PENNSTATE

Department of Mineral Engineering
University Park Campus

Analysis of Health and Safety Hazard Information for Dissemination to Small Independent Construction Companies

A Report to the
Pittsburgh Research Laboratory
National Institute for Occupational Safety and Health

December 15, 1997

FINAL REPORT

Analysis of Health and Safety Hazard Information for Dissemination to Small Independent Construction Companies

PO373380
July 1, 1997 to November 30, 1997

Prepared by
Raja V. Ramani
Mark C. Radomsky
Joseph P. Flick
Garold L. Russell
David N. Yonish

The Pennsylvania State University
College of Earth and Mineral Sciences
Department of Mineral Engineering

Submitted to the
Pittsburgh Research Laboratory
NIOSH

December 15, 1997

PREFACE

The Department of Mineral Engineering at The Pennsylvania State University thanks the Pittsburgh Research Laboratory of the National Institute for Occupational Safety and Health for funding this study. We acknowledge the following agencies and organizations for their assistance with this study:

- Associated Builders and Contractors, Inc. (ABC)
- Associated General Contractors of America (AGC)
- Construction Companies (both large and small)
- Insurance Agents
- Material Suppliers
- PENNSAFE, Pennsylvania Department of Labor and Industry, Commonwealth of Pennsylvania
- Bureau of Workers' Compensation, Pennsylvania Department of Labor and Industry,
- Commonwealth of Pennsylvania

We appreciate the frank and open discussions that were made possible by the independent construction firms and their service providers and suppliers.

The work on the report was performed during the period July 1, 1997 to October 31, 1997. In this report, throughout this text, we have adopted the National Safety Council's policy of substituting the word, "incident" or "injury/illness" for the word "accident."

The major conclusion of the report is that small construction firms need proactive measures to ensure that they receive adequate health and safety information (HSI), as well as to distribute them effectively to their employees. The major recommendation of the report directed to the small construction firm, is for it to be aggressive in acquiring HSI that are available from the diverse sources. The major recommendation to NIOSH is with regard to more clearly defining the problems of the small construction establishment in HSI acquisition and dissemination, and to seeking more effective avenues for solving these problems.

We thank Mr. Augie Kwitowksi and Mr. Bill Mayercheck of NIOSH for meeting with us to amplify the scope of the study. In addition we thank them and Mr. George Bokosh of NIOSH for their review of the draft final report.

Executive Summary

The Pennsylvania State University conducted a pilot study titled, *analysis of health and safety hazard information for dissemination to small independent construction companies.* The purposes of the study were to:

- describe how small (ten or less employees), independent construction companies currently receive and utilize health and safety information
- outline and recommend ways to improve the process of disseminating this information to personnel in a timely manner
- prepare a final report which provides, with sufficient data and analysis, a consensus determination of the mechanisms utilized to provide health and safety information (HSI) and recommendations for future investigations on mechanisms or methodologies which may be more effective in the dissemination of HSI to small contractors and their employees

A number of approaches were used to study small contractor establishments with regard to the mechanisms utilized by them to receive, provide and distribute health and safety information to their employees. The approaches included review of publicly available literature, interviews of 20 small construction firms, interviews of two construction trade associations, three insurance carriers, and one building material supplier, and transfer of our general knowledge of small mining companies. The following are the major findings from the interviews:

- the owner of the company is the most likely person to provide HSI to employees
- building suppliers, insurance carriers, and trade associations are the most important sources of HSI to small construction establishments
- the most common written source of health and safety information is a one-page handout or newsletter
- HSI received is applied in the workplace most often through oral methods (work instructions, one-on-one talk) and "tail-gate" talks
- most companies are satisfied with the time they spend on health and safety matters
- posters and oral methods are the most common means to distribute HSI among employees
- use of health and safety information and resources available through the computers (Internet) is largely non-existent; however, company owners believe that they can improve the acquisition of HSI primarily by using the Internet, networking with colleagues, and joining trade associations
- company owners believe that they can improve the distribution of HSI primarily through tool-box talks, and one-on-one conversation
- only one of the 20 construction establishments had been inspected by OSHA during the last three years
- no company experienced an OSHA injury reportable incident during the last three years

Several conclusions were drawn from results of the review of literature on construction health and safety, accident data from Bureau of Labor Statistics and the industry. The major conclusions include the following:

- health and safety problems in small construction firms and approaches to their solutions approximate those found in other small businesses

- small construction firms are at a competitive disadvantage over larger firms in obtaining up to date HSI, primarily because they do not generally belong to construction trade associations

- computers (Internet) represent a viable source of HSI for the small construction firms

- small firms administer the safety and health function (specifically the acquisition and distribution of HSI) in a very informal, unstructured way, e.g., there is minimal formal health and safety training and a large reliance on informal, oral means in the use of HSI

The study has resulted in several recommendations to small construction establishments and NIOSH. Among the recommendations for NIOSH are the following:

- the database of the present study should be enlarged

- additional information to refine the problem definition and approach is required

- a mailing list of construction companies to forward HSI should be established

- an evaluation of the feasibility of OSHA establishing a "walk and talk" safety program should be conducted

- a regional safety seminar should be conducted

- specifically tailored safety literature packages, incorporating tool-box talks, job checklists, etc., should be developed and made available to small construction firms

- the facilitation of enhanced computer use among small construction firms should be explored

The following recommendations are made to small construction firms:

- get on the mailing list of construction HSI providers

- establish membership in a construction trade association

- consider enrolling selected employees in OSHA construction safety courses

- approach insurance companies and building material suppliers to provide HSI

- set aside time each week to discuss health and safety matters

- consider involvement with an OSHA safety construction center

- explore the acquisition of HSI through the Internet or OSHA's CD ROM

- consider utilizing the services of the Pennsylvania Technical Assistance Program (PENNTAP)

- network with colleagues regarding safety matters

- explore the use of WEB TV and enhanced cell phones for HSI acquisition and dissemination

TABLE OF CONTENTS

Page

LIST OF TABLES

LIST OF FIGURES

I. Introduction

The Pittsburgh Research Laboratory (PRL) of the National Institute for Occupational Safety and Health (NIOSH) issued a request for proposals in June 1997 to conduct a pilot study titled, "analysis of health and safety hazard information for dissemination to small independent construction companies." The purposes of the study were to:

(1) describe how small (ten or less employees), independent construction companies currently receive and utilize health and safety information;

(2) outline and recommend ways to improve the process of disseminating this information to personnel in a timely manner.

(3) prepare a final report which provides, with sufficient data and analysis, (a) a consensus determination of the mechanisms utilized to provide health and safety information (HSI) and (b) recommendations for future investigations on mechanisms or methodologies which may be more effective in the dissemination of the HSI to small contractors and their employees.

The Department of Mineral Engineering at The Pennsylvania State University (PSU) submitted a proposal to conduct this pilot study. The Penn State proposal was accepted by NIOSH-PRL. In a meeting at PRL on August 26, the project personnel from PSU and PRL agreed that for interviews of small, independent construction companies (up to and including 10 employees), the Pennsylvania counties of Cambria, Center, Clearfield, Indiana, Jefferson and Westmoreland are appropriate and that a total of 15 to 20 companies would be interviewed through both face-to-face (5 to 10 companies) and telephone contacts (10 companies), and that a total of three to six health and safety service providers such as insurance agents and trade associations would also be interviewed for assessing the HSI and services available from these groups.

In subsequent sections of this report, data collection procedures utilized and data collected during the study are discussed. The results of data analysis and the conclusions and recommendations of this pilot study are presented.

Construction Industry Characteristics

According to the Standard Industrial Classification (SIC), establishments whose ***primary*** activity is construction are in three major groups:

15. Building Construction—General Contractors and Operative Builders
16. Heavy Construction Other than Building Construction—Contractors; and
17. Construction—Special Trade Contractors

Construction work is performed by establishments in other SICs, though construction is not their primary economic activity. For the purposes of the present study, the analysis is restricted to the data and information from the above three SIC classifications.

Based on statistics from the Bureau of Census, in 1995, the construction industry accounted for about 6.1% of the total civilian labor force of 132 million (Anon., 1997). Of the 7.6 million ***employed*** construction workers, about 25% were self-employed. In general, the industry is characterized by a large number of small companies (fewer than 10 employees). In 1992, such establishments constituted over 80% of the establishments and accounted for nearly 30% of the number of employees (Figures 1 and 2). Average employment is of the order of three workers per small establishment (Table 1). A major reason attributed to this preponderance of small construction

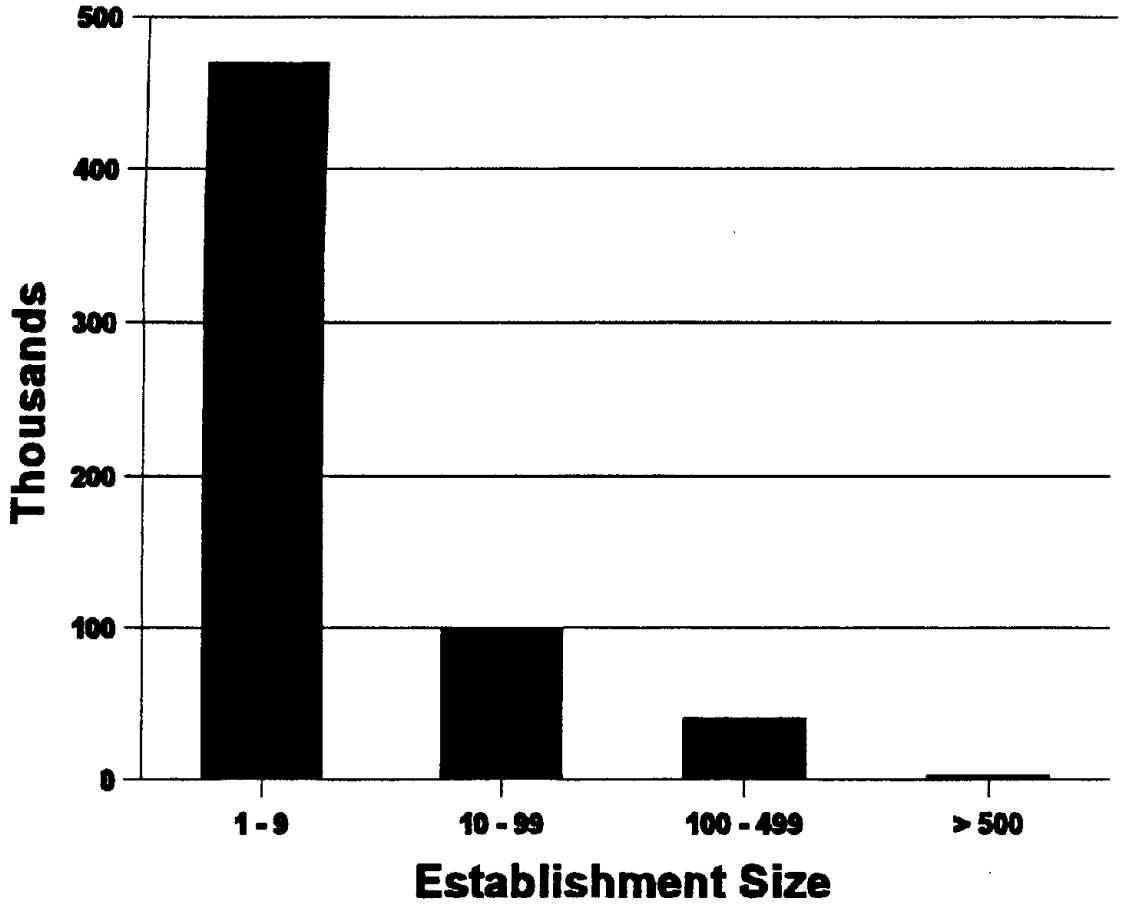


Figure 1. Number of Construction Establishments, by Establishment Size, 1992 (Anon., 1997)

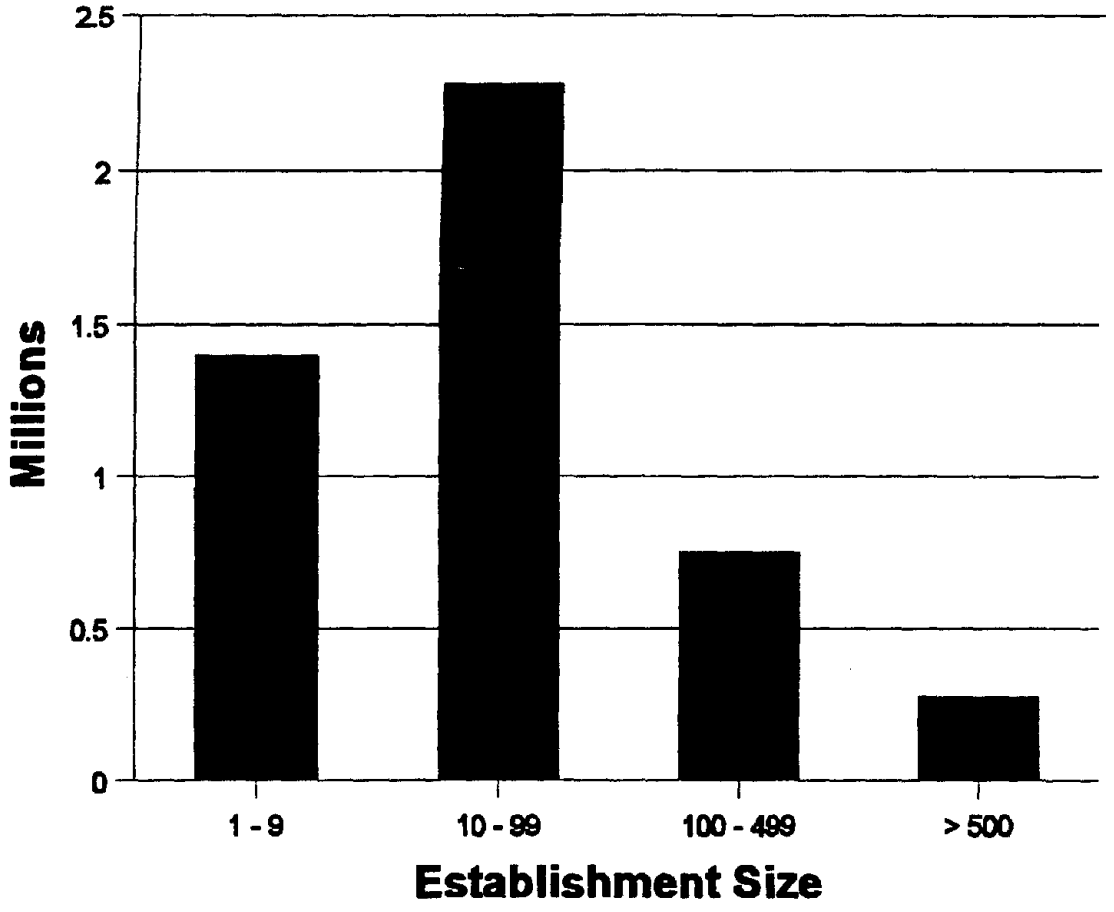


Figure 2. Total Number of Employees in Construction Establishments of Various Sizes, 1992 (Anon., 1997)

Table 1. Number of Construction Establishments and Employees, by Establishment Size, 1992 (Anon., 1997)

Establishment Size (Number of Employees)	Number of Establishments (% of all Establishments)	Number of Employees (% of all Employees)
1-9	469,349 (81.93%)	1,382,473 (29.61%)
10-19	58,712 (10.25%)	773,139 (16.56%)
20-99	40,398 (7.05%)	1,510,649 (32.36%)
100-499	4,137 (0.72%)	734,510 (15.73%)
500 +	256 (0.04%)	267,510 (5.73%)
Total	**572,852 (100%)**	**4,668,281 (100%)**

companies is the relative ease of entry into the construction industry. Such entry is facilitated by the relatively low capital requirements of the construction industry as compared to those for entry into other industries.

Construction activity, as is well known, is heavily influenced by the condition of the general business cycle. Construction activities experience intensive increase during periods of even moderate growth. In addition to the increase in activities, there are also changes in the construction work activities for the establishments as well as in the demographic profile of the construction workforce. The need for small establishments to be flexible, and for the workers to adapt to these varying conditions is recognized as an important aspect of survival in the construction business. This volatility in construction activities and workforce demographics, it is claimed, leads to uncertainty in the reported data on employment wages, safety, etc (Anon., 1997).

Construction Safety and Health

On the national scale, data on occupational safety and health, and occupational injuries and illnesses for all industries are available from the U.S. Bureau of Labor Statistics (BLS). The health effects associated with the construction industry arise from noise, silica, asbestos, lead and other particulates, gaseous contaminants and chemicals. In some work environments, there is greater potential for exposure to special physical and chemical conditions such as extreme weather, vibrations, toxic fumes and dangerous chemicals.

Summary health and safety data for the construction industry nationwide for the years 1994, 95, 96 are provided in Tables 2 and 3. On the average, the construction industry accounted for six percent of the total employment, and about 17% of the total fatalities (Table 2). The construction

Table 2. Number, Percent, and Rate of Occupational Fatals*

	1994	1995	1996
Employment (Millions)			
All Industry	124.469	126.248	127.997
Construction	6.948	7.153	7.464
Construction Percent	5.58	5.67	5.83
Fatalities			
All Industry	6588	6275	6112
Construction	1027	1055	1039
Construction Percent	15.6	16.8	17.0
Fatalities Per 100,000			
All Industry	5.29	4.97	4.78
Construction	14.78	12.75	13.92

* *Data from Bureau of Labor Statistics, National Census of Fatal Occupational Injuries, 1994, 1995, and 1996.*

industry had over 1000 fatalities per year which is more than that of any other industry. Construction fatalities primarily resulted from falls, electrocutions and vehicle-related incidents. The construction industry, primarily special trade contractors such as roofing, carpentry, and structural steel erection, account for half of all the fatal falls.

The frequency of lost workday injuries and illnesses in construction (averaging about 5.5 per 100 workers) is in par with those in manufacturing and transportation and public utilities. The number of nonfatal occupational injuries and illnesses average around 500,000 per year, nearly 45 percent of which results in lost workdays (Table 3). Establishment size is a factor in the rate of non-fatal injury cases. Largest construction firms (1000+ employees) have the lowest rate. According to an analysis of the 1994 data (Anon., 1997), the injury rate per 100-full time employees is 3.7 for establishments with less than 10 employees whereas it is 1.1 for establishments with 1000+ employees. For establishments with 11 to 249 employees, it is 5.55, and for establishments with 249 to 999 employees, it is 3.5 (Figure 3).

The most common disabling conditions sustained by construction workers and the leading ways in which these injuries and illnesses involving days away from work happened are shown in Table 4. The data are for the 1992 year in which 210,000 cases of days away from work were reported. Nearly 50 percent of these cases involved at least 7 days away from work to recuperate. Serious "sprains and strains" was, by far, the principal physical characteristic of construction workers seriously injured, accounting for nearly two-fifths of the 210,000 cases. Such sprains commonly affected the back. "Fractures," "cuts, lacerations," and "bruises, contusions" together composed another fourth of that case total. Overexertion from lifting, pulling, or pushing heavy or unwieldy objects was the leading way in which disabling injury or illness occurred; such a disabling event was mentioned in nearly a fourth of the 1992 construction cases. Next in frequency was being struck by

Table 3. Number of Nonfatal Occupational Injuries and Illnesses *

	1994	1995	1996
Total Cases of Injuries and Illnesses	529,300	484,900	
Lost Work Day Cases	246,100	221,900	Not Available
Cases Without Lost Work Days	283,200	262,900	
Injury Cases with Days Away From Work	218,800	190,600	Not Available

* *Data from Bureau of Labor Statistics, Number of Nonfatal Occupational Injuries and Illnesses, 1994 and 1995.*

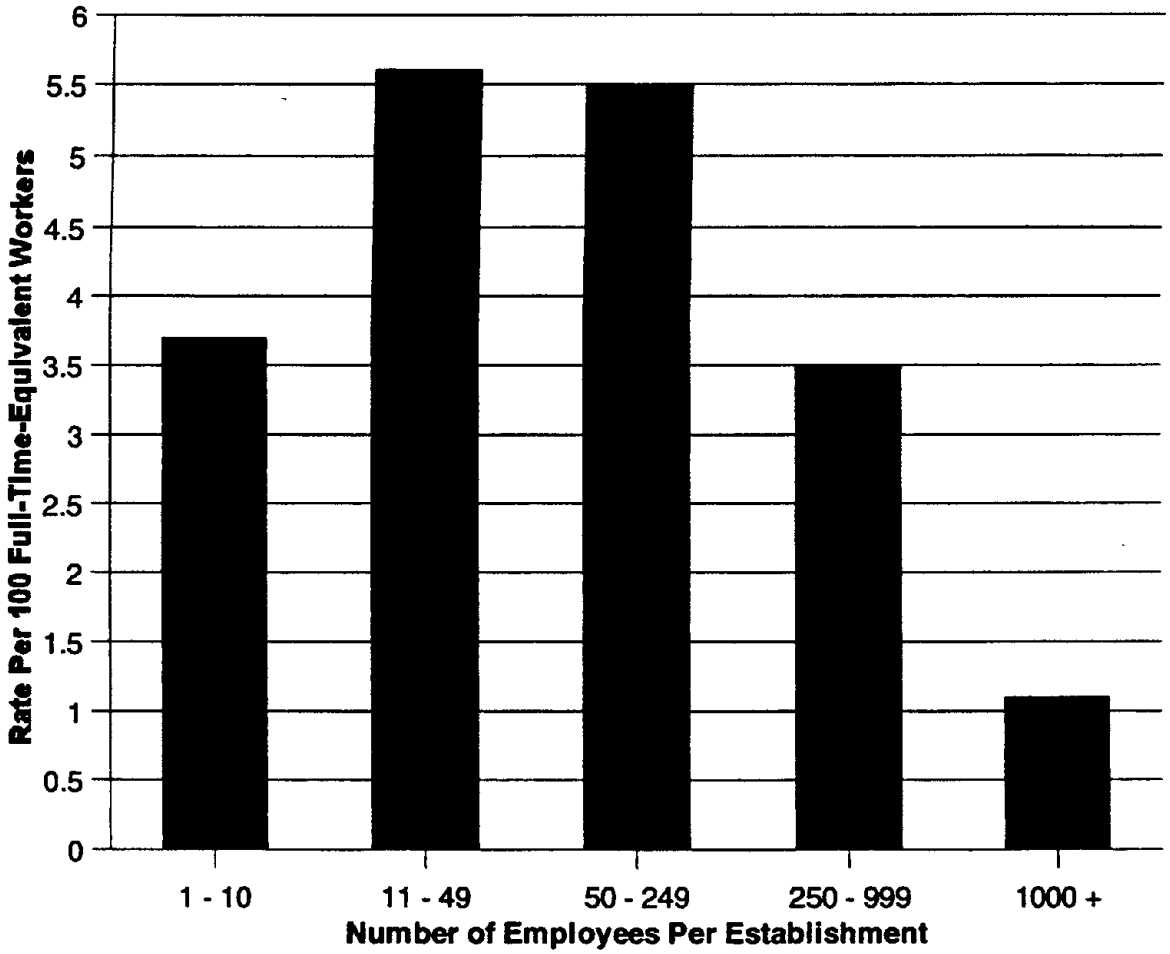


Figure 3. Average Rate of Nonfatal Injury Cases Resulting in Days Away From Work, by Establishment Size, in Private Sector Construction, 1994 (Anon., 1997)

Table 4. Injuries and Illnesses in Construction Industries Resulting in Days Away from Work, Selected Characteristics, 1992 *

Disabling Condition	Percent of Total	Disabling Event	Percent of Total
All Cases	100%	All Cases	100%
Sprains, strains	38%	Overexertion	23%
Fractures	10%	Struck by object	18%
Cuts, lacerations	9%	Fall to lower level	12%
Bruises, contusions	8%	Struck against object	8%
Multiple injuries	3%	Fall on same level	6%
All other injuries	32%	All other events	33%

* *Data from Bureau of Labor Statistics, Types and Causes of Nonfatal Injuries in the Construction Industry, 1994.*

an object, followed by falls to a lower level. Falls from elevations were a much larger share of the construction industry's case total (12 percent) than their share of all private industry case (5 percent). Clearly, falls contribute extensively to fatalities and injuries in the construction industry, and therefore, have been a cause for both concern and attention by industry and government.

During the three year period, 1994 to 1996, the construction industry in the Commonwealth of Pennsylvania experienced 65 fatalities (Titus, 1994-96). The number of injuries and illnesses during the same period totaled 27,587 cases (Table 5). The distribution of the disabling conditions is similar to that of the entire U.S. Sprain and strain lead the list, followed by lacerations and fractures. The distribution of events associated with these 27,587 injuries is also similar to that of the entire U.S. (Table 6). Overexertion leads the list, followed by struck by and fall from elevation. The injury/illness experience for the same period in the seven Pennsylvania counties which were the locations for the interviews for this study is nearly seven percent of that in the Commonwealth (Table 7).

According to BLS, since the early 1970s, the construction industry's incidence of injuries and illnesses resulting in lost work time typically has exceeded the national rates by a wide margin—usually by more than 60 percent. But construction's safety picture appears to have brightened in the early 1990s with the margin decreasing to about 50 percent. Yet, many of the industry's potentially dangerous working conditions (such as working at elevations, in uncertain weather, and under time constraints) continue to plague the industry.

Health and Safety Requirements

A wide variety of avenues is used to enhance the safety and health of the workers in the construction industry. Construction is regulated as a part of 29 CFR Part 1910 and Part 1926. There

Table 5. Total Pennsylvania Construction Industry Injuries and Illnesses by Trade and Nature of Injury/Illness, 1994-1996 (includes 65 fatals) *

Trade Category	Loss of Use	Burn	Contusion	Laceration	Fracture	Abrasion	Sprain-Strain	Multiple Injuries	Occup. Illness	Other/Unc.	Unclassified	Totals
General Bldg. Contract												
Resident Bldg. Const.	25	58	435	1047	538	547	2005	154	133	230	1414	**6586**
Operative Builders	--	--	6	12	7	4	25	2	1	4	18	**79**
Nonresident Builders	9	20	142	222	129	118	647	25	50	68	250	**1680**
Heavy Construction												
Highway and street	5	23	81	76	83	52	384	24	43	55	243	**1076**
Heavy construction	2	18	85	119	124	79	392	25	35	55	222	**1156**
Special Trade Contractor												
Plumbing, heating, A/C	13	146	226	649	265	408	1441	60	160	144	809	**4321**
Paint, paperhanging	2	15	56	52	62	55	210	19	21	27	144	**663**
Electrical work	2	52	140	331	166	209	856	56	75	101	426	**2414**
Mason, stone & plaster	7	41	160	264	167	136	876	41	39	116	489	**2336**
Carpentering & flooring	5	19	76	327	133	108	524	16	30	94	326	**1648**
Roof & sheet metal	7	62	103	240	176	145	571	38	39	76	371	**1828**
Concrete work	1	14	49	63	48	31	234	19	14	27	125	**625**
Water well drilling	2	1	14	10	10	6	40	3	8	7	20	**121**
Misc. special trade cont.	13	65	206	371	250	210	1053	69	94	125	598	**3054**
Totals	**93**	**531**	**1779**	**3783**	**2158**	**2108**	**9258**	**551**	**742**	**1129**	**5455**	**27587**

** Data from Pennsylvania Work Injuries and Illnesses Annual 1994, 1995, and 1996.*

Table 6. Total Pennsylvania Construction Industry Injuries and Illnesses by Trade and Type of Accident, 1994-1996 (includes 65 fatals) *

Trade Category	Struck Against	Struck By	Fall From Elevation	Fall From Same Level	Caught In Under	Bodily Reaction	Overexertion	Contact With Electr.	Contact With Temp.	Radiation/Caustics	Highway Vehicle	Other	Total
General Bldg. Contract													
Resident Bldg. Const.	573	1390	406	496	264	663	1358	9	45	89	106	687	**6586**
Operative Builders	5	12	8	10	7	6	17	1	--	1	4	8	**79**
Nonresident Builders	125	336	201	129	74	196	376	1	17	29	125	171	**1680**
Heavy Construction													
Highway and street	51	206	99	83	80	125	240	2	29	23	43	95	**1076**
Heavy construction	78	251	97	104	86	117	239	4	16	29	37	98	**1156**
Special Trade Contractor													
Plumbing, heating, A/C	436	726	388	285	208	459	941	11	96	169	102	500	**4321**
Paint, paperhanging	43	88	145	57	18	70	127	1	7	21	16	70	**663**
Electrical work	221	390	274	189	109	274	505	29	40	51	80	252	**2414**
Mason, stone & plaster	170	402	298	199	91	279	597	5	17	46	22	210	**2336**
Carpentering & flooring	188	383	205	114	35	154	376	4	11	14	17	147	**1648**
Roof & sheet metal	151	302	276	118	79	183	404	5	58	32	33	187	**1828**
Concrete work	33	119	51	46	46	70	162	1	9	9	31	48	**625**
Water well drilling	6	30	8	7	11	11	28	--	--	5	4	11	**121**
Misc. special trade cont.	249	640	263	232	159	310	673	6	53	81	96	292	**3054**
Totals	**2329**	**5275**	**3219**	**2069**	**1267**	**2917**	**6043**	**79**	**398**	**599**	**616**	**2776**	**27587**

* *Data from Pennsylvania Work Injuries and Illnesses Annual 1994, 1995, and 1996.*

Table 7. Pennsylvania Construction Injury/Illness Summary by County and Year (1994-96)*

County	1994	1995	1996	Totals
Cambria	119	96	86	301
Centre	96	79	87	262
Clearfield	67	61	43	171
Indiana	78	55	51	184
Jefferson	32	30	33	95
Somerset	56	57	51	164
Westmoreland	272	229	223	724
Totals	**720**	**627**	**574**	**1901**

* *Data from Pennsylvania Work Injuries and Illnesses Annual 1994, 1995, and 1996.*

are extensive provisions of specific standards with regard to safety at the workplace and inspections. For example, for the period September 1995 to October 1996, the top five most cited, and the top five highest dollar penalty violations are shown in Table 8. Clearly, construction safety, training and education figure prominently in this table. The regulations require personal protection equipment (PPE), safety training, and assignment of specific jobs to "certified," "competent," and "qualified" persons. However, issues such as the responsibility for providing the training, the content of specific training programs, and the duration of the training programs are not specifically addressed in the Occupational Safety and Health Act of 1970 (1970 Act) (USDL, 1995). However, with the experience gained with the application of the 1970 Act, and as existing standards are being revised, there is increasing specificity with regard to training. The wide variety of jobs that are encompassed by a construction worker in small enterprises under a great variety of job environments must be appreciated. This diversity of jobs is accompanied by an equally diverse list of construction suppliers and service providers. It would appear that in small construction establishments, the potential for experiencing the similar types of problems as are experienced in small mines, and small businesses with regard to accessing health and safety resources, seeking relevant information, reporting health and safety data and providing adequate inspection and counseling can be high (Rethi and Burns, 1995; Russell et al., 1997).

Methodology of the Study

The Penn State team used a number of approaches to study small construction establishments with regard to the mechanisms utilized by them to receive, provide and distribute health and safety information (HSI) to their employees. The approach included interviews of small establishments,

Table 8. Top Violations in Terms of Numbers and Dollar Penalties *

Top Five Violations Most Frequently Cited by OSHA				
Standard	**# Cited**	**# Insp.**	**Total Dollar Penalty**	**Description**
1. 1926.651	511	286	$ 922,411.75	Excavation, General Req.
2. 1926.	333	296	$1,330,350.00	Excavation, Requirements for Protective Systems
3. 1926.21	111	102	$ 157,613.50	Construction, Safety, Training & Education
4. 1926.62	104	16	$ 68,343.75	Lead
5. 1926.550	99	41	$ 163,775.00	Cranes & Derricks
Top Five Top Dollar Penalties by OSHA				
Standard	**# Cited**	**# Insp.**	**Total Dollar Penalty**	**Description**
1. 1926.652	333	296	$1,330,350.00	Excavation, Requirements For Protective Systems
2. 1926.651	511	286	$ 922,411.75	Excavation, General Req.
3. 1926.501	62	50	$ 226,028.75	Fall Protection Scope/ Applications/Definitions
4. 1926.550	99	41	$ 163,775.00	Cranes & Derricks
5. 1926.21	111	102	$ 157,613.50	Construction, Safety, Training & Education

* *Safety Bulletin #13-97, May 22, 1997, Construction Association of Western Pennsylvania, Pittsburgh, PA.*

responses to a specifically developed interview guide, reviews of services available from various private and public sources, and interviews with trade associations, insurance agents and construction suppliers. In subsequent sections, the results of the study are presented.

II. Sources of Data

Data sources for the study included a wide variety of government agencies, trade associations (local, state, and national level), small and large construction firms, a supplier of building materials, and several insurance carriers. The data sources are organized into two categories: general and specific. Sources were identified from prior knowledge, via the Internet, from industry referrals, and from health and safety related publications.

General and specific sources were identified for the primary purpose of obtaining any information pertinent to the current study, including: 1) health and safety training resources, 2) health and safety related services, 3) how health and safety information (HSI) is acquired, and 4) how HSI is distributed to employees (mechanisms of distribution). Additional information collected included: 1) injury/illness statistics, 2) use of computers for health and safety purposes, 3) trade association membership, 4) types of resources acquired, 5) involvement with OSHA, and recommendations regarding the acquisition and distribution of health and safety material.

The general sources include: government, labor, industry, and other not-for-profit organizations from which materials and/or information regarding health and safety were received. The list of general sources that were investigated is not all inclusive.

The specific sources include: construction firms, insurance carriers, trade associations, and a supplier of construction materials. These sources were interviewed either by phone or in person. The general and specific sources contacted are shown in Table 9, along with the nature of the contact, and the type of information received.

A significant number of private, (e.g., consulting firms) etc., offer health and training materials, and services, and thus represent a source of health and safety information. The scope

of work of the present study did not include an in depth investigation of these private sources, though some are identified in Appendix A.

General Sources

Twelve general sources of information were identified and contacted for the study. As indicated in Table 9, the majority of general sources were contacted either by phone, or through their Internet Web Page. Contact also consisted of acquiring one or more of their publications through the library. Several of the larger organizations contacted, and the resources/services they make available, are described below. The addresses, including Internet URL, of these organizations are included in Appendix B.

Associated Builder's and Contractors, Inc. (National)

The Associated Builder's and Contractors, Inc. (ABC) is a national construction trade association with headquarters in Rosslyn Virginia. There are 80 chapters throughout the United States, and five chapters in Pennsylvania. ABC represents over 19,000 construction and construction related firms throughout the nation. ABC promotes the "merit shop" philosophy, defined as a contractor who bids and wins contracts based on price and performance, regardless of labor affiliation.

Services/Resources

Part of ABC's mission is to help develop and promote a safe workplace and a high-performance workforce. ABC offers several services to accomplish this. Many of these services originate from the National Center for Construction Education and Research (NCCER). This ABC

Table 9. General and Specific Data Sources, Nature of Contact, and Type of Data Acquired

Data Sources	Contact	Data Type			
		Injury/Illness Statistics	Training Material	General Information	How H&S Material is Acquired
GENERAL					
Associated Builder's and Contractors (National Chapter	Internet		X	Newsletter, Report	
Associated General Contractors (National Chapter)	Internet		X	X	
Bureau of Labor Statistics	Internet	X			
Center for the Protection of Worker's Rights	Phone	X		X	
Construction Safety Council	Phone		Catalog of H&S Materials	Trade Magazine	
ndiana University	Phone			X	
nternational Labor Office	Brochure		X		
nternet	Network	X	X	X	
Millersville University	Phone			X	
National Safety Council	Internet	X			
OHSA	Phone/ Internet	X	Report	Report	
Pittsburgh Research Center (PRC)	Phone			Report	
SPECIFIC					
Trade Association	Interview		Tool-Box Talks		What They Provide
Trade Association	Interview		Job Site Kit	X	What They Provide
Construction Firms (10 < employees)	Interview		Examples of Resources		X
nsurance Companies	Interview				What They Provide; What They Observe
onstruction firms (10 + employees)	Interview		X		X
uilding Suppliers	Interview				What They Provide

sponsored center is a not-for-profit educational organization that offers craft training, management education and safety programs. One training program of note is the *Construction Site Safety Technician* program. The purpose of this program is to prepare individuals for safety leadership roles in the industry. This 100 hour training is OSHA recognized. In addition to training programs, ABC also provides a wide variety of job handbooks, posters, and safety videos (Appendix C).

The Associated General Contractors of America (National)

The Associated General Contractors of America (AGCA) is a national construction trade association that claims more than 32,000 firms as its members. It is headquartered in Washington, DC. Roughly a quarter of the member firms are general contractors, and the remaining 24,500 firms are associated with the general contractors through a network of 101 AGC Chapters located throughout the nation. The majority of these member firms are engaged in commercial building projects, e.g., factories, warehouses, transportation infrastructure, tunnels, pipelines, airports, dams, powerplants, flood control projects, and site preparation/utility installation for all types of building projects, including residential construction.

The AGCA was founded in 1918, under the Wilson administration. Its mission is to improve the quality of construction, and thereby protecting the public interest. It accomplishes its mission by providing a full range of services to satisfy the concerns and needs of its members. Its core values include: skill, integrity, and responsibility.

Services/Resources

AGCA offers a wide variety of services/products to its members. Some of the products are also available to the general public. Safety related services available to members include risk

management resources, and a comprehensive skills training curriculum, e.g. bricklaying, carpentry, etc. Educator/trainers, and small construction firms and members may take advantage of an extensive safety publications and video library. Publications include OSHA and MSHA standards, accident prevention manuals, and hazardous material guides. Videos cover all of the major trade and construction topics, including timely subjects such as, trenching, scaffolding, substance abuse, fall protection, and forklift safety (Appendix D).

An AGC service also worth particular mention is *the Weekly Installment of a Toolbox Safety Talk.* A subscription to the series provides a new talk each week or the talks can be purchased as a package. Individuals wanting more information regarding products or service available from AGCA can contact the AGCA Safety and Health Services Department (heinleic@agc.org).

Construction Safety Council

The Construction Safety Council (CSC), based in Hillside, IL, is an educational, not-for-profit corporation. According to the CSC, their mission is to help reduce injuries and illnesses within the construction industry through education and training, research, dissemination of publications and audio-visual resources. This organization is supported through cooperative agreements between labor unions and union contractors, grants, donations, fees, and tuition charges.

Services/Resources

CSC provides safety training to employers, and employees. In addition to the 10 and 30 hour OSHA construction safety classes, classes are offered in a variety of subjects, such as fall protection, competent person for excavations, etc. CSC maintains a safety video library, from which videos may be purchased. CSC also publishes a quarterly newsletter, titled, *Construction Safety News,* organizes

an annual safety conference, which features presentations on construction issues, training programs, and exhibits of safety related technologies/equipment. They also provide a safety consulting and referral service. A listing of training materials and services available from CSC is enclosed in Appendix E.

Occupational Safety and Health Administration (OSHA)

OSHA, the federal Department of Labor safety regulatory agency for general industry, was created by the Occupational Safety and Health Act of 1970. Consistent with OSHA's mission ("save lives, prevent injuries, and protect the health and safety of approximately 100 million American workers"), OSHA's primary activities consist of workplace inspections, and consultation services. Currently OSHA recognizes the health and safety programs of 25 state or U. S. territories. Under these agreements, the state or territory is responsible for promulgating and enforcing its own workplace health and safety standards (must be equal to standards of Title 29 CFR). Along with their state partners, OSHA maintains a cadre of approximately 2,100 inspectors. In states where OSHA has primacy, it enforces protective standards, and provides technical assistance and various health and safety services to employers and employees.

Services/Resources

Through its national headquarters in Washington, DC, its regional offices throughout the U.S., its National Training Institute in Des plaines IL, and its network of 12 training institute education centers, OSHA offers a number of services to small businesses. The majority of these services take the form of training and direct compliance assistance programs. Some of the more well

known programs include: (1) consultation program, (2) safety training, (3) pro-bono training, and (4) penalty reductions for size and good faith.

OSHA, like its sister agency, the Mine Safety and Health Administration (MSHA), maintains a Home Page (WEB page) on the Internet's World Wide Web (WWW). OSHA also offers a CD ROM containing a variety of health and safety information, an expert system on the Internet for compliance assistance with technical rules, and an Internet-based U.S. Small Business Advisor. A brief description of the programs and assistance available from OSHA are included in Appendix F. OSHA also makes numerous booklets, cards, leaflets, posters, statistical forms, and videos available through its catalog (OSHA 2019).

Specific Sources

Twenty-eight organizations or firms participated in the study by agreeing to provide information pertinent to the scope of work and study objectives. Of these 28 organizations, 20 are small construction firms who employ 10 or less construction workers, two are large construction firms, two are trade associations, one is a building supply firm, and the remainder are insurance companies that represent one or more small construction firms by providing workers' compensation insurance.

Information regarding the size and speciality of the 20 small construction firms who participated in the study are summarized in Table 10. Brief descriptions of each of the participant firms appear in Appendix G.

The small firms provided sufficient information to answer the research questions posed in the study. In addition, a significant amount of supplemental information was also provided. This

Table 10. Size and Area of Speciality of Participating Small Construction Firms.

Firm	Size	Speciality
Company #1	8	Electrical Work
Company #2	6	Roofing
Company #3	4	Residential Building
Company #4	2	Electrical/Plumbing
Company #5	5-10	Roofing/Sheet Metal
Company #6	3-5	Residential Building
Company #7	4-6	Residential Building
Company #8	2	Landscaping
Company #9	6	Residential Building
Company #10	3	Residential Building
Company #11	7	Residential Building
Company #12	4	Residential Building
Company #13	10	Residential Building
Company #14	2	Residential Building
Company #15	9	Plumbing/Heating/AC
Company #16	6	Plumbing/Heating
Company #17	8	Roofing/Spouting
Company #18	8	Residential Building
Company #19	6	Siding/Awnings
Company #20	3	Roofing/Residential Const.

information included names of insurance carriers, involvement with OSHA, membership in trade associations, existence of a formal training program, etc.

Supplemental Information from Specific Sources

Specific information regarding health and safety resources and their dissemination was gathered from two large construction firms, three insurance carriers, two trade association chapters, and a building material supplier. Each of these sources is briefly described below. Additional information on the these supplemental, specific sources is provided as appendix material (Appendix H).

Large Construction Firms

Two large construction firms were contacted during the study. Both firms are involved in heavy construction projects, such as road, bridge, and site preparation work. One of the firms is located in central Pennsylvania, and the other in eastern Pennsylvania. Both firms provided information on how they acquired and distributed health and safety information, their health and safety training program, their opinion on the effectiveness of various means of distribution, use of computers for health and safety purposes, etc. This information is valuable for comparison purposes between large and small firms.

Insurance Carriers

During the piloting of the questionnaire, it became clear that insurance firms that write worker's compensation insurance for small firms are valuable sources of HSI. Therefore three

insurance carriers were included in the study. Each carrier was asked if they provided health and safety information, training or Tool-box talks, etc., to their clients. In addition, they were also asked what steps could be taken by both small construction firms and other service providers to improve the acquisition and dissemination of health and safety material and information among small construction firms.

Trade Associations

Two local chapter trade associations were interviewed during the study. One is an independent trade association representing mostly non-union construction firms. Most of its members are residential builders. It is located in central Pennsylvania. The other is located in western Pennsylvania, and represents organized, heavy construction firms. Each interview lasted approximately two hours and were used to explore the extent to which the associations provided health and safety training materials and services to their clients, what materials were made available, and what could be done to improve the distribution of health and safety information to employees of construction firms.

Building Material Suppliers

Two building material suppliers were contacted. One is a large national discount chain, with stores throughout the United States. The other is a local supplier with a total of three stores; the three stores is are no more than 30 miles apart. This local supplier has been in business over 50 years. Only one of these stores was contacted. The store manager was asked as to resources available from them on health and safety matters they can provide to their clients. The discount supplier did not have any data which was useful to the present study.

Sources from the Internet

The Internet was used to access a number of the general sources of health and safety information, already identified in this section. Government agencies, such as OSHA, BLS, NIOSH, and the Pennsylvania Department of Labor and Industry, all maintain a Home Page on the World Wide Web (WWW). In addition, the major construction trade associations, safety consultants, and educational institutions, all maintain a Home Page. The Internet can be accessed by computer either through a remote link (modem, appropriate communication software, and an Internet access provider), or through an Ethernet connection (local network). To access Home Pages, (sometimes called a "site") a user ether types in the appropriate address (called a URL, e.g. http/:www.osha.gov/) to obtain a direct link, or the user can type a key word(s) into a search engine (Yahoo, Excite, etc.). A key word appropriate for a government safety agency would be, "Government", "Safety". An accessed Home Page then links the user to numerous web pages that contain health and safety information, and links to other pages on the . There is little doubt that Internet sites are valuable sources of both general and specific information that would be very useful to the small construction firm seeking information on health and safety regulations, training materials, job aids, general facts, etc. A number of health and safety Internet addresses are included in Appendix 1. The remainder of this section identifies some good Internet "leads" which may be of particular interest to small construction firms.

Internet Resources for Small Construction Firms

OSHA regulations found in 29 CFR 1910, and 1926 (www.osha-slc.gov) are presented individually by section. Additionally, OSHA Directives, Fact Sheets, Inspection Reference Manuals,

Technical Links, Special Initiative programs, Interpretive Guidelines, Training Courses (titles, dates, locations), and Internet links to other relevant safety sources. This source can provide the owner of a small construction company with timely amounts of regulatory and compliance information.

Numerous safety supply companies have web pages with vast amounts of safety information. Such places may offer the small construction company owner "One-Stop Shopping," for relevant safety and health information. Among the web sites that provide such information are the following:

Lab Safety Supply Company	(www.labsafety.com)
Seton Company	(208.134.52.10/safetylinks)
Pro-Am Safety Products Store	(222.jjkeller.com/products.htm)
Compliward	(www.hcst.net/safety-services)

Other Internet sites that are useful include:

Occupational Safety and Health Magazine (www.oshonline.com)
Industrial Safety and Hygiene News (www.safetyonline.net)

These sites offer such resources as: Federal Register weekly updates, technical support lines, industry events, MSDS information and links, sources for consultants, safety software, access to OSHA regulations, and safety information on specific topics.

III. Interviews of Small Construction Establishments

The Pennsylvania State University (PSU) conducted interview of small construction companies by developing, administering, and analyzing the responses to the interview guide titled, "Analysis of Health and Safety Hazard Information Acquisition and Dissemination—Small Independent Construction Companies." The interview guide was also administered to other construction organizations such as trade associations and workmen's compensation insurance companies familiar with the health and safety issues of small construction companies.

The purpose of the interview guide instrument was to gather information that would provide a company safety profile relevant to the practices of acquiring and disseminating health and safety information (HSI). Information collected during the interviews allowed PSU to develop a response database which aided conclusions and recommendations on the receipt, use and dissemination of health and safety information by small construction establishments.

Development of the Interview Guide

The objectives for the design and development of the interview guide centered around determination of the following factors:

- The number of full-time, part-time, and summer help employees in the surveyed companies.
- The number of lost-time injuries and fatalities suffered over a three year period (1994 to present)

- The titles of person(s) within the interviewed companies who may provide health and safety information to employees.
- The existence or non-existence of full-time person(s) in the small companies assigned to a safety role.
- Methods by which knowledge is gained about health and safety issues, and the source(s) from which such information is gained.
- The mechanism(s) and medium(s) used to distribute health and safety information throughout the company.
- The number of hours per week that owners of small companies believe should be devoted to health and safety issues.
- The access that owners of small companies have to electronic mail and/or the Internet.

Determination of the above information provided PSU with information to ascertain and analyze both direct and non-direct safety issues and practices that may influence the following factors:

1. A company's knowledge of methods or means to procure health and safety information.
2. A company's knowledge of methods or means to distribute health and safety information to its employees.
3. A company's methodology for procuring health and safety information.
4. A company's methodology for distributing health and safety information to its employees.
5. A company's source(s) for health and safety information.
6. The means a company actually uses to access health and safety information.

The interview guide was designed to take approximately one hour to complete. PSU recognized during the development of the interview guide that the time that a small company

representative may be able to devote to the interview session may be limited due to work, travel, and production constraints. A prototype of the interview guide instrument was developed and PSU personnel conducted visits to large construction companies, and construction trade associations to pilot the interview guide. The threefold purposes of these pilot studies were:

1. To personally discuss with construction safety professionals the design rationale of the interview guide.
2. To ascertain from full-time construction safety professionals, the validity of each interview item, as it related to construction health and safety issues and practices.
3. To solicit from full-time construction safety professionals comments for improvements and modifications of the interview guide items.

Following visits with construction safety professionals, appropriate wording and/or subject changes were made to reflect accuracy with construction safety issues and practices.

A final review of the prototype instrument was conducted on August 26, 1997, when PSU representatives met with NIOSH Project Officers at the Pittsburgh Research Laboratory. At this meeting PSU personnel described work done to date, and discussed the design and development of the interview guide. NIOSH suggestions were solicited for improvement, and appropriate wording and subject changes were incorporated into the final interview guide.

The interview guide instrument was not designed for independent completion by the respondent, but for PSU personnel personally visiting owners or safety officials of small construction companies and/or personally conducting telephone interviews with the same. The personal contact by PSU personnel with respondents allowed for discussion consensus, explanation or clarification of interview questions and answers, and complete understanding of open-ended discussion items, and answers

received. The interview guide and resultant information provided a database from which results could be drawn. The results of these interviews served as the springboard for the development of recommendations for better dissemination of health and safety information in small construction companies.

Description of the Interview Guide

The final version of the interview guide was comprised of the following six sections that explored the respondent's knowledge and opinions about the acquisition and dissemination of health and safety information in a small construction company (Appendix J).

- Background Section
- General Health and Safety Information
- Sources and Types of Health and Safety Information
- Using and Distributing Health and Safety Information
- Injury and OSHA History
- Improving Health and Safety Communication

The six sections proceed in a general-to-specific format and pose both open-ended discussion items with menus of answers, and specific yes/no, fill-in-the-blank items. During actual interviews, all questions were asked in a manner that allowed respondents to add additional or clarifying information.

Prior to the administration of the interview guide, PSU interviewers advised respondents that anonymity would be maintained regarding specific answers, opinions, and beliefs, etc., and that their

responses would be included only in general summarized form, thus not identifying any respondent to specific comments. The interview guide sections described below summarize the specific sections of the final interview guide instrument.

Background Information

In this section, essential information on name, address, the individual in charge of the company, and the number of employees were sought. Name/address data also provided PSU with a person and location to send a copy of this Final Report at the conclusion of this pilot study.

General Health and Safety Information

This section probed company structure as it related to who actually distributed health and safety information to employees. Additional discussions sought to determine whether this organization employed a person full-time with safety responsibilities, and if so, whether that person was in charge of safety at the actual job site(s). Discussions also sought to determine who the respondent's workmen's compensation insurance carrier was, and any types of involvement with trade groups/associations. Pre-interview research by PSU defined insurance carriers and trade associations as probable suppliers of health and safety information to target group members.

Sources of Health and Safety Information

This section specifically sought to define the actual sources from which small construction companies received health and safety information, as well as define the precise types of information received. A menu was provided for both the sources of information and the types of information.

Using and Distributing Health and Safety Information

Items in this section of the interview guide explored how, and in what manner, any health and safety information received by the respondent was actually used and/or distributed. The existence of safety training programs, and frequency of any safety training that the organization may conduct or participate in was also defined. Here again, a menu was provided for the ways in which the information were presented to the employees.

Injury and OSHA History

Evaluation of the responding company's lost-time injury/illness, fatality, and OSHA inspection and violation history for a three year period (1994-1997 to date) was made. This information is useful for comparison of safety practices between companies who had lost-time injuries/illnesses, fatalities, and OHSA visits/violations with those who did not.

Improving Health and Safety Communication

Respondents were asked their opinions on how their means to acquire and distribute health and safety information could be improved. Respondents were asked their opinions on what they believed they themselves could actually do to allow for better acquisition of health and safety information.

Reverse questions were also posed, soliciting opinions on what the respondent(s) believed other agencies or organizations, i.e., insurance, suppliers, trade associations, etc., could do to improve their (respondents) ability to procure health and safety information.

Similar questions were also asked to define how respondents believed they, as well as others could improve the distribution of health and safety information to employees. A final, open-ended

question asked respondents if they had any final comments regarding obtaining and distributing health and safety information among their employees.

Results of the Interviews

The interviews were administered to 20 small construction companies. These 20 companies were chosen at random from a listing of the companies which was available through the telephone directory, construction associations, and referrals from one or more of the contacts in the area. No particular effort was made to include or exclude a particular establishment. The employee size in the companies was between one to ten employees. In the majority of cases, the interview was with the owner(s) of the construction firms. Interviews were also conducted with compensation insurance carriers and trade association leaders. Responses from the small construction establishments interviewed are described here. Where possible, the responses are ranked and percentages are reported to better identify the findings. The responses of compensation insurance carriers and trade associations leaders interviewed are also noted in the end.

Background Section

In terms of employment, the interview data reveal that part-time and summer employment constitute a very small part of small construction establishments. A summary of the background data of the companies follows.

- The average number of persons employed full time in the 20 companies interviewed was 5.4.

- The total number of persons employed part time in the 20 companies interviewed was seven (7).

- The total number of persons employed as summer help in the 20 companies interviewed was ten (10).

- As shown in Table 11, the owner of the establishment is the principal person providing the health and safety information to the employees. Insurance agents, job supervisors and suppliers also provide health and safety information, often in conjunction with the owner.

- All of the 20 respondents stated that no one was employed full-time in their company with the sole responsibility for safety.

- There were thirteen (13) different workers' compensation insurance carriers providing services to the twenty (20) firms interviewed.

- Thirteen (13) of the twenty (20) participants interviewed reported being a member of a trade association. Among the others were such institutions as Chamber of Business.

— Association of Builders and Contractors (ABC)	2
— Regional Builders Association	2
— Pennsylvania Builders Association (PBA)	4
— Other	5

Sources and Types of Health and Safety Information

There were multiple answers from the companies to the question as to the company's source of health and safety information (HSI). A total of 126 responses were received (Table 12). The three top sources are the trade associations, insurance carriers and building suppliers. Most companies receive HSI from more than one source. Workmen's compensation and OSHA appear to be major secondary sources. Vo-tech schools and universities/colleges are not viewed as major sources for HSI. Safety consultants are also not a major source for HSI.

Table 11. Person(s) Providing Health and Safety Information to Employees

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	Percent
Owner	X	X	X	X	X	X	X	X	X	X		X	X			X		X	X	X	16	80%
Job Supervisor	X					X							X	X							4	20%
Crew Leader												X									1	5%
Insurance Agent						X					X				X		X		X	X	6	30%
Suppliers					X		X							X							3	15%
Other											X										1	5%
Total	2	1	1	1	2	3	2	1	1	1	2	2	2	2	1	1	1	1	2	2	31	100%

Table 12. Sources of Health and Safety Information

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	Percent
Trade Associations				X	X	X			X			X	X	X		X	X	X	X	X	12	60%
Insurance Carriers	X					X			X		X	X	X	X	X	X	X	X	X	X	13	65%
Colleagues						X						X	X	X							4	20%
Building Suppliers		X			X	X	X	X	X	X	X	X	X	X	X	X		X			14	70%
Worker's Comp		X	X	X							X		X					X		X	7	35%
Safety Consultant										X				X							2	10%
OSHA						X			X						X	X	X	X	X		7	35%
Vo-Tech School	X																				1	5%
University/ College														X							1	5%
Other	X									X	X	X								X	5	25%
Total	3	2	1	2	2	5	1	1	4	3	4	5	5	6	3	4	3	5	3	4	66	100%

With regard to the description of the health and safety information from the sources identified above, those interviewed provided multiple answers (Table 13). As shown in the table below, the dominant type of information is paper-oriented. Training videos are not identified as a major type of information obtained.

Rank	HSI Type	Frequency	Percent
1	One Page Handout	30	24%
2	Newsletter	26	13%
3/4	Reference Manual	26	21%
3/4	Talk	16	13%
5	MSDS	9	7%
	Other	----	22%
	Total	**126**	**100%**

The training resources received from the various sources were incorporated mainly in three ways: routine work instructions, tailgate/toolbox talks, and one to one talks. As shown in Table 14, most establishments used all the three approaches to convey the HSI. Formal safety classes are identified as one of the methods of dissemination by only three establishments. In fact, 19 participants indicated that they have no formal training classes, and 18 indicated that they have no regular weekly scheduled time to discuss health and safety issues. However several establishments indicated that there are occasions when more time is spent on health and safety issues. The 49 responses were analyzed to compile the information in the table below:

Table 13. Type of Health and Safety Information from Sources

Information From Health and Safety Sources

	Video	One-Page Handout	Reference Manuals	News Letters	MSDS	Reg. Book	Photos	Talk	Stickers	CD ROM	Other	Total Information by Course	Percent
Trade Associations	2	7	5	8	1	1	2	5		1		32	25%
Insurance Carriers		10	3	3			1	4	1			22	17%
Colleagues								2			2	4	3%
Building Suppliers	1	5	2	9	7		2	2	2	1		31	25%
Workers' Comp		4	1	3			1	1			2	12	10%
Safety Consultant	1	1	1					1	1		1	6	5%
OSHA		2	1	2		5						10	8%
University/ College			1				1					2	2%
Other		1	2	1	1			1			1	7	5%
Total Information By Type	4	30	16	26	9	6	7	16	4	2	6	126	100%

Table 14. Use of Health and Safety Information

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	Percent
Incorporate Into Routine Work Instructions	X	X	X	X	X	X		X	X		X	X	X			X		X	X	X	15	75%
Tail-Gate/ Tool-Box Talk	X		X		X	X	X		X	X	X	X	X		X		X			X	13	65%
One-on-One Talk	X	X	X	X		X	X	X	X				X						X	X	11	55%
Formal Safety Classes													X	X			X				3	15%
Other		X																			1	5%
Total	3	3	3	2	2	3	2	2	3	1	2	2	4	1	1	1	2	1	2	3	43	100%

Rank	Situation	Frequency	Percentage
1	New Tasks	15	31%
2	New Jobs	8	16%
2	New Environment	8	16%
2	Accident at Your Site	8	16%
2	Accidents in the Industry	8	16%
6	New Employees	2	5%
	Total	**49**	**100%**

The important role new tasks, jobs and environment, as well as, the reinforcing power of injuries are evident. The importance of training of new employees appears to be somewhat less.

There are twelve respondents to the question on the amount of time spent on training under the changing or new conditions. The answers on the training time were quite variable, from 10 to 60 minutes with an average of under 30 minutes (See Table 15). However, 16 of the 20 participants indicated that they were quite satisfied with the amount of time spent by them on health and safety training.

Posters are the most common avenue used by the small construction owners to distribute health and safety information to their employees. As shown in Table 16, memo, letter, paycheck stuffer, etc., are used less frequently as compared to allowing the message to diffuse through the grapevine. There was no one clear method identified by the respondents as a superior method for distributing HSI to the employees (Table 17).

From the interviews, it is evident that the small construction establishments gain knowledge about health and safety issues through a number of avenues, including, but not limited to: 1) on the job experience, 2) training, with resources provided by insurance carriers and trade associations (if

Table 15. Amount of Training Time for Job Situations

	5	6	7	9	11	12	14	15	16	17	18	19	Average Time
New Job			10 min		30 min	60 min			30 min			15 min	29 min
New Tasks		20 min		30 min	30 min		30 min	30 min	30 min	30 min	30 min	15 min	25 min
New Environment	3 min	10 min		30 min									14 min
Accident at Site			10 min	30 min				30 min		30 min	30 min	15 min	24 min
Accidents in Industry				30 min				30 min	30 min	30 min		15 min	27 min

Companies 1, 2, 3, 4, 8, 10, 13, and 20 did not respond with a specific length of time for training.

Table 16. The Means Used to Distribute Health and Safety Information

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	Percent
Memo									X				X		X				X	X	5	25%
Letter						X						X					X				3	15%
Paycheck Stuffer		X								X			X		X					X	5	25%
Poster	X	X				X			X	X			X			X	X		X		9	45%
Grapevine						X		X					X				X	X	X		6	30%
Other			X	X	X		X				X	X	X	X							8	40%

Table 17. Perceived Effectiveness of the Means of Distribution

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	Percent
Memo			X																	X	2	14%
Letter				X								X								X	3	21%
Paycheck Stuffer		X													X					X	3	21%
Poster																	X				1	7%
Grapevine																X		X	X		3	21%
Other	X					X		X			X									X	5	35%

they are members), and 3) one-page handouts/posters, newspapers, etc. Other sources for gaining knowledge, such as, publications by government agencies, technical literature, the Internet, networkings with colleagues, trade newsletters, seminars and extension services have been less frequently identified by the small construction establishment. While the choice appears to be highly influenced by the immediate cost and time saving potential, greater exposure to a more comprehensive list of sources requires proactive initiatives on the part of both the small establishments and the governmental agencies charged with preserving and enhancing health and safety of the nation's workforce through enforcement, education and training.

Injury and OSHA History

Data were compiled on the number of lost-time reportable injuries the company has experienced in the last three years, and whether the company has ever been visited by OSHA. A summary of the responses follows:

- Non of the companies interviewed had an OSHA reportable injury/illness.
- A majority of the 22 injuries experienced were first-aid cases.
- There were no fatalities.
- One company was visited by OSHA in the last three years.
- One construction firm received OSHA citation in the last three years.

Use of Computers

Use of computers for HSI is not extensive in the companies interviewed. Specifically,

- Eighty-five percent (85%) of the participants indicated that they did not use electronic mail (e-mail).
- Seventy percent (70%) of the companies reported not having access to the Internet.
- No respondents indicated using the Internet or e-mail for safety related issues.

Improving Health and Safety Communication

The open-ended interview guide items on improving health and safety communications allowed the respondents to discuss what they could do to better receive health and safety information, as well as what others could do to help small construction company owners better receive health and safety information. The responses to these two parts are summarized in Tables 18 and 19 respectively.

The companies indicate that they may gain significant benefits by attending seminars, using Internet, networking with colleagues and joining a trade association. Most feel that insurance carriers and workmen's compensation office should provide more HSI. The companies also indicate that suppliers and trade associations can improve the acquisition of HSI for small companies.

To the discussion items on how to more effectively distribute HSI to the employees, and what can be done by the companies, and others, there are several responses. From the company point of view, toolbox talks and one-on-one conversations are indicated as the most effective means and that they should be doing more of these (Table 20). Insurance carriers and suppliers are identified as two sources who can help improve the distribution of HSI (Table 21). A role for colleges in helping distribution of HSI is also indicated.

Open-Ended Comments

The following comments were also provided by the respondents.

Table 18. Measures by Participants to Improve the Acquisition of Health and Safety Materials

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	Percent
Use Internet		X	X			X	X		X			X	X		X				X		9	45%
Join Trade Association							X		X	X	X				X						5	25%
Network With Colleagues		X		X			X					X		X			X	X			7	35%
Attend a Seminar	X	X			X		X		X					X	X	X	X	X	X	X	12	60%
Other								X													1	5%

Table 19. Measures by Others to Improve the Acquisition of Health and Safety Materials

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	Percent
Insur. Carriers Provide More Information	X		X					X	X	X	X				X	X	X	X		X	11	64%
More Info. From Suppliers			X					X	X		X				X				X		6	35%
Worker's Comp Provide More Information	X	X	X	X					X					X	X					X	8	47%
Trade Assoc. Provide More Information		X		X					X			X						X		X	6	35%
Other			X		X																2	11%

Table 20. Measures by Participants to Improve the Distribution of Health and Safety Information

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	Percent
Hold Tool-Box Talks	X	X				X	X			X	X	X		X	X	X	X	X	X	X	14	73%
Take Video of the Job and Show It		X							X					X	X						4	21%
Paycheck Stuffer	X	X		X		X	X	X			X			X	X		X				10	52%
Vendor Video		X	X		X		X														4	21%
Other									X						X					X	3	15%

Table 21. Measures By Others to Improve the Distribution of Health and Safety Information

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	Percent
Ins. Carrier Offer Training	X		X	X		X			X	X	X			X	X		X	X		X	12	66%
Supplier Could Offer Tool-Box Talk	X	X		X	X	X					X			X				X			8	44%
College Offer Training	X	X	X	X										X			X		X	X	8	44%
Local TV Station Could Offer Safety Program		X									X										2	11%
Other		X						X				X				X					4	22%

1. The availability of health and safety information needs to be improved upon. Two of the companies interviewed thought that safety and health information should be easier to obtain and made easier for the average worker to understand. One thought this information should focus on injuries in their related field of business.

2. One of the companies interviewed stated that any safety information was basically useless unless the employee it was being presented to was self-motivated toward safety. This theme was repeated in another response though the importance of attitude of the small contractor (and not just the employee) was also recognized.

3. One company thought there should be some type of regional safety meetings and cited the need for a reliable source of current information and updates, including changes in regulations and new procedures. Another company agreed there should be more seminars and training classes, but emphasized the point that not all companies have the time nor the manpower to send someone to a class being held during working hours. They felt there was a need to offer seminars and safety meetings during the evening hours, or on weekends.

4. One of the owners of the companies interviewed thought that safety was common sense. He also felt it was costly for a company to distribute health and safety information because of the difficulty of trying to find the time to get his employees together to receive this information. His opinion was, "time is money."

5. One opinion shared by three of the companies interviewed was that OSHA should try to find a way to educate the worker and distribute safety and health information to the companies without the threat of being issued a citation. One company stated that most contractors are aware of OSHA's availability to provide safety information, but are afraid to ask for it.

6. One of the companies stated that there is a lot of information out there if the company wants to take the time to search for it.

7. One company stated that if we want to insure the responsibility and accountability of the employer for acquiring and distributing health and safety information, it should be done on a voluntary basis. It was fine with this operation to assess hefty fines for consequences of unsafe operation.

The concern for time is evident in the comments 3, 4, and 6 and from the fact that the small companies had so few employees to carry out all their responsibilities.

Summary

The small construction companies participating in the interviews did not experience extensive OSHA inspection, had no fatalities, and no OSHA reportable injuries. Small construction firms have very limited resources or personnel to devote extensive time to acquire, provide or distribute health and safety resources. On the basis of the interview results, the following general conclusions are drawn with regard to small construction establishments.

1. Small construction establishments generally do not employ part-time or summer employees.
2. Small construction firms do not employ a full-time person with sole responsibility for safety.
3. Small construction establishments not are members of a construction trade association.
4. Safety information is most often provided by the owner.
5. The major sources of health and safety information (HSI) for small establishments are insurance carriers, building materials' suppliers, and trade associations.
6. The most common health and safety material used is a one page handout. The most common method of transmitting the safety information is verbal, usually through toolbox talks and one on one conversation. Posters appear to be the most common method of distributing the HSI to the employees.

Results of the Interviews Conducted With Large Construction Firms

- Large companies employ personnel whose sole responsibility is health and safety.
- Large firms receive health and safety materials from various sources (i.e., trade associations, insurance providers, professional safety associations, vendors, and OSHA).

- Health and safety training materials are also developed in-house.

- Large firms provide separate health and safety training and programs to different company groups (i.e., hourly workers, specialized hourly workers, and salaried employees).

- The main means of distributing health and safety information to company employees is through verbal communication.

- Use of computer aided (e-mail and Internet) health and safety information is practiced but limited.

Results of the Interviews Conducted with Trade Associations and Insurance Companies

- Health and safety information that is available from these sources can be divided into three areas:

    1. Literature

       Trade associations and insurance carriers provide various written information. Types which are the most common are safety bulletins, safety checklist, safety talks, and newsletters. Much of this literature relates to OSHA standards and accident reports.

    2. Training

       Trade associations provide an OSHA approved instructor or obtain an OSHA representative for the various association sponsored health and safety training programs.

    3. Safety Services

       Trade associations maintain a video/manual library for members. One association provides safety consultation, safety seminars, and safety expo.

IV. Conclusions and Recommendations

Conclusions

Conclusions were drawn from the analysis of the data from three sources: review of the literature, interviews of small companies and, interviews of service providers/large companies. The experience and knowledge of the investigators with health and safety practices in the mining industry, particularly practices in small mines, were also very useful in interpreting the interview data and results. The conclusions are presented under these three headings: (1) literature, (2) small construction companies, and (3) service providers and large construction firms.

Literature

1) The construction industry employs about 6% of the work force, and accounts for 16% of job-related fatalities. Over 1000 construction workers are killed on the job each year.

2) Construction fatalities result primarily from falls, electrocutions, and motor vehicle related incidents.

3) Strains and sprains are the leading cause of injuries or disabling conditions.

4) Excavation related OSHA violations are the most frequently cited violations, and account for the highest dollar penalty.

5) OSHA regulations regarding training content, duration of training, etc., are performance based rather than prescriptive, and this approach to regulating health and safety may contribute to the widespread informality toward health and safety among small construction firms.

6) The majority of construction firms are small (<10 employees) and their work activities are characterized by varying conditions and work tasks.

7) Health and safety problems and their potential solutions in small construction firms approximate those found in other small businesses, such as mines.

Small Construction Companies

1) None of the firms surveyed employ a person whose full-time responsibility is safety. Small construction firms typically do not maintain a full-time safety staff. Since safety staff are often very resourceful at both obtaining and distributing health and safety information, companies who are lacking in safety personnel may be at a disadvantage in obtaining relevant and up to date health and safety information.

2) The proportion of the interviewed construction companies who are members of trade associations/Chamber of Commerce is about 60 percent. In view of the comments from insurance carriers and trade association officials, this number appears to be unusually large. In general, small construction firms are not members of a construction trade association, and are at a competitive disadvantage regarding health and safety information. Their competitive disadvantage stems from the fact that companies that belong to or have contact with a construction trade association(s) regularly receive health and safety information, e.g., one-page fact sheets, tool-box talks, OSHA fatal facts, job-site kits, etc.

3) The most common mechanism for the distribution of health and safety information among construction workers is oral communication (work instructions and tailgate talks). This would suggest that small firms favor informal means and methods in both utilizing health and safety information and distributing it among their work force.

4) The majority of firms seem to be comfortable with using oral communication as the primary means of distributing health and safety information perhaps because it is less time intensive than other means. However, firms do tend to spend additional time on health and safety when new tasks and conditions warrant.

5) One of the 20 firms surveyed has been inspected by OSHA. This would suggest that small construction firms have very little interaction with government safety regulators. However, in situations where small firms are subcontractors for larger firms, the potential for receiving an inspection may increase.

6) There were no fatal injuries in the last three years in the companies interviewed, and all of the companies reported no OSHA reportable injuries during that time period. Of the 22 injuries that did occur, none were permanently disabling. Combining this information with the data that the rate of non-fatal days lost cases for establishments with more than 10 employees, suggests that small establishments may not be getting the necessary attention regarding health and safety problems.

7) Material suppliers, insurance carriers and trade associations are important sources of health and safety information for small construction firms. However, there is some evidence to suggest that all small operators are not taking advantage of these sources.

8) Computers (Internet and/or e-mail) are not used extensively in the companies interviewed. This would suggest that few small construction firms use computers for health and safety purposes. Also, the majority of firms do not appear to be aware that computers are an excellent source of acquiring health and safety information.

9) Firms acknowledge that acquiring and distributing health and safety information could be improved by a partnership approach through their own proactive efforts, and through the assistance of other agencies and organizations.

Service Providers and Large Construction Firms

1) Service providers, such as trade associations and insurance carriers will admit that they are well poised to offer health and safety information to members at large (both large and small companies). According to one service provider, in their membership, small construction establishments constitute a small component even through their membership fee is based on the volume of work. However, the expense of membership to a small contractor may be perceived as a barrier to long term membership in a trade association.

2) According to service providers, small construction companies have little, structured format to acquire and disseminate health and safety information. However, service providers do/will offer health and safety information to members/clients, which will aid the small construction company in acquiring health and safety information.

3) Large construction companies, as compared to small construction firms, are better structured and poised in regard to safety and health information acquisition and dissemination, primarily because large companies tend to employ personnel with full time safety responsibilities.

4) Large construction firms, as and when they employ subcontractors, will insist that these contractors either be prequalified or state approved regarding safety matters. This polity by large firms is believed to be a positive influence in encouraging smaller firms to establish and achieve higher standards of safety and health performance.

Recommendations

Recommendations of this pilot study are structured in two parts. In the first part, recommendations are provided for small construction companies, describing steps that such companies may wish to consider to enhance the effectiveness of their ability to acquire and distribute health and safety information. In the second part, recommendations are directed to NIOSH, describing mechanisms and methodologies to better define safety issues of small construction companies, and to evaluate ways and means for such companies to enhance safety performance through better acquisition and dissemination of health and safety information.

Recommendations for Small Construction Companies

The recommendations for small construction companies are provided in three categories:

(1) Measures that a small construction company could take immediately to begin enhancing their ability to acquire and distribute health and safety information.

(2) Measures that a small construction company may wish to examine as a potential means to improve their ability to acquire and distribute health and safety information.

(3) Measures involving computer resources that a company can acquire/use to improve their ability to acquire and distribute health and safety information.

Category 1 Recommendations:

1. Get on the mailing list(s) of construction health and safety resource providers. Regularly receiving such information places the small construction company owner in a better position to evaluate the types of materials available for improving the safety performance in an organization.

2. Establish membership in trade associations. Despite perceived cost barriers, such organizations offer numerous health and safety resources for the small construction industry.

3. Proactively quiz insurance carriers and suppliers to provide more health and safety resources and/or to provide information on how to better acquire such resources.

4. Develop a company procedure of setting aside a regular and specified time period to conduct health and safety discussions of relevant issues, and promote the use of such discussions/training as a valuable tool for employees to gain health and safety awareness.

5. Make available health and safety information such as posters and pamphlets more visible and accessible to employees in the workplace.

Category 2 Recommendations:

1. Consider participation in OSHA consultation services. Such services are available to employers and provide compliance and health and safety training information.

2. Take advantage of OSHA course offerings such as the OSHA Ten (10) or Thirty (30) Hour Construction Safety Training Course. Such training is offered on a regional basis and will provide relevant safety information to the small construction owner, and also provide compliance clarifications regarding "Certified, Qualified, and Competent Persons."

3. Consider networking with other small construction companies regarding health and safety issues. Despite business competitiveness, the desire to avoid injuries and illnesses is a common goal of all companies.

4. Contact industrial extension services (available in all counties) to seek health and safety information, and inquire about such services as The Pennsylvania Technical Assistance Program (PENNTAP), an information gathering service available to employers in Pennsylvania (www.penntap.psu.edu). Similar sources may be available in other states through their state government or land-grant universities.

Category 3 Recommendations:

1. Utilize the Internet for access to the OSHA Homepage (www.osha.gov) and (www.osha-slc.gov) for access to, and retrieval of all OSHA safety information.

2. Consider purchase of the OSHA CD ROM, and CD database of information similar to that found on the OHSA Homepage.

3. Utilize the health and safety information found in the Internet homepages of safety suppliers and distributors.

4. Utilize the health and safety information found in the Internet homepages of health and safety organizations such as National Institute for Occupational Safety and Health (cdc.gov/niosh/homepage.html), and health safety magazines.

5. Explore and introduce the use of Web TV and enhanced cell phones.

Clearly, Category 1 and 2 recommendations involve little additional expenditure of funds, where as Category 3 recommendations require development of computer resources and familiarity with using the Internet.

Recommendations for NIOSH

1. Expand the scope of this current study to encompass a larger database of participants to validate the conclusions drawn from this pilot study and to gather additional information that addresses the abilities of small construction companies to acquire and distribute health and safety information:

2. Assess the following mechanisms and methodologies to more effectively disseminate health and safety information to small construction companies.

   a) Establishment of a mailing list for small construction owners to receive OSHA information similar to that process used by the Mine Safety and Health Administration (MSHA), in which all mine operators regularly receive updated health and safety information and information regarding MSHA activities and initiatives.

   b) Conduct on-site, non-enforcement "Walk and Talk" safety meetings/ visitations with small construction companies. Potential benefits include but are not limited to:

      — rectification of possible unsafe actions/conditions
      — clarification of OSHA standards, policies, and procedures

   c) Conduct regional meetings directed at safety issues of small construction companies. Potential benefits include but are not limited to:

      — clarification/explanation of OSHA regulations
      — clarification of OSHA standards, policies, and procedures

d) Creation of safety training packages that could be distributed to small construction businesses on such topics as:

— developing effective safety programs
— basic principles of injury prevention
— safety management and loss control principles

e) Creation of informational packets for the small construction industry which address specific OSHA training requirements, and list possible resources such as:

— sources of OSHA-related information
— sources of training materials
— sources of safety supplies

f) Creation of (or make widely available) safety workplace checklists to be used by supervisory personnel of small construction companies. Such checklists have potential educational value to both the supervisor and the employee, and may prompt a supervisor to evaluate and or take corrective action on such items as: PPE, fall protection, trenching, scaffolding, hand tools, ladders, haz-com/labeling, and electrical.

g) Conducting workshops for small construction companies to learn/improve skills for using the Internet as a medium to acquire health and safety information.

h) Periodic safety workshops via satellite transmission on existing/emerging health and safety issues for small construction companies. Educational institutions may be a strategic location to host such meetings on a regular and/or needed basis.

3. Conduct future studies on the demographics of small construction company employees to evaluate safety training needs, and to develop a statistical database for the future design, development, and/or implementation of safety training material. As a minimum, factors such as age, education levels, years experience, types of prior training received and types of training materials desired must be considered.

4. Conduct an Injury/Illness Database Analysis to define and establish baseline information on injury types and severities occurring in the small construction industry. Defining exactly where, when, who, and the severity of injuries in the small construction industry would better enable researchers to analyze and or develop safety information that would address current injury types and issues. Such databases may include, but not be limited to occupation, activity at time of injury, years of experience in job type, time lost (severity) number of occurrences (frequency) and size of business establishment.

References

Anon., 1997, The Construction Chart Book, The U.S. Construction Industry and Its Workers, The Center to Protect Workers' Rights, Washington, D.C., 52 pp.

Rethi, L. L., and Burns, K. L., 1995, Comparison of Small Mines and Small Business: Health and Safety Barriers and Intervention Strategies, U.S. Bureau of Mines Information Circular 9423, Department of the Interior, Washington, D.C., 14 pp.

Russell, G. L., Radomsky, M. C., Ramani, R. V., and Flick, J. P., 1997, Safety Conditions in Small Underground Coal Mines, Final Report on Contract No. ME93011 to Bureau of Deep Mine Safety, Department of Environmental Protection, Commonwealth of Pennsylvania, Harrisburg, PA, 190 pp.

Titus, T. (1994-1996): Pennsylvania Work Injuries and Illnesses Annual. Commonwealth of Pennsylvania, Department of Labor and Industry, Bureau of Workers' Compensation.

U.S. Department of Labor, 1995, Training Requirements in OSHA Standards and Training Guidelines (Revised), OSHA 2254, Occupational Health and Safety Administration, Washington, D.C., 95 pp.

APPENDICES

APPENDIX A

Private Construction Safety Consulting Firms

1. **Millennium Corporation**
Certified Safety Professional Services
1295 W. Littleton Blvd.
Littleton, CO 80120

Millennium Corporation
Certified Safety Professional Services
220 Thunderbird, #1
El Paso, TX 79912

Millennium Corporation
Certified Safety Professional Services
2021 Jensen N.E.
Albuquerque, NM 87112

Primary Services:
Construction
Safety
Courses

2. **Occupational Safety Consultants, Inc.**
The OSHA Compliance Co.
125 Farewell Lane
Alpharett, GA 30202

Primary Service:
Compliance Inspections

Phone: 770-998-9896

3. **Triad Safety Consultants, Inc.**
135 Oak Street
Downingtown, PA 19335

Primary Service:
Regulatory Compliance and Training
Since 1985

Phone: 610-873-2000
http://www.awareco.com

4. **Burkhart Safety Consulting**
2011 Peninsula Dr., Suite 3
Erie, PA 16506

Primary Service:
Worker's Compensation and Safety Training

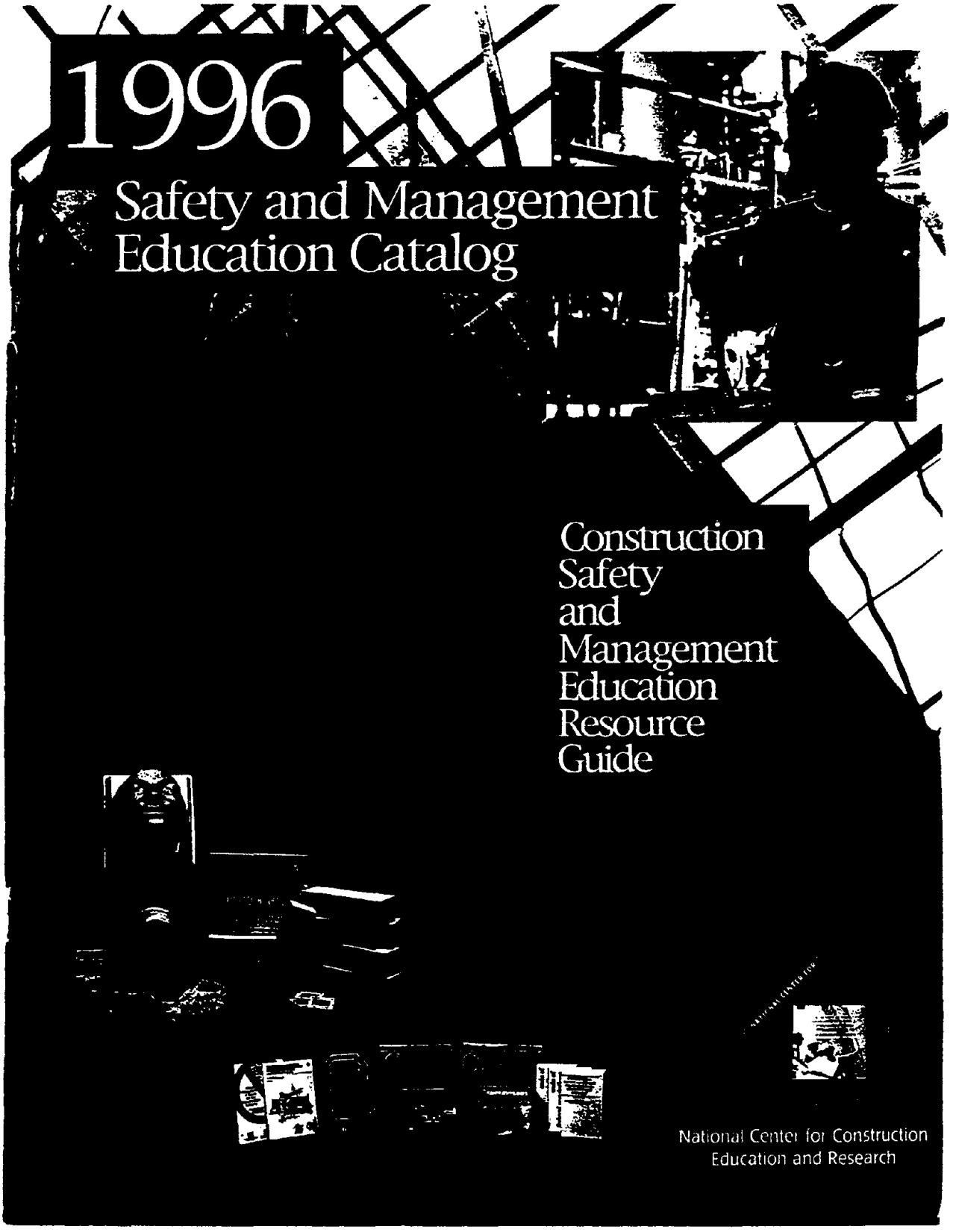
Phone: 814-835-4160

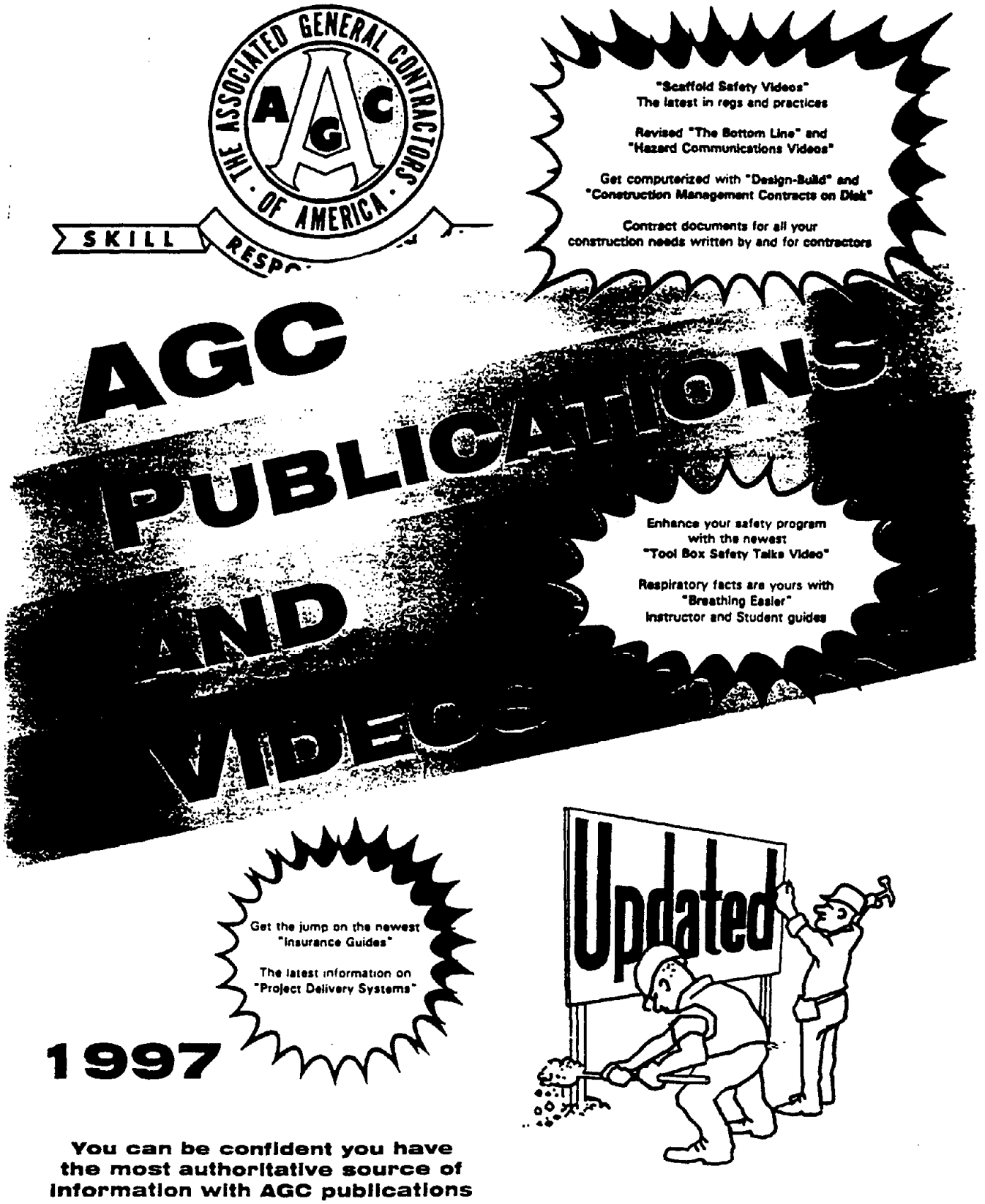
APPENDIX B

General Data Sources

Name	Address	Internet URL (If available)
Associated Builders & Contractors	1300 N. 17th Street Rosslyn, VA 22209	http://www.abc.org/
Associated General Contractors of America	1957 E. Street, NW Washington, DC 20006-5017	http://www.agc.org/
Bureau of Labor Statistics	Division of Information Services 2 Mass. Ave., NE Rm 2860 Washington, DC 20212	http://www.bls.gov/
Center for the Protection of Worker's Rights	111 Mass. Ave., NW Washington, DC 20001	not available
Construction Safety Council	4415 W. Harrison St., Suite 407 Hillside, Illinois 60162	http://buildsafe.org./ cschome.htm
Indiana University of PA	Safety Sciences Dept. 117 Johnson Hall Indiana, PA 15705	http://www.iup.edu
International Labor Organization	CH-1211 Geneva 22 Switzerland	http://www.ILO.org/
Millersville University	P.O. Box 1002 Millersville, PA 17551-0302	http://www.millersv.edu/
National Safety Council	1121 Spring Lake Dr. Itasca, IL 60143-3201	http://www.nsc.org/
OSHA	200 Constitution Ave. Washington, DC 20210	http://www.osha.gov/
Pittsburgh Research Center (PRC/NIOSH)	NIOSH P.O. Box 18070 Pittsburgh, PA 15236	http://www.cdc.gov/niosh/pit/

APPENDIX C


1996
Safety and Management Education Catalog
Construction Safety and Management Education Resource Guide
National Center for Construction Education and Research


THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA
AGC
SKILL
"Scaffold Safety Videos"
The latest in regs and practices
Revised "The Bottom Line" and
"Hazard Communications Videos"
Get computerized with "Design-Build" and
"Construction Management Contracts on Disk"
Contract documents for all your
construction needs written by and for contractors
AGC
PUBLICATIONS
AND
VIDEOS
Enhance your safety program
with the newest
"Tool Box Safety Talks Video"
Respiratory facts are yours with
"Breathing Easier"
Instructor and Student guides
Get the jump on the newest
"Insurance Guides"
The latest information on
"Project Delivery Systems"
1997
Updated
You can be confident you have
the most authoritative source of
information with AGC publications

Description	Member Price
"Breathing Easier" Tape I The Basics of Respiratory Protection (Instructor's Guide) NEW!	$25.00
"Breathing Easier" Tape I The Basics of Respiratory Protection (Student Guide) NEW!	$10.00
"Breathing Easier" Tape II Selecting, Fitting, and Maintaining Respirators (Instructors Guide) NEW!	$25.00
"Breathing Easier" Tape II Selecting, Fitting, and Maintaining Respirators (Student Guide) NEW!	$10.00
"I Love a Drug-Free Jobsite" - Press to Apply Vinyl. Red, Black, and Green, 2" - Set of 25	$4.00
"I Love a Drug-Free Jobsite" Poster (11" x 17")	$0.75
"No Drugs/No Alcohol" - Peel-off, Press to Apply Vinyl. Red, Black and Green, 2" - Set of 25	$4.00
"No Drugs/No Alcohol" Poster (11" x 17")	$0.75
"We Love a Drug-Free Jobsite" Poster (11" x 17")	$0.75
"We Love a Safe Jobsite". Press to Apply Vinyl Emblem. Red, Black and Green, 2" - Set of 25	$4.00
A Firm Footing: Pile Driving Safety Video	$85.00
A Part of the Process: Contractor's Guide to Process Safety Management Video	$35.00
A Safe Span: Bridge Construction Safety Video	$85.00
AGC Guide For A Basic Company Safety Program New!	$35.00

AGC Guide for Fall Protection Training New!	**$10.00**
AGC Guide to DOT Commercial, Drug, and Alcohol Testing Requirements New!	**$25.00**
AGC Guide To Employee Drug Testing	**$35.00**
AGC Guide to the OSHA's Inspection Process	**$15.00**
AGC Hard Hat "Safety Pays" Emblem. Peel-off, Press to Apply, Red, Black and Green, 2 1/2" - Set of 24	**$4.00**
AGC's Hazard Recognition Training Program Coming Soon!	**Options**
Avoid Hot Mix Hazards: Working Safely w/Hot Mix Video	**$85.00**
Avoid the Heat: Fire Prevention in Construction Video	**$85.00**
Back to Basics: Back Injury Prevention Spanish Video	**$85.00**
Back to Basics: Back Injury Prevention Video	**$85.00**
Blasting Log	**$2.00**
Breathing Easier: Respiratory Protection in the Construction Industry-Selecting, Fitting, and Maintaining Respirators Video	**$85.00**
Breathing Easier: Respiratory Protection in the Construction Industry-The Basics of Respiratory Protection Video	**$85.00**
Clearing The Air: Confined Space Video	**$85.00**
Construction Hazard Communications Employee Handbook	**$20.00**
Construction Safety Competency Training Course Materials New!	**$100.00**
Construction Standards For Excavation	**$10.00**
Controlling the Field: Jobsite Safety Inspection Video	**$85.00**
Controlling the Load: Crane Rigging Safety Video	**$85.00**
Emergency Telephone Number Signs	**$15.00**
Emergency Telephone Number Stickers	$1.50

Exposing the Facts: Lead Exposure in the Construction Industry Video	**$85.00**
Fall Protection Competency Course & Manual Coming Soon!	**$50.00**
Fall Protection Pocket Card	**$1.00**
Getting the Job Done Safely: Worker Orientation Video New!	**$85.00**
Handle With Care: Jobsite Hazardous Waste Safety Video	**$85.00**
Hazard Communication UPDATED!	**$105.00**
Hazard Communication "The System that Works" Spanish Video	**$85.00**
Hazard Communication Compliance Guide For Construction	**$20.00**
Heightened Awareness: Fall Protection in the Construction Industry Spanish Video New!	**$105.00**
Heightened Awareness: Fall Protection in the Construction Industry Video New!	**$105.00**
Hot Work: Welding and Cutting Safety Video New!	**$85.00**
In the Trenches: Excavation Safety for Workers Video New!	**$105.00**
Just The Facts: Accident Investigation Video	**$85.00**
Make the Right Move: Materials Handling Safety Video	**$85.00**
Making the Move: Trailering Construction Equipment Safely New!	**$105.00**
Manual of Accident Prevention in Construction New!	**$105.00**
Mine Safety & Health Standards (30 CFR) New!	**$25.00**
On Solid Ground: Safe Excavation and Trenching Video	**$85.00**
On The Go: Forklift Safety Video New!	**$85.00**

On Your Guard: Power Tool Safety Video	**$85.00**
OSHA Definitions New!	**$25.00**
OSHA Field Inspection Reference Manual (FIRM) New!	**$30.00**
OSHA Field Operations Manual (FOM)	**$30.00**
OSHA Safety & Health Standards for Construction (1926 & 1910) New!	**$27.50**
Pave Your Way to Safety: Concrete Paving Safety Video	**$85.00**
Play it Safe: Crane Safety Video	**$85.00**
Putting it All Together: Scaffold Safety Video New!	**$105.00**
Ready or Not: OSHA's Inspection and Citation Process Video	**$85.00**
Rolling Tower: Mobile Scaffold Safety Video NEW!	**$105.00**
Safety: The Bottom Line Video UPDATED!	**$50.00**
Sound Advice: Hearing Conservation on the Jobsite Video New!	**$85.00**
Step-by-Step: Job Safety Analysis Video	**$85.00**
Success at The Top: Stairway and Ladder Safety Video	**$85.00**
Supervisor's Report of Accident Investigation	**$4.50**
Swing Stage Scaffolds: Raising Safety to a New Level Video NEW!	**$105.00**
Take Charge: Work Safely with Temporary Electricity Video	**$85.00**
Take Control: Lockout/Tagout Video	**$85.00**
Taking the Lead on Lead: Understanding OSHA's Lead Standards Video New!	**$85.00**
The 100 Most Frequently Cited OSHA Construction Standards in 1993: A Guide for the Abatement of the Top 25 Associated Physical Hazards	**$15.00**

The Best Strategy: Personal Protective Equipment Spanish Video New!	**$85.00**
The Best Strategy: Personal Protective Equipment Video New!	**$85.00**
The Drug-Free Workplace Act Compliance Guide For Contractors	**$35.00**
The Road to Safety: Overview of DOT Commercial, Drug and Alcohol Testing Requirements Video New!	**$95.00**
The Sky's the Limit: Scissor and Aerial Platform Safety Video	**$85.00**
The Winning Ticket: Housekeeping On Job Spanish Video	**$85.00**
The Winning Ticket: Housekeeping On Job Video	**$85.00**
Think Again: Substance Abuse on the Jobsite Video	**$85.00**
Think Ahead: Driver's Safety Video New!	**$105.00**
What Goes Up Must Come Down: Demolition Safety Video	**$85.00**
Work Zone Ahead: Highway Work Zone Safety Video New!	**$105.00**
Zero Accident Stickers - Set of 50	**$12.50**

CONSTRUCTION
SAFETY COUNCIL

Training

&

Services

CONSTRUCTION SAFETY COUNCIL

OVERVIEW

Each day at least three construction workers die on the job in the U.S. Construction accidents place a multi-billion dollar drain on the nation's economy. The Construction Safety Council's mission is to reduce the incidence of these tragic and costly accidents in the construction industry. Through training and education, research, consultant referral, dissemination of publications and audio-visual resources, the staff of construction safety professionals at CSC are dedicated to reducing injuries and illnesses. The articles of incorporation for the Construction Safety Council (CSC) clearly outline the group's mission: "... to promote, encourage and foster safety practices in the construction industry; to educate and train workers and to promote and encourage educational research and scientific activity in safety matters relating to the construction industry."

CSC is a not-for-profit corporation organized as an educational organization under section 501(c)(3) of the Internal Revenue Code. The volunteer board of directors represent different segments of the construction industry. Funding for the Council is made possible by grants, donations, tuition charges and through cooperative agreements between labor unions and union contractors.

SERVICES

TRAINING AND EDUCATION

CSC instructors provide safety training to both construction employers and employees. Classes are taught at the training center in Hillside, IL and at "outreach" locations. Subject matter for the classes ranges from Excavation Safety and Confined Space Entry to OSHA 10 and 30 hour construction safety and health classes.

CSC is currently working with union apprenticeship programs to upgrade the safety training provided in those programs. Many unions currently require apprentices to have an OSHA 10 Hour card prior to attaining journeyman status and CSC has provided those training programs.

NEWSLETTER

CSC publishes *Construction Safety News*, a quarterly newsletter which is distributed to member contractors, trade associations, OSHA regional offices and the OSHA Training Institute. The newsletter is produced in-house with some articles submitted by recognized experts in the field of occupational safety and health.

ANNUAL CONFERENCE

CSC conducts an annual Construction Safety Conference. This three day conference offers short "mini-sessions", half and full day training programs and an all day construction insurance symposium. A one day construction Safety Expo, displays the latest in products and services. The conference is a great resource for getting caught up on the latest requirements and safety services and technologies.

VIDEO TAPE LIBRARY

CSC maintains an extensive library of over 100 video tapes. These tapes provide safety information about all aspects of construction, from excavations to roofing. Other tapes tackle issues like drug and alcohol abuse and stress.

CONSULTANT REFERRAL

Recognizing that some contractors require assistance which may require experts with specialized knowledge and certification (such as a registered professional engineer, certified industrial hygienist, etc.), or a safety consultant on a long term basis, CSC has collected the credentials of consultants who perform such services. A CSC staff person will assess the contractors requirements and facilitate an introduction with an appropriate consultant. CSC does not charge a fee for consultant referral.

SAFETY ASSISTANCE

The CSC staff is dedicated to providing information on construction safety and health topics. Contractors who have questions regarding OSHA standards, safe work practices or are looking for ways to improve a safety program are encouraged to call CSC for assistance. Most questions can be answered over the phone, however, if a contractor needs further assistance CSC can provide names and phone numbers of industry professionals who can help.

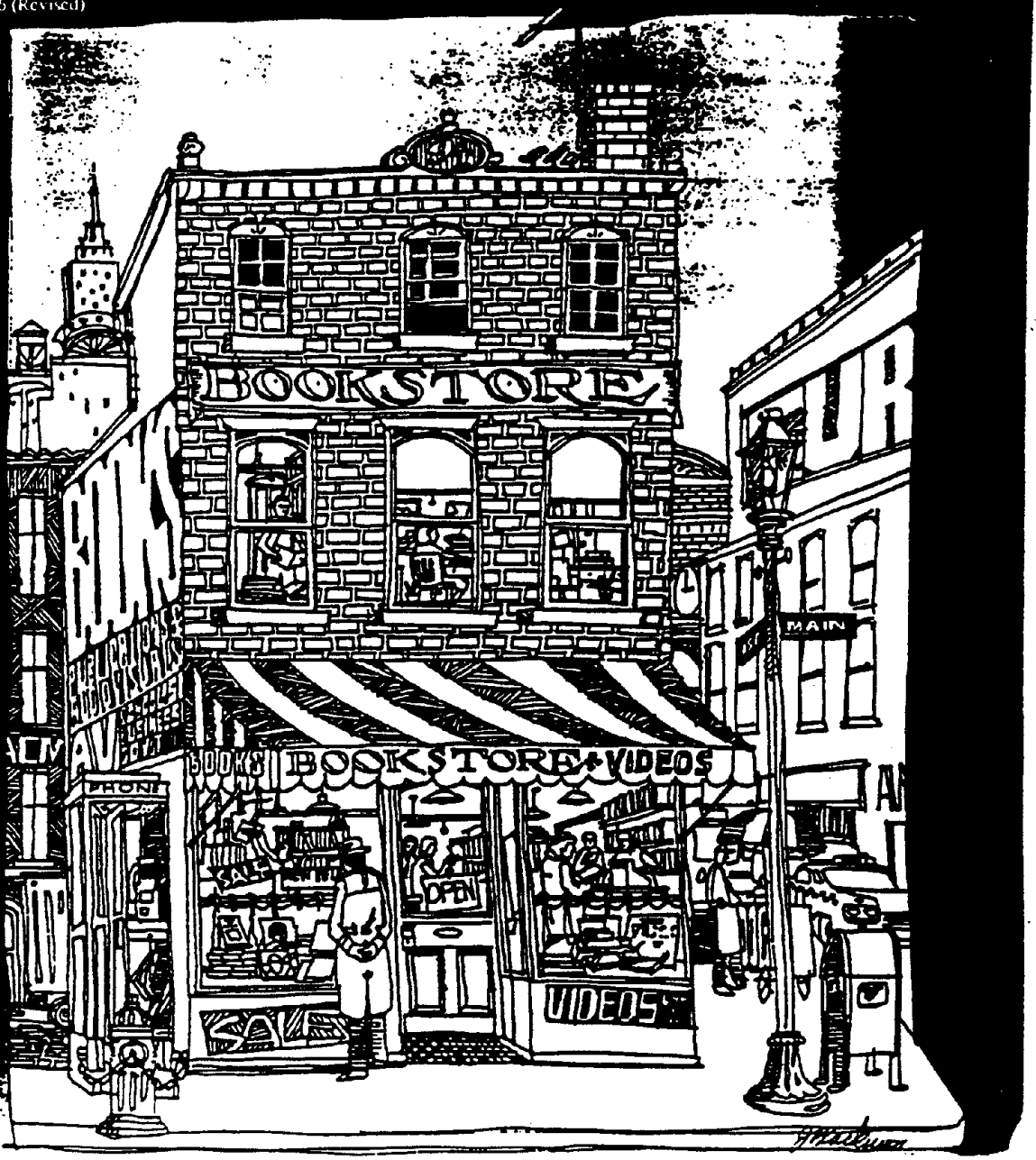
For more information call CSC at (708)449-0200 or (800) 552-7744 (outside the 312/708 area codes).

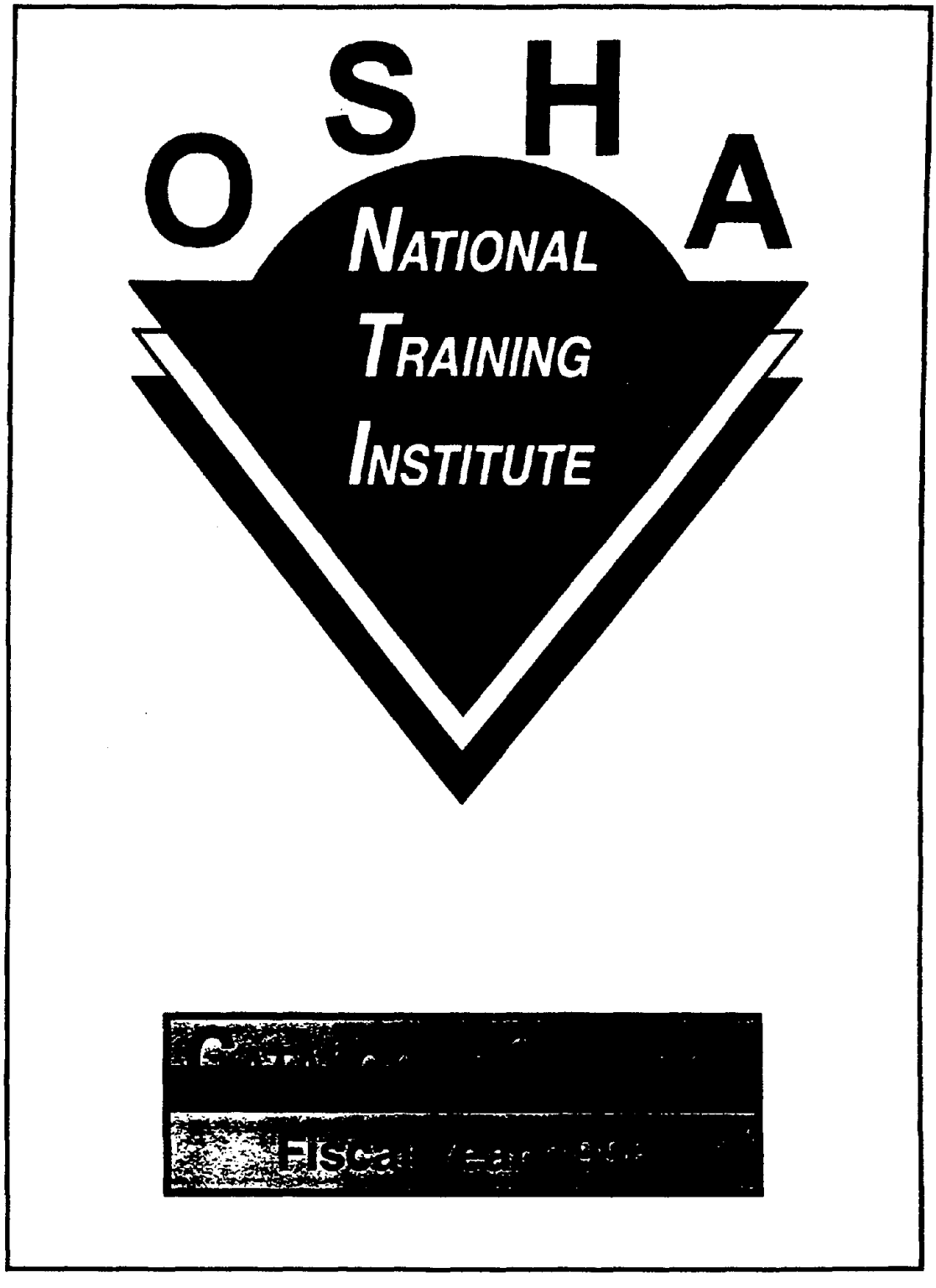
Penalty Reduction for Size:	OSHA may grant reductions of up to 60% for small firms.
Penalty Reductions for Good Faith:	OSHA may grant a 25% penalty reduction if a firm has an effective safety and health program.
Rules with Flexible Requirements for Small Firms:	Trenching around Residential Home Foundations Lead in Construction Emergency Evacuation Plans Process Safety Management
Consultation Program:	Over the last five years, OSHA's on-site consultation services conducted more than 100,000 free visits, helping employers correct 800,000 hazards. About 40% of these visits were with firms with fewer than 50 employees. Run by state government agencies, this service is available on request to help smaller more hazardous employers find out about potential hazards at their worksites and improve or implement effective worksite safety and health programs.
Training Grants:	About $500,000 has been awarded to non-profit groups to develop programs to assist small businesses establish safety and health programs. In addition, $200,000 was awarded recently to train small logging firms.
VPP Mentoring:	OSHA and the Voluntary Protection Programs Participants Association (VPPA) operate a mentoring program to help small firms applying for entry into VVP refine their safety and health programs. The VPP is OSHA's program to recognize a firm's safety and health achievements and excellence. Applicants are matched with a VPP site that shares its experience, knowledge, and safety and health expertise.
State Plans:	Twenty-five states and U.S. territories operate their own, federally approved occupational safety and health programs. In these states, most OSHA enforcement is conducted by the state. These state programs must be at least as effective as the federal program, but need not be identical. Many offer additional programs of assistance to small businesses.
Training Institute Education Centers:	Twelve education centers around the country offer training to employers and employees in complying with OSHA rules. For a list of centers and courses see OSHA's home page on the Internet, or call the OSHA Training Institute at (847) 297- 4810.
Pro-Bono Training:	The American Industrial Hygiene Association, the American Society of Safety Engineers, and others are joining with OSHA to provide training to small employers. For more information contact Ms. Cathy Cronin at the OSHA Training Institute at (847) 297-4810.
CD-ROM:	OSHA's CD-ROM is the Government Printing Office's #1 selling CD-ROM product. It includes a variety of OSHA information such as standards and interpretations. Order #729-13-00000-5; Cost $79.00 annually (4 discs quarterly); $28.00 for a single copy. For more information call Government Printing Office at 202-512-1800.
OSHA Home Page:	Internet access to OSHA rules and assistance. http://www.osha.gov/
Expert Systems:	Unique technology-based assistance tools to help employers understand and comply with technical rules like OSHA's cadmium standard and asbestos standard available on the World Wide Web.
U.S. Small Business Advisor:	One-stop Internet access to regulatory information. http://www.business.gov

OSHA Publications and Audiovisual Programs

U.S. Department of Labor
Occupational Safety and Health Administration

OSHA 2019
1996 (Revised)




OSHA
NATIONAL
TRAINING
INSTITUTE

U.S. Department of Labor
Occupational Safety & Health Administration

97-04

The Osha Consultation Service

- **Record Type:** Fact Sheets
- **Subject:** The Osha Consultation Service
- **Information Date:** 01/01/1997
- **Abstract:** Using a free consultation service largely funded by the U.S. Occupational Safety and Health Administration (OSHA), employers can find out about potential hazards at their worksites, improve their occupational safety and health management systems, and even lth hazards, adopting a exemption from routine OSHA inspection.
- **Fact Sheet:** 97-04

U.S. Department of Labor
Program Highlights

Fact Sheet No. OSHA 97-04

THE OSHA CONSULTATION SERVICE

Using a free consultation service largely funded by the U.S. Occupational Safety and Health Administration (OSHA), employers can find out about potential hazards at their worksites, improve their occupational safety and health management systems, and even qualify for a one-year exemption from routine OSHA inspection.

The service is delivered by state governments using well-trained professional staff. Most consultations take place on-site, though limited services away from the worksite are available.

Primarily targeted for smaller businesses, this safety and health consultation program is completely separate from the OSHA inspection effort. In addition, no citations are issued or penalties proposed.

It's confidential, too. Your name, your firm's name, and any information you provide about you workplace, plus any unsafe or unhealthful working conditions that the consultant uncovers, will not be reported routinely to the OSHA inspection staff.

Your only obligation will be to commit yourself to correcting serious job safety and health hazards -- a commitment which you are expected to make prior to the actual visit and carry out in a timely manner.

GETTING STARTED: Since consultation is a voluntary activity, you must request it. Your telephone call or letter sets the consulting machinery in motion. The consultant will discuss your specific needs with you and set up a visit based on the priority assigned to you request, your work schedule, and the time needed for the consultant to prepare adequately to serve you. OSHA encourages a complete review of you firm's safety and health situation; however, if you wish you may limit the visit to one or more specific problems.

OPENING CONFERENCE: When the consultant arrives at your worksite for the scheduled visit, he or she will first meet with you in an opening conference to briefly review the consultant's role and the obligation you incur as an employer.

WALK-THROUGH: Together, you and the consultant will examine conditions in your workplace. OSHA strongly encourages maximum employee participation in the walk-through. Better informed and more alert employees can more easily work with you to identify and correct potential injury and illness

hazards in your workplace. Talking with employees during the walk-through helps the consultant identify and judge the nature and extent of specific hazards.

The consultant will study your entire workplace or the specific operations you designate and discuss the applicable OSHA standards. Consultants also will point out other safety or health risks which might not be cited under OSHA standards, but which nevertheless may pose safety or health risks to your employees. They may suggest and even provide other measures such as self-inspection and safety and health training you and your employees can apply to prevent future hazardous situations.

A comprehensive consultation also includes: (1) appraisal of all mechanical and environmental hazards and physical work practices; (2) appraisal of the present job safety and health program or the establishment of one; (3) a conference with management on findings; (4) a written report of recommendations and agreements; and, (5) training and assistance with implementing recommendations.

CLOSING CONFERENCE: The consultant will then review detailed findings with you in a closing conference. You will learn not only what you need to improve, but what you are doing right, as well. At that time you can discuss problems, possible solutions and an abatement period to eliminate or control any serious hazards identified during the walk-through.

In rare instances, the consultant may find an "imminent danger" situation during the walk-through. If so, you must take immediate action to protect all employees. In certain other situations, those which would be judged a "serious violation" under OSHA criteria -- you and the consultant are required to develop and agree to a reasonable plan and schedule to eliminate or control that hazard. The consultants will offer general approaches and options to you. They may also suggest other sources for technical help.

ABATEMENT AND FOLLOW THROUGH: Following the closing conference, the consultant will send you a detailed written report explaining the findings and confirming and abatement periods agreed upon. Consultants may also contact you from time to time to check your progress. You, of course, may always contact them for assistance.

Ultimately, OSHA does require hazard abatement so that each consultation visit achieves its objective -- effective employee protection. If you fail to eliminate or control identified serious hazards (or an imminent danger) according to the plan and within the limits agreed upon or an agreed-upon extension, the situation must be referred from consultation to an OSHA enforcement office for appropriate action. This however, has occurred only rarely in the past.

BENEFITS: Knowledge of your workplace hazards and ways to eliminate them can only improve you own operations -- and the management of your firm. You will get professional advice and assistance on the correction of workplace hazards and benefits from on site training and assistance provided by the consultant to you and your employees. The consultant can help you establish or strengthen an employee safety and health program, making safety and health activities routine considerations rather than crisis-oriented responses.

SHARP: In many states, employers may participate in OSHA's "Safety and Health Achievement Recognition Program" -- SHARP. This program is designed to provide incentives and support to smaller, high-hazard employers to develop, implement and continuously improve effective safety and health programs at their worksite(s). SHARP provides for recognition of employers who have demonstrated exemplary achievements in workplace safety and health by: receiving a comprehensive safety and health consultation visit, correcting all workplace safety and health hazards, adopting and implementing effective safety and health management systems, and agreeing to request further consultative visits if major changes in working conditions or processes occur which may introduce new hazards. Employers who meet these specific SHARP requirements may be exempted from OSHA programmed inspections for a period of one year.

THE ON-SITE CONSULTANTS WILL: --help you recognize hazards in your workplace; --suggest general approaches or options for solving a safety or health problem; --identify kinds of help available if you need further assistance; --provide you with a written report summarizing findings; --assist you to develop

or maintain an effective safety and health program; --provide training and education for you and your employees; --recommend you for a one-year exclusion from OSHA programmed inspections, once program criteria are met.

THE ON-SITE CONSULTANTS WILL NOT: --Issue citations or propose penalties for violations of OSHA standards. --Report possible violations to OSHA enforcement staff. --Guarantee that your workplace will "pass" an OSHA inspection.

State OSHA consultation programs generally are listed in the state government section of the telephone directory under "Department of Labor and Industry." A complete listing of all OSHA consultation programs may be found in the OSHA booklet #3047 (1996 revised), "Consultation Services for the employer," and on the OSHA Home Page, http://www.osha.gov, under "Directory."

###

This is one of a series of fact sheets highlighting U.S. Department of Labor programs. It is intended as a general description only and does not carry the force of legal opinion. This information will be made available to sensory impaired individuals upon request. Voice phone: (202)219-8151.

APPENDIX G

Synopsis of Small Construction Companies Interviewed

Participant #1

A small electrical contractor located in central Pennsylvania. The company employs eight field electricians, one owner, and several secretaries. The company's primary business includes all types of commercial and residential wiring. The company has been in business for 26 years.

Participant #2

A small roofing contractor that employs six contract roofers. The company is located in central Pennsylvania, and provides roofing for both residential and commercial customers. The company has been in business for ten years.

Participant #3

A small construction company that provides both residential and commercial plumbing and electrical services. The company is located in central Pennsylvania. The company consists of one owner, and one to two other employees, depending on the amount of business contracted. The company has done electrical work at sites that require HAZMAT training. The company has been in business for approximately five years.

Participant #4

A small contractor that provides general contracting for residential construction. The company is located in central Pennsylvania. It employs four persons, and has been in business for over ten years.

Participant #5

A small industrial, commercial, and residential roofing and sheet metal contractor (five to ten employees) located in north central Pennsylvania. This company has been in business for approximately fifty years.

Participant #6

A small general contracting company (three-five employees) that performs residential construction and remodeling services. They are located in north central Pennsylvania. This company has been in business for approximately fifty years.

Participant #7

A small light commercial and residential construction company (four to six employees) located in north central Pennsylvania. This company has been in business for approximately twenty years.

Participant #8

A small landscaping company consisting of one owner and two part-time employees. The company is located in north central Pennsylvania.

Participant #9

Participant # 9 is a company of six employees. This firm has been in continuous business for over twenty (20) years. This company is involved in both residential and commercial building. More extensive plumbing and electrical is sub-contracted to others.

Participant #10

Participant #10 is a company of three employees. It would be considered a general builder of both residential and commercial buildings. This firm has been in business for over ten (10) years

Participant #11

Participant #11 is a company of seven employees. This firm specializes in constructing custom residential homes, roofing, decks, and masonry work. This company has been in continuous business for over fifteen (15) years.

Participant #12

Participant #12 is a company of ten (10) employees. This company specializes in complete residential and commercial remodeling. They have the expertise to do all facets of remodeling from masonry, plumbing to electrical installation.

Participant #13

Participant #13 is a company of four (4) employees. This firm is involved in both residential and commercial building. They build both new homes and remodel existing houses. They have been in business for over thirty (30) years.

Participant #14

Participant #14 is a company of two (2) employees. It would be considered a general builder of both residential and commercial buildings. This company constructs new homes for the majority of their business. It has been in existence for over fifteen (15) years.

Participant #15

A small plumbing, heating, and air conditioning contractor located in western Pennsylvania. The company has a total of nine employees, which includes the two owners, and has been in business since 1992. It specializes in residential plumbing and heating, and some commercial air conditioning.

Participant #16

A small residential contractor specializing in plumbing and heating. There are a total of six employees, and the business has been in operation since 1973. The present owners, however, purchased the business in 1986. The company also does some small commercial contracting.

Participant #17

This company has been operating under the same name since 1920, started by the grandfather of one of the present owners. It is a small roofing and spouting contractor with eight employees.

Participant #18

Participant #18 is an indoor/outdoor residential remodeling contractor. It has ten employees, which includes the two owners. It has been in business since 1986 under its present name, and had operated another remodeling contracting business previous to this one.

Participant #19

This company is a small remodeling contractor that specializes in siding and aluminum awnings. It has been in business for over 35 years and employs six full-time workers, and two part-time office personal. The present owner had originally been a co-founder of the company, and bought out his partner approximately 15 years ago.

Participant #20

This company is a small building contractor specializing in residential and commercial roof repair and construction. It is located in southwestern Pennsylvania and employs three people.

Appendix H

Synopsis of Supplemental Data Sources Interviewed

Large Construction Firms

Participant #1

Participant #1 is a large construction firms located in central Pennsylvania. This firm has been in business for over 45 years. They employ approximately 500 people. There primary business activity is heavy construction, such as road and bridge building, site preparation, etc. This firm also owns and operates two quarries.

Participant #2

Participant #2 is a large construction firm located in eastern Pennsylvania. This firm employs approximately 725 people. They primary business activities include: utility placement, site preparation, road and bridge construction.

Insurance Carriers

Participant #3

Participant #3 is an international insurance firm which operates in nearly 50 countries worldwide. The lost control specialist interviewed is based in York Pennsylvania. This office writes workers' compensation insurance for approximately 50 small construction firms.

Participant #4

Participant #4 specializes in liability insurance for small companies and contractors. The agency is located in west central Pennsylvania.

Participant #5

Participant #5 is located in southwestern Pennsylvania. It provides workers' compensation coverage to small, independent construction companies. The majority of their clients range in size from three to seven employees.

Trade Associations

Participant #6

Participant #6 is one of 80 local/regional chapters of a national trade association representing merit shop contractors. This local chapter represents approximately 160 members located in central Pennsylvania.

Participant #7

Participant #7 is a large trade association representing organized heavy construction contractors. It is located in western Pennsylvania.

Building Material Supplier

Participant #8

The building material supplier interviewed operates three stores in central Pennsylvania. Each store sells building materials to small contractors through its contractor sales department.

Large Construction Company
Central Pennsylvania

Background

A meeting between the Safety Director of this large construction firm and PSU Mining Engineering representatives was held On August 15, 1997. The purpose of the meeting was to discuss health and safety information acquisition and dissemination. This company is involved in heavy construction and maintains offices in six other locations throughout central and north central Pennsylvania. Present services include: DOT approved aggregate material production, utility placement, site development, concrete work, bridge construction and asphalt paving.

This firm employs approximately 500 employees during the peak construction month of April through November. The ratio of supervisors to hourly workers is approximately 1 to 15. They employ one safety director and a field safety liaison, as well as a personnel director who oversees worker's compensation claims, and is responsible for accident data gathering and analysis.

The safety director of the company is responsible for providing health and safety information to employees, although the field safety liaison also provides health and safety information through one-on-one interactions. Three different safety committees (Materials production, transportation, and mining) also disseminate health and safety information.

Acquisition of Health and Safety Information

Knowledge regarding safety and health issues is gained primarily through trade associations, OSHA, and their insurance carrier. An OSHA instructor, and utility representatives also used upon occasion to learn about specific health and safety topics, such as, lead poisoning, fork lifts, scaffolding, asbestos, etc.

The primary health and safety materials used by the company include vendor and in-house videos. According to the safety director, the in-house videos have been very effective in getting the employees to relate to safety, since they readily identify with their environment, images of their equipment, themselves, and especially their fellow workers.

This company maintains a formal safety and health training program. This program is conducted during the production, off-peak, Winter months. The curriculum consists of the ten topics, such as fall protection, lockout-tagout, hazardous communication, etc. These topics are covered during a 4 hour period. The classes are open to all hourly employees on a voluntary basis; however, supervisory personnel are required to attend. This formal training program provides the instructional foundation for the bulk of health and safety information dissemination.

Dissemination of Health and Safety Information

Health and safety information is distributed primarily through incorporation into routine work instructions, tool-box talks, and paycheck stuffers. The tool-box talks are conducted by the leadership personnel who have attended the four hour, annual course. Posters, and safety stickers are also used to get health and safety information out, but to a lesser degree than the methods already discussed. In addition, bridge builders, heavy equipment operators, and others in skilled position personnel, receive specialized training on a yearly basis.

Even though this is a large firm, Internet access for the purpose of health and safety information dissemination was still being developed, although e-mail and FAX is being used for health and safety purposes.

According to the safety director the local chapter trade association of Associated Builders and Contractors (ABC), as well as other trade associations are rich sources of health and safety information. Insurance companies are also sources of valuable health and safety resources. Repetition of the safety message was mentioned as an effective means of health and safety information distribution, especially through tail-gate/ tool-box talks, payroll stuffers, and company newsletters.

Large Construction Company
Eastern Pennsylvania

Background

A telephone interview between the training coordinator of a large construction firm located in the suburban Philadelphia area, and a PSU Mining Engineering representative was held On July 8, 1997. The purpose of the interview was to discuss health and safety information acquisition and dissemination at this construction firm. This company is involved in the heavy construction sector. Present services include: aggregate material production, utility placement, site development, concrete work, bridge construction and asphalt paving. In addition to site construction, and road building, they also operate one limestone quarry and a granite quarry.

This firm employs approximately 725 employees during the peak construction month of April through November. Safety staff employees include a full time safety director, safety manager, training manager, and field safety monitor. All of these individuals provide health and safety information to employees in one way or another. Project foreman also disseminate health and safety information on a daily basis.

Acquisition of Health and Safety Information

Knowledge regarding safety and health issues is gained primarily through the American Society of Safety Engineers (ASSE), OSHA, MSHA, The National Safety Council (NSC), the insurance carrier, video vendors, and trade associations. Notable trade associations include: the Associated Builders and Contractors (ABC), Pennsylvania Utility Contractors Association (PUCA), and the National Utility Contractors Association (NUCA). Safety staff at develop the majority of health and safety training materials, including: (1) slides, videos, tool-box visuals, demonstrations, and structured discussions. The primary health and safety materials acquired from outside the company include vendor videos, accident statistics from the NSC and insurance carriers, and various one page handouts fro utility associations.

This firm does maintain a formal safety and health training program. This program consists of (1) daily training in the field by foreman, (2) safety department led training for field employees, (3) "Winter Training", (4) "monthly Manager's Meeting."

Dissemination of Health and Safety Information

Health and safety information is distributed primarily through tool-box talks, and "safety flash faxes." This company also uses a mobile training van to bring structured training into the field. Internet and e-mail are used for health and safety information dissemination, although the full extent of use is not known at this time.

Associated Builders & Contractors, Inc. (ABC)
Central Pennsylvania Chapter

Background

On September 10, 1997, representatives from PSU met with the Executive Director of ABC, Central Pennsylvania Chapter. The Pennsylvania of ABC is one of the 80 local chapters of the national ABC, headquartered in Rosslyn Virginia. Like its national chapter, the local ABC represents and promotes "merit" contractors. Merit contractors are nonunion firms who believe that bid winning should be based entirely on the ability to perform the work in a quality and cost effective manner, regardless of union or open shop status. The ABC facility is located in Milesburg, PA. ABC represents approximately 160 members, who are located in about 28 different counties. Members include contractors, suppliers, and associate members .

Like the national ABC, the local chapter provides its members with a wide variety of resources and services. Services range from increased networking, legal assistance, legislative lobbying, to safety services, and education and training. In terms of health and safety information available to members at the local level, ABC provides its members with literature, training, and safety services.

Literature

Literature includes weekly tool-box talk sheets, a newsletter, and a "Friday Fax." Tool box talk sheets cover various safety topics such as substance abuse, lock-out, etc. They are designed to be used as a job aid for use by the supervisor or owner when tool box talks are conducted. The newsletter is published monthly, and contains a variety or articles addressing legislative, safety, and business issues. The "Friday Fax" is an informational sheet addressing construction business issues. The sheet is sent every Friday morning to all members. Other literature includes, OSHA regulation manuals, and a job-site startup kit. This kit contains a variety of practical handouts, posters, checklists, forms, stickers, etc. A significant amount of the material is required at the job site according to OSHA regulations. The kit can be purchased by members at the cost of production.

Training

The Central ABC chapter offers its members a number of training courses. Recent Topics include: (1) fall protection, (2) lockout/tagout, (3) high voltage, (4) scaffolding, (5) the 10 and 30 hour OSHA course on construction safety, and (6) management seminars. The courses are offered in various locations throughout central Pennsylvania. The local ABC also provides its members with contacts and information regarding skills training courses.

Safety Services

Safety services include a loan/purchase video/manual library, safety consultations, an annual safety exposition, and two safety award programs. The video/manual library is extensive. It contains a wide variety of titles addressing construction safety, including substance abuse and hazardous materials. Safety consultations are conducted by the executive director of ABC, who provides one-on-one assistance in solving safety and health issues. The annual safety exposition is held at the local Vo-tech. It attracts about eighty participants, and it features exhibits of safety equipment, as well as presentations on construction safety topics.

Improving Health and Safety Resource and Their Dissemination

In response to a question regarding improving health and safety resources and their dissemination, the executive director of ABC indicated that a major challenge is getting CEOs to support and commit to safety initiatives. She noted that small contractors are at a significant disadvantage versus large contractors in acquiring health and safety resources. In addition, she hoped that she could develop some videos to motivate CEOs toward greater safety commitment.

Constructors Association of
Western Pennsylvania
1201 Banksville Road
Pittsburgh, PA 15216

Background

On October 8, 1997, representatives from PSU met with the Executive Director of the Construction Association of Western Pennsylvania (CAWP). The CAWP is a local chapter of the national Associated General Contractors of America (AGCA), headquartered in Washington, D.C.

The CAWP facility is located in Pittsburgh, PA. CAWP represents approximately 70 members, located in counties west of the Susquehanna river. Members include contractors, suppliers, and associate members. Member companies employ an average of 50 to 100 employees. Typical of the construction industry, almost all of the hourly workers are laid off during the Winter months. The main purpose of this organization is to provide services related to labor relations to construction firms. Safety resources distribution and safety training represent a secondary service.

CAWP does not develop any safety training materials; however, they employ an individual with a professional safety background. This person is responsible for locating resources, and coordinating their distribution to members, as well as arranging CAWP sponsored training sessions.

Literature

Literature developed and/or distributed by CAWP includes a Safety Bulletin, and safety inspection checklists. The bulletin is mailed to members on a regular basis and contains a short safety message on a topic of interest. A popular reoccurring theme is OSHA's most frequently cited violations. The bulletin always contains a recommendation on how the information should be used, and how it should be distributed to employees. The safety checklists address heavy construction topics, such as, excavations, cranes & derricks, etc. A unique feature of the checklists is that each subject is referenced with the appropriate OSHA standard.

Training

The Central ABC chapter offers its members several free training courses. One course is called the "Spring Tune-up." This course addresses OSHA safety regulations. Participants include supervisors of member companies. The instructor is usually an OSHA representative. Other safety courses address first aid, CPR, and competent person training.

Safety services

CAWP offers its members a free loan video library. Currently, the library contains about 27 titles, 22 which address safety, and 5 which address management topics. Additional titles that are of interest to members will be located by CAWP and added to the library.

Improving Health and Safety Resource Acquisition and Dissemination

The executive director of CAWP believes that the majority of construction firms get health and safety information and resources from both trade associations and insurance carriers. A trade association of note in the Pittsburgh area that offers safety services in addition to education and training resources is the Master Builders Association. This association represents residential construction.

In response to a question regarding improving health and safety resources and their dissemination, the executive director of ABC indicated that a major challenge is finding individuals with expertise who would be willing to instruct employees in safety matters. In his words, the "major bottleneck is in the delivery system." Aside from that problem, companies can improve acquisition by joining a trade association, and by attending trade association sponsored safety seminars.

In terms of distribution, the Executive Director felt that both tool-box talks and paycheck stuffers can be somewhat effective; however, there is a need to improve on both of these mediums. Talking to workers one-on-one may be potentially good, but effectiveness depends on the competency of the person doing the talking. Supervisors are not necessarily good communicators. They must be taught these skills. In this vein, the Executive Director felt that perhaps colleges could play a role in improvement of distribution by offering courses to safety professionals at trade associations, and perhaps to supervisors of member companies.

Large International Insurance Company

Background

On September 25, 1997, a representative from PSU contacted a loss control specialist employed at a large insurance company with headquarters in Europe. The insurance group operates in nearly 50 countries worldwide. The company provides protection and investment management solutions to customers in the personal, commercial and corporate market segments. The specialist contacted for the phone interview is based in York, PA.

Acquisition and Dissemination of Health and Safety Resources

The representative was asked a series of questions based on the interview guide developed for the study. He remarked that typically, firms of 10 or less employees "just don't have a safety program," nor do such companies have full time safety directors or coordinators. It is very common for small construction firms to divide the work between two to three projects, with two to three person crews assigned to each project.

Most of the firms he is familiar with belong to roofers and masonry trade associations. He did not mention any particular trade associations by name, but noted that these organizations do represent a source of health and safety information.

His company does provide a number of health and safety related products and services to clients. These include: tool-box talks, generic health and safety programs, and various forms and checklists for accident investigations and workplace inspections.

The representative felt that most small firms prefer to use one-on-one conversation and the tail-gate/tool-box talk to disseminate health and safety information to their employees. However, some do have formal training sessions during the Winter months. In addition, it is also not uncommon for companies to use pay day or Monday as an opportunity to talk to employees about safety matters, Usually these sessions last approximately five to ten minutes.

Additional time is sometimes spent on safety, especially if new jobs/environment, and/or workplace incidents at the site or in the industry have occurred. Time spent rarely exceeds five to ten minutes. The specialist felt that most owners would say that they would like to spend more time on health and safety, but do not have the time because of production demands.

In terms of distributing health and safety information, many firms use paycheck stuffers tool-box talks (TBTs), and face to face conversation. The specialist felt that TBTs and face to face conversation were the most effective means of distributing health and safety information.

OSHA and Injuries

In the specialist's opinion, few firms ever see an OSHA inspector, or have any contact with OSHA. Some may encounter OSHA on a so called "drive-by" inspection. In such a situation, an OSHA inspector may decide to stop and inspect a job-site if he or she observes an unsafe act or condition. Injuries are relatively rare in the small firm, and the severity of such injuries are usually minor. Five injuries a year for a small firm would be somewhat excessive.

Improving the Acquisition the distribution of Health and Safety Information

The specialist believes that firms should join a trade association to access more resources. Seminars would also be helpful, but only if they are sponsored by a trade association. Seminars by other groups would not have enough credibility. Booklets and posters from J. J. Keller represent another good source of information.

The distribution of health and safety information can be improved through holding TBTs, shooting a video of the job and showing it to employees, using the two-way radio/cell phone, talking to workers one-on-one, and paycheck stuffers. In addition, insurance companies could offer training, colleges could offer TBTs. Penn State probably has the credibility to offer seminars in such areas as trenching, etc.

INSURANCE CARRIER INTERVIEW

INSURANCE CARRIER NAME:	**Hollern & Koontz Insurance Agency**
LOCATION:	**Windber, PA**
TYPE OF INSURANCE COMPANY:	**General insurance company specializing in liability insurance for small companies and contractors.**

Highlights:

1. The insurance carrier has tons of safety material that can be made available to the contractor. Most of the material available is in the form of hand-outs which such as safety manuals and bulletins. It also has software available for setting up a safety program for the company.

2. According to this insurance carrier, trade associations are a very good source, but felt that most small contractors join these associations because of the ability to get insurance, or better insurance rates, and not for the safety information that can be obtained. The insurance representative and his agency can do on-site safety inspections for the contractor, but they are very careful when they do so because of the chance of being sued in the event of a major incident or catastrophe that might occur immediately after such an inspection. The insurance representative said for that reason, they always issue a disclaimer with such inspections to protect themselves from any lawsuits. The insurance representative also added that his agency can issue warnings or make suggestions, but also realized that small contractors do not want OSHA around because they are afraid of them. The insurance representative felt OSHA could do more for the small contractors if they would try to educate rather than enforce.

3. According to the carrier, if an owner of a company is safety conscious, then he will look for different types of safety information. If he is not, then he won't make the effort. He felt that people have to ***want*** a safe work place and that all the safety information in the world does no good until that person ***wants*** to find it.

SAFETY PROGRAM *

* An example of a generic safety program developed and offered by an insurance carrier which can be tailored to the needs of a specific construction firm.

SAFETY

TO COMPANY EMPLOYEES:

It is the sincere desire of management to engage in a functional loss prevention program which will eliminate every safety hazard from every job. The Company desires that all unsafe acts and conditions be immediately detected and corrected and that safety awareness be deeply instilled in all employees, so that a perfect safety record may be achieved.

The real success of this program depends upon you, our employees. In order to insure safe working conditions for all, everyone must take an interest in strengthening the program and extending whole hearted cooperation, working within the parameters established.

We hope you will join us in striving toward a strong, effective and meaningful safety program.

Sincerely,

President

COMPANY SAFETY POLICY

This organization intends to provide a safe and healthy workplace for its employees. In order to achieve this goal, we will abide by all applicable safety and health regulations and make every effort to eliminate accidents and illnesses.

It is sound business for the Company and its employees to eliminate procedures and conditions which can result in injury to employees or others, in work interruption, or in damage or destruction of equipment, material, or property.

Every employee has responsibilities for seeing that this policy is carried out:

1. Management Will:
   a. Provide means to accomplish policy as stated above.
   b. Conduct safety inspections and file reports.
   c. Investigate all accidents and file full reports on each.
   d. Establish procedures for treatment of injuries.

2. Supervisors Will:
   a. Be responsible for work safety.
   b. Make available all necessary personal protective equipment.
   c. Instruct foremen individually regarding their safety responsibilities.
   d. Review all accidents with foremen, file full reports, and ensure corrective action is taken immediately.
   e. Set an example for safety at all times everywhere on the job.

3. Foremen Will:
   a. See that entire program is carried out at the work level.
   b. See that employees commit no unsafe practices.
   c. Make sure no unsafe conditions exist in the work area.
   d. Make sure that necessary protective equipment is on hand and in use.
   e. Discuss safety in personal contacts with employees.
   f. Ensure all injuries are cared for properly and reported promptly
   g. Investigate all accidents, file complete reports, and correct the causes immediately.
   h. Set an example for safety at all times everywhere on the job.
4. All Employees Will:
   a. Work according to good safety practices as posted, instructed, and discussed.
   b. Refrain from any unsafe act that might endanger yourself or a fellow worker.
   c. Use all safety devices required for your protection.
   d. Report any unsafe situation or act to your foremen or supervisor immediately.
   e. Be a safe worker off the job as well as on.

REMEMBER - A SUCCESSFUL SAFETY PROGRAM DEPENDS PRIMARILY ON SINCERITY OF PURPOSE!

GENERAL SAFETY RULES

The following general safety rules are posted for your safety and well being:

1. If you are injured, no matter how slight the injury may be, you must report immediately to your foreman, and receive first aid treatment.

2. Approved eye protection must be worn by all employees when necessary.

3. Safety shoes should be worn by all employees working in operating areas. The wearing of tennis, soft soled, or worn out shoes is prohibited.

4. Hard hats and other protective equipment must be worn.

5. Never operate, repair, adjust, or meddle in any way with machinery or equipment unless you are authorized to do so by your foreman.

6. Be absolutely sure no one is in a position to be injured and that all safeguards are in proper position before turning on electricity, gas, steam, air, water, or setting any machinery or equipment in motion.

7. Check tools and equipment before using them. If any are found defective, do not use them and report them to your foreman.

8. Good housekeeping is the responsibility of each employee. Keep your work area neat and clean at all times.

9. Stay clear of crane loads and be particularly careful in handling material. Always keep clear of the load and other material the load may disturb.

10. Keep off railway tracks and other transportation runways except where authorized to cross.

11. Horseplay or fighting of any kind is not allowed.

12. Drinking or possession of intoxicating liquor on the job, or reporting for work while under the influence of alcohol, is prohibited.

CAUTION - If you don't know or if you are not sure, ask your foreman. It's better to be safe ..... than sorry.

SAFETY RULES

GENERAL

In case of sickness or injury, no matter how slight, report to your supervisor for first aid. Never attempt to treat your own or another worker's injury or try to remove foreign particles from the eye.

Safety devices are for your protection. Never operate a machine unless all guards are in place. Guards must never be removed except when necessary to make adjustments or repairs, and they should be replaced immediately upon completion of work. Missing and damaged guards should be reported.

Never operate, repair, adjust, or meddle in any way with machinery or equipment unless authorized to do so by your supervisor.

Be absolutlely sure no one is in a position to be injured and that all safeguards are in proper position before turning on electricity, gas, steam, water, or setting any machinery or equipment in motion.

Jewelry, rings, bracelets, key rings, etc., shall not be worn, as these objects might catch in machines, causing serious accidents such as loss of fingers or hands.

Gloves must be not be worn when operating machinery unless their use has been approved by your supervisor.

Loose ties or clothing must not be worn around machinery.

Shut down machine before cleaning, adjusting, or repairing moving parts or items near moving parts. Never use your fingers for removing items from machinery that isn't completely de-energized.

Check tools and equipment before using them. If any are found defective, do not use them and report them to your supervisor.

Good housekeeping is the responsibility of each employee. Keep your work area neat and clean at all times.

Horseplay, throwing objects, scuffling, pranks, practical jokes, etc., can be dangerous and are not permitted.

Liquor and illegal drugs are not permitted on the premises including the parking lot at any time.

Do not attempt to lift or push objects that may be too heavy for you. Ask for help when you need it. Learn the proper lifting techniques: keep body straight, push with your legs, keep items as close to the body as possible, and do not twist at the waist or the knees.

If you are provided personal protective equipment, you are expected to wear it. Personal protective equipment is to be kept clean.

Long hair should be protected around moving machinery.

Learn the location of all exits, fire fighting equipment, and other safety equipment.

Proper footwear should be worn by employees for their work area.

Warn and advise other workers when they are working unsafely.

Always obey all warning signs.

MAINTENANCE

Work areas must be kept clean, during and after jobs.

All guards are to be replaced before placing equipment into operation.

All machines and electrical equipment must be locked out before doing any repairs in accordance with policy.

Approved safety equipment must be used during repairs. Safety glasses, goggles, face shields, gloves, aprons, arm guards, etc., must be kept in good condition.

Welding gas cylinders should be stored properly and secured in upright position. Fire extinguisher should be readily available during welding and cutting operations. Welder's curtains should be in place before welding.

WAREHOUSE

The warehouse is to be kept clean at all times.

Forklift trucks must be operated at a safe speed and in a safe manner. Operators should wear seatbelts. Backup alarms should be in working order.

GENERAL SAFETY RULES

The following general safety rules are posted for your safety and well being:

1. If you are injured, no matter how slight the injury may be, you must report immediately to your supervisor, and receive first aid treatment.

2. Never operate, repair, adjust, or meddle in any way with machinery or equipment unless you are authorized to do so by your supervisor.

3. Be absolutly sure no one is in position to be injured and that all safeguards are in proper position before turning on electricity, gas, steam, air, water, or setting any machinery or equipment in motion.

4. Check utensils and equipment before using them. If any are found defective, do not use them and report them to your supervisor.

5. Good housekeeping is the responsibility of each employee. Keep your work area neat and clean at all times.

6. Horseplay or fighting of any kind is not allowed.

7. Drinking or possession of intoxicating liquor on the job, or reporting for work while under the influence of alcohol, is prohibited.

8. Knives should be sharpened on a regular basis.

9. Do not attempt to lift or push objects that may be too heavy for you. Ask for help when you need it. Learn the proper lifting techniques: keep body straight, push with your legs, keep items as close to the body as possible, and do not twist at the waist and the knees.

10. Wear the proper shoes to avoid slips, falls, and foot injuries.

11. When handling hot pots, pans, and other hot items, use potholders or other protective devices.

12. Follow robbery instructions given by supervisor.

13. Learn the location of all exits, fire fighting equipment, and other safety equipment.

14. Warn and advise other workers when they are working unsafetly.

15. Always obey all warning signs.

LIGHT DUTY PROGRAM - AN APPLICATIONS GUIDELINE

The Light Duty employment option is relatively straightforward and means exactly what it states - lower demands, reduced work rate, less physical/mental effort, shorter time frames, and adjusted output. This idea is not new and has been used many times by different types of business operations with successful results. This monograph is intended to provide an orientation and overview of the Light Duty option.

What is Light Duty? Light Duty is usually described as an employment technique where, if the individual is unable to perform their regular assignment due to a temporary condition resulting from any of the following:

* recovering from an illness/injury
* rehabilitation from substance abuse or mentally stressful conditions
* returning to work after some extended period of absence not related to any of the aforementioned.

Able to work but not at full capacity, the employer can bring the individual back into a working routine in a controlled, progressive manner, allowing for an appropriate adjustment period. There are a number of advantages and benefits to both the employee and the employer in adopting this technique.

Through Light Duty, experience has indicated the following benefits are often realized in the process:

* Employee pride and satisfaction in returning to the work place and being gainfully employed including maintaining/fostering security of the employee/employer relationship.
* Allow for a supervised conditioning/work adjustment period and real situation performance assessment/evaluation.
* Providing an alternative for the employer to bring the worker back to work (NOTE: evidence suggests that workers who return to work generally recover faster, are less likely to have re-occurring problems, and more likely to be released to full-capacity work status).
* Cost containment factors related to worker's compensation in both medical and indemnity (i.e. less lost time, fewer medical expenses, and quicker return to work translates into lower costs for everyone).
* Worker returns to productive employment, contributing to the organization's objectives and profitability.

There are others more or less obvious but the listed benefits are attainable under most routine circumstances. However, priorities usually focus on two major interests: (1) providing a way to restore gainful employment for the worker, and (2) reducing costs/expenses associated with the lost time situation (i.e. indirect loss costs, insurance program expenses, etc.).

Although reasonably simple to implement, not every employer who could take advantage of the technique is using this approach. There are some operations where it could cause some hardship for the business, but many business people too quickly discount the possible opportunities. How can you implement, in a practical manner, a light duty program? The following steps should help organize your efforts:

1. Know/understand every job task in your operation and have job descriptions written on each position to include specific work demands, worker qualifications, and other related factors (i.e. lifting dimensions, number of repetitions, exposure to heat/cold, employee skills-aptitude).

2. Analyze your work activity against job positions to determine if some duties/tasks could be combined in a logical manner under a single position which would: (1) relieve other workers of additional work demands during periods of high activity, (2) position would be one that could be filled on a temporary basis from time to time as need would arisebut not have full-time status, (3) job activities would be flexible enough to "fit" capabilities of worker within known limitations as determined by attending physician (NOTE: good idea to review light duty job activities with physician -- may need to make some modifications to suite patient's disability).

3. Write a job description for the light-duty position(s) and maintain in safety management program file under "return to work" or "light duty"... should have light duty positions designed for workers who have leg injuries and would not be able to work in standing position, for people who have hand or arm injuries who can use feet or legs or other arm to do some task (i.e. answer phone with headset or press button at work station using good hand, etc.).

   NOTE: There may be some types of injuries such as loss of a body part, severe head trauma or permanent paralysis which may involve extensive medical or rehabilitation that might not be as easily handled under light duty as, maybe, a broken arm or a bruised heel. This would be reviewed with attending physician.

   Also, as the employer, the intent of creating the light duty position is to support safety program objectives, not to provide a "soft" job for a poorly motivated individual who is looking for a free ride. The position should be composed of meaningful tasks within range of person's ability but we don't want it so good that they find every excuse to want to stay in that position.

4. Inform all employees that you have a "return to work" policy and that you have made provisions for them to return to a level of employment even before they have fully recovered but have been released by their physician to light duty activity. You should not go into any detail about the light duty position because (1) light duty activities will depend on extent/type of injuries or disability, (2) may not be able be able, upon physician's prognosis, to have worker on light duty or, (3) may encourage poorly motivated worker to seek light duty job to get relief from regular duties.

5. Upon accident/injury occurrence, review medical prognosis with attending physician and share information on what light duty options you have available so the physician can provide specific recommendations. Have physician notify patient that he/she can do some work within certain limits without adversely affecting the healing process and that his has been reviewed with the employer.

6. Before starting light duty assignment with the injured worker, brief the individual on the following items:

   * You have reviewed medical prognosis with attending physician.

* Remind individual of "return to work" policy and discuss advantages to employee (i.e. positive rehabilitation, association with fellow workers, continuing gainful employment, more rapid recovery, etc.).

* Complete review of light duty job tasks/responsibilities with the employee and remind of temporary nature of this position but that you developed to assist employee in recovery-return to work process; note that work is important and do expect quality performance, reasonable output from individual.

* Let employee know that you are there to help and, if any questions or something unclear, must ask up-line supervisor or rehabilitation coordinator - employee is responsible to be part of this process.

7. Train individual in job activities; place in light duty position and follow with on-the-job training/supervision.

8. Monitor performance on regular basis including review with physician of employee medical status and rehabilitation progress.

9. After successful completion of light duty assignment, worker returns to full time, regular position; restore light duty tasks to normal operating agenda; analyze the performance of the light duty concept - make changes or improvements, as necessary.

A final note on the subject. It is essentially critical that whatever light duty assignment is offered to the worker, the risk exposures are relatively low so that the individual cannot get injured or re-injured handling the light duty tasks. A person may not always need to be tied to a desk in an office, but a lot of careful thought must be given to placing the individual in a more active environment. This concern should not be overlooked and has to be definitely addressed.

A light duty program may not be workable for every employer or for every situation, but there are more opportunities to utilize the concept that has been attempted. This is a management related activity and should be a practical tool for accomplishing safety management objectives. Take a look at your operations and determine the viability of applying light duty programs... you can only realize positive results from these efforts.

RETURN-TO-WORK POLICY GUIDELINES AND MODEL STATEMENT

Worker's compensation cost containment programs should include a return-to-work policy for a number of practical reasons:

* return the individual to gainful employment which improves self-esteem/self-reliance, stimulates positive attitude toward the organization, and provides for financial security.

* increases productivity and restores previous quality performance levels (i.e. injured person is likely to be an experienced worker who has made positive contributions to business results.

* by minimizing the time period between injury and the return to work, many costs associated with worker's compensation can be reduced such as indemnity for work days missed and additional medical charges/ expenses.

The primary reason for getting an injured worker back to work is to help that individual re-establish a normal routine to their life. The cure is not worse than the "illness" - it is a known fact that people who are able to return to the work environment as soon as medically possible after a lost time injury: (1) rehabilitate faster, (2) more fully recover from the accident, and (3) are less likely to have reoccurring medical problems. The other benefits are no less important but continuing emphasis must be maintained on the welfare of the individual worker.

How can you implement a return to work policy? First, you must inform your workers that you have a return-to-work policy (see attached on separate page so you may reproduce on your company letterhead). Second, if a worker incurs a work- related injury, you need to do the following:

1. Ensure proper emergency/first aid treatment...

2. Seek qualified professional medical care (i.e. physician's or medical panel); notify WC insurance carrier...

3. Complete accident investigation/report including victum/witness statements...

4. Contact injured worker the day after the accident to check on their situation, medical prognosis, rehabilitation, and any personal needs (NOTE: Both the immediate supervisor and Human Resources Administrator should make separate contacts.); maintain reasonably active contact through the first 5 to 7 days including a face to face visit, if appropriate...

5. Review with insurance carrier and attending physician any opportunities for light duty work and return to normal job activities - you should have an up-to-date positive description with specified task activities detailed so physician can make more accurate assessment of individual's capabilities...

6. Return employee to work - conduct orientation (explain, update) and assign to either light duty or return to normal work activities; closely monitor worker performance until satisfied that situation is within control of the employee and external factors are minimized.

Third, move to restore normal operations as soon as possible.

RETURN-TO-WORK POLICY - MODEL STATEMENT

In the course of your employment, you may become involved in an accident which could result in personal injury. Although we continue to work toward maintaining a safe and healthful work environment, risks are pervasive.

Should you become injured, we will do what is necessary to see that you receive timely and appropriate medical care, have time for proper rehabilitation relative to your injury and will, on the physician's recommendations, work toward returning you to gainful employment at the earliest possible opportunity.

We believe our employees are our most important asset. And, we believe, by helping you return to work, your sense of well-being, pride, and personal assurance are enhanced. We encourage you to make every reasonable effort to stimulate the recovery process and return to work.

APPENDIX I

Emergency Response:

Bureau of Dangerous Goods, Ltd.
http://www.esquiretech.com/BureauDG/
CANUTEC (Canadian Transport Emergency Centre)
http://www.tc.gc.ca/CANUTEC/
FEMA (Federal Emergency Management Agency)
http://www.fema.gov/
Hazmat Safety
http://ohm.volpe.dot.gov/ohm/
LEPC (Local Emergency Planning Committees)
http://www.rtk.net/lepc/
RTK NET (Right To Know Network)
http://rtk.net/

Equipment Inspection:

American Petroleum Institute
http://www.api.org/
American Society for Non-Destructive Testing
http://www.asnt.org/
ASME International (Amercian Society of Mechanical Engineers)
http://www.asme.org/
ASTM (American Society for Testing and Materials)
http://www.astm.org/
National Board of Boiler and Pressure Vessel Inspectors
http://www.nationalboard.org/whatis.html

Ergonomics:

Ergonomics Homepage
http://www.osha-slc.gov/ergo/
ErgoWeb- The Place for Ergonomics
http://www.ergoweb.com/

Health and Safety:

Army Industrial Hygiene Program
http://131.92.168.27/armyih/
BST (Behavioral Science Technology, Inc.)
http://www.bscitech.com/
Bureau of Labor Statistics
http://www.bls.gov/
Chemical Sampling Information
http://www.osha-slc.gov/OCIS/toc_chemsamp.html
Environmental Support Solutions, Inc.
http://www.environ.com/index.htm
Memorandums of Understanding
http://www.osha-slc.gov/MOU_toc/MOU_toc_by_date.html
Safety Construction Directory
http://www.ConstructionNet.Net/directory
National Institute for Occupational Safety and Health
http://www.cdc.gov/niosh/homepage.html

3M Occupational Health and Environmental Safety
http://www.mmm.com/occsafety/
OSHA Publications
http://www.osha.gov/oshpubs/
OSHA Software
http://www.osha.gov/oshasoft/
OSHWEB
http://turva.me.tut.fi/~oshweb/
Ototxicity
http://www.teleport.com/~veda/ototox.html
PAHO HEP- Wizard
http://www.paho.org/english/hepwizar.htm#info
Safety and Health Statistics
http://stats.bls.gov/cgi-bin/dsrv?sh
Safety Related Internet Resources
http://www.sas.ab.ca/biz/christie/safelist.html
Safety Online
http://www.safetyonline.net/
The USDOL OSHA home page
http://www.osha.gov/
Trench Safety Intro.
http://www.bsc.auburn.edu/research/trench/
USDOL OHSA OCIS home page
http://www.osha-slc.gov/
WSO (World Safety Organization)
http://www.worldsafety.org/

Miscellaneous:
1995, 1996, and 1997 Federal Register
http://www.access.gpo.gov/su_docs/aces/aces140.html
Ashland Chemical
http://www.ashchem.com/environment.html
Chemical Abstracts Service
http://www.cas.org/
NSC CAMEO (tm) Emergency Response
http://www.nsc.org/ehc/cameo.htm
Ruetgers-Nease Corporation
http://ruetgers-nease.com/rnc_a.htm
Supelco-Inc. Main Menu
http://www.supelco.sial.com/supelco/main.htm
The MERCK Manual-table of contents
http://www.merck.com/!!szsKk2xB2szsKk2xB2/pubs/mmanual/html/sectoc.htm
U. S. Workers Compensation Law
http://www.law.cornell.edu/topics/workers_compensation.html

MSDS

Portfolio-Chemical Safety
http://www-portfolio.stanford.edu/100369
USG Right To Know Program
http://www.ps.uga.edu/rtk/
Where to find MSDS on the Internet
http://www.chem.uky.edu/Resources/MSDS.HTML

Organizations:

AFL-CIO Home Page
http://www.aflcio.org/
AIHA Home Page
http://www.aiha.org/
American Board of Industrial Hygiene
http://www.abih.org/
American Institute of Chemical Engineers Entr.
http://www.aiche.org//
American National Standards Institute (ANSI)
http://www.ansi.org/
ASHRAE Web Site
http://www.ashrae.org/
BNA-EHS page
http://es.bna.com/
Board of Certified Safety Professionals (BCSP)
http://www.bcsp.com/
Chilworth Technology, Inc.
http://www.chilworth.com/
Chlorine Institute, Inc.
http://www.cl2.com/
CMA home page
http://www.cmahq.com/
Compressed Gas Association
http://www.cganet.com/
Crane Safety Training, NACB, Inc.
http://cranesafe.com/
ERM
http://www.erm.com/
Hazardous Materials Advisory Council (HMAC)
http://www.hmac.org/
IIS Online- ISO 14000 Standards and ISO Information
http://www.iso14000.org/
National Institutes of Health (NIH)
http://www.nih.gov/
National Lightning Safety Institute (NLSI)
http://www.lightningsafety.com/

National Safety Council
http://www.nsc.org/
National Technical Information Service (NTIS)
http://www.ntis.gov/ntishome.html
NFPA Codes and Standards
http://www.nfpa.org/
NIST
http://www.nist.gov/
Rocky Mountain Center
http://www.rmcoeh.utah.edu/
Safety Smart (Bongarde)
http://www.safetysmart.com/
SKC, Inc.
http://www.skcinc.com/
U. S. Government Printing Office
http://www.access.gpo.gov/
Voluntary Protection Programs Participants' Association
http://www.fiesta.com/vpppa/

Personal Protective Equipment:
Ansell Edmont Business Center
http://www.industry.net/ansell.edmont
DuPont TYVEK® Protective Apparel
http://www.dupont.com/tyvek/protective-apparel/
Glove Guard
http://www.gloveguard.com/index2.shtml

Regulatory:
Code of Federal Regulations (searchable)
http://law.house.gov/cfr.htm
Pennsylvania Department of Labor and Industry
http://www.li.state.pa.us/
U. S. Department of Labor
http://www.dol.gov/dol/welcome.htm
U. S. Department of Transportation
http://www.dot.gov/
U. S. Environmental Protection Agency
http://www.epa.gov/

Risk Management Program:
CEPPO Chemical Accident Prevention and Risk Management
http://www.epa.gov/swercepp/acc-pre.html
Chemical Emergency Preparedness and Prevention
http://www.epa.gov/swercepp/

APPENDIX J

INTERVIEW GUIDE

Analysis of Health & Safety Hazard Information Acquisition and Dissemination Small Independent Construction Companies

BACKGROUND SECTION

Name of
Organization:_____
Address:_____
Phone No.:_____
Fax No.:_____

Individual in Charge:

1. How many people do you employ (in your organization)?

_____ Number of those employed full time
_____ Number of those employed part time
_____ Number of those employed--summer help

GENERAL HEALTH & SAFETY INFORMATION

2a. Who provides health and safety information to your employees?

_____ Owner
_____ Job Supervisor
_____ Crew Leader
_____ Safety Director
_____ OSHA
_____ Safety Consultant
_____ Insurance Agent
_____ Suppliers
_____ Other

2b. Do you employ a full time person whose sole responsibility is safety?

_____ Yes _____No Part-time person? Y/N

2c. Is this person in charge of safety at the job site?

_____ Yes _____No

3a. Who is your workers' compensation insurance carrier? _____

3b. Are you a member of any trade association?

_____ Yes _____No

Which associations?

_____ Association of Builders & Contractors (ABC)
_____ PA Utility Contractors' Association (PUCA)
_____ A regional builders' association
_____ National Utility Contractors Association (NUCA)
_____ Other _____

SOURCES AND TYPES OF H & S INFORMATION

4a. Where does your company get health & safety information (i.e., sources of health & safety resources)? **Check all that apply.**

a. Trade associations
b. Insurance carriers
c. Colleagues
d. Building/contractor suppliers (Lowes, 84 Lumber, etc.)
e. Bureau of Workers' Compensation
f. Safety consultant
g. OSHA
h. National Safety Council (NSA)
i. Vo-Tech school
j. University/College
k. Internet
l. NIOSH
m. _____ Other

4b. For each source, describe what information you get?

Type	a.	b.	c.	d.	e.	f.	g.	h.	I.	j.	k.	l.	m.
Video													
One-Page Handout													
Reference Manual													
Newsletter													
MSDS													
Reg. Book													
Photos													
Talk													
Stickers													

USING AND DISTRIBUTING H & S INFORMATION

5. How do you use the health & safety information you receive?

1. _____ Incorporate into routine work instructions
2. _____ Tail-gate/tool-box talk (short safety meetings < ½ hr.)
3. _____ Stand-alone conversation by management
4. _____ Formal safety training classes
5. _____ Other

6a. Do you have a formal ***training program/class***?

_____ Yes _____ No

If yes, where _____
when _____
how long _____

6b. Do you have a ***regularly scheduled time for discussing health & safety issues*** every week?

_____ Yes _____ No

If yes, where _____
when _____
how long _____

6c. Are there occasions when you spend more time on heath & safety?

	Approx. Time Spent
_____ New jobs	_____
_____ New tasks	_____
_____ New environment	_____
_____ Accidents at your site	_____
_____ Accidents in the industry	_____

6d. Are you satisfied with the scheduled time you devote to safety?

_____ Yes No _____

Please explain _____

7. What means do you use to distribute the health & safety information?

_____ Memo	_____ Grapevine
_____ Letter	_____ Other
_____ Paycheck stuffer	_____ None
_____ Poster	

Which one do you think is the most effective? _____

INJURY AND OSHA HISTORY

8. How many reportable, lost-time injuries have you had within the past three years?

_____

8a. Has your company ever experienced a fatality?

_____ Yes _____ No

If yes, when did it occur?

9a. Have you received a visitation from OSHA in the last three years?

_____ Yes _____ No

If yes, when _____

What were the circumstances? _____

9b. Have you received a citation from OSHA within the last three years?

If yes, what was it? _____

USE OF COMPUTERS

10a. Does your company use electronic mail (e-mail)?

_____ Yes _____ No

10b. Does your company have access to the Internet?

_____ Yes _____ No

10c. Do you use the Internet or e-mail for safety related issues?

IMPROVING H & S COMMUNICATION

11. What means could be used to ***improve the acquisition*** of health & safety materials?

What could you do:
_____ Use Internet _____ other
_____ Join a trade association _____
_____ Network with colleagues _____
_____ Attend a seminar

What could others do:
_____ Insur. carrier could provide more material
_____ Suppliers could provide info. and materials
_____ Workers' comp. could provide info. and mat.
_____ Trade assoc. could provide info. and materials
_____ Other _____

12. What means could be used to ***improve the distribution*** of health & safety information among your employees?

What could you do:
_____ Hold tool-box talks or improve them
_____ Take video of the job and show to workers
_____ Talk to workers on a one-to-one basis
_____ Use a pay-check stuffer
_____ Show a vendor video
_____ Other _____

What could others do:
_____ Insur. carrier could offer training
_____ Supplier could offer tool-box talk (TBT)
_____ College could offer training or TBT
_____ Local TV station could offer program on construction safety
_____ Other

13. Do you have any final comments about obtaining health and safety information and distributing that information to the workers?