Usage and Uptake of Engineered Wood Products in New Zealand: Results from Survey 2 – 2024

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Preface

This is the second of a series of reports prepared on surveys aimed at better understanding the usage and uptake of engineered wood products in New Zealand.

Acknowledgements

We would like to thank all those who helped develop the survey for this research and those who took the time to share their thoughts and knowledge with us.

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Authors

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Reference

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Abstract

The objective of this project was to gather information regarding the use of engineered wood products (EWPs) across the building sector, from acceptance and design through to delivery of completed buildings. It was aimed at assessing current and future use of EWPs in New Zealand buildings and identify where work is still needed to support increased uptake and implementation of EWPs in New Zealand construction.

A survey was distributed to manufacturers, builders, architects, designers, engineers, building officials and quantity surveyors. The intention was to gain a better understanding of what EWPs are being used and for what applications across the building industry. Additionally, information was sought on perceived barriers to the increased use of EWPs and how the uptake of these materials could be increased. Occupational and demographic information was also obtained to inform an understanding of those providing the opinions and how they fit within the building system.

This report provides descriptions of the survey and results obtained from each question. A summary is provided of relevant issues raised and recommendations on determining current and future ways to encourage increased EWP use in New Zealand buildings. Because this survey is part of a series, there are also comparisons made between this survey and similar surveys conducted in 2022 and 2019.

Keywords

Timber usage, engineered wood products (EWP), barriers, uptake

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1. Executive Summary

This BRANZ survey is being conducted longitudinally over the course of several years, with this 2024 survey being related to surveys conducted in 2019 and 2022, and with a final survey to be conducted in 2026. Results are being collated to develop a better understanding of trends and perceptions around the use and uptake of engineered wood products (EWPs) in New Zealand.

There were different observations made across the three surveys and this have provided some information on how the participants are perceiving issues differently between 2019, 2022 and 2024. The 2019 survey had a greater emphasis on case studies as being necessary to better understand the implications of using more EWPs, whereas the 2022 survey indicated that using the existing case studies for detailed examples that could be used to educate had potential for increasing uptake of EWPs. This suggests that more case studies exist to investigate, and if anything, what may be necessary is a better means of communication around the rationale for the design and detailing of these buildings and sharing that in an effective way with a range of practitioners across the building industry. Themes between the 2024 and 2022 responses tended to be similar, but for 2024 it seemed that the respondents were more educated about their needs and were able to be more specific in making suggestions for what would be useful for their sector and others across the building landscape.

There were numerous answers with significant elaboration for many of them. The themes running through 2024 survey responses often focused on adequate planning and understanding the need for storage or covering options on building sites. It was noted that many contractors are not familiar with the sizes and requirements for EWPs so forward planning and knowledge of the site were considered critical, in addition to having a plan for managing moisture and knowing what to do if EWPs do get wet. Early and collaborative communication was encouraged amongst the designers and builders and many responses suggested that these practical issues could be more challenging with EWPs than when using more traditional building materials. The main issues were around moisture management and having enough space on-site, and early engagement, education and understanding on the building site were often suggested as ways to avoid construction delays and damaging EWPs.

Responses from the 2024 survey noted that EWPs have advantages and disadvantages just like any other building materials. Mentions were made of available software that aides with the design of EWPs, which can be beneficial when designing outside of NZS 3604. CLT was mentioned several times, as was the perception that EWPs increase the cost of a project. Overall participants provided a range of opinions about the flexibility of using EWPs including advantages and disadvantages, but also comparisons with other materials. Often it was mentioned that it really is a project specific scenario that must be considered when making decisions around the use of EWPs. Steel and concrete were repeatedly mentioned as competitive materials, which suggested that EWPs are being used for larger buildings and not just stand-alone residential applications.

Based on the survey conducted in 2024, the main themes that became apparent around the increased use and uptake of EWPs in New Zealand were the following:

- Cost often perceived as a barrier to increased uptake
- Lack of market competition perceived as potential barrier
- Inclusion of EWPs within acceptable solutions and prescriptive design methods perceived as potential way of reducing consenting difficulties

- More Information and Education Required
    - Differences On Building Site when using EWPs
    - Integrated Design Teams and Methods
    - Environmental Impacts and Comparisons
    - Products and product performance.

The following suggestions were developed as a result of the survey responses and analysis:

1) Develop data on the economic implications of using EWPs throughout the building sector in comparison to other typically used materials, particularly for multi-storey building applications.
2) Develop and disseminate comprehensive life cycle assessment and environmental impact data on using EWPs including embodied and operational energy, carbon sequestration and circular economy implications.
3) Continue to provide detailed case studies of buildings that use a significant amount of EWPs in order to develop a comprehensive understanding of how EWPs impact the design, cost and performance of these buildings.
4) Conduct webinars and seminar series and provide more guidance to educate a range of building sector players on specific applications of EWPs including demonstrations of available software and design tools, but also share findings from case studies mentioned above.
5) Educate the general public including building owners and developers on the options and advantages of using EWPs.
6) Provide more design and product information on specific EWPs, including CLT.

These suggestions are considered a starting point for developing a deeper knowledge and understanding of the potential for increased use and acceptance of EWPs across the New Zealand built environment.

2. Introduction

Recent years have seen a significant global increase in the use of timber products within the built environment. A major portion of this increase is attributable to engineered wood products (EWPs), from large-scale structural elements through to non-structural and decorative components used on the interior and exterior of buildings. This includes materials such as laminated veneer lumber (LVL), cross laminated timber (CLT), plywood, particleboard and other composite products utilising wood as a base material.

The objective of this project was to gather information regarding the use of EWPs across the building sector, from acceptance and design through to delivery of completed buildings. It was aimed at assessing current and future use of EWPs in New Zealand buildings and identify where work is still needed to support increased uptake and implementation of EWPs in New Zealand construction.

A survey was distributed to manufacturers, builders, architects, designers, engineers, building officials and quantity surveyors. The questions were developed in consultation with BRANZ staff and external specialists so that a comprehensive survey including a variety of perspectives resulted. The intention was to gain a better understanding of what EWPs are being used and for what applications across the building industry. Additionally, information was sought on perceived barriers to the increased use of EWPs and how the uptake of these materials could be increased. Occupational and demographic information was also obtained to inform an understanding of those providing the opinions and how they fit within the building system.

This report provides descriptions of the survey and results obtained from each question. A summary is provided of relevant issues raised and recommendations on determining current and future means for increasing EWP use in New Zealand buildings. Because this survey is part of a series, there are also comparisons made between this survey and similar surveys conducted in 2022 and 2019. Appendix A provides a copy of the 2024 survey. Appendix B provides graphical comparisons between responses from the 2022 and 2024 surveys.

3. Methods

The survey for this research was developed in consultation with researchers within BRANZ and from outside the organisation. The final survey had 26 questions, and several included the opportunity for elaboration through additional narrative or requested non-specified responses that needed to be provided by the respondents. An introduction was included on the first page of the survey which provided some background for the survey and information on the intent and proposed use for the data obtained. A copy of the survey is included in Appendix A of this report.

The survey was conducted using Qualtrics and was only available online. Potential participants were notified through email notifications that were sent out through BRANZ publications and social media channels. An advertisement was included in BRANZ Guideline and other electronic newsletters, in addition to emails and notifications in newsletters sent through Engineering New Zealand technical groups such as the Timber Design Society and SESOC. Other professional associations based on occupations and affiliations, such as quantity surveyors, architectural designers, building surveyors,

building officials, architects and other building professionals disseminated information on the survey to their members. Efforts were made to include a broad range of occupations through the dissemination of the survey so that multiple perspectives throughout the building industry could be obtained. The range of respondents is reflected in one of the questions, which indicates the success of this approach. It was not possible to track the number of potential participants, therefore a response rate was not determined. An incentive was included where participants could provide contact information with their survey results and go in the draw to win one of three Prezzy cards worth $300 each.

The survey was open throughout the month of March 2024 and ran until 15 April 2024 and the data collected using tools available through Qualtrics. The final number of respondents was 210. Not all respondents answered every question including some questions which required text responses, and not all respondents included comments for these questions. This compares slightly lower than the survey in 2022 which had 265 respondents and the response numbers were far higher (474) for the survey done in 2019 (Carradine 2020).

The collection of data and analysis described in the following section has provided insight on opinions currently held in New Zealand on the uptake and use of EWPs and also has allowed for recommendations to be made regarding the reduction of barriers for using these products and their application within the built environment.

4. Results

4.1 Demographic Data

At the official closing of the survey link 15 April 2024, there were 210 participants in this survey. The first few questions asked about those taking the survey in an effort to understand which parts of the building industry were represented. Questions 1 and 2 sought information on taking the survey by asking about their profession and how long they had been in their current position. Question 3 asked about the size of company that employed them.

The percentage of different occupations is shown in **Figure 1** and indicates that the majority of participants were split between the engineering, architecture and building professions, with others ranging between 6% and 9%. Architectural design was the greatest proportion of participants at 31% of the sample. Those who formed the "other" group included researchers, manufacturing, suppliers, building surveyors and property developers. These results are similar to results from 2022 except that in 2022 it was Engineering Design that held the majority of respondents with Architectural Design as the second most common.

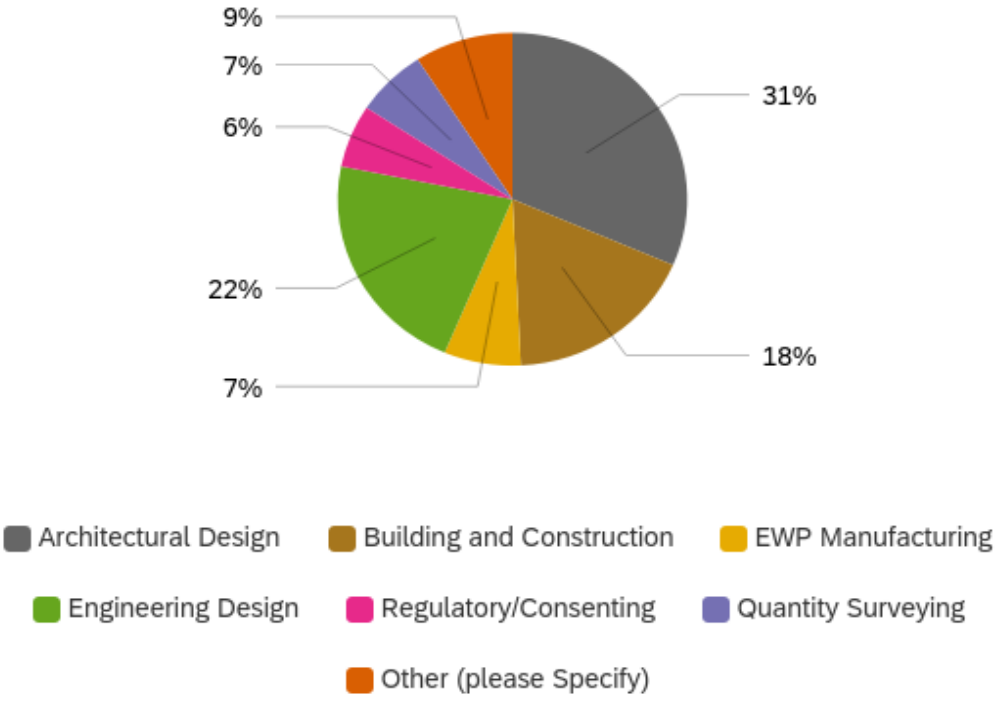

Figure 1. Professions of Survey Participants

In terms of industry experience, the participants tended to be more experienced, with the significant majority having over 10 years of experience in their current roles, as shown in **Figure 2**. These results are very similar to those from 2022.

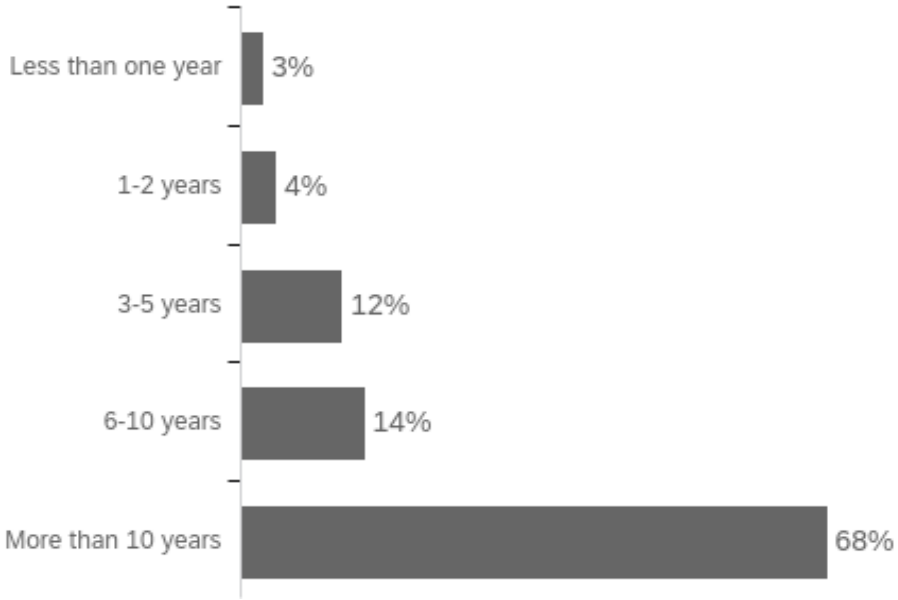

Figure 2. Number of Years in Current Position

The size of company for the participants was more varied and only indicated a weighting towards companies having 11 or more employees as shown in **Figure 3**, with those having more than 50 employees formed the largest majority at 40% of those surveyed.

Small firms having up to five employees accounted for nearly a quarter of the participants, therefore suggesting good representation from across a range of company size. In general, these results are very similar to the 2022 results for this question, although for 2024 there was more weighting towards the companies having over 50 employees.

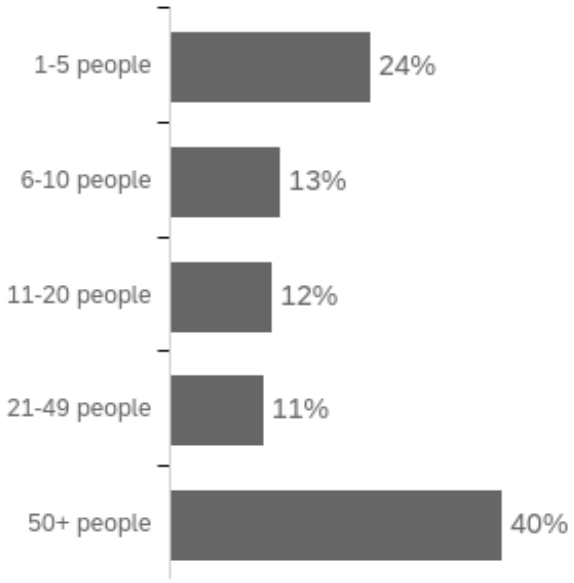

Figure 3. Size of Company Participants Work for in Terms of Employees

4.2 Usage of EWPs

Question 4 asked, "What percentage of your projects or work over the past 12 months have included a significant (at least 50% of materials used) of EWPs?" The percentages provided and the three different buildings parts were indicated for the question as shown in **Figure 4**. While across the range of building components the majority of respondents indicated that only up to 25% of their projects included EWPs, there was a greater proportion across the percentage ranges that used EWPs for the main building structure. This suggests that structural EWP applications are potentially being considered more than other parts of the buildings. Overall, these results largely reflect similar trends for the same question from the 2022 survey.

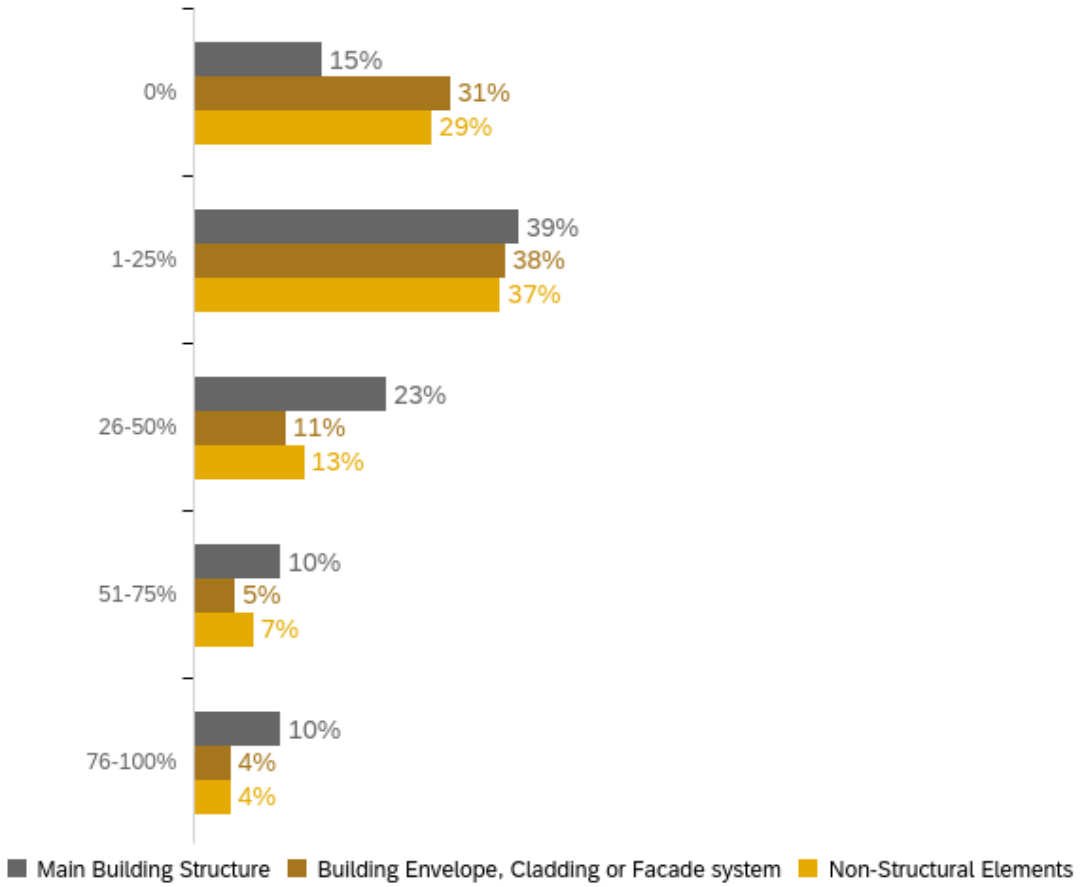

Figure 4. Percentages of Building Components Included over the Past 12 Months

4.3 Changes in Usage of EWPs

Question 5 asked about the change in volume of EWPs used in projects over the past three years using the categories shown in **Figure 5**. There was a slight majority of responses indicating an increase in EWP usage, although still significant percentages included those who were not sure or thought there was no change, which totalled 42% of responses. This result is very similar to results from the same question from the 2022 survey.

Question 6 asked about some specific EWPs and the change in the volume used by respondents over the past three years. The specific EWPs were LVL, CLT and Glulam as seen in **Figure *6***. There was also an "Other" option and the ability to include unlisted EWPs in a text box. The results shown in **Figure 6** suggest that LVL, CLT and Glulam have all increased in use (50%, 41% and 42%, respectively) although the values for those observing no change were not far behind (34%, 38% and 36%, respectively). The percentage of increase was greater for LVL and Glulam than for CLT. There were very low percentages of those observing decreases in use and a moderate number of those who were not sure of the changes. EWPs noted as "Other" included structural insulated panels (SIPs), I-beams, parallel laminated timber (PLT), plywood (walls specifically), flitch beams, and other composite flooring and wall materials. PLT and plywood were mentioned by several respondents. This question was not included in the past survey so no comparisons are available.

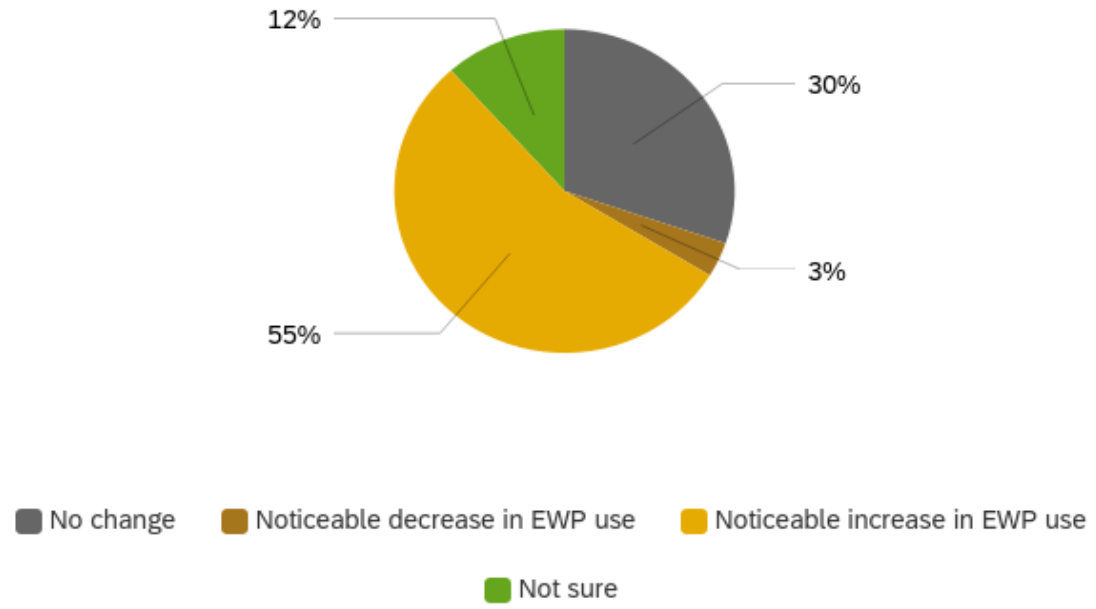

Figure 5. Changes in Projects Using EWPs over the Last Three Years

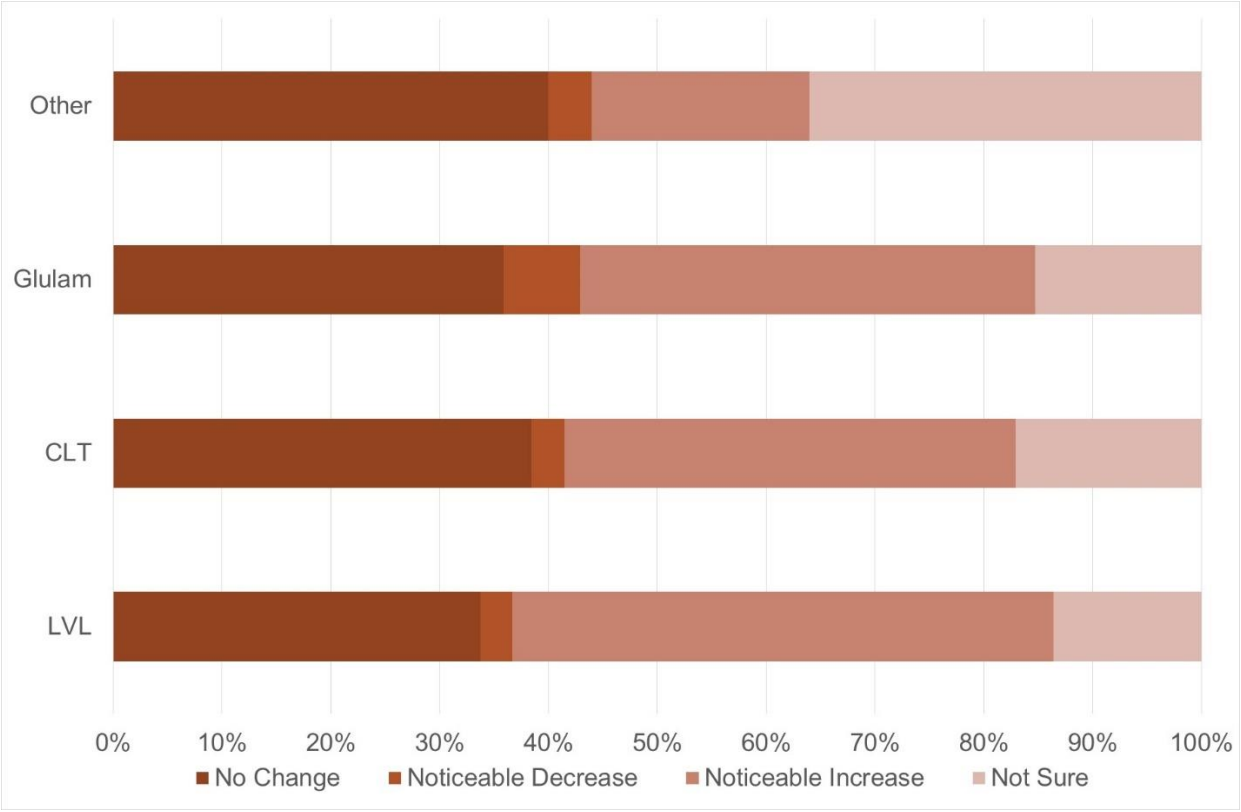

Figure 6. Changes in Use of Specific EWPs

4.4 Regularly Used EWPs

Question 7 asked participants which EWPs they used regularly and allowed respondents to select from a range of EWP applications and products and then rank their use of these EWPs as seen in **Figure 7**. The responses include information on how these different applications are being incorporated into buildings, at least in terms of how often they are being used for projects. The data suggest that panel products like plywood are being used most often with structural laminated veneer lumber (LVL) also being used often. Cross laminated timber (CLT), glue laminated timber (glulam) and timber I-joists also feature as popular options, along with decking applications. The remaining non-structural applications had smaller percentages of regular use overall. Participants who used EWP options not listed and filled in the text box included things such as SIPs, flitch beams, PLT, architectural EWPs, strand board and composite flooring materials. Results were very similar to the 2022 survey results, although the use of CLT increased in the current study and the use of LVL and Glulam were slightly less than in 2022.

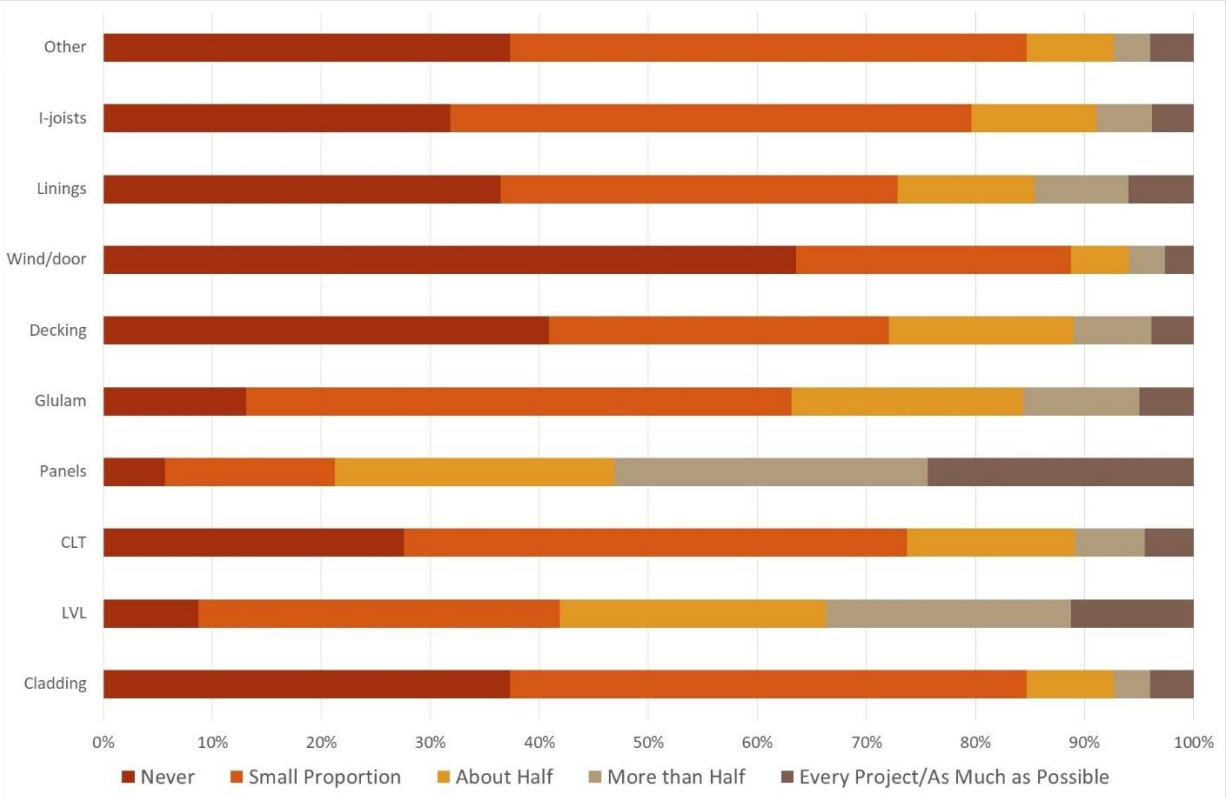

Figure 7. Levels of Regularly Used EWPs

4.5 EWPs That Respondents Would Like to be Using More Often

Participants were asked in Question 8 to select the top three EWPs they would like to use more often from the list of applications shown in **Figure 8**. An option was available to include in a text box any additional products that were not listed, but none of the respondents included additional options, even after choosing "Other". The results show that the structural range of products including panel products, LVL, CLT and glulam were

all seen as significantly appealing for increased use. LVL was the most often selected option with 71% of respondents including that in their top three, with panel products, CLT and glulam not far behind with each around 50%. Because the question asked for the top three choices, the total of percentages is 300%. There were some slight differences between these results and the 2022 results, but the trends were very similar.

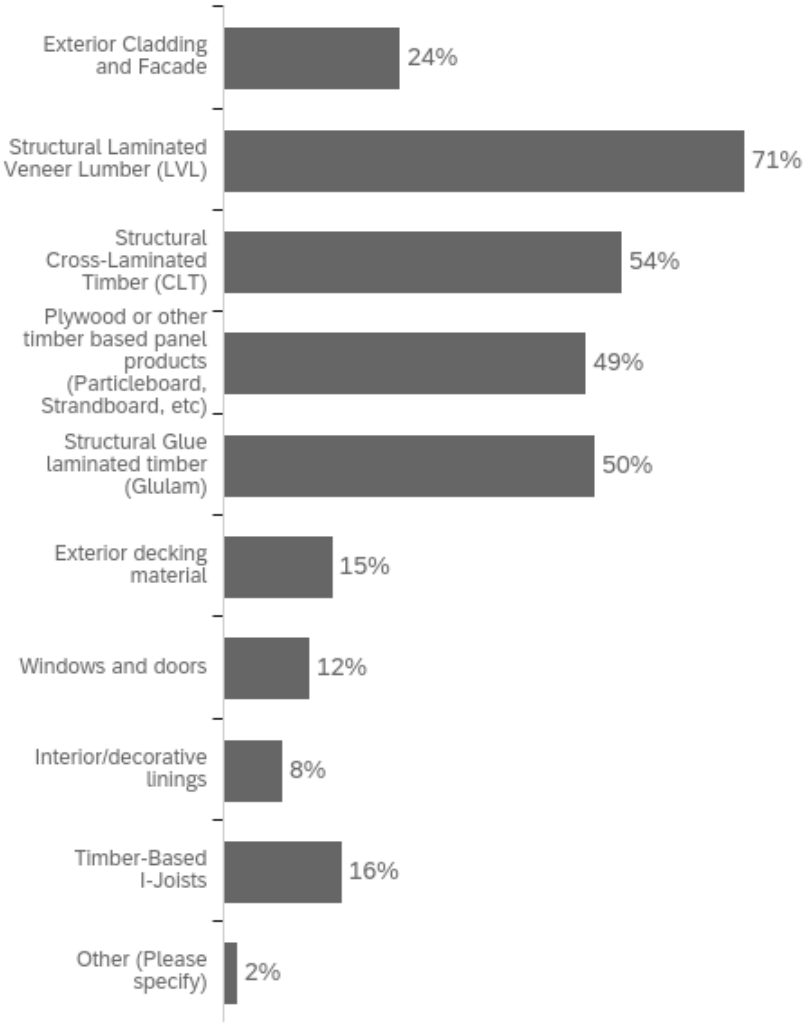

Figure 8. The Top Three EWPs That Respondents Would Like to be Using More Often

4.6 Top Three EWPs - Potential Barriers, Rationale and What Products are Currently Being Used Instead

Questions 9, 10 and 11 were based on the answers provided in Question 8. Participants were asked about their perceptions of barriers to using the selected EWPs (Question 9), why they would prefer these EWPs (Question 10) and what products they are currently using instead of the selected EWPs (Question 11.)

The barriers included for Question 9 are shown in **Figure 9** and participants were asked to rank these barriers for the three selected products from Question 7 from 1 (greatest barrier) to 9 (smallest barrier). Results suggest that lack of applicable case studies is not a significant barrier, which is promising considering the 2019 survey data indicated

that this was a significant barrier. Cost and material availability are still considered significant barriers for a number of participants, at 58% as the greatest barrier and 31% as the 2nd greatest barrier, respectively. The other barriers were less significant but still worth consideration as potential areas for improvement throughout the industry, including lack of client knowledge on products, which accounted for 13% as the greatest barrier. These results were similar to the 2022 survey, but with two additional barriers included it is difficult to make an exact comparison.

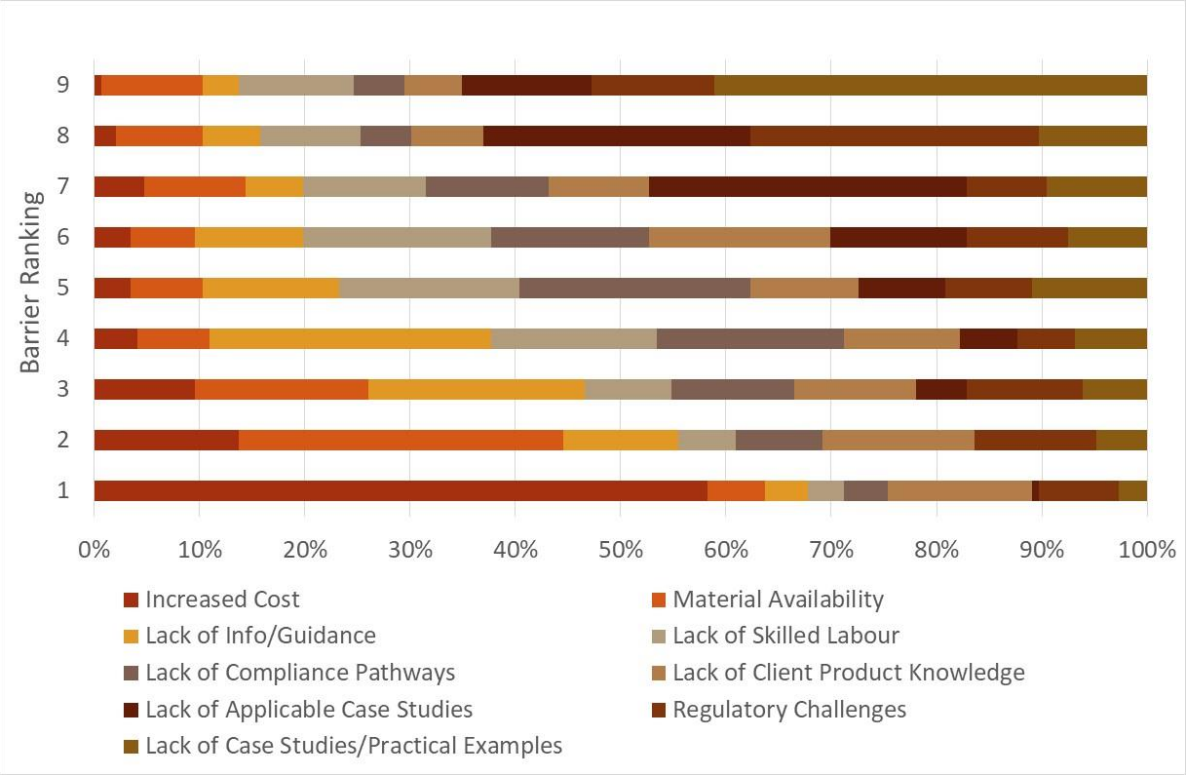

Figure 9. Ranking of Potential Barriers (1 – Greatest Barrier; 9 – Smallest Barrier)

Question 10 asked why participants would prefer to use the EWPs selected in Question 8 and provided the list of options seen in **Figure 10** along the vertical axis. Respondents were able to select as many of the options as they felt were applicable, therefore the percentages shown indicate the percentage of respondents that chose each potential option. Product performance and environmental impacts featured as the top reasons for using the selected EWPs, both having greater than 65% inclusion. Construction speed and aesthetics both had greater than 45% inclusion, while reduced waste and consistency of products had greater than 35% selection rates, with the remaining options falling in below that. All selections were included in the responses, suggesting that some consideration of them is being used to make decisions on their use. These results were very similar to the 2022 survey results with the environmental impacts having exactly the same percentage.

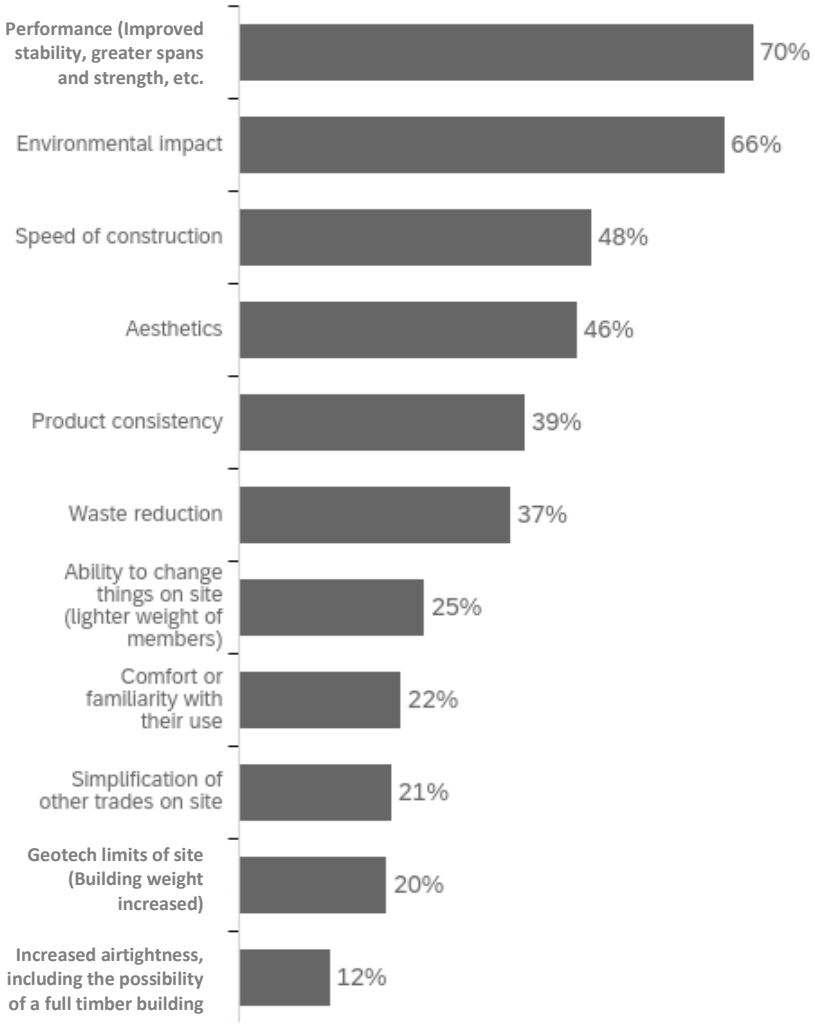

Figure 10. Reasons for Preferring to Use Top Three EWPs

Question 11 was an open question about products that participants are currently using instead of the EWPs chosen in Question 8. Analysis of the responses indicated that in most cases respondents were using steel (60%), concrete (26%) and conventional timber framing (45%) instead of EWPs. Participants had the option to include as many materials as possible, therefore these percentages are based on the number of responses that included any of them, thus the total is not 100%. A number of other materials were mentioned including aluminium (4%) and fibre cement (11%), both of which had not been mentioned in previous surveys. Several respondents noted that they use only EWPs or mostly EWPs and only substitute when absolutely necessary. In general, it appears that steel is the primary product being used currently that can be substituted with EWPs. The fact that steel and concrete both were repeatedly mentioned, it is also a suggestion that EWPs are being used for larger buildings and not just stand-alone residential applications. These results are similar to those from the 2022 survey, with steel having a smaller percentage in the current survey, down from 72% in 2022. The other materials had very similar percentages.

4.7 Perceived Benefits of Using More EWPs in New Zealand

Question 12 sought to understand if participants thought using more EWPs for New Zealand buildings would be beneficial or detrimental across the range of areas shown on the vertical axis in **Figure 11**. The benefits and detriments were presented as a range so that respondents could select from the options shown at the bottom of **Figure 11**.

Results from Question 12 showed that in most cases the increased use of EWPs was thought to be mostly beneficial for the areas identified and very few instances where the increased use would be very or somewhat detrimental. These combined negative responses (very and somewhat detrimental) were between 1% and 5% for all areas. The remaining areas of potential benefit had greater than 70% of responses for somewhat or very beneficial, except for easing the housing shortage in New Zealand. Easing the housing shortage had potential neutral impact of 61%, suggesting that many participants did not think that EWPs would be effective in easing the New Zealand housing shortage. While there were some minor differences, the overall trends from this question were similar to those from the 2022 survey.

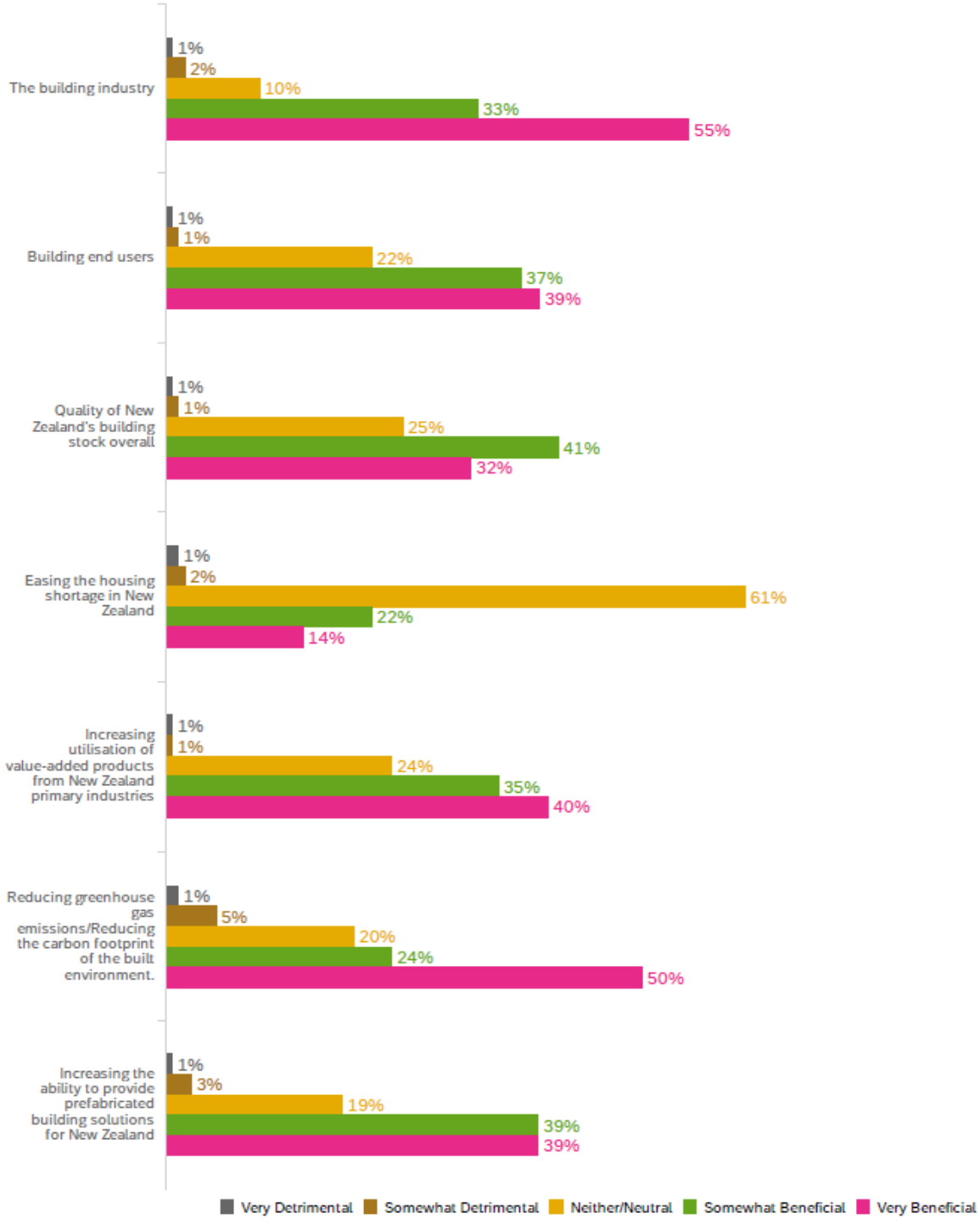

Figure 11. Benefits and Detriments to Using More EWPs in New Zealand Buildings

4.8 Existence of Barriers to Increased EWP Usage

Question 13 asked participants to indicate the level of agreement with the statement that significant barriers do exist to increasing the use of EWPs in New Zealand Construtions. The range of options was from strongly disagree to strongly agree as seen in **Figure 12**. The combined majority either somewhat agreed (41%) or strongly agreed

(14%), for a total of 55%, which suggested that more work is needed for reducing barriers to EWP usage. It is worth noting that a combination of disagreement including strongly (5%) and somewhat (18%) totalling 23% suggests that while progess has been made in reducing the barriers these values are up from the 2022 survey (13% combined) while the agreement pecentages are down from the 2022 survey (66% combined). The neutral responses were nearly identical between the two surveys.

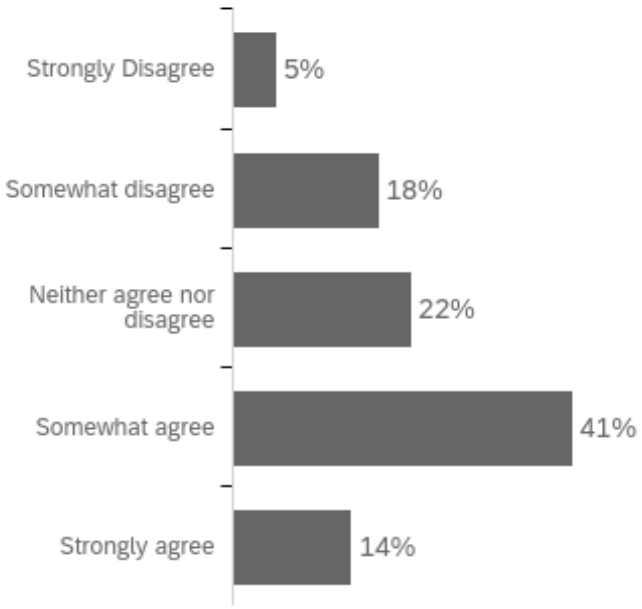

Figure 12. Agreement Levels that Barriers Do Exist to Increased EWP Usage in New Zealand

4.9 EWP Cost Competitiveness

Question 14 specifically targeted perceptions of three mass timber options for EWPs in terms of their cost competitiveness in relation to the supply of CLT, glulam and LVL. Responses are shown in **Figure 13** and suggest that while most participants felt that LVL was cost competitive, glulam and CLT were less so. This is possibly due to perceived current levels of production of these different materials and the perceived limited number of manufacturers currently available. These results are very similar to the 2022 survey for LVL and Glulam, while the percentage for CLT of 32% is up from 21% on the previous survey.

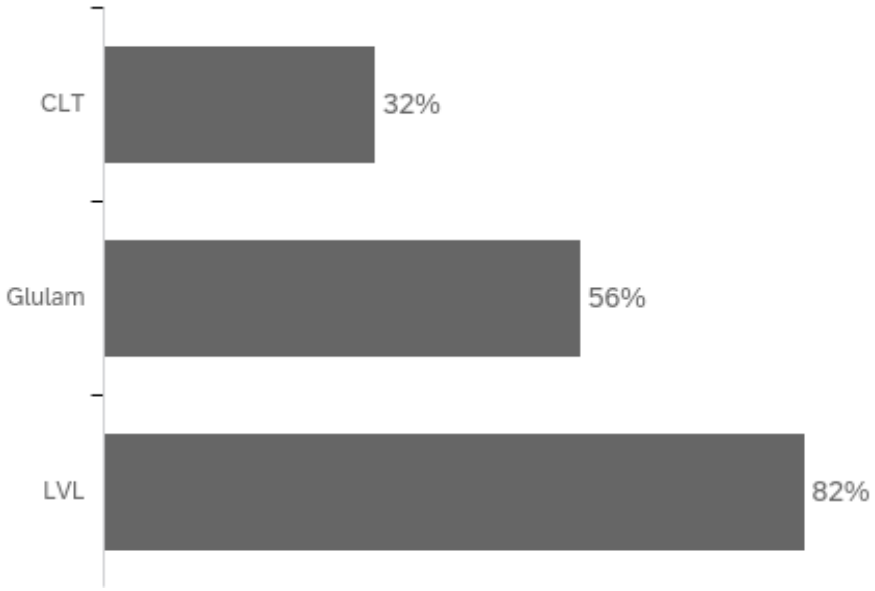

Figure 13. Cost Competitiveness of Mass Timber Options in New Zealand

4.10 Advantages and Disadvantages of EWPs

Question 15 sought to learn more about the perceptions of advantages and disadvantages for using EWPs in New Zealand compared to other products. The range of areas assessed are shown along the vertical axis in **Figure 14** and the range of advantage or disadvantage is shown near the bottom of the figure. Aspects seen as having disadvantages greater than most aspects were construction logistics, durability, vibration performance and fire resistance, although all still had greater perceived advantages (43% on average) than disadvantages (21% on average). The remaining aspects considered had much greater percentages of advantages (64% on average) than disadvantages (8% on average). Neutral responses were significant across the areas covered and suggested that there is still a great deal of education and training required in order to increase the usage of EWPs. The areas that had the greatest perceived advantages included sustainability, structural performance, carbon sequestration, speed of construction and aesthetics. It is also noteworthy that for overall economics (whole of life costs) a combined percentage of 53% considered this an advantage, either significantly (13%) or some advantage (40%). The current survey had an additional three options over the 2022 survey, but overall the results were similar and suggest that awareness of the advantages to using EWPs are becoming more understood, particularly around carbon sequestration and sustainability. This awareness was present in the current and 2022 survey results and was an increase from the 2019 survey results.

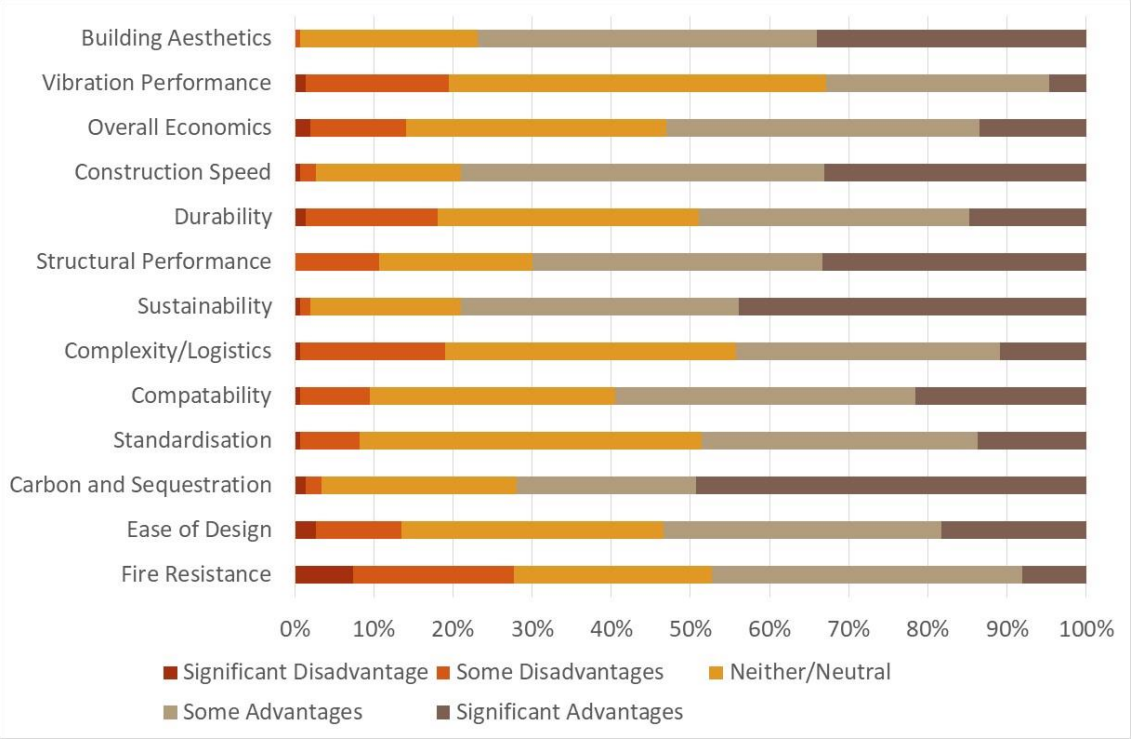

Figure 14. Perceived Advantages and Disadvantages of EWPs Compared to Other Building Products

4.11 Industry Perceptions of EWPs

Question 16 asked, "What perceptions around EWPs have you mostly encountered from people in the sectors below?" and a response matrix was provided with building industry sectors on the vertical axis and grades of perceptions along the horizontal axis. This information captures the impressions of the participants only and is not necessarily reflective of the various sectors. The sectors, perceptions provided and response rates are included in **Figure 15**. There was also an option to include "Other" and a text box was provided.

The responses in general indicate more favourable perceptions from most sectors. The perceptions of quantity surveyors and developers were split somewhat equally between favourable and unfavourable. There were mostly favourable perceptions from building owners, architects, builders and engineers. There were numerous instances of mixed perceptions for many of the options. Only a couple of responses were included in the text box for the "other" category and these were listed as researchers and suppliers, with this category being split somewhat evenly between favourable and unfavourable, but mostly mixed perceptions. While there were some minor differences, the majority of results aligned well with those from the 2022 survey results.

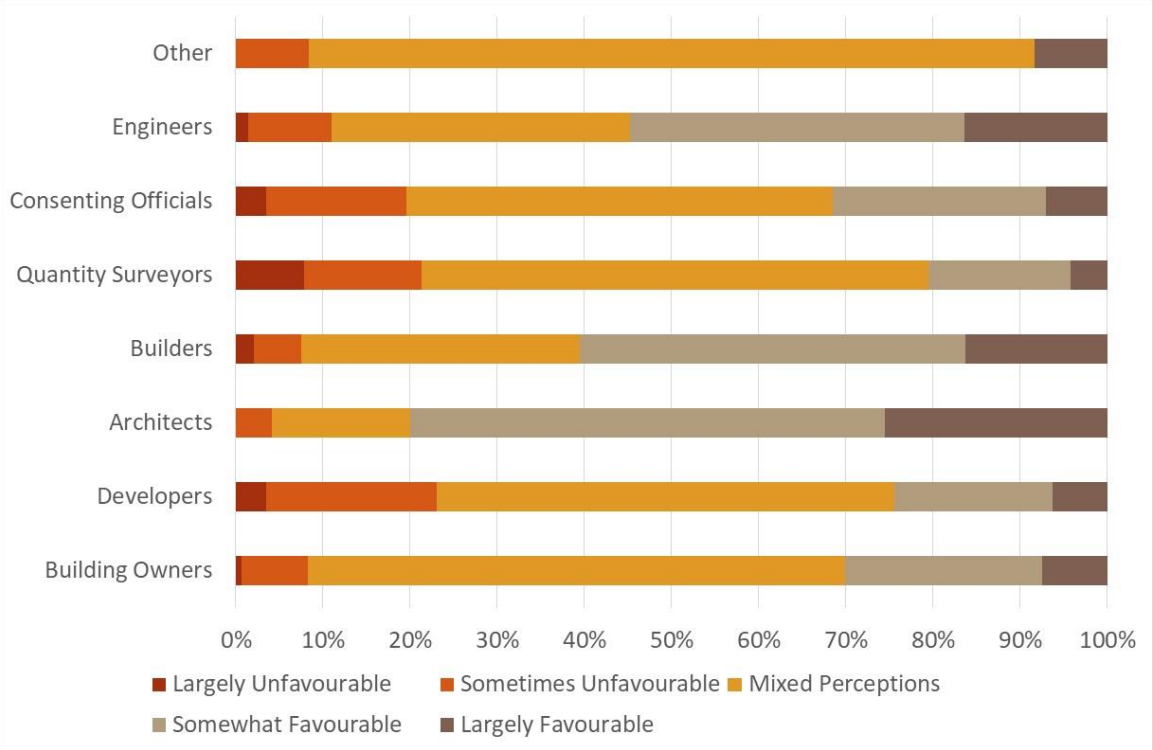

Figure 15. Perceptions of EWPs Encountered Across the Building Sector

4.12 Practical Challenges of EWPs

Question 17 asked, "How do you assess the practical challenges in using EWPs on-site, such as storage, handling and installation?". This was an open question where participants filled in a text box. There were numerous answers with significant elaboration for many of them. The themes running through the responses often focused on adequate planning and understanding the need for storage or covering options. It was noted that many contractors are not familiar with the sizes and requirements for EWPs so forward planning and knowledge of the site were considered critical, in addition to having a plan for managing moisture and knowing what to do if EWPs do get wet. Early and collaborative communication was encouraged amongst the designers and builders and many responses suggested that these practical issues could be more challenging with EWPs than when using more traditional building materials. The main issues were around moisture management and having enough space on-site, and early engagement, education and understanding on the building site were often suggested as ways to avoid construction delays and damaging EWPs.

4.13 EWP Architectural and Design Flexibility

Question 18 asked if participants agreed or disagreed with the statement that, "EWPs offer architectural and design flexibility". The results are shown in **Figure 16** and indicate a significant majority of participants do agree with the statement, where 68% of respondents either somewhat or strongly agreed and only a combined 5% somewhat or strongly disagreed.

As part of Question 18 a follow-up question that asked respondents to provide a sentence explaining the reasoning for answers on Question 18. Respondents provided detailed explanations which often reinforced the findings from other parts of the survey. Several

participants noted that while EWPs could be flexible by being able to be altered on site, there could be disadvantages because some spans were less than other materials and therefore impeded on the potential flexibility in their use. Aesthetics and sustainability were mentioned numerous times as advantageous with EWPs. In a few instances it was noted specifically that connections in EWP systems are often bespoke, which can lead to increased complexity and cost. Site modification was mentioned as a benefit of EWPs with regards to flexibility. Many times it was noted that EWPs have advantages and disadvantages just like any other building materials. A couple of mentions were made of available software that aides with the design of EWPs, which can be beneficial when designing outside of NZS 3604. CLT was mentioned several times, as was the perception that EWPs increase the cost of a project. Overall participants provided a range of opinions about the flexibility of using EWPs including advantages and disadvantages, but also comparisons with other materials. Often it was mentioned that it really is a project specific scenario that must be considered when making decisions around the use of EWPs.

These questions (18 and the follow up) were not included in the 2022 survey and therefore no comparisons are available.

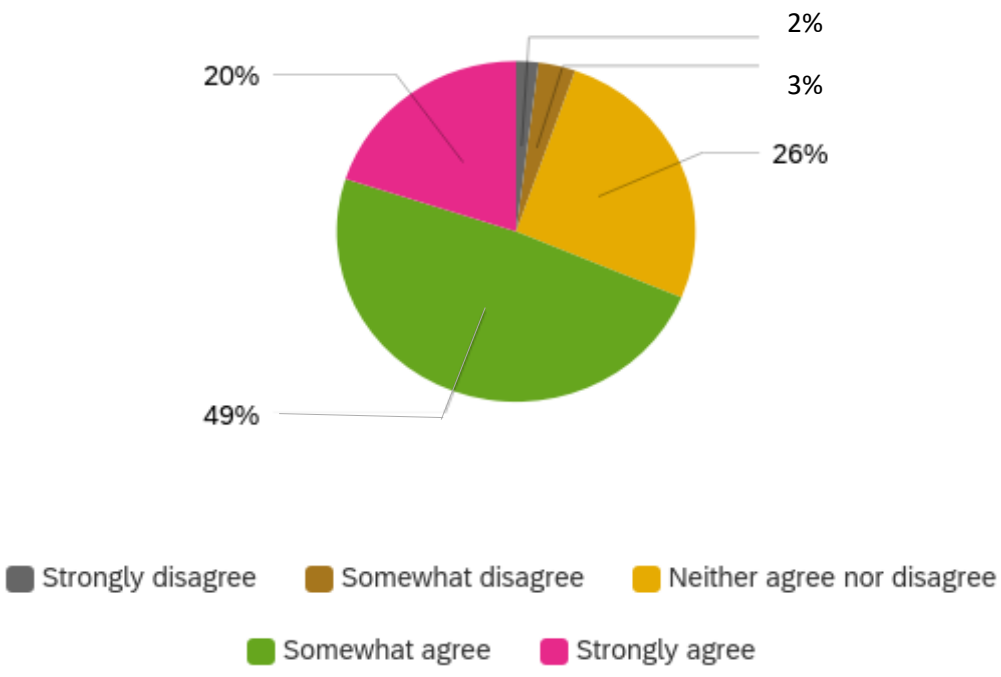

Figure 16. Agreement that EWPs Provide Architectural and Design Flexibility

4.14 Using More EWPs If More Information was Available

Question 19 asked, "Would you be more likely to recommend or work with EWPs if there was more information available on designing and building with them?". The answers provided and response rates are included in **Figure 17**. A majority (53%) of respondents who answered this question cited that more information would make it easier to work with and design using EWPs. Another nearly 24% responded they had enough information, but increased information would be helpful in educating others about EWPs. Another nearly 19% already use EWPs and did not feel that more information was

needed. Only 1% of respondents cited they would prefer not to work with EWPs and subsequently did not think more information was required, while 3% were unsure. Responses for this question were nearly identical to those from the 2022 survey.

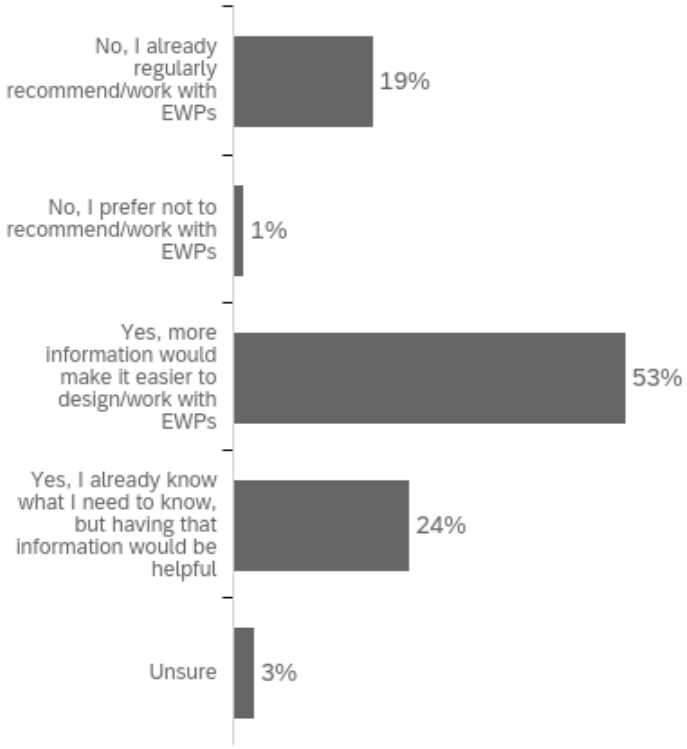

Figure 17. Using more EWPs if Additional Information was Available

4.15 Education and Skills Development Options

Question 20 was an open-ended question with a text box to provide answers that asked, "If funding was available, what education/skills development would you prioritise to support your business/organisation to expand its capability to support mass timber in construction?" A range of answers were provided with some common themes running amongst them. The majority of responses included suggestions for increased education and learning options for both practitioners and building contractors to develop better technical understanding and methods, but also to create clarity around using these materials effective on-site. It was noted numerous times that there is a need for more EWP inclusion within Acceptable Solutions and verification methods so that alternative solutions are not required. Standardisation of connections and designs was mentioned several times as a way of making timber designs more competitive and easier to consent. Increased information on EWP life cycle assessment and carbon footprint information was definitely a high priority and seen as a necessary step towards meeting government and environmental requirements in the future. Another commonly occurring theme was that more information needs to be provided about efficient ways to utilize EWPs and being presented in ways that are not so technical and that include all phases of the building process from design all the way through to installation and even maintenance. It also was obvious that participants wanted to be able to help their clients and design teams understand the effective ways of incorporating EWPs within buildings and the benefits of using them. In terms of how to achieve some of these objectives, requests

for webinars, seminars, roadshows and other workshops to provide training were repeated by many respondents.

Some of the other issues that were cited include the following:

- Hybrid building systems incorporating EWPs
- On-site moisture management
- Understanding the risks when using EWPs
- Training for younger practitioners in design, manufacture and construction using EWPs and mass timber in particular
- Cost comparison information with other materials
- Design examples and fully costed case studies particularly for larger, multi-storey applications, including site visits to buildings under construction
- Upskilling of building tradespeople
- Better information on the durability, fire performance and connection design of EWP systems
- Educating clients and end users on the potential benefits of using EWP systems

The themes between the 2024 and 2022 responses to this question were similar, but for 2024 it seemed that the respondents were more educated about their needs and were able to be more specific in making suggestions for what would be useful for their sector and others across the building landscape.

4.16 Incentives for Increased EWP Usage

Question 21 asked, "In your opinion, how much incentive would the following provide in encouraging the use of EWPs across the building sector?" and a response matrix was provided with incentives on the vertical axis and level of incentive (none, some, huge or not sure) along the horizontal axis. The incentives and response rates are included in **Figure 18**. Question 22 was a follow up open-ended question where respondents were asked, "Do you know of any other incentives that would encourage the increased use of EWPs throughout the New Zealand building Sector?".

Acceptable solutions and prescriptive design methods were cited as huge incentives for over 65% of participants. Lower cost EWPs were both cited by 64% of respondents as providing huge incentives for increasing EWP uptake. The remaining incentives were all seen as potentially providing huge incentives for EWP uptake by over 50% of participants with the exception of providing overseas EWPs, environmental product declarations and case studies which ranged between 31 and 38% as providing huge incentives. It is worth noting that case studies and environmental product declarations were cited as providing some incentive for 50% and 51% of participants, respectively.

Answers for Question 22 further supported and in some cases elaborated on information provided in previous questions. Competition in the market was noted several times here, although it didn't show up much in previous responses. Education and training for both designers and end users (clients) were mentioned, and the issue of EWP availability was noted by several respondents. Acceptable solutions and prescriptive methods were reiterated as being needed. Some specific comments include the following:

- Include some sort of rating system for buildings using EWPs
- More information on fire performance

- Lower cost would be helpful
- Better alignment with international best practice

As mentioned, these comments support the findings from the previous questions and support the conclusions that more training, education and providing detailed case studies and examples of successful EWP buildings will provide pathways for increased uptake across the New Zealand building sector, along with less reliance on verification methods for design that can be costly and require extensive engineering.

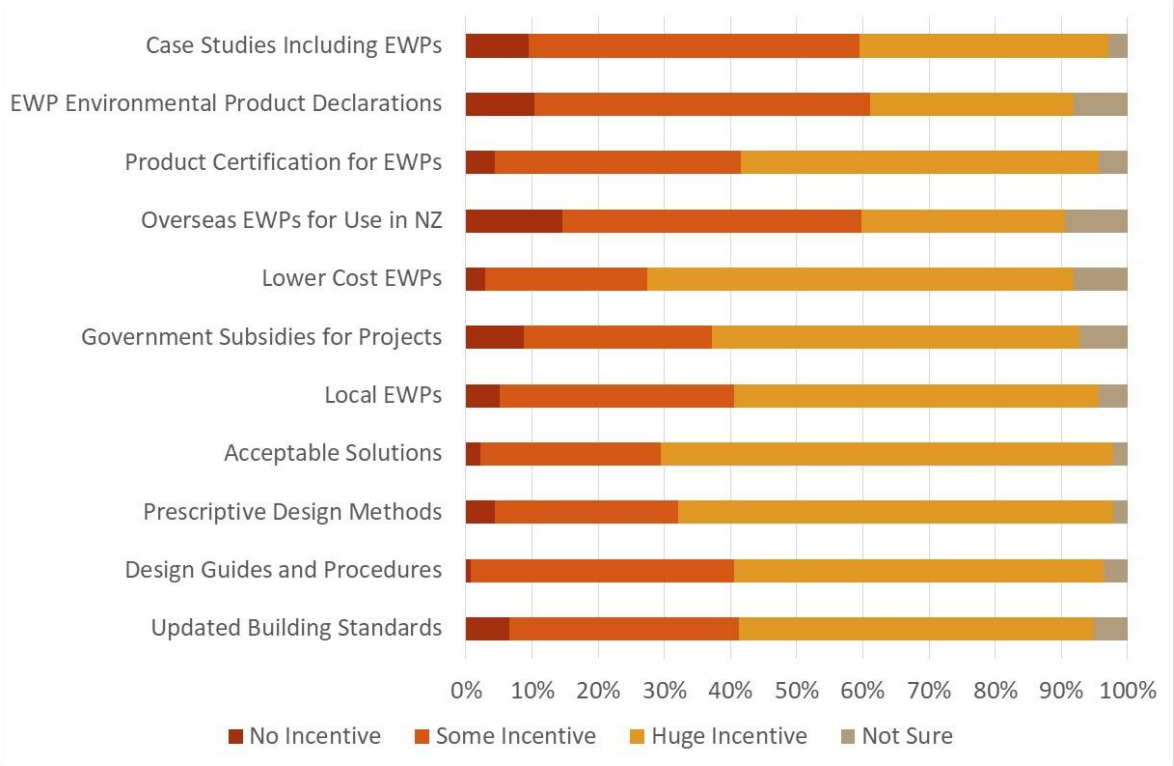

Figure 18. Potential Incentives and Impact for Encouraging EWP Use in New Zealand

Themes for this question were similar to those from the 2022 survey, but with more focus on acceptable solutions and prescriptive design methods were noted in 2024. There also is more focus on education of clients and end users than was seen in the 2022 survey.

4.17 Mid-Rise Wood Construction Partnership

Question 23 had two parts aimed at better understanding the impact that the Mid-Rise Wood Construction Partnership may have had on influencing the use of EWPs. The first part of the question asked if respondents were aware of the project. As seen in **Figure 19** nearly one-third of participants were aware of the Partnership. The second part of the question asked if the demonstration had any influence on decisions around using EWPs in current projects but was only made available to those who answered "yes" to Question 20. Results returned suggested that the demonstration project had some influence on one-quarter of the participants who were aware of the Partnership (**Figure 20**).

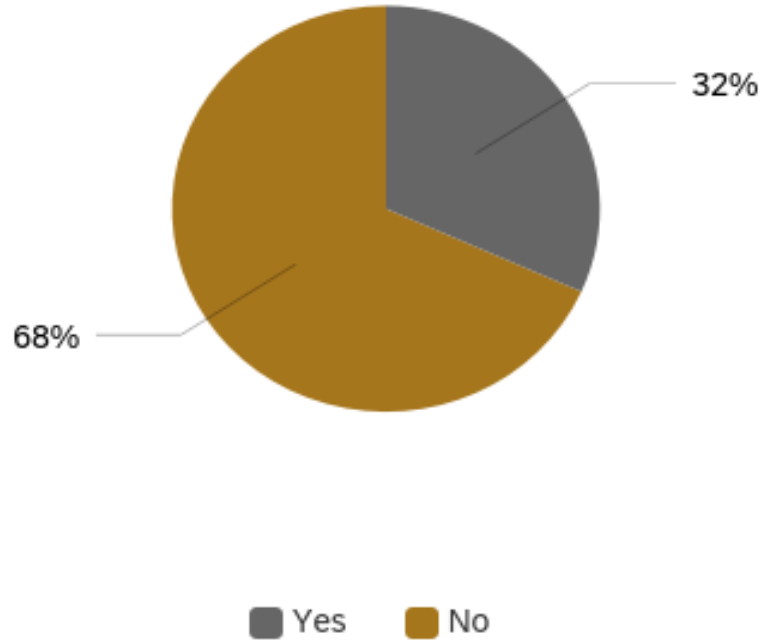

Figure 19. Awareness of the Mid-Rise Wood Construction Partnership

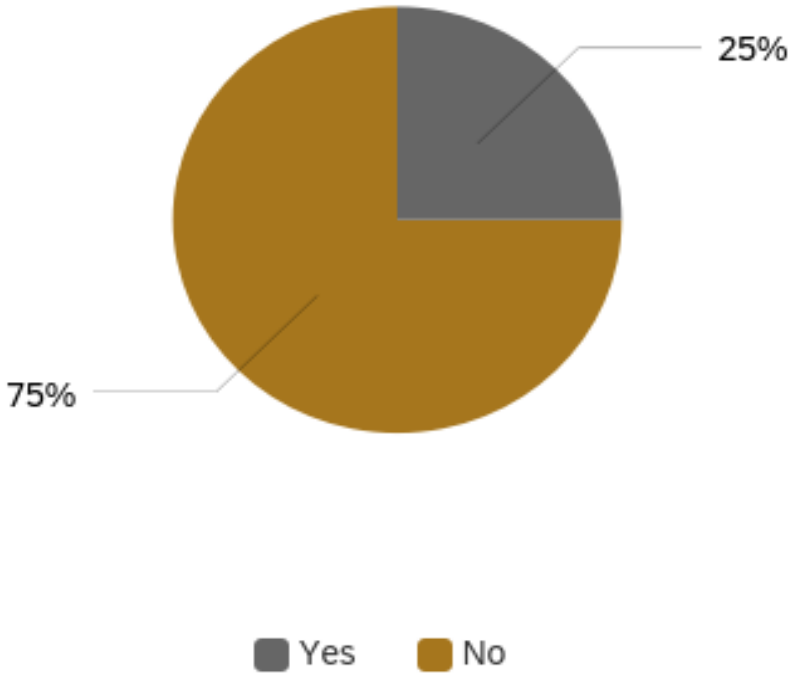

Figure 20. Influence of the Mid-Rise Wood Construction Partnership on Decisions to Use EWPs in Current Projects by Those Aware of the Project

4.18 Industry Drivers for Implementing Mandatory Measuring for Carbon Sequestration

Question 24 asked, "Who/what is currently the biggest driver for industry in implementing mandatory measuring for carbon sequestration?" The selection options and results are provided in **Figure 21**. A majority (64%) of respondents indicated that government requirements are perceived as driving implementation in this area, which is not surprising considering recent moves around climate change mitigation. It is worth noting that the combination of other factors which could be seen as coming from different parts of the building sector (end users and designers), are also perceived as being part of the decision-making process, while availability of products was not seen by many as overly significant. These results were very similar to those from the 2022 survey with the exception of Product availability, which was 5% in 2022 and 2% in the current survey, possibly signalling that this is becoming less of a critical factor.

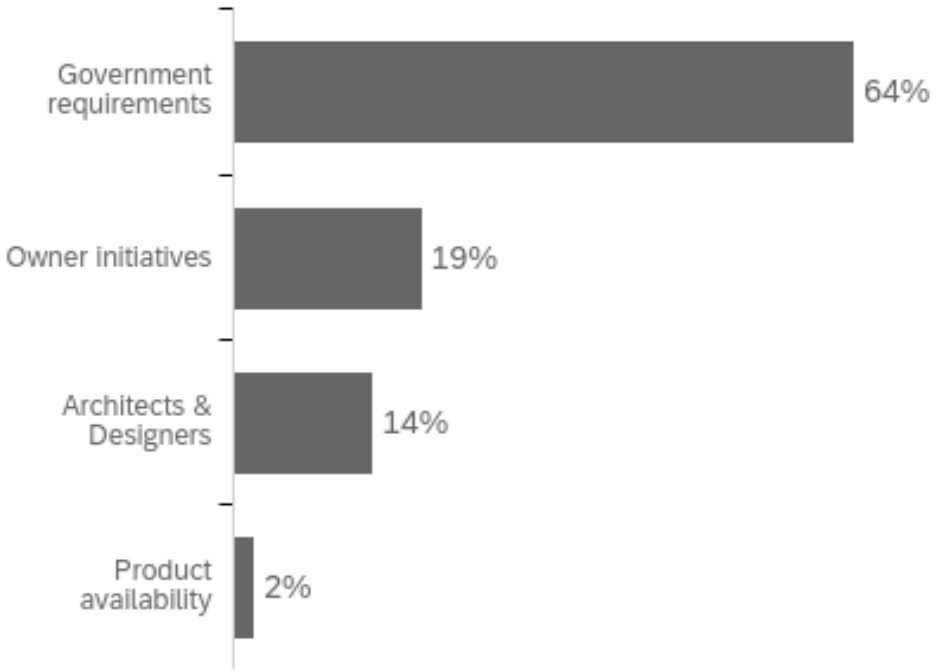

Figure 21. Perceived Industry Drivers for Implementing Mandatory Measuring for Carbon Sequestration

4.19 Significance of EWPs for Achieving Carbon Reduction Targets

Question 25 asked, "How significant are the use EWPs for achieving the 2050 carbon emissions reductions for New Zealand?". Selection options and results are shown in **Figure 22**, which suggest that clearly there are perceptions that EWPs have a role to play in reducing carbon emissions and helping New Zealand achieve the climate change goals that have been established internationally. These results differ slightly from the 2022 survey results for this question in that few respondents opted for very significant (44% in 2022) and more opted for moderately significant (37% in 2022) although overall the results are close between the two surveys.

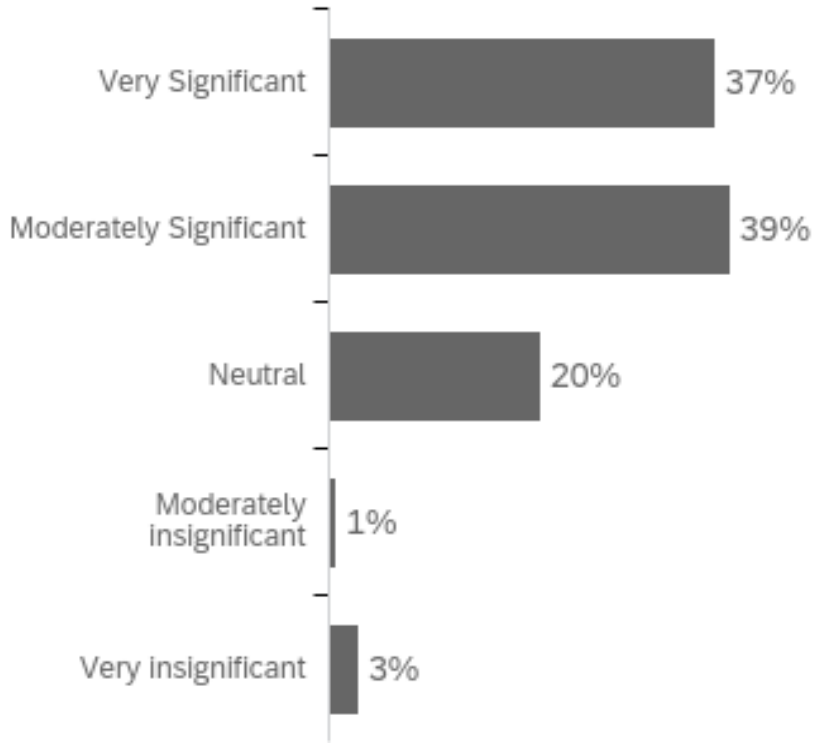

Figure 22. Importance of EWP Usage for Achieving 2050 Carbon Emissions Reductions for New Zealand

4.20 Additional Suggestions on Increasing the Uptake of EWPs in New Zealand

The final Question 26 was an open-ended question requesting participants to share any additional information that might help to better understand how EWPs are being used and what can potentially be done to increase their uptake throughout the New Zealand built environment. Many of the responses elaborated on comments and sentiments mentioned throughout the previous survey questions, although there were some more specific ideas mentioned. The following issues were noted:

- More design guidelines and EWP design software are needed including connection details
- All benefits of EWPs need to be shared more widely across the industry and public sectors
- More acceptable solutions that include EWP options
- Cost will always be an issue, even when environmental issues are cited as paramount
- Lack of competition within New Zealand in the EWP sector
- Fire requirements for EWPs need to be revised and include international best practice
- Cost remains an important issue
- More standardized solutions for EWPs are needed.

While having some similar aspects to the 2022 survey, the current response for this question points towards some different options for increasing uptake of EWPs in New Zealand. One important point is an emphasis on integration across different disciplines that could result in more effective design teams and smoother flows of work on projects that include EWPs so that all those working with these materials and systems are aware of how to design, review and construct them without falling into some of the traps created when using innovative or unfamiliar systems.

5. Summary and Conclusions

This survey has provided up to date information on how EWP usage and uptake by the New Zealand building industry is perceived and some changes and suggestions that could potentially help to reduce barriers and increase EWP use. As with many surveys, there is the need to ask questions in different ways to fully understand the views of the participants, and at times it seems like similar questions are being asked repeatedly. While some of the questions did overlap and provided similar answers, it was encouraging to see similar messages being reiterated in different ways.

As expected, there were some varying opinions and none of the results would be considered absolute or universal across all respondents.

5.1 Survey Summary

Previous sections of this report have provided detailed analyses of the survey responses and a summary is provided here. The majority of respondents were from the engineering, architecture and building and construction sectors and had been in these jobs for over 10 years. A good range of company sizes was represented with the size of employing companies spread somewhat evenly across the choices provided, although for the smallest companies (1-5 employees) and largest companies (50+ employees) had 24% and 40% of the participants employed, respectively.

A significant number of respondents were involved in projects including timber and over half observed increases in the amount of EWPs being used over the past 3 years (prior to the survey). Panel products were most often used, with LVL structural elements also used with some regularity. Following on from this it became apparent that structural applications were the most sought-after applications in terms of what respondents would like to use, and this included both panel products and LVL, along with other mass timber EWPs such as CLT and glulam.

Once an understanding around the EWPs being used and which respondents would like to be using more was established by choosing their top three preferred materials, there were several questions around advantages, barriers, incentives and recommendations for increased EWP usage across the building sector. Structural applications came out at the most desirable EWPs to use with LVL, CLT and glulam being the most popular, and panel products closely following them. Exterior cladding and timber I-joists were the next most popular choices, but significantly lower than the structural materials. Through these series of questions based on these top three choices, a number of themes emerged that were repeated and articulated in different ways throughout the survey around perceptions of advantages, barriers and incentives.

There was also a question related to perceptions of EWPs from different sectors in the building industry, which provided indications of generally positive perceptions throughout the sectors, with some differences noted and a certain degree of neutrality in some sectors. There were mostly favourable perceptions from building owners, architects, builders and engineers, while there was some degree of neutral or unfavourable perceptions from consenting officials, quantity surveyors and developers. This information is noted to be the impressions of the participants only and not necessarily reflective of the various sectors. This is highlighted though as an area where additional research is needed to better understand perceptions of EWPs across the different sectors of the building industry as this information can help determine where across the building sector there is a need to focus on shifting perceptions.

There was a general impression that barriers do exist to increasing the uptake of EWPs in the New Zealand construction industry, although this was not unanimous. These barriers as well as perceived advantages of using EWPs manifested themselves in different ways, but could be aligned to the themes that became apparent around the increased use and uptake of EWPs in New Zealand including the following:

- Cost
- Market Competition
- Acceptable Solutions/Prescriptive Design Methods
- Information and Education
    - Differences On Building Site
    - Integrated Design Teams and Methods
    - Environmental Impacts and Comparisons
    - Products and product performance.

The increased cost, whether actual or perceived, was frequently noted as a concern to using EWPs. It was suggested that if there were more manufactures or if EWPs could be brought in from overseas it would result in increased EWP use. A separate question considered perceptions around the cost competitiveness of mass timber EWPs and indicated that while LVL was cost competitive in relation to supply, CLT and glulam were less so.

EWPs were generally seen as high-performance materials that could provide benefits if used properly. Suggestions were made that it would be beneficial to have more information around the actual costs of using EWPs the results on the final building cost and to have more comparisons with steel and concrete options. More information on the full life cycle and environmental impacts of EWPs was also noted as being needed to allow for more informed choices to be made by designers and consumers of EWPs.

There were some comments on compliance pathways and it was suggested that more clear pathways for using EWPs including methods and guidance to develop code compliant designs that would be accepted by consenting authorities would go a long way for increased EWP uptake. This includes knowledge and education for the designers as well as the consenting officials so that they are both on the same page around what is required. Connection design and fire resistance were noted as specific areas of concern for designers. Acceptable Solutions and updated prescriptive design standards were mentioned by numerous respondents as being helpful if they included more EWPs.

The need for more information and training were often cited as ways of reducing barriers and increasing the use and uptake of EWPs throughout the New Zealand building

landscape. These are highly interconnected issues in that education is provided through information and there are many facets to both that were raised throughout the survey. The basic notion that rose to the surface was that more information was required about EWPs and how they could be effectively used, but also that education of those designing with, building with and consenting for use EWPs was equally important. All were seen as being required for the New Zealand building sectors to increase the uptake of EWPs and both needed to be considered from several different angles.

Providing more information in different formats though would not necessarily address the barriers as significant information on properties of materials and guidance for design already exist and are available if one knows where to look for it. Training, webinars, roadshows and other options for education were mentioned as possible options for better understanding of how to use EWPs effectively and spreading the word about them. Education could include specific data on the costs of designing and building using EWPs to make it more beneficial. Training was also considered important for trades and builders due to differences between the traditional methods of timber construction and EWP construction. In particular it was noted that site conditions, storage and management of moisture were critical issues and areas of concern when specifying EWPs and that builders needed to be made more aware of how to deal with these issues during construction.

Increased and thorough understanding of the environmental impacts of EWPs was also seen as necessary in order to determine the effects of including these products for building projects and to allow for realistic comparisons with other building materials. This combination of information and education would need to include the carbon benefits of using more timber, but also the potential detriments of manufacturing processes, treatments and adhesives used and end-of-life impacts.

A few mentions were made of providing case studies for buildings using EWPs and included suggestions for site visits and other hands on experiences to allow designers to better understand the advantages and disadvantages of using EWPs in different applications. Separate questions around awareness of and the impact of the Mid-Rise Wood Construction Partnership suggested that there was awareness of the Partnership and it may have some influence on better understanding of opting for multi-storey timber buildings in New Zealand.

Because of the frequency with which education and information were recommended, those are areas of improvement that could potentially result in increased EWP uptake. Suggestions were made for seminars and site visits where discussions could be had between various building sector participants, resulting in a sharing of information on EWPs and their use. More cost information was suggested and increased promotion of EWP and their benefits to a wider range of industry players, along with cost comparisons with more traditionally used materials. Structural performance, speed of construction, the aesthetics of EWPs and waste minimisation were seen as advantages for using EWPs and should be the kind of positive attributes that should be used to promote EWP use.

5.2 Conclusions

Based on the results from the survey and the summary provided in the previous section, a number of conclusions have been developed in response to the perceptions from the survey participants.

A large number of respondents felt that lower cost options and greater market competition would create significant incentives for increased use of EWPs in New Zealand.

Based on the survey, there are continued opportunities for increasing the available information on EWPs and promoting them based on the benefits mentioned throughout the survey.

Revisions to some timber standards have been made available resulting in this being less of a concern when compared to previous survey results.

The following suggestions for training, research and education have been developed as a result of the previously discussed survey responses and analysis:

7) Develop data on the economic implications of using EWPs throughout the building sector in comparison to other typically used materials, particularly for multi-storey building applications.
8) Develop and disseminate comprehensive life cycle assessment and environmental impact data on using EWPs including embodied and operational energy, carbon sequestration and circular economy implications.
9) Continue to provide detailed case studies of buildings that use a significant amount of EWPs in order to develop a comprehensive understanding of how EWPs impact the design, cost and performance of these buildings.
10) Conduct webinars and seminar series and provide more guidance to educate a range of building sector players on specific applications of EWPs including demonstrations of available software and design tools, but also share findings from case studies mentioned above.
11) Educate the general public including building owners and developers on the options and advantages of using EWPs.
12) Provide more design and product information on specific EWPs, including CLT.

These suggestions are a starting point for developing a deeper knowledge and understanding of the potential for use of EWPs across the New Zealand built environment.

This survey is intended to be conducted longitudinally over the next two years, with this survey being related to surveys conducted in 2019 and 2022. Results will be collated to develop a better understanding of trends and perceptions around the use and uptake of EWPs in New Zealand.

5.3 Comparisons between 2024 and 2022 Surveys

The surveys conducted in 2022 and 2024 were intended to be nearly identical so that comparisons between them could be easily developed. All of the questions from the 2022 survey were included in the 2024 survey and a few questions were included in the 2024 survey that were not included in the 2022 survey. In previous sections of this report there have been comparison drawn between these two surveys pointing out different between them. In general the results are very similar and in some cases even percentages of respondents were similar or identical. One difference was that a higher percentage of respondents were architects for the 2024 survey, whereas engineers were the greatest majority in the 2022 survey. Thematically the main differences were that there seemed to be much more understanding around the products and systems being

used with EWPs in the 2024 survey and the respondents in general seemed more knowledgeable about EWPs, their use and potential issues that need to be addressed for them to become more readily used. This suggests that EWPs are being used more widely and also being accepted more within the building sectors. In the 2022 survey there was more emphasis on updating standards, but in the intervening years there has been a new timber design standard published and in the 2024 survey very little was mentioned on this issue. There was more emphasis on Acceptable Solutions and Prescriptive Design Methods in the 2024 survey than in 2022. Availability of EWPs was not mentioned as much in the 2024 survey although market competition was mentioned more in the 2024 survey.

Overall the themes and recommendations have been relatively consistent between the 2022 and 2024 surveys suggesting that while some issues have been addressed, there is still a need for continued education, training, guidance and demonstration of the use of EWPs in order to increase their uptake for buildings in New Zealand.

5.4 Comparisons with 2019 EWP Survey

This section is repeated from the report on the 2022 survey (Carradine and Lockyer 2022) to provide further comparisons amongst the three surveys conducted to date.

A similar survey was conducted by BRANZ in 2019 on usage and uptake of EWPs which resulted in a BRANZ Study Report SR453 (Carradine 2020) which is available on the BRANZ website. It is worth noting that there are some differences in respondent perceptions between the surveys, which is not surprising considering the three-year difference in timing. There are also many similarities which suggests that many issues raised in the earlier study still exist and require addressing in order to increase the uptake and usage of EWPs in New Zealand construction.

The number of respondents for the current survey was over one half of the 2019 survey, even though similar dissemination methods were employed. No specific reasons for the lower response rate are available. It was noted that the 2019 survey was dominated by architects and builders while the 2022 survey was dominated more by engineers and builders, but architects were included also.

The overarching themes of the two surveys were very similar with cost, material availability, standards and education being the main themes that come out in the end, but there were some differences that are worth noting. Obviously, those issues still require addressing and should be considered as recommended in previous sections.

One noticeable difference included the focus of the education and training suggested for increasing uptake as well as understanding of EWPs. The 2019 survey had a greater emphasis on case studies as being necessary to better understand the implications of using more EWPs, whereas the 2022 survey indicated that using the existing case studies for detailed examples that could be used to educate had potential for increasing uptake of EWPs. This suggests that more case studies are around to investigate, and if anything, what may be necessary is a better means of communication around the rationale for the design and detailing of these buildings and sharing that in an effective way with a range of practitioners across the building industry.

While certainly evident in both surveys, it appeared that having a more comprehensive understanding and ability to quantify the environmental aspects of utilising EWPs seemed to have a greater emphasis in the 2022 survey. This is likely due to recent

government initiatives that require a greater understanding of things like carbon sequestering and greenhouse gas emissions for different building systems.

Education and training were perceived as very important for both surveys, but the more recent survey had a greater focus on training to use existing tools and information whereas the 2019 survey had many more instances of respondents needing information and not knowing where to find it. Some work was done between the surveys to educate designers about the tools and information available on the range of EWPs used in New Zealand including webinars focused on sharing existing resources with those who need them. The possible exception was CLT, which was noted several times as not having enough design and detailing information as necessary for regular inclusion within building designs and planning. Supply of CLT was also a concern from both surveys.

One final observation was that the more recent survey had several suggestions related to university education and research that could apply directly to EWP usage. This seemed to suggest that by including EWPs within university curricula there is the potential for having graduates already familiar with these products and systems and how best to apply them across the building industry.

Subsequent surveys will be reported on, and comparisons made in efforts to track changes in perceptions around the uptake and usage of EWPs in New Zealand buildings.

6. References

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Carradine, D. and Lockyer, O. 2022. Usage and Uptake of Engineered Wood Products in New Zealand: Results from Suvey 1 – 2022 BRANZ Report QC14365-1:2022. Judgeford, New Zealand: BRANZ Ltd.

Appendix A: Copy of 2024 EWP Survey

Usage and uptake of engineered wood products in New Zealand

Usage and uptake of engineered wood products in New Zealand

Thank you for undertaking this survey for the Building Research Association of New Zealand (BRANZ).

BRANZ, a multi-faceted, science led organization, uses independent research, systems knowledge and its broad networks to identify practical solutions that improve New Zealand's building system performance. The BRANZ vision is to challenge Aotearoa New Zealand to create a building system that delivers better outcomes for all.

What is the purpose of the survey?

BRANZ researchers and external stakeholders have identified that there is a need for more current and relevant data on engineered wood products (EWPs) within NZ, as uptake and acceptance of these materials increase rapidly. EWPs include the full range of structural and non-structural building materials made from timber and timber fibre. This includes things like laminated veneer lumber (LVL), cross laminated timber (CLT), plywood, particleboard and other composite wood products utilising wood. We need your input to help understand where and how EWPs are being used across the New Zealand built environment, from acceptance and design through to supply and delivery of completed buildings. Your feedback will help determine what research and actions are could potentially support current and increased use of EWPS in New Zealand homes and buildings.

With this information New Zealand can be an earlier adopter of technologies that are already showing great promise around the world for high performance, high quality, and environmentally sound buildings. The resulting data will help deliver key information that can feed into development of new guidelines for innovative structural and non-structural uses of EWPs. Building designers, developers and building consent officials will benefit from understanding more about EWPs, and where innovation is required to be able to integrate these modern materials within buildings.

This survey may look familiar as it is a repeat of similar surveys conducted in 2019 and 2022. Repeating the surveys is being done to provide longer-term data on some of the perceptions and trends of uptake and usage of EWPs in New Zealand. This includes changes in the EWP landscape over several years to allow for an understanding of changes that are occurring over time, as well as what strategies are proving effective across industries, and where improvements are still needed.

Why have I been invited to participate in this survey?

You have been identified as someone who works in the construction sector. We are seeking a diverse range of views and experiences across the sector no matter how big or small the company is.

Do I have to complete the survey?

No. Completion of this survey is voluntary.

If you decide not to participate it will not affect your relationship with BRANZ now or in the future. Once you have completed the survey it is not possible to withdraw your answers. Your answers are important to us and will remain confidential. Any information collected will be securely stored without any identifying information. Only the researchers Dr David Carradine, Orin Lockyer, Matthew Curtis, and Amy Knight (all from BRANZ) will have access to the data, which will be held securely for three years on the Qualtrics and BRANZ servers before it is deleted.

Those who complete the survey can go into the draw to win one of three $300 dollar Prezzy cards.

The survey should take no longer than 10 minutes of your time.

What happens with the results?

BRANZ researchers will publish results in peer reviewed journals, conference papers, research reports and other materials for industry and government, such as information in Build magazine. Your personal details will not be identifiable in any publication.

What should I do if I want to contact the researcher further before I decide?

If after you have read this information you have any queries, or would like more information at any stage, please contact Dr David Carradine, Senior Structural Research Engineer, BRANZ at: david.carradine@branz.co.nz

Thank you for taking time to consider this study.

Do you consent to participate in this survey?

- ○ Yes, I give my consent and agree to participate in this survey (8)
- ○ No, I do not give my consent and do not agree to participate in this survey (9)

1) What sector of the building industry are you currently working in?

- ○ Architectural Design (1)
- ○ Building and Construction (2)
- ○ EWP Manufacturing (3)
- ○ Engineering Design (4)
- ○ Regulatory/Consenting (5)
- ○ Quantity Surveying (6)
- ○ Other (please Specify) (7)

2) How long have you been working in your current sector?

- ○ Less than one year (1)
- ○ 1-2 years (2)
- ○ 3-5 years (3)
- ○ 6-10 years (4)
- ○ More than 10 years (5)

3) How large is the firm that you work with?

- ○ 1-5 people (1)
- ○ 6-10 people (2)

- ○ 11-20 people (3)
- ○ 21-49 people (4)
- ○ 50+ people (5)

4) What percentage of your projects or work over the past 12 months have included a significant amount (at least 50% of materials used) of EWPs?

	0% (1)	1-25% (2)	26-50% (3)	51-75% (4)	76-100% (5)
Main Building Structure (1)	○	○	○	○	○
Building Envelope, Cladding or Facade system (2)	○	○	○	○	○
Non-Structural Elements (3)	○	○	○	○	○

5) Has there been a change in the volume of EWPs used in your projects or work over the past three years?

- ○ No change (1)
- ○ Noticeable decrease in EWP use (2)
- ○ Noticeable increase in EWP use (3)
- ○ Not sure (4)

6) Regarding specific types of EWPs, has there been a change in the volume used in your work over the past three years?

	No change (1)	Noticeable decrease in EWP use (2)	Noticeable increase in EWP use (3)	Not sure (4)
LVL (1)	○	○	○	○
CLT (2)	○	○	○	○
Glulam (3)	○	○	○	○
Other (please specify) (4)	○	○	○	○

7) Please indicate how regularly you use the following EWPs:

	Never (1)	A small proportion of my projects (2)	About half of my projects (3)	More than half of my projects (4)	Every project/as much as possible (5)
Exterior Cladding or Facade (1)	○	○	○	○	○
Structual Laminated Veneer Lumber (LVL) (2)	○	○	○	○	○
Structural Cross-Laminated Timber (3)	○	○	○	○	○
Plywood or Other Timber-Based Panel Products (Particleboard, Strand Board, etc) (4)	○	○	○	○	○
Structural Glue Laminated Timber (Glulam) (5)	○	○	○	○	○
Exterior Decking Material (6)	○	○	○	○	○
Windows and Doors (7)	○	○	○	○	○
Interior/Decorative Linings (8)	○	○	○	○	○
Timber Based I-Joists (9)	○	○	○	○	○
Others (please specify your most used 'other' EWP) (10)	○	○	○	○	○

*

8) Please choose the top 3 EWPs you would like to use more often?

- ☐ Exterior Cladding and Facade (1)
- ☐ Structural Laminated Veneer Lumber (LVL) (2)
- ☐ Structural Cross-Laminated Timber (CLT) (3)
- ☐ Plywood or other timber based panel products (Particleboard, Strandboard, etc) (4)
- ☐ Structural Glue laminated timber (Glulam) (5)
- ☐ Exterior decking material (6)
- ☐ Windows and doors (7)
- ☐ Interior/decorative linings (8)
- ☐ Timber-Based I-Joists (9)
- ☐ Other (Please specify) (10)

You selected the following EWPs: {Selected Choices}.

With these in mind, please answer the following questions:

9) What are the barriers to using these EWPs more often?

Please rank from 1 (largest barrier) to 9 (smallest barrier)

_____ Increased cost (1)
_____ Limited availability of materials (2)
_____ Lack of general information/guidance on product use (3)
_____ Lack of skilled labour (4)
_____ Lack of compliance pathways (5)
_____ Lack of product knowledge from clients (6)
_____ Lack of applicable case studies (7)
_____ Regulatory challenges or limitations (8)
_____ Lack of detailed case studies and practical examples (9)

10) Why would you prefer to use these EWPs? (Select all that apply)

☐ Performance (Improved stability, greater spans and strength etc) (1)

☐ Environmental impact (2)

☐ Aesthetics (3)

☐ Comfort or familiarity with their use (4)

☐ Waste reduction (5)

☐ Product consistency (6)

☐ Geotech limits of site (Building weight) (7)

☐ Speed of construction (8)

☐ Increased airtightness, including the possibility of a full timber building envelope (9)

☐ Simplification of other trades on site (10)

☐ Ability to change things on site (lighter weight of members) (11)

11) What do you currently use instead of these EWPs?

_____

12) Indicate how beneficial or detrimental you think increasing the use of EWPs in New Zealand construction would be in the areas listed below:

	Very Detrimental (1)	Somewhat Detrimental (2)	Neither/Neutral (3)	Somewhat Beneficial (4)	Very Beneficial (5)
The building industry (1)	○	○	○	○	○
Building end users (2)	○	○	○	○	○
Quality of New Zealand's building stock overall (3)	○	○	○	○	○
Easing the housing shortage in New Zealand (4)	○	○	○	○	○
Increasing utilisation of value-added products from New Zealand primary industries (5)	○	○	○	○	○
Reducing greenhouse gas emissions/Reducing the carbon footprint of the built environment. (6)	○	○	○	○	○
Increasing the ability to provide prefabricated building solutions for New Zealand (7)	○	○	○	○	○

13) To what extent do you agree with the statement: : "Significant barriers DO exist to increasing the use of EWPs in New Zealand Construction."

- ○ Strongly Disagree (1)
- ○ Somewhat disagree (2)
- ○ Neither agree nor disagree (3)
- ○ Somewhat agree (4)
- ○ Strongly agree (5)

14) Do you believe that the market is cost competitive in relation to the supply of these types of mass timber? (Select all that apply)

- ☐ CLT (1)
- ☐ Glulam (2)
- ☐ LVL (3)

15) In your opinion, compared to other products, do EWPs offer advantages or disadvantages in the following areas?

	Significant Disadvantages	Some Disadvantages	Neither/Neutral	Some Advantages	Significant Advantages
Fire Resistance	○	○	○	○	○
Structural Performance	○	○	○	○	○
Durability	○	○	○	○	○
Speed of Construction	○	○	○	○	○
Overall Economics (Whole of life costs)	○	○	○	○	○
Vibration performance	○	○	○	○	○
Building Aesthetics	○	○	○	○	○
Ease of design	○	○	○	○	○
Environmental Carbon/Carbon Sequestration	○	○	○	○	○
Standardisation	○	○	○	○	○
Compatibility with other building materials and systems	○	○	○	○	○
Construction complexity and project logistics	○	○	○	○	○

Sustainability and environmental impact	○	○	○	○	○

16) What perceptions around EWPs have you mostly encountered from people in the sectors listed below?

	Largely Unfavourable (1)	Sometimes Unfavourable (2)	Mixed Perceptions (3)	Somewhat favourable (4)	Largely Favourable (5)
Building Owners (1)	○	○	○	○	○
Developers (2)	○	○	○	○	○
Architects (3)	○	○	○	○	○
Builders (4)	○	○	○	○	○
Quantity Surveyors (5)	○	○	○	○	○
Consenting Officials (6)	○	○	○	○	○
Engineers (7)	○	○	○	○	○
Other (please specify) (8)	○	○	○	○	○

17) How do you assess the practical challenges in using EWPs on-site, such as storage, handling, and installation?

_____

18) To what extent do you agree with the statement: "EWPs offer architectural and design flexibility"?

- ○ Strongly disagree (1)
- ○ Somewhat disagree (2)
- ○ Neither agree nor disagree (3)
- ○ Somewhat agree (4)
- ○ Strongly agree (5)

You selected {Selected Choices}, when asked Question 18.

Could you provide a brief sentence explaining your reasoning for this answer?

_____

19) Would you be more likely to recommend or work with EWPs if there was more information available on designing and building them?

- ○ No, I already regularly recommend/work with EWPs (1)
- ○ No, I prefer not to recommend/work with EWPs (2)
- ○ Yes, more information would make it easier to design/work with EWPs (3)
- ○ Yes, I already know what I need to know, but having that information would be helpful (4)
- ○ Unsure (5)

20) If funding was available, what education/skills development would you prioritise to support your business/organisation to expand its capability to support mass timber in construction?

_____

21) In your opinion, how much incentive would the following options provide in encouraging the use of EWPs across the building sector?

	No incentive (1)	Some incentive (2)	Huge incentive (3)	Not sure (4)
New or revised building standards (1)	○	○	○	○
Stand-alone design guides including specific design procedures (2)	○	○	○	○
Prescriptive design information like that provided in NZS 3604 (3)	○	○	○	○
Acceptable Solutions similar to those in the NZBC (4)	○	○	○	○
Locally available and manufactured EWPs (5)	○	○	○	○
Government subsidies or project funding for primarily EWP buildings (6)	○	○	○	○
Lower cost EVP options (7)	○	○	○	○
Overseas EWPs accepted for use in NZ (8)	○	○	○	○
More BRANZ Appraised or CodeMark approved EWP systems and material (9)	○	○	○	○

Environmental Product Declarations for EWPs (10)	○	○	○	○
Detailed examples of case study EWP buildings (11)	○	○	○	○

22) Do you know of any other incentives that would encourage the increased use of EWPs throughout the New Zealand building sector?

_____

23) Are you aware of the Mid-Rise Wood Construction Partnership?

○ Yes (1)

○ No (2)

Does the Mid-Rise Wood Construction Partnership have any influence on your decision to use EWPs in any of the projects you are currently involved with?

○ Yes (1)

○ No (2)

24) Who/what is currently the biggest driver for industry in implementing mandatory measuring for carbon sequestration?

- ○ Government requirements (1)
- ○ Owner initiatives (2)
- ○ Architects & Designers (3)
- ○ Product availability (4)

25) In your opinion, how significant are the use of EWPs for achieving the 2050 carbon emissions reductions for New Zealand?

- ○ Very Significant (1)
- ○ Moderately Significant (2)
- ○ Neutral (3)
- ○ Moderately insignificant (4)
- ○ Very insignificant (5)

26) Please share with us any additional information that would better help us understand how EWPs are being used and what can be done to increase the uptake of them throughout the built environment in New Zealand.

_____

If you would like to enter the prize draw to have a chance to win one of three $300 Prezzy cards, please fill in the details below:

- ○ Name (1) _____
- ○ Email (2) _____
- ○ Phone (3) _____

Appendix B: Graphical Comparisons between Survey Responses from 2022 and 2024

This Appendix includes comparisons between responses from the 2022 and 2024 surveys as presented in the previously provided figures. Questions that could did not have meaningful alignment were omitted from this set of comparisons.

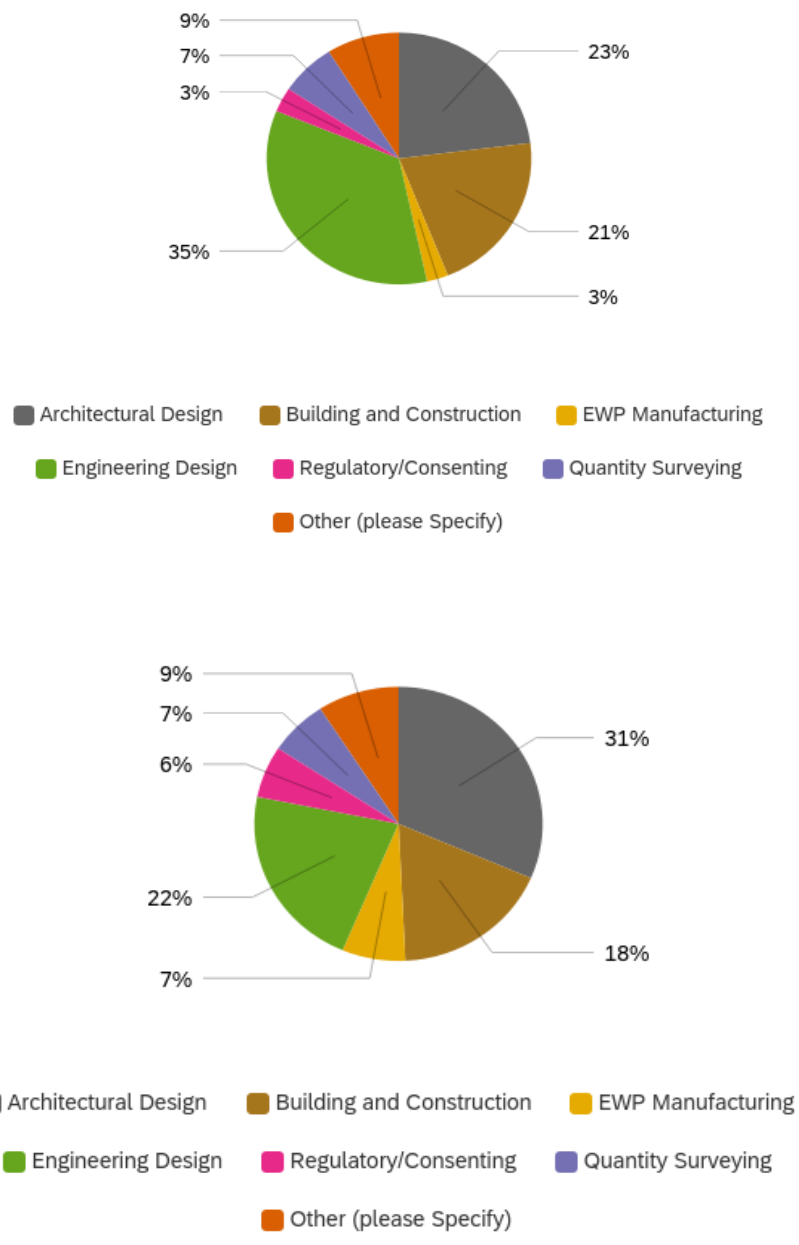

Figure 23. Professions of Survey Participants (2022 Survey Top, 2024 Survey Bottom)

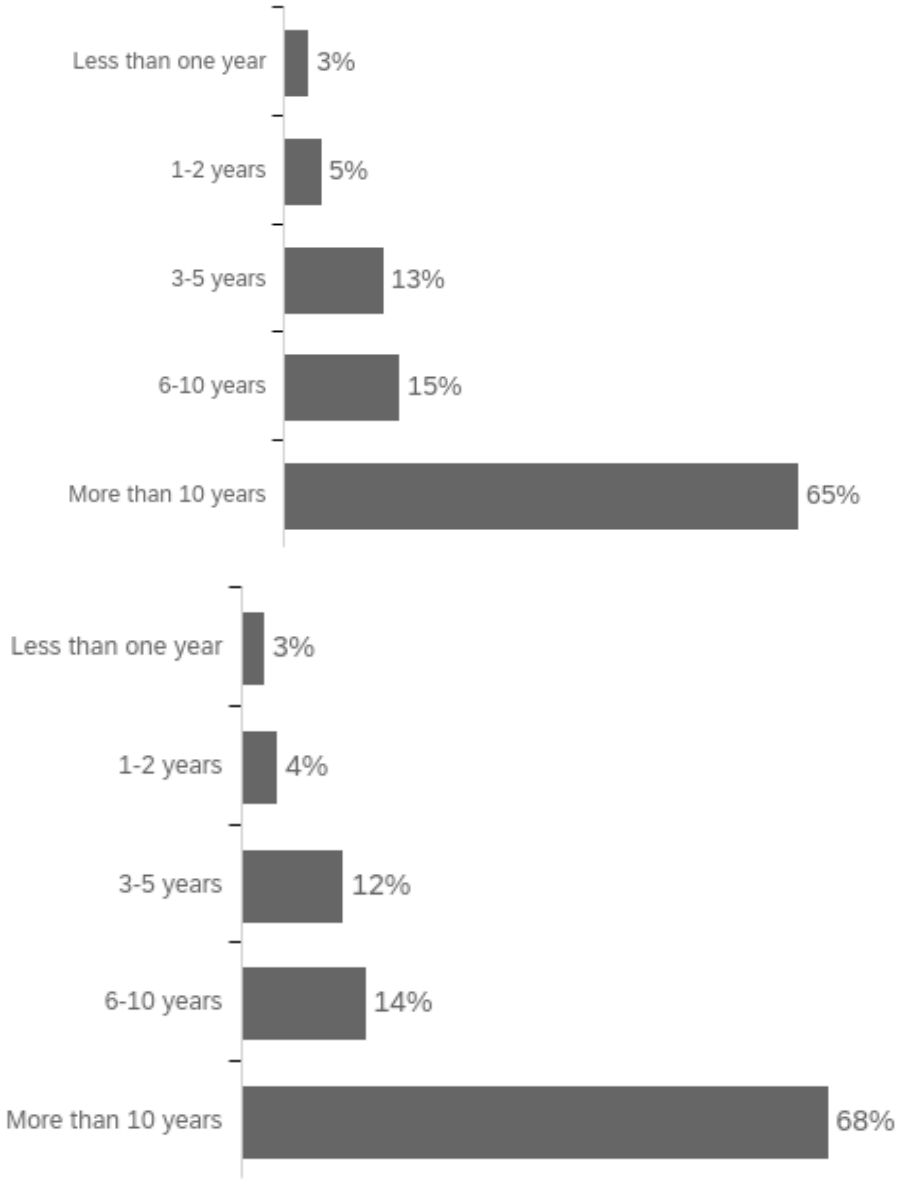

Figure 24. Number of Years in Current Position (2022 Survey Top, 2024 Survey Bottom)

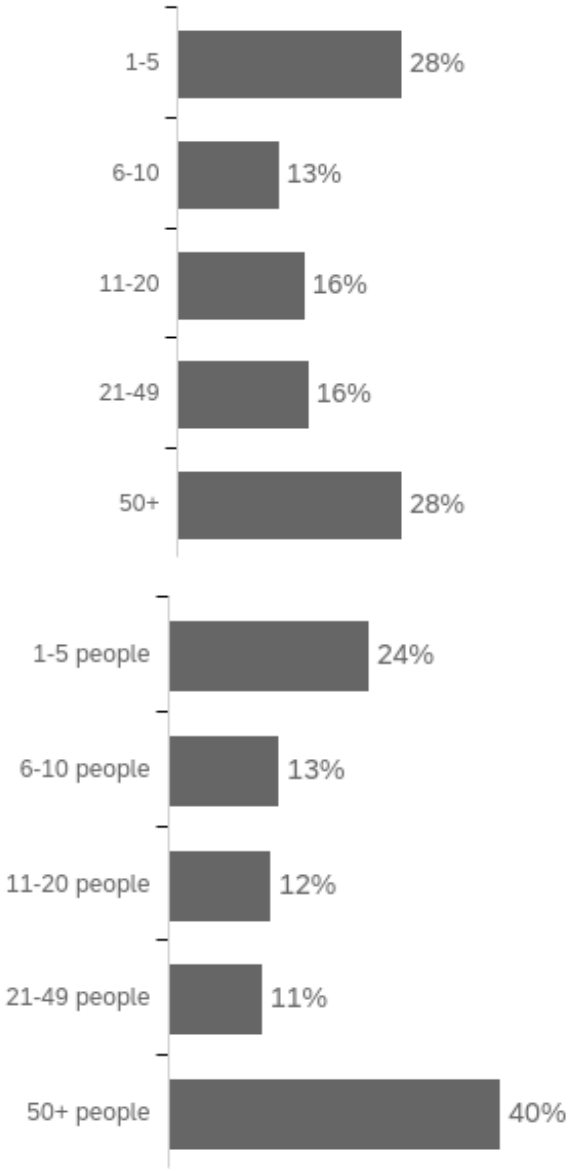

Figure 25. Size of Company Participants Work for in Terms of Employees (2022 Survey Top, 2024 Survey Bottom)

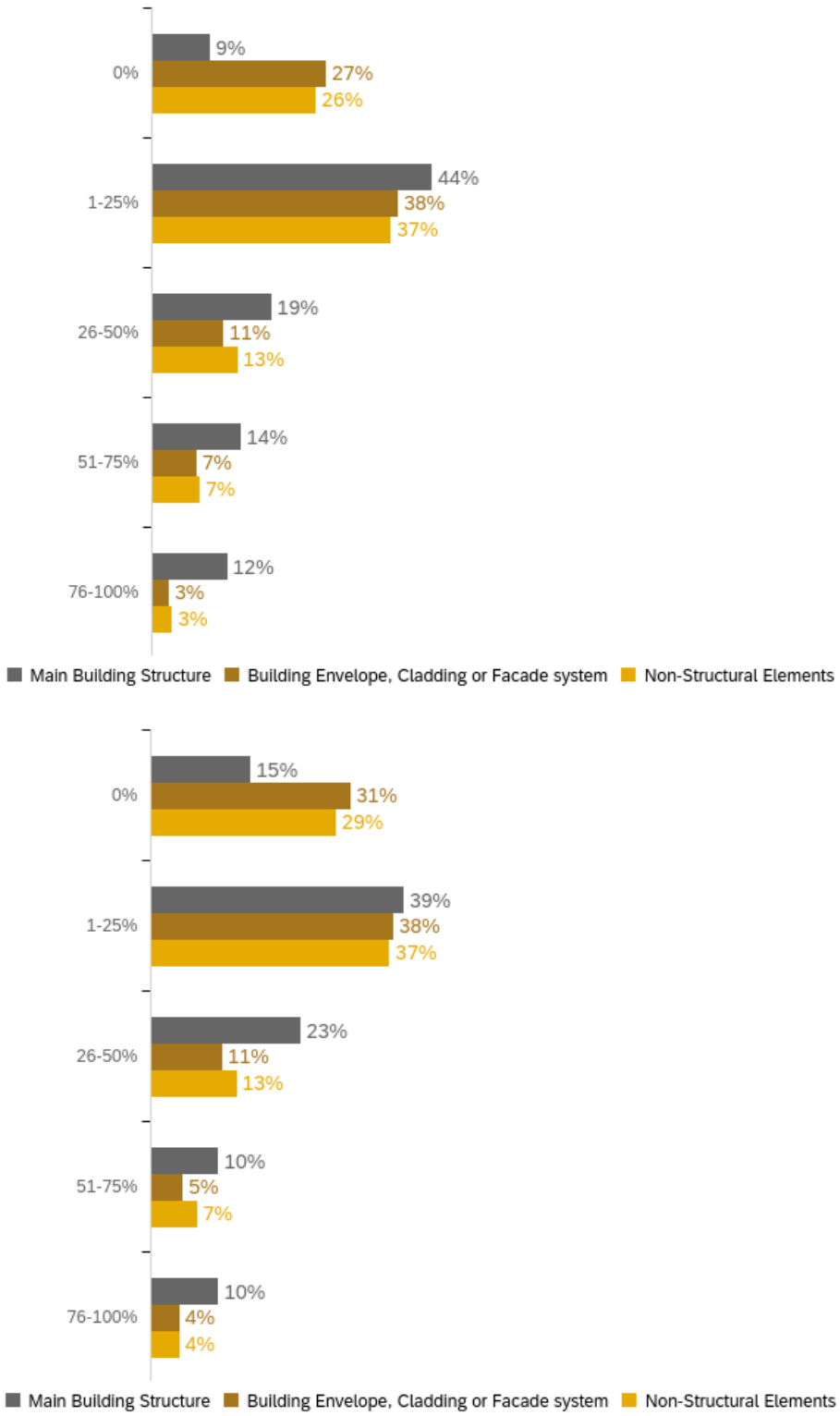

Figure 26. Percentages of Building Components Included over the Past 12 Months (2022 Survey Top, 2024 Survey Bottom)

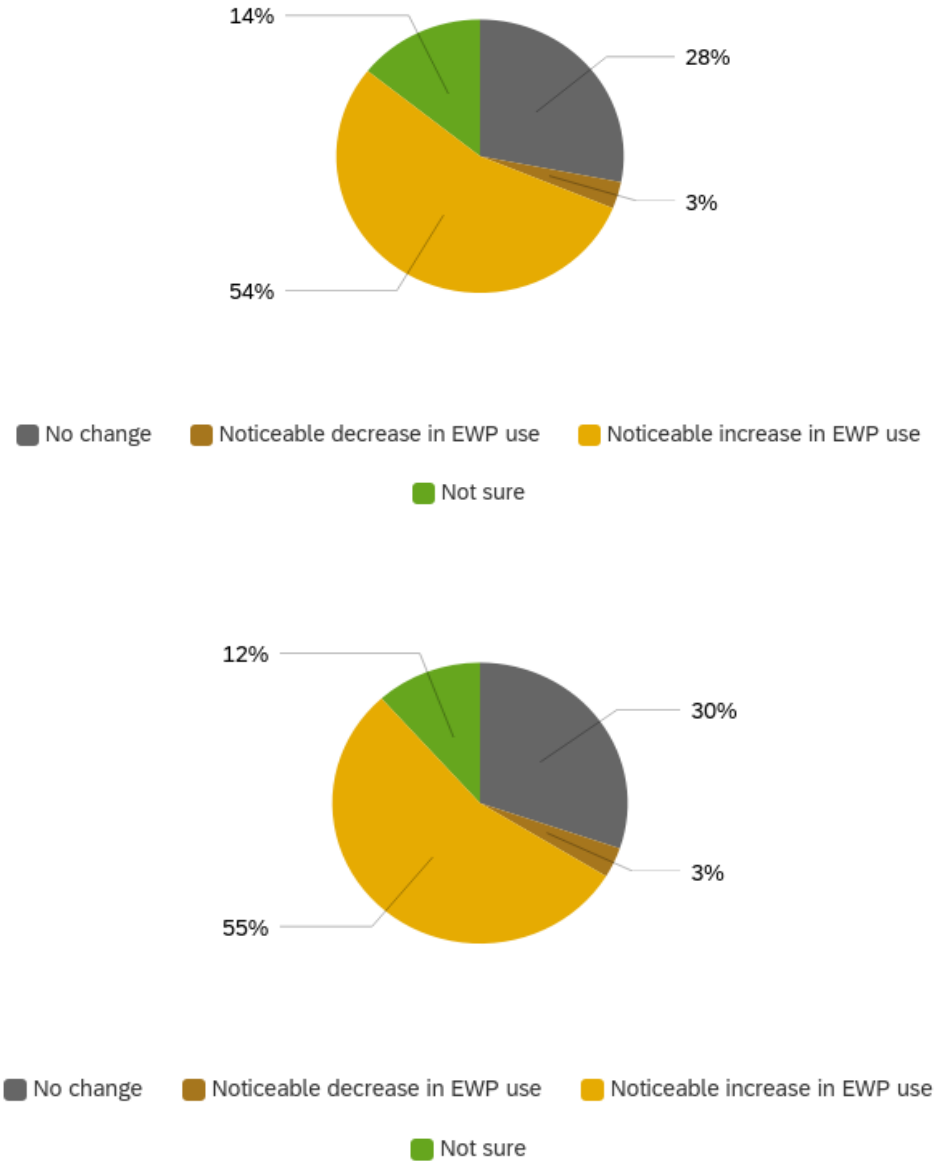

Figure 27. Changes in Projects Using EWPs over the Last Three Years (2022 Survey Top, 2024 Survey Bottom)

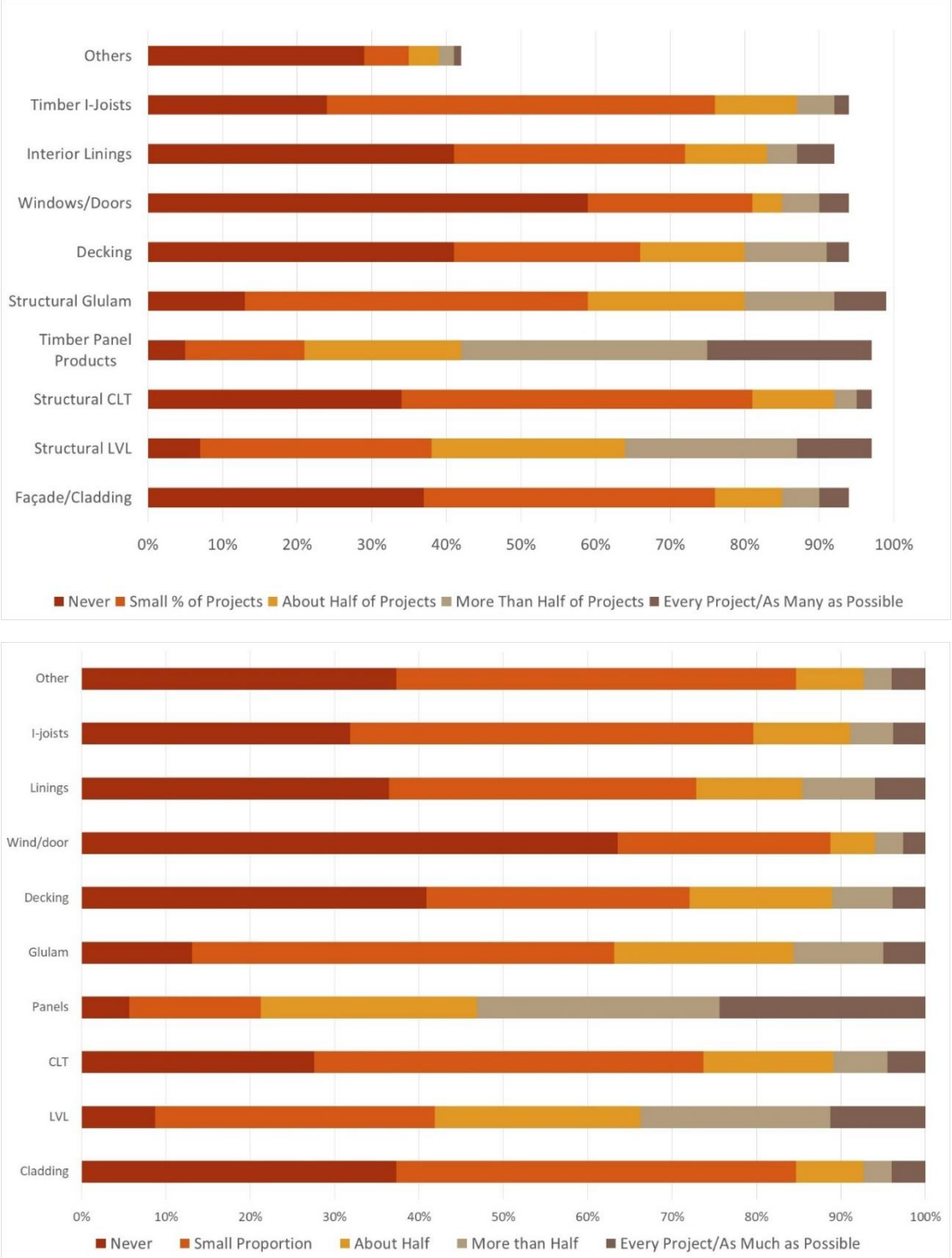

Figure 28. Levels of Regularly Used EWPs (2022 Survey Top, 2024 Survey Bottom)

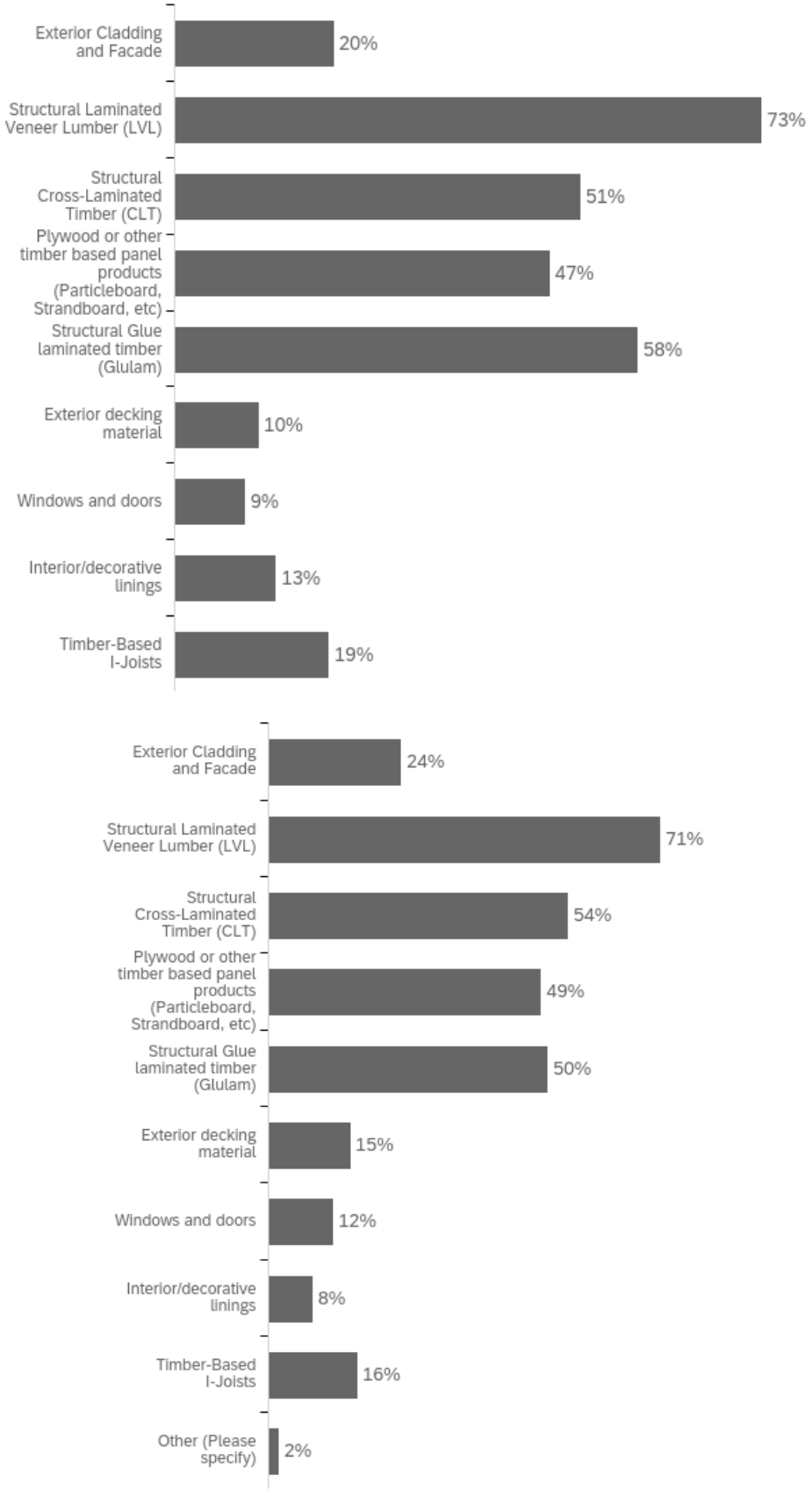

Figure 29. The Top Three EWPs That Respondents Would Like to be Using More Often (2022 Survey Top, 2024 Survey Bottom)

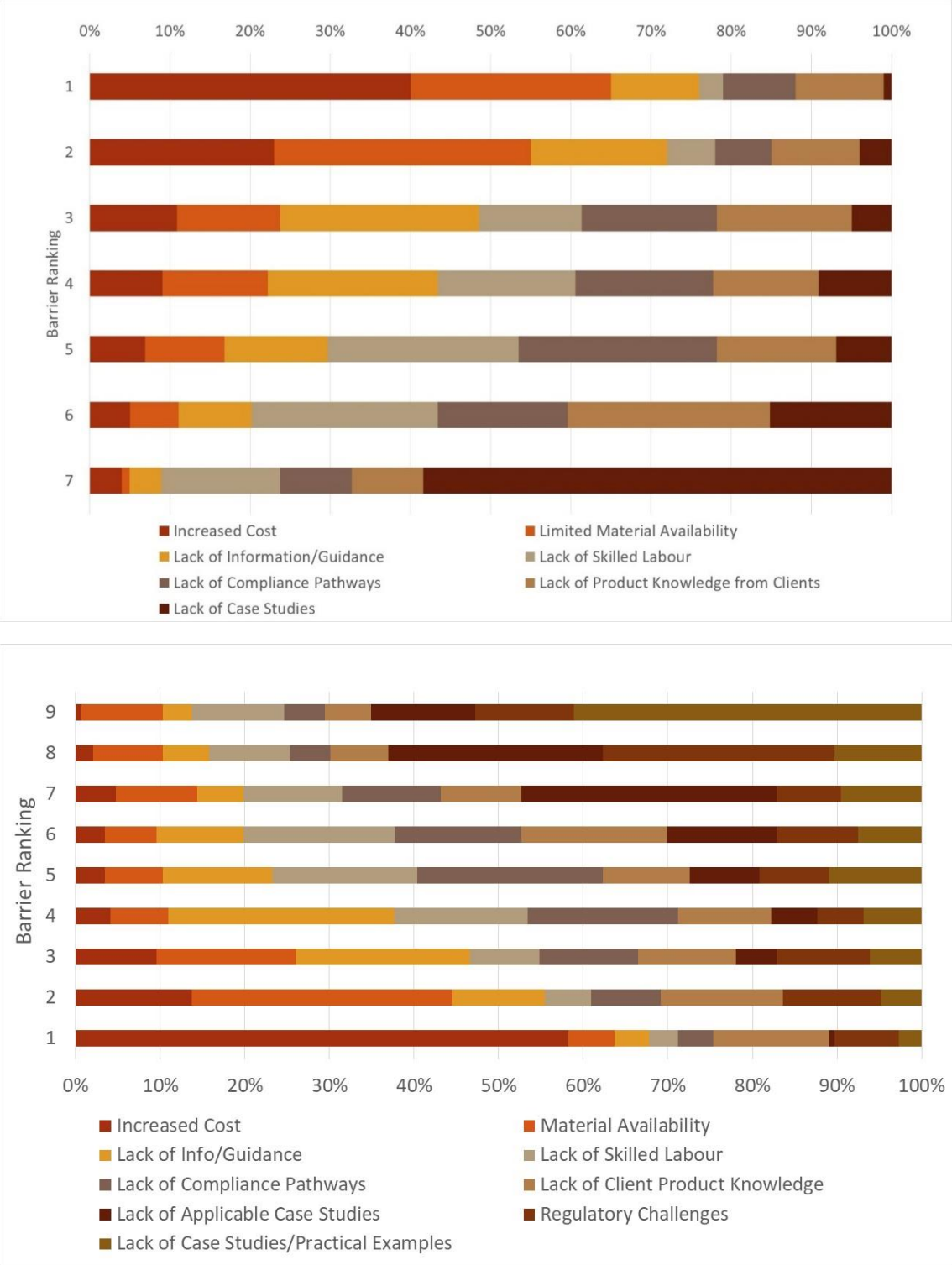

Figure 30. Ranking of Potential Barriers: 1 = Greatest Barrier; 7 or 9 = Smallest Barrier (2022 Survey Top, 2024 Survey Bottom)

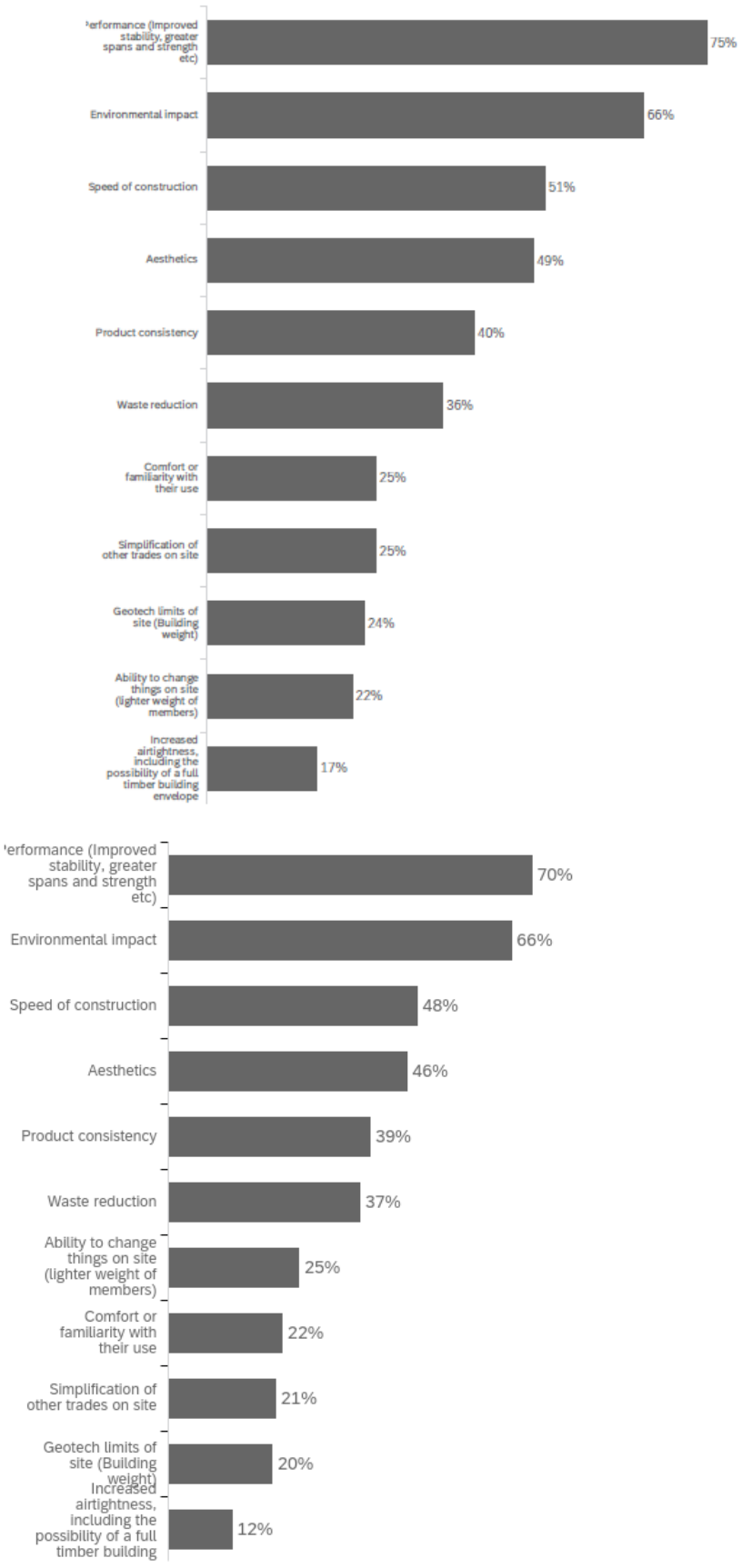

Figure 31. Reasons for Preferring to Use Top Three EWPs (2022 Survey Top, 2024 Survey Bottom)


The Building industry
1%
2%
9%
42%
47%
Building end users
1%
18%
48%
33%
Quality of New Zealand's building stock overall
5%
28%
30%
37%
Easing the housing shortage in New Zealand
1%
5%
45%
34%
16%
Increasing utilisation of value-added products from New Zealand primary industries
3%
12%
42%
43%
Reducing greenhouse gas emissions/Reducing the carbon footprint of the built environment.
1%
3%
21%
27%
47%
Increasing the ability to provide prefabricated building solutions for New Zealand
1%
3%
20%
41%
35%
Very Detrimental
Somewhat Detrimental
Neither/Neutral
Somewhat Beneficial
Very Beneficial

Figure 32. Benefits and Detriments to Using More EWPs in New Zealand Buildings (2022 Survey Previous Page, 2024 Survey This Page)

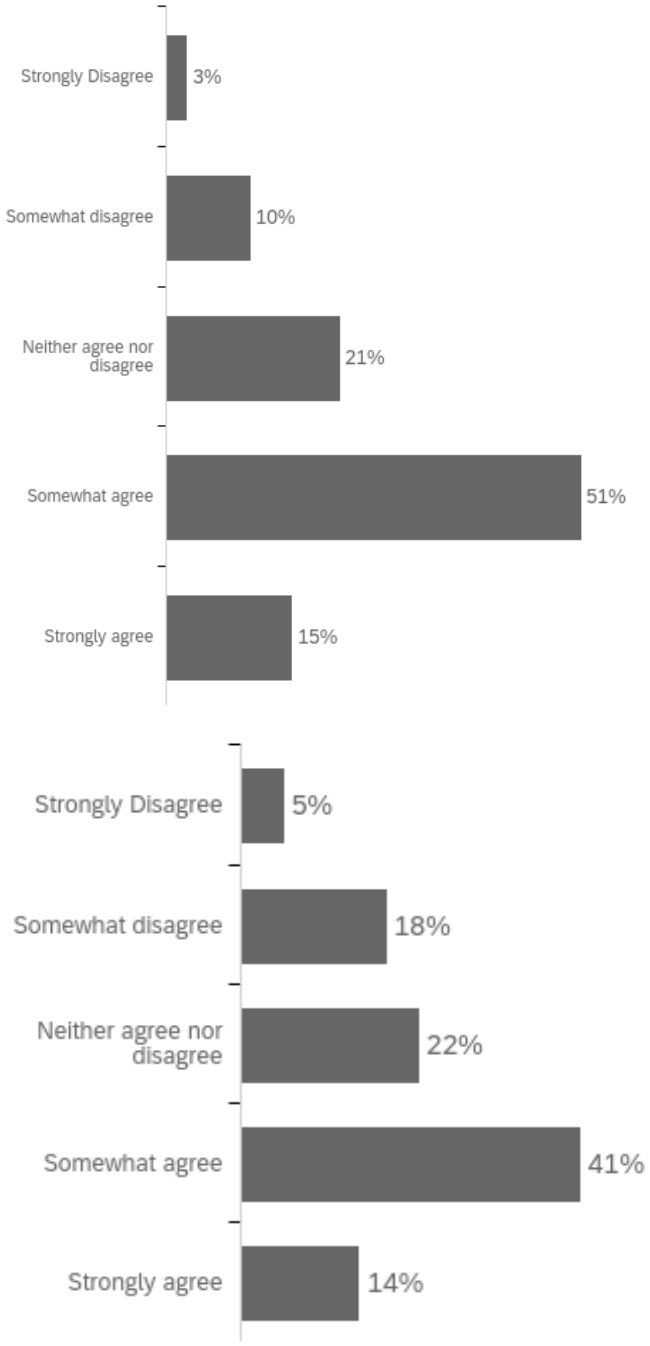

Figure 33. Agreement Levels that Barriers Do Exist to Increased EWP Usage in New Zealand (2022 Survey Top, 2024 Survey Bottom)

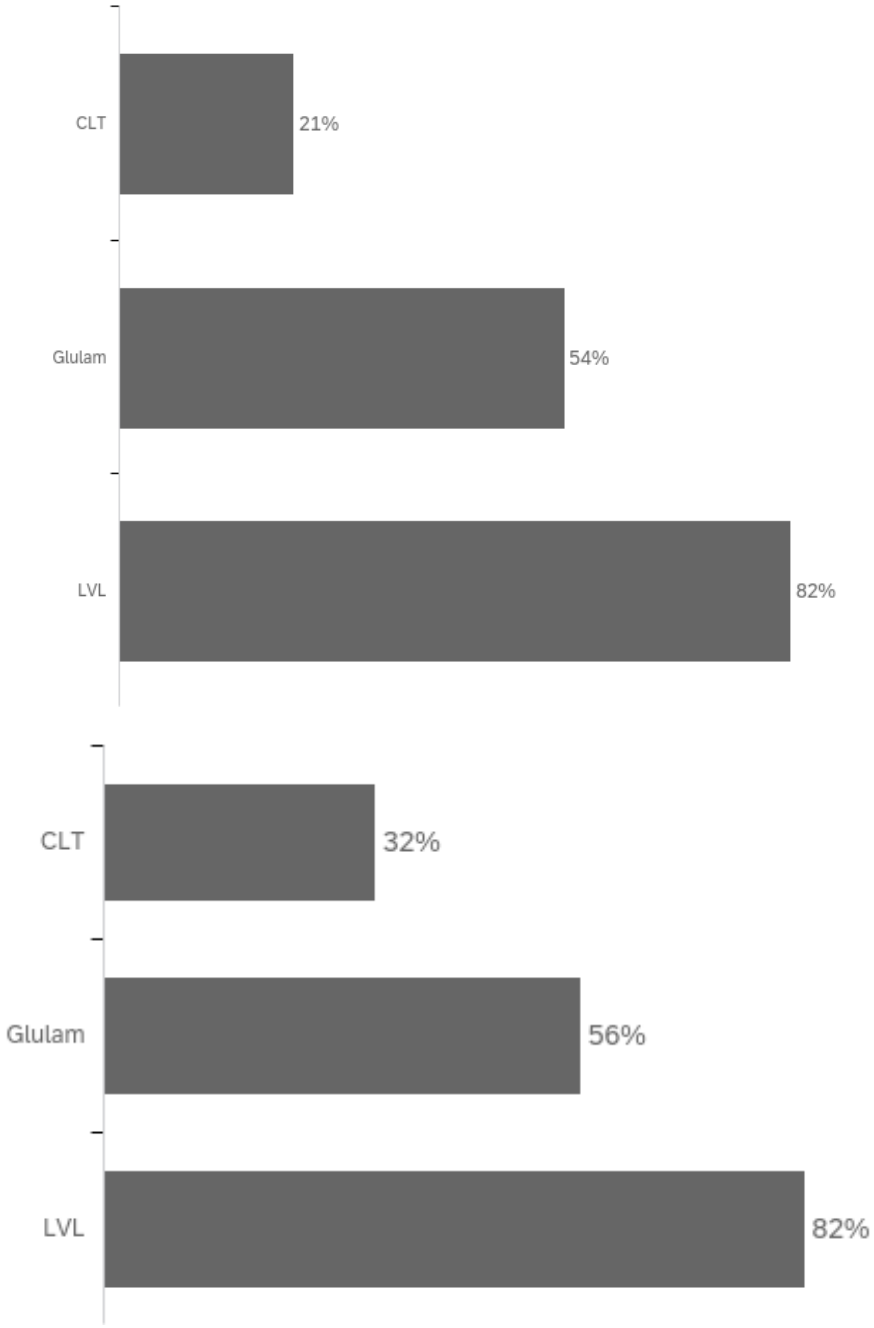

Figure 34. Cost Competitiveness of Mass Timber Options in New Zealand (2022 Survey Top, 2024 Survey Bottom)

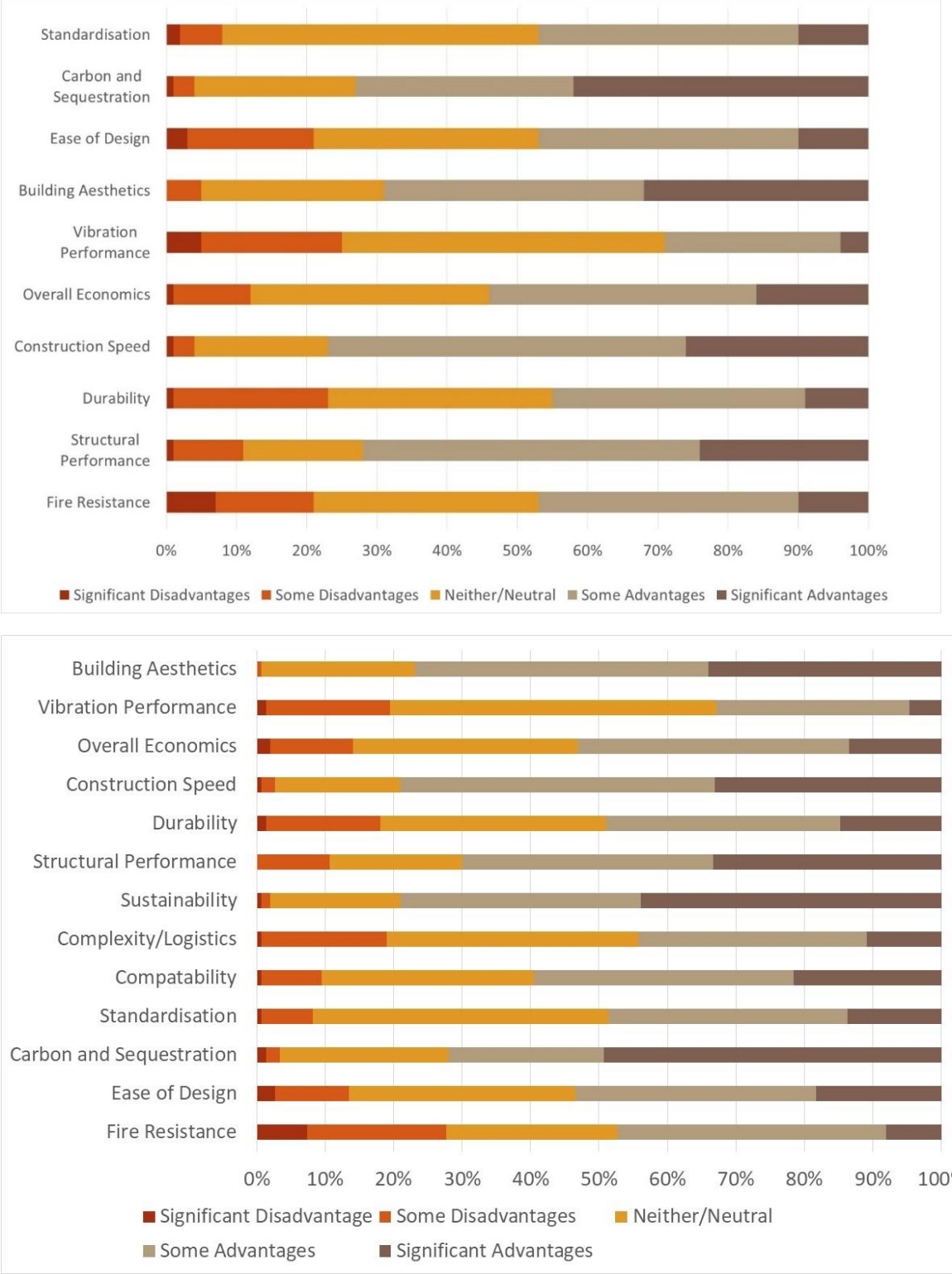

Figure 35. Perceived Advantages and Disadvantages of EWPs Compared to Other Building Products (2022 Survey Top, 2024 Survey Bottom)

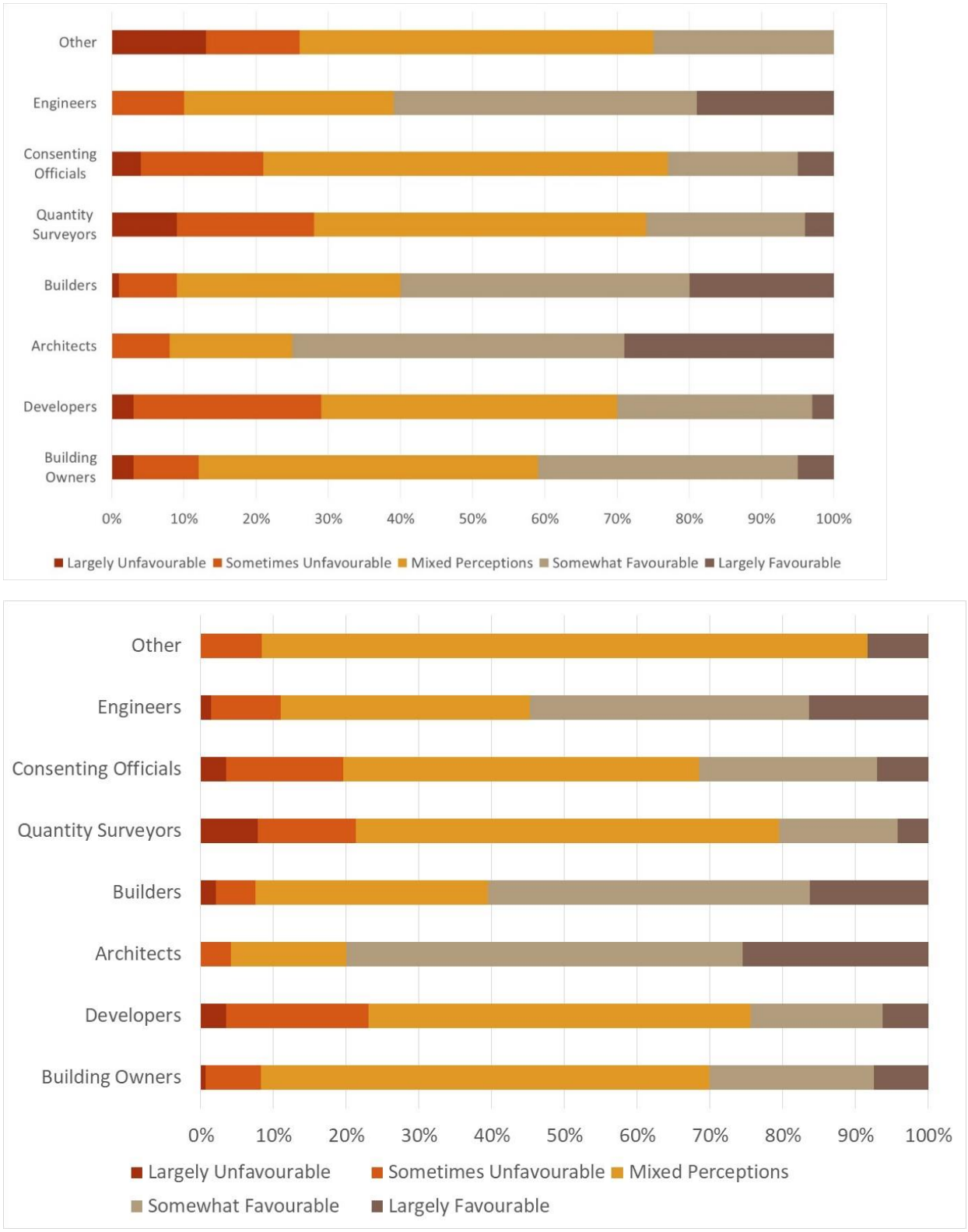

Figure 36. Perceptions of EWPs Encountered Across the Building Sector (2022 Survey Top, 2024 Survey Bottom)

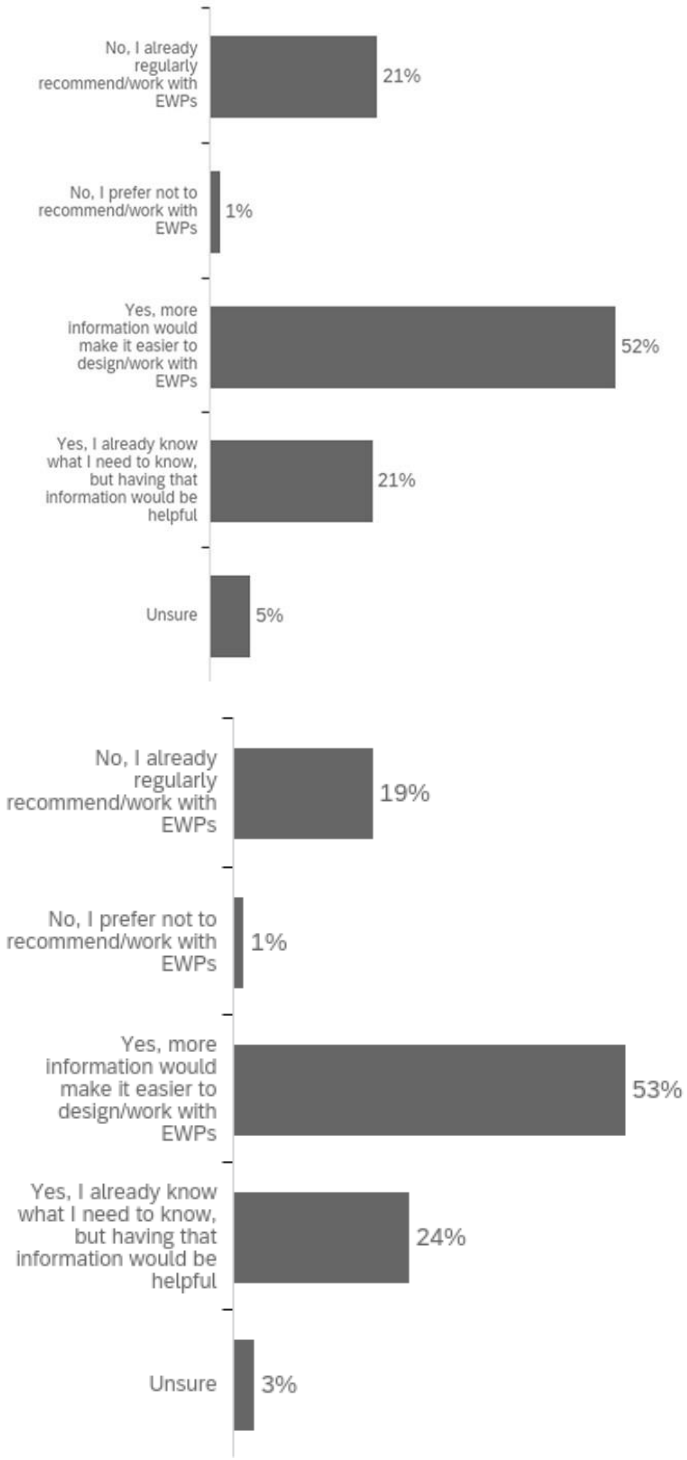

Figure 37. Using more EWPs if Additional Information was Available (2022 Survey Top, 2024 Survey Bottom)

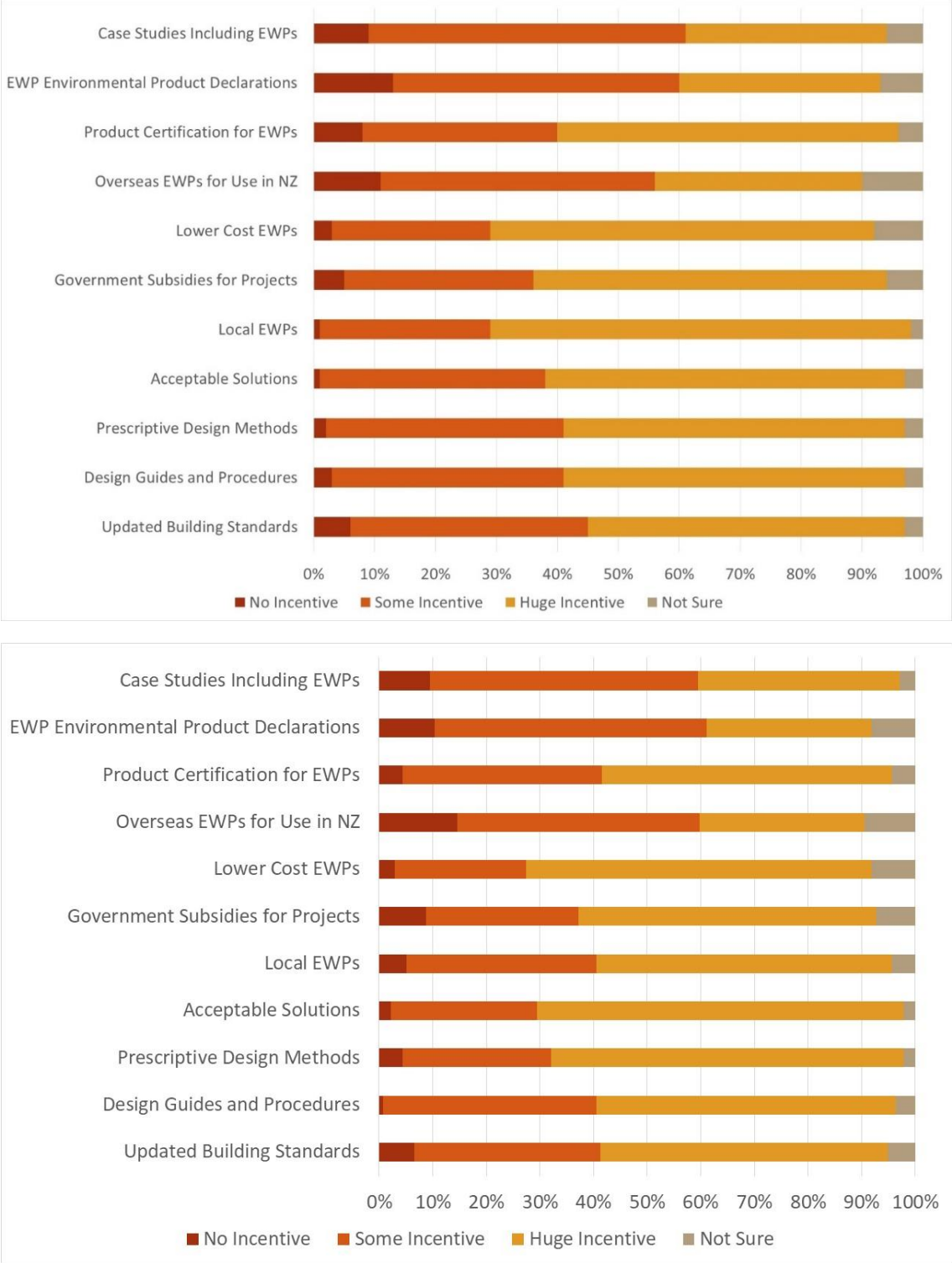

Figure 38. Potential Incentives and Impact for Encouraging EWP Use in New Zealand (2022 Survey Top, 2024 Survey Bottom)

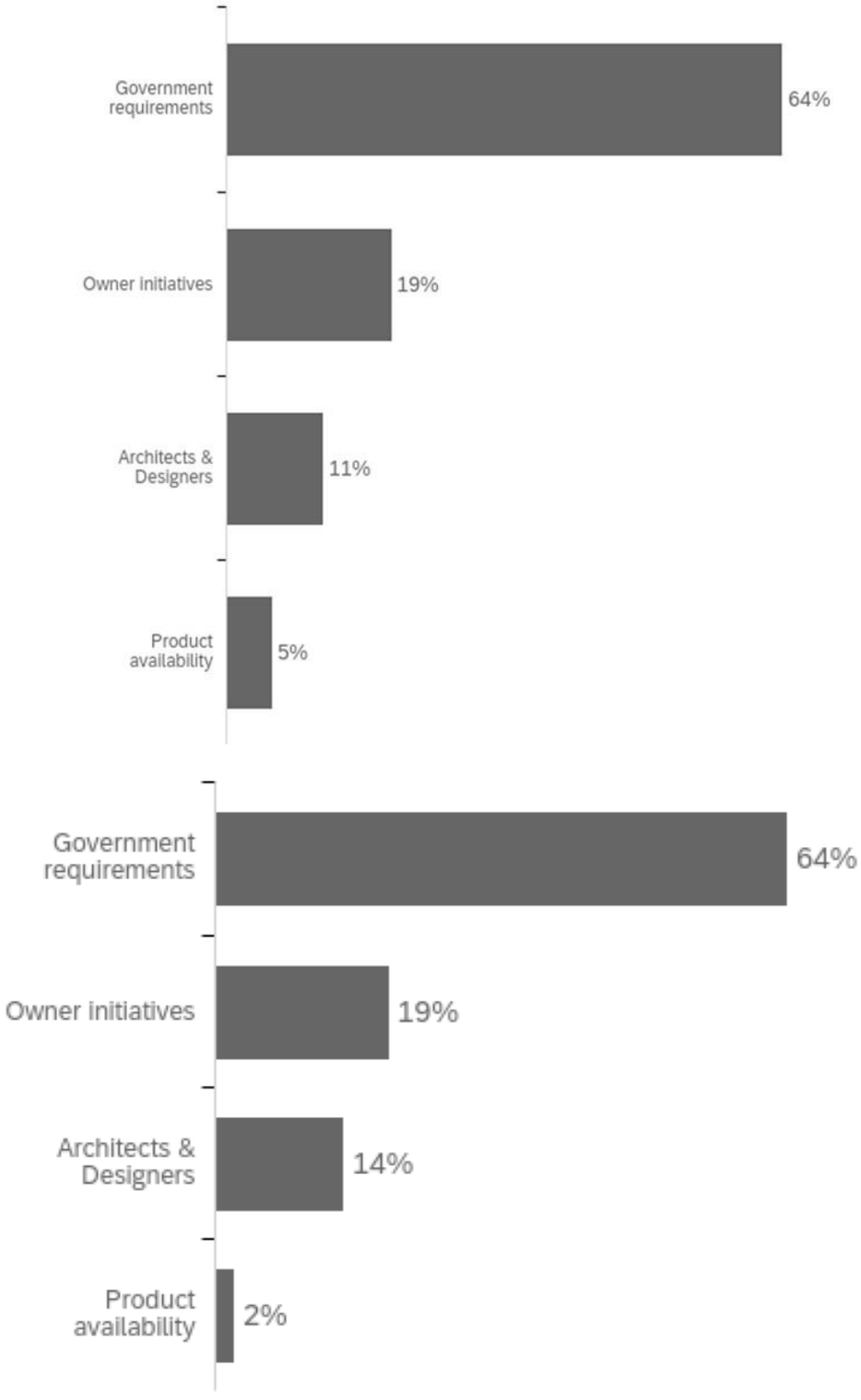

Figure 39. Perceived Industry Drivers for Implementing Mandatory Measuring for Carbon Sequestration (2022 Survey Top, 2024 Survey Bottom)

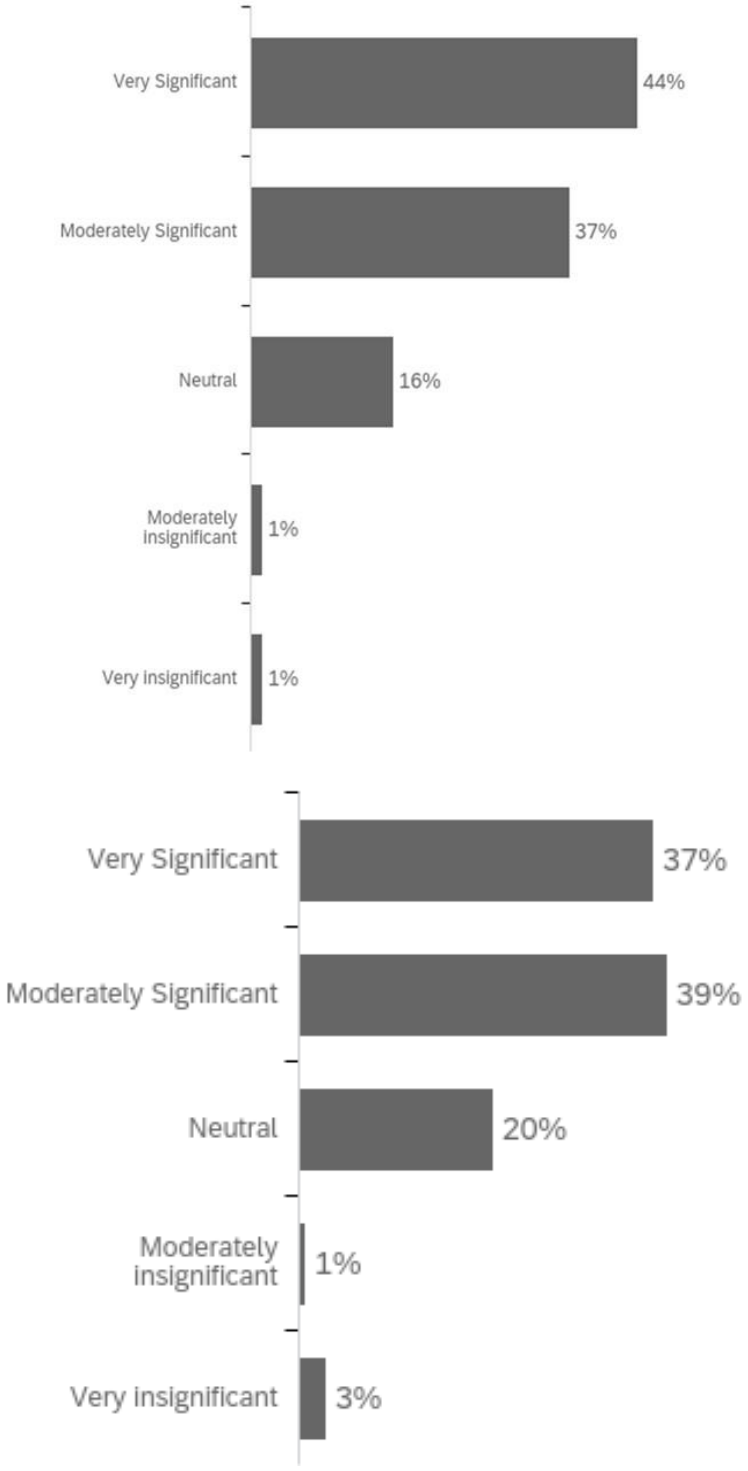

Figure 40. Importance of EWP Usage for Achieving 2050 Carbon Emissions Reductions for New Zealand (2022 Survey Top, 2024 Survey Bottom)