



# Research on information needs of the construction and associated industries

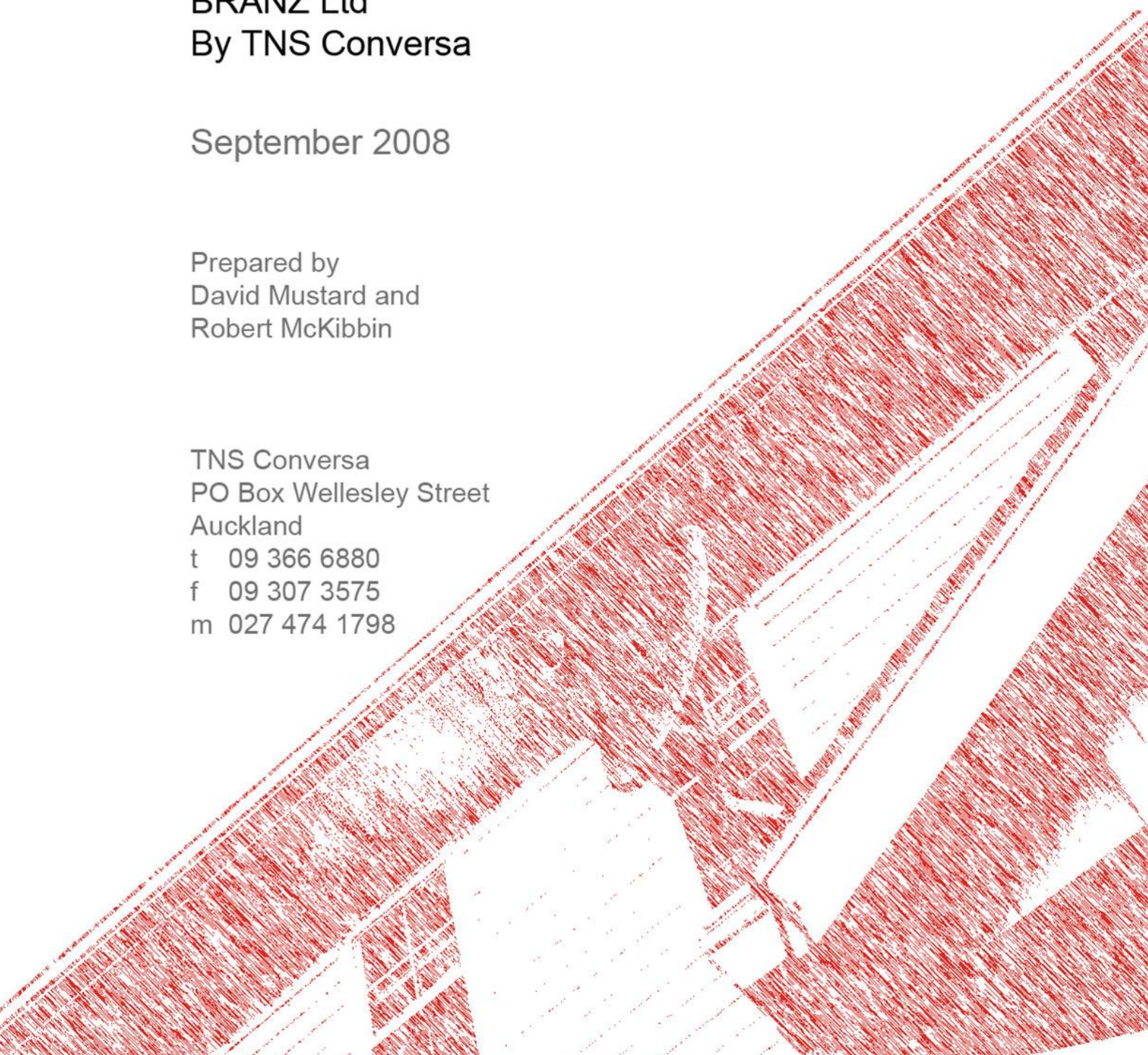
Abridged - building needs summary version  
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## 1 Introduction

BRANZ exists to provide independent and impartial research, testing, consulting and information for the building industry. Specifically, the organisation aims to provide a complete information service to builders, architects, local authorities, regulatory bodies, manufacturers of building products and educational institutions on all matters relating to construction.

As a service provider, BRANZ has a strong focus on meeting the needs of the industry in terms of industry research that it undertakes, how it communicates with stakeholders and the ease at which industry members can source high quality, reliable technical information. In line with these objectives, an Industry Needs Survey has been conducted for a number of years, the output from which is used as a guide for determining and prioritising research projects.

This abridged version of the report has the purpose of summarising the aspects of the study that relate specifically to information needs for the building industry.

## 2 Background

The scope of the 2008 INS study has been broadened to include all the key stakeholder groups and to provide measurements on a range of service related deliverables in addition to identifying information needs for the immediate and longer term time horizons

An overarching objective for BRANZ is to ensure that it continues to add a high level of value and to positively influence the physical environments constructed by the building industry. Additionally, since BRANZ covers a diverse market, the Industry Needs Survey for 2008 was designed to provide information to support a range of key decisions concerning what the industry requires from BRANZ and what knowledge gaps need to be addressed in both the immediate and medium terms. Specific decision topics addressed by the 2008 study are summarised as follows:

- The immediate information needs of the various industry groups
- The longer term information needs and priorities of the various industry groups

### 3 Research Objectives

The 2008 Industry Needs Survey was designed to provide actionable insights concerning the views, opinions and needs of the wider building industry and in particular, how these relate to the specific decisions that BRANZ is looking to make.

The following objectives were defined for the study in relation to information needs for the industry;

- To quantify and prioritise the current information needs of industry groups.
- To quantify and prioritise issues and information needs that building industry groups anticipate in the medium term covering the period to five years in the future to facilitate research planning.
- To identify whether the needs of innovative subgroups differ from the needs of the wider industry groups.

### 4 Methodology

The research was conducted between 3<sup>rd</sup> September 2008 and 23<sup>rd</sup> September 2008 using a combination of online and postal questionnaires. Those invited to participate in the survey comprised of;

- Registered Master Builders
- Certified Builders
- Institution of Professional Engineers New Zealand
- New Zealand Institute of Architects
- City Council Building Inspectors
- Government Departments, and
- Tertiary Institutions.

Lists of names were provided by BRANZ and are understood to represent the population of members pertaining to each group.

Respondents received one email follow-up to assist the response rate. Additionally, respondents were entered into a draw for three cash prizes comprised of \$1,000, \$500 and \$250 to provide further incentive to complete the questionnaire.

A total of 948 responses were achieved from the list of industry members representing a response rate of 21% (948 ÷ 4522). The total response is significantly higher than the target 350 responses sought in the proposal document dated July 2008 and the 190 responses achieved for the previous Industry Needs Study. The maximum expected margin of error for the study using a 90% confidence

interval is +/- 2.7%. BRANZ can therefore be confident that the results of the study are highly representative of the industry.

Data has been analysed using recognised statistical methods.

Respondents were classified into twelve groups in consultation with BRANZ to provide meaningful analysis and comparisons. Additionally, those respondents that are considered by BRANZ to be key stakeholders have been identified separately to facilitate additional analysis. Questions were also included to identify those respondents that are more likely to be early adopters and from this information, respondents have also been classified as belonging to one of three groups; (1) Stalwarts, steadfast members that rely heavily on the tried and proven, (2) Majority, those that are open to change and new methods but wait until others have tested the new methods and (3) Innovators, those that actively seek change and are early adopters of new methods. The analysis also focuses on identifying differences that exist between these three groups based on their level of innovation and early adoption.

## 5 Executive Summary

Within the immediate future industry members most expect to require specific information in relation to the following general topics;

- Energy & insulation
- Materials performance
- Building envelope
- Translating codes & standards
- Sustainability & environment

Within the topic area energy and insulation, industry members are most likely to be seeking specific assistance with information relating to compliance with standards including H1 energy efficiency.

Those that indicated they would need information about materials performance in the immediate future are likely to need information about durability performance of systems, assessment of new materials being brought into the market and information and updates about existing materials.

Rain penetration and water tightness is the single most important area for those that need information about the building envelope.

Information to assist with interpreting, translating and understanding building codes and standards was found to be most relevant to the industry group Certified Builders. Information relating to building consents was also identified as important in relation to retrofitting and renovations.

Information about environmentally friendly products and building practices was also identified as an area where industry members were highly likely to seek information within the immediate future. Key industry stakeholders and the early adopter group both demonstrate a high level of interest in sustainability and environmental issues.

Relative to results for the industry as a whole, Master Builders are most interested in materials performance, NZIBS Members – Surveyors & Consultants and Architects are more interested in the building envelope while Territorial Authorities, Local Govt and Architects are more interested in energy and insulation. Certified builders display greater interest in having information to assist translating building codes and standards into practice. Architects and manufacturers have a greater interest in sustainability and the environment relative to all other groups.

The major focus of the study was to identify the longer term information needs of the industry. Specifically, members were asked to indicate the topic areas that they believed the building and construction industry would most need to create new information and knowledge for the longer term future, this being in four to five years time. The most consistently rated topics were:

- Sustainability and environment,
- Energy insulation,
- Materials performance, and
- Building envelope

Architects, educators and manufacturers were found to have greater concern for sustainability and environment while builders display greater concern for energy insulation and materials performance. Architects and surveyors have a strong interest in the building envelope while designers and developers show particularly high interest in the housing needs of New Zealanders relative to the industry as a whole. All industry groups show a consistent and high level of interest in creating new information and knowledge about energy and insulation.

In relation to the longer term needs, key stakeholders and innovators show a greater desire to create new knowledge about sustainability and environment than the industry as a whole.

When seeking information, industry members collectively place greatest reliance on:

- Manufacturers' publications,
- The internet, and
- Good Practice Guides.

The Build Magazine was also highly rated as a source of information. Builders, and in particular Master Builders are more likely to place reliance on manufacturers' literature whereas architects place greater reliance on both manufacturers' literature and the internet relative to the industry as a whole. Territorial authorities were found to place greater reliance on the Build Magazine than other groups.

Of interest, key stakeholder groups and the more innovative members of the industry place less reliance on manufacturers' literature than the industry as a whole while key stakeholders place greater reliance on the internet. Those regarded as industry stalwarts, the reliable steadfast members place more emphasis on Good Practice Guides relative to the wider industry.

Overall, it was found that industry members have a high propensity for keeping up to date with trends and issues that impact them with 84% of those surveyed indicating that they regularly read or at least glance over industry publications.

It was found that about 95% of industry members receive the Build Magazine. Government Departments and educational institutions were the only groups with low subscription to the magazine. An evaluation of the magazine revealed that members rate it highly as a valuable source of information. The overall performance score of 8.6 on a 0-10 scale was found to be highly influenced by the relevance of the editorial and articles and using language that is suitable for the industry.

An examination of internet use revealed that almost all industry members have access to Broadband at work (97%) and a high proportion (88%) have access to Broadband at home. Overall, product information and information relating to building codes and standards is most likely to be accessed via the internet. In total, 87% of members indicated that they currently sourced product information from the internet, followed by 71% indicating that they used the internet to source information relating to building codes and standards.

Stakeholder groups and innovators were found to make greater use of the internet relative to the industry as a whole.

Information relating to codes and standards and building products are the two topic areas that industry members would most like to have more readily available information on the internet. Closely aligned with this is documentation relating to consents and compliances.

Making seminars available on the internet was found to be reasonably attractive with a little over half of the industry members surveyed indicating that they would watch a web based seminar; probability score of 56%. The more innovative members of the industry indicate a much higher probability of watching web based seminars.

The study found that performance based building control systems were not well understood within the industry, with members providing an average score of 4 out of a possible 10.

The industry collectively recognises value in creating a shared vision for the future but strongly prefers to retain independent professional body representation.

## 6 Key Conclusions

1. The five main topic areas that the industry anticipates requiring specific information about within the next twelve month period are, in order of priority:
  - Energy insulation
  - Materials performance
  - Building envelope
  - Translating codes and standards
  - Sustainability and environment
2. The five main topic areas that will require new knowledge and information to be generated to cater for expected needs in four to five years time are, in order of priority:
  - Sustainability and environment
  - Energy insulation
  - Materials performance
  - Building envelope, and
  - Housing needs of New Zealanders
3. The internet is an important tool for accessing information by industry members and this creates opportunities for BRANZ to further develop its interaction with the wider industry. Including more information about building codes and standards, compliances and product information will be valued. Making use of the internet for industry seminars is also likely to be well received with up to half of industry members making use of such a service.



## **7 Information Needs for the Immediate Future**

Respondents were asked to indicate the three topics from a list of nineteen that they expected they would require specific information about in the immediate future, this covering the period within the next twelve months. Results are presented in Table 1.

**Table 1: Short Term Information Needs by Industry Group**

	Builders - Certified	Builders - Master Builders	Builders - Levy Members	NZIBS Members - Surveyors, Consultants	Territorial Authorities - Building Official, Local Govt	Architect	Architect Designer	Building Owners & Developers	Crown Research Institute / Government	Educational Institute	Manufacturer & Importer	Others	Total
	%	%	%	%	%	%	%	%	%	%	%	%	%
Energy Insulation	48.5	45.9	31.9	30.8	58.0	53.8	49.3	36.1	39.1	53.6	35.5	26.5	45.0
Materials performance	39.8	49.8	42.9	33.8	39.5	37.2	37.3	33.3	26.1	21.4	51.6	20.6	40.1
Building envelope	35.9	33.5	42.9	50.8	35.8	54.5	38.8	36.1	26.1	42.9	32.3	23.5	39.7
Translating codes standards information into prac	41.7	33.9	35.2	29.2	21.0	20.5	38.8	16.7	26.1	14.3	12.9	14.7	28.8
Sustainability and environmental	10.7	24.9	18.7	21.5	21.0	42.9	32.8	33.3	39.1	42.9	45.2	32.4	27.8
Retrofit & renovation	26.2	22.7	31.9	13.8	9.9	10.3	14.9	16.7	17.4	3.6	6.5	29.4	18.5
Structural engineering	16.5	11.6	12.1	4.6	7.4	7.1	13.4	13.9	0.0	10.7	19.4	14.7	10.9
Construction Management	9.7	15.5	16.5	15.4	7.4	2.6	10.4	11.1	0.0	17.9	9.7	5.9	10.8
Upgrading re-use of existing buildings	9.7	6.9	9.9	16.9	13.6	12.8	17.9	2.8	4.3	3.6	3.2	20.6	10.5
Housing needs of NZs people	5.8	12.0	14.3	15.4	11.1	6.4	6.0	16.7	13.0	3.6	6.5	14.7	10.2
Practices on site	9.7	11.6	12.1	9.2	7.4	0.6	6.0	16.7	4.3	32.1	3.2	2.9	8.8
Building services	6.8	6.4	2.2	13.8	12.3	8.3	11.9	5.6	13.0	3.6	9.7	14.7	8.2
Building user behaviour expectations	7.8	3.9	6.6	10.8	1.2	5.8	3.0	5.6	21.7	7.1	3.2	5.9	5.7
Fire safety science and engineering	2.9	2.6	1.1	3.1	22.2	6.4	1.5	2.8	8.7	3.6	12.9	14.7	5.7
Acoustics	1.9	3.9	7.7	3.1	0.0	7.1	3.0	11.1	0.0	7.1	16.1	11.8	5.1
Internal environments	0.0	0.9	1.1	7.7	4.9	4.5	4.5	5.6	13.0	17.9	19.4	11.8	4.4
Urban Design	2.9	0.4	2.2	1.5	4.9	9.0	4.5	13.9	17.4	7.1	0.0	5.9	4.3
Economics and demographics	3.9	3.4	3.3	3.1	3.7	2.6	1.5	5.6	8.7	0.0	6.5	2.9	3.4
Other	1.0	1.3	2.2	6.2	6.2	3.2	3.0	2.8	8.7	3.6	0.0	5.9	3.0
Earthquake engineering	1.0	1.7	2.2	3.1	6.2	0.6	0.0	0.0	8.7	3.6	6.5	8.8	2.4
<b>Total</b>	<b>103</b>	<b>233</b>	<b>91</b>	<b>65</b>	<b>81</b>	<b>156</b>	<b>67</b>	<b>36</b>	<b>23</b>	<b>28</b>	<b>31</b>	<b>34</b>	<b>948</b>

Because each respondent could indicate up to three topics of interest, the percentages within each column sum to greater than 100%. Cells coloured red indicate that the frequency of responses for the particular topic and group are statistically less than the total score for all groups combined. Similarly, a green coloured cell indicates that the score for the topic and group is statistically significantly higher than the total score for all groups combined for the topic.

Across all groups, industry members most believe that they will require information about (1) Energy & insulation, (2) Materials performance, (3) The building envelope, (4) Translating building codes and (5) Sustainability and environment within the next twelve month period.

Master Builders are most interested in materials performance relative to the total for all groups, NZIBS Members – Surveyors & Consultants and Architects are more interested in the building envelope while Territorial Authorities, Local Government and Architects are more interested in energy and insulation. Certified builders display greater interest in translating building codes and standards into practice than all groups combined. Architects and manufacturers have a greater interest in sustainability and the environment relative to all other groups.

Table 2 details the results relating to expected short term information needs for the key stakeholder groups and for the three innovator groups.

<u>Table 2: Short Term Information Needs by Classification Group</u>	Key Stakeholders		Innovative Score			Total
	No	Yes	Stalwarts	Majority	Innovators	
	%	%	%	%	%	%
Energy Insulation	45.0	45.2	43.2	45.2	47.1	45.0
Materials performance	40.9	16.1	42.1	41.6	36.3	40.1
Building envelope	39.9	32.3	38.0	43.4	38.2	39.7
Translating codes standards information into prac	28.9	25.8	30.5	29.5	26.1	28.8
Sustainability and environmental	27.3	45.2	24.1	26.3	33.7	27.8
Retrofit & renovation	18.5	16.1	22.7	15.3	16.3	18.5
Structural engineering	11.1	3.2	8.9	12.5	11.8	10.9
Construction Management	11.0	3.2	10.8	12.8	8.8	10.8
Upgrading re-use of existing buildings	10.1	22.6	8.3	12.8	11.1	10.5
Housing needs of NZs people	10.1	12.9	11.1	8.9	10.5	10.2
Practices on site	8.6	12.9	8.9	8.2	9.2	8.8
Building services	8.1	12.9	8.9	8.2	7.5	8.2
Building user behaviour expectations	5.8	3.2	5.5	5.0	6.5	5.7
Fire safety science and engineering	5.8	3.2	6.4	3.6	6.9	5.7
Acoustics	4.9	9.7	4.2	5.3	5.9	5.1
Internal environments	4.3	9.7	5.0	3.2	4.9	4.4
Urban Design	4.4	3.2	3.6	2.8	6.5	4.3
Economics and demographics	3.5	0.0	3.9	3.2	2.9	3.4
Other	2.7	9.7	2.8	2.8	3.3	3.0
Earthquake engineering	2.5	0.0	2.2	2.5	2.6	2.4
<b>Total</b>	<b>917</b>	<b>31</b>	<b>361</b>	<b>281</b>	<b>306</b>	<b>948</b>

While all groups are highly likely to seek information about energy and insulation within the next twelve months, key stakeholders are far less likely to require information about materials performance relative to all others. Key stakeholders are more likely to seek information about sustainability and environment within the immediate future than all others.

Relative to all others, 'Stalwarts' are more likely to seek information about retrofitting and renovations whereas the more innovative members of the industry are more likely to seek information about sustainability and the environment.

The study sought to provide a deeper understanding of the topic areas that industry members collectively are most likely to seek information about within the next twelve months.

From Table 1, the areas of greatest interest are (1) Energy insulation, (2) Materials performance, (3) Building Envelope, (4) Translating codes & standards into practice,

(5) Sustainability and environment and (6) Retrofit and renovation. Industry members were asked to provide comments as to the specific information that they expected they would need in the coming twelve months for each of the general topics they had indicated anticipating information needs. Comments have been grouped to quantify common themes and these are summarised in Tables 3 to 8;

**Table 3: Specific Information for Energy & Insulation**

<b>Energy &amp; Insulation</b>	<b>%</b>
Compliance with standards including H1 Energy efficiency & new standards	30%
Product performance general / product information	12%
Energy efficient heating and cooling, including specification of systems and products	11%
Calculation methods relating to energy efficiency including R-Value calculation	8%
Upskilling and training	7%
Other	6%
Insulation efficiency as installed	5%
Passive heating / cooling; i.e. using the sun to heat the home	4%
Cost / benefits of double / triple glazing	4%
Retrofit of energy efficiency measures	3%
Renewable energy systems	1%
Impact of moisture on insulation	0%
Innovative water heating systems	0%
None	14%
<b>Total Respondents</b>	<b>427</b>

**Table 4: Materials Performance**

<b>Materials Performance</b>	<b>%</b>
Durability performance of systems (including building services) / and materials	19%
Assessment of new materials entering the market / info on new materials	15%
General Materials performance	14%
Research/information and updates on existing materials / BRANZ appraisals	14%
Actions of materials on one another / compatibility	3%
Reliability of accelerated test methods	3%
Definitions of failure criteria and service life	1%
Durability of timber frames	1%
Other	15%
None	20%
<b>Total Respondents</b>	<b>380</b>

**Table 5: Building Envelope**

<b>Building Envelope</b>	<b>%</b>
Rain penetration & water tightness	33%
Building codes and standards including E2	11%
Material specifications and materials performance	10%
Cladding systems generally	10%
6a flashing	5%
6b General information	3%
6d new materials/systems not already covered	3%
Joint & Junction detailing & flashings	2%
6c Energy efficiency	2%
Wind effects at entrances / openings	1%
Wind loadings on cladding	0%
Plaster cladding & EIFS (Exterior insulation and finish systems)	0%
Other	15%
None	15%
<b>Total Respondents</b>	<b>376</b>

**Table 6: Translating Codes & Standards**

<b>Translating Codes &amp; Standards Information</b>	<b>%</b>
Interpreting & understanding codes	44%
Being kept up to date with changes to codes	10%
Assistance with consent processes	7%
Applying codes to residential buildings	5%
Ensuring that materials meet the applicable codes	4%
Applying codes to existing buildings	1%
Other	15%
None	20%
<b>Total Respondents</b>	<b>273</b>

**Table 7: Sustainability & Environmental**

<b>Sustainability and Environmental</b>	<b>%</b>
Information on environmentally friendly products / building practices / best practice	27%
General Sustainability and environmental issues	17%
Life cycle assessment of impacts of materials and structures / environmental impact of different materials	16%
Recycling and reuse / best practices	5%
Consequences of new environmental legislation	2%
Disposal of demolition / site waste	2%
Water conservation	2%
Demonstration projects	0%
Building environmental impact assessment schemes	0%
Effects of climate change-induced wind & rain pattern changes	0%
Impacts of new urban concepts	0%
Reducing site noise	0%
Rainwater collection & use	0%
Grey water (domestic wastewater)	0%
Other	16%
None	17%
<b>Total Respondents</b>	<b>264</b>

**Table 8: Retrofit & Renovation**

<b>Retrofit Renovations</b>	<b>%</b>
When a Building Consent is required / new requirements	23%
info on new developments / materials	16%
General Retrofit renovations	11%
Getting information on previous materials / working with previous materials	10%
Adaption of buildings to other use / design aspects	6%
Getting information on previous designs / working with previous designs	5%
Other	8%
None	26%
Respondents	175

## 8 Information Needs for the Longer Term; 4-5 Years

The major purpose of the study is to identify the information needs of industry members for the longer term. To achieve this, members were asked to indicate the three topic areas that they believed are the most important for the building and construction industry to create new knowledge for use in four to five years time. Each industry member completing the questionnaire was asked to select what they considered to be the three most important topics from a preset list of eighteen topics. Members could select less than three topics but not more than three.

For each topic selected, members were asked to provide additional information to indicate how important they considered each of a range of factors that related to the selected topic.

The single most important areas that industry members believe that new information will need to be created for in the next four to five years are in ranked order:

- Sustainability & environmental
- Energy insulation
- Materials performance
- Building envelope
- Housing needs of NZ people
- Building user behaviour expectations, and
- Upgrading of existing building stock

Results are detailed in Table 9.

Since industry members could select multiple topics, the percentages in the table will sum to greater than 100.



Table 9: Information Needs for the Longer Term – by Industry Group

	Builders - Certified	Builders - Master Builders	Builders - Levy Members	NZIBS Members - Surveyors, Consultants	Territorial Authorities - Building Official, Local Govt	Architect	Architect Designer	Building Owners & Developers	Crown Research Institute / Government	Educational Institute	Manufacturer & Importer	Others	Total
	%	%	%	%	%	%	%	%	%	%	%	%	%
Sustainability and environmental issues	29.1	42.1	35.2	37.5	44.4	63.5	55.2	41.7	47.8	75.0	61.3	44.1	46.1
Energy Insulation	41.7	42.9	38.5	25.0	35.8	34.6	40.3	38.9	30.4	32.1	35.5	20.6	37.2
Materials performance	37.9	42.1	39.6	34.4	33.3	33.3	29.9	22.2	21.7	21.4	38.7	23.5	35.2
Building envelope	35.0	29.2	34.1	46.9	30.9	40.4	32.8	25.0	26.1	25.0	19.4	17.6	32.6
Housing needs of NZs people	22.3	21.9	20.9	15.6	21.0	12.8	31.3	36.1	4.3	7.1	6.5	29.4	20.0
Building user behaviour expectations	20.4	19.3	15.4	17.2	17.3	10.9	16.4	22.2	30.4	17.9	29.0	14.7	17.6
Upgrading re-use of existing building stock	15.5	10.7	15.4	25.0	16.0	23.1	20.9	8.3	34.8	14.3	12.9	29.4	17.2
Retrofit & Renovation	11.7	13.3	20.9	14.1	11.1	13.5	6.0	5.6	26.1	10.7	6.5	32.4	13.6
Construction Management	15.5	20.6	15.4	14.1	3.7	3.8	6.0	19.4	4.3	17.9	3.2	11.8	12.5
Building services	13.6	7.7	7.7	12.5	11.1	14.7	11.9	5.6	8.7	7.1	6.5	8.8	10.3
Practices on site	11.7	16.3	11.0	12.5	6.2	3.8	1.5	16.7	4.3	17.9	9.7	8.8	10.3
Urban Design	8.7	6.9	6.6	6.3	4.9	18.6	17.9	11.1	17.4	14.3	6.5	11.8	10.3
Economics and demographics	3.9	6.9	9.9	7.8	3.7	9.0	4.5	16.7	8.7	3.6	6.5	2.9	7.0
Internal environments	1.9	2.6	7.7	10.9	4.9	9.0	10.4	8.3	17.4	7.1	19.4	11.8	7.0
Acoustics	2.9	4.7	4.4	4.7	4.9	0.6	0.0	11.1	0.0	7.1	9.7	5.9	3.9
Fire safety science and engineering	2.9	1.3	1.1	1.6	25.9	0.6	1.5	0.0	4.3	3.6	3.2	5.9	3.8
Structural engineering	2.9	3.4	2.2	3.1	7.4	1.9	3.0	0.0	0.0	3.6	9.7	5.9	3.4
Earthquake engineering	4.9	2.1	1.1	3.1	9.9	0.0	1.5	2.8	0.0	0.0	6.5	5.9	2.9
Total	103	233	91	64	81	156	67	36	23	28	31	34	947

Of interest, architects, those in educational institutions and manufacturers show greater interest in generating information relating to sustainability and environment than does the industry as a whole. Certified builders show a particularly low level of interest in generating new information on this topic.

There is a consistent level of interest across all the industry groups concerning the creation of new information relating to energy and insulation. The only statistically significant difference is that NZIBS members, Surveyors, Consultants and the group described as 'Others' have a lower interest in the topic than the industry generally.

Builders generally show a greater interest in creating new information about energy insulation and materials performance with Master Builders having a statistically higher interest in materials performance than the industry as a whole.

Surveyors and Architects have a high interest in new information about the building envelope. Architectural Designers and Developers have a higher interest in information relating to the housing needs of New Zealanders.

Information relating to upgrading and renovating existing buildings is most sought after by the Crown Research Institutes and Government Departments.

The same information is presented in Table 10 for key stakeholders and the innovator groups. Significantly, stakeholders and the most innovative members of the industry have a statistically higher interest in creating new information about sustainability and environmental for the longer term. The industry stalwarts are considerably less likely to be interested in generating new information on this topic.

Results for these groups are highly consistent across all of the other topic areas when evaluated relative to the collective industry views.

**Table 10: Information Needs for the Longer Term – by Category Group**

	Key Stake holders		Innovative Score		Innovators	Total
	No	Yes	Stalwarts	Majority		
	%	%	%	%	%	%
Sustainability and environmental issues	45.2	74.2	37.8	49.5	52.9	46.1
Energy Insulation	37.6	25.8	37.8	38.1	35.6	37.2
Materials performance	35.3	32.3	38.6	30.2	35.6	35.2
Building envelope	33.0	22.6	33.6	32.0	32.0	32.6
Housing needs of NZs people	20.0	19.4	21.1	20.3	18.3	20.0
Building user behaviour expectations	17.8	12.9	21.4	14.6	16.0	17.6
Upgrading re-use of existing building stock	17.1	19.4	15.8	18.5	17.6	17.2
Retrofit & Renovation	13.3	22.6	14.4	13.5	12.7	13.6
Construction Management	12.2	19.4	10.6	13.2	14.1	12.5
Building services	10.6	3.2	12.8	10.3	7.5	10.3
Practices on site	10.5	6.5	11.1	11.0	8.8	10.3
Urban Design	10.5	6.5	9.7	9.3	12.1	10.3
Economics and demographics	7.0	6.5	6.1	7.1	7.8	7.0
Internal environments	7.0	6.5	5.3	7.1	8.8	7.0
Acoustics	3.9	3.2	2.5	4.6	4.9	3.9
Fire safety science and engineering	3.9	0.0	4.2	4.3	2.9	3.8
Structural engineering	3.5	0.0	3.1	4.3	2.9	3.4
Earthquake engineering	2.8	3.2	2.8	2.5	3.3	2.9
Total	916	31	360	281	306	947

Tables 11 to 15 detail the stated importance scores for each of the subject areas within each of the four topics that industry members most want new information created for the future benefit of the industry. Importance ratings were collected using a 0 – 10 point scale where 0 = not important at all through to 10 = highly important.

**Table 11: Mean Performance Scores for Importance of Sustainability & Environmental Issues**

	Builders - Certified	Builders - Master Builders	Builders - Levy Members	NZIBS Members - Surveyors, Consultants	Territorial Authorities - Building Official, Local Govt	Architect	Architect Designer	Building Owners & Developers	Crown Research Institute / Government	Educational Institute	Manufacturer & Importer	Others	Total
Rainwater collection & use	8.2	8.1	8.2	8.3	8.8	8.0	8.6	8.0	7.5	7.5	6.5	8.1	8.1
Consequences of new environmental legislation	8.0	7.8	8.0	8.3	8.3	8.3	8.5	8.1	8.0	8.1	8.0	7.5	8.1
Recycling and reuse	8.6	8.2	8.2	7.9	8.0	7.8	8.5	7.2	7.5	7.8	7.6	8.0	8.0
Water conservation	8.3	7.9	7.8	8.3	8.7	7.8	8.5	7.4	7.4	7.7	6.7	7.7	7.9
Life cycle assessment of impacts of materials	7.7	7.6	7.8	8.2	7.7	8.1	8.1	7.8	7.8	7.8	7.8	8.5	7.9
Disposal of demolition site waste	8.5	8.2	8.3	7.6	7.7	7.7	7.9	7.2	7.5	7.9	6.7	7.3	7.9
Grey water	7.9	7.8	7.9	7.6	8.2	7.7	8.0	8.0	6.6	7.3	6.2	7.6	7.7
Building environmental impact assessment schemes	7.3	7.2	7.6	7.4	7.7	7.6	7.5	6.6	7.3	8.0	7.2	7.2	7.4
Effects of climate change-induced wind & rain patterns	7.7	7.2	7.3	7.4	7.7	7.1	7.8	7.5	7.7	7.0	4.9	7.1	7.2
Impacts of new urban concepts	7.2	7.1	7.1	7.3	6.8	7.3	7.7	7.5	7.2	7.2	5.5	7.4	7.1
Demonstration projects	6.8	6.5	6.4	6.6	7.1	6.8	6.5	5.7	7.3	7.3	5.4	6.6	6.6
Reducing site noise	6.5	6.3	5.4	5.8	6.4	5.3	5.8	5.2	6.9	6.7	4.6	5.3	5.9
Other	4.5	9.0	10.0	6.0	8.0	7.6	8.0	9.5	9.0	4.5	3.0	7.5	7.6
	30	98	32	24	36	99	37	15	11	21	19	15	437

Table 12: Mean Performance Scores for Energy Insulation

	Builders Certified	Builders - Master Builders	Builders - Levy Members	NZIBS Members - Surveyors, Consultants	Territorial Authorities - Building Official, Local Govt	Architect	Architect Designer	Building Owners & Developers	Crown Research Institute / Government	Educational Institute	Manufa cturer & Importer	Others	Total
Energy efficient heating and cooling	8.5	8.6	8.5	9.0	8.4	8.9	9.0	8.0	8.6	8.3	7.5	9.6	8.6
Insulation efficiency as installed	8.1	8.5	8.4	8.8	8.3	8.0	8.2	8.3	8.3	8.6	7.3	8.9	8.3
Renewable energy systems	8.3	8.4	7.9	8.6	8.1	8.3	9.2	7.9	6.1	8.8	6.8	8.6	8.3
Innovative water heating systems	8.1	8.3	8.0	8.3	7.7	8.1	8.3	8.2	7.1	8.0	5.9	8.4	8.1
Passive heating cooling	7.4	8.0	7.6	7.9	7.7	8.4	8.8	8.1	7.9	8.8	7.9	8.9	8.0
Retrofit of energy efficiency measures	7.5	7.7	7.8	8.8	8.2	8.2	8.4	7.4	8.1	8.7	7.2	9.0	7.9
Cost benefits of double triple glazing	8.0	8.3	8.0	7.3	7.9	7.6	8.5	7.6	7.7	7.2	6.5	8.1	7.9
Impact of moisture on insulation	8.0	8.1	7.6	7.8	7.5	7.6	8.3	6.9	7.4	7.8	7.4	7.7	7.8
Other	0.0	4.6	9.7	9.0	7.5	8.0	7.0	.	9.0	.	0.0	.	6.6
	43	100	35	16	29	54	27	14	7	9	11	7	352

**Table 13: Mean Performance Scores for Materials Performance**

	Builders - Certified	Builders - Master Builders	Builders - Levy Members	NZIBS Members - Surveyors, Consultants	Territorial Authorities - Building Official, Local Govt	Architect	Architect Designer	Building Owners & Developers	Crown Research Institute / Government	Educational Institute	Manufacturer & Importer	Others	Total
Assessment of new materials entering the market	8.7	8.9	9.3	9.1	9.1	9.1	8.8	9.4	9.0	9.7	8.4	9.6	9.0
Definitions of failure criteria and service life	8.3	8.7	8.8	9.2	8.6	8.2	8.2	8.6	8.4	9.0	7.8	8.1	8.5
Durability performance of systems (including build)	8.3	8.6	8.4	7.8	8.5	8.3	8.0	9.2	8.4	9.0	7.3	8.0	8.4
Reliability of accelerated test methods	8.0	8.1	8.7	7.9	8.2	7.6	8.8	8.0	8.0	8.0	8.3	9.0	8.1
Actions of materials on one another	8.1	8.1	8.5	8.1	8.0	8.0	7.8	8.4	7.4	9.0	6.8	8.3	8.1
Durability of timber frames	8.0	8.5	8.5	7.1	7.8	7.8	7.9	9.0	7.6	9.0	5.7	7.9	8.0
Other	4.3	6.3	3.3	5.0	9.0	8.9	.	10.0	.	.	3.0	5.0	6.3
	39	98	36	22	27	52	20	8	5	6	12	8	333

**Table 14: Mean Performance Scores for Building Envelope**

	Builders - Certified	Builders - Master Builders	Builders - Levy Members	NZIBS Members - Surveyors, Consultants	Territorial Authorities - Building Official, Local Govt	Architect	Architect Designer	Building Owners & Developers	Crown Research Institute / Government	Educational Institute	Manufacturer & Importer	Others	Total
Joint & Junction detailing	9.0	9.0	8.8	9.1	9.3	8.8	9.3	9.2	6.7	8.1	8.7	9.3	8.9
Rain penetration	9.2	9.1	9.2	8.5	9.2	9.0	9.5	9.7	7.2	8.3	8.8	9.7	9.0
Wind effects at entrances openings	7.8	8.1	8.3	7.5	8.5	7.1	8.3	6.6	6.5	8.4	6.8	5.7	7.7
Wind loadings on cladding	7.2	7.4	8.0	7.1	8.2	7.3	7.6	7.6	5.8	7.3	8.0	6.7	7.5
Plaster cladding & EIFS systems	8.5	8.1	7.5	7.7	8.4	5.4	8.0	8.8	6.3	8.4	5.3	8.7	7.4
Other	8.5	7.6	6.1	9.9	8.5	8.0	6.7	.	7.0	9.5	9.0	.	8.1
	36	68	31	30	25	63	22	9	6	7	6	6	309

## **9 Sources of Information**

The study found that overall, industry members rely most heavily on manufacturers' publications and the internet for specific information followed by Good Practice Guides. Results are detailed in Table 15.

Table 15: Sources of Information Most Relied On

	Builders - Certified	Builders - Master Builders	Builders - Levy Members	NZIBS Members - Surveyors, Consultants	Territorial Authorities - Building Official, Local Govt	Architect	Architect Designer	Building Owners & Developers	Crown Research Institute / Government	Educational Institute	Manufacturer & Importer	Others	Total
	%	%	%	%	%	%	%	%	%	%	%	%	%
Manufacturers trade literature	68.0	68.2	62.6	50.8	50.6	69.9	61.2	66.7	26.1	32.1	58.1	32.4	61.0
Internet	45.6	51.9	44.0	52.3	46.9	64.1	55.2	55.6	69.6	39.3	74.2	67.6	53.8
Good Practice Guides	46.6	45.1	53.8	49.2	40.7	52.6	50.7	30.6	26.1	60.7	32.3	35.3	46.3
Build Magazine	35.9	32.2	41.8	23.1	44.4	24.4	37.3	36.1	26.1	28.6	32.3	44.1	33.3
Seminars & Workshops	21.4	22.3	19.8	26.2	42.0	35.3	34.3	27.8	52.2	35.7	25.8	29.4	28.6
Other BRANZ publications	28.2	30.5	30.8	33.8	21.0	14.1	23.9	16.7	26.1	39.3	12.9	17.6	25.1
Other (Please Specify)	14.6	8.2	15.4	24.6	18.5	14.7	17.9	13.9	26.1	25.0	16.1	26.5	15.4
Industry Trade Journals	24.3	21.9	14.3	15.4	7.4	2.6	4.5	16.7	13.0	0.0	16.1	20.6	14.0
Other publications	4.9	6.0	7.7	13.8	2.5	13.5	7.5	5.6	21.7	25.0	16.1	14.7	9.2
Formal training courses (3-10 day duration)	1.0	1.3	3.3	4.6	19.8	0.6	6.0	2.8	4.3	3.6	0.0	0.0	3.6
Block courses (up to a months duration)	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
<b>Total</b>	<b>103</b>	<b>233</b>	<b>91</b>	<b>65</b>	<b>81</b>	<b>156</b>	<b>67</b>	<b>36</b>	<b>23</b>	<b>28</b>	<b>31</b>	<b>34</b>	<b>948</b>



Cells coloured green indicate that the result for the particular group is statistically significantly higher relative to the total for all groups combined, where red indicates that the result is statistically lower. The small sample size for some groups means that it is not possible to conclude whether or not the result for any of the information sources is different to the industry total.

Master Builders and Architects are more likely to use manufacturers' literature relative to all groups combined. Territorial Authorities, Government Departments and Educational institutions are far less inclined to use manufacturers' literature. Relative to the general industry, Territorial Authorities place greater emphasis on the Build Magazine and seminars / workshops as an information source.

Table 16 details the results for information sources by the key stakeholder group and innovation groups.

Table 16: Sources of Information Most Used

	Key Stakeholders		Innovative Score			Total
	No	Yes	Stalwarts	Majority	Innovators	
	%	%	%	%	%	
Manufacturers trade literature	61.9	32.3	64.5	63.3	54.6	61.0
Internet	53.2	71.0	48.8	59.1	54.9	53.8
Good Practice Guides	46.8	32.3	53.2	39.5	44.4	46.3
Build Magazine	33.5	29.0	34.6	29.9	35.0	33.3
Seminars & Workshops	28.4	35.5	23.5	32.4	31.0	28.6
Other BRANZ publications	25.3	19.4	24.7	26.7	24.2	25.1
Other (Please Specify)	15.0	25.8	15.2	15.3	15.7	15.4
Industry Trade Journals	13.8	19.4	15.5	10.3	15.7	14.0
Other publications	9.2	9.7	6.6	9.6	11.8	9.2
Formal training courses (3-10 day duration)	3.6	3.2	3.6	1.4	5.6	3.6
Block courses (up to a months duration)	0.1	0.0	0.0	0.0	0.3	0.1
Total	917	31	361	281	306	948

Relative to industry members generally, key stakeholders are far more inclined to use the internet and less inclined to use manufacturers' literature or Good Practice Guides.

Considering the different approaches that industry members take towards their work, 'Stalwarts' place greater emphasis on Good Practice Guides and less emphasis on seminars and workshops. This is in line with the conservative nature expected of this group since they place the greatest emphasis on the 'tried and proven' methods.

In contrast, innovators place less reliance on manufacturers' literature than does the industry generally.

Industry members were also asked to indicate what of three statements best described how they keep up to date with industry trends and changes. The options were;

1. I get to hear about it from my colleagues
2. I regularly review industry publications
3. I have a set of industry publications that I always read and if there is something topical I search other publications.

Table 17 details that the majority of industry members keep up to date with industry information by glancing through a set of industry publications that they regularly subscribe to.

Table 17: Practice for Keeping up to Date with Industry Trends & Changes

	Count	%
Hear from colleagues	151	15.9%
Glance over industry publications	566	59.7%
Industry publications & if topical issues, search other publications	231	24.4%
Total	948	100.0%

A review of industry groups reveals that Architects, Designers, members of Educational Institutions and Territorial Authorities are more likely to regularly read publications than other groups. Manufacturers and importers are the least likely to keep up to date by reading industry publications.

Overall, all groups display a high level of active search of industry publications to keep up to date with current trends and issues. The results are summarized in Table 18 by industry group.

**Table 18: Propensity to use Publications to Keep Up to Date by Industry Group**

	Hear from colleagues	Glance over industry publications	Industry publications & if topical issues, search other publications
Architect	9.0%	62.8%	28.2%
Architect Designer	10.4%	53.7%	35.8%
Educational Institute	10.7%	57.1%	32.1%
Territorial Authorities - Building Official, Local Govt	12.3%	55.6%	32.1%
Others	14.7%	41.2%	44.1%
NZIBS Members - Surveyors, Consultants	15.4%	55.4%	29.2%
Building Owners & Developers	16.7%	66.7%	16.7%
Builders - Master Builders	18.0%	68.2%	13.7%
Builders - Levy Members	19.8%	56.0%	24.2%
Builders - Certified	21.4%	66.0%	12.6%
Crown Research Institute / Government	21.7%	30.4%	47.8%
Manufacturer & Importer	29.0%	38.7%	32.3%

A specific examination of internet use and access revealed that almost all industry members have broadband access to the internet at their place of work. Members belonging to educational institutions, Government organizations and Territorial Authorities are less likely to have broadband internet access at their home. Results are detailed in Table 19.

**Table 19: Internet Access by Industry Group**

Group	Total n=	At Work		At Home	
		Broadband	Dialup	Broadband	Dialup
Others	33	100.0	0.0	93.9	6.1
NZIBS Members - Surveyors, Consultants	61	100.0	0.0	93.4	6.6
Educational Institute	25	100.0	0.0	72.0	28.0
Crown Research Institute / Government	23	100.0	0.0	69.6	30.4
Building Owners & Developers	34	100.0	0.0	91.2	8.8
Builders - Levy Members	85	97.8	2.2	89.4	10.6
Manufacturer & Importer	27	96.8	3.2	96.3	3.7
Builders - Master Builders	212	96.1	3.9	92.9	7.1
Architect	136	96.0	4.0	86.8	13.2
Builders - Certified	99	94.3	5.7	87.9	12.1
Architect Designer	57	93.7	6.3	93.0	7.0
Territorial Authorities - Building Official, Local Govt	69	93.3	6.7	71.0	29.0
<b>Total</b>	<b>861</b>	<b>96.5</b>	<b>3.5</b>	<b>88.2</b>	<b>11.8</b>

The study examined the type of information that industry members were using the internet to access. Overall, product information and information relating to building codes and standards is most likely to be accessed via the internet. In total, 87% of members indicated that they currently sourced product information from the internet, followed by 71% indicating that they used the internet to source information relating to building codes and standards.

Of interest, Architects and Architectural Designers are more likely than industry members generally to use the internet to provide for a broad range of information needs. Certified and Master Builders are using the internet less as a source of information than other industry groups across most of the information needs topics examined in the study.

The results are detailed in Table 20.

Table 20: Information Accessed Via the Internet by Industry Group

	Builders - Certified	Builders - Master Builders	Builders - Levy Members	NZIBS Members - Surveyors, Consultants	Territorial Authorities - Building Official, Local Govt	Architect	Architect Designer	Building Owners & Developers	Crown Research Institute / Government	Educational Institute	Manufacturer & Importer	Others	Total
	%	%	%	%	%	%	%	%	%	%	%	%	%
Product information	79.6	84.5	88.9	90.6	87.5	98.7	98.5	72.2	60.9	78.6	93.5	85.3	87.5
Codes and standards information	47.6	69.1	62.2	82.8	82.5	84.0	79.1	61.1	60.9	60.7	83.9	70.6	71.1
Compliance documents	27.2	42.1	38.9	70.3	71.3	74.4	79.1	41.7	39.1	50.0	71.0	55.9	54.1
Design information	35.9	44.6	44.4	60.9	52.5	64.1	65.7	52.8	34.8	50.0	61.3	58.8	51.4
Other general industry related information	36.9	40.8	35.6	57.8	53.8	48.7	59.7	41.7	73.9	71.4	74.2	55.9	48.1
Information on industry related books & journals	17.5	19.3	27.8	45.3	31.3	42.9	37.3	16.7	30.4	57.1	35.5	38.2	30.4
Online journals	12.6	8.2	17.8	28.1	18.8	21.2	16.4	5.6	39.1	46.4	32.3	44.1	18.4
Information on industry related magazines	5.8	7.7	10.0	12.5	21.3	12.8	10.4	2.8	13.0	25.0	25.8	14.7	11.5
None	14.6	7.7	5.6	0.0	3.8	0.6	0.0	8.3	4.3	0.0	3.2	5.9	5.2
<b>Total</b>	<b>103</b>	<b>233</b>	<b>90</b>	<b>64</b>	<b>80</b>	<b>156</b>	<b>67</b>	<b>36</b>	<b>23</b>	<b>28</b>	<b>31</b>	<b>34</b>	<b>945</b>

Industry members that are regarded as stakeholders or that have been classified as innovators are far more likely to make use of the internet for information than are other groups. Those classified as ‘Stalwarts’ are statistically less likely to use the internet than the industry as a whole in terms of wider information search. Again, this is an expected characteristic of those that are placing reliance on tried and proven practices versus those that are actively seeking new and better methods.

**Table 21; Information Accessed Via the Internet by Industry Classification**

	Key Stake holders		Innovative Score			Total
	No	Yes	Stalwarts	Majority	Innovators	
Product information	87.5	87.1	83.9	88.5	90.8	87.5
Codes and standards information	71.3	64.5	67.0	72.4	74.8	71.1
Compliance documents	53.9	58.1	49.0	55.9	58.4	54.1
Design information	51.5	48.4	45.2	50.9	59.3	51.4
Other general industry related information	47.2	77.4	40.7	51.6	53.8	48.1
Information on industry related books & journals	29.2	64.5	24.4	30.5	37.4	30.4
Online journals	17.0	61.3	11.1	16.1	29.2	18.4
Information on industry related magazines	10.6	38.7	6.6	10.0	18.7	11.5
None	5.3	3.2	8.3	4.3	2.3	5.2
Total	914	31	361	279	305	945

To further quantify the use of the internet, industry members were asked to identify the two subject areas that they would most wish to have more information available to them via the internet. Codes and building standards followed by product information were the two topics that members collectively seek to have more information published on the internet. Of interest, Certified Builders place greater emphasis on having more information about building codes and standards available on the internet which is in line with their expectation identified in relation to requiring more information on this subject within the immediate future. Refer to Table 1.

Table 22: Topics that Industry Members Most Seek to have More of Published on the Internet

	Builders - Certified	Builders - Master Builders	Builders - Levy Members	NZIBS Members - Surveyors, Consultants	Territorial Authorities - Building Official, Local Govt	Architect	Architect Designer	Building Owners & Developers	Crown Research Institute / Government	Educational Institute	Manufacturer & Importer	Others	Total
Codes and standards information	68.9	57.1	57.8	62.5	45.0	52.6	55.2	50.0	30.4	60.7	64.5	52.9	56.2
Product information	35.9	49.8	53.3	43.8	61.3	51.3	35.8	58.3	26.1	46.4	32.3	41.2	47.2
Compliance documents	30.1	30.0	33.3	31.3	25.0	31.4	43.3	19.4	21.7	21.4	45.2	23.5	30.6
Design information	22.3	22.7	25.6	29.7	23.8	34.0	38.8	27.8	26.1	21.4	32.3	32.4	27.4
Other general industry related information	8.7	8.6	7.8	6.3	6.3	3.8	7.5	8.3	26.1	17.9	12.9	11.8	8.3
Information on industry related magazine articles	4.9	4.7	1.1	7.8	16.3	6.4	1.5	11.1	26.1	17.9	3.2	11.8	7.0
Online journals	3.9	3.4	4.4	6.3	10.0	8.3	4.5	2.8	21.7	10.7	3.2	8.8	6.0
Information on industry related books & journals available	6.8	6.0	6.7	4.7	2.5	1.3	3.0	0.0	8.7	0.0	0.0	2.9	4.1
None	5.8	7.3	1.1	1.6	5.0	4.5	3.0	8.3	4.3	0.0	0.0	5.9	4.7
Total	103	233	90	64	80	156	67	36	23	28	31	34	945

Reviewing the results by stakeholders and innovators, it is apparent that few differences exist relative to the industry as a whole. We find that innovators are more likely to want magazine articles and journals available online whereas 'Stalwarts' and the 'Majority' are less inclined to be seeking these topic areas.

**Table 23: Topics that Industry Members Most Seek to have More of Published on the Internet – by Industry Category**

	Key Stake holders		Innovative Score			Total
	No	Yes	Stalwarts	Majority	Innovators	
Codes and standards information	56.7	41.9	59.0	55.6	53.4	56.2
Product information	47.3	45.2	45.4	49.8	46.9	47.2
Compliance documents	30.6	29.0	33.8	27.6	29.5	30.6
Design information	27.4	29.0	28.0	25.8	28.2	27.4
Other general industry related information	8.1	12.9	7.8	7.5	9.5	8.3
Information on industry related magazine articles	6.7	16.1	3.9	7.2	10.5	7.0
Online journals	5.8	12.9	1.9	6.1	10.8	6.0
Information on industry related books & journals available	4.3	0.0	5.0	2.2	4.9	4.1
None	4.7	3.2	5.8	6.5	1.6	4.7
<b>Total</b>	<b>914</b>	<b>31</b>	<b>361</b>	<b>279</b>	<b>305</b>	<b>945</b>

Continuing the examination of internet use, industry members were asked to indicate their probability of watching a web based seminar that related to a topic of interest and was available for them to watch at different times of the day or night. A 0-10 scale was used to record probability scores where 0 = extremely unlikely / no chance through to 10 = highly likely to watch.

It was found that Architectural Designers, Levy Members and members of Educational Institutes are more likely to watch web based seminars than are builders, developers and Territorial Authorities.

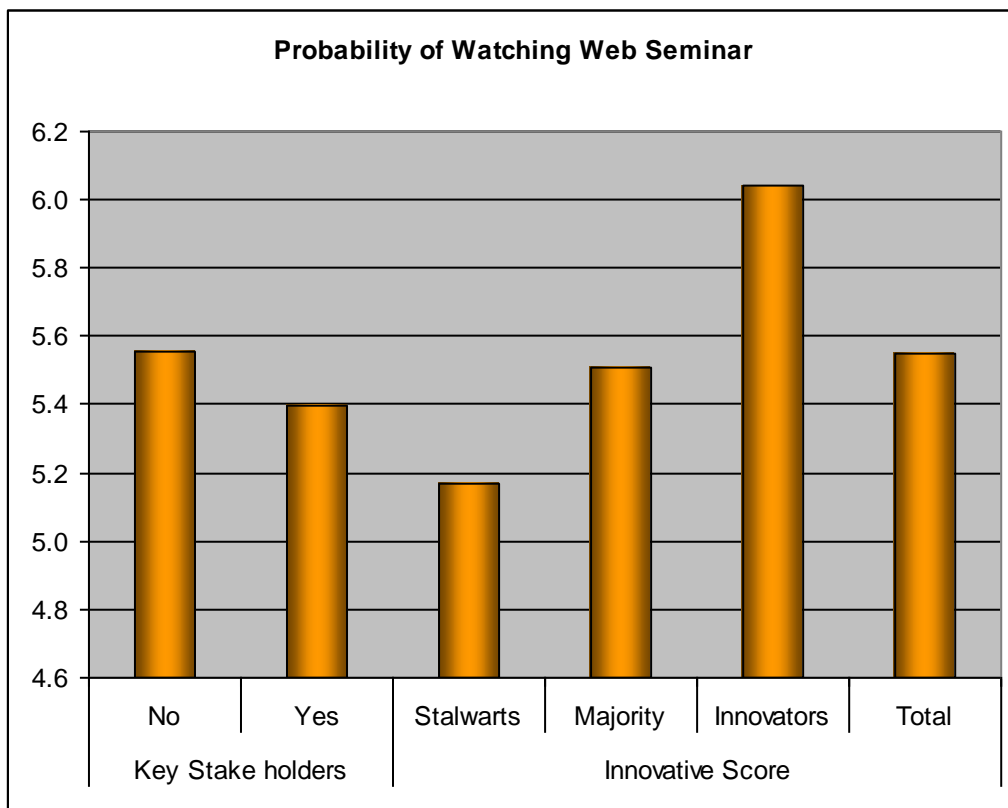
**Table 24: Probability of Watching Web Based Seminar**

	Mean
Architect Designer	6.6
Builders - Levy Members	6.2
Educational Institute	6.1
NZIBS Members - Surveyors, Consultants	5.9
Crown Research Institute / Government	5.8
Builders - Master Builders	5.5
Architect	5.5
Manufacturer & Importer	5.5
Territorial Authorities - Building Official, Local Govt	5.2
Others	5.1
Builders - Certified	4.8
Building Owners & Developers	4.6
<b>Total</b>	<b>5.6</b>



No significant difference was found to exist with industry stakeholders relative to the industry as a whole in terms of probability of watching web based seminars. As expected, those within the industry that are more innovative and early adopters display a higher probability of watching web seminars. Conversely, those that focus on the tried and proven are less inclined to seek out web based seminars. We note in Chart 1 that the more that industry members display innovative characteristics, the more likely they are to watch a web based seminar.

Chart 1: Probability of Watching Web Based Seminar by Industry Category



## 10 Performance Based Building Control Systems

The study examined how well industry members believed that performance based building control systems in New Zealand were understood. Scores were obtained on a 0-10 scale with members providing an overall average of 3.9 out of a possible 10. Results were highly consistent across all of the industry groups with the exception that Architect Designer who thought that the systems were somewhat better understood.

Overall, it is concluded that building control systems are not well understood across the industry.

**Table 25: Level of Understanding of Performance Based Building Systems – Industry Groups**

	<b>Mean</b>
Architect Designer	4.55
Educational Institute	4.00
Manufacturer & Importer	4.00
Builders - Certified	3.99
Builders - Master Builders	3.93
Territorial Authorities - Building Official, Local Govt	3.91
Building Owners & Developers	3.90
Architect	3.83
Others	3.79
Builders - Levy Members	3.76
NZIBS Members - Surveyors, Consultants	3.71
Crown Research Institute / Government	3.65
<b>Total</b>	<b>3.92</b>

Reviewing the results by the stakeholder and innovation groups revealed similar low scores for understanding performance based building control systems.

**Table 26: Level of Understanding of Performance Based Building Systems – Category Groups**

Key Stakeholders	Innovative Score				
	No	Yes	Stalwarts	Majority	Innovators
	3.93	3.62	4.01	3.84	3.91

## 11 Industry General

The study found that there was a high level of support for developing a shared vision for the industry with members providing a score of 8.8 out of a possible 10. Additionally, scores were consistently high across all of the groups as depicted in Table 36.

Table 36: Benefit from Developing a Shared Vision for the Future

	Mean
Educational Institute	9.7
Crown Research Institute / Government	9.4
Others	9.2
NZIBS Members - Surveyors, Consultants	9.1
Architect Designer	9.0
Builders - Levy Members	8.9
Architect	8.8
Manufacturer & Importer	8.8
Territorial Authorities - Building Official, Local Govt	8.8
Builders - Master Builders	8.8
Building Owners & Developers	8.6
Builders - Certified	8.5
Total	8.9

However, when asked to indicate how the industry should be represented with Central Government, there was a strong preference for remaining with professional bodies representing the individual industry sub-groups. The study indicated relative little favour for appointing BRANZ as an industry representative.

Results are detailed in Table 37.

Table 37: Industry Representation

	Individual Group Representation	BRANZ Representation	Nett Difference
Building Owners & Developers	8.8	5.7	3.1
Architect	8.3	5.9	2.4
Builders - Master Builders	9.0	6.6	2.3
Others	8.1	6.0	2.1
Builders - Certified	8.4	6.5	1.9
NZIBS Members - Surveyors, Consultants	8.0	6.2	1.9
Manufacturer & Importer	7.6	5.7	1.8
Crown Research Institute / Government	8.1	6.6	1.5
Architect Designer	8.2	7.0	1.1
Territorial Authorities - Building Official, Local Govt	7.4	6.8	0.6
Builders - Levy Members	6.9	6.9	0.0
Educational Institute	7.2	8.2	-1.0
Total	8.2	6.5	1.7

The preference scores provided by Certified Builders, Master Builders, NZIBS Members, Architects and Building Owners and Developers for continuing individual group representation were found to be statistically significantly higher than those for adopting representation by BRANZ.

## 12 Respondent Profiles

Three questions were posed of industry members to provide an understanding of how they currently work, how receptive they are to change and the extent to which they are willing to adopt new ideas. The aggregate results were used to construct an innovative score that was subsequently used to create three groups of approximately equal size; those that are least receptive to change, those most receptive to change and a middle group that is neither receptive or adverse to change. Group membership is detailed in Table 38

Table 38: Innovator Group Membership

	Stalwarts	Majority	Innovators
Crown Research Institute / Government	21.7%	13.0%	65.2%
Manufacturer & Importer	16.1%	35.5%	48.4%
Others	23.5%	29.4%	47.1%
Educational Institute	21.4%	39.3%	39.3%
Territorial Authorities - Building Official, Local Govt	32.1%	29.6%	38.3%
Building Owners & Developers	41.7%	25.0%	33.3%
Builders - Levy Members	38.5%	28.6%	33.0%
Architect	28.8%	39.1%	32.1%
Builders – Certified	48.5%	20.4%	31.1%
NZIBS Members - Surveyors, Consultants	33.8%	35.4%	30.8%
Architect Designer	34.3%	37.3%	28.4%
Builders - Master Builders	51.9%	24.5%	23.6%

The table reveals that a higher proportion of members belonging to the Government organisations, including Territorial Authorities, Educational Institutions and manufacturers display innovative traits. In contrast, builders have a larger proportion of their membership placing greater emphasis on conforming to industry standards and methods that are tried and proven.