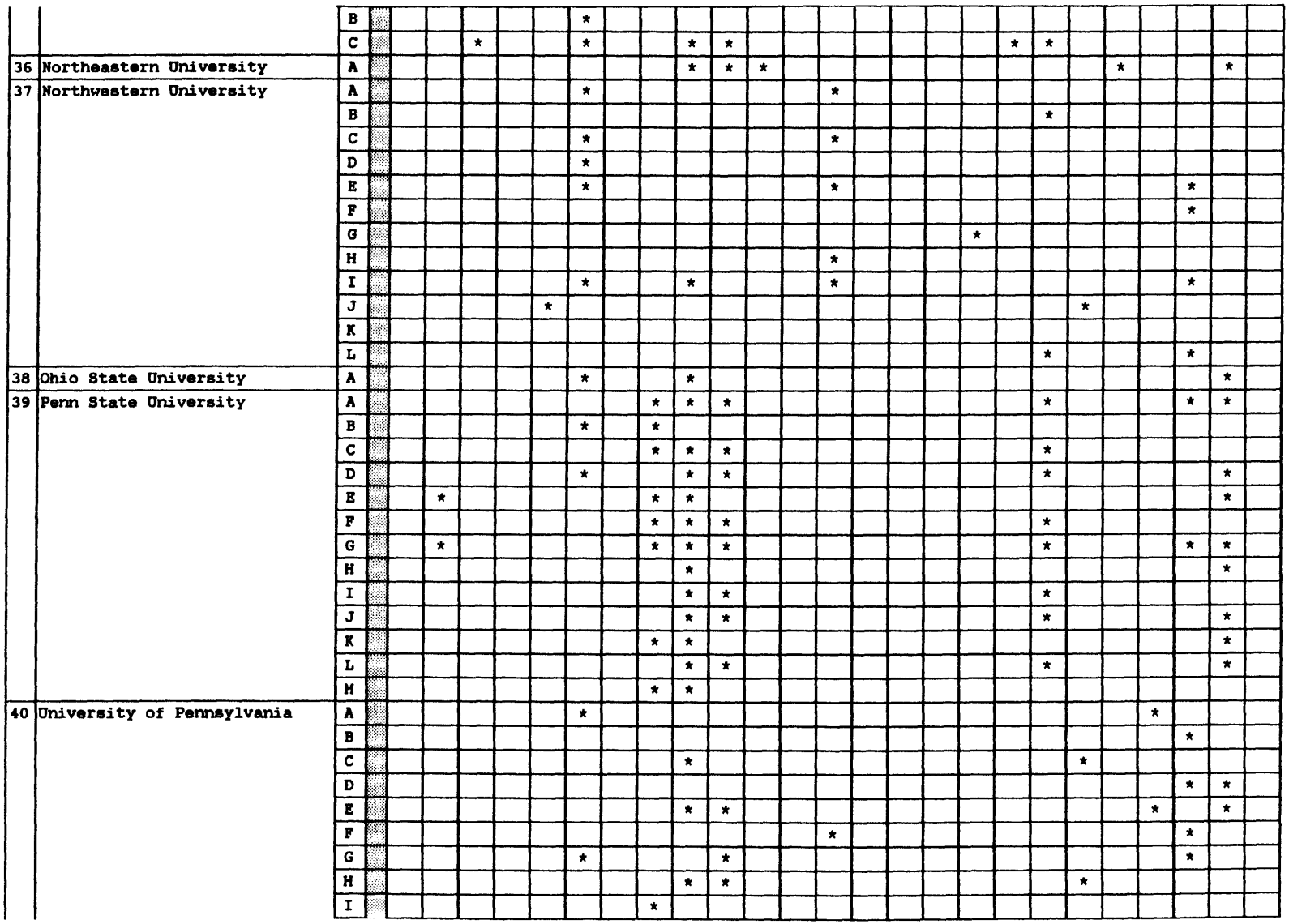
(Programs longer than one week)

	UNIVERSITY OR INSTITUTE NAME	**	PRINCIPAL INDUSTRIES REPRESENTED																											
			ADVERTISING	AEROSPACE	AGRI-BUSINESS	AGRICULTURE	AVIATION	BANKING	BIO-TECHNOLOGY	BUSINESS SERVICES	CHEMICALS	COMPUTERS	CONSTRUCTION	CONSULTING	CONSUMER GOODS	CONTRACTING	DATA PROCESSING	DISTRIBUTION	DIVERSE	EDUCATION	ELECTRONICS	ENERGY	ENGINEERING	ENTERTAINMENT	FINANCIAL SERVICES	FOOD & BEVERAGE	FOREIGN SERVICE
1	University of Arizona	A						*													*								
2	Aspen Institute	A																											
		B																											
3	Babson College	A																							*				
		B									*		*		*														
		C										*									*								
		D						*																					
		E										*																	
		F																			*								
4	Boston University	A								*															*				
		B								*																			
		C								*															*				
		D													*						*								
5	Brookings Institute	A		*								*										*			*				
6	University of California, Berkeley	A		*		*					*	*													*				
		B																	*										
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7	California Institute of Tech.	A			*				*	*		*				*						*					*		
8	University of California, Los Angeles	A			*																	*				*			
		B																			*								
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9	Carnegie Mellon University	A			*				*			*	*										*			*			
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12	Colorado State University	A											*										*						
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35 University of North Carolina A


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41	University of Pittsburgh	A										*										*		*					
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42	Princeton University	A						*																				*	
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43	Rice University	A								*	*		*		*								*	*					
44	University of Richmond	A						*			*																		
45	Rutgers University	A										*															*		
46	Simmons College	A						*													*						*		
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47	Smith College	A									*			*								*					*		
48	Southern Methodist University	A		*				*		*		*																	
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49	Stanford University	A										*															*	*	
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50	University of Tennessee	A						*															*						
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51	Texas A & M University	A		*							*				*														
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52	Texas Christian University	A																			*	*							
53	Tulane University	A		*						*												*		*					
54	University of Virginia	A				*		*							*						*				*	*			
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55	Wabash College	A																										*		
56	University of Washington	A																												
57	Washington Campus	A																				*						*		
58	Williams College	A						*				*																		
59	Yale University	A						*																						
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* According to Bricker's International Directory, Long Term, Peterson's Guides, New Jersey, 1991.

** See previous Exhibit for Program Titles.

UNIVERSITY-BASED EXECUTIVE PROGRAMS AVAILABLE IN 1991*

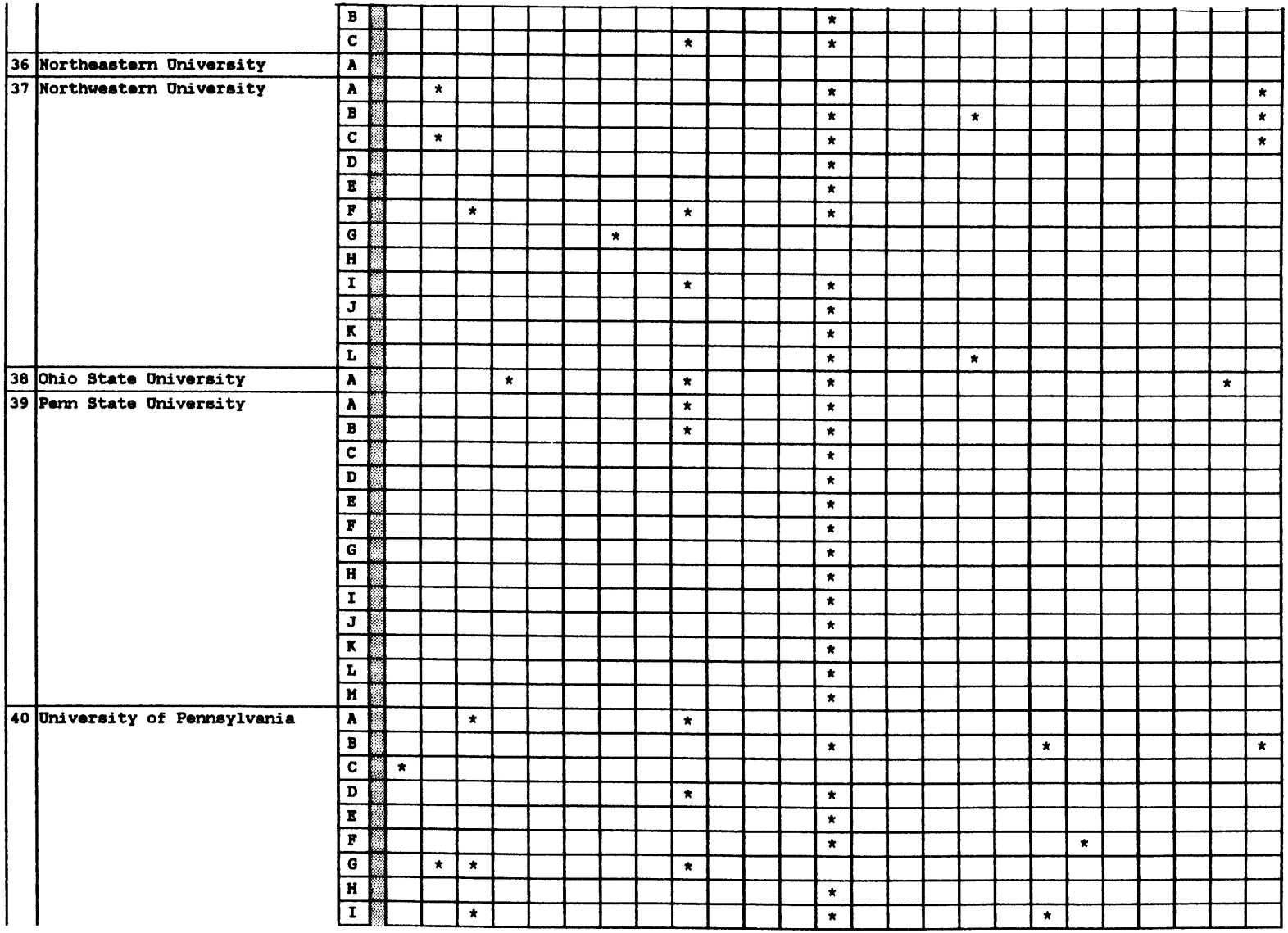
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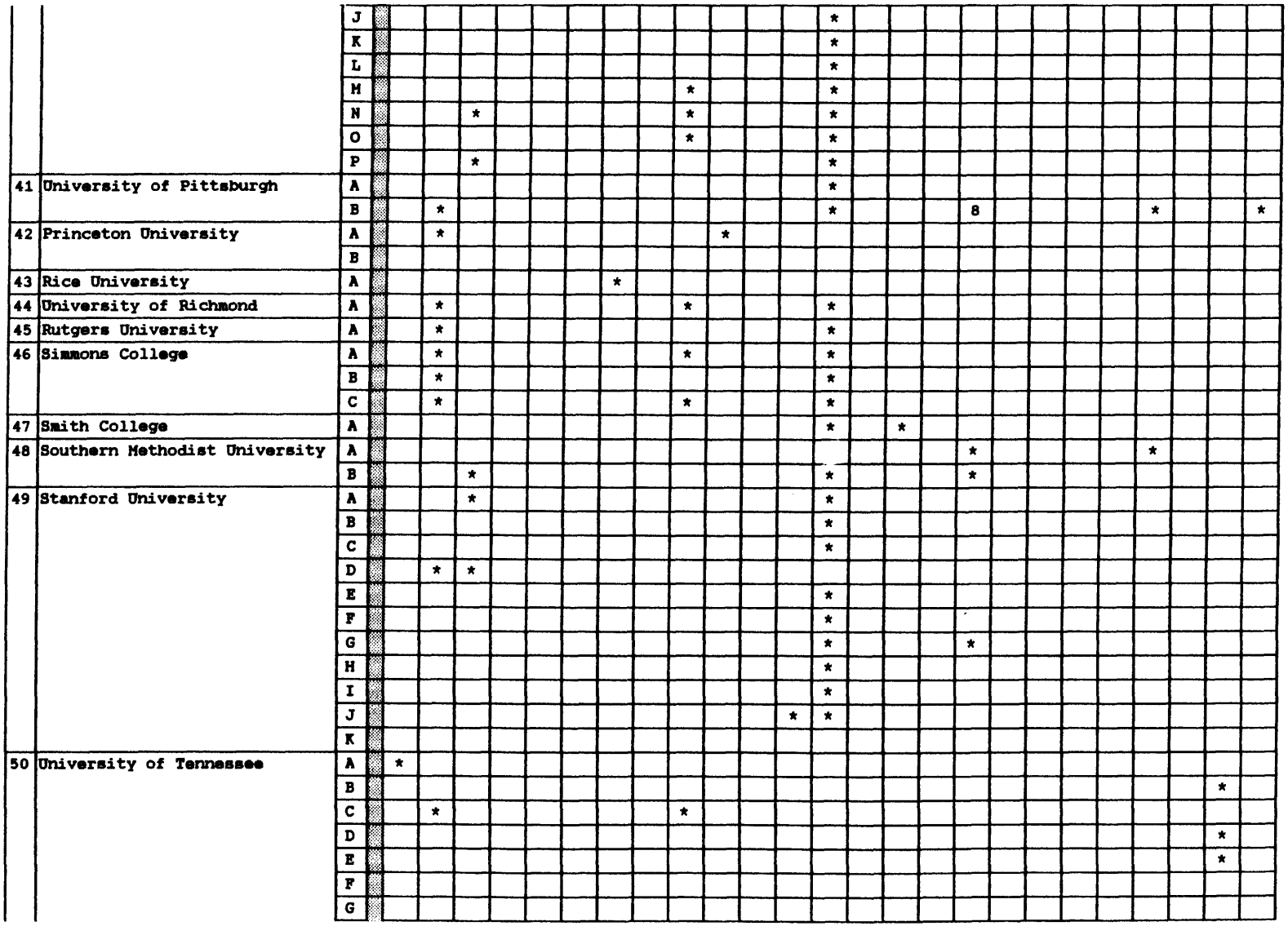
	UNIVERSITY OR INSTITUTE NAME	**	PRINCIPAL INDUSTRIES REPRESENTED																												
			FOREST PRODUCTS	GOVERNMENT	HEALTH CARE	HIGH-TECHNOLOGY	HOME PRODUCTS	IMPORT-EXPORT	INDUSTRIAL	INFORMATION SYSTEMS	INSURANCE	JOURNALISM	LAW	MACHINES & TOOLS	MANUFACTURING	MARKETING	MEDIA	METAL FABRICATION	MILITARY	MINERALS	MINING	NATURAL RESOURCES	NON-PROFIT	OIL & GAS	PACKAGING	PAPER	PETRO-CHEMICAL
1	University of Arizona	A													*				*								
2	Aspen Institute	A																									
		B																									
3	Babson College	A				*									*												
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4	Boston University	A													*												
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5	Brookings Institute	A													*				*								
6	University of California, Berkeley	A									*																
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7	California Institute of Tech.	A																												
8	University of California, Los Angeles	A									*							*												
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9	Carnegie Mellon University	A		*											*															*
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10	Center for Creative Leadership	A		*																										
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11	University of Chicago	A		*								*				*										*				
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12	Colorado State University	A		*												*								*						
13	Columbia University	A		*							*	*				*														
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14	Cornell University	A		*																										
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15	Dartmouth College	A														*	*													
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16	Duke University	A		*					*	*	*																		
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17	Emory University	A				*					*				*				*										
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18	George Washington University	A																								*			
19	University of Georgia	A		*											*														
20	Georgia State University	A		*	*					*	*				*														
21	Harvard University	A		*											*					*		*				*			
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22	University of Hawaii	A																											*
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25	Indiana University	A		*																									
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26	University of Iowa	A		*	*		*				*																		
27	Louisiana State University	A																											

28	University of Maryland	A													*															
29	Massachusetts Institute of Technology	A																												
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30	Menninger Management Institute	A								*					*															
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31	University of Miami	A																												
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33	University of Minnesota	A		*	*						*				*									*						
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34	University of New Hampshire	A		*											*															
35	University of North Carolina	A									*				*															


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42 Princeton University
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44 University of Richmond
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45 Rutgers University
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48 Southern Methodist University
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51	Texas A & M University	A		*											*													
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52	Texas Christian University	A			*										*													
53	Tulane University	A													*													
54	University of Virginia	A									*																	
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56	University of Washington	A				*																						
57	Washington Campus	A		*	*										*													
58	Williams College	A									*		*	*														
59	Yale University	A		*							*				*													
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* According to Bricker's International Directory, Long Term, Peterson's Guides, New Jersey, 1991.

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UNIVERSITY-BASED EXECUTIVE PROGRAMS AVAILABLE IN 1991*

(Programs longer than one week) (Continued)

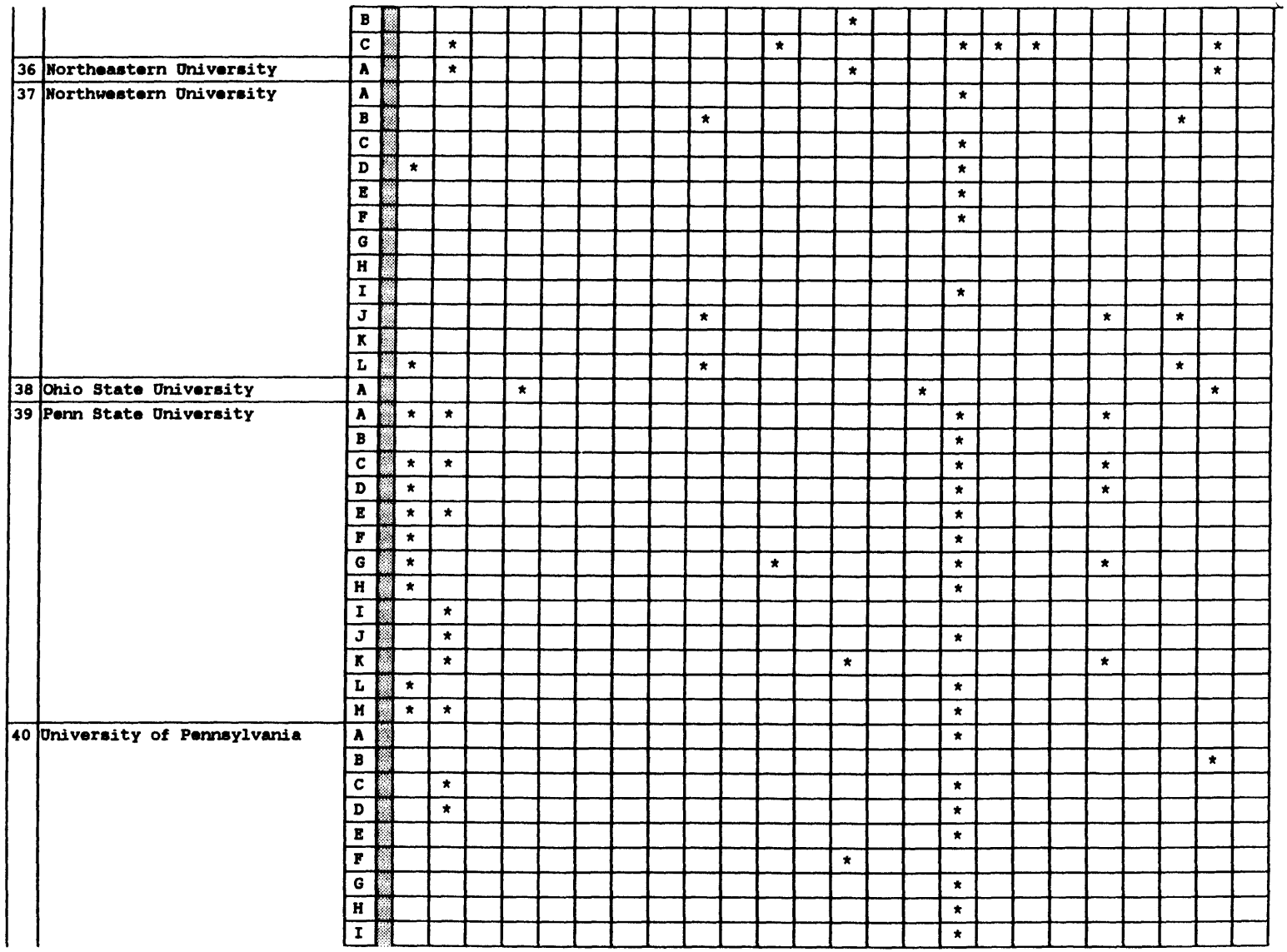
	UNIVERSITY OR INSTITUTE NAME	**	PRINCIPAL INDUSTRIES REPRESENTED																										
			AEROSPACE	AGRICULTURE	BIOTECHNOLOGY	CHEMICALS	COMPUTERS	ELECTRONICS	FINANCIAL SERVICES	FOOD	FORESTRY	HEALTH	INSURANCE	MANUFACTURING	METALS	MINING	OIL	PAPER	PHARMACEUTICALS	PUBLIC SECTOR	PUBLISHING	REAL ESTATE DEVELOPMENT	RESEARCH	RESTAURANT/HOTEL	RETAIL	RUBBER	STEEL	TELECOMMUNICATION	TEXTILES	TOBACCO
1	University of Arizona	A																											
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3	Babson College	A																											
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4	Boston University	A																											
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5	Brookings Institute	A																											
6	University of California, Berkeley	A																											
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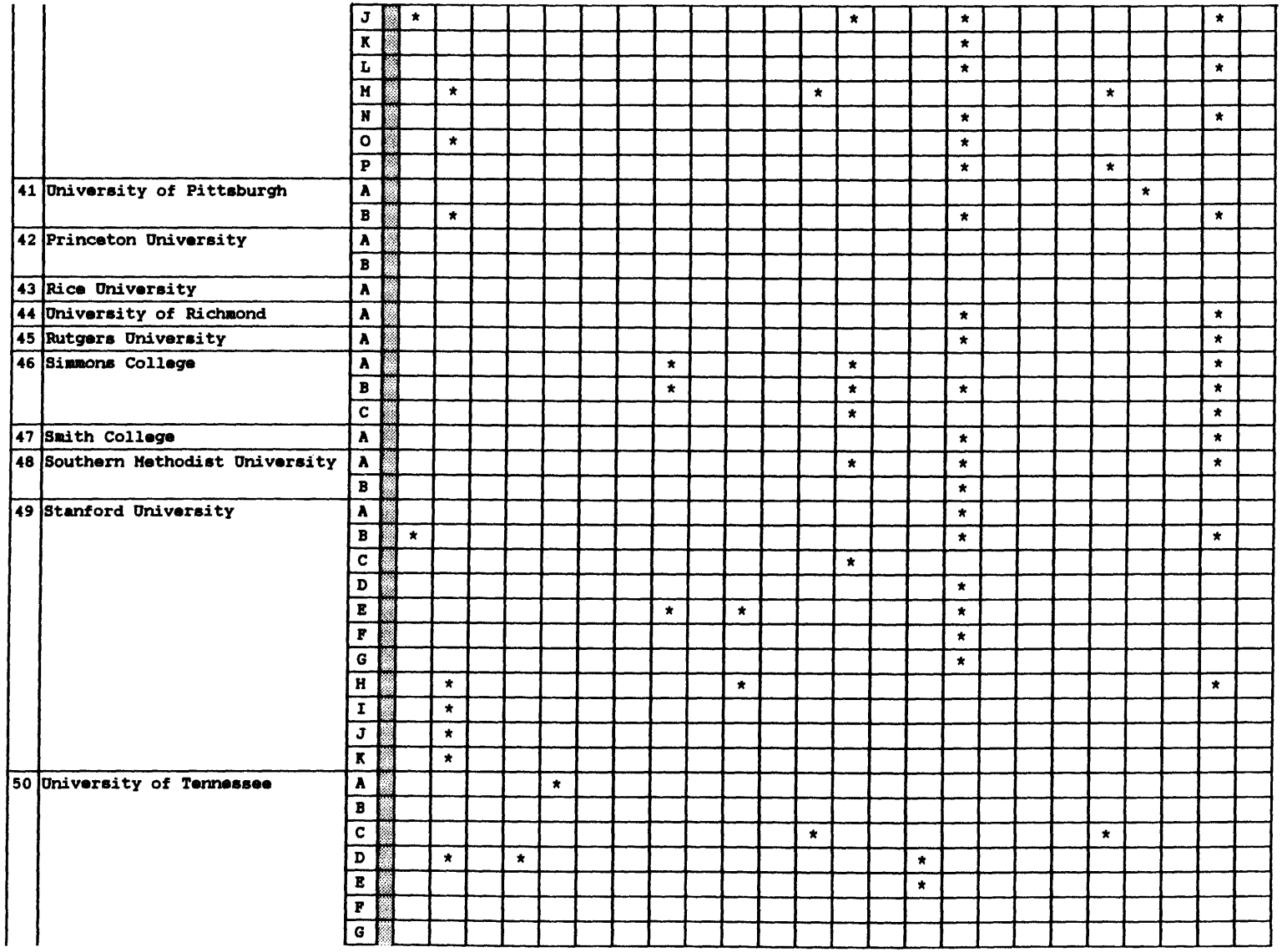
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8	University of California, Los Angeles	A																										
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9	Carnegie Mellon University	A																		*								
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10	Center for Creative Leadership	A																										
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11	University of Chicago	A																		*							*	
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12	Colorado State University	A																		*								
13	Columbia University	A		*	*															*				*			*	
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19	University of Georgia	A													*			*								*	
20	Georgia State University	A								*								*	*							*	
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22	University of Hawaii	A																									
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27	Louisiana State University	A	*																							*	*

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34	University of New Hampshire	A	*		*														*											*	
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		C												*												*		
47	Smith College	A																*								*		
48	Southern Methodist University	A												*				*								*		
		B																*										
49	Stanford University	A																*										
		B	*															*								*		
		C												*														
		D																*										
		E								*		*						*										
		F																*										
		G																*										
		H		*								*														*		
		I		*																								
		J		*																								
		K		*																								
50	University of Tennessee	A					*																					
		B																										
		C												*								*						
		D		*		*											*											
		E															*											
		F																										
		G																										

		H																								
51	Texas A & M University	A	*																						*	
		B																							*	
		C											*												*	*
52	Texas Christian University	A																								
53	Tulane University	A																								
54	University of Virginia	A	*															*	*						*	
		B																*	*	*						
		C										*			*											
		D																*								
		E																		*					*	
		F																*	*	*						
		G																*	*	*						
		H															*	*	*							
		I																*							*	
		J																*	*						*	
		K													*			*								
		L		*														*	*							
		M																	*							
		N																*	*							
		O																	*	*						
55	Wabash College	A																*							*	
56	University of Washington	A																								
57	Washington Campus	A																*							*	
58	Williams College	A																							*	
59	Yale University	A																*								
			35	47	1	2	1	2	2	8	3	4	4	4	29	1	5	##	14	6	2	22	1	3	66	2

* According to Bricker's International Directory, Long Term, Peterson's Guides, New Jersey, 1991.

** See previous Exhibit for Program Titles.

APPENDIX A11a

CENTER FOR CONSTRUCTION RESEARCH AND EDUCATION
DEPARTMENT OF CIVIL ENGINEERING
MASSACHUSETTS INSTITUTE OF TECHNOLOGY
CAMBRIDGE, MASSACHUSETTS 02139

May 1, 1991

RE: ***Executive Education Questionnaire***

Dear: Recipient of this questionnaire,

I endeavored to mail this questionnaire to as wide of a selection of the construction industry as possible. I used a variety of sources to obtain the names and addresses of individuals and companies. It was my intent, when possible, to address the questionnaire to individuals identified within each company as having the responsibility for executive education and development. Where no such individual was identified, the questionnaire was directed to the firm's vice president of human resources, president, vice president, or chief executive officer. If you have obtained this questionnaire and are unable to complete it, please pass it to the correct person or department in which it might by completed.

Sincerely,

Susan Tomlinson-Dykens
Research Assistant
MIT

APPENDIX A11b

CENTER FOR CONSTRUCTION RESEARCH AND EDUCATION
DEPARTMENT OF CIVIL ENGINEERING
MASSACHUSETTS INSTITUTE OF TECHNOLOGY
CAMBRIDGE, MASSACHUSETTS 02139

The attached questionnaire is designed to gather information for a study on company participation in and demand for executive education programs, both in-company and university-based. You are kindly asked to participate in this study. You will note that the questionnaire is fairly general and covers a number of areas. This is necessary because we are trying to obtain information about education and development patterns and their relation to personal and occupational characteristics in well established construction related firms. Basically there are questions concerning your firms construction related specialty and size, and policies and participation in educational programs.

The results of this study may be of interest to you, as a construction professional. It will also be important to organizations that employ construction related professionals and promote the education of said professionals. Because we hope to get a large sample, we are using an objective question format, even though this sometimes forces respondents to give answers in terms of categories that do not permit them to express the nuances of opinion. Please feel free to elaborate on your answers. You may write on the questionnaire itself or on a separate piece of paper.

In order for the information obtained to be valid, maximum participation in this research project is necessary. Our pretesting indicates that it takes about 20 to 30 minutes to complete the questionnaire and we very much hope that you will be willing to give that amount of time to this important project. A pre-paid return envelope is enclosed for your convenience. If for any reason you cannot answer some questions, leave those blank and fill in the rest.

Please return the questionnaire by July 19, 1991.

Your answers will be kept confidential in every way. No individual questionnaire will be seen by anyone except the immediate research staff, and only group results will be reported. On request, these results will be made available to all participants.

We greatly appreciate your help in this effort.

Please note: The questionnaire is printed on both sides of the page.

Susan Tomlinson-Dykens
Research Assistant, Center for Construction Research and Education

Mr. Charles Hellwell
Deputy Director, Center for Construction Research and Education

Note: In most questions the form of the answer is indicated with specific directions (circle one, check one, check all that apply). Where no directions are given, please fill in the blank.

I. INFORMATION ABOUT RESPONDENT

1. Sex (circle one): Male Female 2. Age: _____

3. Respondent's title: _____ 3. Functional area within the company: _____

5. Title of Respondent's immediate supervisor: _____

II. INFORMATION ABOUT THE COMPANY

6. The Company would best be described as a: (circle only one)

Design Firm	Contractor	Construction Manager

7. The Company's areas of concentration are:

Main trade practice (check only one)		Other capabilities and practices (check all that apply)	
	Engineer-Architect		Engineer-Architect
	Engineer-Constructor		Engineer-Constructor
	Pure Consulting Engineer		Pure Consulting Engineer
	Architect-Engineer		Architect-Engineer
	Design-Constructor		Design-Constructor
	Architect		Architect
	Soils/Geotechnical Engineer		Soils/Geotechnical Engineer
	Planner		Planner
	Project Manager		Project Manager
	Prime Contractor		Prime Contractor
	Joint Venturer		Joint Venturer
	General Contractor		General Contractor
	Subcontractor		Subcontractor
	Pure Construction Manager		Pure Construction Manager

8. The number of salaried people employed by the company: _____

9. Total billings for 1990 (check only one)

	less than 2 million
	2 million to 9.99 million
	10 million to 19.99 million
	20 million to 29.99 million
	30 million to 39.99 million
	40 million to 49.99 million
	50 million to 59.99 million
	60 million to 69.99 million
	70 million to 79.99 million
	80 million to 89.99 million
	90 million to 99.99 million
	100 million to 199.99 million
	200 million to 299.99 million
	300 million to 399.99 million
	400 million to 500 million
	greater than 500 million

10. Percentage of billings according to classification of work:

%	Type of Work
	General Building
	Transportation
	Power
	Industrial Process/Petrochemical
	Hazardous Waste
	Sewer/Waste Control
	Water Supply
	Manufacturing Plant
	Other (please specify _____)

III. EXECUTIVE EDUCATION PROGRAMS

Note: The term "Executive Education Programs" refers to the training, development, and enhancement of engineering, architectural, consulting and contracting skills in the construction field for middle-level management and senior-level management. If your company participates in Executive Education Programs, either In-Company or University-Based or both, please answer the questions accordingly. If your company does not participate in these programs and/or is interested in them, please answer the following questions according to what you believe would best serve your company's needs.

11. What is the number of employees that qualify for Executive Education Programs as described above? _____

12. Is there a formal requirement in the company for ongoing executive educatic..? Yes No

13. What type of executive programs are offered by the company? (circle all that apply)

In-Company Programs	University-Based Programs

(check the answer, under each catagory, that best fits the question.)

14. Who selects and identifies the program and possible participants?

	In-Company Programs	University-Based Programs
Individual Participant		
Immediate Supervisor		
Top Manager		
Other		

15. These programs are offered to:

Middle-level management		
Senior-level management		
Both		

16. How many of the eligible personnel have participated in one of these programs...
(fill in a number)

Within the past year		
From 1 to 5 years ago		
From 5 to 10 years ago		

17. Does the company expect an increase in the number of people participating in these programs?

Less than 10%		
10 percent		
Greater than 10%		
No Change		

18. What is the desired length of time for an executive program?

1 to 2 days		
3 to 5 days		
2 to 3 weeks		
Greater than 3 weeks		

19. The list below shows a number of topics that your company might be interested in as elements of an executive program Please indicate to what extent you believe each topic is valued. (circle one answer for each topic)

	not valued				most valued
Business-Government Relations	1	2	3	4	5
Corporate/Business Strategy Development	1	2	3	4	5
Emerging Markets and Market Trends	1	2	3	4	5
Emerging Technologies and Technology Trends	1	2	3	4	5
Executive Computer Skills	1	2	3	4	5
Executive Decision Making	1	2	3	4	5
Finance and Accounting	1	2	3	4	5
General Management	1	2	3	4	5
Global Business Environment	1	2	3	4	5
Humanities and Liberal Arts	1	2	3	4	5
Human Resource Management	1	2	3	4	5
Information and Decision Support Systems	1	2	3	4	5
International Finance	1	2	3	4	5
Law in the Construction Industry	1	2	3	4	5
Leadership, Motivation, Communication	1	2	3	4	5
Logistics Management	1	2	3	4	5
Marketing	1	2	3	4	5
Mergers, Acquisitions and Divestitures	1	2	3	4	5
Organizational Change and Development	1	2	3	4	5
Production and Operations Management	1	2	3	4	5

Project Control, Scheduling, Estimating.....	1	2	3	4	5
Project Management.....	1	2	3	4	5
Research and Development Management.....	1	2	3	4	5
Sales Management.....	1	2	3	4	5
Stragegy Implementation.....	1	2	3	4	5
Technology Management.....	1	2	3	4	5
World Trade and Economics.....	1	2	3	4	5
Other (please specify) _____.....	1	2	3	4	5
_____.....	1	2	3	4	5
_____.....	1	2	3	4	5

20. If in-company executive programs are used, where is the training personnel to develop the programs acquired? Indicate percentage used.

	Corporate training staff
	Company personnel other than training
	Professional consultants
	University Faculty
	Other _____

21. If in-company executive programs are used, where is the training personnel to to deliver the programs acquired? Indicate percentage used.

	Corporate training staff
	Company personnel other than training
	Professional consultants
	University Faculty
	Other _____

22. What are the perceived benefits of in-company executive programs?

23. What are the perceived benefits of university-based executive programs?

24. Any additional comments are welcomed.

OPTIONAL

If you would like a copy of the analysis of this survey please print your name and address.

NAME: _____

COMPANY: _____

ADDRESS: _____

_____

_____

		PART 1 - INFORMATION ABOUT RESPONDENT					PART 2 - INFORMATION ABOUT THE COMPANY		
Question		1	2	3	4	5	6	7A	7B
							TYPE OF	MAIN	OTHER
					FUNCTIONAL	IMMEDIATE	COMPANY	TRADE	CAPABILITIES
NO.	ID	SEX	AGE	TITLE	AREA	SUPERVISOR	(see note	(see note)	(see note)
1		M	35	Operations Manager	Operations	President	C	GC	SUB
2		M	45	Vice President	Construction Services	Executive Vice President	C	PC	JV,GC,SUB
3		M	51	President	CEO	Chairman	D,C	D-C	E-C,GC
4		M	64	Principal	Owner	N/A	C	SUB	PC,JV
5		M	70	Partner	Wastewater Treatment Desi	Group of Partners	D	E-A	PCE,PM
6		F	39	Human Resources Director	Corporate Director	Executive Vice President	CM	PCM	E-C,PM,PC,JV,GC,SU
7		M	45	Director, Controls & Service	Engineering Management	President	C	GC	E-C,SUB,PCM
8		M	62	Project Manager	Administration	Owner	C	SUB	E-C,D-C,PC
9		M	43	President	N/A	N/A	C	S/G	PM,PC,JV,GC
10		M	51	President	N/A	N/A	C	GC	PC
11		M	63	Partner	General	N/A	D	PCE	S/G
12		M	37	Contract Division Manager	Construction Division Man	President & CEO	C	PC	D-C,GC,SUB
13		M	66	Chairman & CEO	Management	Board of Directors	D	E-A	PCE
14		M	62	Partner	Administration	N/A	D	PCE	S/G,PL,JV
15		M	72	Chairman	Senior Executive	N/A	C	GC	SUB
16		M	62	Chairman	CEO	N/A	C	GC	E-C,PC,JV,SUB
17		M	71	Senior Consultant	N/A	President	D	PCE	S/G
18		M	50	Vice President, Operations	Corporate	President	D	E-A	N/A
19		M	64	President	Operations	Chairman	C	GC	PC
20		M	40	President	N/A	N/A	C	GC	D-C,PM,SUB.
21		M	46	Vice President	Human Resources	President & CEO	C	GC	PC,JV,SUB
22		F	48	Vice President	Human Resources	President	D	PCE	N/A
23		M	67	Chairman	Management	Chairman of Board of Directors	D	PCE	N/A
24		M	57	Group Manager, Operations &	Engineering & Technology	President	D	E-A	E-C,PCE,D-C,S/G,PM
25		M	35	President	CEO	N/A	C	GC	PM,PCM
26		M	80	Chairman of the Board	N/A	N/A	C	D-C	E-C,D-C,PC,GC,SUB
27		M	40	Vice President	Administration	President	D	PCE	E-A,S/G,PM,PC,SUB
28		M	46	CEO, President	Management	Owner	D	PCE	N/A
29		M	45	Executive Vice President	Administration/Management	President	D	PCE	PL
30		M	64	Chairman	CEO	N/A	D	E-A	PCE,PM,JV,PCM
31		M	N/A	Principal	Technical Manager	President	D	E-C	PCE,D-C,S/G,PL,PM,
32		M	52	President	CEO	Board of Directors	D	E-A	N/A
33		M	58	President	N/A	N/A	C	GC	N/A
34		M	61	Vice President	Engineering	President	C	E-C	GC

35		N/A	53	President	CEO	N/A	D	S/G	N/A
36		M	40	Vice President	Legal/Corporate	Chairman	C	PC	JV,GC,SUB
37		M	45	President	Administration	N/A	D	PCE	E-A,PCE,S/G,PL,PM,
38		M	59	President	COO	CEO	D	E-A	N/A
39		M	50	CEO	Management	N/A	C	SUB	N/A
40		M	58	President	Management	N/A	D	PCE	E-A
41		M	53	President	Administration	N/A	D	PCE	PL,PCM
42		F	53	Office Manager	N/A	Vice President	D	E-A	N/A
43		M	54	President	Management	N/A	CM	PCE	PL,PM
44		F	37	President	Engineering, Technical, A	N/A	D	PCE	PL
45		M	41	Vice President	Technical	President	D	A	N/A
46		M	59	President	Administration/Management	N/A	D	PCE	N/A
47		M	38	Assistant Treasurer, Control	Finance, Administration	President, Treasurer	C	GC	PM,PC,JV,SUB,PCM
48		M	50	President	Manager	N/A	C	PC	JV,GC,SUB
49		F	33	Human Resources Manager	Human Resources	CEO	CM	PCE	S/G,PM
50		M	48	President	CEO	N/A	C	GC	PCM
51		M	32	Project Manager	N/A	Vice President	C	GC	E-C,D-C,PC,JV,PCM
52		M	67	Chairman	Management	N/A	D	PCE	PM,SUB,PCM
53		M	52	President	N/A	N/A	C	PC	GC,SUB
54		M	50	Vice President	General Manager	President	C	PC	E-C,D-C,PC,JV,GC
55		M	44	President	Administrative	N/A	D	PCE	PM
56		M	31	President	All	Chairman	C	GC	N/A
57		M	38	Director, Human Resources	Human Resources	President and CEO	D	PCE	N/A
58		M	47	Vice President	Sales/Public Relations	President	C	GC	PM,FC,SUB,PCM
59		M	68	Chairman	CEO	N/A	CM	PC,GC	D-C
60		M	62	Partner	General Management	N/A	D	E-A	N/A
61		M	47	Chairman & CEO	CEO	N/A	C	PC,GC,PCM	N/A
62		M	43	President	Construction	Corporate President	C	D-C	E-C,PM,PC,GC,SUB
63		M	57	Managing Partner	Entire	N/A	D	E-A	N/A
64	*	M	53	Vice President, R & D	Administrative	President & CEO	CM	PCM	D-C,PM,PC,JV,GC,SU
65	*	M	52	Sr. Vice President	Chief Inspection Division	President	D	PCE	PL,PM,JV
66	*	M	39	Vice President	Operations	President	C,CM	GC	D-C,PM,PC,JV,PCM
67	*	M	49	President	President of Subsidary fo	Parent's President	C	PC	E-C,PCE,D-C,PM,JV,
68	*	M	49	Director, Human Resources	Human Resources	President	D	E-A	PCE,A-E,A,PL,PM,JV
69	*	M	32	Project Engineer	Technical Staff	Vice President	D	PCE	E-A,PL,PM,PCM,SURV
70	*	F	60	Vice President, Personnel	Personnel, Risk Managemen	President	D	E-A	PL
71	*	M	42	Vice President	Marketing, Business Devel	President	C	GC	D-C,PM,PC,PCM

72	*	M	51	President	CEO	N/A	C	GC	E-C,PC
73	*	M	52	Executive Vice President	Operations	President/CEO	C	GC	E-A,E-C,D-C,PM,PC,
74	*	M	38	Technical Manager	Corporate	Sr. Vice President	D	D-C	E-C,S-GEO,PL,PM,PC
75	*	M	41	Vice President	Operations	President/Coo	C	GC	D-C,PC,JV,PCM
76	*	M	30	Project Manager	Upper Management	President	C	GC	D-C,PM,PC,SUB
77	*	M	54	Director, Human Resources	Human Resources	President/CEO	D	PCE	D,S.GEO,PL,PM,PC
78	*	M	39	CEO	N/A	Chairman of the Board	C	GC	SUB,PCM
79	*	M	55	President	CEO	Board of Directors	D	E-A	A-E,A,PM,JV,SUB
80	*	M	61	Executive Vice President	COO	President	C	GC	E-C,D-C,PM,PCM
81	*	M	52	Partner	Administration	N/A	D	PCE	E-A,PM,JV,PCM
82	*	M	52	Director, Business Developme	Sales and Marketing	N/A	C	GC	
83	*	M	54	President	Total	Board of Directors	C	GC	D-C,PM,PC,JV,SUB,P
84	*	M	41	Owner	Administration, Project M	N/A	C,CM	PC	GC,PCM
85	*	M	42	Exec. Vice President	Operations	Chairman, President	C	GC	PC,JV,SUB
86	*	F	31	Manager, R & D	R&D, Engineering	VP, Construction Group Advisor	C	GC	D-C,PL,PM,PC,JV
87	*	M	67	President	Architect, Builder	N/A	D,C,CM	E-A	A,PL,JV,GC
88	*	M	51	Vice President	Department Manager	Area Manager & Exec. VP	D	E-A	S/G,PL,PCM
89	*	M	59	President	CEO	N/A	D	PCE	N/A
90	*	M	38	President	Oil/Gas/Chemicals	President	C	E-C	N/A
91	*	M	48	President, CEO	N/A	N/A	C	PC	SUB
92	*	M	41	Sr. Vice President	Daily Operations	President	C	PC	N/A
93	*	M	58	Corporate Vice President	Marketing	President	D	E-A	PCE,A-E,A,S/G,PL,P
94	*	M	59	President	Management	Board of Directors	D	E-A	S/G,PL,PM,JV,PCM
95	*	M	63	Chairman	Administration	Board of Directors	D	PCE	E-A,PM
96	*	M	51	Executive Vice President	Operations	President	D	PCE	S/G
97	*	M	46	Manager, Human Resources Dir	Human Resources	President, CEO	D	E-C	D-C,PM,JV
98	*	M	46	Vice President	Administration	CEO	C	PC	GC
99	*	F	60	Assistant Director of Person	Human Resources	VP & Director of Personnel	CM	PC	PL,PM,PC,SUB
100	*	M	59	President	Administrative	Board of Directors	C	SUB	E-C
101	*	M	55	Director, Personnel Developm	Corporate Office	Vice Pres., Administration	C	GC	E-C,PM,PC,JV,PCM
102	*	M	40	Vice President	Chief Engineer	President/CEO	D	PCE	E-A,D-C,S/G,PL,PM,
103	*	M	51	Manager of Operations	Quality, Human Resources,	President	C	PC	PM,GC,SUB,PCM
104	*	M	48	President	Construction	President of Construction Group	C	D-C	E-A,E-C,PCE,A-E,A,
105	*	M	48	Vice President	Management	Executive Vice President	C	GC	D-C,PM,PC,PCM
106	*	M	59	President	N/A	N/A	C	GC	D-C,PM,PC
107	*	M	25	Construction Engineer	Engineering	Principal of Firm, Lawyer	LAW	CLAIMS	N/A
108	*	M	48	Vice President	Architect, Project Manage	President	D	A	N/A

109	*	N/A	N/A	President	N/A	N/A	D	PCE	A-E
110	*	M	63	President	Management	N/A	D	PCE	N/A
111	*	M	49	Sr. Vice President	Marketing	President & CEO	C	GC	E-C,D-C,PM,PC,JV,S
112	*	M	65	President	CEO	Board of Directors	D	PCE	E-A,S/G,PL,PM,JV,S
113	*	M	60	President	N/A	N/A	C	GC	PM,JV,SUB
114	*	M	59	Chief Financial Officer	Financial	CEO	D	S/G	JV
115	*	M	42	President	Administration	Chairman of the Board	C	GC	D-C,PC
116	*	M	37	Director	Human Resources	Vice President	C	D-C	E-C,PCE,PM,PC,GC,P
117	*	M	53	Sr. Vice President	Sales/Contracts	President	C	SUB	GC
118	*	M	61	President	CEO	N/A	D	E-A	PCE,S/G
119	*	M	50	President	Engineering Design	N/A	D	PCE	PL,PM
120	*	M	53	President	CEO	N/A	C	GC	N/A
121	*	M	53	Director of Projects	Corporate Engineering	Director, Corporate Engineering	D	PM	E-A
122	*	M	47	Sr. Vice President, Operatio	Engineering, Construction	President, CEO	D,C,CM	E-C	D-C,PC,GC
123	*	M	40	Director	Proposals	VP	D	E-C	E-A,PCE,A-E,D-C,PM
124	*	M	44	Mgr. Training & Management D	Personnel	Exec. VP, Human Resources	D	E-C	E-A,PCE,A-E, D-C,
125	*	M	56	President	Mangement	Board of Directors	D	PCE	S/G,PM
126	*	M	N/A	Executive Vice President	Director of Engineering	N/A	D	A-E	PC,JV,SUB
127	*	M	54	Chairman, President	Set Policy and Goal for F	Board of Directors	D	PCE	N/A
128	*	M	49	President	Corporate Management	N/A	D	E-A	N/A
129	*	M	55	President	All	N/A	D	S/G	PCE
130	*	M	62	President	Engineer in Charge, COO	Stockholders, Board of Director	D	PCE	E-A,PM
131	*	M	49	Executive Vice President	Operations	President	CM	GC	D-C,PL,PM,PC,JV,SU
132	*	M	63	President	CEO	N/A	C	D-C	E-C
133	*	F	N/A	Manager, Human Resources	Human Resources	President	D	E-A	PCE,A-E,A,PL,PM,PC
134	*	N/A	N/A	N/A	N/A	N/A	D	E-A	PM
135	*	F	28	Manager, Human Resources	Human Resources	Director, Finance and Administr	D	E-A	PL,PM
136	*	M	57	Chairman, CEO	Policy	Board of Directors	D	A-E	PCE,D-C,PL
137	*	M	59	President	CEO	Board of Directors	D	PCE	E-A,A-E,A,PL,PM
138	*	F	43	Vice President	Human Resources	Chairman & CEO	C	N/A	N/A

Question													
	8	9	10										
	# OF	TOTAL	PERCENT OF BILLINGS										
	SALARIED	BILLINGS	GENERAL				HAZARD.	SEWER	WATER	MANUF.			
NO.	EMPLOYEE	(see note)	BUILDING	TRANS.	POWER	INDUSTR.	WASTE	WASTE	SUPPLY	PLANT	OTHER	OTHER IF INDICATED	
1	6	2		50%				25%	25%				
2	500	14	10%	50%							40%		
3	4	2	100%										
4	4	2			25%		65%				10%	Precast Concrete	
5	135	3					5%	50%	40%		5%	Petroleum	
6	650	16	90%				2%	2%	1%	5%			
7	400	13			20%	65%					15%	Maintenance	
8	7	2	100%										
9	120	6	10%		10%	10%	60%			10%			
10	230	13									100%	Heavy Highway	
11	100	2	40%	20%	5%	5%		10%	10%	10%			
12	67	8	2%	95%						3%			
13	640	7					39%	31%	24%		6%	Analytical Labs	
14	154	3	5%	65%				10%	10%		10%	Home Development	
15	6	2		100%									
16	30	3		90%			5%	20%	5%				
17	45	2	10%	40%				30%	20%				
18	180	4	50%								50%	Consulting	
19	90	11	10%		36%					40%	20%	Plant Maintenance	
20	200	12	5%	45%	5%			30%	10%	5%			
21	520	16	95%					5%					
22	420	5	100%										
23	25	2	35%	55%							10%	Environmental Reports	
24	13	N/A				50%				50%			
25	100	8	100%										
26	150	11	60%		15%			20%	5%				
27	450	5					100%						
28	110	3	5%	20%			10%	5%			60%	Mechanical, Electrical, Desi	
29	300	4		95%					5%				
30	880	12				100%							
31	150	3					100%						
32	350	5		15%		5%	30%	15%	25%		10%	Utility System	
33	50-60	8		100%									
34	75	9	90%			10%							

35	55	3	30%	10%		5%	25%	5%		15%	10%	Misc. Project Evaluations
36	100	12	5%	85%				10%				
37	40	2	10%	30%				15%	15%	20%	10%	Laboratory
38	N/A	3	5%	10%				70%	5%		10%	Fisheries
39	100	4	20%							70%	10%	Commercial
40	3	1	100%									
41	550	5	10%	20%				40%	20%		10%	Telecommunications
42	10	1				5%		90%			5%	Site Review
43	130	2	20%	5%				40%	30%		5%	Planning
44	4	1	89%	10%		1%		1%				
45	50	3	100%									
46	24	2	85%					10%	5%			
47	24	7	65%					10%		5%	20%	Prison
48	75	8			34%	33%				33%		
49	94	4					25%				50,25	General Environmental, Geote
50	200	12	40%	30%				10%			10%	Mining
51	150	10	30%	20%	15%			35%				
52	300	4		100%								
53	66	6		60%	10%					30%		
54	95	8		60%				30%			10%	Mining Development
55	150	2			10%	90%						
56	65	9	100%									
57	N/A	11	20%	20%		10%	50%					
58	600	16	100%									
59	150	13	100%									
60	250	3		50%		10%		20%	20%			
61	75	8	100%									
62	98	11	100%									
63	0	3	30%	43%				1%	1%		25%	Surveys
64	200	13	95%							5%		
65	25	2		3%				8%	4%		85%	Land Planning
66	80	8	90%					10%				
67	60	10				25%				75%		
68	155	3	38%			10%		26%	26%			
69	200	3	20%	25%				25%	15%		15%	Municipal, surveys
70	N/A	3	22%		66%			2%	5%		5%	Software
71	55	10	100%									

72	45	6		100%								
73	75	12	60%					25%	10%			
74	1500	9					50%	30%	10%		10%	Studies, EIR's
75	40	7	100%									
76	35	12	90%						10%			
77	37	3		5%				20%	10%		65%	Land Development, Planning,
78	110	12	70%							30%		
79	250	4	10%	25%			10%	25%	20%	10%		
80	45	6	100%									
81	220	5		5%				50%	40%		5%	Industrial Waste
82	42	7	40%	10%				10%			40%	Hospitals
83	80	7	70%								30%	
84	80	9	100%									
85	50	7		60%		10%		15%	5%		10%	Marine
86	1000	16	99%				1%					
87	2	1	100%									
88	1200	12		33%	10%			23%	34%			
89	4	1	100%									
90	750	13			10%	90%						
91	160	9			20%	80%						
92	70	6		70%				5%	5%		20%	Site Development
93	400	6	30%	45%			15%	10%				
94	2700	13		85%			2%		5%		8%	High Technology
95	750	8		20%				20%	50%		10%	Misc. Engineering
96	35	4					50%				50%	Geotechnical
97	1800	N/A				100%						
98	280-320	12	41%		33%			26%				
99	115	7			100%							
100	5	2				60%	20%		20%			
101	1500	16	35%	10%	25%	5%			5%	5%	15%	Underground
102	140	3	15%	75%	10%							
103	379	15				100%						
104	200	16	10%		5%	70%	5%			10%		
105	100	12	10%	40%		5%	5%	15%	15%	10%		
106	10	2	100%									
107	20	N/A									100%	Legal
108	145	3	100%									

109	0	1	100%									
110	85	2	100%									
111	2500	16	55%	10%	10%	10%	2%	2%	1%	10%		
112	195	3	11%	29%			0%	38%	6%		16%	Urban Desing, Waterfronts
113	3	1	100%									
114	N/A	6	10%	30%	5%		40%	10%	5%			
115	102	8	50%	20%	15%			15%				
116	2684	16				100%						
117	400	12	5%		50%	25%				20%		
118	10	1									100%	Waterfront Structures
119	24	2						35%	20%		45%	
120	N/A	6									100%	Heavy Highway
121	50	2	20%			50%	10%			20%		
122	600	12				100%						
123	700	12	5%		5%	80%	5%			5%		
124	4000	16	6%		8%	61%	10%	3%	1%	8%	2%	Real Estate, Corporate
125	320	4	10%	40%	25%	10%	5%				10%	Site Development
126	70	2	75%							5%	20%	Industrial, R&D
127	105	2	85%	10%				2%	3%			
128	70	2	15%	5%		5%		35%	35%		5%	Structural
129	195	4	20%	10%	3%	2%	50%	5%	5%	5%		
130	120	3									100%	Fire Protection
131	N/A	9	90%								10%	Consulting
132	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
133	50	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
134	220	3	15%							85%		
135	140	3		85%			10%	5%				
136	210	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
137	210	3	27%	24%			15%	13%	5%	11%	5%	Surveying
138	1100	13					100%					

	PART 3. EXECUTIVE EDUCATION PROGRAMS												
	11	12	13	14A	14B	15A	15B	16A			16B		
	# OF		PROGRAMS	PROGRAM, PARTICIPANT		PROGRAMS ARE							
	QUALIFIE	FORMAL	OFFERED	IDENTIFIED BY:		OFFERED TO:		NUMBER OF PARTICIPANTS					
NO.	EMPLOY.	REQUIR.	(see note)	(see note)	(see note)	(see note)	(see note)	<1 YEAR	1-5 YRS	5-10 YRS	UN-1	UN-2	UN-3
1	5	N	I,U	3	3	3	3	0	0	0	1	2	N/A
2	200	N	I,U	1,2,3	1,2,3	3	3	200	0	0	10	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4	1	N	N/A	N/A	N/A	N/A	N/A	0	N/A	N/A	N/A	N/A	N/A
5	50	N	I,U	1	1	3	N/A	50	50	40	10	10	8
6	100	N	I,U	2,3	3	3	3	15	45	N/A	7	10	5
7	120	N	N/A	2	1	3	1	N/A	40	N/A	2	10	N/A
8	6	N	U	N/A	1	N/A	3	N/A	N/A	N/A	3	2	2
9	N/A	N	N/A	N/A	N/A	N/A	N/A	0	N/A	N/A	0	N/A	N/A
10	25-50	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11	40	N	U	N/A	4	N/A	3	N/A	N/A	N/A	10	40	50
12	15	N	I,U	3	3	3	2	15	15	15	8	10	10
13	100	N	I	2	N/A	2	N/A	0	N/A	N/A	N/A	N/A	N/A
14	20	N	I,U	3	3	3	3	20	30	20	6	15	5
15	5	Y	I	3	N/A	3	N/A	1	2	2	N/A	N/A	N/A
16	8	N	I,U	3	1	3	3	N/A	8	N/A	N/A	8	N/A
17	8	N	I	2,3	N/A	3	N/A	N/A	2	4	N/A	N/A	N/A
18	20	N	I	3	1	3	3	10	20	20	14	20	20
19	5	N	U	1	2	1	2	12	N/A	N/A	1	2	8
20	35	N	I,U	2,3	1,2,3	3	3	35	N/A	N/A	25	N/A	N/A
21	40	N	I,U	2	2	3	3	15	40	40	1	6	40
22	150	Y	I,U	2	3	3	2	50	100	100	2	5	7
23	10	N	N/A	1,2	1,2	1	1	N/A	N/A	N/A	N/A	N/A	N/A
24	200	Y	I	1	2,3	1	2	200	200	200	N/A	5	5
25	15	N	N/A	2	1	N/A	3	2	15	15	N/A	2	N/A
26	N/A	N	I	3	N/A	3	N/A	5	25	75	N/A	N/A	N/A
27	450	N	I,U	1	1	3	3	200	0	0	20	0	0
28	20	N	I	3	N/A	3	N/A	0	20	0	N/A	N/A	N/A
29	100	N	I	2,3	N/A	3	N/A	100	30	20	N/A	N/A	N/A
30	100	Y	N/A	2	N/A	3	N/A	50	80	0	N/A	N/A	N/A
31	5	N	N/A	3	1,2,3	3	3	20	40	0	4	4	0
32	200	N	I	2	N/A	3	N/A	150	175	190	N/A	N/A	N/A
33	5	N	U	N/A	1,3	N/A	3	N/A	N/A	N/A	0	0	1
34	20	N	I,U	2	3	1	2	0	18	0	0	5	0

Question																																
	17A	17B	18A	18B	19																											
	EXPECTED		PREFERED	PROGRAM	INTEREST IN TOPICS - VALUED 1 TO 5 (5 BEING MOST VALUED)																											
	INCREASE		LENGTH		(see note for topic identification numbers 1 through 27))																											OTHER
NO.	(see note)		(see note)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	4	4	1	1	1	4	3	5	5	5	4	5	1	2	2	5	1	5	5	2	4	2	2	2	3	3	1	3	4	2	1	
2	4	N/A	1	4	3	5	3	5	3	5	4	5	4	2	5	4	2	3	5	3	2	3	4	2	5	5	5	3	5	5	2	
3	N/A	N/A	N/A	N/A	3	3	3	2	1	2	4	4	1	1	3	2	1	2	4	1	3	1	1	3	3	2	1	4	2	3	1	
4	4	N/A	N/A	N/A	3	5	4	5	3	5	5	4	3	1	3	3	2	5	5	3	3	2	3	3	4	5	2	3	4	5	3	
5	4	4	1	2	4	4	4	3	2	2	4	3	5	3	3	2	5	3	2	1	4	2	3	2	2	2	3	1	5	5	4	
6	4	4	1	2,3	1	2	3	4	3	4	3	4	1	1	4	3	1	4	5	2	4	3	5	5	5	5	4	3	4	4	1	
7	4	4	2	4	1	3	3	2	2	4	2	4	1	1	2	3	1	1	5	1	3	1	4	4	4	4	1	2	4	1	1	
8	N/A	1	N/A	2	1	4	3	2	1	4	3	3	1	1	2	3	2	2	4	1	4	4	4	3	4	4	2	2	4	2	1	
9	4	4	N/A	N/A	3	4	4	4	2	4	2	3	2	2	4	3	1	3	4	3	4	2	2	3	3	4	2	4	1	3	1	
10	1,2,3	1,2,3	2	2	1	3	3	3	1	3	3	4	1	1	1	3	3	5	4	3	4	3	2	2	3	4	2	4	2	2	1	
11	N/A	4	N/A	2	3	4	3	5	3	4	2	5	1	2	4	3	1	3	4	2	2	1	3	5	5	5	4	3	3	5	1	
12	4	4	1	2	4	3	2	5	4	2	1	3	1	1	3	1	1	3	4	2	4	1	2	2	2	4	2	3	3	2	1	
13	2	N/A	1	N/A	2	4	3	4	1	5	3	4	1	1	4	2	1	2	5	2	3	1	2	4	4	5	1	3	3	2	1	
14	4	4	2	1	3	3	2	3	4	4	4	5	2	1	3	0	1	4	5	5	3	1	2	4	5	4	1	2	3	2	1	
15	4	N/A	2	N/A	1	2	2	5	3	4	2	3	1	1	2	3	1	3	3	2	2	1	2	3	4	4	1	1	2	4	1	
16	4	4	1	1	2	5	3	1	1	5	3	3	1	1	5	3	1	3	5	1	1	1	5	3	5	5	1	1	3	3	1	
17	3	N/A	2	N/A	1	1	1	4	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
18	4	4	1	1	2	3	2	3	4	4	4	3	1	1	2	2	1	2	3	2	2	1	2	3	4	4	2	3	3	2	1	
19	4	4	1	2	1	1	3	4	4	4	2	1	1	1	3	4	1	3	4	2	2	1	5	2	3	3	1	1	1	1	1	
20	2	2	2	2	2	4	2	3	1	5	5	5	2	4	4	3	2	5	5	4	4	3	4	4	5	5	3	3	5	5	3	
21	N/A	1	1	3	3	4	5	3	3	4	2	4	2	1	3	4	1	3	4	3	5	2	3	3	3	4	2	5	4	3	3	
22	4	4	2	2	4	1	1	1	1	1	4	1	1	1	1	4	1	4	1	1	1	1	1	1	3	1	1	1	1	1	1	
23	N/A	N/A	2	2	2	3	2	4	2	2	5	3	1	1	2	2	1	3	3	2	3	1	1	2	5	5	3	4	2	2	1	
24	3	1	2	3	5	5	3	2	3	4	2	3	1	1	3	4	1	3	5	3	3	1	2	4	5	5	1	2	3	2	1	
25	3	3	1	2,3	3	4	2	5	3	4	4	5	3	1	3	3	2	5	5	3	4	3	3	4	5	5	3	3	4	4	2	
26	4	N/A	2	N/A	2	2	1	2	3	3	4	4	0	0	2	4	0	0	3	0	3	0	0	4	5	3	0	2	3	0	0	
27	3	4	2	4	5	2	3	4	1	2	2	3	3	2	2	2	2	2	4	3	3	2	3	3	5	5	1	2	2	2	2	
28	1	N/A	1	N/A	3	5	5	2	4	5	5	4	4	2	4	3	3	4	5	3	4	4	3	4	5	5	2	2	3	2	2	
29	1	N/A	1	N/A	3	5	4	4	2	4	3	4	3	2	4	3	2	2	4	2	4	4	4	3	4	4	2	3	3	2	2	
30	4	N/A	1	N/A	1	5	4	4	2	2	2	2	2	1	4	3	1	1	1	1	4	1	3	1	5	5	1	4	3	5	1	
31	3	2	1	2	4	4	4	5	2	3	3	4	2	1	3	2	1	3	4	3	3	2	3	2	4	5	5	3	3	4	2	
32	4	N/A	1	N/A	2	4	3	4	4	4	3	4	2	2	4	4	2	3	5	3	4	2	3	4	5	5	3	4	4	4	2	
33	N/A	3	N/A	3	1	5	1	5	1	5	2	3	1	1	3	1	1	4	4	4	1	2	4	4	4	4	1	1	4	2	1	
34	4	4	2	3	2	5	4	4	4	4	3	2	2	2	2	3	2	4	5	1	5	3	2	4	4	4	3	4	3	3	2	

35	3	3	2	2	2	5	4	5	3	5	4	4	2	3	5	4	1	4	5	4	4	3	4	3	5	4	4	4	4	4	1		
36	3	N/A	1	N/A	4	4	4	5	2	3	4	3	1	1	3	2	1	4	5	2	2	1	4	3	4	5	1	1	2	1	1		
37	N/A	4	N/A	1	2	4	4	4	3	5	4	4	3	1	3	4	1	2	5	3	4	2	4	3	5	4	2	2	3	4	1		
38	4	4	1	1	0	3	0	0	0	0	0	4	0	0	4	0	0	0	3	0	3	3	0	0	3	5	0	0	0	0	0		
39	4	N/A	2	N/A	2	4	1	2	2	3	2	3	3	2	4	2	3	3	4	1	5	1	3	2	4	4	2	3	3	3	1	5-How to perform constru	
40	4	4	4	1	4	4	4	5	3	2	4	3	1	1	1	1	1	4	3	2	4	4	3	5	4	4	1	1	3	3	1	work outside the US	
41	3	2	1	1	3	4	4	4	3	3	2	2	3	2	4	1	1	1	3	3	3	3	1	2	3	4	1	1	2	3	3		
42	N/A	4	N/A	2	3	5	5	4	2	2	4	4	1	1	2	3	1	2	4	1	3	2	2	3	5	4	3	3	3	2	1		
43	4	4	1	2	3	4	4	4	3	4	3	5	2	2	4	2	1	4	5	1	4	2	3	4	4	5	2	2	3	3	1		
44	3	3	1	1	3	4	3	2	4	3	2	2	1	1	3	2	1	3	3	1	2	1	1	1	1	1	1	1	1	3	1	1	
45	1	1	N/A	2	1	5	4	4	1	2	1	2	3	1	1	2	1	1	2	1	3	1	2	2	3	3	3	1	1	2	1		
46	4	4	1	1	2	3	2	4	2	3	3	3	1	1	1	3	1	3	3	2	3	1	2	4	4	5	2	3	2	2	1		
47	4	N/A	2	N/A	4	3	3	4	3	4	4	4	3	3	3	3	3	4	4	4	3	3	3	3	4	4	3	3	4	4	3		
48	3	3	1	2	2	4	5	5	4	4	3	4	2	2	4	4	1	5	4	2	4	2	3	2	5	5	4	4	3	3	2		
49	3	N/A	1	N/A	3	5	4	4	1	4	4	5	3	2	4	4	3	4	5	3	3	1	5	2	5	5	1	3	5	2	2		
50	2	2	1	1	3	4	4	4	3	3	2	3	2	2	4	3	4	4	5	3	5	1	4	4	4	4	2	4	5	4	1		
51	N/A	4	N/A	2	2	3	2	4	3	4	4	3	1	1	4	5	1	5	5	2	3	1	2	2	5	5	1	1	1	1	1		
52	2	N/A	2	N/A	/A	4	5	5	5	5	5	5	4	2	3	1	1	1	2	1	4	1	1	1	4	5	3	3	3	3	1		
53	N/A	1	N/A	2	1	4	2	4	2	5	3	4	1	1	5	3	1	4	5	3	4	1	3	2	4	4	1	2	3	3	1		
54	4	4	1	2	3	2	2	4	3	1	3	2	3	1	4	2	3	4	1	3	2	2	4	4	4	4	2	1	2	3	2		
55	4	N/A	2	N/A	2	4	3	3	4	4	3	5	2	1	3	2	2	1	4	4	5	2	3	2	4	5	1	2	2	2	2		
56	2	2	2	2	5	3	3	3	3	4	3	3	0	2	3	3	2	2	2	2	3	2	2	2	2	3	3	2	2	2	2		
57	N/A	1	N/A	2	3	4	5	5	3	4	3	3	4	2	4	4	3	4	4	2	4	3	4	3	3	4	2	4	4	3	3		
58	N/A	N/A	N/A	N/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A		
59	N/A	N/A	N/A	N/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A		
60	1	1	1	2	2	4	4	4	3	3	2	4	2	2	3	1	1	4	5	4	4	2	2	2	4	4	1	3	4	4	1		
61	2	2	1	2	2	5	3	3	2	3	4	3	2	2	2	3	2	4	4	3	3	3	3	4	4	4	2	2	3	2	2		
62	1	1	1	2	2	3	4	4	3	4	4	4	3	1	5	4	3	4	5	3	4	2	5	5	5	5	4	5	4	4	3		
63	1	1	1	1	2	5	3	5	2	4	2	5	2	2	3	3	1	4	4	3	3	3	3	2	3	5	3	3	3	4	1		
64	3	3	1	2	2	4	4	4	5	5	3	5	2	2	3	4	1	4	5	3	3	1	4	3	5	5	2	2	3	3	2		
65	1	1	1	1	3	5	5	5	4	5	4	5	1	3	3	3	1	4	4	4	5	3	3	3	4	4	3	3	3	3	1		
66	N/A	4	2	2	2	4	4	3	4	5	4	5	3	2	2	3	2	4	5	4	4	2	4	4	4	5	3	4	4	4	3	5-Ethics in Business	
67	3	1	1	2	3	2	3	2	3	3	3	3	2	2	2	3	2	4	5	2	3	5	4	3	4	4	2	2	3	2	2	5-Listening Training	
68	1	3	1	2	4	5	5	3	3	5	4	4	2	2	4	4	2	2	5	3	5	5	5	4	4	5	2	4	4	4	2		
69	1	1	1	4	4	2	2	2	2	4	2	4	1	1	2	3	1	3	5	3	5	1	3	4	4	4	1	4	4	4	1		
70	1	1	1	1	4	4	5	4	2	4	2	3	2	1	3	2	2	4	4	2	4	2	3	2	3	4	3	2	4		3		
71	4	4	1	1	2	5	5	2	3	5	5	5	3	1	2	4	2	5	5	3	5	2	4	3	5	5	3	2	3	2	2		

72	4	4	2	2	1	4	3	3	4	5	3	4	1	1	2	3	1	2	5	3	2	2	4	5	4	4	1	1	4	3	1	
73	2	N/A	1,2	N/A	2	3	4	3	3	2	2	3	1	1	4	2	1	4	4	1	4	1	2	3	5	3	1	2	2	1	1	
74	1	N/A	1	N/A	4	4	3	3	2	4	4	4	3	1	4	4	1	3	4	1	4	1	2	4	3	4	1	2	2	2	1	
75	4	N/A	1	N/A	2	3	3	2	3	4	3	3	1	1	1	2	1	3	4	3	4	1	2	2	5	5	2	3	3	3	1	
76	4	1	1	1	3	2	4	4	3	4	4	4	3	2	3	3	2	4	3	3	3	2	4	2	3	4	2	2	4	3	2	
77	4	4	1	4	1	3	2	1	3	3	4	5	1	1	2	2	1	2	5	1	5	1	3	4	4	5	1	1	2	1	1	
78	3	1	N/A	N/A	2	5	4	3	3	5	2	5	1	1	3	3	2	4	5	1	4	3	5	5	5	4	3	4	5	3	1	
79	2	N/A	2	N/A	0	4	5	4	2	5	3	5	5	3	3	3	3	5	5	3	5	5	5	4	5	5	4	4	5	4	4	
80	4	N/A	N/A	N/A	0	3	4	3	2	3	3	4	1	3	3	4	1	2	5	3	4	1	3	3	5	5	1	4	4	3	1	
81	3	2	1	2	4	4	4	5	2	2	2	3	1	1	4	2	1	4	5	3	4	2	4	4	2	3	1	3	4	4	1	
82	N/A	4	N/A	2	2	3	5	4	3	3	3	3	3	3	4	4	3	3	3	3	4	4	5	3	3	3	3	4	4	3	4	
83	3	N/A	2	N/A	4	4	5	3	4	5	4	5	2	3	5	4	2	5	5	3	5	4	5	5	5	5	4	5	5	4	2	
84	N/A	3	N/A	1	1	4	5	4	4	4	3	4	2	4	0	3	2	3	3	2	3	4	3	3	5	5	4	3	1	1	1	
85	N/A	3	N/A	2	3	4	4	4	1	4	3	3	1	3	4	2	1	3	5	4	5	4	4	2	3	3	2	3	4	3	1	
86	4	4	1	4	4	5	5	5	4	5	4	4	4	3	4	4	2	4	5	3	3	4	5	4	3	4	4	4	5	4	3	
87	N/A	2	N/A	2	5	5	5	2	5	5	5	5	3	3	3	5	4	4	4	4	5	5	5	5	4	3	4	4	4	4	4	
88	2	N/A	1	N/A	2	2	4	4	1	3	2	2	1	1	3	2	1	1	4	1	4	2	2	4	5	5	1	2	3	4	1	
89	N/A	N/A	N/A	N/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	
90	3	3	1	2	1	5	5	5	1	5	1	4	1	1	4	3	4	2	4	0	3	1	3	1	4	5	1	4	2	4	1	
91	N/A	3	1	1	1	3	5	4	3	2	2	3	1	1	4	2	1	5	5	2	4	1	5	3	2	4	1	1	3	3	1	
92	N/A	3	N/A	1	3	5	1	2	1	5	4	3	1	2	3	3	1	4	4	3	3	1	3	3	5	5	3	2	3	3	1	
93	3	N/A	1	N/A	2	2	5	5	3	4	3	4	2	1	2	3	3	3	5	3	4	2	2	1	4	5	1	2	2	2	2	
94	3	2	2	2	4	4	2	3	2	4	3	3	2	1	5	5	2	1	5	1	3	2	4	1	3	4	2	1	4	4	2	
95	4	4	1	2,3	1	3	3	3	1	1	3	3	1	1	5	3	1	4	5	1	5	2	2	4	4	5	2	3	1	1	1	
96	4	N/A	2	N/A	3	4	4	5	3	5	4	4	2	2	3	4	2	4	4	3	4	3	2	3	4	4	2	2	3	3	2	
97	3	3	1	2	1	4	5	5	3	4	4	2	1	1	4	2	1	3	4	1	3	1	4	3	4	5	1	4	5	3	1	
98	4	N/A	2	N/A	4	4	3	4	2	3	3	3	2	1	3	3	1	2	4	3	4	1	2	3	3	4	3	4	3	3	1	
99	4	1	2	4	3	4	5	4	3	5	3	4	1	3	4	5	1	4	5	3	4	3	4	5	4	4	2	3	4	2	2	4-Labor Management Relat
100	4	4	2	1	3	4	4	5	2	4	2	3	1	1	3	2	1	4	4	2	5	1	2	1	3	3	1	4	3	2	1	
101	2	3	2	3	3	5	4	4	3	5	5	5	3	3	4	4	3	4	5	3	4	4	5	3	5	5	3	2	5	4	2	5- Presentation Skills
102	N/A	1	N/A	2	1	4	3	2	2	4	1	3	2	1	3	3	2	4	4	3	4	2	3	1	4	4	1	2	4	3	2	
103	3	3	2	4	1	3	1	3	4	5	1	3	2	2	4	3	1	3	5	2	3	1	5	1	4	5	2	2	4	3	1	
104	3	3	3	3	3	4	4	5	4	5	3	5	4	2	4	4	3	4	5	4	3	3	4	3	5	5	3	3	4	4	3	
105	3	N/A	2	N/A	2	4	3	3	1	5	2	3	1	1	3	3	1	3	5	4	4	1	4	2	3	3	2	2	4	2	1	
106	N/A	N/A	N/A	N/A	1	3	3	2	2	2	3	3	1	1	2	3	1	2	3	1	4	3	1	2	4	4	1	1	2	2	1	
107	4	4	1	1	5	1	2	2	2	2	4	5	1	1	2	2	2	5	2	2	1	4	1	1	5	5	1	1	1	1	1	
108	4	4	1	2	3	4	4	3	1	3	1	5	3	1	4	2	1	4	4	1	3	1	4	4	5	5	1	1	3	1	1	

109	N/A	4	N/A	4	1	4	3	2	3	4	3	3	2	1	1	1	1	5	3	2	4	3	2	3	4	4	1	1	1	1	1	
110	1	N/A	1	N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	5	0	0	0	0	0	
111	4	4	2	2	1	4	3	2	1	4	4	4	2	1	2	2	1	3	4	2	4	2	2	2	4	4	2	1	4	2	1	
112	3	N/A	2	N/A	1	5	3	3	2	3	4	5	2	1	3	2	1	3	5	2	5	3	4	5	4	5	1	4	5	3	1	
113	N/A	N/A	N/A	N/A	0	0	0	0	0	0	4	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	
114	4	4	1	2	1	1	4	1	1	1	3	1	3	1	4	1	3	2	2	1	3	4	4	4	5	5	3	3	2	2	2	
115	4	2	1	3	1	4	4	4	3	4	4	4	3	3	4	5	4	4	4	4	3	2	4	5	4	4	3	3	4	3	3	
116	3	4	1	3	1	5	3	4	4	5	5	3	3	1	5	3	2	3	4	2	5	2	4	2	4	5	1	2	4	2	2	
117	1	1	1	1	2	5	4	5	1	5	4	5	3	2	4	4	3	3	5	4	5	2	5	5	5	5	3	5	5	4	3	
118	N/A	4	N/A	1	3	4	4	1	3	1	1	3	4	1	1	1	3	1	4	1	4	1	1	1	1	3	1	3	1	1	4	
119	3	1	1	4	5	4	4	0	3	4	2	3	1	1	2	3	1	3	3	2	3	2	2	3	4	4	2	3	3	3	1	
120	N/A	N/A	N/A	N/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	
121	4	3	1	2	1	1	1	3	4	3	1	1	1	1	2	3	1	4	3	2	1	1	3	1	4	5	1	1	3	3	1	
122	N/A	4	N/A	2	2	3	4	4	3	5	5	4	3	2	4	4	3	4	5	4	5	3	4	4	4	4	2	3	5	4	3	
123	3	3	4	2	2	4	3	4	3	4	2	5	2	1	3	4	2	4	4	2	3	1	4	3	5	5	3	3	3	3	1	5-Quality Assurance
124	1	3	2	2	3	4	4	3	1	3	4	3	5	1	1	3	5	4	3	3	3	2	3	3	3	3	2	2	3	3	4	
125	4	4	1	1	2	5	5	5	4	5	4	5	2	2	4	4	1	1	5	3	4	4	4	1	4	4	3	4	4	4	1	
126	N/A	1	N/A	1	2	5	5	5	3	3	3	3	2	2	4	4	2	2	4	2	3	3	4	4	4	4	1	1	3	1	2	
127	4	4	1	4	1	4	4	3	2	1	4	2	1	1	3	2	1	1	1	1	4	2	3	1	3	3	1	1	2	3	1	
128	2	2	1	1	3	4	4	4	4	5	4	4	2	2	4	5	3	3	5	2	4	1	3	3	4	5	1	1	3	3	1	
129	3	1	1,2	1,2	1	4	2	1	3	4	3	5	1	1	3	3	1	4	5	4	5	1	3	2	1	5	2	3	4	3	1	
130	4	4	2	3	1	5	4	3	3	5	3	3	3	3	5	3	1	1	5	2	4	3	5	3	4	4	1	3	4	4	1	
131	1	1	1	2	2	2	2	5	3	3	3	5	2	1	1	3	1	5	5	4	5	2	2	5	5	5	2	2	2	2	1	5-Development Economics,
132	N/A	N/A	N/A	N/A	4	4	4	3	2	3	4	4	1	2	3	3	1	4	3	3	4	2	2	2	4	4	3	3	3	3	1	Managing Change
133	1	N/A	2	N/A	3	5	5	5	4	5	4	4	3	2	3	4	2	4	4	3	4	4	4	4	4	5	0	5	5	5	2	
134	4	4	1	2	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	5	5	0	0	0	0	0	
135	N/A	N/A	2	N/A	5	5	5	4	3	4	4	5	4	2	4	4	3	3	5	4	5	3	4	4	5	5	4	4	5	4	3	
136	3	2	1	3	3	3	4	3	3	4	3	4	4	2	3	3	2	2	4	3	4	3	4	5	5	4	3	4	4	3	3	
137	4	4	1	1	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	/A	
138	4	4	2	3	5	4	5	5	2	3	4	4	3	2	2	3	2	4	4	2	4	2	3	3	4	4	2	3	4	4	2	

Question											
	20					21					
	DEVELOP PROGRAM					DELIVER PROGRAM					
	(see note)					(see note)					
NO.	1	2	3	4	5	1	2	3	4	5	
1		25%	75%				25%	75%			
2		80%	20%				80%	20%			
3			50%	50%				50%	50%		
4		95%	5%				95%	5%			
5		70%	30%				70%	30%			
6		70%	30%				70%	30%			
7		15%	75%	10%			15%	75%	10%		
8	100%					100%					
9		100%					100%				
10			100%			N/A	N/A	N/A	N/A	N/A	
11	10%	50%	10%	30%			80%	10%	10%		
12	15%	30%	40%	15%		N/A	N/A	N/A	N/A	N/A	
13	40%		60%			40%		60%			
14		30%	40%	30%			30%	40%	30%		
15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
16	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
18		100%					100%				
19	60%		20%	20%		60%		20%	20%		
20		34%	33%	33%			100%				
21		95%	5%				95%	5%			
22	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
23	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
24		40%	30%	30%			40%	30%	30%		
25		25%	75%				2%	25%	75%		
26		50%	50%				50%	50%			
27		100%					100%				
28	N/A	N/A	N/A	N/A	N/A			100%			
29	10%	50%	30%	10%		10%	50%	30%	10%		
30	10%	40%	50%	0%		20%	20%	60%	0%		
31	40%	40%	10%	10%		N/A	N/A	N/A	N/A	N/A	
32		70%	30%				75%	25%			
33	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
34	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

NOTES:

Question No. 6:
D = Design Firm
C = Construction Company
CM = Construction Management Firm

Question No. 7A & 7B:
E-A = Engineer-Architect
E-C = Engineer-Constructor
PCE = Pure Consulting Engineer
A-E = Architect-Engineer
D-C = Design-Constructor
A = Architect
S/G = Soils/Geotechnical Engineer
P = Planner
PM = Project Manager
PC = Prime Contractor
JV = Joint Venurer
GC = General Contractor
Sub = Subcontractor
PCM = Pure Construction Manager

Question No. 9:
1 = Less than $2 million
2 = 2 million to 9.99 million
3 = 10 million to 19.99 million
4 = 20 million to 29.99 million
5 = 30 million to 39.99 million
6 = 40 million to 49.99 million
7 = 50 million to 59.99 million
8 = 60 million to 69.99 million
9 = 70 million to 79.99 million
10 = 80 million to 89.99 million
11 = 90 million to 99.99 million
12 = 100 million to 199.99 million
13 = 200 million to 299.99 million
14 = 300 million to 399.99 million
15 = 400 million to 500 million
16 = Greater than 500 million

Question No. 13:
I = In-Company Executive Education Programs
U = University-Based Executive Education Pr

Question No. 14A and 14B:
1 = Individual Participant
2 = Immediate Supervisor
3 = Top Manager
4 = Other

Question No. 15A and 15B:

1 = Middle-Level Mangement
2 = Senior-Level Management
3 = Both Levels of Management

Question No. 17A and 17B:
1 = Less than 10%
2 = 10 Percent
3 = Greater than 10%
4 = No Change

Question No. 18A and 18B:
1 = 1 to 2 Days
2 = 3 to 5 Days
3 = 2 to 3 Weeks
4 = Greater than 3 Weeks

Question No. 19:
1 = Business-Government Relations
2 = Corporate/Business Strategy Development
3 = Emerging Markets and Market Trends
4 = Emerging Technologies and Technology Tr
5 = Executive Computer Skills
6 = Executive Decision Making
7 = Finance and Accounting
8 = General Management
9 = Global Business Environment
10 = Humanities and Liberal Arts
11 = Human Resource Management
12 = Information and Decision Support Syste
13 = International Finance
14 = Law in the Construction Industry
15 = Leadership, Motivation, Communication
16 = Logistics Management
17 = Marketing
18 = Mergers, Acquisitions and Divestitures
19 = Organizational Change and Development
20 = Production and Operations Management
21 = Project Control, Scheduling, Estimatin
22 = Project Management
23 = Research and Development Management
24 = Sales Management
25 = Strategy Implementation
26 = Technology Management
27 = World Trade and Economics
28 = Other

Question No. 20 and 21:
1 = Corporate training staff
2 = Company personnel other than training
3 = Professional consultants
4 = University Faculty
5 = Other

APPENDIX A13

PERCEIVED BENEFITS OF IN-COMPANY EXECUTIVE EDUCATION PROGRAMS

(Obtained from Question 22 of the related survey)

* Learn and share company-specific knowledge.

* Better understanding of the company's policies, practices, business strategies and quality implementation.

* More company-specific. Timing, hours of the day, amount spent on topic, and relevance of topic is better. Exchange of ideas-common, but yet separate.

* We are more able to direct training to key areas than people from outside who are not familiar with our situations and the present stage of development of our people.

* Not sufficient for our purposes.

* Improve productivity.

* Better efficiency and coordination of management.

* Meeting company needs versus someone else's ideas of those needs.

* Develop better management staff.

* Development, motivation.

* Presume they would be more focussed on areas important to the firm.

* Education and improvement of employee. Visiting and exchanging views with fellow employees from other locations.

* Increased responsibility.

* Showing commitment to employee. Employee improvement.

* Peer interaction. Company specific emphasis. Savings in dollars.

* Develops large group of staff and enables exchange of company ideas and helps understanding between various levels of the company.

* Manager effectiveness.

* Shorter time periods for classes, less time taken away from projects. Location of in-house training is convenient. Train employees in that company's particular way.

* Time management, project control, budgeting and planning, team building, negotiating, marketing, presentations.

* Control, applicability, take home value.

* Focusing of planning and implementation programs on a macro scale. Relative to all aspects of construction. Exposure to new concepts and ways to foster positive change and growth in personnel to strengthen the organization.

* More employee interaction with each other.

* Develop skills. Satisfy individual desires to develop professionally. Team and morale building.

* Train the trainer. Schedule convenient, Shared time (part company, part individual). Direct applicability.

* More focused programs to meet needs.

* Training is dedicated to special needs.

* Enhance individual development but relevance increased through program being tailor made or at least delivered on one turf.

* A better appreciation for many of the issues.

* Curriculum designed to be directly related to practical applications in-house.

* Develop a consistent management philosophy and style. Develop familiarity with peers from other operating units. Certain problems common to all units; dispels feeling of uniqueness. Develops broad knowledge of company abilities and potential.

* Growth of individuals, adding value to the company, higher morale and greater participation in company.

* Lower cost, can be done over intermittent period of time, able to reach larger percentage of management.

* Tailored to company. More relevant to personnel.

* Less time away from office. Less expensive.

* NONE.

* They don't take a busy manager away from his staff and clients for more than one day.

* The development of management skills.

* Better management. More focused programs. Enhance revenues. Enhance profits. Increase quality.

* Customized design and delivery of program.

* Programs are more directly related to the company environment.

* Experience. Co-philosophy.

* Save travel time. Allow selective participation of company personnel.

* Standard of base-level knowledge by management staff. Control of quality of material presented. Control of scheduling.

* Geared directly to the company's needs. Fits in with the corporate culture.

* Content is developed for our business and situations.

* Middle management can participate in a cost effective program which can be customized to our needs. In company experts may participate in delivering selected portions of the curriculum. Easier to schedule and substitute managers when cancellations are unavoidable.

* Educate staff at minimum cost.

* Less costly. Least disruptive to work on billable time. Shorter duration.

* Team-building, skills enhancement, culture building.

* Development of people. Enhancement of skills.

* More specific to our firm's needs. Requires additional thought and preparation on part of presenter which usually improves their skills. Most cost-effective for group training and development due to logistics and pricing.

* Mentor relationship, hands on experience, schedule control.

* It lets your people know they are important. It opens their eyes to new ideas.

* Can be tailored to more closely match needs. Convenience of in-house location.

* Lower cost per individual. Reduced time away from company.

* Appropriate.

* Professional development to increase skills in the area of training.

* Less expensive. Easier to schedule around office deadlines. Are geared toward our specific needs and issues.

* More participants. Less cost.

* Improved communications. Improved project management and profits. Improved technical skills.

* Keeps minds open to new and different thoughts.

* Demonstrated interest in employees. Improve corporate communication. Added levels of skills.

* Keeps an influx of new ideas.

* Lower cost. Target specific needs.

* Improved ability and understanding.

* Professional growth, train future leaders.

* Precision in targeting training objectives. Greater flexibility. Greater control. Less costly. Potential of broader participation.

* Improved management, decision-making, communications, happier clients - repeat business, increased profits.

* Convenience, cost, participation.

* Believable. Develop "teachers" skills. Requires research.

* We select subject. Presentation is uniform to all attenders. We control time and cost. We select instruction material and instructors. All material can be previewed.

* Able to customize topics to real needs and company issues. Gets management trainers to rethink their jobs. Allows teachers and managers to get to know each other better. It's cheaper.

* Tailor made, convenient schedule, economy.

* It is very difficult to assess any direct benefit, but assumption is that some how there is some beneficial improvement in executive knowledge/ability.

* Team work, groups working toward some goal, morale builder.

* Ability to develop own material.

* Quicker and better decisions, less exposure to errors and omissions claims.

* Greater relationship to business at hand.

* Better format when subject related to company operations.

* Education of our staff in those areas that relate specifically to our business. This allows us not only to touch on the character and value of our corporation, but also draw on over 60 years of experience in our field.

* Better trained managers who act uniformly to given situations.

* Programs would be specifically tailored to the organization.

* Can cover many subjects with more frequency.

* More employees can be trained at one time. Cost effective. Tailored to company.

* Provide common language and vocabulary for action. Provide opportunity for corporate culture development.

* Addressing issues of special interest to our firm and clients. All employees hearing the same thing at the same time.

* Usually executives are less attentive due to "still at the office". Cost less to offer.

* Builds company loyalty, increases efficiency.

* Further learn "our way", no lost time or expense in travel, program designed to fit.

* Common goals and objectives.

* Every day occurrences can be experienced with actual situations used as training programs.

* Uniformity, establishment of corporate policies.

* Consistency, relevance, capacity to be tailored.

* Better focus on specific needs of the organization.

* Poor - external programs better.

* More profitable long term results. Better cooperation between office and field. Better, courteous relations.

* Improved management quality control. Better product to client.

* Minimal time. Same or common problems addressed.

APPENDIX A14

PERCEIVED BENEFITS OF UNIVERSITY-BASED EXECUTIVE EDUCATION PROGRAMS

(Obtained from Question 23 of the related survey)

* Perspective, professional instruction, interaction with peers.
* MBA type programs.
* Broader based information. Expertise in areas which company lacks. Exchange of ideas from diverse groups.
* The academic surroundings. Obtaining ideas from others outside your immediate circle.
* Solid training. Concentrated effort.
* Improve productivity.
* Outside knowledge, newest trends.
* Specific target areas of company needs can be served.
* Specialized training.
* Development, motivation.
* Wider selection of presenters, broader viewpoint, availability of greater expertise and experience.
* Education and improvement of employee.
* Upgrading of skills.
* Showing commitment to employee. Employee improvement.
* New ideas. Interaction with other types of businesses.
* Broader generalized training and some specific specialized training. Some of our executives have gotten a MBA at night.
* Manager effectiveness.
* More diverse, employees experience what other companies are doing. This helps to cultivate new ideas.

* Cross fertilization, better resources.

* Chance to converse with peer groups.

* Concentrated, focused, but also expensive. Most smaller companies can not afford expense of loss of utilization of a manager for extended periods of time. Today's market place won't allow extra management layers to support this long term planning. Competition will capitalize. Hard to sell to management.

* More broadening. Compare company to experience of others. More thinking when out of company. Professional "teachers" (but not always).

* Better general education.

* Alternate perspectives. Topics beyond capabilities of in-house training.

* Stronger educational component, stronger faculty, more interface with counterparts in other organizations.

* I have not used one before.

* More general curriculum providing cross-cultural exposure with other companies.

* Develop knowledge of other companies. Benefit of interfacing with outside executives. Develops networking capability. Program development and delivery by academic experts. Develops "big picture" concepts. Provides focused learning without day to day business demands.

* Access to better staff and facilities. Chance to get away from work environment is a perceived benefit plus allows uninterrupted time on topic.

* Broader range of subjects and more in-depth coverage.

* Taught by professionals, very intense, away from normal office or job environment.

* Separated from daily tasks. Independent view.

* Less distractions. Sharing experiences with wider range of people. More professionally presented. Greater access to other resources.

* Better teachers. Known cost, Broader student base.

* Better management. More focused programs. Enhance revenues. Enhance profits. Increase quality.

* Objective view of industry and business.

* Interaction with individuals from other companies and industries.

* Technical training. Outside thinking.

* Cross pollination with other company's personnel. Remove distractions of day-to-day business.

* State of the field technology. Use of experts in field.

* Expertise not available within corporation. Participants represent different corporations and environments.

* Variety of available topics.

* Executives can "rub elbows" with others (peers) and gain a better insight into the "big picture" of fortune 500 executive management. High quality of established university programs.

* University-based courses can cover a much broader range of topics.

* Being located in the Metropolitan Boston area, we are able to take advantage of top researchers and practitioners in all fields that benefit our company: Architectural, engineering, business and management; as well as technical skill development programs.

* More involvement by participant. Fewer interruptions in training program.

* Generally not used because they tend to be too broad for a company that is highly specialized.

* Sometimes offers specific expertise not otherwise available.

* More specific expertise not otherwise available.

* Brings in new ideas from the outside.

* Outside expert, new ideas, authority.

* Interaction with persons from other companies. Provides time away from office.

* Isolated from company. Net-working with others.

* Broad based.

* Are harder to "blow off" if an office deadline occurs. Better trained and prepared instructors. Networking with classmates. Is considered more of a perk by staff.

* Richer interest. More focused. Perceived as a company benefit.

* Improved technical skills. Improved administrative and human resources skills.

* Keeps minds open to new and different thoughts.

* Added level of skills. Willingness to invest in employees.

* Provide in-depth technical knowledge.

* Interface with people outside of our organization.

* Improved ability, and understanding.

* Professional growth, train future leadership, acquire new skills.

* More objective (no politics, no hidden agenda, etc.). Newer technology, more thoroughly researched. More capable of enhancing executives' perspective. Greater openness. Seclusion...(away from interruption, crises, phones, etc.)

* Better organized.

* Quick and easy. Meet leaders of similar interests.

* Selective enhancement is available. Time can be scheduled. Exact instruction to need. Limited cost known.

* See what others are doing. Builds outside relationships, even new clients. Get new views.

* Usually more professional, broader input, broader participation.

* Exposure to industry counterparts, professional teachers. Away from business setting. Focus on learning something new.

* Technical advancement.

* Work towards advanced degree, accredited.

* Stay current with latest technology.

* Greater professionalism and broader theoretical approach.

* Better format when subject is highly technical.

* University-based and other professional organizations provide a much better and broader background in general areas of training such as management skills, computer applications, quality management, specific technical skills, etc. than are normally found in any corporate organization.

* Better educated personnel who keep up to date with the latest technology.

* Interaction among members of different organizations could be of benefit.

* Can isolate from day to day business distractions. Can handle in depth presentations.

* Exposure to other companies. Knowledge of instructors. Long term relationships developed with other participants.

* Higher degree of detail, greater depth, opportunity for individual commitment.

* Exposure to other company's employees and ideas. Net working. One person at a time. Less interruptions of work schedules

* Education environment makes learning the priority - "away from the office". Instructors more qualified - teaching to teach.

* Wide scope of knowledge.

* Should have professional presentation, though at times is certainly proved not to be any better.

* More technical and structured programs can be used as broad based information to support future needs.

* different opinions.

* Expansion of trainee consciousness on commonality of problems. Lack interruptions, therefore more effective and efficient concentration. Refreshment or sabbatical effect.

* University instructors are very poor compared to industry consultants who specialize in construction. University teachers are good for a very limited amount of general education. They lack familiarity with the real world.

* Blend of ideas from others.

* Technological development of individual engineers.

* Little or no experience with these.

* People with their individual areas of expertise provide more direct, specific assistance.

* Diversity different points of view.

* More rounded. Consistent and updated material from course to course. Not perceived as company propaganda. Interaction with executives from other companies.

APPENDIX A15

ADDITIONAL COMMENTS FROM SURVEY RESPONDENTS

(Obtained from Question 24 of the related survey)

* We need to do more.

* Our company is small and executive development is left up to the individual.

* There needs to be a good one week executive program that uses a mixture of professors, professional consultants, and one or two practitioners, i.e. company presidents. An individual could take a different core subject each year, i.e. quality, marketing, etc.

* University based programs are much higher priced. Time and tuition are greater. Most courses are not directed to Architects-Engineers. So much is not applicable but not all are bad. No course is tailored to engineering education short fall: human resources, business, decision making.

* Most university-based programs are too academic and are taught by people who have never made a mistake in the real world. We do a better job with in-house people who are practitioners with a lot of experience.

* We are a modest sized construction company with no in/house executive programs; we also have not participated in university based programs. We have however participated in programs put on by the Associated General Contractors of America, Fails Management Institute, and Jack Miller Seminars.

* MIT could do a better job of training engineering managers for the consulting engineering professions.

* Short training periods are best.

* I have tried to put together a university program for our facility. To be administered on Saturdays. This was at the instruction of executive management. I found that local universities utilize an adjunct faculty, not really connected to the university, for this purpose. That coupled with the logistics of Saturday scheduling doomed this effort. I personally feel that sending a few executives at a time to proven university programs is the best for our purposes.

* Note that response is related to small consulting engineer group who perform multi-tasks.

* If we were to model the objective of our organization, we might say its purpose is to: "Manage" the "Application" of "Technology". Most of our training effort is directed to enhancing executive and middle level staff. Skills in one of these general areas (i.e. Management; application of functional skills...estimating, scheduling, purchasing, engineering, etc; and technology...of building systems and materials.) Such training is immediately beneficial to our performance and profit. Thus, with limited resources and time, this has to be our thrust. Also valuable is "expansive" training for upper level personnel. However such mind broadening is generally left to the individual.

* Executive training programs tend to be expensive and in many cases cost prohibitive for the small to medium size firms especially in todays economic conditions.

  We would like to see institutions such as MIT offer a master's degree program in management for executives with technical or engineering backgrounds on a part time basis to include Saturdays and at a reasonable cost that small and growing firms are able to send some of their executives to.

* Your focus was only on in-house and university we currently use out side 1-5 day seminars as our main avenue for employer education. These are conducted by outside consultants.

* Over the past two years, the importance of professional society participation as part of individual education has received increasing emphasis within this company.

* We are interested in part time and weekend degree programs.

* Limited training funds, and overhead reduction (time) efforts driven by a depressed market have curtailed both in-house and employee selected university programs since January 1, 1990. Prior to that, during prior growth periods (=/- 5 years), major investment in both areas was budgeted and done. We hope to do likewise when business situation improves sufficiently to do so.

* We've been much more successful bringing in industry consultants to provide training programs, compared to sending people to college campuses.

* We frequently use seminars by AMB, Fails Management and others, usually on their premise with one or two member of our firm participating. Sometimes on our premises with 13 to 15 participating. We run courses at a local community college for our engineers and supers. Usually 20 participants 10 to 12 - 3 hour sessions. Speakers from our company and subcontractors or specialty themes such as roofing, air conditions, etc. The company sponsors engineers at the local university for certain education and graduate courses.

Table 1. Annual Value of New Construction Put in Place: 1986-1990

(Millions of dollars)

Type of construction	Current dollars					Constant (1987) dollars				
	1986	1987	1988	1989	1990[r]	1986	1987	1988	1989	1990[r]
Total new construction	398,206	410,208	422,075	432,066	433,999	411,605	410,196	405,212	399,942	393,690
Private construction	313,613	319,639	327,102	333,515	324,435	325,948	319,541	314,367	308,514	293,934
Residential buildings	187,148	194,656	198,101	196,551	186,851	195,377	194,622	190,292	182,045	169,993
New housing units	133,192	139,915	138,947	139,202	129,855	139,052	139,893	133,469	128,944	118,149
1 unit	102,154	114,463	116,649	116,898	110,719	106,621	114,432	112,045	108,279	100,735
2 or more units	31,038	25,452	22,298	22,304	19,137	32,430	25,462	21,424	20,665	17,414
Improvements	53,956	54,741	59,154	57,349	(NA)	56,325	54,729	56,823	53,101	(NA)
Nonresidential buildings	91,171	91,994	97,102	103,358	102,427	94,794	91,944	93,518	96,033	92,703
Industrial	13,747	13,707	14,930	18,507	20,564	14,293	13,695	14,375	17,188	18,609
Office	28,591	26,430	28,044	28,597	25,247	29,742	26,422	27,012	26,582	22,855
Hotels, Motels	7,451	7,380	6,794	7,617	8,413	7,746	7,381	6,547	7,078	7,616
Other commercial	28,170	29,015	30,059	30,791	29,381	29,283	28,994	28,946	28,601	26,592
Religious	2,702	2,753	2,822	2,972	2,985	2,806	2,751	2,718	2,762	2,700
Educational	2,343	3,438	2,912	3,308	3,788	2,435	3,437	2,806	3,072	3,427
Hospital and institutional	5,422	6,035	7,219	7,537	8,128	5,637	6,031	6,954	7,005	7,354
Miscellaneous[1]	2,745	3,236	4,320	4,028	3,921	2,853	3,233	4,160	3,744	3,549
Farm nonresidential	2,072	2,503	2,270	2,356	(NA)	2,154	2,503	2,187	2,190	(NA)
Public utilities	30,948	27,858	27,503	28,549	(NA)	31,353	27,842	26,338	25,746	(NA)
Telecommunications	9,106	9,194	9,801	9,132	9,261	9,195	9,160	9,690	8,198	8,244
Other public utilities	21,842	18,664	17,702	19,417	(NA)	22,158	18,683	16,648	17,548	(NA)
Railroads	2,891	2,451	2,793	2,716	(NA)	2,886	2,454	2,668	2,513	(NA)
Electric light and power	15,392	12,656	10,873	11,743	(NA)	15,605	12,669	10,186	10,583	(NA)
Gas	3,273	3,188	3,659	4,616	(NA)	3,372	3,191	3,440	4,144	(NA)
Petroleum pipelines	286	369	377	342	(NA)	294	369	354	307	(NA)
All other private[2]	2,275	2,628	2,126	2,702	3,326	2,270	2,630	2,033	2,501	3,024
Public construction	84,593	90,569	94,973	98,551	109,564	85,658	90,655	90,845	91,429	99,756
Buildings	31,115	32,962	36,163	39,202	45,255	32,351	32,955	34,820	36,404	40,963
Housing and redevelopment	3,029	3,262	3,366	3,841	3,926	3,164	3,262	3,233	3,557	3,573
Industrial	1,657	1,457	1,413	1,300	1,470	1,724	1,458	1,361	1,208	1,330
Educational	10,948	11,476	14,267	16,727	20,338	11,368	11,471	13,737	15,534	18,393
Hospital	2,334	2,559	2,693	2,486	2,711	2,429	2,558	2,594	2,310	2,455
Other[3]	13,148	14,208	14,424	14,848	16,810	13,666	14,207	13,896	13,795	15,212
Highways and streets	25,318	26,958	30,141	29,502	31,988	24,909	27,050	28,449	27,368	29,497
Military facilities	3,867	4,324	3,579	3,520	3,733	3,907	4,327	3,417	3,265	3,413
Conservation and development	4,937	5,519	4,728	4,968	4,734	5,005	5,517	4,567	4,589	4,247
Sewer systems	7,654	8,998	8,634	9,229	10,302	7,757	8,994	8,342	8,524	9,237
Water supply facilities	3,183	3,674	3,917	3,923	4,911	3,228	3,669	3,792	3,684	4,544
Miscellaneous public[4]	8,517	8,134	7,810	8,207	8,641	8,500	8,143	7,459	7,593	7,855

[r]Revised.

[1]Includes amusement and recreational building, bus and airline terminals, animal hospitals and shelters, etc. [2]Includes privately owned streets and bridges, parking areas, sewer and water facilities, parks and playgrounds, golf courses, airfields, etc. [3]Includes general administrative buildings, prisons, police and fire stations, courthouses, civic centers, passenger terminals, space facilities, postal facilities, etc. [4]Includes open amusement and recreational facilities, power generating facilities, transit systems airfields, open parking facilities, etc.

Table 3. **Monthly Value of New Construction Put in Place— Not Seasonally Adjusted in Current Dollars**

(Millions of dollars)

Period	Total new construction	Private construction																
			Residential buildings				Nonresidential buildings									Public utilities[4]		
				New housing units														
		Total[1]	Total[2]	Total	1 unit structures	2 units or more	Total	Industrial	Office	Hotels, motels	Other commercial	Religious	Educational	Hospital and institutional	Miscellaneous[3]	Total	Telecommunications	All other private[5]
Year to Date																		
February 1990	59,451	45,885	25,697	18,696	15,782	2,914	15,332	2,957	4,064	1,243	4,404	429	501	1,133	600	(NA)	1,211	529
February 1991	52,498	39,155	20,186	14,043	11,589	2,453	14,116	3,018	3,485	1,177	3,589	406	531	1,350	560	(NA)	(NA)	480
Percent Change	−12	−15	−21	−25	−27	−16	−8	2	−14	−5	−19	−5	6	19	−7	(NA)	(NA)	−9
Monthly Data																		
1989: February	28,178	22,399	12,592	9,254	7,589	1,665	7,474	1,199	2,250	556	2,109	224	226	580	331	(NA)	661	172
March	31,352	25,215	14,494	10,588	8,848	1,740	8,118	1,296	2,454	636	2,310	216	251	593	361	(NA)	763	185
April	33,783	26,558	15,953	11,301	9,416	1,886	7,959	1,439	2,335	610	2,200	216	230	594	335	(NA)	708	195
May	37,514	28,817	17,385	12,078	10,129	1,949	8,524	1,499	2,460	618	2,471	243	260	639	334	(NA)	820	216
June	39,337	30,148	18,378	12,759	10,709	2,049	8,826	1,615	2,456	649	2,613	240	312	623	319	(NA)	805	215
July	39,669	30,365	18,864	13,235	11,150	2,086	8,657	1,528	2,288	660	2,675	231	331	609	335	(NA)	731	226
August	41,795	31,564	19,062	13,231	11,143	2,088	9,547	1,717	2,523	689	2,946	264	358	697	354	(NA)	813	234
September	40,757	30,389	18,112	12,756	10,822	1,934	9,472	1,826	2,494	667	2,883	240	304	714	344	(NA)	728	259
October	39,782	30,450	17,799	12,399	10,508	1,891	9,557	1,787	2,405	702	3,081	291	289	651	352	(NA)	802	271
November	37,721	28,931	16,665	11,858	10,095	1,763	9,271	1,690	2,410	670	2,923	321	287	644	327	(NA)	791	283
December	32,978	25,486	14,020	9,964	8,368	1,596	8,277	1,635	2,236	608	2,401	232	244	594	328	(NA)	879	268
1990: January	29,954	23,057	13,023	9,499	8,054	1,445	7,620	1,415	2,063	606	2,164	227	258	579	308	(NA)	597	272
February	29,497	22,828	12,674	9,197	7,728	1,469	7,712	1,542	2,001	638	2,241	202	242	554	292	(NA)	614	257
March	32,954	25,751	14,803	10,737	9,208	1,529	8,184	1,622	2,106	748	2,324	208	261	588	328	(NA)	768	259
April	35,096	26,939	15,907	11,165	9,515	1,650	8,272	1,646	2,026	745	2,389	209	284	630	342	(NA)	720	245
May	38,283	28,787	17,061	11,683	9,881	1,803	8,687	1,749	2,084	767	2,550	230	310	671	327	(NA)	848	262
June	39,934	29,632	17,661	11,895	10,242	1,653	8,927	1,760	2,246	743	2,550	221	334	735	339	(NA)	782	283
July	40,465	30,248	17,921	12,231	10,551	1,680	9,329	1,956	2,205	782	2,710	250	357	725	345	(NA)	775	301
August	42,120	30,467	17,956	12,128	10,429	1,700	9,386	1,796	2,266	736	2,818	294	399	713	364	(NA)	877	297
September	39,606	28,934	16,789	11,509	9,905	1,604	9,158	1,809	2,226	704	2,673	330	373	718	326	(NA)	808	301
October[r]	38,995	28,308	16,125	11,118	9,432	1,686	8,871	1,797	2,133	679	2,510	297	358	771	328	(NA)	904	291
November[r]	35,915	26,283	14,722	10,233	8,750	1,483	8,370	1,694	1,993	647	2,347	283	331	754	319	(NA)	880	296
December[r]	31,180	23,201	12,210	8,461	7,025	1,436	7,911	1,777	1,898	620	2,107	235	281	690	304	(NA)	688	263
1991: January[r]	26,689	19,983	10,473	7,358	6,085	1,273	7,105	1,496	1,756	589	1,830	207	258	686	283	(NA)	595	247
February[p]	25,809	19,172	9,713	6,685	5,504	1,181	7,011	1,522	1,729	587	1,759	199	273	665	277	(NA)	(NA)	233
Percent Change																		
January 1991-February 1991	−3	−4	−7	−9	−10	−7	−1	2	−2	(Z)	−4	−4	6	−3	−2	(NA)	(NA)	−6

See footnotes at end of table.

Table 3. **Monthly Value of New Construction Put in Place—Not Seasonally Adjusted in Current Dollars**—Continued

(Millions of dollars)

Period	Public construction												
		Buildings											
	Total	Total	Housing and redevelopment	Industrial	Educational	Hospital	Other public buildings[6]	Highways and streets	Military facilities	Conservation and development	Sewer systems	Water supply facilities	Miscellaneous public[7]
Year to Date													
February 1990	13,566	6,264	564	200	2,627	441	2,432	2,865	644	715	1,354	571	1,153
February 1991	13,343	7,059	617	238	3,148	387	2,669	2,500	297	747	1,228	648	862
Percent Change	−2	13	9	19	20	−12	10	−13	−54	4	−9	13	−25
Monthly Data													
1989: February	5,779	2,724	288	90	1,066	206	1,075	1,095	239	321	582	235	584
March	6,137	2,767	253	124	1,130	190	1,071	1,328	310	336	544	275	576
April	7,225	3,102	296	105	1,278	198	1,225	1,885	273	275	704	314	672
May	8,697	3,261	333	120	1,328	220	1,261	2,703	325	494	795	330	788
June	9,188	3,453	355	127	1,516	212	1,244	3,120	362	435	770	324	724
July	9,304	3,611	331	104	1,649	206	1,321	3,121	268	463	846	326	669
August	10,230	3,805	376	121	1,781	220	1,307	3,689	317	469	863	381	757
September	10,367	3,668	331	165	1,605	199	1,369	3,492	412	714	940	365	777
October	9,332	3,442	349	87	1,489	226	1,290	3,245	173	361	924	368	820
November	8,790	3,446	345	93	1,478	197	1,332	2,620	305	390	916	371	743
December	7,492	3,276	328	111	1,338	236	1,263	1,826	296	395	785	308	605
1990: January	6,898	3,133	286	121	1,316	222	1,188	1,465	320	359	668	308	645
February	6,668	3,131	279	79	1,310	219	1,244	1,400	324	356	687	263	508
March	7,203	3,296	322	151	1,367	220	1,235	1,492	425	372	728	330	561
April	8,157	3,531	316	132	1,451	272	1,359	1,971	421	406	859	336	633
May	9,496	3,735	315	100	1,628	269	1,423	2,823	455	432	923	433	695
June	10,302	4,076	355	136	1,769	243	1,573	3,147	489	333	923	494	838
July	10,217	3,986	311	124	1,880	233	1,438	3,192	276	403	1,027	413	921
August	11,653	4,583	332	150	2,314	219	1,568	3,927	241	457	1,043	448	954
September	10,672	4,226	328	178	2,003	211	1,506	3,576	212	471	948	487	752
October[r]	10,686	3,945	367	92	1,874	217	1,396	3,885	165	337	1,019	508	826
November[r]	9,633	3,920	373	95	1,777	206	1,469	3,050	249	389	848	483	695
December[r]	7,980	3,693	343	112	1,646	179	1,412	2,059	158	420	631	407	612
1991: January[r]	6,707	3,479	304	124	1,544	177	1,330	1,236	183	398	625	346	439
February[p]	6,636	3,580	312	115	1,604	210	1,338	1,264	114	349	603	302	423
Percent Change													
January 1991-February 1991	−1	3	3	−7	4	19	1	2	−38	−12	−4	−13	−4

NA Not available, but estimates are included in totals. [p]Preliminary. [r]Revised. Z Less than 0.5 percent.

[1]Includes farm nonresidential and other private categories, not shown separately. [2]Includes residential improvements, not shown separately. [3]Includes amusement and recreational buildings, bus and airline terminals, animal hospitals and shelters, etc. [4]Includes gas, electric, railroad, and petroleum pipelines, not shown separately. [5]Includes privately owned streets and bridges, parking areas, sewer and water facilities, parks and playgrounds, golf courses, airfields, etc. [6]Includes general administrative buildings, prisons, police and fire stations, courthouses, civic centers, passenger terminals, space facilities, postal facilities etc. [7]Includes open amusement and recreational facilities, power generating facilities, transit systems, airfields, open parking facilities, etc.

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