TABLE OF CONTENTS

BACKGROUND

Recognizing the potential to increase compliance and raise awareness of safety equipment, ISEA's leadership in 1999 agreed that the association should take on a role in helping members grow the safety equipment marketplace. Toward that end, the ISEA is launching a pilot market development program aimed at the road construction sector.

The communication objectives relating to this program are:

1) Increased on-the-job compliance with safety equipment regulations and standards.

2) Increased user awareness and acceptance of safety equipment on and off the job.

3) Establishment of a Road Construction Safety Equipment Users Council to promote better communications between producers and road construction segment consumers of safety equipment. (This objective has already been met.)

The primary target audiences are (1) road construction contractors/their hazard-exposed employees, and (2) road construction specifiers.

In order to effectively direct the program and measure its progress over time, two preliminary research efforts were identified and implemented.

The first of these efforts was a focus group research investigation with road construction contractors aimed at:

1) Understanding which tactics/tools construction management would find most useful in improving awareness of safety equipment and to gain their recommendations on tactics to consider.

2) Understanding the barriers to awareness and use of personal protective equipment.

BACKGROUND

3) Understanding which ISEA messages will peak construction managements' interest in worker safety, and why or why not.

The second of these efforts was a combination mail/telephone survey aimed at a broader group of road construction safety equipment influencers. This study represents that effort, and is further explained in the remainder of this document.

PURPOSE

ISEA's objectives with this investigation were:

1) To measure the level of importance currently associated with various road construction worker safety measures and PPE (personal protective equipment).

2) To measure the current usage levels of various PPE.

3) To better understand the barriers preventing road construction workers from using various types of PPE.

4) To gain an understanding of the level of effectiveness expected from various measures taken to increase usage and awareness of PPE.

METHODOLOGY AND SAMPLE BASE

The methodology utilized in this investigation was a combination mail/telephone survey technique.

Utilizing a database of construction industry safety equipment influencers that the ISEA had constructed, the plan called for the ISEA to mail a cover letter and survey questionnaire to each of the 1115 contacts that made up the database. The questionnaire and accompanying cover letter can be found in appendices "A" and "B", respectively.

The contact database was made up of the following contacts, by category:

Contact Type	Quantity
Construction Industry Executives	293
Laborers	86
State DOT Executives	421
Federal Policymakers	72
USDOT	24
Distributors	97
Associations and Stakeholders	38
Trade Press	60
Insurance Underwriters	15
Academia and Think Tanks	9

The completed questionnaires were to be faxed back to Strategic Marketing Associates through the use of a "no toll" fax number provided on both the questionnaire and the cover letter.

METHODOLOGY & SAMPLE BASE

The goal was to receive two hundred completed surveys for tabulation and reporting, with one hundred of these being from private sector contacts, and an additional one hundred being from public sector contacts.

Knowing that there was a chance that less than 200 returns would be received from the initial mailing, it was decided that any short fall in completed returns would be pursued through telephone interviewing from the same contact list. The telephone interview guide would essentially be the mail questionnaire, with an introductory script attached to it.

Seventy-five usable, completed questionnaires were returned by fax, requiring that 125 additional telephone interviews be conducted.

In total, 140 telephone interviews were conducted yielding 215 respondents, 111 of which were from the private sector, and 104 of which were from the public sector. The table below provides a further breakout based on categories provided within the questionnaire.

	Private Sector				Public Sector		
Category	**Construction**	**Labor**	**Association**	**Media**	**State Regulator**	**Federal Regulator**	**Elected Official/Staff**
Respondents	68	21	20	2	87	13	4

Geographically, respondents, relative to their business location, represented 47 states and Puerto Rico. Of contractor participants, 21 were regional (operating in more than one state, but not in the entire country), six were national, and two were international.

Once all of the data was collected the responses were cross-tabulated for each question by total respondents, private sector respondents, and public sector respondents. The complete cross-tabulations are bound under separate cover.

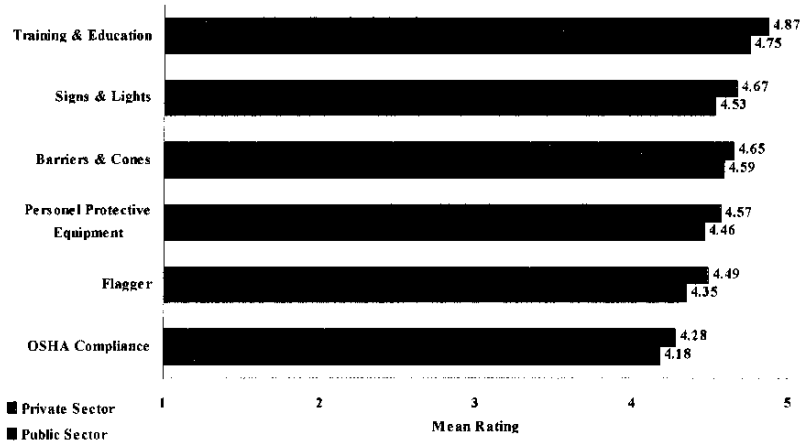
IMPORTANCE OF MEASURES IN MINIMIZING RISK OF ACCIDENT/INJURY AT ROAD CONSTRUCTION SITES

Respondents were asked to rate the importance of six different measures in minimizing the risk of accident or injury at road construction sites. The rating scale used was one to five, with one being not important and five being extremely important.

Below is a graph illustrating the mean responses for each measure by both public sector and private sector respondents. The graph displays the measures in descending order of importance based on private sector responses. As the graph illustrates:

- Each of the six measures was considered highly important, with training and education receiving the highest importance rating of all the measures by both public and private sector respondents.
- OSHA compliance, while viewed as highly important in general, was seen as the least important of the measures by both the public and private sector.
- While public sector and private sector respondents answered similarly relative to the importance of measures in minimizing risk of accident or injury, all measures were viewed as slightly more important by the private sector than by the public sector.

Importance in Minimizing Risk of Accident or Injury at Road Construction Sites



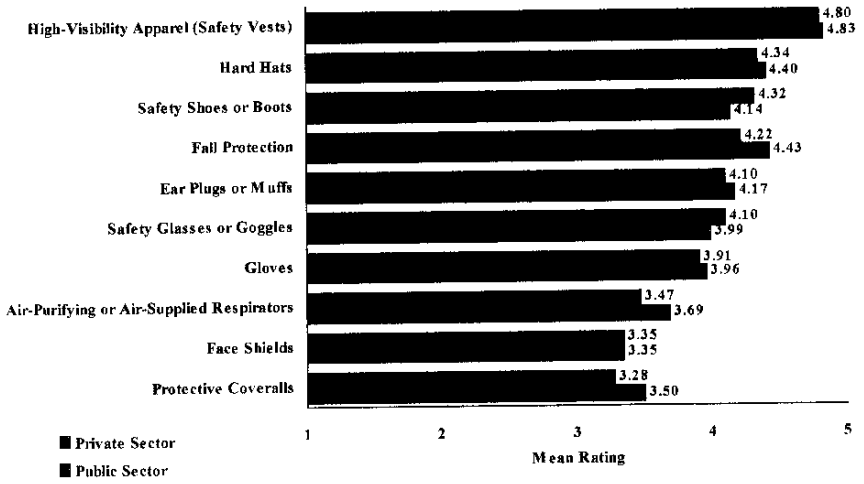
IMPORTANCE OF VARIOUS PPE IN MINIMIZING RISK OF INJURY TO ROAD CONSTRUCTION WORKERS

In addition to rating the importance of various measures in minimizing the risk of injury at road construction sites, respondents were asked to rate the importance of specific PPE. The scale was again one to five, with one being not important and five being extremely important.

Like on the previous page, a graph illustrating the mean responses of both public and private sector respondents is given.

- As the graph shows, mean responses ranged from moderately important to highly important. No PPE were considered of low importance.
- Considering mean ratings between three and four to be moderately important, and between four and five to be highly important, we can see that protective coveralls, face shields, air-purifying or air-supplied respirators, and gloves are considered moderately important.
- High-visibility apparel, hard hats, safety shoes or boots, fall protection, earplugs or muffs, and safety glasses or goggles were seen as highly important.
- Public and private sector participants responded similarly in general, though public sector respondents rated fall protection, air-purifying or air-supplied respirators, and protective coveralls slightly higher than did their private sector counterparts.

Importance in Minimizing Risk of Injury to Road Construction Workers



REGULAR USE OF PPE BY ROAD CONSTRUCTION WORKERS

In addition to gaining the perspectives of respondents on the importance of specific PPE, they were also asked to provide their estimates of the percentage of workers they feel use specific personal protective equipment in situations where they are needed.

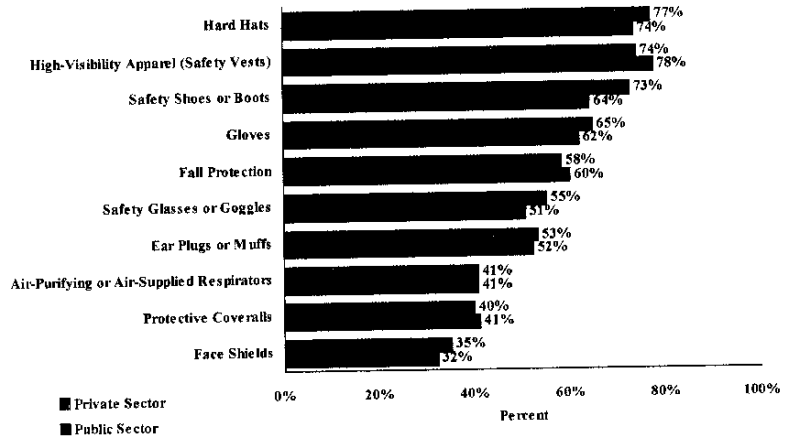
These questions were provided in a multiple-choice format with choices being:

1) < 20%
2) 20% to 39%
3) 40% to 59%
4) 60% to 79%
5) ≥ 80%

The accompanying graph displays the weighted mean response for both private sector and public sector respondents. The graph shows:

- Hard hats and high-visibility apparel are regularly worn in situations where they're needed by about ¾ of road construction workers.
- Safety shoes or boots and gloves are also worn regularly in cases meriting their use by the majority of road construction workers – about two thirds of them.
- Air-purifying or air-supplied respirators and protective coveralls are regularly worn by less than half of the respondents in cases where they're needed.
- And face shields are regularly worn where needed by about a third of workers.
- Public and private sector participants responded similarly in general, though the private sector is more likely than the public sector to wear safety shoes or boots regularly in cases where needed.

Percentage of Road Construction Workers Who Regularly Use PPE When Needed



PRIMARY REASONS PPE ARE NOT USED MORE REGULARLY

Attempting to understand the barriers preventing road construction workers from using various types of PPE, respondents were asked to indicate the primary reasons that specific PPE were not used more regularly. In total, nine separate PPE were investigated through this exercise.

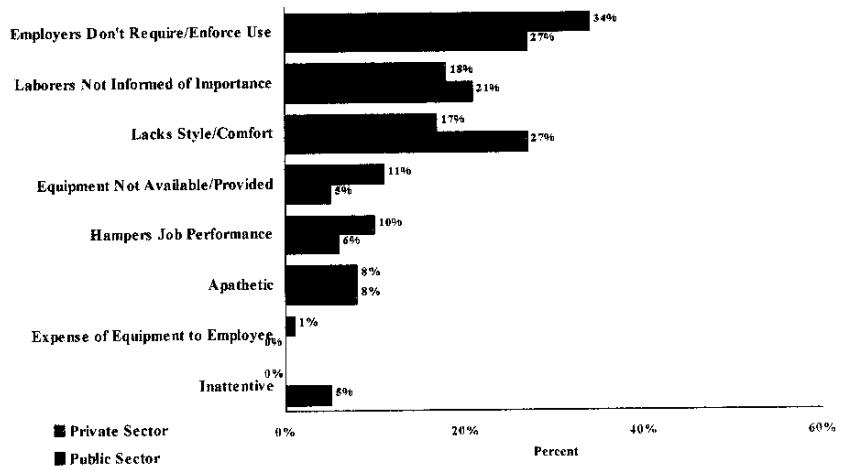
Across PPE

- In general, the primary reason PPE aren't worn more regularly is that employers aren't requiring or enforcing usage. This was the number one reason for seven of the nine PPE investigated.
- Lack of style or comfort was also a frequent mention for several of the PPE – safety glasses/goggles, face shields, hard hats, and ear plugs/muffs.
- For ear plugs/muffs, the most common reason that they aren't worn is that the laborers aren't informed of the importance of the equipment

Safety Goggles

- The most common reason given for not wearing safety goggles more regularly is that employers don't require or enforce usage. 34% of the private sector participants gave this response, compared to 27% of public sector respondents.
- Lack of style and comfort, and laborers not being informed of the importance of the equipment were also frequent mentions.

Primary Reasons PPE Not Used Regularly
Safety Glasses/Goggles

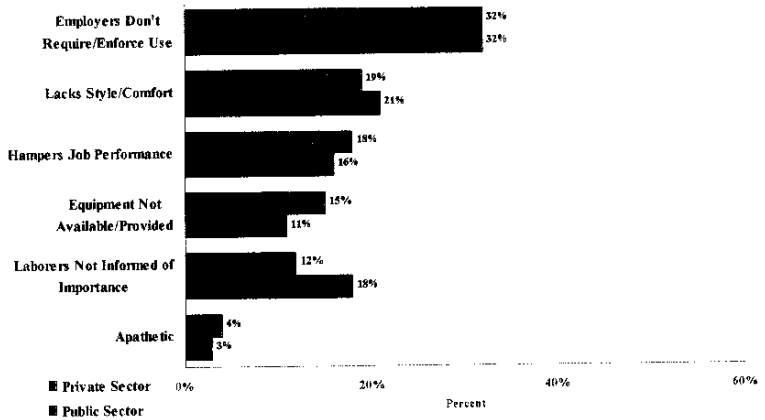


PRIMARY REASONS PPE ARE NOT USED MORE REGULARLY

Face Shields

- According to respondents, only one third of road construction workers wear face shields regularly where needed. The most frequently mentioned primary reason that they aren't worn more regularly is that usage isn't required or enforced.
- Approximately 20% and 17% of respondents also mentioned lack of style/comfort and hampers job performance, respectively. One respondent mentioned that he prefers screened shields as opposed to safety glass because the glass tends to fog up.

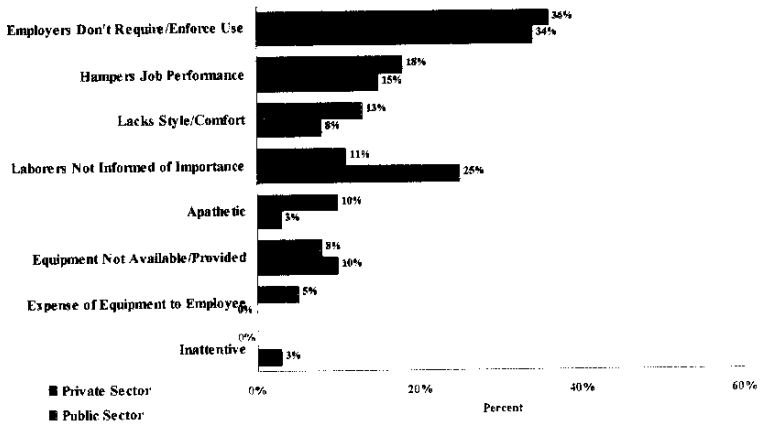
Primary Reasons PPE Not Used Regularly
Face Shields



Fall Protection

- The most frequently given reason for not wearing fall protection more regularly is that employers don't require or enforce usage.
- Interestingly, 25% of public sector respondents felt that laborers aren't informed on the importance of the equipment, while only 11% of the private sector considered this a primary reason

Primary Reasons PPE Not Used Regularly
Fall Protection

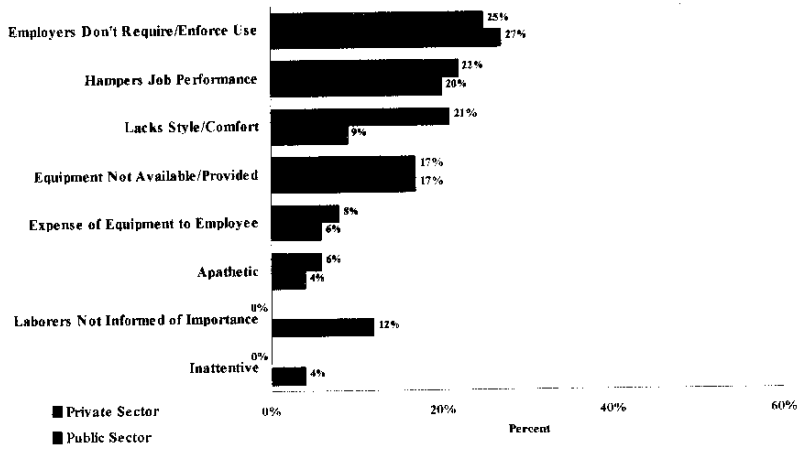


PRIMARY REASONS PPE ARE NOT USED MORE REGULARLY

Gloves

- Two thirds of workers wear gloves regularly, and of those that don't the reasons are varied. The number one reason, given by 26% of respondents, is that employers don't require or enforce usage. A smaller number felt that gloves can sometimes hamper job performance or be uncomfortable. And 17% considered a primary reason being that the gloves are not available or provided by the employer.

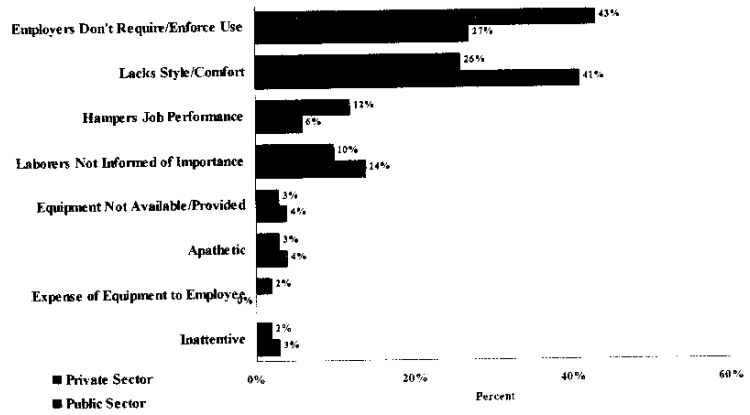
Primary Reasons PPE Not Used Regularly
Gloves



Hard Hats

- While three fourths of the work force wear hard hats regularly, the two primary reasons that they aren't worn more regularly is that employers don't require or enforce usage, and that they lack style or comfort.
- Several respondents suggested that the hard hats can get very hot in the summer time. Another respondent mentioned that the hard hats fall off frequently when doing activities that require a lot of bending over. There were also a few respondents that mentioned that the workers would rather wear baseball hats.

Primary Reasons PPE Not Used Regularly
Hard Hats



PRIMARY REASONS PPE ARE NOT USED MORE REGULARLY

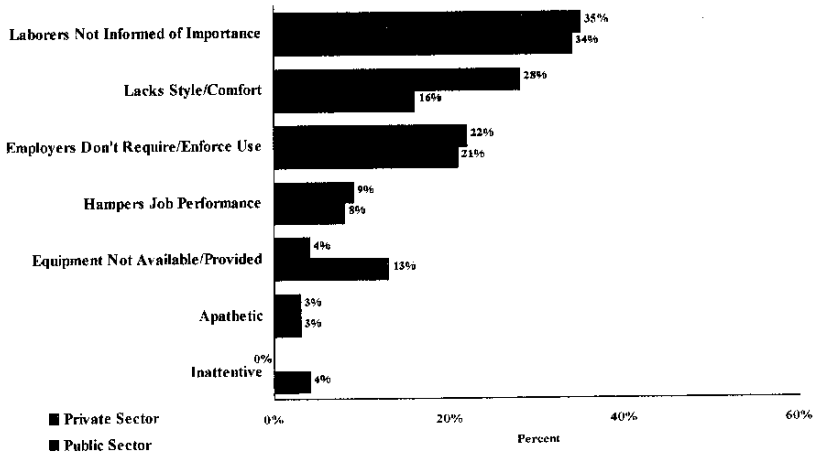
Ear Plugs/Muffs

- About half of road construction workers wear earplugs regularly where needed. Of those that don't about a third of respondents felt that it's because employees aren't informed of the importance of the equipment. Lack of comfort and lack of requirement/enforcement were each also mentioned by over 20% of respondents.

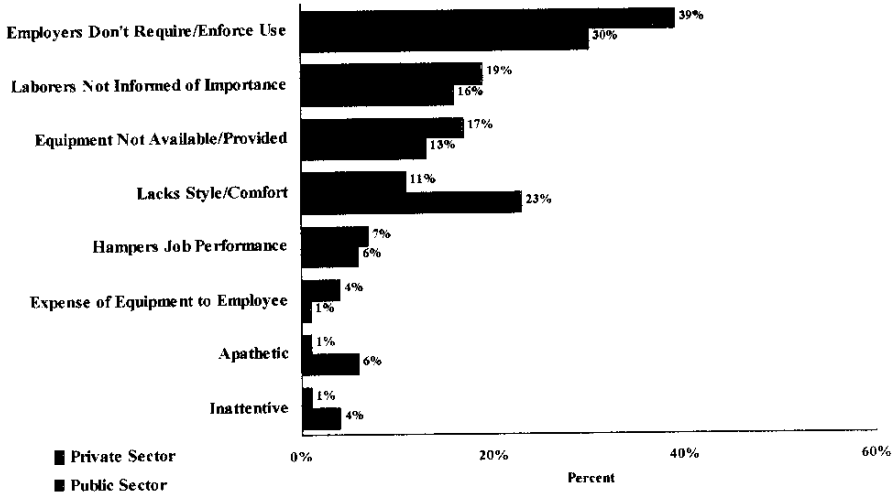
High-Visibility Apparel

- Like hard hats, about three quarters of road construction workers wear high-visibility apparel regularly, and when they don't, over a third of respondents believe it's because employers don't require or enforce usage.

Primary Reasons PPE Not Used Regularly Ear Plugs/Muffs



Primary Reasons PPE Not Used Regularly High-Visibility Apparel



PRIMARY REASONS PPE ARE NOT USED MORE REGULARLY

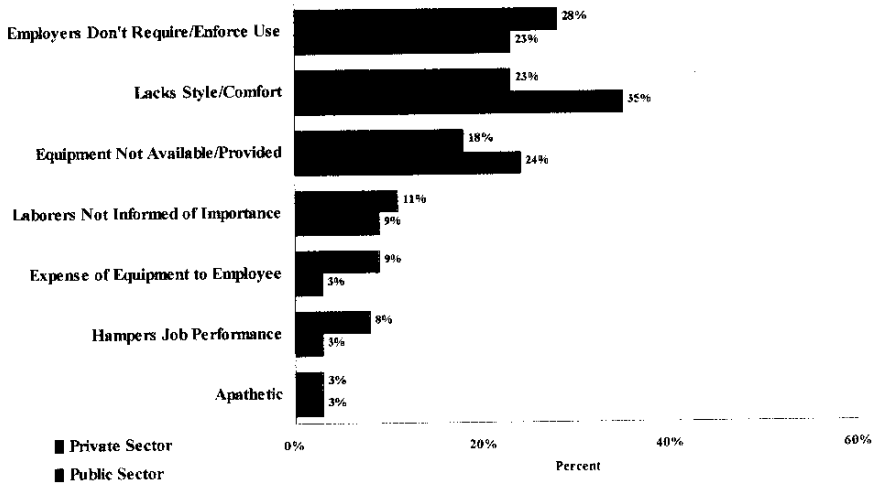
Protective Coveralls

- Protective coveralls are only worn by about 40% of workers on a regular basis where needed. When they don't, the most frequently given primary reasons are that employers don't require/enforce use, they lack style/comfort, and the equipment is not available/provided.

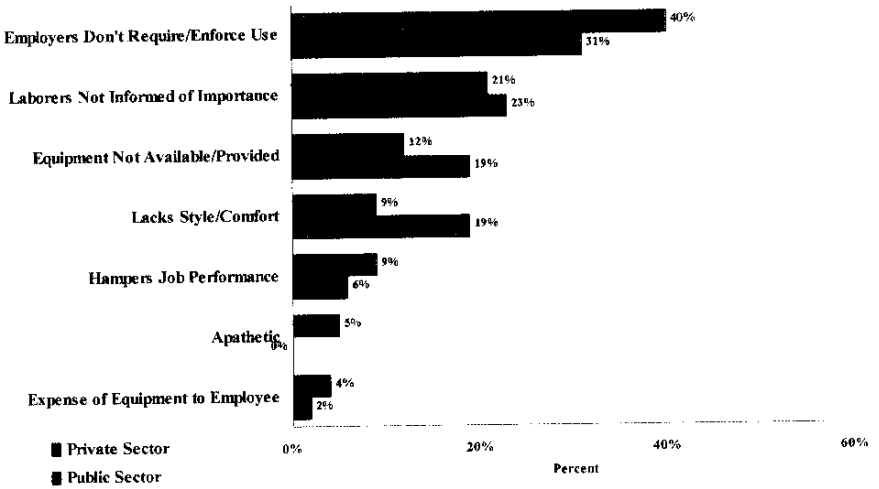
Air-purifying or Air-supplied Respirators

- Like protective coveralls, only about 40% of workers regularly use air-purifying or air-supplied respirators. The most frequently mentioned primary reason is that employers don't require/enforce use.

Primary Reasons PPE Not Used Regularly Protective Coveralls



Primary Reasons PPE Not Used Regularly Air-purifying or Air-supplied Respirators

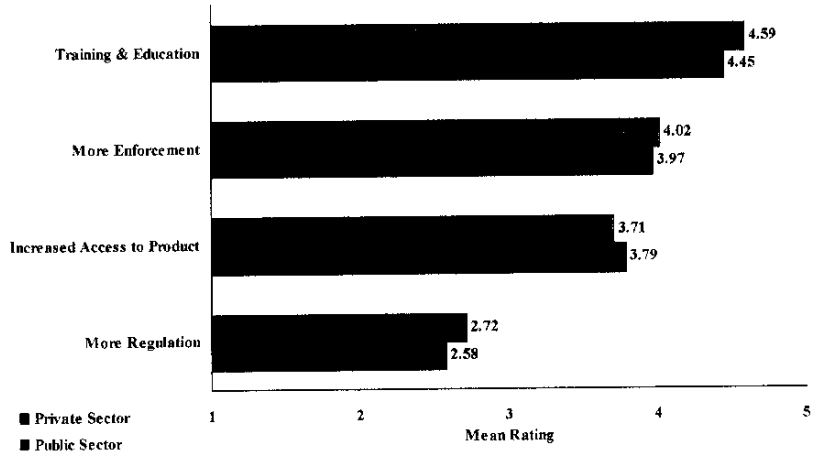


EFFECTIVENESS MEASURES WOULD HAVE TOWARD INCREASING USE OF PPE

Finally, respondents were asked to rate the effectiveness that they think various measures would have toward increasing the usage of personal protective equipment in general. The rating scale used was one to five, with one being not effective and five being extremely effective.

- Of the four measures investigated, training and education received the highest mean rating, with a score of 4.45 by public sector respondents and 4.59 by private sector respondents – both scores representing high effectiveness.
- Increased access to product, and more enforcement were not considered to be quite as effective as training and education, but both were believed to be at least moderately effective.
- The measure considered least effective was more regulation, with means scores of less than three, indicating a low level of expected effectiveness in increasing the use of PPE.

Effectiveness Measures Would Have Toward Increasing the Usage of Personal Protective Equipment



CONCLUDING COMMENTS FROM RESPONDENTS

At the end of the survey questionnaire participants were invited to make any comments before concluding. A verbatim listing of the comments follows, and a large table appears at the end of the data tabulations, which are separately bound.

The only commonality in comments were from several individuals that believed that to expand the use of safety equipment and PPE, more strict and uniform enforcement would need to be put in place. One comment contradicted this viewpoint, indicating that the workers should take personal accountability for utilizing PPE.

SECTOR	VERBATIMS
PRIVATE	INHERENTLY, LABORERS WANT TO PROTECT THEMSELVES FROM HAZARDS. PPE IS THE LAST LINE OF DEFENSE.
PRIVATE	MOST PEOPLE DON'T THINK ANYTHING WILL HAPPEN TO THEM.
PRIVATE	WE COULD IMPROVE HIGHWAY CONSTRUCTION SAFETY BY IMPROVING DRIVER QUALITY.
PRIVATE	IF COMPANIES MAKE PPE MANDATORY AND THE FIELD SUPERVISORS ENFORCE IT, THEN YOU WILL HAVE COMPLIANCE.
PRIVATE	MOST WORKERS ARE NOT INFORMED AS TO THE LARGE NUMBER OF PEOPLE IN THEIR JOB THAT ARE HURT.
PRIVATE	I WOULD LIKE TO SEE THE RESULTS OF THE SURVEY, ITS VERY RELEVANT, POST ON WEBSITE.
PRIVATE	TRAINING IN SPANISH IS NECESSARY.
PRIVATE	EMPLOYER ENFORCEMENT WOULD HELP ALONG WITH TRAINING.
PRIVATE	SUPERVISORS NEED TO BE HELD RESPONSIBLE.
PRIVATE	WE DO WORK ZONE AND TEMPORARY TRAFFIC CONTROL TRAINING. WE WOULD BE INTERESTED IN YOUR FINDINGS.
PRIVATE	THANK YOU FOR INCLUDING US ON YOUR SURVEY. WE ARE A 52 OLD FIRM DISTRIBUTING PPE EQUIPMENT.
PRIVATE	ADDRESS OWNERS, DEVELOPERS, ARCHITECTS BECAUSE THEY ARE THE ONES THAT SET THE SPECIFICATIONS.
PRIVATE	THEY NEED TO ENFORCE RULES WITH EVERYONE ALL THE TIME. HAVE TO BE CONSISTENT IN ENFORCEMENT AND PENALTIES.
PUBLIC	COMPANIES NEED ACTIVE SAFETY AND HEALTH PLANS THAT ARE WRITTEN, REQUIRE TRAINING AND HAVE A DISCIPLINE PLAN. SAFETY STARTS AT THE TOP.
PUBLIC	OUR WORKERS IN ROAD CONSTRUCTION ARE TRAINED IN SAFETY EQUIPMENT. MOST IS PROVIDED AND SUPERVISORS ENFORCE USAGE.
PUBLIC	MORE PERSONAL RESPONSIBILITY NEEDS TO BE ESTABLISHED RATHER THAN EMPLOYER RESPONSIBILITY. WHEN AN EMPLOYEE HAS BEEN EDUCATED AND PROVIDED PPE, THERE NEEDS TO BE PERSONAL ACCOUNTABILITY RATHER THAN EMPLOYER ENFORCED.
PUBLIC	MADOT DOES NOT USE FLAGGERS FOR TRAFFIC CONTROL AND PERFORMS NO WORK REQUIRING AIR PURIFICATION.
PUBLIC	NYDOT STANDARD SPECIFICATIONS REQUIRE COMPLIANCE WITH OSHA AND SPECIFICALLY REQUIRE HARD HATS, FALL PROTECTION, AND HIGH VISIBILITY APPAREL.
PUBLIC	WE ENFORCE USE 100% FOR HIGHWAY INVESTIGATORS.

ABOUT YOUR ORGANIZATION/OCCUPATION

Please indicate which of the categories listed below best describes your organization or occupation. (Check only one box.)

Association	Construction	Labor	Elected Official/staff	Federal Regulator	State Regulator	Media
1	2	3	4	5	6	7

What state are you located in? _____

If you are a contractor, what states do you operate in? (Please use state abbreviations.) _____

_____

IMPORTANCE OF ROAD CONSTRUCTION WORKER SAFETY MEASURES & PERSONAL PROTECTIVE EQUIPMENT (PPE)

Please rate the importance of each of the following measures in minimizing the risk of accident or injury at road construction sites. (Check only one box for each measure given.)

	Not Important				Extremely Important
Training and Education	1	2	3	4	5
Barriers and Cones	1	2	3	4	5
Signs and Lights	1	2	3	4	5
Flagger	1	2	3	4	5
OSHA Compliance	1	2	3	4	5
Personal Protective Equipment	1	2	3	4	5

Please rate the importance of the following personal protective equipment in minimizing the risk of injury to road construction workers. (Check only one box for each PPE given.)

	Not Important				Extremely Important
Safety Glasses or Goggles	1	2	3	4	5
Face Shields	1	2	3	4	5
Fall Protection	1	2	3	4	5
Gloves	1	2	3	4	5
Hard Hats	1	2	3	4	5
Ear Plugs or Muffs	1	2	3	4	5
Air-purifying or Air-supplied Respirators	1	2	3	4	5
High-visibility Apparel (safety vests)	1	2	3	4	5
Protective Coveralls	1	2	3	4	5
Safety Shoes or Boots	1	2	3	4	5

USAGE OF PERSONAL PROTECTIVE EQUIPMENT (PPE)

Please estimate the actual percentage of road construction workers who regularly use the following personal protective equipment when needed. (Check one box for each PPE given.)

	< 20%	20% - 39%	40% - 59%	60% - 79%	≥ 80%
Safety Glasses or Goggles	1	2	3	4	5
Face Shields	1	2	3	4	5
Fall Protection	1	2	3	4	5
Gloves	1	2	3	4	5
Hard Hats	1	2	3	4	5
Ear Plugs or Muffs	1	2	3	4	5
Air-purifying or Air-supplied Respirators	1	2	3	4	5
High-visibility Apparel (safety vests)	1	2	3	4	5
Protective Coveralls	1	2	3	4	5
Safety Shoes or Boots	1	2	3	4	5

For each personal protective equipment item listed below, please indicate the <u>primary</u> reasons that it is not used more regularly. (Check as many boxes of primary importance as apply.)

	Employers Don't Require/Enforce Usage	Equipment Not Available or Not Provided	Laborers Aren't Informed On Importance Of Equipment	Expense of Equipment to Employees	Lack of Style/comfort	Hampers Job Performance	
Safety Glasses/Goggles	1	2	3	4	5	6	
Face Shields	1	2	3	4	5	6	
Fall Protection	1	2	3	4	5	6	
Gloves	1	2	3	4	5	6	
Hard Hats	1	2	3	4	5	6	
Ear Plugs or Muffs	1	2	3	4	5	6	
High-visibility Apparel	1	2	3	4	5	6	
Protective Coveralls	1	2	3	4	5	6	
Air-purifying or Air-supplied Respirators	1	2	3	4	5	6	

Please rate the effectiveness you think each of the following measures would have toward increasing the usage of personal protective equipment in general. (Check only one box for each measure given)

	Not Effective				Extremely Effective
Training and Education	1	2	3	4	5
More Regulation	1	2	3	4	5
More Enforcement	1	2	3	4	5
Increased Access to Product	1	2	3	4	5

Comments: _____

_____

Please return by March 9th, 2000 by faxing to 1 (800) 704-3456!

THANK YOU FOR YOUR COOPERATION

INTERNATIONAL SAFETY EQUIPMENT ASSOCIATION ISEA

February 16, 2001

Dear Road Construction or Highway Safety Professional:

As someone who follows construction and safety issues, you recognize the importance of protecting workers on road, bridge and tunnel construction sites.

The International Safety Equipment Association (ISEA), which is the trade association for companies that make personal protective equipment (PPE), shares your concern about worker safety, and we are developing an outreach program to help the construction industry reduce worker deaths and injuries. We are seeking input from experts such as yourself about various types of safety measures to help us refine our efforts.

We know that you are busy and your time is valuable, but we would greatly appreciate it if you will take a moment to fill out the attached questionnaire and return it by fax to the toll-free number given below. It should take no longer than five minutes to complete, and your insights will help us identify ways we can improve worker safety in construction zones.

Please fax your completed questionnaire to 800/704-3456 by March 9, 2001. You are welcome to contact me or my associate, Joe Walker, with any questions you may have about this survey at 703-525-1695. And I invite you to visit our website – www.safetyequipment.org – to find out more about ISEA and the latest in PPE. With your help, we can gain a better understanding about how to do our part to save lives and prevent injuries on construction job sites.

Sincerely,

Daniel K. Shipp
President

Survey form enclosed

1901 North Moore Street, Arlington, Virginia 22209-1762 USA | 703-525-1695
www.safetyequipment.org • isea@safetyequipment.org | fax 703-528-2148