

NOHSC SAFE DESIGN PROJECT

~MARKET RESEARCH~

by



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INTRODUCTION

This report has been prepared by McGregor Tan Research to explore and report on awareness, understanding and knowledge levels of the target groups with respect to OHS safe design obligations. Two key areas of activity were the focus of the research:

- Safe design of plant and machinery; and
- Design of buildings and structures to be safely constructed, maintained and used as workplaces.

The role of safe design in improving workplace safety is of increasing interest to occupational health and safety bodies in Australia, as is the important role that designers, including architects and engineers of all kinds, contribute to the design process. The National Occupational Health and Safety Commission has been pursuing issues of safe design as one way to make our workplaces safer.

There are around 450 traumatic deaths in Australian workplaces each year and the number of workplace deaths and injuries remain stubbornly high despite a wide variety of efforts to reduce the toll. In addition to the 450 workers who die each year from work-related traumatic injuries, the number of deaths from work-related diseases, while difficult to establish, has been estimated at about 2,300 a year.

To date a raft of approaches have been used to tackle the problem – regulation, guidance, penalties, education, management systems, publicity campaigns. All have contributed to the better planning and control of health and safety. But still the toll of workplace death and injury persists. It's not that past efforts have failed. Without them the toll would probably be escalating rather than being held in check. However, checking a rise in the toll is not good enough.

All those concerned about workplace health and safety want to see the toll showing a sustained downward path. To do that, it has now become clear that new approaches need to be added to the established strategies. This is where recent and increasing interest on the role of good design from an OHS perspective comes into the picture.

There is evidence in the literature that suggests much can be achieved by incorporating more thinking and action at the design stage on the occupational health and safety aspects of design. For example, in one Australian study of 46 workplace deaths involving the use of hydraulic equipment, 61 instances of design problems were found with the equipment. Similarly, in relation to

building and construction activity, a recent UK study found that 36% of deaths and injuries could be traced to the nature of the design of the structure.

NOHSC's safe design project therefore is looking at ways to encourage right up front at the design stages, much more thinking about and acting on the occupational health and safety aspects of design, both in relation to design of plant and equipment and in the design of buildings and structures such as dams, roads, towers, bridges etc. An important outcome from the work should be that designing for safety at work is a natural part of the design process. By designing out potential OHS problems before they become real OHS hazards in the workplace, OHS risks are removed at source from entering the workplace—the highest level of workplace prevention.

To achieve this, designers and design professionals of all kinds are critical players and are best placed to take a proactive and leading role in helping the community solve its OHS problems at this level. NOHSC's major task for this project therefore, is to unlock how NOHSC and its stakeholders can help designers and design professionals accept this challenging lead role and to eventually see all those who have an influence at the design stage undertaking serious and systematic consideration of the OHS aspects of all designs as a natural part of the design process.

Other key groups in a position to influence safe design from an OHS perspective are manufacturers, suppliers and importers of plant and machinery and constructors, installers and suppliers of buildings and structures.

The aim of this survey is primarily to obtain some indication of current awareness levels and OHS practices of all the target groups. Data was also obtained on barriers and motivations to the take-up of safe design from an OHS perspective and preferences in relation to information use and access methods. The survey is just one of a number of initiatives that NOHSC has undertaken to help develop a deeper understanding of how best to help designers inject more thinking and acting on OHS issues at the design stages. The information will help NOHSC and NOHSC's stakeholders develop more appropriate and effective ways to increase awareness of the key target groups of the need for more consideration of the issue at the design stages and more appropriate resources to help designers with this challenge.

RESEARCH METHODOLOGY

General Issues

The research on this issue was conducted in three stages:

- **Stage 1** – Situation analysis (a desk based review of the literature to identify what the literature tells us about the issues)
- **Stage 2** – Understanding the issues (involving in depth interviews with a small sample of the target audiences)
- **Stage 3** – Establishing baseline data (a quantitative survey of the target audiences).

Stages 1 and 2 comprised the qualitative phase of the research and stage 3 the quantitative phase.

There were a number of 'limiting' factors that impacted on the conduct and outcomes of the research and these needs to be borne in mind when reading the report. They are:

- The survey was the first to attempt to obtain information on safe design from an OHS perspective from the identified target groups.
- Due to the need to meet broader timeframes for the safe design project, only limited time was available to develop the quantitative survey design and content of the telephone questionnaires.
- Difficulties were experienced in arriving at the appropriate target population definition and sample frame.
- Mechanisms were needed to ensure that the data obtained was analysed from an OHS perspective.

It is intended to repeat the quantitative survey at a later stage to compare with the baseline data obtained now as a means of evaluating the success of the safe design project. The lessons learned from this experience will help to achieve improved survey instruments and methodology when the survey is repeated.

Stage 1 - Situation Analysis

This involved a “desk based review of relevant literature and information already available and supplementary interviews with 10 industry/professional associations to help identify relevant issues.

Two key reports reviewed as part of the desk research were commissioned by NOHSC specifically for the safe design project, i.e.:

- *Review of Literature and Review of Initiatives of OHS Authorities and Other Key Players* – VIOSH Australia (Ballarat University).
- *Review of OHS Legal Requirements for Designers, Manufacturers, Suppliers, Importers and Other Relevant Obligation Bearers* – Neil Gunningham and Associates.

The work undertaken in this stage informed the development of the basic approach to the in-depth interviews undertaken in Stage Two.

Stage 2 – Understanding the Issues

Stage Two involved in-depth interviews with individual representatives of the project target groups in the capital cities of two large and one small state (NSW, VIC and SA). Interviewers employed the non-directive interview technique, where the researcher remains passive and only intervenes in the natural flow of conversation when a particular point needs probing or to introduce stimulus material.

The broad lines of inquiry used in these interviews were developed from the research undertaken in the stage one situational analysis. More detailed information on Stages 1 and 2 methodologies is at Appendix 1.

Stage 3 – Establishing Baseline Data

The qualitative research in Stages 1 and 2 informed the development of questionnaires for the telephone survey, which comprised the quantitative research undertaken in Stage 3.

The target national sample for this survey was approximately 800 respondents, and the actual sample achieved the following distribution:

	Plant and Equipment	Building and Structures
Total	612	214
Sydney	181	85
Melbourne	195	79
Other Capital Cities	175	30
Regional	61	20

- 612 respondents engaged in plant and equipment design, manufacture, import and supply.
- 214 respondents engaged in design, construction and installation of buildings and structures.

The design of the survey including sampling frame; sample design; and telephone survey content and processes was developed in consultation with the NOHSC Safe Design Reference Group and the Australian Bureau of Statistics' Statistical Clearing House. Statistical collections affecting 50 or more businesses run by, or on behalf of, Commonwealth Government agencies are subject to a central clearance process. This function is performed by the Statistical Clearing House and is aimed at reducing duplication and monitoring the overall workload the surveys impose on businesses.

Special care was taken to contact the appropriate person in the organisation, i.e. a senior person who could speak about design issues from an OHS perspective, not the person who was responsible for OHS for employees in the organisation.

To avoid confusion during the survey, two similar questionnaires were developed – one for plant/machinery and one for buildings/structures. The number of questions and general content of the questionnaires was the same with some variations, for example in the range of options from which to select, to take into account differences between the two areas of activity.

The questionnaires were pilot tested and minor adjustments made prior to commencement of the fieldwork. Processes were in place and undertaken for interviewer briefing, auditing and validation of interviews and interviewer debriefing.

Data obtained was processed and analysed using industry approved Survey System software package and appropriate quality control processes were used.

Information on sampling tolerance and the full text of the questionnaires are provided at Appendix 2 to this report.

EXECUTIVE SUMMARY

The following executive summary covers the findings of the qualitative and quantitative research among the target groups for plant & machinery and buildings & structures.

2.1 Current awareness of OHS responsibilities

- 2.1.1 Awareness of OHS obligations in relation to the safe design of plant & machinery and buildings & structures appears to be quite low. Designers, and other target groups, demonstrated poor knowledge and attitudes toward safe design. Very few groups acknowledge that they have an obligation.
- 2.1.2 The misconception of Australian Standards as OHS legislation emphasised the low awareness and lack of understanding with regard to safe design. A distinction between the legislation and Australian Standards needs to be communicated.

2.2 Barriers and motivations to safe design considerations

- 2.2.1 The most concerning issue to be uncovered by this research is that end users are often apportioned blame when they don't safely use plant & machinery and buildings & structures. The target groups do not always acknowledge that if safety measures are built into the design stage, the potential hazards are removed before use in the workplace.
- 2.2.2 The groups experienced a range of problems when complying with OHS requirements. Some of the difficulties are associated with obtaining and understanding OHS information. This highlights a need for well-distributed, clear and user-friendly information.
- 2.2.3 A mandatory inclusion of safe design specifications on purchasing documents and tenders will ensure that all

organisations are on a level playing field when purchasing and tendering. This will reduce the cost barrier if organisations incorporate safe design considerations in the cost structure as a matter of course. This will also encourage communication between designers and clients about safety requirements of designs.

- 2.2.4 Education should begin at tertiary level. Academic staff should also ensure that their knowledge and skills are relevant and timely. Lifelong learning can be catered for through professional development seminars and workplace OHS training.

2.3 Information use and access methods

- 2.3.1 Just over half of the respondents have accessed information on OHS legislation requirements. This suggests that many organisations are not keeping themselves properly informed of OHS developments and obligations.
- 2.3.2 Most organisations would obtain OHS information from WorkCover or the local OHS authority. Australian Standards was named as an information source. Yet again, this reinforces the incorrect perception of Australian Standards as legislation.

2.4 Summary comment

- 2.4.1 It is suggested that OHS must be integrated into management processes and operations. Designers should appreciate the benefits of safe design, as should all groups involved in plant & machinery and buildings & structures. Responsibility must be taken, whereby all groups seize ownership of OHS as a useful and essential part of business.

QUALITATIVE RESEARCH FINDINGS

3.1 Awareness, knowledge and understanding of OHS responsibilities for safe design

- 3.1.1 Initially, many participants (particularly manufacturers) said that their respective industries were already doing as much as humanly possible to achieve this objective, but most began to appreciate that more in fact could be achieved by focussing on safe design.
- 3.1.2 All felt that, ultimately, responsibility lies with the employer or main contractor. Several participants (from all groups) suggested that individual workers often brought injury (or worse) on themselves by wilfully ignoring safety procedures. Some manufacturers felt that the end-users would find a way to cause themselves injury despite every effort having been made to avoid it. However, participants did recognise that in spite of these issues, they had to continue finding ways of making the workplace even safer.
- 3.1.3 Those involved in design (including architects) were reluctant to accept responsibility for accidents which might happen with anyone using their products or working in an area they were designing, although they did suggest they felt a duty of care (legal obligation) about their work overall. They said that they work on commission and it is up to the contractor or manufacturer using their services to identify any specific safety requirements.
- 3.1.4 The manufacturers and producers interviewed indicated that they were already addressing safety issues through self-regulation, the observance of industry safety codes and the sharing of ideas with others in their industry. It was generally recognised among this group that the manufacturer was primarily responsible for ensuring designers had the welfare and safety of end-users in mind at the design stage.

Some of the retailers interviewed recognised that, as they were dealing with machinery, materials or vehicles which were potentially dangerous if users were not properly trained, they had a duty of care to ensure that their customers were properly informed of the risks. For some, this concern was motivated by a concern for their own legal liability in the event of an accident.

Plant and machinery

- 3.1.5 Most participants accepted that the safety of the end-user should be a major concern at the design stage of tools, machinery, equipment, vehicles etc; and it was felt by many that the designers and manufacturers of most products with whom they worked had achieved this broad objective.
- 3.1.6 Members of this group thought that designers and purchasers should work together to make products safer. However, it is necessary to keep products easy to use to prevent operators from bypassing safety measures because it delays their use.
- 3.1.7 Several respondents from this group suggested that it was the responsibility of retailers of potentially dangerous equipment to ensure that their customers were aware of the risks.

Buildings and structures

- 3.1.8 Respondents from the building and construction industries believed that safe design has little relevance to them. Whilst OHS requirements were largely observed, their enforcement remained the responsibility of the main contractor.
- 3.1.9 Architects felt that it was up to the builder to ensure that what they designed could be built without risk to workers on site. The builders themselves agreed that although designers (including engineers and architects) have a role to play in ensuring workers aren't at risk, it was the role of the main contractor to ensure that buildings could be built safely and the work site was properly supervised to ensure proper measures were being observed.

3.2 Current OHS practices of target groups

- 3.2.1 Manufacturers and producers suggested they had systems in place for ensuring safety. Some indicated that they take part in industry association accreditation programs to ensure the companies using their products have the competence to do so safely. It was suggested that any education program should encourage all manufacturers to follow this example.

3.3 Barriers and motivations to consideration of OHS at the design stage

- 3.3.1 Motivations to consider OHS at the design stage were the desire to play their part and to be seen to be doing so (public opinion being a powerful influence). The fear of being held liable for accidents occurring with products they designed, sold, purchased or distributed was very strong.
- 3.3.2 Most agreed that an education and publicity campaign was essential, directed both at workers and the public at large. It was suggested that families of those working in 'dangerous' areas (such as agriculture and construction) be targeted.
- 3.3.3 Although architects saw value in receiving feedback from end-users or operators of products they designed, they felt that most accidents were the result of the product being misused.
- 3.3.4 Some manufacturers interviewed stressed that existing rules and regulations both nationally and in different states, were complex and that there was little or no national coordination. This in turn created a problem for manufacturers and importers of machinery. It was felt that the following should be nationally coordinated:
- NOHSC guidelines
 - Australian Standards
 - Industry codes
 - State laws and regulations

Plant and machinery

- 3.3.5 Most respondents felt that designers and manufacturers of the products with which they worked had considered the safety of the end-user or operator in designing the product. Any failure was attributed to the way that this was communicated.
- Several participants suggested that improvements could be made to user manuals supplied. It was suggested that these were often poorly written and presented in a boring fashion.
- There was a perception among participants that end-users tend to ignore the safety message by not reading the user manual and by bypassing safety devices in order to use the tool or machine in a way that suits them best.
- Suppliers of tractors and other vehicles suggested that, as the rural climate is currently in a state of decline, farmers choose the cheapest rather than the safest form of safety devices and equipment designed for farm vehicles. These participants considered that there is a need for assistance to pay for this essential safety equipment.

Buildings and structures

- 3.3.6 Architects and designers in the building sector felt that cost savings would be rated more highly by builders and developers than safe design features, unless they were seen to be essential for safety purposes and/or required by law.
- 3.3.7 It was suggested that the main weakness of the building and construction industries was fragmentation, given the number of sub-contractors and self-employed tradesmen. However it was considered to be up to the main contractor to ensure that safety measures are observed on the site.
- 3.3.8 Another issue highlighted was that many workers have been in the industry for years and are reluctant to change (e.g., wearing protective clothing). Younger employees were said to be better educated and able to understand the need to observe the rules.

- 3.3.9 The current boom in the industry (particularly in housing) was also identified as a problem as it had attracted a lot of new, inexperienced operators to the business.

3.4 Sources of information

- 3.4.1 There appears to be a need to introduce an education program aimed at the following groups:
- Designers, engineers and architects: OHS factors arising from the implementation of their ideas
 - Manufacturers and purchasers: the key concerns relating to worker safety when using their products
 - Distributors and retailers: their responsibility to inform their customers about any risks associated with the products they purchase
 - Purchasing officers, the end-users and operators of plant and machinery: risks and the need to learn and adhere to the safety measures advocated by the manufacturers
 - Contractors and workers on building sites: the need to observe safety regulations on site
 - The general public, given that these issues affect most workers and their families
- 3.4.2 For medium and large companies, industry and trade associations are a key source of information. These organisations publish regular newsletters, which contain vital information about these issues, especially updates to Australian Standards.
- 3.4.3 When it comes to matters like OHS, smaller companies (especially those which are owner - managed) tended to rely on their own practical knowledge and commonsense. It seemed as if some of these companies were not keeping themselves properly informed about these issues.
- 3.4.4 WorkCover organisations in each state and NOHSC play an important role in the dissemination of information, particularly for smaller companies who may not be members of their respective Associations or regularly attend their meetings.

- 3.4.5 Although training organisations played a role for some, clear evidence emerged that designers and engineers had not taken up the option to study OHS issues at a tertiary level.
- 3.4.6 Manufacturer's manuals were also considered a useful source of information, however there was evidence to suggest that they were often ignored, particularly by those who had been working in the industry for some time and thought that they knew it all.

3.5 Preferred method and form of information

- 3.5.1 Designers and engineers suggested that there was a great need for improved education in this sector of the industry and that OHS issues should become a compulsory, rather than an elective, part of their tertiary training.
- 3.5.2 Several distributors and retailers interviewed indicated that they need support from designers and manufacturers to educate users about the risks involved in using the product incorrectly. They suggested that this should take the form of information and educational materials such as manuals and videos.
- 3.5.3 Many participants involved with plant and machinery thought that 'safe-use' should be communicated in a more interesting way, such as through the use of video, the Internet, seminars and personal, face-to-face instruction.
- 3.5.4 It was suggested that publicity campaigns should be directed at the partners of farmers since they were often the business managers of their farms.
- 3.5.5 In addition to the sources of information currently being used (which were all considered to be important) some wider forms of publicity were suggested to effectively 'sell' the safety message. These were as follows:

- **Person to person contact** - deemed to be the most effective way of persuading and informing people about these issues.
- **Leaflets** - which are simple and easy to read, and written in plain English.
- **The Internet** - not as widely used as is often commonly supposed (particularly by typical workers on a construction site) but still considered to have its role to play.
- **Seminars** - seen to be very useful but there seems to be less time for people to attend these events now as companies are 'downsizing'.

QUANTITATIVE RESEARCH - PLANT AND MACHINERY

4.1 Current awareness of OHS legislation – plant and machinery

4.1.1 This section explores the current awareness and knowledge of those target groups which have OHS obligations in relation to the design of plant and machinery. Six questions were asked to explore different aspects of target group awareness (see questionnaire at Appendix 2).

4.1.2 Overall the combined responses to questions relating to awareness levels provide some evidence of:

- Poor awareness levels across all target groups of OHS obligations relating to safe design of plant and equipment, with designers (engineers) and manufacturers being slightly more aware than importers, suppliers and installer/erectors,
- An over inflated view from respondents of their level of knowledge of OHS responsibilities/obligations from a design perspective, and
- A degree of misconception of Australian Standards as legislation

4.1.3 Only 75% of respondents (see Table 1 below) indicated a positive response when asked whether they were aware of any OHS legislation that relates to the design of plant and machinery (see Q4), with 3% indicating they were not sure and 22% indicating no awareness.

Table 1: Awareness of any OHS Legislation relating to safe design of Plant and Machinery %)

	Total	Designers (Engineers)	Manufacturers	Importers	Suppliers	Installers and Erectors
Yes	75	77	79	72	70	68
Not Sure	3	3	2	5	4	2
No	22	20	19	23	27	30

4.1.4 Manufacturers and designers (engineers) appeared to have higher levels of awareness than importers, suppliers and installers/erectors.

4.1.5 Whilst the overall level of awareness is relatively low, the vast majority (82%) with a positive response to awareness of any OHS legislation relating to safe design were unable to provide any details about specific OHS legislation (see Table 2 below).

Table 2: % of Yes Responses who could provide details of relevant OHS legislation

	Total	Designers (Engineers)	Manufacturers	Importers	Suppliers	Installers and Erectors
Yes – Details Provided	18	22	11	20	16	27
Yes – No Details Provided	82	78	89	80	84	73
Total (%)	100	100	100	100	100	100

4.1.6 For the small number that were able to suggest relevant OHS legislation (18% of the positive responses), knowledge of Australian standards was most often the response volunteered (see Table 3 below).

Table 3: Respondent Feedback on Awareness of Specific OHS Legislation relating to safe design of plant and machinery (Number)

Responses (Grouped)	Total	Designers (Engineers)	Manufacturers	Importers	Suppliers	Installers and Erectors
OHS legislation, regulations, codes	35	15	9	4	4	3
Standards Australia Standards, guides	34	11	4	5	6	8
Other	14	5	2	3	3	1
Total	83	31	15	12	13	12

4.1.7 Question 6 (see Appendix 2 for details) attempted to further probe awareness levels by seeking specific (unprompted, multiple) responses to their company's *obligations* under OHS legislation relating to the safe design of plant and machinery. The following Table provides a summary of the responses.

Table 4: Unprompted responses to awareness of Obligations – Summary of Responses x Category (Grouped)

Responses (Grouped)	Responses		Designers (Engineers) %	Manufacturers %	Importers %	Suppliers %	Installers and Erectors %
	No	%					
Identify, Assess, Control	479	38.7	41.5	42.1	30.8	32.0	41.0
Obtain, communicate, provide information	250	20.2	18.3	20.6	23.3	20.5	20.5
Provide plant and machinery without risks to H&S	344	27.8	27.2	25.9	31.4	30.0	26.9
Conform to Australian Standards	33	2.7	2.9	0.9	5.0	3.0	3.2
Don't know, can't say	73	5.9	4.7	5.6	5.0	11.5	3.2
Other	59	4.8	5.5	5.0	4.4	3.0	5.1
<i>Responses</i>	<i>1,238</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>
<i>No of Respondents</i>	<i>612</i>		<i>184</i>	<i>166</i>	<i>83</i>	<i>113</i>	<i>66</i>
<i>Responses per Respondent</i>	<i>2.02</i>		<i>2.08</i>	<i>2.05</i>	<i>1.92</i>	<i>1.77</i>	<i>2.36</i>

4.1.8 The most common responses for all target groups were obligations around the need to identify and/or assess and/or control risks with 38.7% of all responses. Designers (engineers), manufacturers and installers/erectors identified this category grouping more frequently than importers and suppliers.

- 4.1.9 The second most common response was obligations to provide plant and machinery without risks to health and safety when properly used (27.8%) followed by obligations around obtaining, communicating or providing necessary information (20%).
- 4.1.10 Nearly 6% of responses did not know or could not say what their company's OHS obligations were in relation to safe OHS design matters with responses from suppliers being significantly higher at 11.5%.
- 4.1.11 Close to 3% of responses indicated conforming to Australian standards was an obligation under OHS legislation relating to the safe design of plant and machinery.
- 4.1.12 There was a relatively low number of responses received to this question (2.02 responses per respondent) indicating a generally low level of knowledge of OHS obligations from a design perspective. Installers/erectors provided the most responses (2.36 responses per respondent) and suppliers the least (1.77 responses per respondent).

4.2 Barriers and motivations – plant and machinery

- 4.2.1 The literature suggests that greater consideration of Occupational Health and Safety at the design stage could significantly reduce injuries. This section endeavours to discover what barriers currently exist to the adoption of safe design. i.e. why is safety not a major concern? On the other side of the coin, factors encouraging safe design are also explored.
- 4.2.2 A critical finding of the research is the attitude that safety aspects are ignored by end users. This means that the groups believe that if injury should occur, it is the user's fault. These groups need to understand that safe design could have prevented the injury. They need to acknowledge that legislation requires them to design plant and machinery safely. All relevant groups must recognise their responsibility toward

end users. Even if greater consideration was given to design, the groups think that end users will still injure themselves.

4.2.3 The most frequently reported barriers were;

- Users ignoring safety aspects of design
- Lack of material
- Lack of practical guidance
- Poor documentation from designers/manufacturers
- Plant and equipment imported from overseas
- Poorly written manuals and brochures.

A fifth of the respondents claim that they experienced no difficulties in meeting their OHS obligations. Most of these respondents were suppliers and importers of plant.

4.2.4 Other factors recognised to be barriers were:

- Cost considerations
- Poor documentation about OHS issues in design
- Lack of clear guidelines to assist in OHS considerations.

Respondents rated barriers on a scale of 0-10 with 10 being extremely significant and 0 being not at all significant. The following table lists the responses for the group as a whole and designers (engineers) responses. Designers' ratings were very similar to the group as a whole.

Perceived barriers to the adoption of safe design principles	Total sample average (1-10 scale)	Designers (1-10 scale)
Safety aspects in design are ignored by users	6.3	6.3
Cost considerations	5.7	5.5
Poor documentation about OHS issues in design	5.5	5.7
Lack of clear guidelines to assist	5.4	5.5
Client specifications do not include OHS issues	5.3	5.5
Lack of communication about design safety	5.3	5.5
Skills/knowledge of academic staff in tertiary institutions	5.3	5.4
No coverage of these issues in professional development programs	5.1	5.4
OHS aspects of design are not important	4.9	4.9
Poor understanding of how plant and machinery will be used	4.8	4.9
Safety aspects in design are not well understood	4.6	4.6

4.2.5 Factors that respondents consider encourage greater consideration of OHS issues at the design stage were also identified. The top motivators were identified as:

- Industry Codes of Practice
- Workplace training on OHS and safe design
- Service contracts that include regular safety checks
- Inclusion of safe design specifications on purchasing documents and tenders
- OHS legislation and guidelines.

4.2.6 Target groups apparently have difficulty in obtaining and understanding OHS legislation information. This is obvious when considering the low awareness levels. This highlights a

need for well distributed, clear and user friendly information. Industry Codes of Practice could reinforce the requirements. There is also a need for workplace training. The groups indicate that tertiary education on safe design would encourage the adoption of safe design principles.

4.2.7 Inclusion of safe design specifications on purchasing documents and tenders appears to encourage OHS principles. This would ensure that organisations and clients consider safety issues. Ideally, organisations should also work closely with the client to understand how the plant and machinery will be used and by whom.

4.2.8 OHS legislation was considered to be a motivator for safe design. However, few respondents have a working knowledge of their obligations. If the groups actually understood their responsibilities, then legislation could be a decisive motivating factor. This provides further support for the need of unambiguous and user friendly information.

4.2.9 Other factors encouraging safe design are as follows;

- Publication of inquiries and workplace accidents
- More promotion of safe design at point of sale
- Active leadership taken by professional organisations
- Awards for safe design
- Professional development seminars

These motivations were not as highly rated as those previously discussed in 3.2.5 – 3.2.8. This is not to say that they lack effectiveness, but just that they weren't nominated as often.

4.2.10 Responses for all groups in this section were relatively similar.

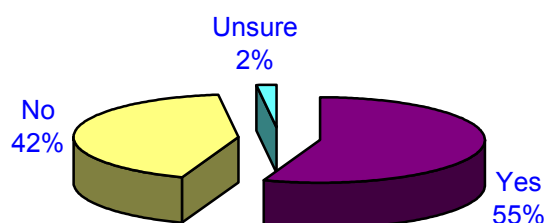
4.3 Information use and access methods – plant and machinery

4.3.1 Over half of the respondents have actively sought information about OHS requirements. Compared with the low awareness

findings earlier, this is a more favourable outcome. Over 50% have accessed information, while only 14% could outline specific legislation.

- 4.3.2 There is a possible explanation for the variance. OHS information may have been obtained but the individual was unable to spontaneously recall legislation details.
- 4.3.3 The other half of the respondents were unsure if they had ever sought information. It would be a fair assumption that a 'not sure' answer would be more likely to reflect a 'no' answer. Organisations may not be unwilling to admit their ignorance of OHS. Alternatively, information may have been accessed but not understood or applied. An attractive possibility could be that OHS practices are already integrated into operations, being so ingrained that its presence goes undetected. Unfortunately, most of this research does not appear to support this theory.
- 4.3.4 Out of all the target groups, designers had the highest incidence of information search. They were followed by manufacturers and importers. Below is a pie graph graphically illustrating the distribution of total responses.

**HAVE YOU EVER SOUGHT INFORMATION ON OHS
SAFE DESIGN REQUIREMENTS?**



- 4.3.5 The following table outlines the sources from which OHS information would be obtained:

Information source for Occupational Health and Safety in relation to design	Total sample average	Designers
Local WorkCover/OHS authority	45%	41%
Australian Standards	31%	31%
Industry/employer association	11%	10%
National OHS Commission	10%	8%
Don't know	11%	14%

Top 5 responses only

- 4.3.6 The local WorkCover/OHS authority was mentioned most often as a source of information.
- 4.3.7 Designers would seek information from relatively similar places as the other target groups. They did indicate that they would seek information from clients more so than any other group. This is logical, as designs would often be based upon client specifications.
- 4.3.8 Yet again, Australian Standards was confused with OHS legislation. This reiterates the need to inform all groups involved in the design of plant and machinery, of the role of OHS legislation as opposed to Australian Standards.
- 4.3.9 If information were to be sent out, the largest proportion of respondents indicated post as the preferred method of communication. Internet and e-mail followed.

QUANTITATIVE RESEARCH - BUILDINGS AND STRUCTURES

5.1 Current awareness of OHS legislation – buildings and structures

- 5.1.1 This section explores the current awareness and knowledge of those target groups which have OHS obligations in relation to the design of building and structures. Six questions were asked to explore different aspects of target group awareness (see questionnaire at Appendix 2).
- 5.1.2 Overall the combined responses to questions relating to awareness levels provide some evidence of:
- Poor awareness levels across all target groups of OHS obligations relating to safe design of buildings and structures, with designers (engineers) being slightly more aware designers (architects), installer/erectors and significantly more aware than constructors suppliers.
 - An over-inflated view from respondents of their level of knowledge of OHS responsibilities/obligations from a design perspective, and
 - A degree of misconception of Australian Standards and the Building code as relevant OHS legislation
- 5.1.3 Only 67% of respondents (see Table 1 below) indicated a positive response when asked whether they were aware of any OHS legislation that relates to the design of building and structures (see Q4), with 7% indicating they were not sure and 26% indicating no awareness.

Table 1: Awareness of any OHS Legislation relating to safe design of Buildings and Structures

	Total	Designers (Engineers)	Designers (Architects)	Constructors	Suppliers	Installers and Erectors
Yes	67	81	69	50	40	65
Not Sure	4	4	7	13	12	2
No	26	15	24	38	48	27

5.1.4 Designers (engineers) appeared to have the highest levels of awareness (81%). The next group appeared to designers (architects) and installers/erectors (69% and 65% respectively) with very low levels reported for constructors and suppliers (50% and 40% respectively)

5.1.5 Whilst the overall level of awareness is relatively low, the majority (63%) with a positive response to awareness of any OHS legislation relating to safe design were unable to provide any details about specific OHS legislation (see Table 2 below).

Table 2: % of Yes Responses who could provide details of relevant OHS legislation

	Total	Designers (Engineers)	Designers (Architects)	Constructors	Suppliers	Installers and Erectors
Yes – Details Provided	37	37	39	43	40	24
Yes – No Details Provided	63	63	61	57	60	76
Total (%)	100	100	100	100	100	100

5.1.6 For the small number that were able to suggest relevant OHS legislation (37% of the positive responses), knowledge of Australian standards and the Building code was most often the response volunteered (see Table 3 below). It is interesting to note the nearly all responses from Architects on this point (13 out of 15) identified Australian standards and the building code as relevant OHS legislation.

Table 3: Respondent Feedback on Awareness of Specific OHS Legislation relating to safe design of buildings and structures

(Number)

Responses (Grouped)	Total	Designers (Engineers)	Designers (Architects)	Constructors	Suppliers	Installers and Erectors
OHS legislation, regulations, codes	12	8	nil	2	2	nil
Australian Standards, Building Code	35	13	13	5	3*	1
Other	6	1	2	nil	nil	3
Total	53	22	15	7	5	4

* Includes one response from an Importer

5.1.7

Question 6 (see Appendix 2 for details) attempted to further probe awareness levels by seeking specific (unprompted, multiple) responses to their company's *obligations* under OHS legislation relating to the safe design of building and structures. The following Table provides a summary of the responses.

Table 4: Unprompted responses to awareness of Obligations – Summary of Responses x Category (Grouped)

Responses (Grouped)	Responses		Designers (Engineers) %	Designers (Architects) %	Constructors %	Suppliers %	Installers and Erectors %
	No	%					
Identify, Assess, Control	93	26.8	24.4	25.0	22.9	28.6	40.5
Obtain, communicate, provide information	61	17.6	21.1	15.6	18.8	11.4	14.3
B & S designed to be safely constructed, used maintained without risks to H&S	87	25.1	30.1	24.0	27.1	11.4	21.4
Conform to Australian Standards, BCA	29	8.4	8.9	11.5	2.1	8.6	7.1
Prepare plans, keep records	15	4.3	4.9	6.3	6.3	Nil	Nil
Don't know, can't say	46	13.3	8.9	10.4	14.6	34.3	14.3
Other	16	4.6	1.6	7.3	8.3	5.7	2.4
<i>Responses</i>	<i>347*</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>
<i>No of Respondents</i>	<i>214*</i>		<i>74</i>	<i>55</i>	<i>32</i>	<i>25</i>	<i>26</i>
<i>Responses per Respondent</i>	<i>1.62</i>		<i>1.66</i>	<i>1.75</i>	<i>1.50</i>	<i>1.40</i>	<i>1.62</i>

* Includes 3 response from 2 Importer respondents not included in the more detailed analysis

5.1.8 The most common responses for all target groups were obligations around the need to identify and/or assess and/or control risks with 26.8% of all responses. Installers and erectors reported this issue most frequently (40.5%). Around 25% of responses from Designers (both engineers and

architects) identified this category and 28.6% of responses from suppliers also identified this category.

- 5.1.9 The second most common response was obligations to provide building and structures that are designed to be safely constructed, used maintained without risks to health and safety (25.1%) followed by obligations around obtaining, communicating or providing necessary information (17.6%).
- 5.1.10 Approximately 13% of responses did not know or could not say what their company's OHS obligations were in relation to safe OHS design matters with responses from suppliers being significantly higher at 34.3%.
- 5.1.11 Over 8% of responses indicated conforming to Australian standards and/or building codes was an obligation under OHS legislation relating to the safe design of building and structures.
- 5.1.12 There was a relatively low number of responses received to this question (1.62 responses per respondent) indicating a generally low level of knowledge of OHS obligations from a design perspective. Architects provided the most responses (1.77 responses per respondent) and suppliers the least (1.40 responses per respondent).
- 5.1.13 In summary, this analysis points towards a gap between perceived knowledge and actual knowledge. Organisations seem to think they know more than they really do. Whilst the design stage in building and structures is considered to be important, there seems to be confusion about who is actually responsible for safe design, along with misconceptions of Australian Standards and the Australian Building Code as being relevant OHS legislation. These factors indicate that awareness of safe design legislation from an OHS perspective is low.

5.1 Barriers and motivations – buildings and structures

- 5.2.1 Greater consideration of safety issues at the design stage is needed to reduce the death and injury toll. This section outlines the barriers to taking greater account of OHS issues at the design stages. The factors preventing total commitment to safe design are outlined and the factors encouraging safe design are identified.
- 5.2.2 As with plant and machinery, the critical finding is the attitude that if injury occurs, it is the users' fault. Users ignoring safety aspects in design were considered to be the most significant barrier to Occupational Health and Safety.
- 5.2.3 There is little acceptance that the hazard could actually have been designed out of the building or structure. Greater consideration of design could have actually saved an injury – or a life. Groups must own this power of accident prevention.
- 5.2.4 The most frequently reported barriers were;
- Users ignoring safety aspects of design.
 - Lack of material to understand regulations
 - Poorly written manuals and brochures
 - Difficult to read OHS material
 - Lack of quality assurance procedures
 - Absence of job safety analyses.
- A quarter of the groups reported that they experience no difficulties with a few stating they did not have information on OHS obligations for safe design.
- 5.2.5 Other factors that are perceived to be significant obstacles to greater thinking and acting on OHS issues at the design stage include:
- Lack of communication about design safety
 - Poor documentation about OHS issues in design
 - Lack of academic knowledge and skills in tertiary institutions.

The respondents rated the barriers on a scale of 0-10. 10 being extremely significant and 0 being not at all significant. The following table lists the ratings for the group as a whole as well as the designer's ratings. Designers expressed similar ratings to the whole group.

Perceived barriers to the adoption of safe design principles	Total sample average (1-10 scale)	Designers (engineers) (1-10 scale)	Designers (architects) (1-10 scale)
Safety aspects in design are ignored by users	6.3	6.6	6.3
Lack of communication about design safety	5.9	6.1	5.7
Poor documentation of design issues	5.8	5.7	5.9
Skills/knowledge of academic staff in tertiary institutions	5.8	5.4	5.9
No coverage of these issues in professional development programs	5.7	5.7	6.1
Cost considerations	5.7	5.3	5.9
Lack of clear guidelines to assist	5.5	5.3	6.0
Safety aspects in design not well understood	5.3	5.3	5.2
Client specifications do not include OHS issues	5.2	5.1	5.7
Poor understanding of how the building/structure will be used	4.9	4.7	5.3
OHS aspects of design not important	4.4	4.4	4.7

5.2.6 Factors that encourage greater consideration of OHS issues at the design stage were also identified. The top motivators are as follows;

- Industry Codes of Practice
- Workplace training on OHS and safe design
- Inclusion of safe design specifications on purchasing documents and tenders
- Service contracts that include regular safety checks

- Professional organisations taking an active leadership role.

5.2.7 To overcome barriers, there needs to be better documentation and communication of OHS issues. They need to be clear and user friendly. OHS knowledge should begin at tertiary level. Knowledge can be further enriched through development programs and workplace training. To ensure quality education, academic staff must be at the forefront of current OHS issues. Industry Codes of Practice could further reinforce and motivate safe design.

5.2.8 As with safe design of plant and equipment, when safety considerations are mandatory on purchasing documents and tenders, organisations and clients will be forced to address safety issues. This way, safety issues will become integrated in day to day business.

5.2.9 Other factors that are considered to be motivators for safe design are as follows;

- Tertiary education on OHS and safe design
- OHS legislation and guidelines
- Publication of inquiries and accidents.

These responses were not as highly rated as those in 4.2.5. This is not to say that they lack effectiveness, they just weren't nominated as often.

Responses for all groups in this section were relatively similar.

5.3 Information use and access methods – buildings and structures

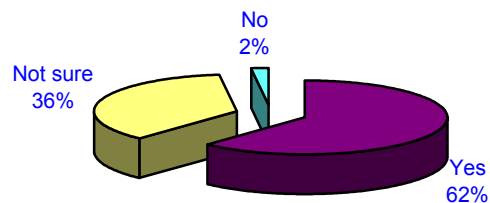
5.3.1 This section explores the extent of information search on OHS requirements. Past sources of information and preferred methods of communication are outlined.

5.3.2 Over half of the respondents have actively sought out information on OHS and safe design. Despite an inability to

recall legislation details, at least a larger number have sought information.

- 5.3.3 An explanation for this could be that respondents were unable to spontaneously recall legislation. If they were prompted, perhaps awareness may have been higher.
- 5.3.4 A third of the respondents were unsure if they had sought information. An 'unsure' answer could be construed to be a 'no' answer. The respondent may not want to admit to a lack of action with regard to safe design.
- 5.3.5 Designers had the highest incidence of information search. Approximately half of the other groups have sought information. Below is a pie graph that visually illustrates the distribution of total average responses.

**HAVE YOU EVER SOUGHT INFORMATION
ON OHS SAFE DESIGN REQUIREMENTS?**



5.3.6 The following table outlines the sources from which OHS information would be obtained.

Information source for Occupational Health and Safety in relation to design	Total sample average	Designers/ engineers	Designers/ architects
Local WorkCover/ OHS authority	43%	54%	29%
Australian Standards	29%	42%	35%
Industry/Employer association	18%	8%	11%
National OHS Commission	14%	12%	16%

Top 5 responses only

5.3.7 The local WorkCover/OHS authority was mentioned most often as a source of information.

5.3.8 Designers/engineers would use similar information sources as the total group as a whole. Designers/architects would refer to Australian Standards first and then WorkCover/OHS authority.

5.3.9 Yet again, Australian Standards was confused with OHS legislation. This further reinforces the need to inform groups of the role of Australian Standards, as opposed to OHS legislation.

5.3.10 If information were to be sent out, the largest proportion of respondents indicate that post would be the best method. Internet, e-mail and fax followed.

It can be seen that there are significant similarities between the perceptions of those involved in the design and provision of plant and equipment as well as buildings and structures.

CONCLUSIONS

6.1 Introduction

6.1.1 This section draws together the main findings from the qualitative *and* quantitative phases of the analysis. Any significant difference in findings between both phases and between the plant/machinery and buildings/structures areas of activity are identified.

6.1.1 The findings are described for each of the three areas of data collection:

- Current awareness and knowledge of OHS safe design legislation
- Barriers and motivations
- Information use and access methods.

6.2 Current awareness and knowledge of OHS safe design legislation

6.2.1 A keyfinding from the telephone survey is that overall there is some evidence to suggest poor awareness levels of all target groups (in both Plant and Machinery and Buildings and Structures target groups) with a distinct gap between perceived and actual knowledge of OHS obligations in relation to safe design. Whilst there is a relatively high number of respondents reporting they were aware of relevant requirements, very few could nominate specific obligations under OHS legislation when asked. In the few cases where respondents attempted to specify what their OHS obligations were, compliance with Australian Standards and the Australian Building Code (buildings and structures) were frequently nominated as examples.

6.2.2 In general, the levels of knowledge and awareness of target groups mainly involved in plant and machinery were higher

than awareness and knowledge levels of target groups involved in building and structures.

- 6.2.3 Of the designers, engineers seemed to be more aware OHS aspects of design issues than architects (although neither group could be seen as well informed on the issues).
- 6.2.4 These findings broadly correlate with those from the **in-depth interviews** conducted during the earlier qualitative research phase.
- 6.2.5 Some additional issues of note drawn from the in depth interviews are as follows:
- Many participants felt that as much as possible was already being done to achieve safe design from an OHS perspective, although as the interview progressed they began to accept that perhaps more could be achieved.
 - Designers, while accepting a broad duty of care obligation, were reluctant to accept responsibility for accidents that might happen when someone was using their products or working in an area they were designing.
 - In relation to the safe design of **plant and machinery**, it was suggested by relevant participants that designers and purchasers should work more closely together to make products safer.
 - Retailers of potentially dangerous **plant and machinery** were suggested as a group that had responsibility to ensure their customers were aware of risks. In fact, several retailers interviewed recognised they had a duty of care in this regard.

6.3 Barriers and motivations

- 6.3.1 The critical finding on **barriers** to the adoption of safe design principles was the attitude of respondents from all target groups that safety aspects are ignored by end users. They believe that if an injury occurs, it is the user's fault. There was

little recognition by the groups of their responsibility to end users.

6.3.2 Other frequently reported barriers were lack of practical guidance material and poorly written available material such as manuals and brochures. Barriers reported for safe design of **plant and machinery** were lack of clear documentation on safe use of machinery from designers/ manufacturers and problems with the design of some imported plant and machinery. Barriers reported for safe design of **buildings and structures** were the lack of quality assurance procedures and absence of job safety analyses.

6.3.3 Additional issues raised in the **qualitative research interviews** were respondent perception of:

- The complexity and lack of consistency of relevant regulations for plant and machinery that made it difficult especially for manufacturers and importers.
- End users tend to ignore safety manuals and bypass safety devices.
- Designers in the building sector felt cost savings were rated more highly by builders and contractors than safe design issues.
- The fragmentation of the building and construction industry, which uses sub-contractors and self-employed tradesmen made dealing with these issues difficult.

6.3.4 Top motivating factors nominated for the take-up of safe design identified in the **telephone survey** included:

- industry codes of practice,
- service contracts which include regular safety checks,
- inclusion of safe design specifications on purchasing documents and tenders, and
- professional organisations taking on a leadership role.

Other less highly rated motivators included OHS legislation and guidelines, publication of workplace incidents and inquiries,

tertiary education on OHS and safe design and professional development seminars.

- 6.3.5 Additional factors raised in the **qualitative research interviews** were the desire to 'play their part' and fear of being held liable when accidents occur.

6.4 Information use and access methods

- 6.4.1 Over half of the respondents in the **telephone survey** said they have actively sought information about OHS requirements in relation to safe design although only a few could outline specific legislation when asked. Designers was the target group with the highest incidence of information search.
- 6.4.2 The State/Territory WorkCover/OHS Authority was mentioned most often as a source of information on OHS, followed by Australian Standards and relevant industry/employer associations. Designers of plant and machinery indicated they would seek information from clients more so than any other group. Designer/architects would refer to Australian Standards first and then the WorkCover/OHS authority.
- 6.4.3 These findings generally correlate with those for the **qualitative research interviews**. Additional issues of note arising from these interviews were:
- While large and medium companies use industry association publications as an important source of information on OHS, smaller companies tended to rely on their own practical knowledge and commonsense. However, participants from small organisations said they did use information from WorkCover authorities.
 - Manufacturers' manuals were another important source of information.
- 6.4.4 The largest proportion of respondents in the **telephone survey** indicated that their preference for dissemination of

information on OHS requirements for safe design was written material by post. This was followed by the internet and email.

6.4.5 Additional issues raised in the **qualitative research interviews** were:

- Designer/engineers suggested that OHS issues should be a compulsory, rather than elective, part of their tertiary training.

6.4.6 Some distributors and retailers said they needed support from designers and manufacturers to help educate users.

APPENDICES

APPENDIX 1

QUALITATIVE RESEARCH

Qualitative Research Stages

The qualitative research phase of the research comprised two stages:

Stage 1 – desk research based on materials available including the draft literature and legal reviews undertaken as part of the safe design project and interviews with ten industry/professional associations.

Stage 2 – 48 depth interviews conducted in December 1999 with individuals representing the identified target groups in Sydney, Melbourne and Adelaide.

Interview Lines of Enquiry

The following **lines of enquiry** were used as the basis for the depth interviews.

- How aware are employers and employees of their OHS responsibilities?
- Are current design practices appropriate for OHS purposes in your company?
- What is the current means of communicating matters relating to safe practices in the workforce?
- Are there specific groups of businesses and/or designers/suppliers who require priority attention in relation to OHS issues?
- Is the design of plant/equipment a factor in the observance (or failure to observe) OHS issues?
- What needs to be done to improve the design of plant/equipment?
- Is the design of buildings/structures a factor in the observance (or failure to observe) OHS issues?
- What needs to be done to improve the design of buildings/structures?
- Are there other issues relating to design which impact on OHS issues?
- How can designers be encouraged to give greater attention to OHS factors at the design stage?
- Where do you obtain information on OHS requirements relevant to designing plant/equipment, buildings?

- What form should this information take – by letter, print material, Internet, face-to-face, seminars etc?
- How can communication about these issues be improved?

Breakdown of interviews

The depth interviews were conducted with **representatives of the following organisations and trade associations:**

- Association of Consulting Engineers Australia
- Australian Electrical and Electronic Manufacturers' Association
- Australian Industrial Truck Association
- Construction and Mining Equipment Association of Australia
- Crane Industry Council of Australia
- Housing Industry Association
- Institute of Engineers Australia
- Standards Australia
- Tractor & Machinery Association of Australia
- Welding Technology Institute of Australia

The **breakdown of people interviewed** in stage two of the qualitative research was as follows:

In Sydney:

- 1 large designer of plant/equipment – varied machinery
- 1 large designers/manufacturers of plant/equipment – electrical
- 1 large manufacturers of plant/equipment - varied machinery
- 1 large importer of plant/equipment - agricultural
- 2 large suppliers for plant/equipment – 1 agricultural, 1 varied machinery
- 1 small designers/manufacturers of plant/equipment – 1 hydraulics
- 2 small manufacturers of plant/equipment – 1 electrical, 1 mining / earth moving

- 1 small importer of plant/equipment - 1 varied machinery
- 2 small suppliers for plant/equipment - 1 agricultural, 1 varied machinery
- 3 large construction and consulting groups involved in civil and commercial projects
- 2 small construction and consulting groups involved in civil and commercial projects
- 1 large construction and consulting group involved in house building
- 2 small construction and consulting group involved in house building

In Melbourne:

- 2 importers/wholesalers of farming equipment (tractors, diesel engines and drive shafts)
- Plant and equipment hire company – hire out concrete mixers, grinders, sanders drills etc to the trade
- Agricultural chemical company
- Manufacturer of industrial knives
- Consulting Engineers (develop residential estates)
- Machine tool importer/retailer
- Precision Engineering (make dies and rubber components)
- Crane Manufacturer
- Crane Importer and retailer (second hand)
- Pattern Maker
- Importer/distributor of handling equipment
- Makers (engineers) of automated plant and equipment X 3
- Elevator Manufacturer/maintenance
- Building Maintenance
- Manufacturer and installer of building partitions
- Project Manager
- Designer
- Quantity Surveyor

In Adelaide:

- 2 distributors of agricultural equipment and materials
- 1 manufacturer of ROPS frames for tractors and earth movers
- 1 manufacturer and retailer of agricultural equipment
- 2 building companies (commercial and domestic)
- 1 manufacturer of garages, sheds and fences
- 1 supplier of trucks, cranes and other industrial equipment

One of the interviewees in South Australia was based in a rural area, though several interviewees serviced the rural sector.

The interviewees represented a broad balance of small, medium and large businesses.

APPENDIX 2

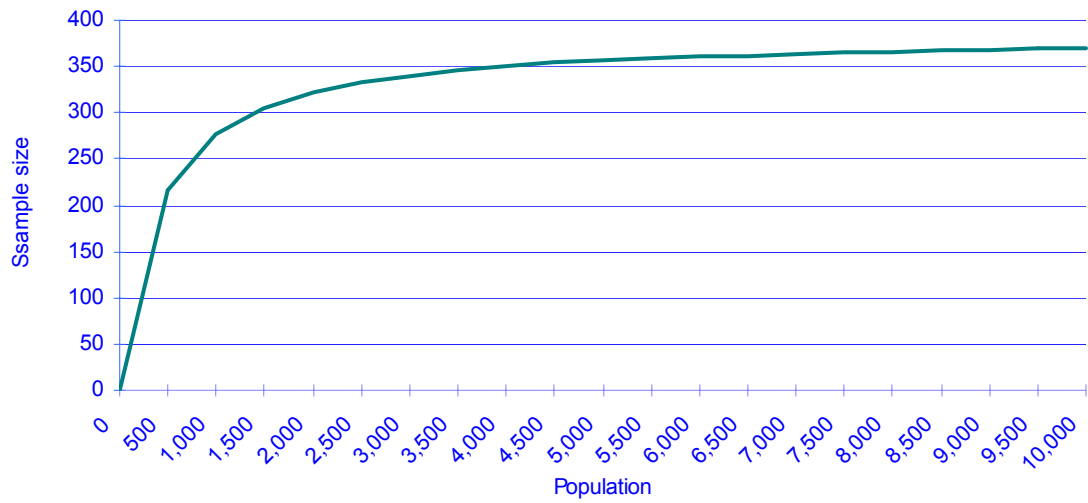
QUANTITATIVE RESEARCH

Sampling Tolerance Issues

It should be borne in mind throughout this report that all data based on sample surveys are subject to a sampling tolerance. That is, where a sample is used to represent an entire population, the resulting figures should not be regarded as absolute values, but rather as the mid-point of a range plus or minus x% (see sampling tolerance table below). Only variations clearly designated as *significantly* different are statistically valid differences and these are clearly pointed out in the Key Findings section of this report. Other divergences are within the normal range of fluctuation at a 95% confidence level; they should be viewed with some caution and not treated as statistically reliable changes.

MARGIN OF ERROR TABLE (95% confidence level)										
SAMPLE SIZE	Percentages giving a particular answer									
	5%	10	15	20	25	30	35	40	45	50
↓	95	90	85	80	75	70	65	60	55	50
%	%	%	%	%	%	%	%	%	%	%
50	6	9	10	11	12	13	14	14	14	14
100	4	6	7	8	9	9	10	10	10	10
150	4	5	6	7	7	8	8	8	8	8
200	3	4	5	6	6	6	7	7	7	7
250	3	4	5	5	6	6	6	6	6	6
300	3	4	4	5	5	5	6	6	6	6
400	2	3	4	4	4	5	5	5	5	5
500	2	3	3	4	4	4	4	4	4	5
600	2	2	3	3	4	4	4	4	4	4
700	2	2	3	3	3	4	4	4	4	4
800	2	2	3	3	3	3	3	4	4	4
900	2	2	2	3	3	3	3	3	3	3
1000	1	2	2	3	3	3	3	3	3	3
1500	1	2	3	2	2	2	3	3	3	3
2000	1	1	2	2	2	2	2	2	2	2
3000	1	1	1	2	2	2	2	2	2	2

**OPTIMUM SAMPLE SIZES TO ENSURE A MAXIMUM VARIATION OF
 $\pm 5\%$ GIVING A PARTICULAR ANSWER (at the 95% confidence level)**



Questionnaire – Plant and Machinery

Good my name is from McGregor Tan Research, the independent market research company. We are conducting a survey about the role of safe design in improving Occupational Health and Safety performance in the workplace and would appreciate your opinions. The survey is confidential and will only take about 10 minutes. Can I speak to someone at senior level who can speak about the Occupational Health and Safety aspects of the design of your product that you either design, manufacture, import, supply, install or erect?

SCREENER: Do you consider your business to be related to plant and machinery or buildings and structures?

INTERVIEWERS NOTE: For the purposes of this survey, 'Buildings' can refer to any sort of residential building, public buildings, workplace such as office factory building etc. 'Structures' can include roads, bridges dams etc.

'Plant' includes all machinery and equipment (including scaffolding) both stationary and mobile, tools and implements used in the workplace.

If Building and Structures - go to question 1 of BUILDINGS AND STRUCTURES questionnaire.

If Plant and Machinery - go to question 1 of this questionnaire.

If Neither - thank and terminate and record as out of scope.

Record time interview begins

1. Which of the following best describes your organisation's primary role in relation to plant and equipment? **read out - single response only**
 - 1 Engineering activities
 - 2 Manufacturer (manufactures plants used or intended to be used in the work place)
 - 3 Importer (imports plant for use in the workplace, including plant imported from other states and territories in Australia)
 - 4 Supplier (supplies plant for use in the workplace)
 - 5 Installer/Erectors (installs a plant or erects, dismantles or alters the structure of a plant)

2. Occupational Health and Safety legislation covers many aspects of workplace safety, including obligations relating to the design of plant and machinery. How would you rate your organisation's current level of awareness of its obligations under OHS legislation in relation to design of plant and machinery? **read out - single response only**
- 1 Very high
 - 2 High
 - 3 Not sure/can't say
 - 4 Low
 - 5 Very low

From now on I will say OHS instead of Occupational Health and Safety

3. In your opinion, how important or otherwise is the design stage of plant and machinery for OHS in the workplace? **read out - single response only**
- 1. Very important
 - 2. Important
 - 3. Not sure/can't say
 - 4. Not very important
 - 5. Not at all important
4. Are you aware of any OHS legislation that relates to safe design of plant and machinery? **single response only**
- 1. ... Yes, and can give details - **specify - probe fully (eg. name, date, or any other details of the legislation/guidelines)**
 - 2. ... Yes, but no details given
 - 3. ... Not sure
 - 4. ... No
5. Under current OHS legislation, which of the following groups do you believe have legal obligations with regard to safe design of plant and machinery? **read out - multiple response - max 11**
- 01 .. Engineers
 - 02 .. Manufacturers
 - 03 .. Purchasers
 - 04 .. Suppliers
 - 05 .. Importers
 - 06 .. Installers
 - 07 .. Employers
 - 08 .. Employees
 - 09 .. All of them
 - 10 .. Other - **specify**
 - 11 .. Don't know/can't say

6. Can you now tell me briefly, what is your current understanding of your company's obligations under OHS legislation relating to the safe design of plant and machinery? **unprompted - multiple response - max 12 - probe fully**
- 01 .. Plant and machinery is safe and without risk to health when properly used
 - 02 .. Identify hazards in the use of plant and equipment
 - 03 .. Assess identified risks to health and safety
 - 04 .. Eliminate risks to health and safety where practicable
 - 05 .. Reduce risks to health and safety where practicable
 - 06 .. Obtain all necessary OHS information
 - 07 .. Communicate all necessary OHS information
 - 08 .. Keep records of technical standards used in design
 - 09 .. Provide information on safety procedures
 - 10 .. Have not seen information which states legislation
 - 11 .. Other - **specify**
 - 12 .. Don't know/can't say
7. Which, if any, of the following problems have you experienced in meeting your OHS obligations in relation to the design of plant and machinery? **read out - multiple response - max 10**
- 01 .. Difficult to read OHS material
 - 02 .. Poorly written manuals and brochures
 - 03 .. Lack of material to understand regulations
 - 04 .. Lack of practical guidance to assist
 - 05 .. Poor documentation from designers/manufacturers
 - 06 .. Plant and equipment imported from overseas
 - 07 .. Lack of quality assurance procedures
 - 08 .. None
 - 09 .. Don't have information regarding obligations
 - 10 .. Other - **specify**
 - 11 .. Don't know/can't say

8. In regard to current practices, how significant or otherwise do you think the following are as barriers to the adoption of design principles which include greater consideration of OHS issues, using a scale of 0-10, where 10 means extremely significant and 0 means not at all significant. **read out - insert dashes if can't say**
- Cost considerations
 - Client specifications do not include OHS issues
 - OHS aspects of design not important
 - Lack of clear guidelines to assist
 - Poor understanding of how the plant or machinery is going to be used
 - Safety aspects in the design are not well understood by design professionals
 - Safety aspects in the design are ignored by users
 - Lack of communication about design safety (eg. between designers/manufacturers)
 - Poor documentation about OHS issues in design (eg. information from designers to manufacturers)
 - Skills/knowledge of academic staff in tertiary institutions
 - No coverage of these issues in professional development programs
9. The following have been mentioned by others as ways of improving awareness of OHS issues at the design stage. How useful or otherwise do you think the following are for encouraging safe design principles, using a scale of 0-10, where 10 means extremely useful and 0 means not at all useful. **read out - insert dashes if can't say**
- OHS legislation and guidelines
 - Industry codes of practice
 - Awards for safe design
 - Publication of the results of inquiries into workplace accidents
 - Workplace training on OHS and safe design
 - Tertiary education on OHS and safe design
 - Professional development seminars
 - More promotion of safe design at point of sale
 - Service contracts that include regular safety checks
 - Professional organisations take an active leadership role
 - Inclusion of safe design specifications in purchasing documents/tenders
10. Have you ever sought information about OHS requirements in relation to safe design? **single response only**
- 1 Yes
 - 2 No
 - 3 Not sure/can't say

11. If you were to seek information about OHS requirements in relation to safe design where would you go? **unprompted - multiple response - max 14 - probe fully**
- 01 .. Australian Standards
 - 02 .. National OHS Commission
 - 03 .. Your local WorkCover/OHS authority
 - 04 .. Industry/Employer Association
 - 05 .. Industry/Employer Newsletter
 - 06 .. Professional associations
 - 07 .. General Industry Knowledge
 - 08 .. Consultant
 - 09 .. Friends
 - 10 .. Trade Journal
 - 11 .. Seminars/Conferences
 - 12 .. Shows/Open days
 - 13 .. Internet websites
 - 14 .. Union
 - 15 .. Other - **specify**
 - 16 .. Don't know/can't say
12. How would you prefer to receive information about OHS? **unprompted - multiple response - max 6**
- 01 .. Internet
 - 02 .. E-mail
 - 03 .. Post
 - 04 .. Individual contact
 - 05 .. Seminar/conference
 - 06 .. Other - **specify**
 - 07 .. Don't know/can't say
 - 08 .. Fax
13. Which of the following best describes the industry within which you work? **read out - single response only**
- 01 .. Professional services (includes engineering consultants)
 - 02 .. Agriculture
 - 03 .. Mining
 - 04 .. Manufacturing
 - 05 .. Construction
 - 06 .. Wholesale Trade
 - 07 .. Retail Trade
 - 08 .. Transport and Storage
 - 09 .. Other - **specify**

14. How many employees work in your organisation? **unprompted - single response only (Interviewers Note: This question is to establish the size of the company so the total number of employees is required, not just the number employed on that particular site.)**

- 1 1-5
- 2 6-10
- 3 11-20
- 4 21-30
- 5 31-50
- 6 51-100
- 7 more than 100
- 8 Refused

Record Location

- 01 .. Sydney
- 02 .. Melbourne
- 03 .. Other capital cities
- 04 .. Regional

END OF SURVEY

Record time interview finishes

How long did the interview take?

Questionnaire – Buildings and Structures

Good my name is from McGregor Tan Research, the independent market research company. We are conducting a survey about the role of safe design in improving Occupational Health and Safety performance in the workplace and would appreciate your opinions. The survey is confidential and will only take about 10 minutes. Can I speak to someone at senior level who can speak about the Occupational Health and Safety aspects of the design of your product that you either design, construct, import, supply, install or erect.

SCREENER: Do you consider your business to be related to plant and machinery or buildings and structures?

INTERVIEWERS NOTE: For the purposes of this survey, 'Buildings' can refer to any sort of residential building, public buildings, workplace such as office factory building etc. 'Structures' can include roads, bridges dams etc.

'Plant' includes all machinery and equipment (including scaffolding) both stationary and mobile, tools and implements used in the workplace.

If Building and Structures - go to question 1 of this questionnaire.

If Plant and Machinery - go to question 1 of PLANT AND MACHINERY questionnaire.

If Neither - thank and terminate and record as out of scope.

Record time interview begins

1. Which of the following best describes your organisation's primary role in relation to buildings or structures? **read out - single response only**
 - 1 Engineering activities
 - 2 Architectural activities
 - 3 Constructor (manufactures structures or materials used for structures used or intended to be used in a workplace)
 - 4 Importer (imports structures or material used for structures for use in the workplace, including structures or material used for structures imported from other states and territories in Australia)
 - 5 Supplier (supplies structures or materials used for structures for use in the workplace)
 - 6 Installer/Erectors (installs, erects, dismantles or alters a structure)

2. Occupational Health and Safety legislation covers many aspects of workplace safety, including obligations relating to the design of buildings and structures. How would you rate your organisation's current level of awareness of its obligations under Occupational Health and Safety legislation in relation to the design of buildings or structures? **read out - single response only**
- 1 Very high
 - 2 High
 - 3 Not sure/can't say
 - 4 Low
 - 5 Very low

From now on, I will say OHS instead of Occupational Health and Safety.

3. In your opinion, how important or otherwise is the design stage of buildings and structures for OHS in the workplace? **read out - single response only**
- 1 Very important
 - 2 Important
 - 3 Not sure/can't say
 - 4 Not very important
 - 5 Not at all important
4. Are you aware of any OHS legislation that relates to safe design of buildings or structures? **single response only**
- 1 Yes, and can give details - **specify - probe fully (eg. name, date, or any other details of the legislation/guidelines)**
 - 2 Yes, but no details given
 - 3 Not sure
 - 4 No
5. Under current OHS legislation, which of the following groups do you believe have legal obligations with regard to safe design of buildings or structures? **read out - multiple response - max 11**
- 01 .. Architects
 - 02 .. Engineers
 - 03 .. Builders
 - 04 .. Constructors
 - 05 .. Purchasers
 - 06 .. Installers
 - 07 .. Employers
 - 08 .. Employees
 - 09 .. All of them
 - 10 .. Other - **specify**
 - 11 .. Don't know/can't say

6. Can you now tell me briefly, what is your current understanding of your company's obligations under OHS legislation relating to the safe design of buildings or structures? **unprompted - multiple response - max 12 - probe fully**
- 01 .. The building or structure is designed to be safely constructed, maintained and used as a workplace
 - 02 .. Assess identified risks to health and safety
 - 03 .. Prepare health and safety work plans
 - 04 .. Eliminate risks to health and safety where practicable
 - 05 .. Reduce risks to health and safety where practicable
 - 06 .. Registration of designs
 - 07 .. Obtain all necessary OHS information
 - 08 .. Communicate all necessary OHS information
 - 09 .. Keep records of technical standards used in design
 - 10 .. Provide information on safety procedures
 - 11 .. Have not seen information which states legislation
 - 12 .. Other - **specify**
 - 13 .. Don't know/can't say
7. Which, if any, of the following problems have you experienced in meeting your OHS obligations in relation to the design of buildings and structures? **read out - multiple response - max 10**
- 01 .. Difficult to read OHS material
 - 02 .. Poorly written manuals and brochures
 - 03 .. Lack of material to understand regulations
 - 04 .. Lack of quality assurance procedures
 - 05 .. No safe work plans developed
 - 06 .. No job safety analyses developed
 - 07 .. None
 - 08 .. Don't have information regarding obligations
 - 09 .. Other - **specify**
 - 10 .. Don't know/can't say
8. In regard to current practices, how significant or otherwise do you think the following are as barriers to the adoption of design principles which include greater consideration of OHS issues, using a scale of 0-10, where 10 means extremely significant and 0 means not at all significant. **read out - insert dashes if can't say**
- Cost considerations
 - Client specifications do not include OHS issues
 - OHS aspects of design not important
 - Lack of clear guidelines to assist
 - Poor understanding of how the building or structure is going to be used
 - Safety aspects in the design are not well understood by design professionals
 - Safety aspects in the design are ignored by users

- Lack of communication about design safety (eg. between designers/manufacturers)
 - Poor documentation about OHS issues in design (eg. information from designers to manufacturers)
 - Skills/knowledge of academic staff in tertiary institutions
 - No coverage of these issues in professional development programs
9. The following have been mentioned by others as ways of improving awareness of OHS issues at the design stage. How useful or otherwise do you think the following are for encouraging the application of design principles in relation to OHS issues, using a scale of 0-10, where 10 means extremely useful and 0 means not at all useful. **read out - insert dashes if can't say**
- OHS legislation and guidelines
 - Industry codes of practice
 - Awards for safe design
 - Publication of the results of inquiries into workplace accidents
 - Workplace training on OHS and safe design
 - Tertiary education on OHS and safe design
 - Professional development seminars
 - More promotion of safe design at point of sale
 - Service contracts that include regular safety checks
 - Professional organisations take an active leadership role
 - Inclusion of safe design specifications in purchasing documents/tenders
10. Have you ever sought information about OHS requirements in relation to safe design? **single response only**
- 1 Yes
 - 2 No
 - 3 Not sure/can't say
11. If you were to seek information about OHS requirements in relation to safe design where would you go? **unprompted - multiple response - max 14 - probe fully**
- 01 .. Australian Standards
 - 02 .. National OHS Commission
 - 03 .. Your local WorkCover/OHS authority
 - 04 .. Industry/Employer Association
 - 05 .. Industry/Employer Newsletter
 - 06 .. Professional associations
 - 07 .. General Industry Knowledge
 - 08 .. Consultant
 - 09 .. Friends
 - 10 .. Trade Journal
 - 11 .. Seminars/Conferences

- 12 .. Shows/Open days
 - 13 .. Internet websites
 - 14 .. Union
 - 15 .. Other - **specify**
 - 16 .. Don't know/can't say
12. How would you prefer to receive information about OHS? **unprompted - multiple response - max 6**
- 01 .. Internet
 - 02 .. E-mail
 - 03 .. Post
 - 04 .. Individual contact
 - 05 .. Seminar/conference
 - 06 .. Other - **specify**
 - 07 .. Don't know/can't say
 - 08 .. Fax
13. Which of the following best describes the industry within which you work? **read out - single response only**
- 01 .. Professional services (includes engineering and architectural consultants)
 - 02 .. Agriculture
 - 03 .. Mining
 - 04 .. Manufacturing
 - 05 .. Construction
 - 06 .. Wholesale Trade
 - 07 .. Retail Trade
 - 08 .. Transport and Storage
 - 09 .. Other - **specify**
14. How many employees work in your organisation? **unprompted - single response only. (Interviewers Note: This question is to establish the size of the company so the total number of employees is required, not just the number employed on that particular site.)**
- 1 1-5
 - 2 6-10
 - 3 11-20
 - 4 21-30
 - 5 31-50
 - 6 51-100
 - 7 more than 100
 - 8 Refused

Record Location

- 01 .. Sydney
- 02 .. Melbourne

- 03 .. Other Capital Cities
- 04 .. Regional

END OF SURVEY

Record time interview finishes

How long did the interview take?

APPENDIX 3

SURVEY DATA TABLES

PLANT AND MACHINERY

PLANT & MACHINERY SURVEY - MARCH 2000

Q.1 Which of the following best describes your organisation's primary role in relation to plant and equipment?

	ORGANISATION'S PRIMARY ROLE					
	TOTAL	Designers	Manufacturer	Importer	Supplier	Installer/ Erectors
Engineering activities	184 30%	184 100% +++	0 0%	0 0%	0 0%	0 0%
Manufacturer	166 27%	0 0%	166 100% +++	0 0%	0 0%	0 0%
Supplier	113 18%	0 0%	0 0%	0 0%	113 100% +++	0 0%
Importer	83 14%	0 0%	0 0%	83 100% +++	0 0%	0 0%
Installer/Erectors	66 11%	0 0%	0 0%	0 0%	0 0%	66 100% +++
No. of Respondents	612 100%	184 100%	166 100%	83 100%	113 100%	66 100%

PLANT & MACHINERY SURVEY - MARCH 2000

Q.2 How would you rate your organisation's current level of awareness of its obligations under OHS legislation in relation to design of plant and machinery?

	ORGANISATION'S PRIMARY ROLE					
	TOTAL	Designers	Manufacturer	Importer	Supplier	Installer/ Erectors
TOTAL HIGH	548 90%	155 84% --	154 93% +	80 96% +++	98 87%	61 92%
Very high	295 48%	84 46%	77 46%	49 59% ++	50 44%	35 53%
High	253 41%	71 39%	77 46%	31 37%	48 42%	26 39%
Not sure/can't say	30 5%	11 6%	8 5%	2 2%	7 6%	2 3%
TOTAL LOW	34 6%	18 10% ++	4 2% --	1 1% ---	8 7%	3 5%
Low	22 4%	14 8% +++	2 1% --	1 1% -	5 4%	0 0%
Very low	12 2%	4 2%	2 1%	0 0%	3 3%	3 5%
No. of Respondents	612 100%	184 100%	166 100%	83 100%	113 100%	66 100%
Mean	1.3	1.2	1.4	1.5	1.2	1.4

PLANT & MACHINERY SURVEY - MARCH 2000

Q.3 In your opinion, how important or otherwise is the design stage of plant and machinery for OHS in the workplace?

	ORGANISATION'S PRIMARY ROLE					
	TOTAL	Designers	Manufacturer	Importer	Supplier	Installer/ Erectors
TOTAL IMPORTANT	591 97%	179 97%	164 99% ++	79 95%	107 95%	62 94%
Very important	470 77%	149 81% +	128 77%	61 73%	85 75%	47 71%
Important	121 20%	30 16%	36 22%	18 22%	22 19%	15 23%
Not sure/can't say	12 2%	1 1% --	1 1% --	4 5%	4 4%	2 3%
TOTAL NOT IMPORTANT	9 1%	4 2%	1 1%	0 0%	2 2%	2 3%
Not very important	6 1%	2 1%	1 1%	0 0%	1 1%	2 3%
Not at all important	3 0%	2 1%	0 0%	0 0%	1 1%	0 0%
No. of Respondents	612 100%	184 100%	166 100%	83 100%	113 100%	66 100%
Mean	1.7	1.8	1.8	1.7	1.7	1.6

PLANT & MACHINERY SURVEY - MARCH 2000

Q.4 Are you aware of any OSH legislation that relates to safe design of plant and machinery?

	ORGANISATION'S PRIMARY ROLE					
	TOTAL	Designers	Manufacturer	Importer	Supplier	Installer/ Erectors
TOTAL YES	457 75%	142 77%	131 79%	60 72%	79 70%	45 68%
Yes - Details given	83 14%	31 17%	15 9% --	12 14%	13 12%	12 18%
Yes - No details given	374 61%	111 60%	116 70% +++	48 58%	66 58%	33 50% -
Not sure	18 3%	6 3%	3 2%	4 5%	4 4%	1 2%
No	137 22%	36 20%	32 19%	19 23%	30 27%	20 30%
No. of Respondents	612 100%	184 100%	166 100%	83 100%	113 100%	66 100%

PLANT & MACHINERY SURVEY - MARCH 2000

Q.4b Are you aware of any OSH legislation that relates to safe design of plant and machinery? **Yes - details as follows:**

BASE: Details given

	ORGANISATION'S PRIMARY ROLE					
	TOTAL	Designers	Manufacturer	Importer	Supplier	Installer/ Erectors
Australian standards	33 40%	11 35%	3 20%	5 42%	6 46%	8 67%
Industry Plant Regulations 1995	11 13%	6 19%	1 7%	1 8%	1 8%	2 17%
Safety guard to cover all moving parts	10 12%	5 16%	3 20%	1 8%	1 8%	0 0%
OHS Act 1985	5 6%	2 6%	2 13%	1 8%	0 0%	0 0%
OHS Guidebook	5 6%	2 6%	0 0%	1 8%	1 8%	1 8%
ASA	2 2%	0 0%	0 0%	0 0%	2 15%	0 0%
SA Regulation 17/35	2 2%	0 0%	1 7%	1 8%	0 0%	0 0%
VIC OHS Legislation for Plant and Machinery	2 2%	1 3%	0 0%	0 0%	1 8%	0 0%
Code of Practice relating to Cranes	2 2%	1 3%	0 0%	0 0%	0 0%	1 8%
Workplace Health & Safety 1994	1 1%	0 0%	1 7%	0 0%	0 0%	0 0%
Civil Aviation Safety Authority Regulations	1 1%	1 3%	0 0%	0 0%	0 0%	0 0%
OHS Storage and Handling of 1 Dangerous Goods 1% (Vic. 1996)	0 0%	0 7%	1 0%	0 0%	0 0%	0
Safety switching on equipment 1985	1 1%	0 0%	1 7%	0 0%	0 0%	0 0%
Plant regulations Act, 1985	1 1%	0 0%	0 0%	1 8%	0 0%	0 0%

PLANT & MACHINERY SURVEY - MARCH 2000

Q.4b Are you aware of any OSH legislation that relates to safe design of plant and machinery? **Yes - details as follows:**

BASE: Details given

	ORGANISATION'S PRIMARY ROLE					
	TOTAL	Designers	Manufacturer	Importer	Supplier	Installer/ Erectors
1985 Blue Book Code of Practice	1 1%	0 0%	1 7%	0 0%	0 0%	0 0%
1993 Building Act	1 1%	1 3%	0 0%	0 0%	0 0%	0 0%
OHS for Emissions	1 1%	1 3%	0 0%	0 0%	0 0%	0 0%
OHS Act 1995	1 1%	0 0%	1 7%	0 0%	0 0%	0 0%
CTEC, OJECTS, ETEC	1 1%	0 0%	0 0%	1 8%	0 0%	0 0%
Power press safety, NSW WorkCover, May 93	1 1%	0 0%	0 0%	0 0%	1 8%	0 0%
No. of Respondents	83 100%	31 100%	15 100%	12 100%	13 100%	12 100%

PLANT & MACHINERY SURVEY - MARCH 2000

Q.5 Under current OHS legislation, which of the following groups do you believe have legal obligations with regard to safe design of plant and machinery?

	ORGANISATION'S PRIMARY ROLE					
	TOTAL	Designers	Manufacturer	Importer	Supplier	Installer/ Erectors
Engineers	262 43%	71 39%	72 43%	38 46%	48 42%	33 50%
Manufacturers	260 42%	70 38%	64 39%	44 53% ++	52 46%	30 45%
Employers	236 39%	65 35%	62 37%	38 46%	45 40%	26 39%
Suppliers	186 30%	46 25% --	47 28%	37 45% +++	36 32%	20 30%
Importers	185 30%	49 27%	39 23% --	40 48% +++	35 31%	22 33%
Installers	184 30%	50 27%	43 26%	34 41% ++	37 33%	20 30%
Employees	175 29%	44 24% -	47 28%	31 37% +	34 30%	19 29%
Purchasers	142 23%	37 20%	36 22%	27 33% ++	27 24%	15 23%
All of them	289 47%	96 52%	79 48%	36 43%	52 46%	26 39%
Other	6 1%	1 1%	1 1%	0 0%	2 2%	2 3%
Don't know/can't say	9 1%	5 3%	3 2%	0 0%	0 0%	1 2%
No. of Respondents	612 100%	184 100%	166 100%	83 100%	113 100%	66 100%

PLANT & MACHINERY SURVEY - MARCH 2000

Q.6 Can you now tell me briefly what is your current understanding of your company's obligations under OHS legislation relating to the safe design of plant and machinery?

ORGANISATION'S PRIMARY ROLE						
	TOTAL	Designers	Manufacturer	Importer	Supplier	Installer/ Erectors
P&M safe and without risk to health when properly used	338 55%	99 54%	88 53%	50 60%	60 53%	41 62%
Identify hazards in the use of plant and equipment	150 25%	45 24%	46 28%	20 24%	22 19%	17 26%
Eliminate risks to health and safety where practicable	137 22%	44 24%	45 27%	10 12% ---	18 16% --	20 30%
Provide information on safety procedures	112 18%	29 16%	32 19%	14 17%	23 20%	14 21%
Reduce risks to health and safety where practicable	97 16%	35 19%	26 16%	11 13%	10 9% ---	15 23%
Assess identified risks to health and safety	95 16%	35 19%	26 16%	8 10% -	14 12%	12 18%
Obtain all necessary OHS information	75 12%	19 10%	19 11%	15 18%	10 9%	12 18%
Communicate all necessary OHS information	63 10%	22 12%	19 11%	8 10%	8 7%	6 9%
Other	33 5%	15 8% +	5 3% -	6 7%	3 3% -	4 6%
Keep records of technical standards used in design	26 4%	6 3%	12 7% +	1 1% --	3 3%	4 6%
Have not seen information which states legislation	15 2%	1 1% ---	6 4%	3 4%	5 4%	0 0%
Don't know/can't say	58 9%	17 9%	13 8%	5 6%	18 16% ++	5 8%
Conform to Australian Standards	33 5%	11 6%	3 2% ---	8 10%	6 5%	5 8%
Fully responsible / Have duty of care	6 1%	5 3% ++	0 0%	0 0%	0 0%	1 2%
No. of Respondents	612 100%	184 100%	166 100%	83 100%	113 100%	66 100%

PLANT & MACHINERY SURVEY - MARCH 2000

Q.7 Which, if any, of the following problems have you experienced in meeting your OHS obligations in relation to the design of plant and machinery?

	ORGANISATION'S PRIMARY ROLE					
	TOTAL	Designers	Manufacturer	Importer	Supplier	Installer/ Erectors
Lack of material to 224	66	61	24	44	29	
Understand regulations	37%	36%	37%	29%	39%	44%
				-		
Lack of practical guidance 20863	59	26	40	20		
to assist	34%	34%	36%	31%	35%	30%
Poor documentation from 194	64	59	20	31	20	
designers/manufacturers	32%	35%	36%	24%	27%	30%
				-		
Plant and equipment 193	60	59	20	26	28	
Imported from overseas	32%	33%	36%	24%	23%	42%
				-	--	+
Poorly written 192	63	53	20	36	20	
manuals and brochures	31%	34%	32%	24%	32%	30%
				-		
Difficult to read 136	36	46	15	20	19	
OHS material	22%	20%	28%	18%	18%	29%
			+			
Lack of quality assurance 123	42	35	8	18	20	
procedures	20%	23%	21%	10%	16%	30%
				---		+
None 126	36	31	23	32	4	
	21%	20%	19%	28%	28%	6%
				++	---	
Don't have information 25	7	4	5	7	2	
regarding obligations	4%	4%	2%	6%	6%	3%
Other 23	10	4	6	0	3	
	4%	5%	2%	7%	0%	5%
Don't know/can't say 11	3	2	0	4	2	
	2%	2%	1%	0%	4%	3%
No. of Respondents 612	184	166	83	113	66	
	100%	100%	100%	100%	100%	100%

PLANT & MACHINERY SURVEY - MARCH 2000

Q.8 In regard to current procedures, how significant or otherwise do you think the following are as barriers to the adoption of design principles which include greater consideration of OHS issues, using a scale of 0-10 where 10=extremely significant and 0=not at all significant.

	ORGANISATION'S PRIMARY ROLE					
	TOTAL	Designers	Manufacturer	Importer	Supplier	Installer/ Erectors
Cost considerations	5.7 589	5.5 179	5.8 160	5.5 79	5.9 108	6.2 63
Client specifications do not include OHS issues	5.3 554	5.5 169	5.4 150	4.7 79	5.2 94	5.3 62
OHS aspects of design not important	4.9 542	4.9 163	4.9 149	4.5 74	4.9 100	5.2 56
Lack of clear guidelines to assist	5.4 576	5.5 174	5.6 156	5.1 78	5.4 105	5.5 63
Poor understanding how P&M is going to be used	4.8 582	4.9 174	4.9 157	4.6 82	4.7 106	4.6 63
Safety aspects in design not well understood	4.6 580	4.6 174	5.2 159	4.0 80	4.5 106	4.5 61
Safety aspects in design are ignored by users	6.3 587	6.3 175	6.3 158	6.2 83	6.3 109	6.9 62
Lack of communication about design safety	5.3 571	5.5 173	5.4 157	4.6 79	4.9 102	5.7 60
Poor documentation about OHS issues in design	5.5 550	5.7 166	5.4 154	4.7 73	5.5 98	5.6 59
Skills/knowledge of academic staff in tertiary institutions	5.3 493	5.4 150	5.4 139	4.2 64	5.6 87	5.7 53
No coverage of these issues in professional devel. programs	5.1 498	5.4 159	5.1 136	4.6 61	4.8 90	5.1 52
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Mean	5.3	5.4	5.4	4.8	5.3	5.5

PLANT & MACHINERY SURVEY - MARCH 2000

Q.9 How useful or otherwise do you thing the following are for encouraging safe design principles, using a scale of 0-10 where 10=extremely useful and 0=not at all useful.

	ORGANISATION'S PRIMARY ROLE					
	TOTAL	Designers	Manufacturer	Importer	Supplier	Installer/ Erectors
OHS legislation and guidelines	7.6	7.4	7.7	7.7	7.6	7.5
	593	175	162	81	111	64
Industry codes of practice	7.7	7.6	7.7	7.6	7.7	7.6
	595	177	162	81	111	64
Awards for safe design	6.4	6.2	6.6	6.6	6.0	6.3
	590	178	164	79	105	64
Publication of results of inquiries/workplace accidents	7.3	7.3	7.4	7.4	7.0	7.4
	601	181	164	80	111	65
Workplace training on OHS and safe design	7.7	7.7	7.8	7.8	7.7	7.8
	598	182	164	80	109	63
Tertiary education on OHS and safe design	6.9	6.8	7.4	7.0	6.0	6.9
	576	177	160	75	102	62
Professional development seminars	6.1	6.5	6.1	6.1	5.4	6.0
	586	177	164	75	107	63
More promotion of safe design at point of sale	7.2	6.8	7.5	7.5	7.1	6.7
	598	179	163	81	110	65
Service contracts that include regular safety checks	7.7	7.6	8.0	7.6	7.5	7.9
	593	176	159	81	111	66
Professional organisations take active leadership role	7.2	7.3	7.3	7.6	6.8	7.0
	579	175	160	76	104	64
Inclusion of safe design spec. purchasing documents/tenders	7.7	7.8	7.9	7.9	7.1	7.4
	592	177	162	78	110	65
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Mean	7.2	7.2	7.4	7.4	6.9	7.1

PLANT & MACHINERY SURVEY - MARCH 2000

Q.10 Have you ever sought information about OHS requirements in relation to safe design?

	ORGANISATION'S PRIMARY ROLE					
	TOTAL	Designers	Manufacturer	Importer	Supplier	Installer/ Erectors
Yes	339 55%	113 61% ++	98 59%	48 58%	49 43% ---	31 47%
Not sure	260 42%	66 36% --	68 41%	32 39%	62 55% +++	32 48%
No	13 2%	5 3%	0 0%	3 4%	2 2%	3 5%
No. of Respondents	612 100%	184 100%	166 100%	83 100%	113 100%	66 100%

PLANT & MACHINERY SURVEY - MARCH 2000

Q.11 If you were to seek information about OHS requirements in relation to safe design where would you go?

	ORGANISATION'S PRIMARY ROLE					
	TOTAL	Designers	Manufacturer	Importer	Supplier	Installer/ Erectors
Local WorkCover/OHS Authority	278 45%	75 41%	66 40% -	40 48%	59 52%	38 58% ++
Australian Standards	189 31%	57 31%	53 32%	30 36%	27 24% -	22 33%
Don't know/can't say	69 11%	26 14%	19 11%	5 6% --	13 12%	6 9%
Industry/Employer Assoc.	67 11%	18 10%	22 13%	11 13%	10 9%	6 9%
National OHS Commission	59 10%	15 8%	16 10%	12 14%	14 12%	2 3% ---
Other	56 9%	26 14% ++	9 5% --	4 5% -	13 12%	4 6%
Professional associations	33 5%	6 3% -	15 9% ++	6 7%	3 3% -	3 5%
Internet websites	30 5%	10 5%	6 4%	5 6%	6 5%	3 5%
Consultant	29 5%	8 4%	8 5%	5 6%	8 7%	0 0%
General industry knowledge	27 4%	10 5%	6 4%	2 2%	5 4%	4 6%
Manufacturer	22 4%	3 2% --	4 2%	5 6%	7 6%	3 5%
Government	11 2%	6 3%	2 1%	1 1%	0 0%	2 3%
Clients	10 2%	7 4% ++	2 1%	1 1%	0 0%	0 0%
Friends	8 1%	4 2%	0 0%	2 2%	2 2%	0 0%
Department of Labour and Industry	8 1%	0 0%	5 3% +	2 2%	0 0%	1 2%
Trade Journal	7 1%	0 0%	5 3% +	0 0%	0 0%	2 3%

PLANT & MACHINERY SURVEY - MARCH 2000

Q.11 If you were to seek information about OHS requirements in relation to safe design where would you go?

	ORGANISATION'S PRIMARY ROLE					
	TOTAL	Designers	Manufacturer	Importer	Supplier	Installer/ Erectors
Supplier	7 1%	1 1%	1 1%	5 6% ++	0 0%	0 0%
Government Bookshops	6 1%	2 1%	1 1%	2 2%	1 1%	0 0%
University	5 1%	1 1%	3 2%	0 0%	1 1%	0 0%
Library	5 1%	0 0%	2 1%	1 1%	1 1%	1 2%
Yellow Pages	5 1%	2 1%	2 1%	0 0%	1 1%	0 0%
Industry/Employer Newsletter	4 1%	3 2%	0 0%	1 1%	0 0%	0 0%
Seminars/Conferences	4 1%	3 2%	0 0%	0 0%	1 1%	0 0%
Shows/Open days	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%
Union	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%
No. of Respondents	612 100%	184 100%	166 100%	83 100%	113 100%	66 100%

PLANT & MACHINERY SURVEY - MARCH 2000

Q.12 How would you prefer to receive information about OHS?

	ORGANISATION'S PRIMARY ROLE					
	TOTAL	Designers	Manufacturer	Importer	Supplier	Installer/ Erectors
Post	466 76%	135 73%	122 73%	67 81%	94 83% ++	48 73%
Internet	116 19%	40 22%	32 19%	18 22%	13 12% ---	13 20%
Email	105 17%	31 17%	25 15%	11 13%	27 24% +	11 17%
Individual contact	50 8%	16 9%	13 8%	8 10%	9 8%	4 6%
Other	36 6%	15 8%	10 6%	5 6%	4 4%	2 3%
Seminar/conference	25 4%	13 7% ++	3 2% --	1 1% --	4 4%	4 6%
Don't know/can't say	12 2%	3 2%	3 2%	2 2%	2 2%	2 3%
Fax	34 6%	7 4%	11 7%	5 6%	8 7%	3 5%
Trade magazine articles	3 0%	2 1%	1 1%	0 0%	0 0%	0 0%
No. of Respondents	612 100%	184 100%	166 100%	83 100%	113 100%	66 100%

PLANT & MACHINERY SURVEY - MARCH 2000

Q.13 Which of the following best describes the industry within which you work?

	ORGANISATION'S PRIMARY ROLE					
	TOTAL	Designers	Manufacturer	Importer	Supplier	Installer/ Erectors
Manufacturing	257 42%	53 29% ---	135 81% +++	23 28% ---	22 19% ---	24 36%
Professional services	136 22%	107 58% +++	9 5% ---	3 4% ---	6 5% ---	11 17%
Wholesale Trade	65 11%	2 1% ---	6 4% ---	28 34% +++	27 24% +++	2 3% ---
Construction	49 8%	6 3% ---	7 4% --	5 6%	13 12%	18 27% +++
Retail Trade	42 7%	4 2% ---	2 1% ---	8 10%	24 21% +++	4 6%
Mining	20 3%	7 4%	2 1% --	2 2%	7 6%	2 3%
Transport and Storage	19 3%	1 1% ---	3 2%	8 10% ++	5 4%	2 3%
Agriculture	16 3%	2 1% -	2 1%	3 4%	7 6% +	2 3%
Other	8 1%	2 1%	0 0%	3 4%	2 2%	1 2%
No. of Respondents	612 100%	184 100%	166 100%	83 100%	113 100%	66 100%

PLANT & MACHINERY SURVEY - MARCH 2000

Q.14 How many employees work in your organisation?

	ORGANISATION'S PRIMARY ROLE					
	TOTAL	Designers	Manufacturer	Importer	Supplier	Installer/ Erectors
1-5	211 34%	81 44% +++	48 29% -	12 14% ---	40 35%	30 45% +
6-10	125 20%	36 20%	34 20%	23 28%	20 18%	12 18%
11-20	99 16%	24 13%	34 20% +	12 14%	21 19%	8 12%
21-30	39 6%	6 3% --	13 8%	7 8%	9 8%	4 6%
31-50	40 7%	5 3% ---	12 7%	11 13% ++	8 7%	4 6%
51-100	33 5%	10 5%	10 6%	7 8%	5 4%	1 2% --
More than 100	63 10%	21 11%	14 8%	11 13%	10 9%	7 11%
Refused	2 0%	1 1%	1 1%	0 0%	0 0%	0 0%
No. of Respondents	612 100%	184 100%	166 100%	83 100%	113 100%	66 100%

PLANT & MACHINERY SURVEY - MARCH 2000

Q.15 Location

	ORGANISATION'S PRIMARY ROLE					
	TOTAL	Designers	Manufacturer	Importer	Supplier	Installer/ Erectors
Sydney	181 30%	58 32%	47 28%	27 33%	31 27%	18 27%
Melbourne	195 32%	59 32%	58 35%	32 39%	30 27%	16 24%
Other capital cities	175 29%	47 26%	46 28%	20 24%	35 31%	27 41% ++
Regional	61 10%	20 11%	15 9%	4 5% --	17 15% +	5 8%
No. of Respondents	612 100%	184 100%	166 100%	83 100%	113 100%	66 100%

BUILDINGS AND STRUCTURES

BUILDING & STRUCTURES SURVEY - MARCH 2000

Q.1 Which of the following best describes your organisation's primary role in relation to building and structures?

	ORGANISATION'S PRIMARY ROLE					
	Designers TOTAL(Engineers)	Designers (Architects)	Constructor	Supplier	Installer/ Erectors	
Engineering activities	74 35%	74 100% +++	0 0%	0 0%	0 0%	0 0%
Architectural activities	55 26%	0 0%	55 100% +++	0 0%	0 0%	0 0%
Constructor	32 15%	0 0%	0 0%	32 100% +++	0 0%	0 0%
Installer/Erectors	26 12%	0 0%	0 0%	0 0%	0 0%	26 100%
Supplier	25 12%	0 0%	0 0%	0 0%	25 100%	0 0%
Importer	2 1%	0 0%	0 0%	0 0%	0 0%	0 0%
No. of Respondents	214 100%	74 100%	55 100%	32 100%	25 100%	26 100%

BUILDING & STRUCTURES SURVEY - MARCH 2000

Q.2 How would you rate your organisation's current level of awareness of its obligations under OHS legislation in relation to design of buildings and structures?

	ORGANISATION'S PRIMARY ROLE					
	Designers TOTAL(Engineers)	Designers (Architects)	Constructor	Supplier	Installer/ Erectors	
TOTAL HIGH	174 81%	56 76%	43 78%	29 91% +	23 92%	21 81%
Very high	66 31%	26 35%	12 22% -	11 34%	10 40%	6 23%
High	108 50%	30 41% --	31 56%	18 56%	13 52%	15 58%
Not sure/can't say	16 7%	7 9%	6 11%	1 3%	0 0%	2 8%
TOTAL LOW	24 11%	11 15%	6 11%	2 6%	2 8%	3 12%
Low	16 7%	9 12% +	4 7%	1 3%	1 4%	1 4%
Very low	8 4%	2 3%	2 4%	1 3%	1 4%	2 8%
No. of Respondents	214 100%	74 100%	55 100%	32 100%	25 100%	26 100%
Mean	1.0	0.9	0.9	1.2	1.2	0.8

BUILDING & STRUCTURES SURVEY - MARCH 2000

Q.3 In your opinion, how important or otherwise is the design stage of building and structures for OHS in the workplace?

	ORGANISATION'S PRIMARY ROLE					
	Designers TOTAL(Engineers)	Designers (Architects)	Constructor	Supplier	Installer/ Erectors	
TOTAL IMPORTANT	194 91%	70 95%	50 91%	27 84%	23 92%	22 85%
Very important	132 62%	48 65%	30 55%	19 59%	19 76%	14 54%
Important	62 29%	22 30%	20 36%	8 25%	4 16%	8 31%
Not sure/can't say	10 5%	2 3%	3 5%	2 6%	2 8%	1 4%
TOTAL NOT IMPORTANT	10 5%	2 3%	2 4%	3 9%	0 0%	3 12%
Not very important	10 5%	2 3%	2 4%	3 9%	0 0%	3 12%
Not at all important	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%
No. of Respondents	214 100%	74 100%	55 100%	32 100%	25 100%	26 100%
Mean	1.5	1.6	1.4	1.3	1.7	1.3

BUILDING & STRUCTURES SURVEY - MARCH 2000

Q.4 Are you aware of any OHS legislation that relates to safe design of buildings or structures?

	ORGANISATION'S PRIMARY ROLE					
	Designers TOTAL(Engineers)	Designers (Architects)	Constructor	Supplier	Installer/ Erectors	
TOTAL YES	143 67%	60 81% +++	38 69%	16 50% --	10 40%	17 65%
Yes - Details given	53 25%	22 30%	15 27%	7 22%	4 16%	4 15%
Yes - No details given	90 42%	38 51% ++	23 42%	9 28% -	6 24%	13 50%
Not sure	16 7%	3 4%	4 7%	4 13%	3 12%	2 8%
No	55 26%	11 15% ---	13 24%	12 38%	12 48%	7 27%
No. of Respondents	214 100%	74 100%	55 100%	32 100%	25 100%	26 100%

BUILDING & STRUCTURES SURVEY - MARCH 2000

Q.4b Are you aware of any OHS legislation that relates to safe design of buildings or structures? **Yes - details given:**

BASE: Details given

	ORGANISATION'S PRIMARY ROLE					
	Designers TOTAL(Engineers)	Designers (Architects)	Constructor	Supplier	Installer/ Erectors	
OHS Act of Parliament 1995	6 11%	3 14%	0 0%	2 29%	1 25%	0 0%
Australian standards	21 40%	8 36%	6 40%	3 43%	2 50%	1 25%
Confined spaces	2 4%	2 9%	0 0%	0 0%	0 0%	0 0%
Work around power lines	1 2%	0 0%	0 0%	0 0%	0 0%	1 25%
Roofing Code of Practice	1 2%	1 5%	0 0%	0 0%	0 0%	0 0%
Building Code	14 26%	5 23%	7 47%	2 29%	0 0%	0 0%
Land usage platforms	1 2%	0 0%	1 7%	0 0%	0 0%	0 0%
OHS Act 1985	1 2%	0 0%	0 0%	0 0%	1 25%	0 0%
Construction Safety Act	1 2%	1 5%	0 0%	0 0%	0 0%	0 0%
Design Code for steps	2 4%	0 0%	0 0%	0 0%	0 0%	2 50%
WorkCover requirements under OHS Act, 1980 NSW	1 2%	1 5%	0 0%	0 0%	0 0%	0 0%
VCC Engineering Standards	1 2%	1 5%	0 0%	0 0%	0 0%	0 0%
Disabled Act 1999	1 2%	0 0%	1 7%	0 0%	0 0%	0 0%
No. of Respondents	53 100%	22 100%	15 100%	7 100%	4 100%	4 100%

BUILDING & STRUCTURES SURVEY - MARCH 2000

Q.5 Under current OHS legislation, which of the following groups do you believe have legal obligations with regard to safe design of buildings or structures?

	ORGANISATION'S PRIMARY ROLE					
	Designers TOTAL(Engineers)	Designers (Architects)	Constructor	Supplier	Installer/ Erectors	
Engineers	115 54%	32 43% --	36 65% ++	19 59%	11 44%	16 62%
Architects	113 53%	36 49%	34 62%	18 56%	11 44%	13 50%
Builders	104 49%	25 34% ---	36 65% +++	15 47%	12 48%	15 58%
Employers	102 48%	25 34% ---	34 62% ++	15 47%	11 44%	16 62%
Installers	99 46%	28 38% -	32 58% ++	13 41%	10 40%	15 58%
Constructors	93 43%	24 32% --	31 56% ++	12 38%	9 36%	16 62%
Employees	74 35%	17 23% ---	26 47% ++	10 31%	8 32%	12 46%
Purchasers	40 19%	12 16%	16 29% ++	6 19%	6 24%	0 0%
All of them	81 38%	36 49% ++	16 29%	11 34%	10 40%	7 27%
Other	1 0%	1 1%	0 0%	0 0%	0 0%	0 0%
Don't know/can't say	4 2%	1 1%	1 2%	0 0%	1 4%	1 4%
No. of Respondents	214 100%	74 100%	55 100%	32 100%	25 100%	26 100%

BUILDING & STRUCTURES SURVEY - MARCH 2000

Q.6 Can you now tell me briefly what is your current understanding of your company's obligations under OHS legislation relating to the safe design of buildings or structures?

	ORGANISATION'S PRIMARY ROLE					
	Designers TOTAL(Engineers)	Designers (Architects)	Constructor	Supplier	Installer/ Erectors	
B&S designed to be safely constructed/maintained /used	87 41%	37 50% ++	23 42%	13 41%	4 16%	9 35%
Eliminate risks to health and safety where practicable	41 19%	12 16%	11 20%	5 16%	3 12%	10 38%
Reduce risks to health and safety where practicable	28 13%	8 11%	6 11%	3 9%	6 24%	5 19%
Assess identified risks to health and safety	24 11%	10 14%	7 13%	3 9%	1 4%	2 8%
Communicate all necessary OHS information	22 10%	22 14%	10 7%	4 9%	3 8%	2 8% 2
Provide information on safety procedures	22 10%	9 12%	5 9%	3 9%	2 8%	3 12%
Obtain all necessary OHS information	17 8%	7 9%	6 11%	3 9%	0 0%	1 4%
Other	14 7%	1 1% ---	7 13% +	3 9%	2 8%	1 4%
Prepare health and safety work plans	11 5%	6 8%	3 5%	2 6%	0 0%	0 0%
Have not seen information which states legislation	10 5%	3 4%	2 4%	0 0%	2 8%	3 12%
Keep records of technical standards used in design	4 2%	0 0%	3 5%	1 3%	0 0%	0 0%
Registration of designs	2 1%	1 1%	0 0%	1 3%	0 0%	0 0%
Don't know/can't say	36 17%	8 11% -	8 15%	7 22%	10 40%	3 12%
Comply with building codes	10 5%	3 4%	4 7%	1 3%	1 4%	1 4%
Comply with standards (eg BCA)	19 9%	8 11%	7 13%	0 0%	2 8%	2 8%
No. of Respondents	214 100%	74 100%	55 100%	32 100%	25 100%	26 100%

BUILDING & STRUCTURES SURVEY - MARCH 2000

Q.7 Which, if any, of the following problems have you experienced in meeting your OHS obligations in relation to the design of buildings and structures?

	ORGANISATION'S PRIMARY ROLE					
	TOTAL	Designers (Engineers)	Designers (Architects)	Constructor	Supplier	Installer/ Erectors
Lack of material to understand regulations	91 43%	31 42%	25 45%	18 56% +	8 32%	8 31%
Poorly written manuals and brochures	64 30%	20 27%	15 27%	16 50% ++	5 20%	6 23%
Difficult to read OHS material	54 25%	20 27%	13 24%	6 19%	6 24%	8 31%
Lack of quality assurance procedures	51 24%	13 18% -	15 27%	11 34%	2 8%	9 35%
No safe work plans developed	48 22%	15 20%	11 20%	12 38% +	4 16%	5 19%
No job safety analyses developed	37 17%	11 15%	10 18%	10 31% +	3 12%	2 8%
None	51 24%	18 24%	15 27%	5 16%	6 24%	7 27%
Don't have information regarding obligations	15 7%	3 4%	2 4%	2 6%	3 12%	5 19%
Other	8 4%	6 8% ++	1 2%	0 0%	1 4%	0 0%
Don't know/can't say	5 2%	1 1%	1 2%	0 0%	2 8%	1 4%
No. of Respondents	214 100%	74 100%	55 100%	32 100%	25 100%	26 100%

BUILDING & STRUCTURES SURVEY - MARCH 2000

Q.8 In regard to current procedures, how significant or otherwise do you think the following are as barriers to the adoption of design principles which include greater consideration of OHS issues, using a scale of 0-10 where 10=extremely significant and 0=not at all significant.

	ORGANISATION'S PRIMARY ROLE					
	Designers TOTAL(Engineers)	Designers (Architects)	Constructor	Supplier	Installer/ Erectors	
Cost considerations	5.7 209	5.3 72	5.9 54	6.2 32	5.2 23	6.2 26
Client specifications do not include OHS issues	5.2 199	5.1 70	5.7 52	5.0 29	5.3 24	5.0 22
OHS aspects of design not important	4.4 169	4.4 62	4.7 44	4.9 22	5.3 18	2.7 21
Lack of clear guidelines to assist	5.5 205	5.3 71	6.0 54	5.5 31	5.2 23	5.5 24
Poor understanding how B&S is going to be used	4.9 187	4.7 63	5.3 47	4.7 29	5.1 24	4.8 22
Safety aspects in design not well understood	5.3 193	5.3 70	5.2 50	5.9 29	5.4 22	5.4 20
Safety aspects in design are ignored by users	6.3 196	6.6 67	6.3 52	6.0 30	5.5 21	6.0 24
Lack of communication about design safety	5.9 195	6.1 68	5.7 51	5.7 30	6.1 23	5.6 21
Poor documentation about OHS issues in design	5.8 197	5.7 70	5.9 51	5.5 30	5.6 22	6.0 22
Skills/knowledge of academic staff in tertiary institutions	5.8 157	5.4 57	5.9 45	5.4 21	6.0 15	6.7 17
No coverage of these issues in professional level . programs	5.7 176	5.7 68	6.1 50	5.0 22	5.6 18	5.9 17
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Mean	5.5	5.4	5.7	5.4	5.5	5.4

BUILDING & STRUCTURES SURVEY - MARCH 2000

Q.9 How useful or otherwise do you thing the following are for encouraging the application of safe design principles in relation to OHS issues, using a scale of 0-10 where 10=extremely useful and 0=not at all useful.

	ORGANISATION'S PRIMARY ROLE					
	Designers TOTAL(Engineers)	Designers (Architects)	Constructor	Supplier	Installer/ Erectors	
OHS legislation and guidelines	7.2 205	7.0 72	7.7 54	6.8 30	6.9 23	7.4 24
Industry codes of practice	7.9 209	8.0 73	8.0 54	7.4 31	7.5 24	8.0 25
Awards for safe design	5.8 207	5.0 72	5.6 54	6.3 31	6.9 25	6.5 23
Publication of results of inquiries/workplace accidents	7.2 208	7.3 73	7.1 54	6.5 31	7.4 24	7.0 24
Workplace training on OHS and safe design	7.9 206	8.0 73	7.8 53	7.8 31	8.2 25	7.6 22
Tertiary education on OHS and safe design	7.3 207	7.1 73	7.5 54	6.7 30	7.5 24	7.6 24
Professional development seminars	7.0 206	7.3 72	7.3 53	6.0 31	6.7 24	7.2 24
More promotion of safe design at point of sale	7.1 197	6.9 69	7.2 48	7.3 29	6.8 25	7.1 24
Service contracts that include regular safety checks	7.5 203	7.5 70	7.8 53	7.1 31	7.9 24	6.7 23
Professional organisations take active leadership role	7.5 210	7.5 73	7.5 54	6.7 31	7.6 25	7.8 25
Inclusion of safe design spec. purchasing documents /tenders	7.7 202	7.5 73	8.1 53	7.3 28	7.6 25	7.6 21
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Mean	7.3	7.2	7.4	6.9	7.4	7.3

BUILDING & STRUCTURES SURVEY - MARCH 2000

Q.10 Have you ever sought information about OHS requirements in relation to safe design?

	ORGANISATION'S PRIMARY ROLE					
	Designers TOTAL(Engineers)	Designers (Architects)	Constructor	Supplier	Installer/ Erectors	
Yes	133 62%	54 73% ++	35 64%	16 50%	13 52%	13 50%
Not sure	77 36%	20 27% --	19 35%	16 50% +	10 40%	12 46%
No	4 2%	0 0%	1 2%	0 0%	2 8%	1 4%
No. of Respondents	214 100%	74 100%	55 100%	32 100%	25 100%	26 100%

BUILDING & STRUCTURES SURVEY - MARCH 2000

Q.11 If you were to seek information about OHS requirements in relation to safe design where would you go?

	ORGANISATION'S PRIMARY ROLE					
	Designers TOTAL(Engineers)	Designers (Architects)	Constructor	Supplier	Installer/ Erectors	
Local WorkCover/OHS Authority	91 43% ++	40 54% ++	16 29% --	13 41%	12 48%	8 31%
Australian Standards	62 29% +++	31 42% +++	19 35%	5 16% --	5 20%	2 8%
Industry/Employer Assoc.	38 18%	6 8% ---	6 11% -	14 44% +++	2 8%	10 38%
Other	34 16%	11 15%	12 22%	4 13%	3 12%	4 15%
National OHS Commission	29 14%	9 12%	9 16%	4 13%	4 16%	3 12%
Professional associations	19 9%	8 11%	7 13%	3 9%	0 0%	1 4%
Don't know/can't say	19 9%	6 8%	3 5%	4 13%	2 8%	4 15%
Consultant	13 6%	4 5%	2 4%	3 9%	2 8%	2 8%
Trade Journal	8 4%	4 5%	3 5%	1 3%	0 0%	0 0%
Internet websites	8 4%	4 5%	3 5%	0 0%	0 0%	1 4%
General industry knowledge	7 3%	4 5%	2 4%	0 0%	1 4%	0 0%
Government departments	6 3%	1 1%	3 5%	1 3%	0 0%	1 4%
Manufacturer	5 2%	1 1%	2 4%	0 0%	1 4%	0 0%
Government bookshops	5 2%	2 3%	1 2%	1 3%	0 0%	1 4%
Library	4 2%	2 3%	2 4%	0 0%	0 0%	0 0%
Industry/Employer Newsletter	3 1%	1 1%	1 2%	0 0%	1 4%	0 0%

BUILDING & STRUCTURES SURVEY - MARCH 2000

Q.11 If you were to seek information about OHS requirements in relation to safe design where would you go?

	ORGANISATION'S PRIMARY ROLE					
	Designers TOTAL(Engineers)	Designers (Architects)	Constructor	Supplier	Installer/ Erectors	
Friends	3 1%	1 1%	1 2%	0 0%	0 0%	1 4%
Union	3 1%	0 0%	2 4%	1 3%	0 0%	0 0%
Local Council	2 1%	0 0%	0 0%	1 3%	0 0%	1 4%
Seminars/Conferences	1 0%	0 0%	1 2%	0 0%	0 0%	0 0%
University	1 0%	1 1%	0 0%	0 0%	0 0%	0 0%
Shows/Open days	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%
No. of Respondents	214 100%	74 100%	55 100%	32 100%	25 100%	26 100%

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Q.12 How would you prefer to receive information about OHS?

	ORGANISATION'S PRIMARY ROLE					
	Designers TOTAL(Engineers)	Designers (Architects)	Constructor	Supplier	Installer/ Erectors	
Post	169 79%	58 78%	42 76%	26 81%	23 92%	18 69%
Internet	36 17%	18 24% ++	10 18%	2 6% --	3 12%	3 12%
Email	27 13%	11 15%	7 13%	2 6%	2 8%	5 19%
Fax	25 12%	4 5% --	4 7%	5 16%	4 16%	8 31%
Other	15 7%	3 4%	8 15% ++	2 6%	1 4%	1 4%
Individual contact	10 5%	2 3%	3 5%	2 6%	3 12%	0 0%
Seminar/conference	6 3%	1 1%	2 4%	0 0%	2 8%	1 4%
CD ROM	5 2%	0 0%	2 4%	0 0%	3 12%	0 0%
Don't know/can't say	4 2%	1 1%	1 2%	2 6%	0 0%	0 0%
Videos	3 1%	0 0%	0 0%	1 3%	0 0%	2 8%
Newsletter	2 1%	0 0%	1 2%	0 0%	0 0%	1 4%
Magazines	1 0%	0 0%	0 0%	0 0%	0 0%	1 4%
No. of Respondents	214 100%	74 100%	55 100%	32 100%	25 100%	26 100%

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Q.13 Which of the following best describes the industry within which you work?

	ORGANISATION'S PRIMARY ROLE					
	Designers TOTAL(Engineers)	Designers (Architects)	Constructor	Supplier	Installer/ Erectors	
Professional services	116 54%	69 93% +++	46 84% +++	1 3% ---	0 0%	0 0%
Construction	64 30%	4 5% ---	8 15% ---	25 78% +++	4 16%	23 88%
Manufacturing	12 6%	0 0%	0 0%	5 16% +	5 20%	2 8%
Retail Trade	11 5%	0 0%	0 0%	0 0%	11 44%	0 0%
Wholesale Trade	5 2%	0 0%	0 0%	0 0%	4 16%	0 0%
Transport and Storage	3 1%	0 0%	0 0%	1 3%	1 4%	0 0%
Agriculture	1 0%	0 0%	1 2%	0 0%	0 0%	0 0%
Mining	1 0%	1 1%	0 0%	0 0%	0 0%	0 0%
Other	1 0%	0 0%	0 0%	0 0%	0 0%	1 4%
No. of Respondents	214 100%	74 100%	55 100%	32 100%	25 100%	26 100%

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Q.14 How many employees work in your organisation?

	ORGANISATION'S PRIMARY ROLE					
	Designers TOTAL(Engineers)	Designers (Architects)	Constructor	Supplier	Installer/ Erectors	
1-5	97 45%	32 43%	36 65% +++	16 50%	5 20%	7 27%
6-10	32 15%	9 12%	7 13%	6 19%	1 4%	9 35%
11-20	37 17%	12 16%	8 15%	7 22%	4 16%	5 19%
21-30	17 8%	7 9%	3 5%	1 3%	3 12%	3 12%
31-50	7 3%	3 4%	0 0%	1 3%	2 8%	1 4%
51-100	5 2%	2 3%	0 0%	0 0%	2 8%	1 4%
More than 100	19 9%	9 12%	1 2% ---	1 3% -	8 32%	0 0%
Refused	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%
No. of Respondents	214 100%	74 100%	55 100%	32 100%	25 100%	26 100%

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Q.15 Location

	ORGANISATION'S PRIMARY ROLE					
	Designers TOTAL(Engineers)	Designers (Architects)	Constructor	Supplier	Installer/ Erectors	
Sydney	85 40%	31 42%	18 33%	12 38%	12 48%	11 42%
Melbourne	79 37%	25 34%	23 42%	12 38%	9 36%	10 38%
Other capital cities	30 14%	12 16%	9 16%	4 13%	1 4%	3 12%
Regional	20 9%	6 8%	5 9%	4 13%	3 12%	2 8%
No. of Respondents	214 100%	74 100%	55 100%	32 100%	25 100%	26 100%