

Industry needs survey

October 2016

A research study to define the building industry's information needs for the immediate and longer term



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Background and context

- BRANZ and MBIE are interested in the **information needs** of the building and construction industry, and the **sources** of the information the industry does use
- TNS conducts a biennial survey of the industry on behalf of BRANZ
- Since 2014 BRANZ has partnered with MBIE on the survey
- The latest survey was conducted in October 2016 and collected 1127 responses from a range of industry participants

Interpretation note:

While BRANZ and MBIE are the sponsors of this research and are acknowledged as such in the survey, it is important to note that **the survey assesses the perceived adequacy of the information available to the industry from any and all sources, not specifically from BRANZ or MBIE**

1

Executive summary

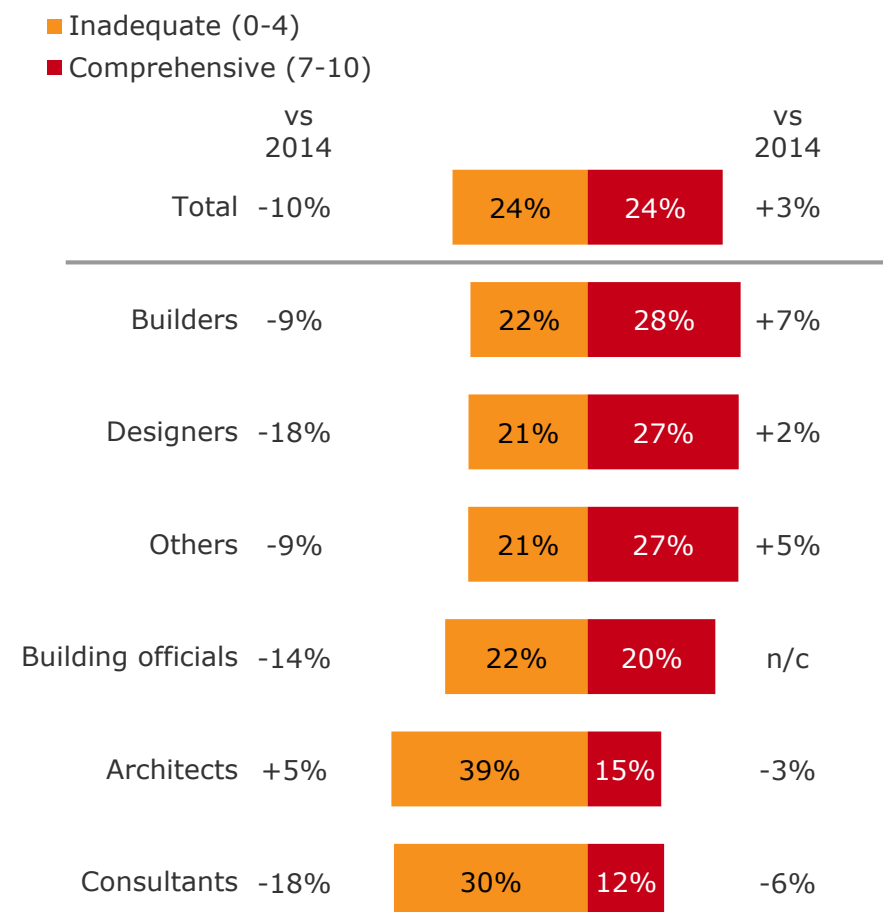


Executive summary

- There is a perceived satisfactory level of knowledge overall, however less so for architects and consultants
- Overall there has been an improvement versus 2014
- Despite the improvements, a number of topics have a high level of perceived inadequate knowledge, e.g. meeting housing needs, building better cities/communities
- Builders and contractors rate the current level of knowledge the highest across all topic areas, and architects the lowest
- Weather tightness, housing affordability and the costs and benefits of alternative construction methods and materials are the most important detailed topics that require up to date information
- While many of the top topics are regarded as important across stakeholder groups, there are also key differences pointing to a need for targeted information strategies
- About a third of respondents rate BRANZ strongly in terms of selecting research projects to create new knowledge, and communicating knowledge
- Product specification websites are a key information source, but BRANZ is a popular choice for many subjects and is top choice for technical/good practice information
- Of all the information sources BRANZ is second only to manufacturers' trade literature in terms of being valued, and is rated highest amongst building officials

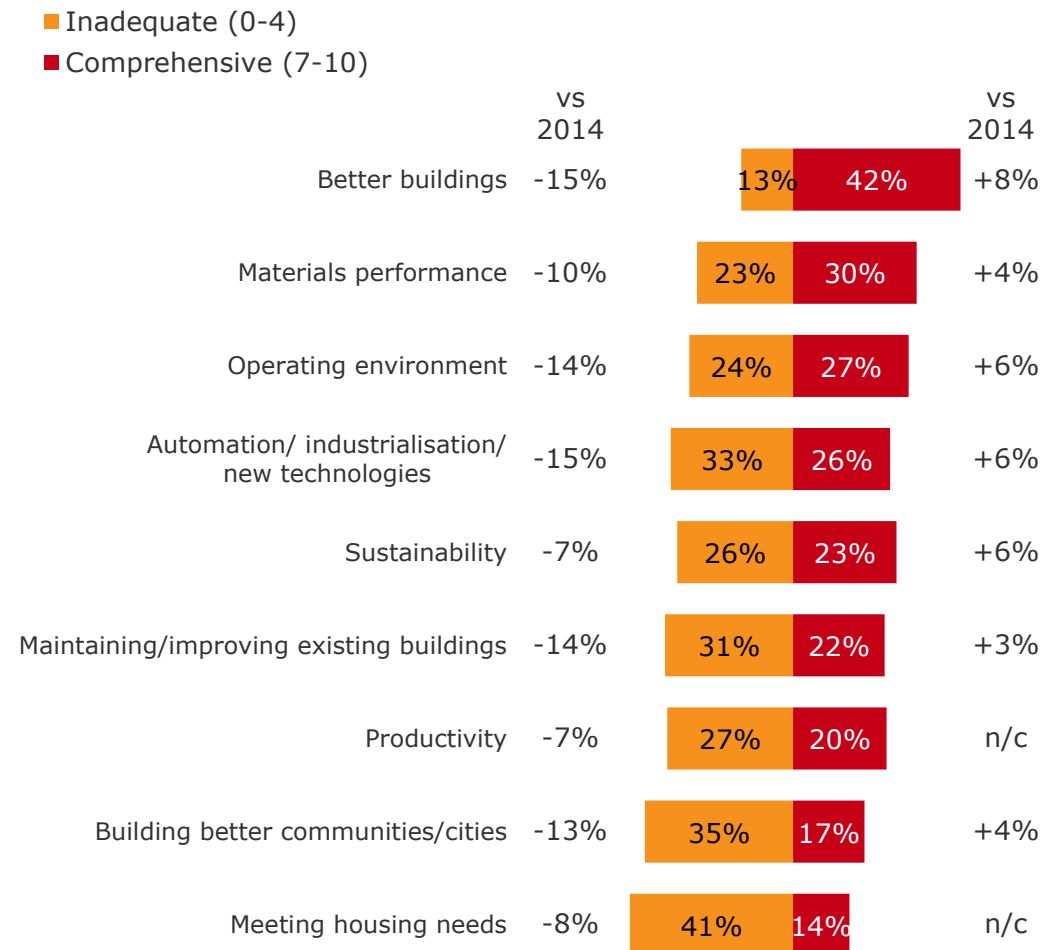
Key findings: satisfactory level of knowledge overall but less so for architects and consultants, and overall improvement versus 2014 survey

- Overall the industry is equally split between those who find the current body of industry knowledge inadequate and those who find it comprehensive
- A quarter find it inadequate, with architects and consultants the least satisfied
- Most positively the levels of 'inadequate' knowledge has gone down dramatically across all groups, apart from architects
- Builders and designers are most positive



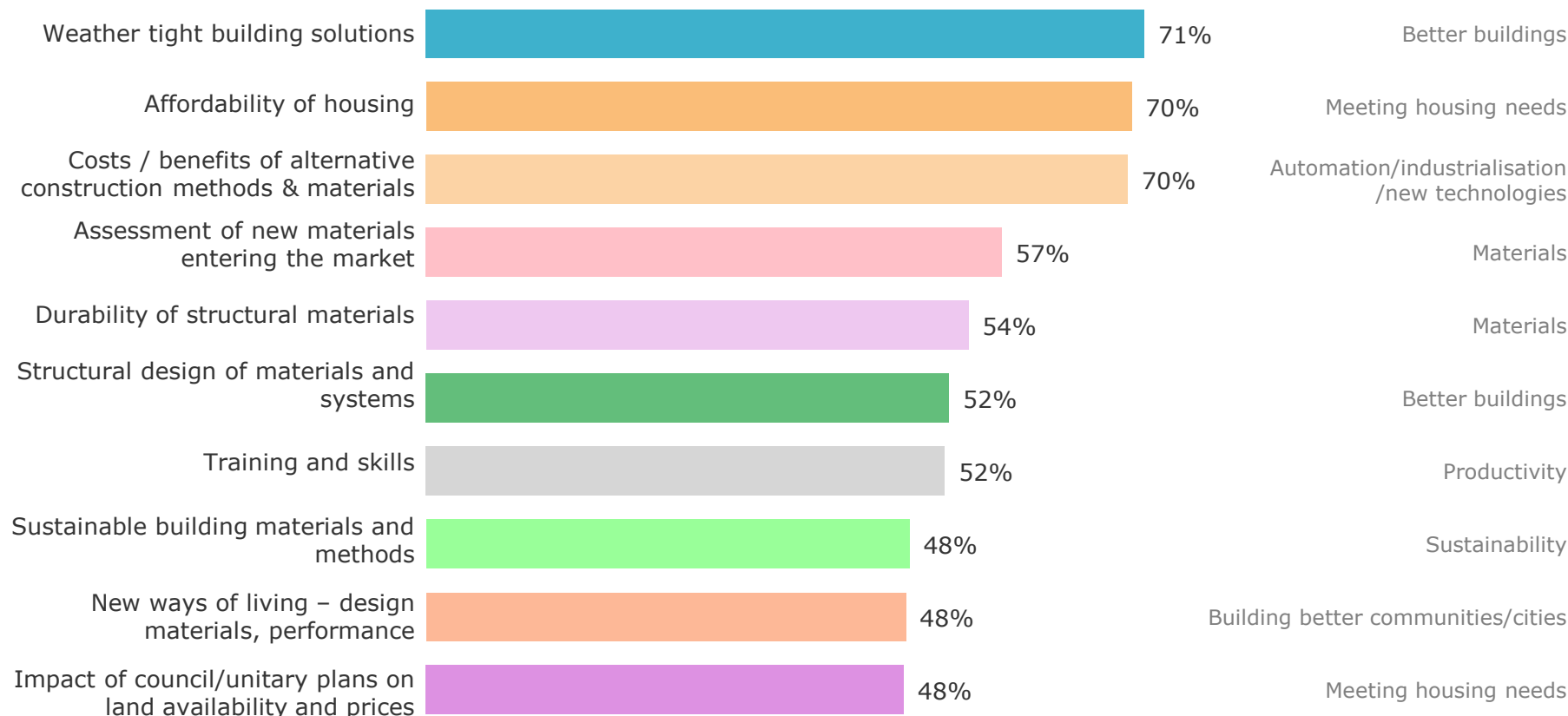
Key findings: despite improvements, a number of topics have a high level of inadequate knowledge

- The reduction in 'inadequate' knowledge is across all topic areas
- However despite this all topic areas have a relatively high level of 'inadequate knowledge' being reported, especially for meeting housing needs



Key findings: weather tightness, housing affordability and cost/benefits of alternative construction methods and materials are the most important detailed topics that require up to date information

Top 10 areas overall ranked as most important to have up to date accurate information⁽¹⁾



NOTES:

1. Sample size n = 1,127

Key findings: while many of the top topics are regarded as important across stakeholder groups, there are also key differences pointing to a need for targeted information strategies

Top 10 areas ranked as most important to have up to date accurate information, by group⁽¹⁾

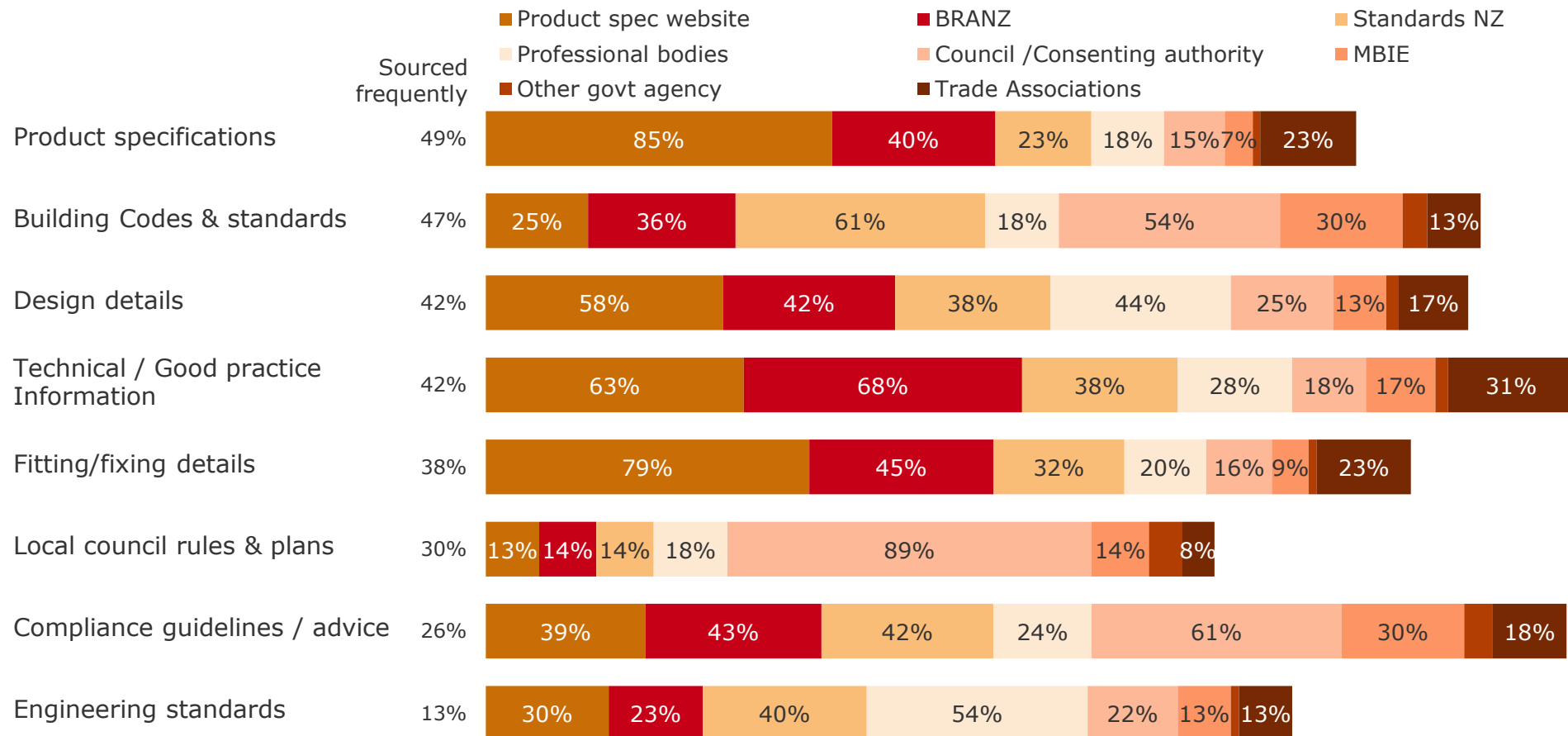
| Builders / Contractors | Officials | Designers | Architects | Engineers / Consultants | Other |
|--|--|--|---|---|--|
| Weather tight building solutions | Affordability of housing | Weather tight building solutions | Costs / benefits of alternative construction methods & materials | Affordability of housing | Affordability of housing |
| Costs / benefits of alternative construction methods & materials | Weather tight building solutions | Affordability of housing | Weather tight building solutions | Costs / benefits of alternative construction methods & materials | Costs / benefits of alternative construction methods & materials |
| Affordability of housing | Assessment of new materials entering the market | Costs / benefits of alternative construction methods & materials | Assessment of new materials entering the market | Assessment of new materials entering the market | Weather tight building solutions |
| Durability of structural materials | Training and skills | Durability of structural materials | Affordability of housing | New ways of living – design materials, performance | Assessment of new materials entering the market |
| Structural design of materials and systems | Building Code system | Assessment of new materials entering the market | Prefabrication, off-site manufactured, Modular or panelised systems | Weather tight building solutions | Impact of council/unitary plans on land availability and prices |
| Assessment of new materials entering the market | Energy efficiency of buildings | Building Code system | New ways of living – design materials, performance | Training and skills | Energy efficiency of buildings |
| Training and skills | Costs / benefits of alternative construction methods & materials | New ways of living – design materials, performance | Cost / benefit of retrofit, renovation, re-use or replace' | Prefabrication, off-site manufactured, Modular or panelised systems | New ways of living – design materials, performance |
| Sustainable building materials and methods | Effect of legislation and regulations | Energy efficiency of buildings | Cost / benefits of building sustainably | Building Code system | Durability of structural materials |
| Impact of council/unitary plans on land availability and prices | Durability of structural materials | Sustainable building materials and methods | Acceptable levels of amenity, and quality vs cost' | Structural design of materials and systems | Training and skills |
| Cost / benefits of building sustainably | Sustainable building materials and methods | Structural design of materials and systems | Energy efficiency of buildings | Information for building owners to operate and maintain their buildings | Structural design of materials and systems |

NOTES:

1. Sample sizes: Total n = 1,127, Builders n = 337, Building officials n = 131, Architects n = 124, Designers n = 193, Consultants n = 127, Others n = 215

Key findings: product specification websites are a key information source, but BRANZ is a popular choice for many subjects

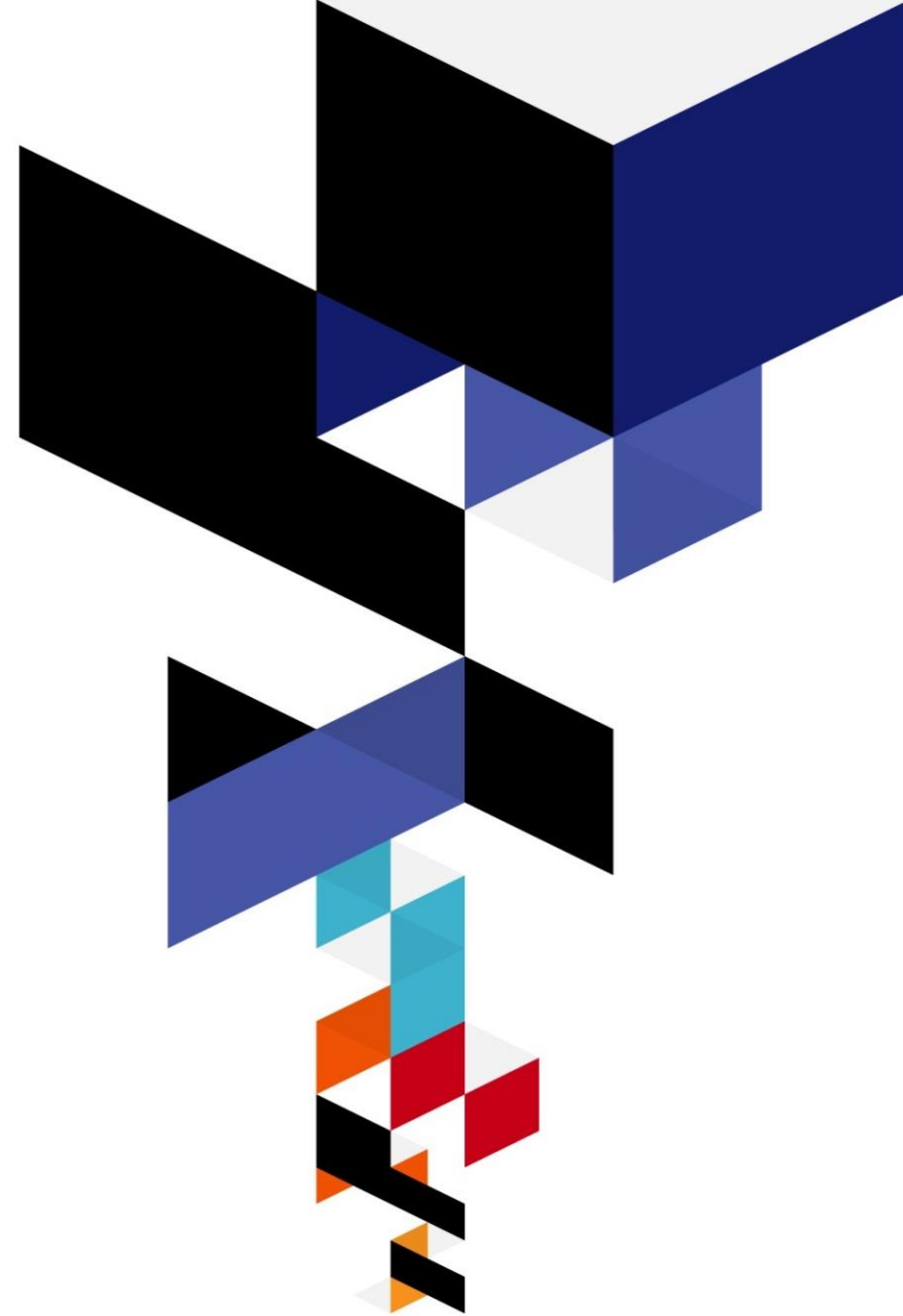
Sources by information by topic⁽¹⁾



NOTES:
1. Sample size n = 1,127

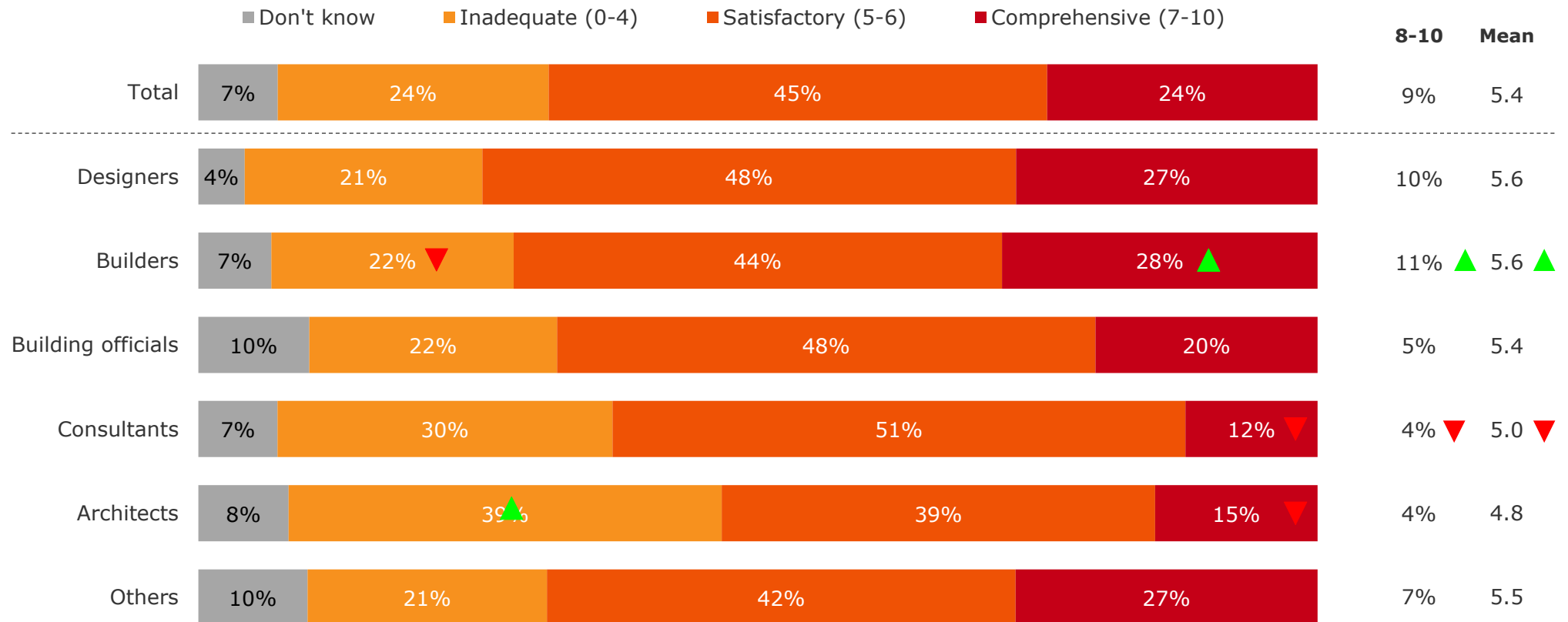
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Information needs for the immediate future



Overall the current body of industry knowledge is seen as satisfactory although a quarter find it inadequate, with designers and builders the most satisfied and architects and consultants the least satisfied...

Overall adequacy of the current body of knowledge⁽¹⁾⁽²⁾



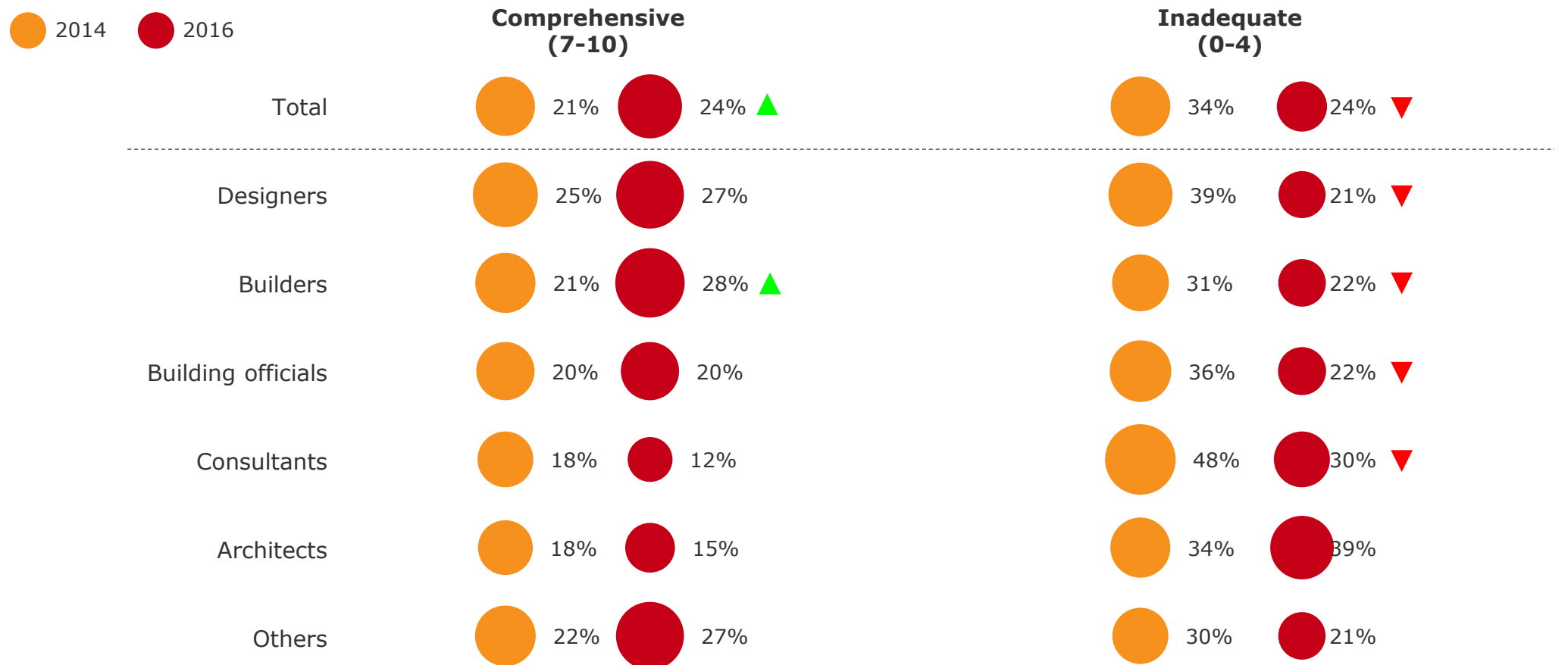
NOTES:

- Thinking overall about how adequate the current body of knowledge is across all major topic areas that we have discussed so far. How would you rate the overall adequacy of the entire body of knowledge across all of these topic areas?
- Sample sizes: Total n = 1,127, Builders n = 337, Building officials n = 131, Architects n = 124, Designers n = 193, Consultants n = 127, Others n = 215

▲ Significantly higher than total
▼ Significantly lower than total

... which overall is a significant improvement compared to 2014

Overall adequacy of the current body of knowledge, 2014 vs. 2016⁽¹⁾



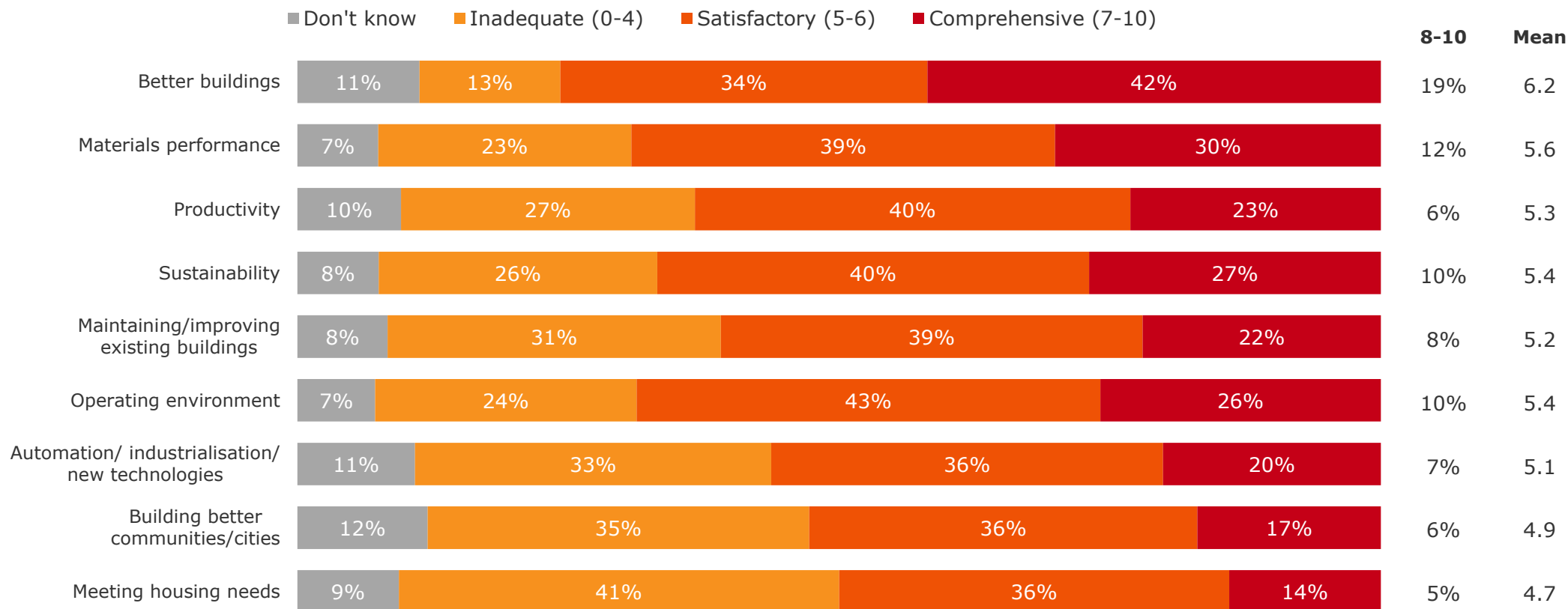
NOTES:

1. Sample sizes:
2. 2016: Total n = 1,127, Builders n = 337, Building officials n = 131, Architects n = 124, Designers n = 193, Consultants n = 127, Others n = 215
2014: Total n = 1,077, Builders n = 379, Building officials n = 246, Architects n = 221, Designers n = 87, Consultants n = 61, Others n = 83

▲ Significantly higher than 2014
▼ Significantly lower than 2014

Topics with lower adequacy include meeting housing needs, building better communities and automation / industrialisation / new technologies...

Adequacy of the current body of knowledge by topic area⁽¹⁾⁽²⁾



NOTES:

1. Thinking overall about how adequate the current body of knowledge is across all major topic areas that we have discussed so far. How would you rate the overall adequacy of the entire body of knowledge across all of these topic areas?
2. Sample size n = 1,127

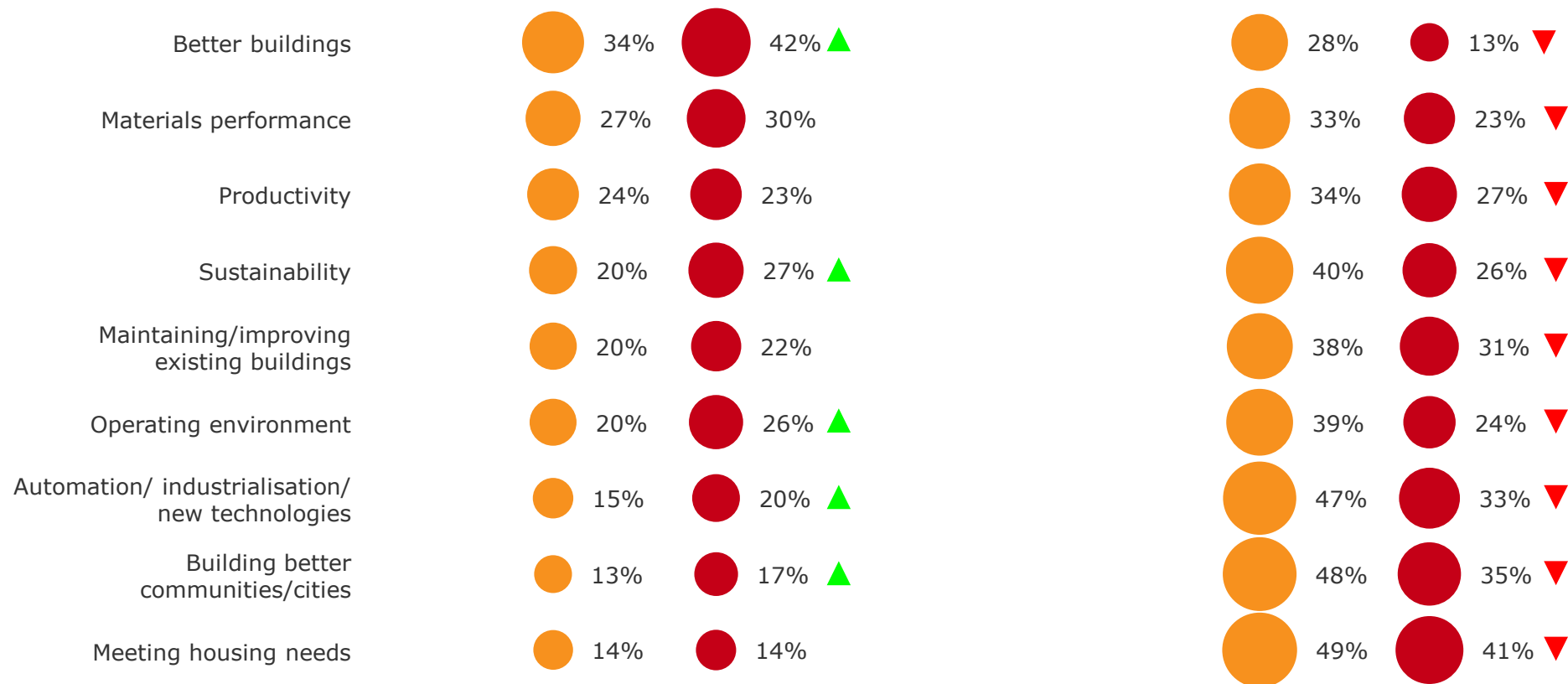
... although adequacy in all topic areas has improved since 2014

Overall adequacy of the current body of knowledge, 2014 vs. 2016⁽¹⁾

● 2014 ● 2016

Comprehensive (7-10)

Inadequate (0-4)



NOTES:

1. Sample size 2016 n = 1,127, 2014 n = 1027

▲ Significantly higher than 2014

▼ Significantly lower than 2014

Builders and contractors rate the current level of knowledge the highest across all topic areas, and architects the lowest

Adequacy of the current body of knowledge, by topic area and group⁽¹⁾

| | Builders / Contractors | Officials | Designers | Architects | Engineers / Consultants | Other |
|---|---------------------------|-----------|-----------|------------|----------------------------|-------|
| Better buildings | 6.3 ▲ | 6.1 | 6.1 | 5.6 ▼ | 5.7 ▼ | 6.3 |
| Materials performance | 5.7 ▲ | 5.5 | 5.8 | 5.2 | 5.2 ▼ | 5.7 |
| Productivity | 5.4 ▲ | 5.2 | 5.1 | 4.5 ▼ | 4.9 ▼ | 5.4 |
| Sustainability | 5.5 ▲ | 5.2 | 5.4 | 4.9 ▼ | 5.2 | 5.6 |
| Maintaining/improving existing buildings | 5.3 ▲ | 5.1 | 5.1 | 4.5 ▼ | 4.9 | 5.4 |
| Operating environment | 5.6 ▲ | 5.1 | 5.6 | 4.7 ▼ | 5.0 ▼ | 5.6 |
| Automation/industrialisation/new technologies | 5.2 ▲ | 4.9 | 5.0 | 4.2 ▼ | 4.9 | 5.3 |
| Building better communities/cities | 5.0 ▲ | 4.8 | 4.8 | 4.2 ▼ | 4.7 | 5.0 |
| Meeting housing needs | 4.8 ▲ | 4.7 | 4.7 | 4.1 ▼ | 4.2 ▼ | 5.0 ▲ |

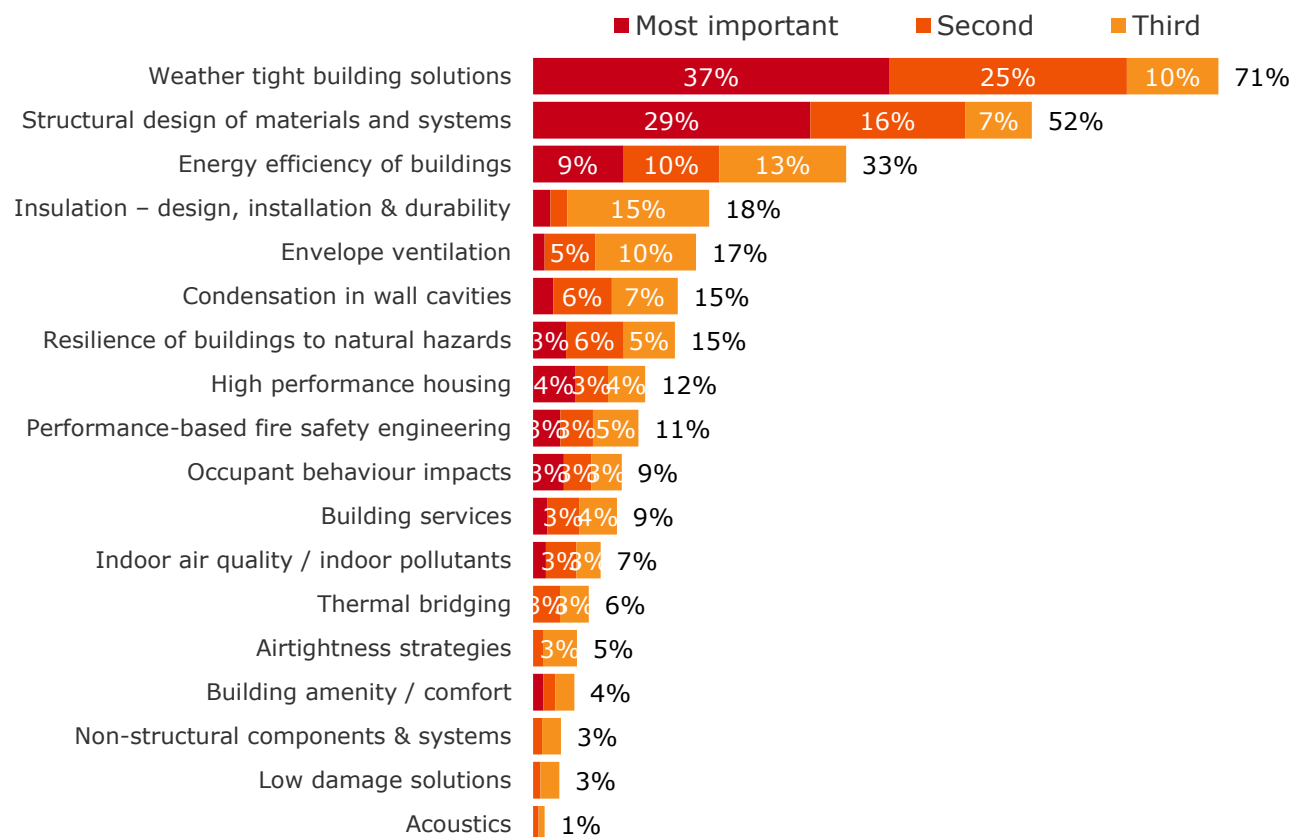
NOTES:

1. Sample sizes: Total n = 1,127, Builders n = 337, Building officials n = 131, Architects n = 124, Designers n = 193, Consultants n = 127, Others n = 215

▲ Significantly higher than total
▼ Significantly lower than total

Within better buildings, weather tight building solutions, structural design of materials, and energy efficiency are the key topics...

Better buildings: importance of having up to date, accurate information⁽¹⁾⁽²⁾



Other important aspects

- Low cost / affordable housing strategies
- Design implications of climate change and sea level rises
- Health and Safety processes and procedures
- Building regulation updates

NOTES:

1. Top 5 categories chosen and then ranked from first to fifth most important
2. Sample size n = 1,127

... particularly to builders and building officials

Better buildings: importance of having information by group⁽¹⁾⁽²⁾

| | Total | Builders / Contractors | Officials | Designers | Architects | Engineers / Consultants | Others |
|---|-------|------------------------|-----------|-----------|------------|-------------------------|--------|
| Weather tight building solutions | 71% | 77% | 67% | 77% | 73% | 56% | 61% |
| Structural design of materials and systems | 52% | 57% | 47% | 48% | 33% | 44% | 49% |
| Energy efficiency of buildings | 33% | 35% | 26% | 37% | 31% | 24% | 35% |
| Insulation – design, installation & durability | 18% | 27% | 18% | 17% | 16% | 20% | 23% |
| Envelope ventilation | 17% | 19% | 10% | 23% | 18% | 13% | 13% |
| Condensation in wall cavities | 15% | 12% | 15% | 19% | 26% | 23% | 12% |
| Resilience of buildings to natural hazards | 15% | 12% | 22% | 13% | 14% | 21% | 21% |
| High performance housing | 12% | 9% | 9% | 12% | 15% | 17% | 14% |
| Performance-based fire safety engineering | 11% | 8% | 33% | 11% | 12% | 14% | 16% |
| How occupant behaviour affects building performance | 9% | 7% | 14% | 6% | 8% | 13% | 14% |
| Building services | 9% | 9% | 15% | 10% | 5% | 8% | 12% |
| Indoor air quality / indoor pollutants | 7% | 7% | 8% | 5% | 8% | 9% | 4% |
| Thermal bridging | 6% | 6% | 2% | 6% | 10% | 6% | 4% |
| Airtightness strategies | 5% | 4% | 5% | 5% | 8% | 9% | 3% |
| Building amenity / comfort | 4% | 3% | 4% | 5% | 11% | 6% | 4% |
| Non-structural components & systems | 3% | 2% | 3% | 1% | 5% | 5% | 4% |
| Low damage solutions | 3% | 1% | 1% | 1% | 4% | 9% | 3% |
| Acoustics | 1% | 0% | 2% | 2% | 2% | 2% | 6% |

NOTES:

1. Top 5 categories chosen and then ranked from first to fifth most important

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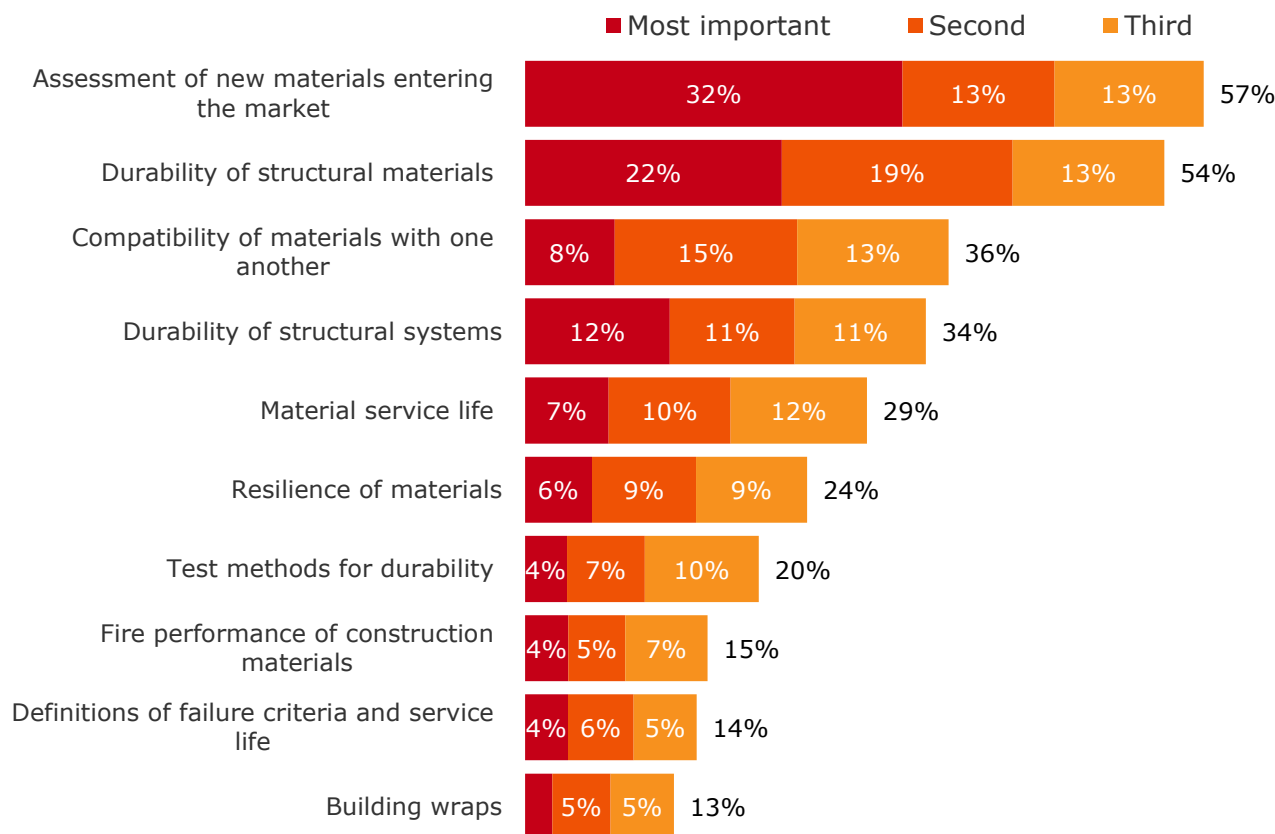
Low



High

Within materials performance assessment of new materials and durability are key...

Materials performance: importance of having up to date, accurate information⁽¹⁾⁽²⁾



Other important aspects

- New building methods and products available
- Expected life expectancy of materials/products
- Identification of which materials/products can be used in specific areas (sometimes materials are 'wanted' but not suited for a certain environment)
- To have a rigorous assessment of materials imported into the New Zealand market; the report should clarify how the material can be used in NZ and all limitations clearly highlighted

NOTES:

1. Top 5 categories chosen and then ranked from first to fifth most important
2. Sample size n = 1,127

... the former especially to officials and architects, the latter to builders

Materials performance: importance of having information by group⁽¹⁾⁽²⁾

| | Total | Builders / Contractors | Officials | Designers | Architects | Engineers / Consultants | Other |
|--|-------|------------------------|-----------|-----------|------------|-------------------------|-------|
| Assessment of new materials entering the market | 57% | 55% | 66% | 55% | 67% | 59% | 57% |
| Durability of structural materials | 54% | 60% | 48% | 55% | 31% | 43% | 50% |
| Compatibility of materials with one another | 36% | 38% | 30% | 36% | 40% | 29% | 30% |
| Durability of structural systems | 34% | 32% | 44% | 38% | 32% | 36% | 36% |
| Material service life | 29% | 28% | 22% | 26% | 35% | 31% | 26% |
| Resilience of materials | 24% | 23% | 12% | 27% | 34% | 23% | 23% |
| Test methods for durability | 20% | 21% | 20% | 15% | 8% | 17% | 25% |
| Fire performance of construction materials | 15% | 12% | 33% | 18% | 16% | 20% | 20% |
| Definitions of failure criteria and service life | 14% | 9% | 15% | 9% | 22% | 31% | 16% |
| Building wraps | 13% | 14% | 8% | 13% | 10% | 7% | 14% |

NOTES:

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Low



High

Within productivity training and skills are key...

Productivity: importance of having up to date, accurate information⁽¹⁾⁽²⁾



NOTES:

1. Top 5 categories chosen and then ranked from first to fifth most important
2. Sample size n = 1,127

Other important aspects

- Understanding of costs and benefits and timelines of projects
- Maintaining quality supply at affordable costs
- Management teams who control sites need to have construction experience as too often their decisions are based only on finance and timing.
- Optimising communication systems and methods within teams
- How to avoid 'tight deadlines'; understanding the overall level of documentation against timelines and how to spread out the work flow to maintain consistency

... particularly to officials and engineers/consultants

Productivity: importance of having information by group⁽¹⁾⁽²⁾

| | Total | Builders / Contractors | Officials | Designers | Architects | Engineers / Consultants | Other |
|---|-------|---------------------------|-----------|-----------|------------|----------------------------|-------|
| Training and skills | 52% | 53% | 64% | 47% | 31% | 55% | 49% |
| Understanding client requirements and expectations re. time and quality | 40% | 42% | 32% | 43% | 42% | 31% | 37% |
| Quality / time / cost trade off | 33% | 34% | 17% | 26% | 44% | 30% | 27% |
| Managing suppliers and sub-contractors | 25% | 30% | 13% | 17% | 13% | 15% | 25% |
| Business management | 24% | 30% | 11% | 16% | 19% | 13% | 21% |
| Effectiveness of interactions between project participants / teams | 23% | 19% | 32% | 26% | 34% | 31% | 20% |
| Understanding of industry structures and processes | 22% | 19% | 37% | 29% | 22% | 27% | 24% |
| Predicting future workloads (forecasts) | 14% | 12% | 18% | 15% | 15% | 13% | 23% |
| Measures of productivity | 12% | 11% | 16% | 8% | 13% | 17% | 11% |
| Understanding demand | 10% | 9% | 15% | 11% | 4% | 15% | 13% |
| Working within site coverage rules and tight sites | 9% | 10% | 5% | 24% | 10% | 6% | 8% |
| Factors affecting overheads | 9% | 10% | 8% | 7% | 9% | 7% | 8% |
| Procurement options | 8% | 5% | 7% | 8% | 15% | 11% | 13% |
| Industry demographics | 5% | 4% | 10% | 2% | 6% | 4% | 6% |
| Development of pipelines / supply chains | 4% | 3% | 2% | 3% | 5% | 6% | 10% |

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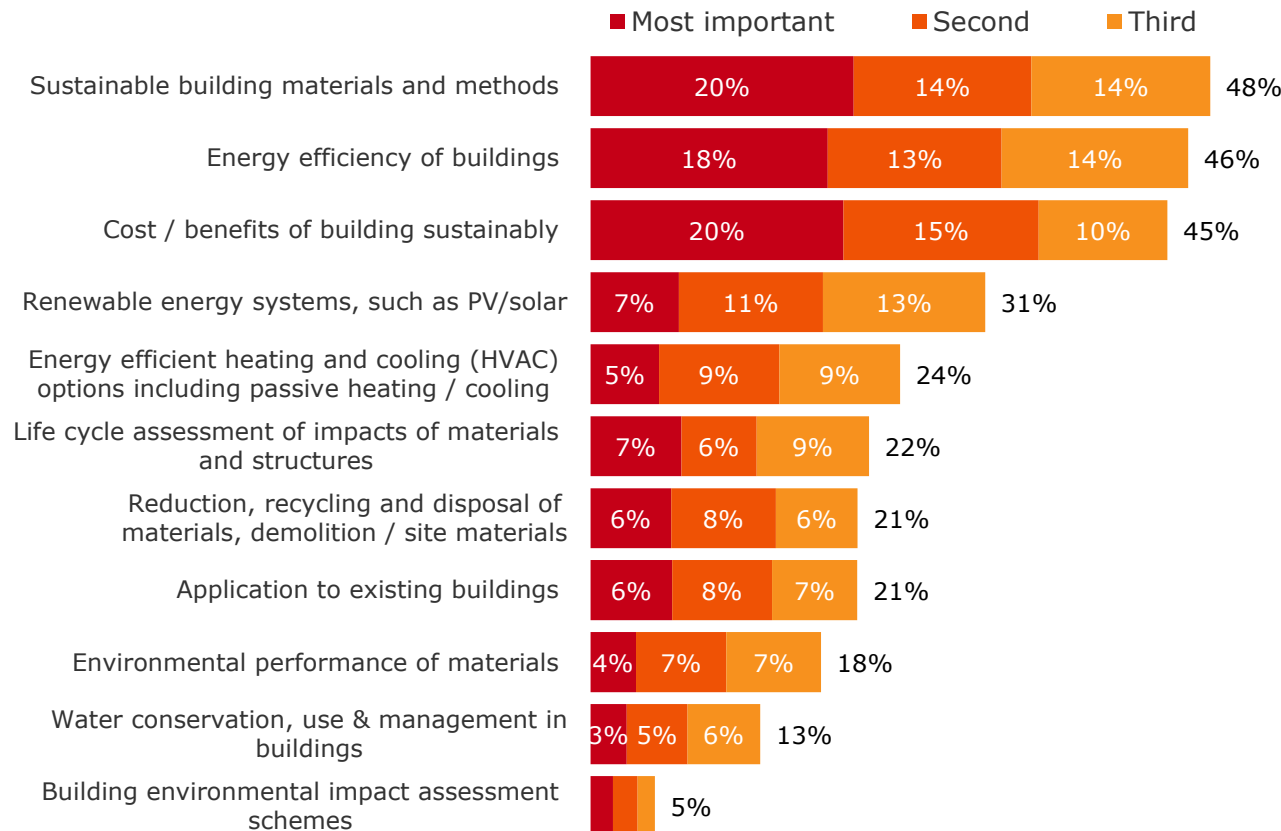
Low



High

Sustainable building materials and its cost/benefits and energy efficient buildings are key topics

Sustainability: importance of having up to date, accurate information⁽¹⁾⁽²⁾



NOTES:

1. Top 5 categories chosen and then ranked from first to fifth most important
2. Sample size n = 1,127

Other important aspects

- Research that demonstrates the benefits of using 'sustainable' materials
- Better education of Architects to give them ways to design sustainable and user-friendly buildings
- Better information about the benefits of achieving higher standards, rather than just the minimum standard of the NZBC
- Waste minimisation through advanced construction technologies such as offshore construction
- Use of local materials vs. exported

While builders and designers are most interested in sustainable building materials and methods, architects are more focused on cost/benefit trade-offs

Sustainability: importance of having information by group⁽¹⁾⁽²⁾

| | Total | Builders / Contractors | Officials | Designers | Architects | Engineers / Consultants | Other |
|---|-------|------------------------|-----------|-----------|------------|-------------------------|-------|
| Sustainable building materials and methods | 48% | 52% | 48% | 50% | 37% | 41% | 41% |
| Energy efficiency of buildings | 46% | 46% | 56% | 51% | 48% | 42% | 51% |
| Cost / benefits of building sustainably | 45% | 47% | 34% | 36% | 56% | 35% | 46% |
| Renewable energy systems, such as PV/solar | 31% | 33% | 32% | 30% | 20% | 30% | 23% |
| Energy efficient heating and cooling (HVAC) options including passive heating / cooling | 24% | 24% | 27% | 26% | 18% | 28% | 23% |
| Life cycle assessment of impacts of materials and structures | 22% | 17% | 17% | 22% | 38% | 30% | 29% |
| Reduction, recycling and disposal of materials, demolition / site materials' | 21% | 22% | 21% | 16% | 19% | 19% | 19% |
| Application to existing buildings | 21% | 16% | 26% | 21% | 28% | 33% | 20% |
| Environmental performance of materials | 18% | 17% | 15% | 21% | 17% | 20% | 22% |
| Water conservation, use & management in buildings | 13% | 14% | 14% | 17% | 9% | 11% | 16% |
| Building environmental impact assessment schemes | 5% | 5% | 8% | 6% | 7% | 3% | 7% |

NOTES:

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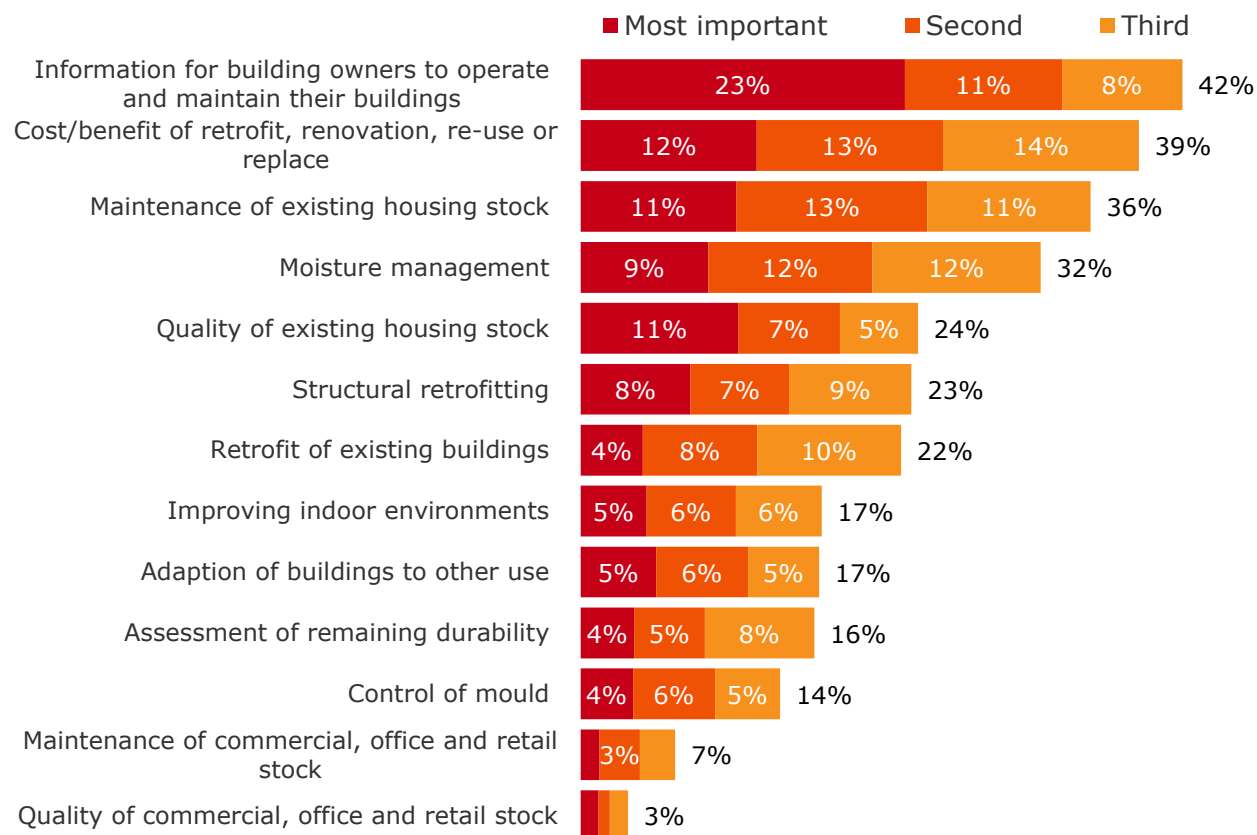
Low



High

Maintenance information, cost/benefits of renovating and maintaining existing housing stock are key topics

Maintaining/improving existing buildings: importance of having up to date, accurate information⁽¹⁾⁽²⁾



Other important aspects

- Education on cost returns of upgrading/improving existing houses
- Information of interventions which have the most impact on improving earthquake resilience for a given building
- Educating homeowners on general living habits and easy maintenance of their homes and the best strategies on avoiding heat loss
- A guide on how to assess and repair leaky homes
- Information on the consequences of not managing moisture
- Making landlords more accountable for renting substandard properties

NOTES:

1. Top 5 categories chosen and then ranked from first to fifth most important
2. Sample size n = 1,127

Building officials are particularly focused on maintaining existing buildings

Maintaining/improving existing buildings: importance of having information by group⁽¹⁾⁽²⁾

| | Total | Builders / Contractors | Officials | Designers | Architects | Engineers / Consultants | Other |
|---|-------|------------------------|-----------|-----------|------------|-------------------------|-------|
| Information for building owners to operate and maintain their buildings | 42% | 42% | 44% | 34% | 36% | 43% | 46% |
| Cost/benefit of retrofit, renovation, re-use or replace | 39% | 37% | 44% | 42% | 57% | 37% | 40% |
| Maintenance of existing housing stock | 36% | 41% | 34% | 28% | 19% | 24% | 38% |
| Moisture management | 32% | 32% | 35% | 37% | 30% | 31% | 33% |
| Quality of existing housing stock | 24% | 26% | 23% | 19% | 19% | 20% | 24% |
| Structural retrofitting | 23% | 24% | 18% | 21% | 19% | 26% | 18% |
| Retrofit of existing buildings | 22% | 21% | 22% | 29% | 27% | 26% | 22% |
| Improving indoor environments | 17% | 16% | 14% | 23% | 19% | 19% | 16% |
| Adaption of buildings to other use | 17% | 15% | 20% | 20% | 32% | 17% | 14% |
| Assessment of remaining durability | 16% | 15% | 14% | 21% | 17% | 21% | 16% |
| Control of mould | 14% | 14% | 15% | 13% | 10% | 16% | 12% |
| Maintenance of commercial, office and retail stock | 7% | 5% | 8% | 5% | 6% | 9% | 11% |
| Quality of commercial, office and retail stock | 3% | 3% | 4% | 1% | 4% | 6% | 4% |

NOTES:

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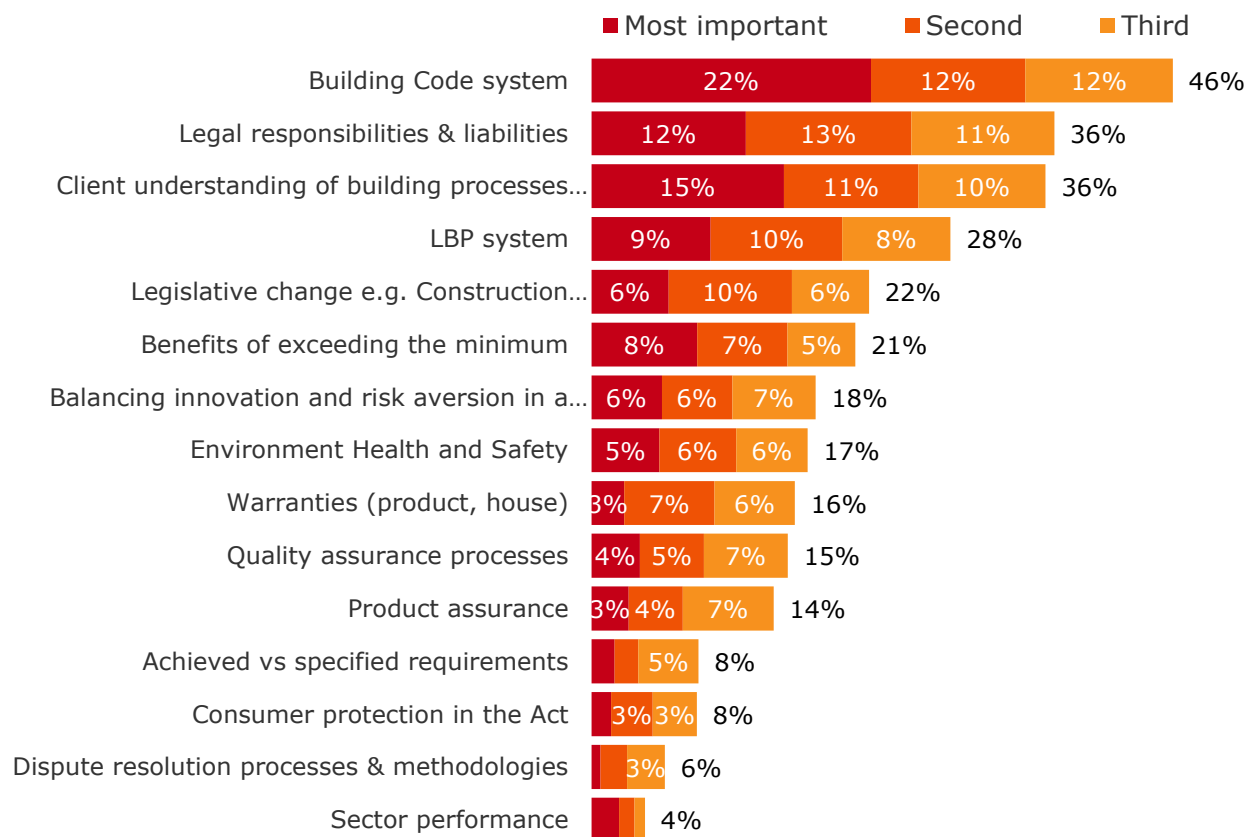
Low



High

The building code system is key within the topic of the operating environment...

Operating environment: importance of having up to date, accurate information⁽¹⁾⁽²⁾



NOTES:

1. Top 5 categories chosen and then ranked from first to fifth most important
2. Sample size n = 1,127

Other important aspects

- A better understanding of Acts, Codes and Standards and how they all interlink
- Simplify consenting paperwork and cut down on bureaucracy; systems should be transparent and understandable
- Tightening up on product assurances and educating clients/customers/designers as to what it all means
- Integration of different industry sectors to achieve efficiencies, quality and performance

... particularly to officials and designers

Operating environment: importance of having information by group⁽¹⁾⁽²⁾

| | Total | Builders / Contractors | Officials | Designers | Architects | Engineers / Consultants | Other |
|---|-------|------------------------|-----------|-----------|------------|-------------------------|-------|
| Building Code system | 46% | 44% | 58% | 54% | 45% | 48% | 44% |
| Legal responsibilities & liabilities | 36% | 38% | 35% | 32% | 32% | 34% | 33% |
| Client understanding of building processes and choices, and of quality to cost trade offs | 36% | 37% | 28% | 35% | 39% | 34% | 30% |
| LBP system | 28% | 36% | 21% | 27% | 8% | 16% | 20% |
| Legislative change e.g. Construction Contracts Act | 22% | 22% | 14% | 22% | 21% | 22% | 24% |
| Benefits of exceeding the minimum | 21% | 18% | 32% | 26% | 31% | 25% | 17% |
| Balancing innovation and risk aversion in a consenting regime | 18% | 13% | 25% | 25% | 40% | 22% | 15% |
| Environment Health and Safety | 17% | 18% | 9% | 9% | 12% | 15% | 24% |
| Warranties (product, house) | 16% | 19% | 11% | 12% | 12% | 6% | 20% |
| Quality assurance processes | 15% | 13% | 17% | 10% | 14% | 23% | 22% |
| Product assurance | 14% | 13% | 21% | 13% | 18% | 13% | 18% |
| Achieved vs specified requirements | 8% | 7% | 6% | 16% | 10% | 13% | 7% |
| Consumer protection in the Act | 8% | 8% | 9% | 7% | 4% | 9% | 11% |
| Dispute resolution processes & methodologies | 6% | 6% | 5% | 2% | 4% | 6% | 5% |
| Sector performance | 4% | 4% | 7% | 4% | 2% | 5% | 8% |

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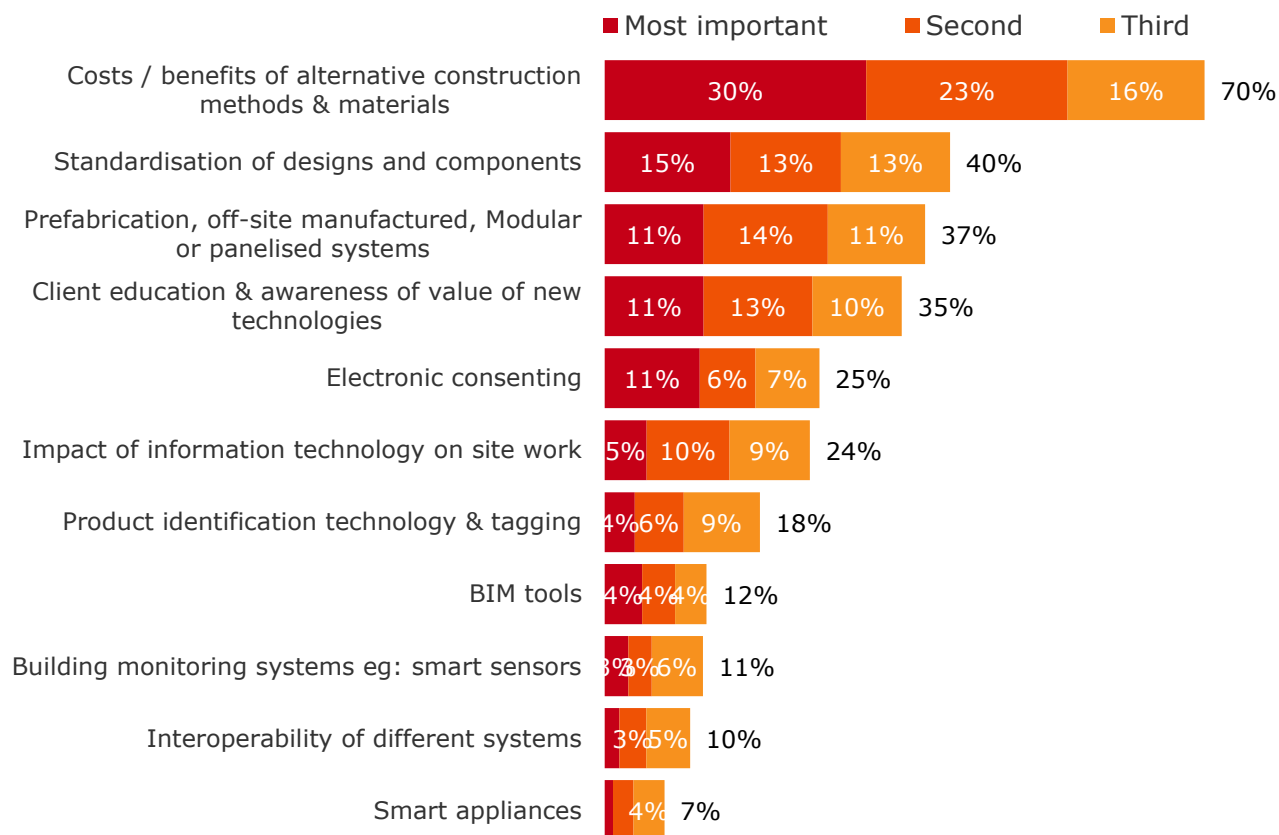
Low



High

The costs/benefits of alternative construction methods and materials is a key topic...

Automation/industrialisation/new technologies: importance of having up to date, accurate information⁽¹⁾⁽²⁾



Other important aspects

- Better education on technologies, whilst still maintaining fitness for purpose
- Smart systems that control ventilation when internal moisture levels exceed a certain level
- More accurate material labelling to identify material properties and origins

NOTES:

1. Top 5 categories chosen and then ranked from first to fifth most important
2. Sample size n = 1,127

... particularly for builders and architects

Automation/industrialisation/new technologies: importance of having information by group⁽¹⁾⁽²⁾

| | Total | Builders / Contractors | Officials | Designers | Architects | Engineers / Consultants | Other |
|---|-------|------------------------|-----------|-----------|------------|-------------------------|-------|
| Costs / benefits of alternative construction methods & materials | 70% | 74% | 53% | 61% | 75% | 59% | 67% |
| Standardisation of designs and components | 40% | 39% | 45% | 34% | 34% | 43% | 46% |
| Prefabrication, off-site manufactured, Modular or panelised systems | 37% | 30% | 41% | 40% | 58% | 50% | 43% |
| Client education & awareness of value of new technologies | 35% | 35% | 21% | 28% | 34% | 35% | 35% |
| Electronic consenting | 25% | 25% | 35% | 37% | 22% | 24% | 21% |
| Impact of information technology on site work | 24% | 29% | 14% | 14% | 13% | 14% | 21% |
| Product identification technology & tagging | 18% | 18% | 29% | 19% | 9% | 22% | 12% |
| BIM tools | 12% | 8% | 19% | 22% | 25% | 16% | 14% |
| Building monitoring systems eg: smart sensors | 11% | 13% | 12% | 7% | 10% | 9% | 10% |
| Interoperability of different systems | 10% | 9% | 18% | 18% | 10% | 10% | 12% |
| Smart appliances | 7% | 7% | 4% | 6% | 2% | 9% | 10% |

NOTES:

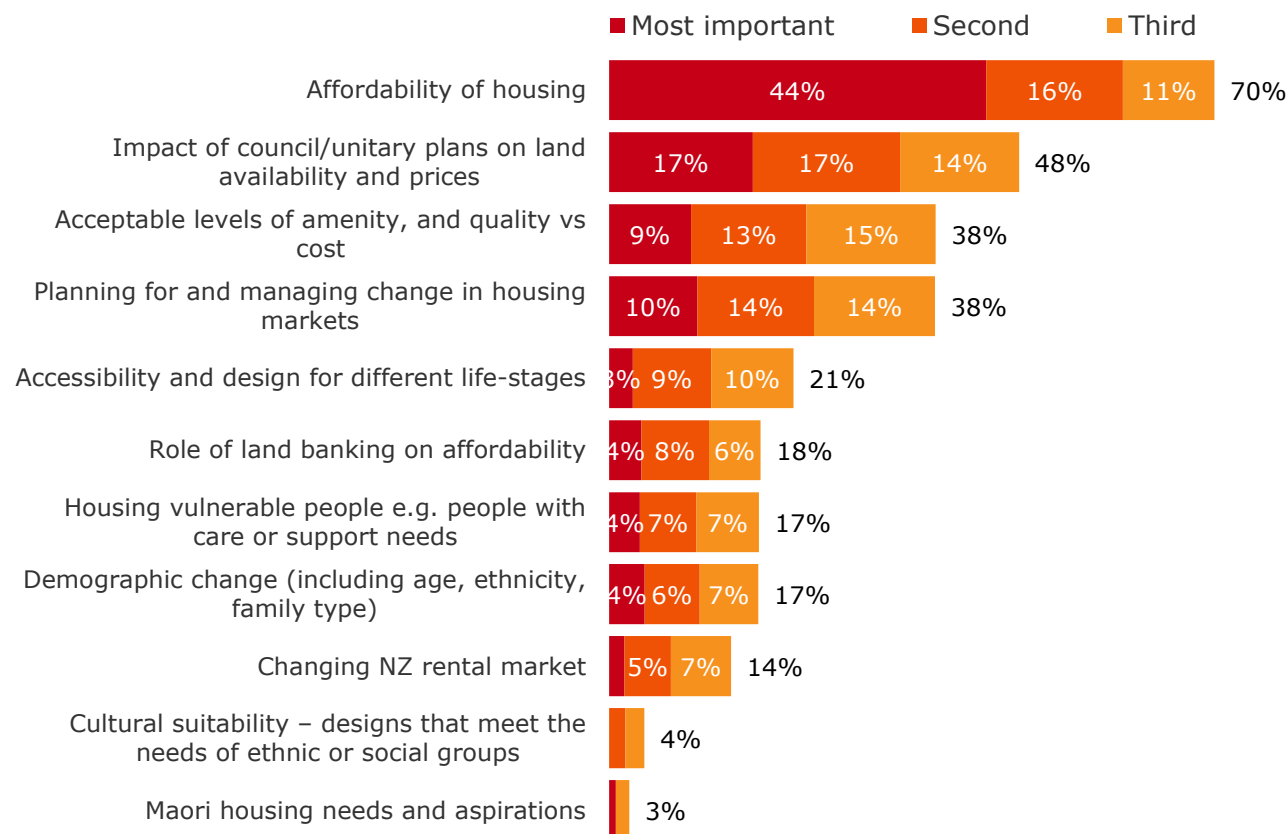
1. Top 5 categories chosen and then ranked from first to fifth most important

2. Sample sizes: Total n = 1,127, Builders n = 337, Building officials n = 131, Architects n = 124, Designers n = 193, Consultants n = 127, Others n = 215

Low  High

Affordability of housing is the key aspect of meeting housing needs...

Meeting housing needs: importance of having up to date, accurate information⁽¹⁾⁽²⁾



Other important aspects

- Statutory minimums in rented accommodation and properties for sale
- Design of self contained spaces within existing dwellings
- The role of tax free capital gains on the housing market
- Planning for the likelihood of disability access requirements in housing

NOTES:

1. Top 5 categories chosen and then ranked from first to fifth most important
2. Sample size n = 1,127

... a concern shared by all groups

Meeting housing needs: importance of having information by group⁽¹⁾⁽²⁾

| | Total | Builders / Contractors | Officials | Designers | Architects | Engineers / Consultants | Other |
|---|-------|---------------------------|-----------|-----------|------------|----------------------------|-------|
| Affordability of housing | 70% | 72% | 70% | 72% | 62% | 65% | 71% |
| Impact of council/unitary plans on land availability and prices | 48% | 50% | 34% | 48% | 40% | 43% | 52% |
| Acceptable levels of amenity, and quality vs cost | 38% | 35% | 34% | 43% | 54% | 41% | 38% |
| Planning for and managing change in housing markets | 38% | 39% | 37% | 32% | 32% | 36% | 41% |
| Accessibility and design for different life-stages | 21% | 22% | 27% | 26% | 22% | 17% | 19% |
| Role of land banking on affordability | 18% | 19% | 24% | 17% | 10% | 16% | 17% |
| Housing vulnerable people e.g. people with care or support needs | 17% | 17% | 27% | 19% | 7% | 20% | 17% |
| Demographic change (including age, ethnicity, family type) | 17% | 15% | 18% | 13% | 31% | 20% | 16% |
| Changing NZ rental market | 14% | 13% | 11% | 12% | 10% | 19% | 16% |
| Cultural suitability – designs that meet the needs of ethnic or social groups | 4% | 3% | 10% | 2% | 16% | 4% | 7% |
| Maori housing needs and aspirations | 3% | 3% | 4% | 3% | 3% | 2% | 2% |

NOTES:

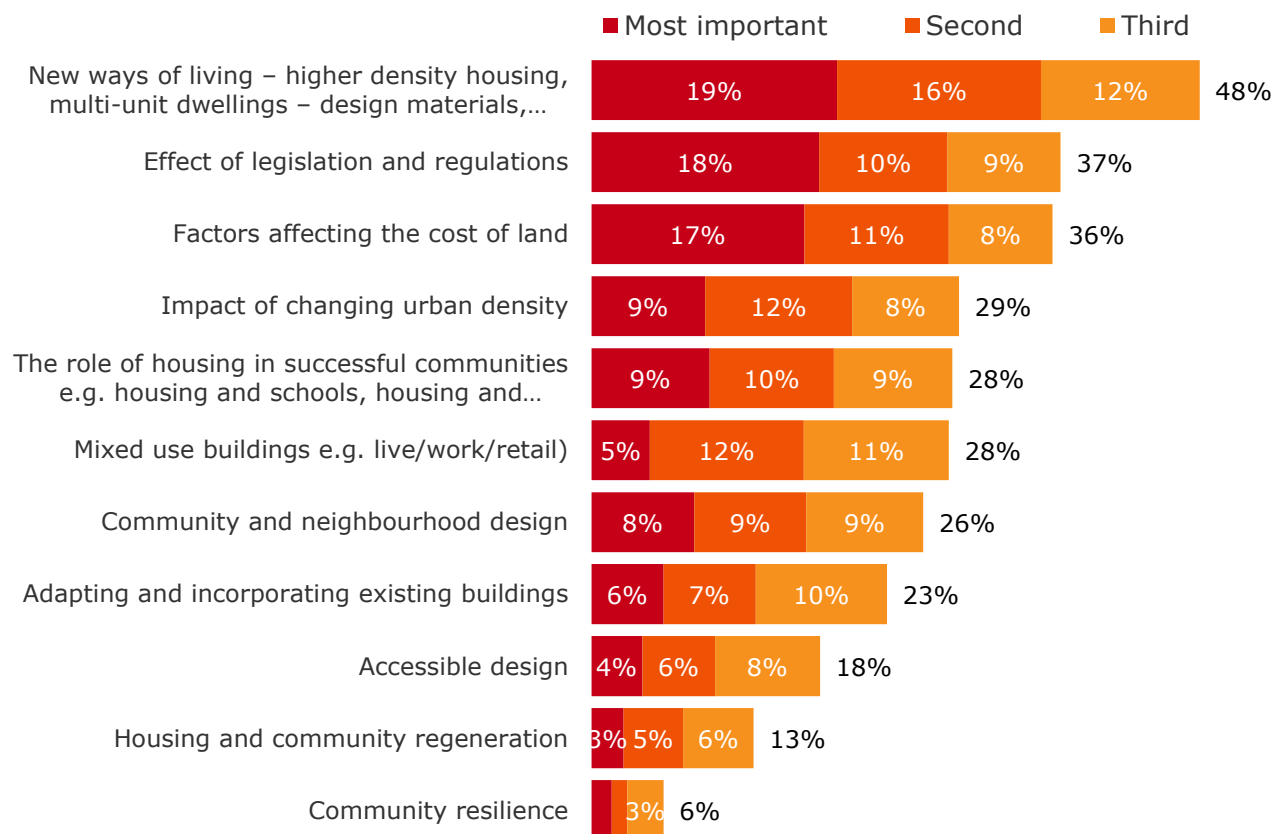
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2. Sample sizes: Total n = 1,127, Builders n = 337, Building officials n = 131, Architects n = 124, Designers n = 193, Consultants n = 127, Others n = 215

Low  High

Within building better cities finding new ways of living is key...

Building better communities/cities: importance of having up to date, accurate information⁽¹⁾⁽²⁾



Other important aspects

- Principles of urban design and global examples of successful projects of inner city living
- Transport and infrastructure – prioritising public transport in planning
- Efficient and cost-efficient housing methods
- Benefits of mixed housing typologies and mixed occupancy to strengthen communities

NOTES:

1. Top 5 categories chosen and then ranked from first to fifth most important
2. Sample size n = 1,127

... particularly for architects and engineers

Building better communities/cities: importance of having information by group⁽¹⁾⁽²⁾

| | Total | Builders / Contractors | Officials | Designers | Architects | Engineers / Consultants | Other |
|--|-------|------------------------|-----------|-----------|------------|-------------------------|-------|
| New ways of living – higher density housing, multi-unit dwellings – design materials, performance' | 48% | 44% | 44% | 53% | 57% | 57% | 50% |
| Effect of legislation and regulations | 37% | 37% | 50% | 34% | 35% | 32% | 40% |
| Factors affecting the cost of land | 36% | 41% | 25% | 27% | 17% | 30% | 35% |
| Impact of changing urban density | 29% | 27% | 27% | 28% | 36% | 30% | 32% |
| The role of housing in successful communities e.g. housing and schools, housing and employment' | 28% | 27% | 29% | 24% | 27% | 31% | 33% |
| Mixed use buildings e.g. live/work/retail) | 28% | 28% | 23% | 34% | 33% | 25% | 28% |
| Community and neighbourhood design | 26% | 27% | 30% | 31% | 27% | 22% | 23% |
| Adapting and incorporating existing buildings | 23% | 23% | 26% | 28% | 31% | 20% | 22% |
| Accessible design | 18% | 20% | 24% | 17% | 7% | 17% | 15% |
| Housing and community regeneration | 13% | 12% | 11% | 11% | 17% | 17% | 10% |
| Community resilience | 6% | 5% | 11% | 5% | 7% | 8% | 5% |

NOTES:

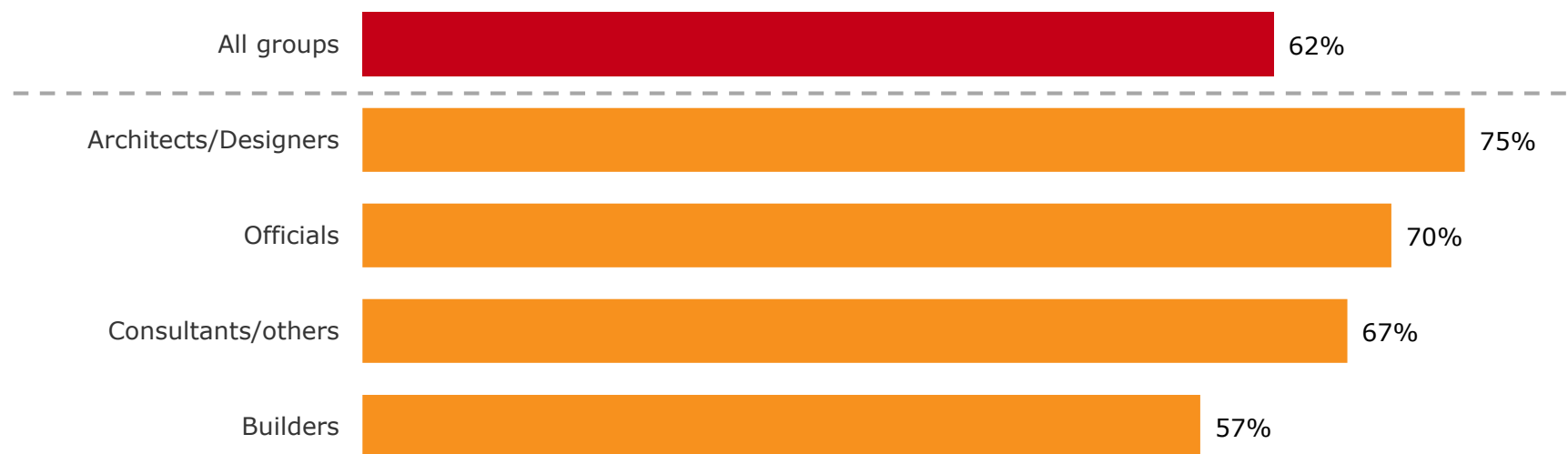
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2. Sample sizes: Total n = 1,127, Builders n = 337, Building officials n = 131, Architects n = 124, Designers n = 193, Consultants n = 127, Others n = 215

Low  High

All of the major occupation groups have issues that they believe require immediate resolution, and overall 62% of industry members identify something that is in need of immediate attention

Occupation groups identifying issues requiring immediate resolution⁽¹⁾⁽²⁾



NOTES:

1. Sample size n = 1,127

2. In terms of the immediate future what is the one specific work related issue that you most need an answer to right now?

For the immediate future the top issues that the industry feels need to be answered now are regulation concerns, training/product knowledge, and accountability and liability

Single issue that most needs immediate resolution (top 10 issues)⁽¹⁾⁽²⁾

| Topic | | Architects/ Designers | Builders | Officials | Consultants/ Others |
|---|-----|--------------------------|----------|-----------|------------------------|
| Regulation concerns / building compliance | 11% | 10% | 7% ▼ | 18% | 18% ▲ |
| Training / product knowledge | 7% | 5% | 7% | 10% | 9% |
| Accountability / liability | 6% | 5% | 7% | 4% | 5% |
| Issuing consents / council | 6% | 11% ▲ | 5% | 6% | 6% |
| Communication and better info | 6% | 7% | 4% ▼ | 10% | 8% |
| Design aspects | 6% | 11% ▲ | 4% ▼ | 7% | 7% |
| Working conditions | 5% | 5% | 6% | 5% | 5% |
| Affordability | 5% | 7% | 5% | 2% | 7% |
| Leaky homes / weather tightness | 5% | 8% | 4% | 6% | 6% |
| Future demand / forecasts | 5% | 9% ▲ | 4% ▼ | 6% | 5% |

NOTES:

1. Sample size: Total n = 1,127, Architects / designers n = 317, Builders n = 337, Officials n = 131, Consultants / others n = 342
2. In terms of the immediate future what is the one specific work related issue that you most need an answer to right now?

▲ Significantly higher than total
▼ Significantly lower than total

The top issues to be the subject of new / revised standards are regulation / compliance, alternative building methods and consistency of information

Topic in need of revised/new standards/building code (top 10 issues)⁽¹⁾⁽²⁾

| Topic | | Architects/ Designers | Builders | Officials | Consultants/ Others |
|--|----|--------------------------|----------|-----------|------------------------|
| Regulation / compliance / B1, C, E2 etc. | 9% | 19% ▲ | 5% ▼ | 21% ▲ | 15% ▲ |
| Alternative building methods | 6% | 11% ▲ | 6% | 12% | 6% |
| Consistency / clearer info | 6% | 9% | 6% | 6% | 6% |
| Acceptable solutions | 6% | 7% | 5% ▼ | 3% | 8% ▲ |
| Air tightness / waterproofing | 5% | 7% | 5% | 5% | 4% |
| Better understanding of design | 5% | 6% | 5% | 3% | 4% |
| Bracing / durable materials | 5% | 3% | 4% | 5% | 7% ▲ |
| Thermal performance / ventilation | 4% | 7% | 3% ▼ | 6% | 7% ▲ |
| Fire | 4% | 7% ▲ | 2% ▼ | 14% ▲ | 4% |
| Communication and info on new products | 3% | 4% | 2% | 3% | 3% |

NOTES:

1. Sample size: Total n = 1,127, Architects / designers n = 317, Builders n = 337, Officials n = 131, Consultants / others n = 342
2. In your opinion, what single topic area most needs to be the subject of new or revised New Zealand Standards or New Zealand Building Code Clauses/Acceptable Solutions/Verification Methods?

▲ Significantly higher than total

▼ Significantly lower than total

Training / designer knowledge, alternative building methods and town planning are seen as other areas needing to be addressed

Other topics that require addressing (top 10 topics)⁽¹⁾⁽²⁾

| Topic | | Architects/ Designers | Builders | Officials | Consultants/ Others |
|---|----|--------------------------|----------|-----------|------------------------|
| Training / designer knowledge | 8% | 5% | 8% | 6% | 8% |
| Alternative building methods | 5% | 6% | 3% ▼ | 12% ▲ | 8% ▲ |
| Design / town planning | 4% | 9% ▲ | 3% ▼ | 5% | 6% |
| Centralized database | 3% | 2% | 3% | 2% | 3% |
| Consistency / clearer information / Simplify | 3% | 2% | 3% | 0% | 2% |
| Cost comparisons / benefits | 3% | 7% ▲ | 2% | 3% | 2% |
| Air quality / healthier homes | 2% | 2% | 2% | 5% | 2% |
| Building codes / regulations | 2% | 4% | 1% | 7% ▲ | 2% |
| Consents / council | 2% | 1% | 1% | 1% | 2% |
| Durability / quality buildings | 1% | 3% | 1% | 2% | 1% |

NOTES:

1. Sample size: Total n = 1,127, Architects / designers n = 317, Builders n = 337, Officials n = 131, Consultants / others n = 342

2. When you think about all the major topic areas that we have reviewed so far, are there any particular areas within any of these that you feel the industry should be focussing on to create new knowledge that we have not mentioned?

▲ Significantly higher than total
▼ Significantly lower than total

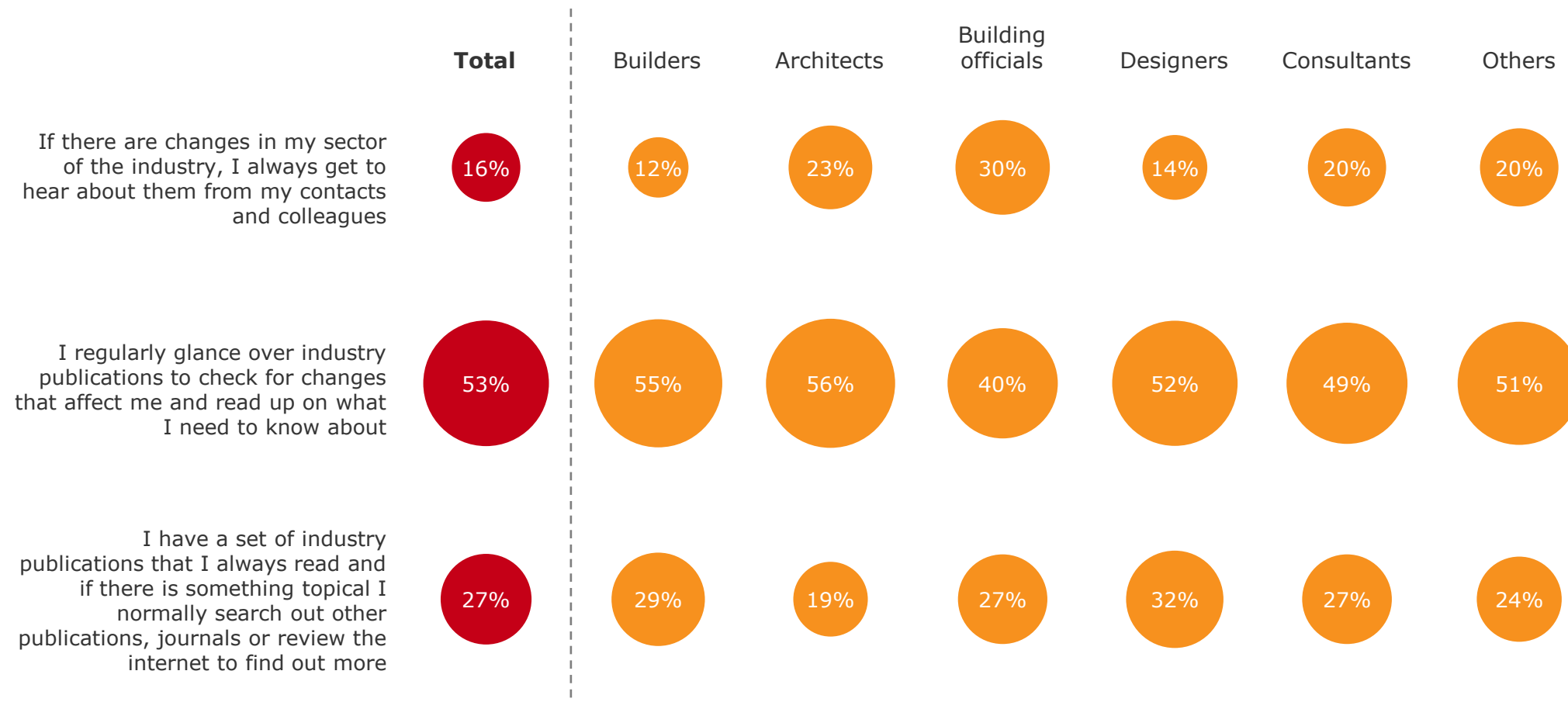
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Information sources



About one in four are actively keeping up-to-date and researching

Self-described level of keeping up-to-date with trends and changes⁽¹⁾

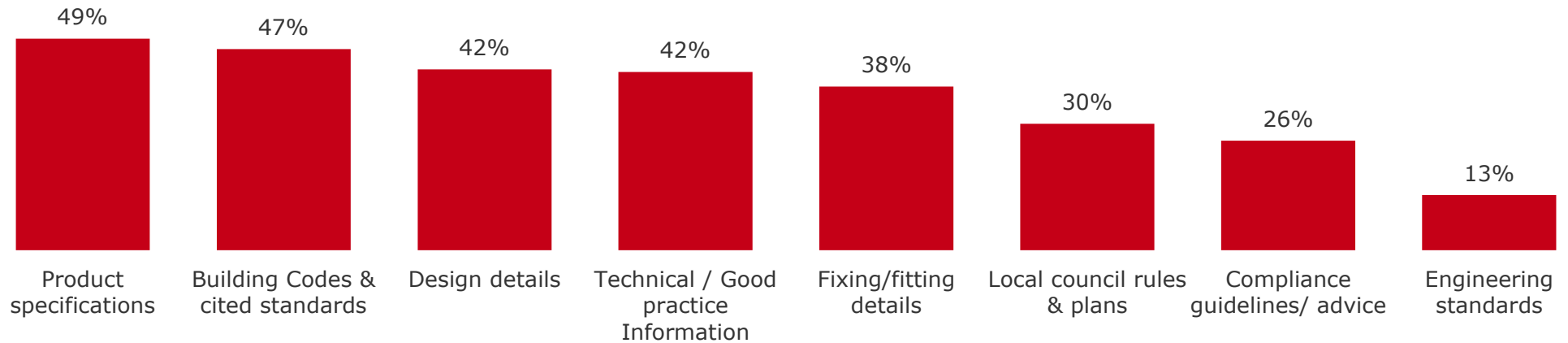


NOTES:

1. Sample sizes: Total n = 1,127, Builders n = 337, Building officials n = 131, Architects n = 124, Designers n = 193, Consultants n = 127, Others n = 215

The information that is most frequently sourced relates to product specifications and building codes and standards

Information being sourced most frequently⁽¹⁾⁽²⁾



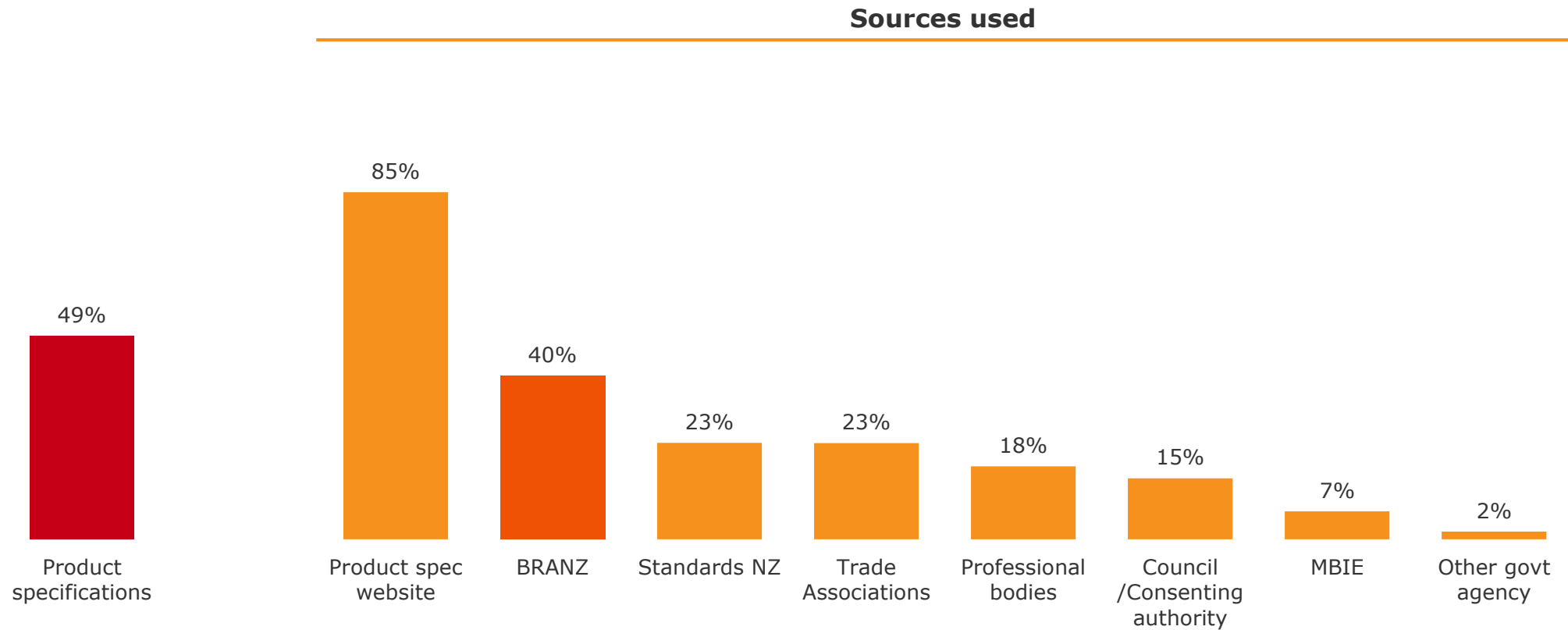
NOTES:

1. Sample size n = 1,127

2. What are the general types of information that you most frequently need to source as part of your day-to-day activities? Select the three types of information that you use most frequently?

Product specification websites are the primary source of information on product specifications, with BRANZ also used by around two-fifths of the industry

Information sources being sourced most frequently: product specifications⁽¹⁾⁽²⁾⁽³⁾

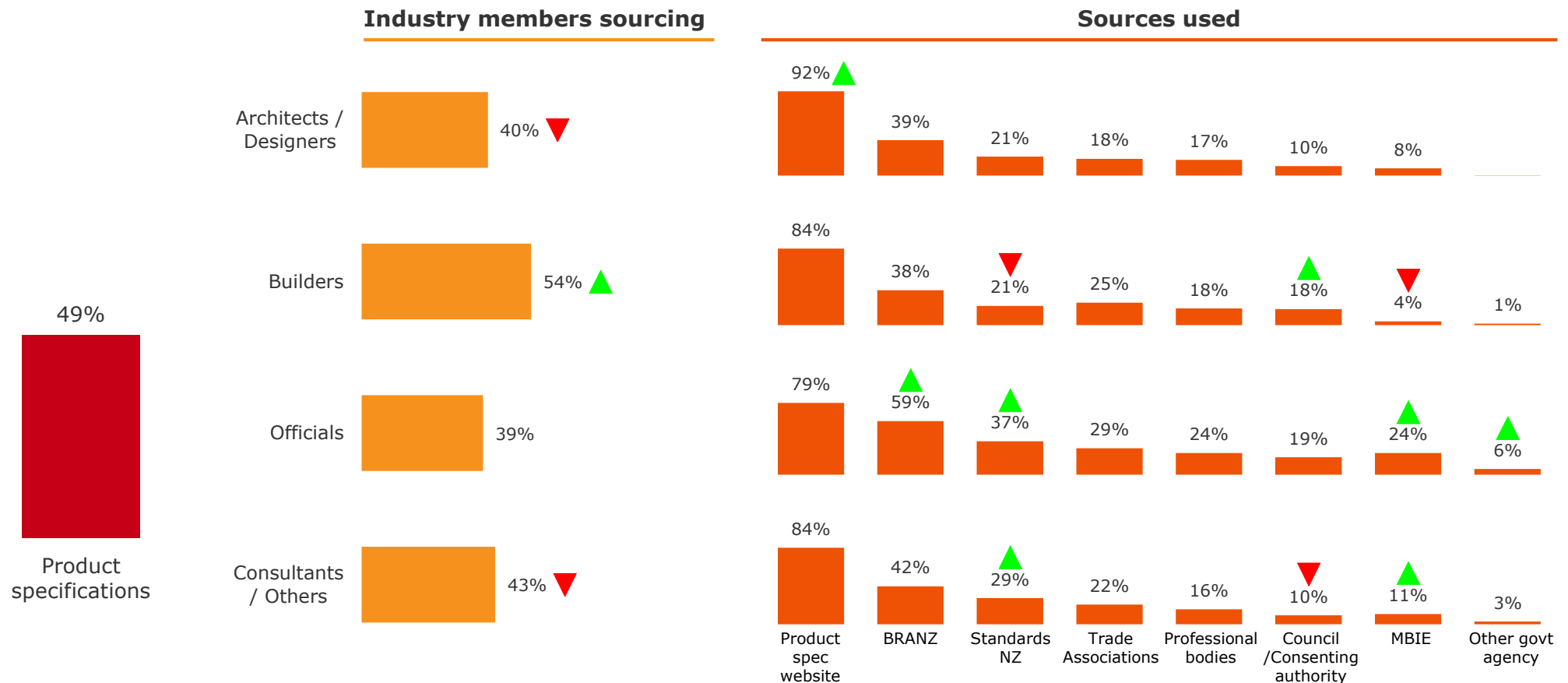


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3. For each of the following types of information, what organisations do you most frequently use? Select all that apply

All industry groups have a high frequency of sourcing information on product specifications, especially builders, with product specification websites the key source particularly for architects / designers

Information sources being sourced most frequently: product specifications⁽¹⁾⁽²⁾⁽³⁾



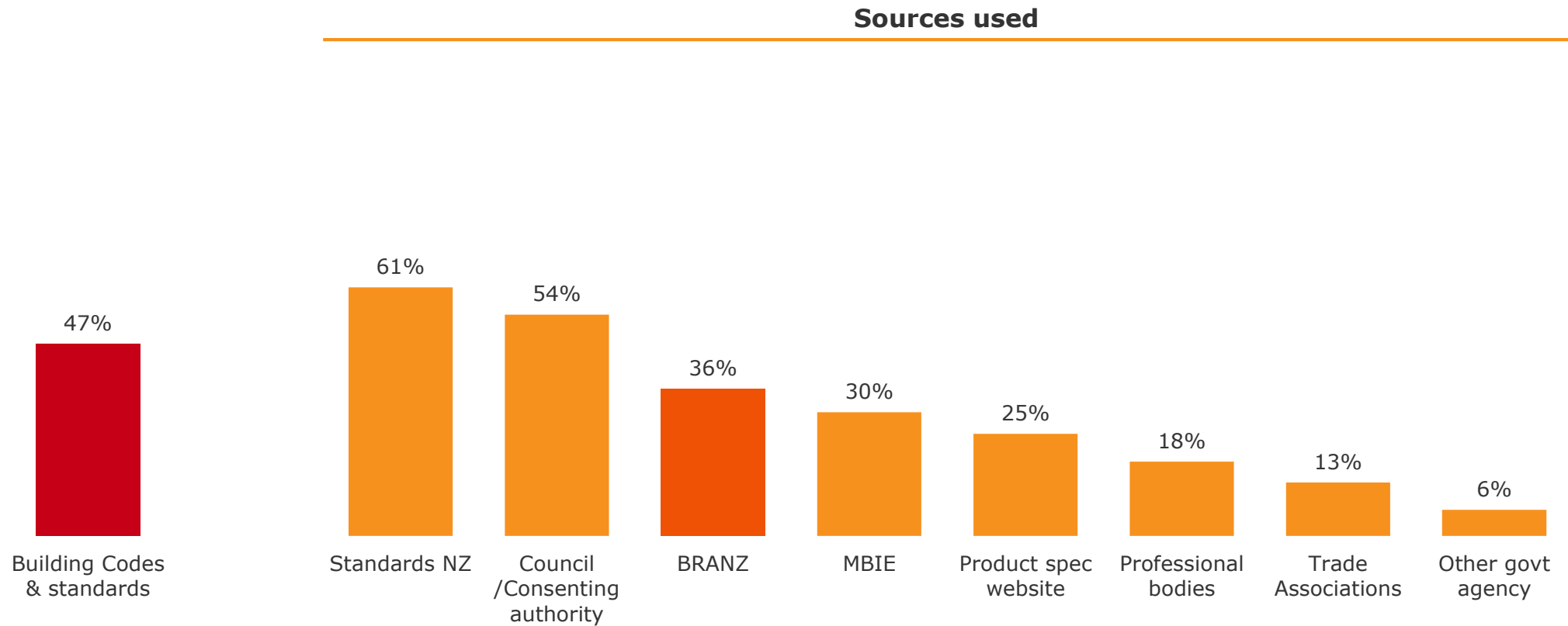
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3. For each of the following types of information, what organisations do you most frequently use? Select all that apply

▲ Significantly higher than total
▼ Significantly lower than total

Standards NZ or the council is the key source of information on building codes and standards

Information sources being sourced most frequently: building codes & standards⁽¹⁾⁽²⁾⁽³⁾

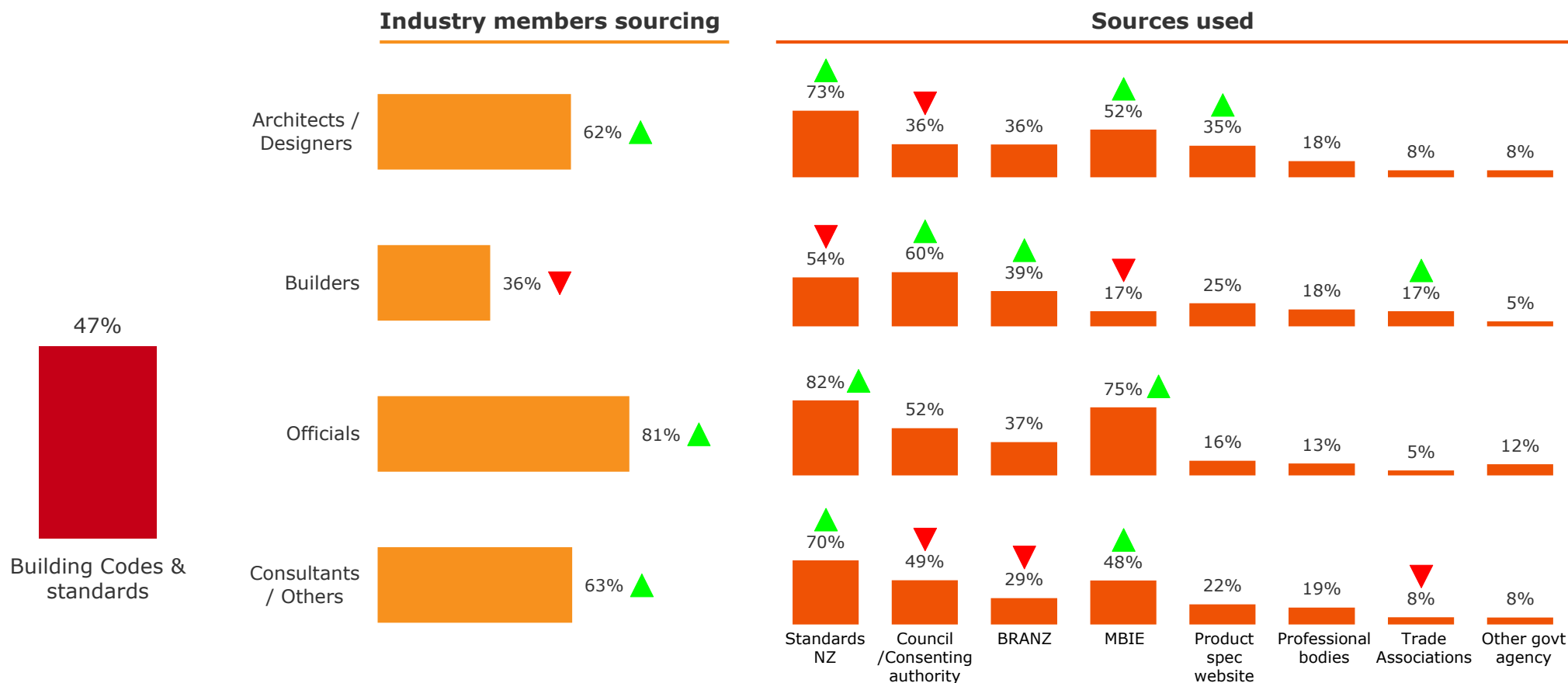


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3. For each of the following types of information, what organisations do you most frequently use? Select all that apply

Builders are less likely than other industry groups to be sourcing information on building codes and standards – whereas eight in ten officials do and use Standards NZ or MBIE as their primary source

Information sources being sourced most frequently: building codes & standards⁽¹⁾⁽²⁾⁽³⁾



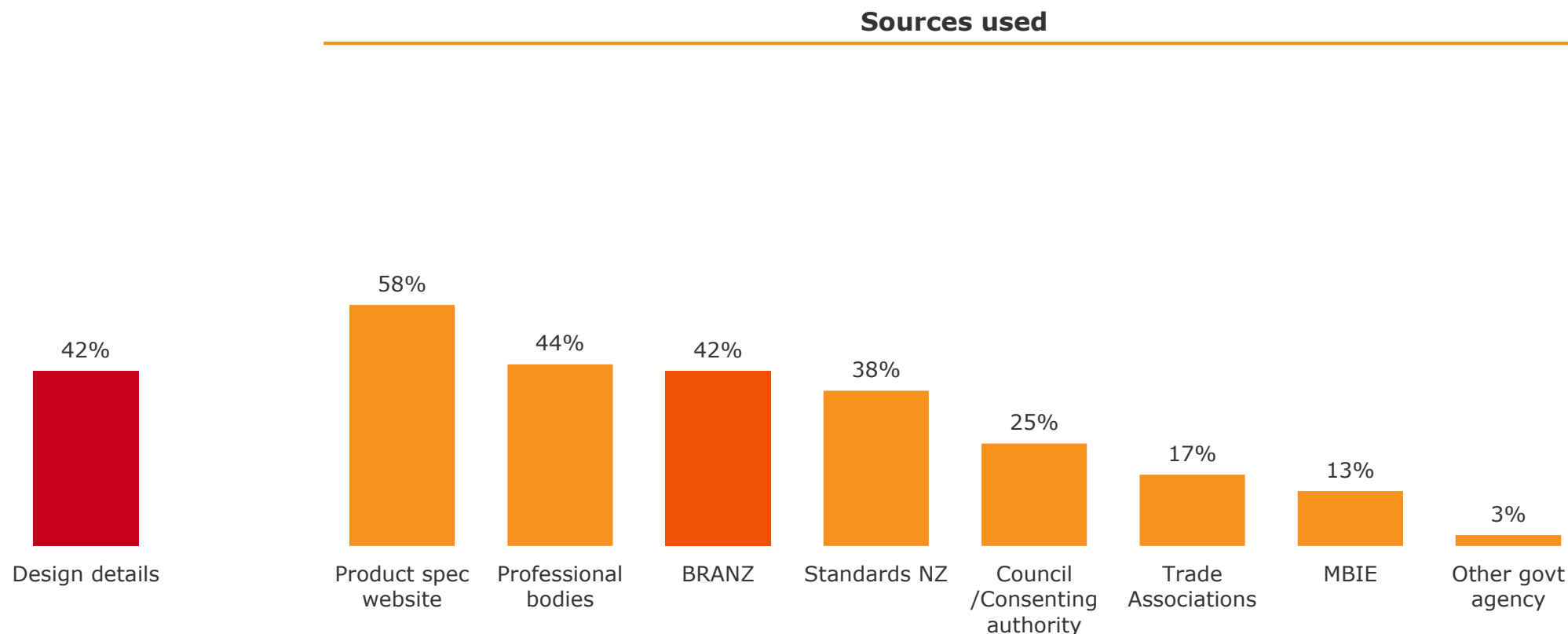
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3. For each of the following types of information, what organisations do you most frequently use? Select all that apply

▲ Significantly higher than total
▼ Significantly lower than total

When it comes to design information a number of sources are frequently used, the most common being product specifications websites and professional bodies

Information sources being sourced most frequently: design details⁽¹⁾⁽²⁾⁽³⁾

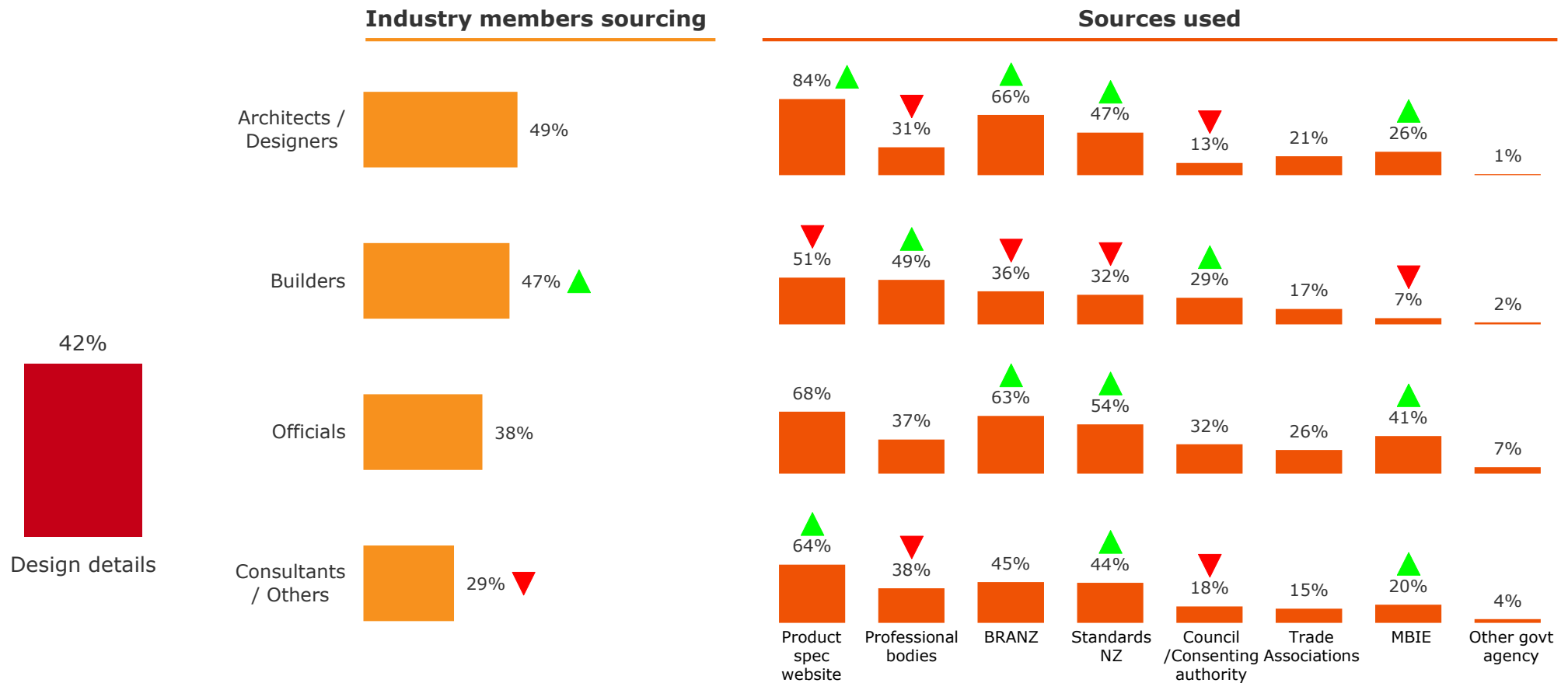


NOTES:

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2. What are the general types of information that you most frequently need to source as part of your day-to-day activities? Select the three types of information that you use most frequently
3. For each of the following types of information, what organisations do you most frequently use? Select all that apply

Consultants / others are the least likely to source design information, with architects and builders being frequent users but typically via different sources

Information sources being sourced most frequently: design details⁽¹⁾⁽²⁾⁽³⁾



NOTES:

1. Sample size: Total n = 1,127, Architects / designers n = 317, Builders n = 337, Officials n = 131, Consultants / others n = 342

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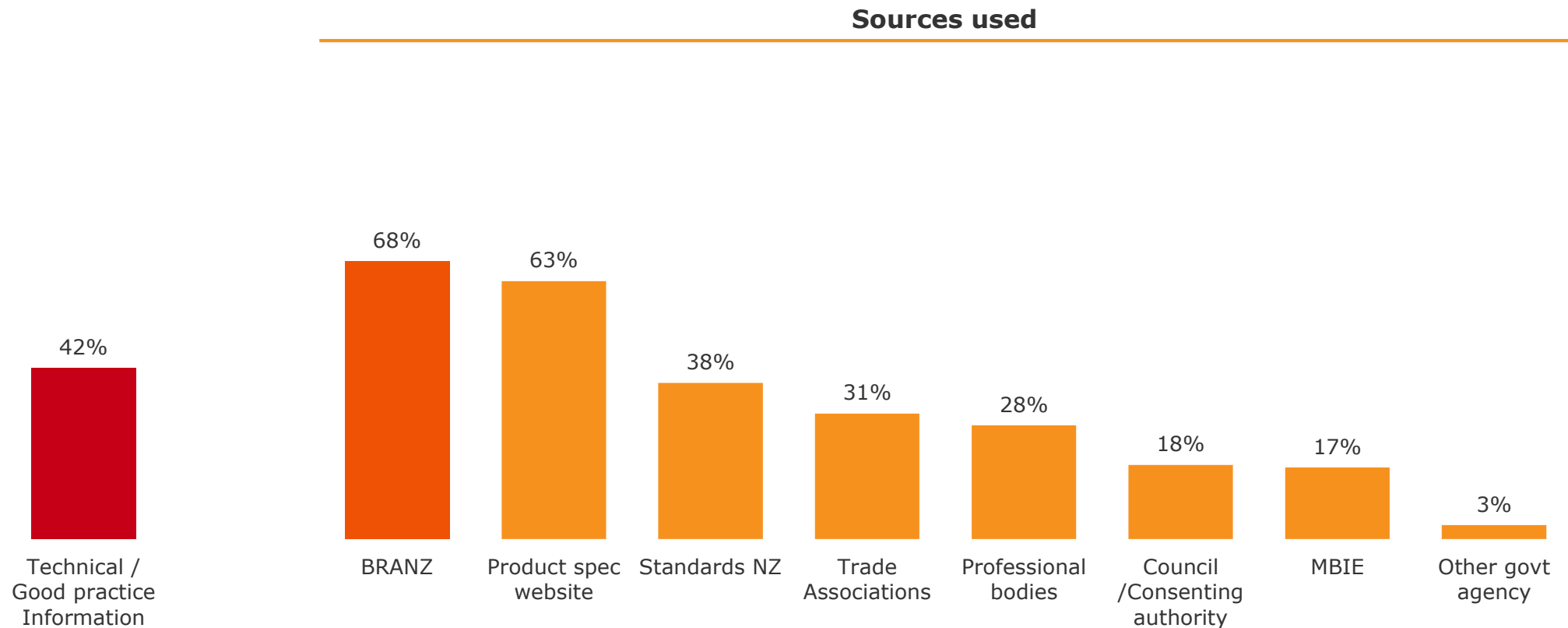
3. For each of the following types of information, what organisations do you most frequently use? Select all that apply

▲ Significantly higher than total

▼ Significantly lower than total

For technical / good practice information two thirds look to BRANZ, with product specifications websites also frequently used

Information sources being sourced most frequently: technical/good practice information⁽¹⁾⁽²⁾⁽³⁾

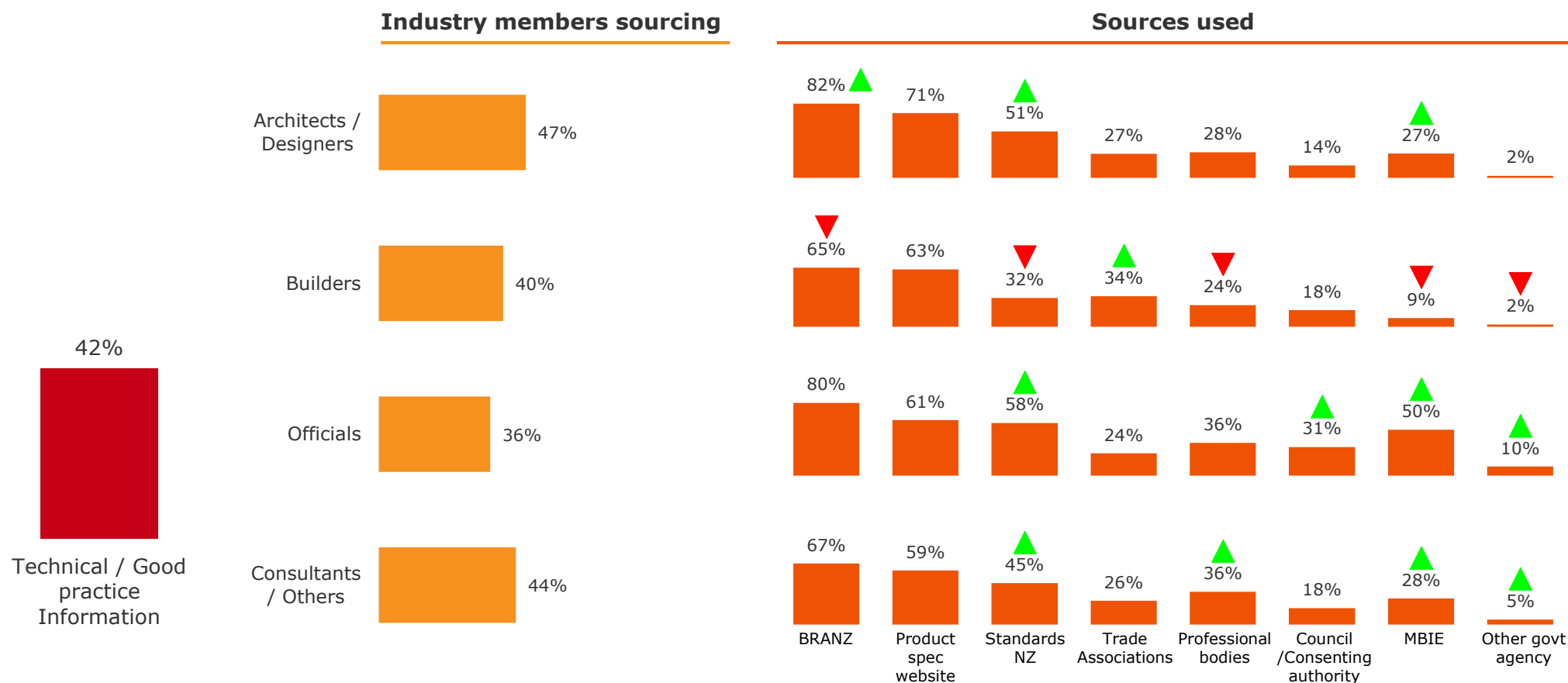


NOTES:

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3. For each of the following types of information, what organisations do you most frequently use? Select all that apply

Architects are more likely than other industry groups to be sourcing information on technical / good practices and are most likely to use BRANZ

Information sources being sourced most frequently: technical/good practice information⁽¹⁾⁽²⁾⁽³⁾



NOTES:

1. Sample size: Total n = 1,127, Architects / designers n = 317, Builders n = 337, Officials n = 131, Consultants / others n = 342

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3. For each of the following types of information, what organisations do you most frequently use? Select all that apply

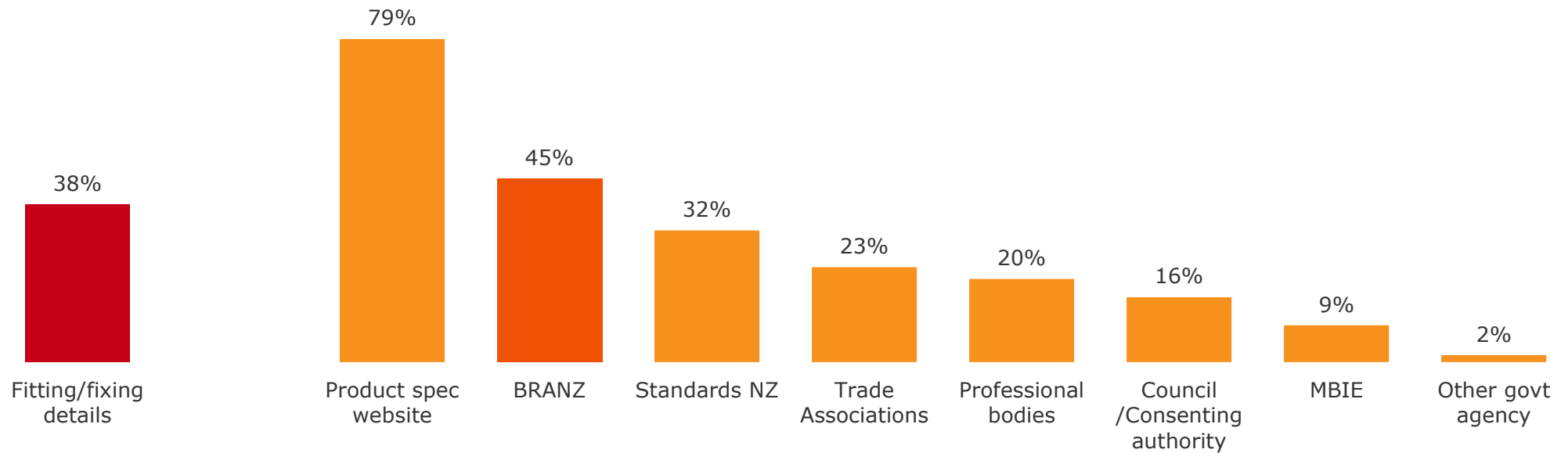
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Product specification websites are the key information source for fitting details

Information sources being sourced most frequently: fitting/fixing details⁽¹⁾⁽²⁾⁽³⁾

Sources used

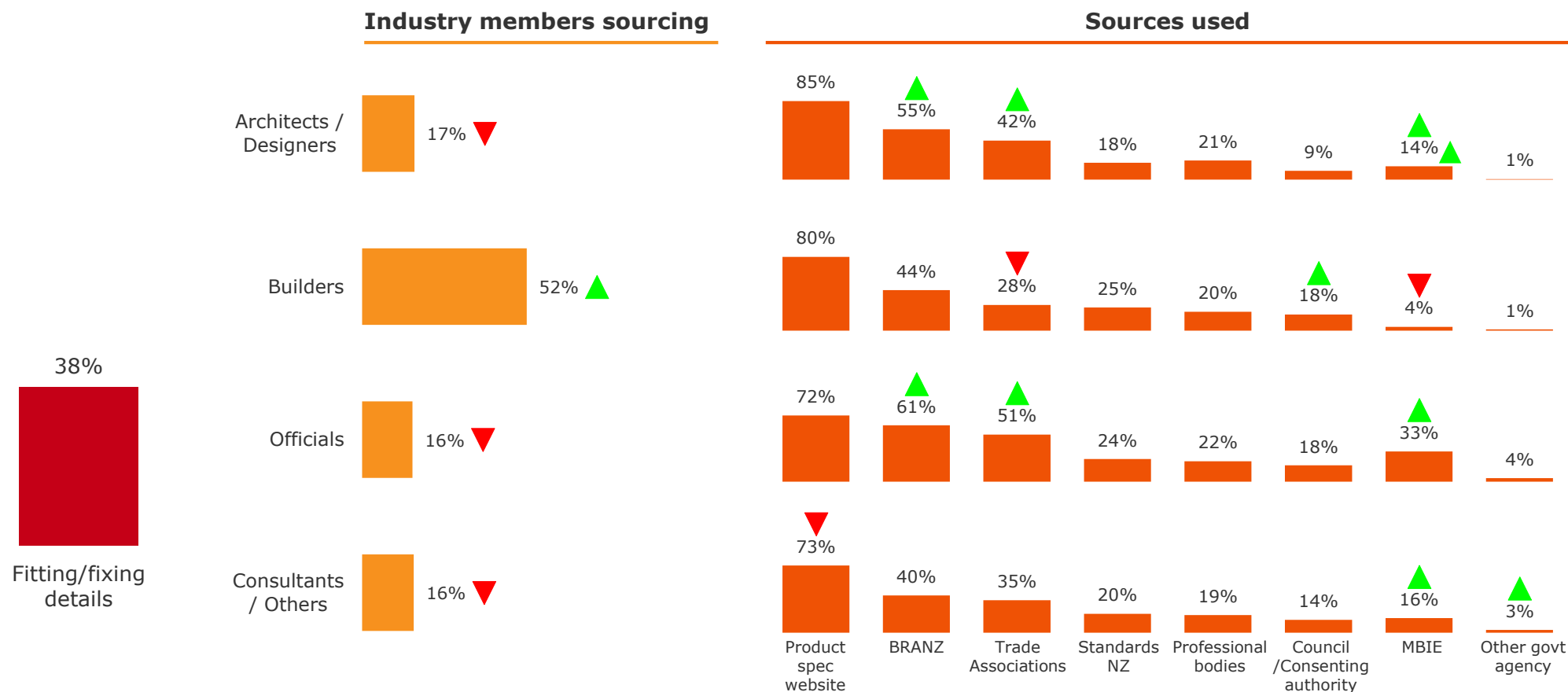


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3. For each of the following types of information, what organisations do you most frequently use? Select all that apply

Builders are more likely to be sourcing information on fitting details, with product specification websites the most common source

Information sources being sourced most frequently: fitting/fixing details⁽¹⁾⁽²⁾⁽³⁾



NOTES:

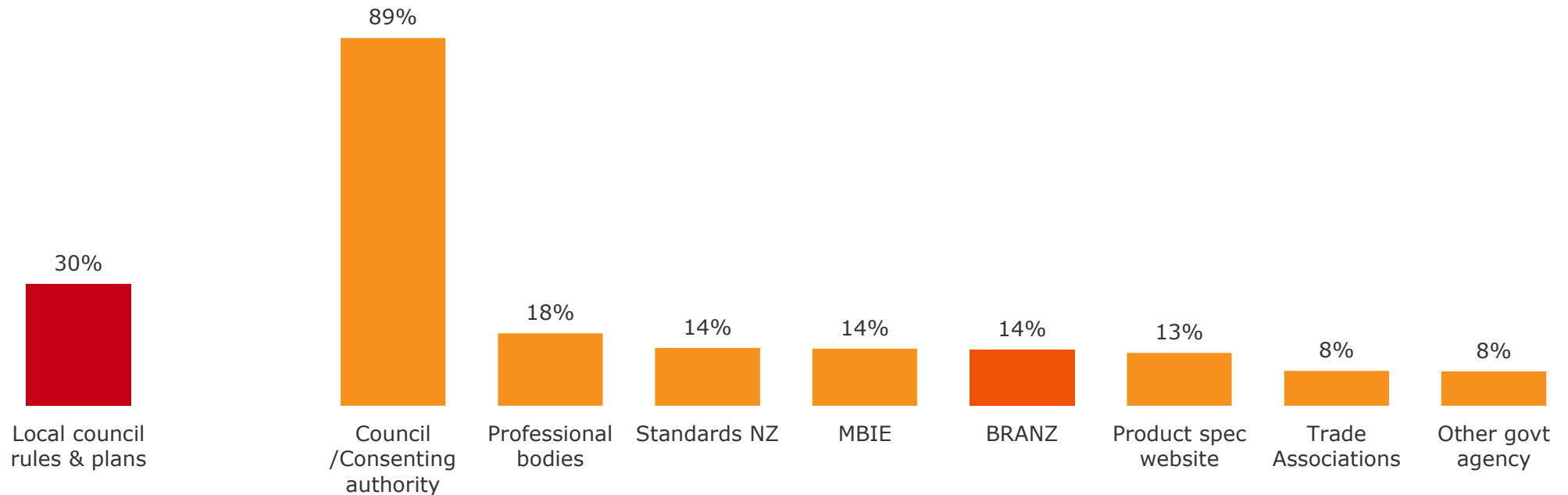
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3. For each of the following types of information, what organisations do you most frequently use? Select all that apply

▲ Significantly higher than total
▼ Significantly lower than total

For information around local council rules and plans the vast majority look to the council / consenting authority

Information sources being sourced most frequently: local council rules & plans⁽¹⁾⁽²⁾⁽³⁾

Sources used

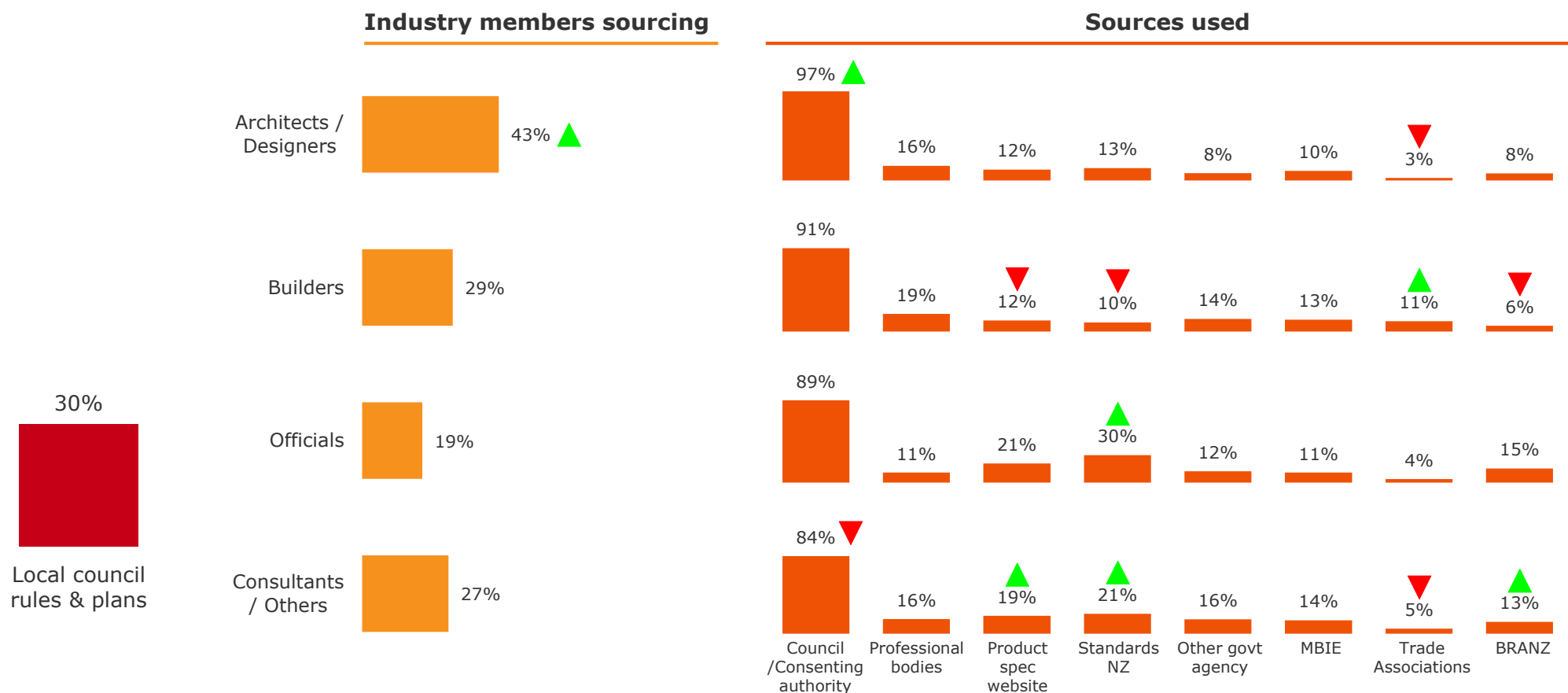


NOTES:

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3. For each of the following types of information, what organisations do you most frequently use? Select all that apply

Architects / designers are the most frequent users of information on local council rules and plans and overwhelmingly prefer to source from the council / consenting authority

Information sources being sourced most frequently: local council rules & plans⁽¹⁾⁽²⁾⁽³⁾



NOTES:

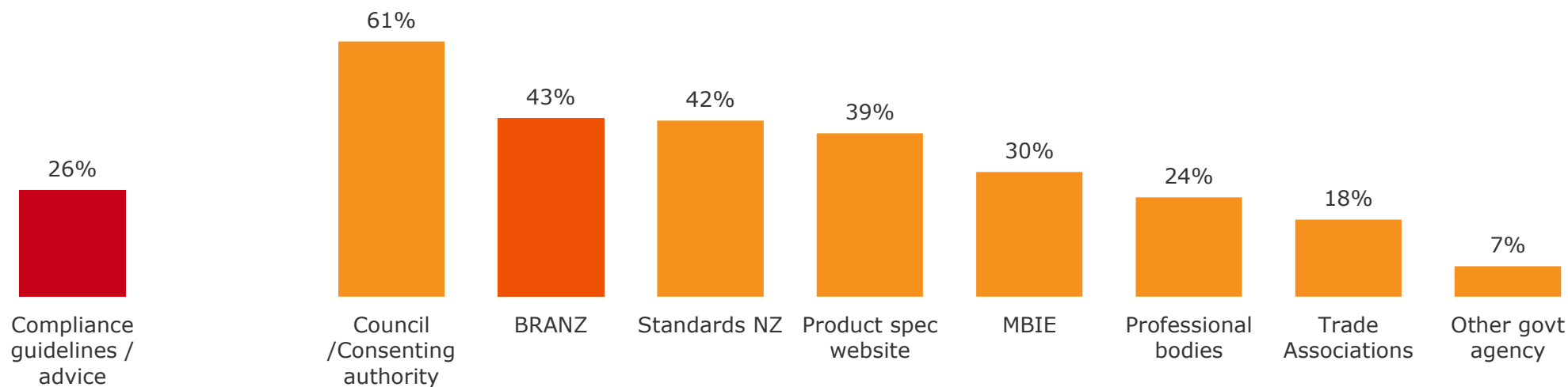
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▲ Significantly higher than total
▼ Significantly lower than total

The local council / consenting authority is the primary source of information around compliance, with about two-fifths also sourcing info from BRANZ, Standards NZ and product specification websites

Information sources being sourced most frequently: compliance guidelines/advice⁽¹⁾⁽²⁾⁽³⁾

Sources used

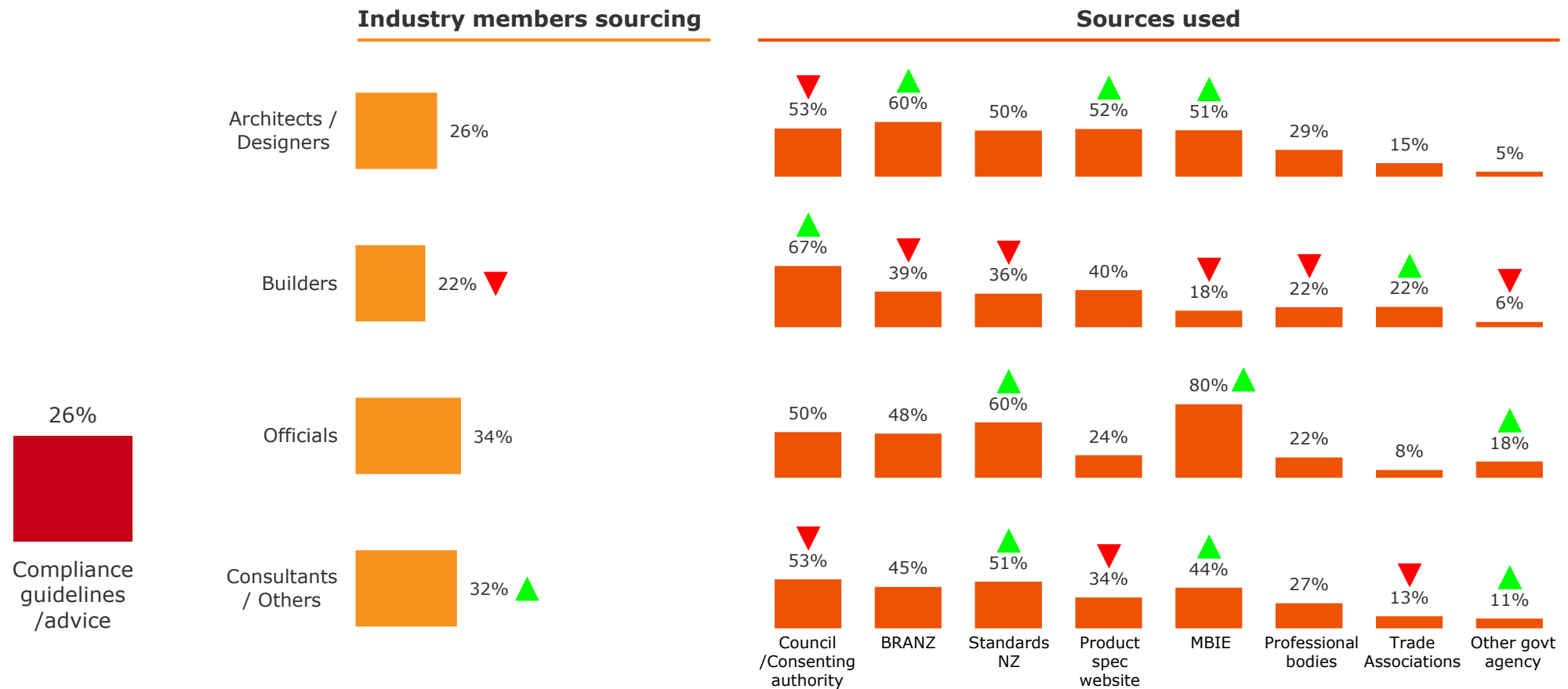


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3. For each of the following types of information, what organisations do you most frequently use? Select all that apply

Officials and consultants most frequently source compliance information, with Standards NZ and MBIE being their most commonly used information source

Information sources being sourced most frequently: compliance guidelines/advice⁽¹⁾⁽²⁾⁽³⁾



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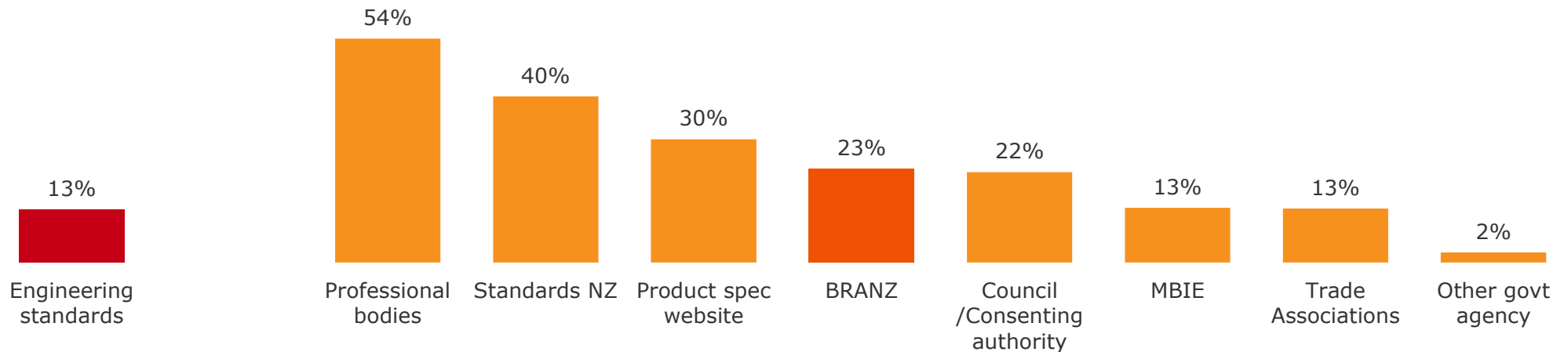
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The few industry members frequently sourcing information on engineering standards tend to use professional bodies or Standards NZ

Information sources being sourced most frequently: engineering standards⁽¹⁾⁽²⁾⁽³⁾

Sources used

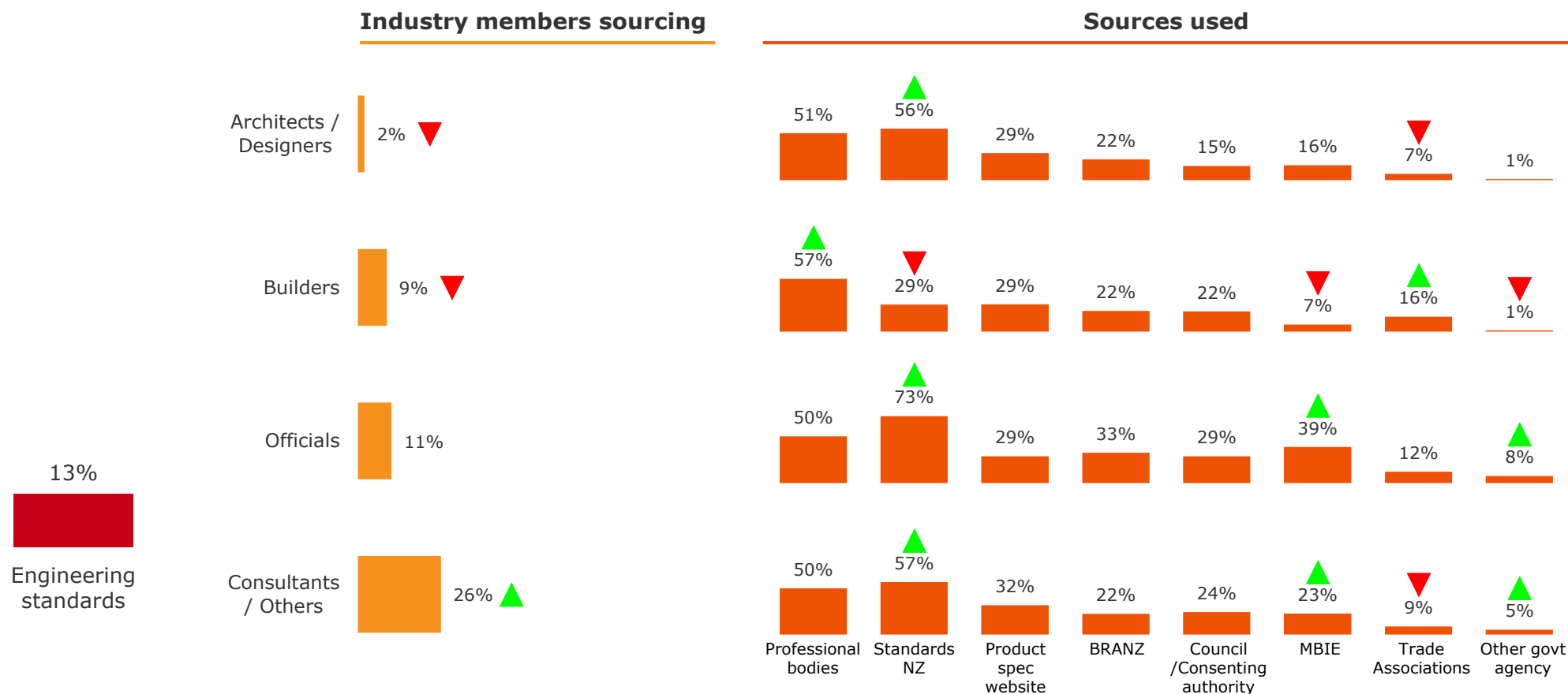


NOTES:

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2. What are the general types of information that you most frequently need to source as part of your day-to-day activities? Select the three types of information that you use most frequently
3. For each of the following types of information, what organisations do you most frequently use? Select all that apply

Consultants / others source the most information on engineering standards and tend to use professional bodies or Standards NZ

Information sources being sourced most frequently: engineering standards⁽¹⁾⁽²⁾⁽³⁾



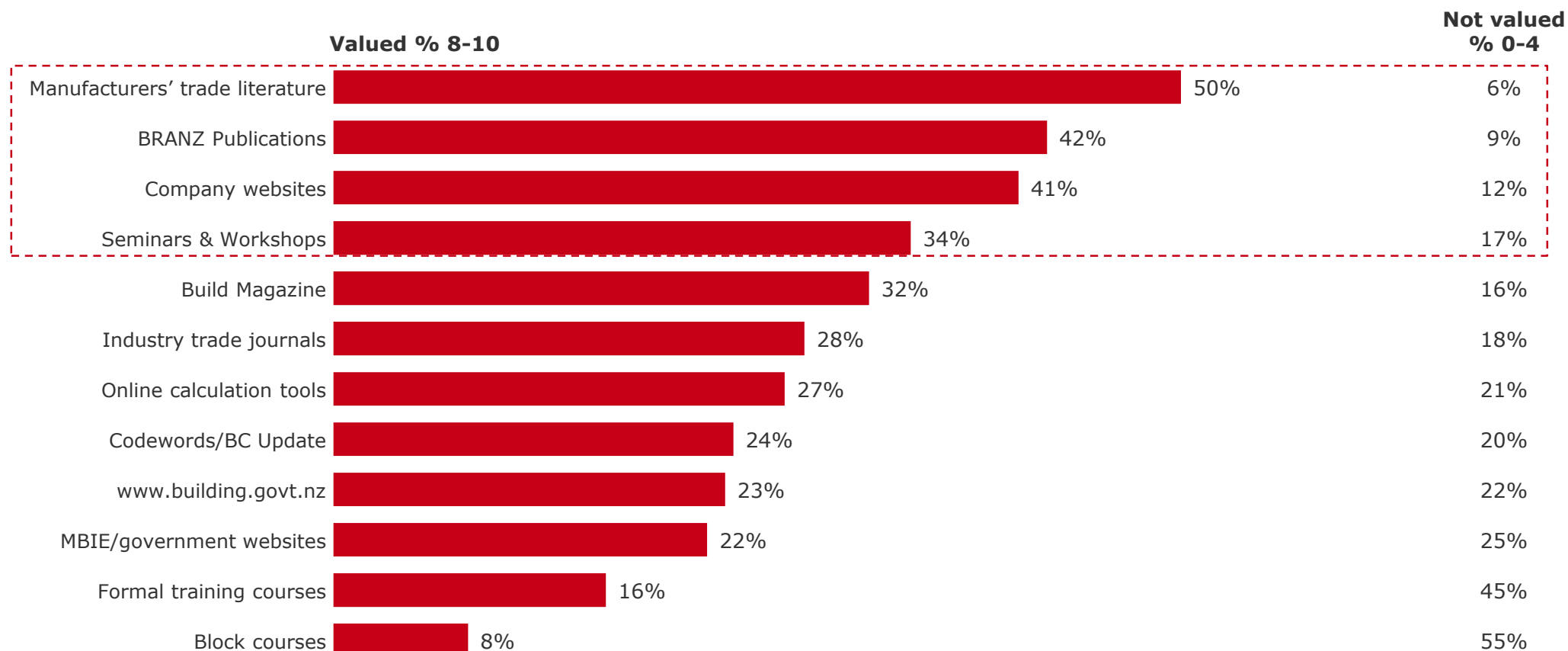
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3. For each of the following types of information, what organisations do you most frequently use? Select all that apply

▲ Significantly higher than total
▼ Significantly lower than total

The most valued sources of information are manufacturers' trade literature, BRANZ publications and company websites

Value of sources of information⁽¹⁾⁽²⁾

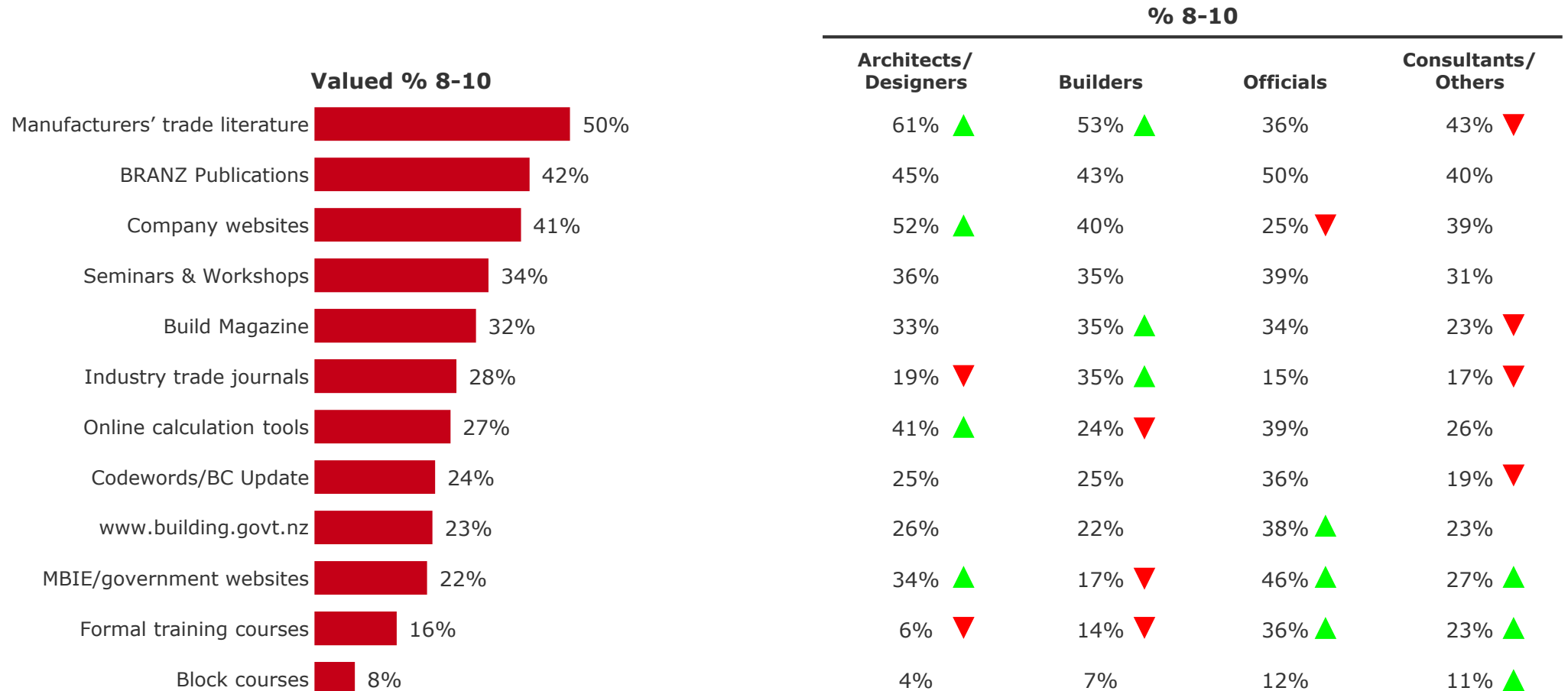


NOTES:

1. Sample size n = 1,127
2. When seeking information to help with your work, how valuable are each of the following sources to you?

Architects / designers tend to place more value on the various sources of information available, while builders particularly value manufacturers' literature

Value of sources of information⁽¹⁾⁽²⁾



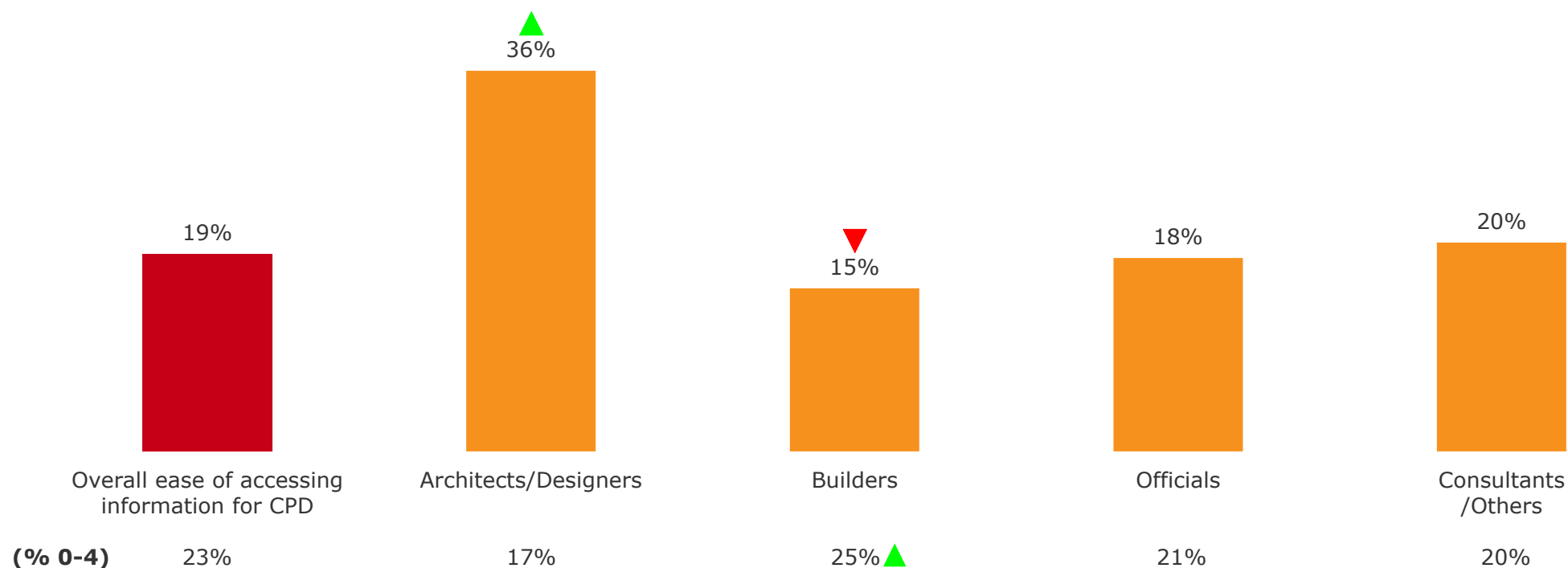
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1. Sample size: Total n = 1,127, Architects / designers n = 317, Builders n = 337, Officials n = 131, Consultants / others n = 342
2. When seeking information to help with your work, how valuable are each of the following sources to you?

▲ Significantly higher than total
▼ Significantly lower than total

Builders find it harder to access information for their continuing professional development (CPD) than other industry groups

Ease of finding information for professional development (8-10%) ⁽¹⁾⁽²⁾



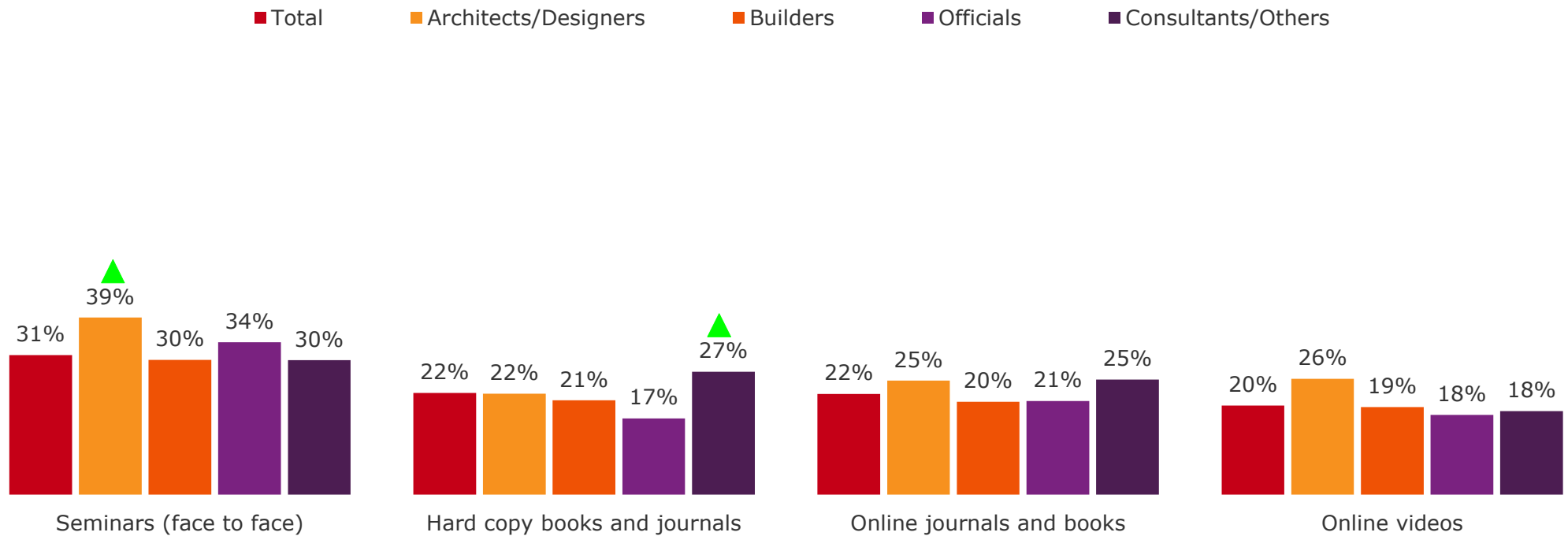
NOTES:

1. Sample size: Total n = 1,127, Architects / designers n = 317, Builders n = 337, Officials n = 131, Consultants / others n = 342
2. How easy do you find accessing information for 'Continuing Professional Development'?

▲ Significantly higher than total
▼ Significantly lower than total

Seminars are the most preferred delivery method for CPD, while online videos are the least preferred

Preferred delivery method: information for continuing professional development (% 8-10)⁽¹⁾⁽²⁾



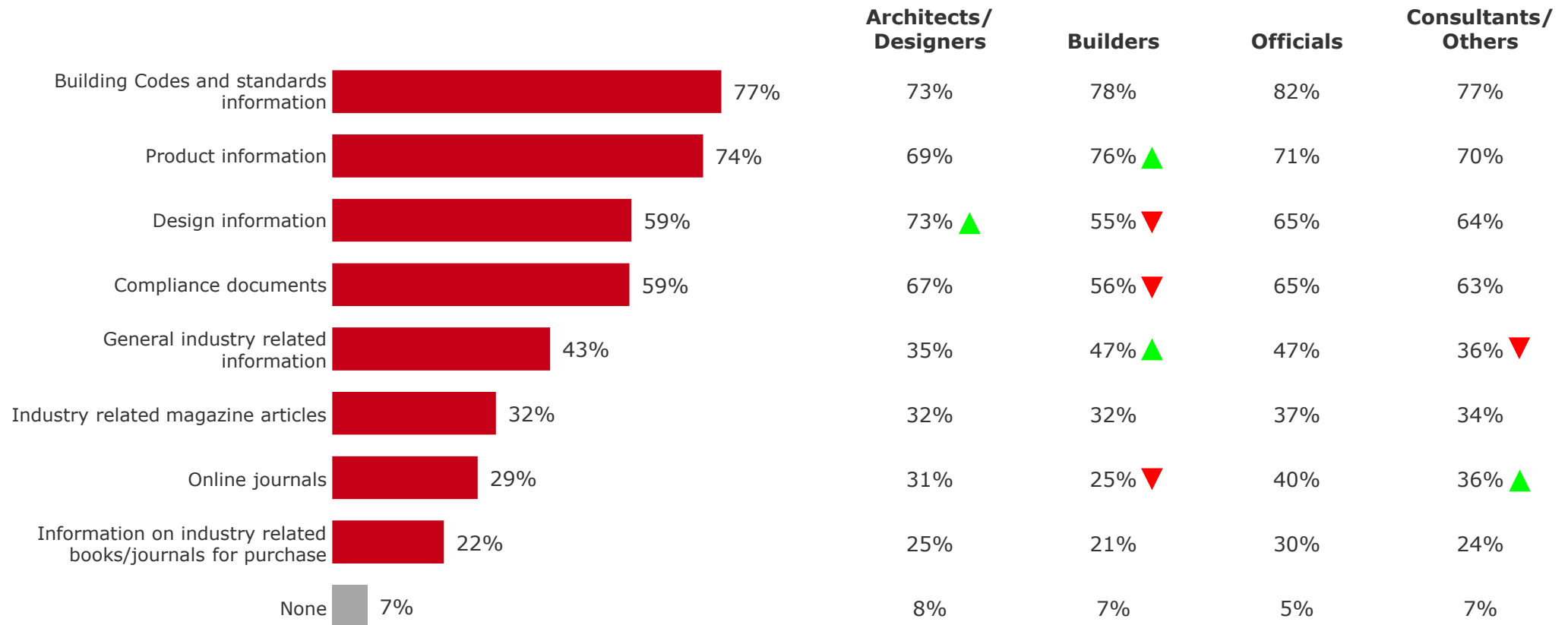
NOTES:

1. Sample size: Total n = 1,127, Architects / designers n = 317, Builders n = 337, Officials n = 131, Consultants / others n = 342
2. What preference do you have for each of the delivery methods in relation to 'Continuing Professional Development'?

▲ Significantly higher than total
▼ Significantly lower than total

Building codes and standards, product and design information and compliance documents are the topics that the industry most wants to have information for available electronically

Topics most want to access information about electronically⁽¹⁾⁽²⁾



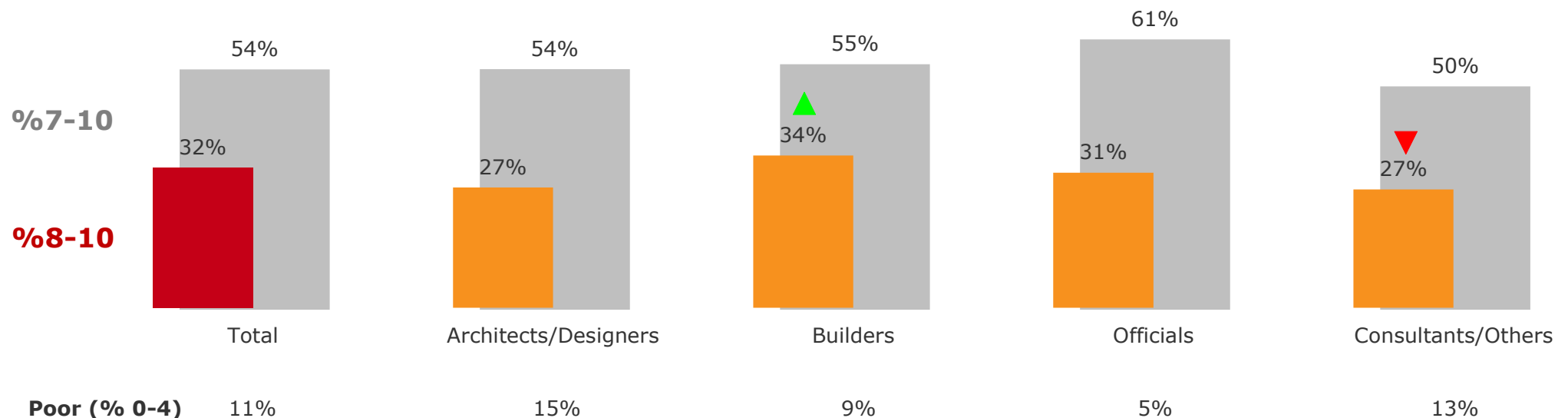
NOTES:

1. Sample size: Total n = 1,127, Architects / designers n = 317, Builders n = 337, Officials n = 131, Consultants / others n = 342
2. From the list below, which topics would you most want to have more information about available electronically?

▲ Significantly higher than total
▼ Significantly lower than total

Builders rate BRANZ the highest and consultants the least for being good at selecting research projects to create new knowledge

BRANZ being good at selecting research projects to create new knowledge⁽¹⁾⁽²⁾



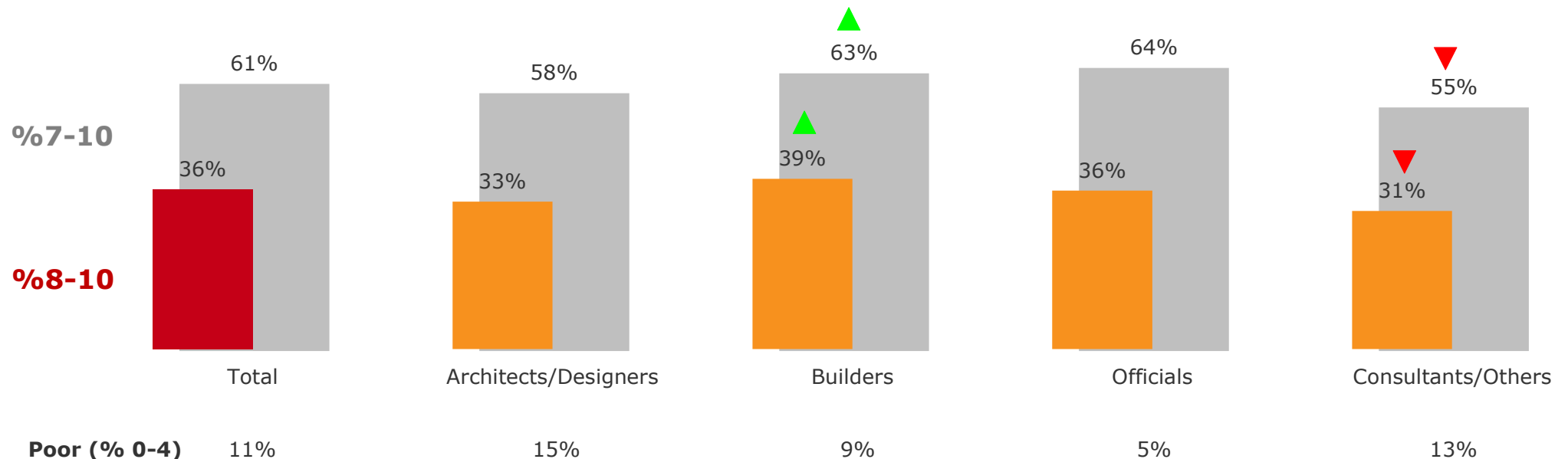
NOTES:

1. Sample size: Total n = 1,127, Architects / designers n = 317, Builders n = 337, Officials n = 131, Consultants / others n = 342
2. How good is BRANZ at selecting research projects that create new and valuable knowledge for the building & construction industry?

▲ Significantly higher than total
▼ Significantly lower than total

Builders also rate BRANZ highest for being good at communicating its research knowledge

BRANZ being good at communicating research knowledge⁽¹⁾⁽²⁾



NOTES:

1. Sample size: Total n = 1,127, Architects / designers n = 317, Builders n = 337, Officials n = 131, Consultants / others n = 342
2. How good is BRANZ at selecting research projects that create new and valuable knowledge for the building & construction industry?

▲ Significantly higher than total
▼ Significantly lower than total

4

Appendix: technical information



Technical notes

- The research was conducted between 11th October 2016 and 24th October 2016, with a small scale pilot of 50 interviews on 7th October. An online questionnaire was used which included all key industry sectors: builders, architects, designers, building officials, engineers, consultants and other members of the building and construction industry
- Lists of names and email addresses were provided by BRANZ for industry members sorted by the relevant industry groups.
- Two reminder emails (17th October and 21st October) were sent to respondents who had not yet completed the survey.
- Respondents were offered an incentive to complete the survey by way of a prize draw for one of three iPads
- A total of 1,127 responses were achieved representing a response rate of 7%. This response rate is lower than that achieved in 2014 when 1,077 responses were achieved representing a response rate of 11%. This decline in participation is likely a result of less time in field – the survey was open for 14 days this year compared to 29 days in 2014
- As participation in the survey is voluntary, there is potential for some groups to be over or under represented in the final data. For this reason work was undertaken to weight the final dataset to be reflective of the building industry population. The 2013 census occupation figures were used for this purpose
- The maximum expected margin of error (at 95% confidence) having taken into account the design effect from weighting the data to be representative of the population is +/- 3.7%. BRANZ can therefore be confident that despite the lower response rate, that the results of the study are highly representative of industry views and opinions

A total response of 1,127 completed surveys was achieved representing a response rate of 7%

Response rates by group (based on sample lists)

| Group | Completed | Sent | Response rate |
|----------------------------|-----------|--------|---------------|
| Builders | 377 | 7,131 | 5% |
| Building officials | 111 | 765 | 15% |
| Designers | 179 | 1,768 | 10% |
| Architects | 123 | 1,789 | 7% |
| Consultants ⁽¹⁾ | 100 | 1,196 | 8% |
| Others | 201 | 2,926 | 7% |
| Key stakeholders | 36 | 527 | 7% |
| Total | 1,127 | 16,102 | 7% |

NOTES:

1. Consultants: includes engineers, building surveyors



The sample included a reasonably large number of responses for each of the key groups of interest

Sample structure (based on stated occupation)⁽¹⁾

| Group | Responses | Proportion |
|-----------------------------------|--------------|-------------|
| Builders ⁽²⁾ | 337 | 30% |
| Building officials ⁽³⁾ | 131 | 12% |
| Architects | 124 | 11% |
| Designers ⁽⁴⁾ | 193 | 17% |
| Consultants ⁽⁵⁾ | 127 | 11% |
| Others ⁽⁶⁾ | 215 | 19% |
| Total | 1,127 | 100% |

NOTES:

1. Weighted to 2013 Census building industry occupation figures
2. Builders: includes builders, contractors and sub-contractors
3. Building officials: includes crown institute members, government department staff and local government personnel
4. Designers: includes draughts person and product specifics
5. Consultants: includes engineers, building surveyors
6. Others: includes educators and all others