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Consumer housing choices among residents living in wooden multi-storey buildings

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ABSTRACT

Wooden multi-storey construction (WMC) offers an alternative building solution for urban consumers seeking a low-carbon, sustainable lifestyle yet, the literature on consumer experiences in newly constructed WMC-apartments is sparse. This exploratory study develops an understanding about consumer choices with newly built WMC-apartments through thematic interviews of residents and property managers in five cities across Finland and Sweden. Contents analysis reveals that neither building material nor sustainability triggered the residents' initial interest in the new apartment. Residents found WMC appealing but traditional housing choice criteria (e.g. location, floor plan and affordability) guided the ultimate purchasing decision. Notwithstanding, residents expressed that the newly developed neighbourhoods suffered from limited services but trusted that future long-term development would increase service availability. Wood material was experienced as mainly positive and was assessed together with overall aesthetics, sustainability and durability aspects of the building. Residents trusted that the builders considered the apartment's sustainability criteria during construction (e.g. material durability and resistance to changing climate conditions).

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Introduction

Consumer choices in the housing market reflect a complex balancing of the individual's needs and housing preferences against the characteristics of a house and budget (Collen & Hoekstra, 2001; Gibler & Tyvimaa, 2014; Levy & Lee, 2004; Roos *et al.*, 2022). In the context of consumer choices, differentiating between houses and

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the home is important. While houses represent physical frameworks for living, a home comprises both the physical milieu of the house and the daily activities and social interactions carried out by the residents within their living milieus (e.g. neighbourhoods) (Gram-Hanssen & Bech-Danielsen, 2004).

Consumer housing choices are the outcomes of a behavioural process in which the consumer operates under complexity, uncertainty and with poor access to information (Gibler & Nelson, 2003; Hasu, 2018; Mulder, 1996; Marsh & Gibb, 2011). The decision-making process is repetitively constrained by demand-side and supply-side factors (Hasu 2018; Lähtinen *et al.*, 2021; Wong, 2002). Supply side constraints refer to the available characteristics of the housing market, building stock composition, such as the location, price or size of the available homes. Demand-side factors refer to internal constraints limiting the housing search, such as the household budget, available time to search for a new home or deficiencies in knowledge about the housing stock.

During the onset of the housing decision-making process, subjective preferences shape consumers' housing criteria; in turn, initial preferences adapt according to the constraints encountered throughout the decision-making process (Floor & van Kempen, 1997; Hasu, 2018). As a result, the final housing choice may imperfectly reflect the consumer's initial preference criteria (Storper & Scott, 2008; Jansen, 2011). The implication is that housing market trends may be poor indicators of true subjective preferences among consumers. This poses an interesting question for housing markets experiencing rapid supply side changes to the available housing stock, for example due to such external market forces as sustainable development policies or carbon neutrality regulations.

In the context of building and housing, sustainability refers to consideration of environmental (e.g. reductions in carbon dioxide emissions), economic (e.g. increase in resource-efficiency) and social (e.g. consideration of life-styles and well-being of residents) (Chiu, 2004; Hagbert & Femenías, 2016; Kates *et al.*, 2005). Yet, despite consideration of human-centred aspects in sustainability seeking, the literature recognizes hassle factor as a potential psychological barrier for consumers to choose sustainable housing (de Vries *et al.*, 2020; Roos *et al.*, 2022).

One interesting development shifting the supply-side of the housing market is the advent of wooden multi-storey construction (WMC), a suite of building solutions that employ engineered wood products as the structural-load bearing frame of a multi-storey building project (Ramage *et al.*, 2017). These building solutions provide an alternative to traditional multi-storey building solutions employing concrete and steel elements (Urban, 2012). Exemplary products of WMC are wooden multi-storey buildings, defined as residential apartment buildings of four or more stories.

In a global context, engineered wood products are seen as a prominent option to substitute emission intensive construction materials, such as concrete and steel (Gustavsson *et al.*, 2010; Geng *et al.*, 2017; Lavagna *et al.*, 2018). The possibilities for sustainability change through increase in the use of wood are especially high in multi-storey construction (e.g. Churkina *et al.*, 2020), which is estimated to contribute to the highest increase in the stock of building materials all over the world by 2050s (Marinova *et al.*, 2020). However, from the early 1900s until late 1990s WMC was restricted by forbidding regulations in many countries all around the

world (Hurmekoski *et al.*, 2015; Urban, 2012; Waugh & Waugh, 2015). As a result of that, WMC is a relatively new phenomenon cropping up both in Europe and other regions. Nowadays, for example, various European countries support the uptake of WMC as a means to mitigate climate change (Sathre & Gustavsson, 2009; Toivonen *et al.*, 2021; Vihemäki *et al.*, 2019).

In Europe, Finland and Sweden present two interesting case countries of housing markets experiencing changes to the available wooden multi-storey building stock (for market figures, see: Franzini, 2022; Roos *et al.*, 2023). In addition, compared to many other countries, Finland and Sweden have strong traditions in building wood in the detached housing sector (Schauerte, 2010). What remains unknown is how consumers residing in these countries experience the arrival of wooden multi-storey buildings to the housing market, since preferences for urban lifestyle, for example, may affect consumer views on building with wood (e.g. Lähtinen *et al.*, 2021). Related to this, the focus of this study is to assess, how do consumers balance their subjective preferences against the sudden availability of this new housing stock? Similarly, what sense do they make of living in such novel milieus? Discerning these questions is challenging given that the research on wooden multi-storey buildings primarily tackles topics of supply-side production rather than demand-side preferences or perceptions (Gosselin *et al.*, 2016; Jussila *et al.*, 2022).

As an additional shortcoming, the available literature on consumers' perceptions towards wooden construction is founded on utilizing mainly survey data (e.g. Aguilar *et al.*, 2023; Harju & Lähtinen, 2022; Larasatie *et al.*, 2018; Lähtinen *et al.*, 2021; Lindblad & Gustavsson, 2020; Lähtinen *et al.*, 2023; Roos *et al.*, 2023; Viholainen *et al.*, 2020). As an outcome of that, their results have provided useful information on the general perceptions and views of citizens on building with wood, but not insights on actual experiences of residents in multi-storey wooden buildings. Meanwhile, there are only few studies on preferences from end-users with experiences living in wooden multi-storey buildings (e.g. Kylkilahti *et al.*, 2022; Karjalainen & Ilgin, 2022; Lindblad, 2019; Viholainen *et al.*, 2020).

Although the market development for wooden multi-storey residential buildings in the Finnish and Swedish housing market is still underway, both countries are experiencing rapid changes in their industrial wood construction activities, fostered by both ambitious climate targets and long-standing wood building traditions (Jussila *et al.*, 2022). An increasing interest towards WMC activity is fostered by promotional and development programmes established by the national government (Lazarevic *et al.* 2020; Roos *et al.*, 2023). In tandem to this national push, a large body of research about the business development for wooden multi-storey buildings has amassed (e.g. Kylkilahti *et al.*, 2022; Pelli & Lähtinen, 2020; Toppinen *et al.*, 2022; Viholainen *et al.*, 2020; Vehola *et al.*, 2022). The availability of research results based on housing experiences from residents living in wooden multi-storey buildings is small, although WMC offers an alternative building solution for urban consumers seeking a low-carbon, sustainable lifestyle (Harju & Lähtinen, 2022). A key to enhance WMC market development is to have profound understanding of residential housing choices (Jussila *et al.* 2022; Lähtinen *et al.* 2023).

In light of the literature gap on consumer housing choices for wooden multi-storey buildings, this study qualitatively explores the housing decision-making process of

residents occupying those buildings. The process is explored using thematic interviews eliciting the consumer's subjective preferences for various housing attributes (Jansen, 2011) across the decision-making process (Hasu, 2018). Since the novelty of these buildings rests with their low-carbon wooden materials, the thematic emphasis is on the role of sustainability issues and building material preferences during the decision-making process. The research questions of this study are:

1. What housing attributes did the occupants emphasize throughout the process of choosing a new home?
2. What kind of experiences did the occupants have with the housing attributes after living in the building?

The article is structured as follows. The Literature review describes previous research on housing preferences for wooden multi-storey buildings. The Methods and Data section details the housing preferences literature used to build the conceptual framework underpinning the semi-structured interview guide and data analysis, the data collection process and the data analysis process. The Results section details findings according to each dimension of the conceptual framework. The Discussion section presents findings in relation to the previous literature on housing preferences of Finnish and Swedish residents with special regard to aspects unique to multi-storey living.

Background on consumer perceptions for wooden construction

For residents, it is understood that housing preferences do not always mirror the final housing choice (Vasanen, 2012; Hasu, 2018). According to Kauko (2006) the functionality and spaciousness of the house itself matters together with location, depending on the characteristics of the local built environment (e.g. availability of everyday services due to population density). In terms of choice criteria, an apartment's suitability to residents' living status, location, affordability and functionality of the floor plan has also been identified as the main criteria for Finnish residents living in wooden multi-storey buildings (Karjalainen & Ilgin, 2022). Similarly, location was also assessed as an important factor in a recent study in Sweden. (Lindblad, 2019). Compared to other European countries, a special characteristic of the Nordic housing markets is the large proportion of owner-occupied housing in the form of owning a detached house, owning a share of a housing company or being a member of a housing co-operative (Andersson *et al.*, 2007). In all, locational quality aspects together with tangible features of the apartment and building itself have been found to be important for residents making housing choices.

Research on consumers' perception of wooden materials find that wood is perceived as a natural and environmentally friendly material (Jonsson *et al.*, 2008; Gold & Rubik, 2009; Høibø *et al.*, 2015; Harju & Lähtinen, 2021, 2022). In a US-based survey, consumers not only have expressed many positive perceptions on WMC, especially regarding aesthetic values, healthiness and environmental sustainability but they also associated higher risks to the WMC buildings in comparison with other framing materials, i.e. related to finances and fire (Larasatie *et al.*, 2018). In

a comparative study by Schauerte (2010), consumers' perceptions of durable products (associated with WMC) were explored in the context of Sweden and Germany. The findings implied that age, income level and place of residence all had a significant influence on the consumers' perceptions on WMC qualities. Overall, the Germans emphasized environmental issues more than the Swedish consumers, whereas the Swedish associated higher construction costs (i.e. financial disadvantage) with WMC.

A case study from the Swedish 'wood town', Våxjö by Mark-Herbert *et al.* (2019) further explored perceived advantages and level of knowledge on wood as a construction material among apartment owners in WMC and the factors influencing their decision-making. The consumers had a limited knowledge of the benefits related to wood and only a moderate understanding of environmental sustainability benefits associated with WMC. In terms of the choice making, the results indicated location as highly important, as well as the size, price and atmosphere, whereas environmental features were found not to be important for most of the residents.

With the current high-energy efficiency requirements in new residential construction, to achieve sustainable housing, more attention has to be paid to material aspects, which have had limited attention in the literature (Lima *et al.*, 2021). A good comprehension of consumers' preferences in their housing choices, especially in the context of new dwellings, is also of great importance for companies seeking new business models and potential to add value in the production (Hasu, 2018; Jussila & Lähtinen, 2020; Lähtinen *et al.*, 2023). For example, communication and engaging consumers to development of business practices in sustainable housing have been found as opportunities for wood building (Kylkilahti *et al.*, 2022).

Methods and data

There are various approaches for studying consumer decision-making processes. Neoclassical economic approaches rely on utility theory; however, these models have the shortcoming of only examining the outcome of consumer decisions (Gibler & Nelson, 2003). Another approach draws from the psychology discipline and uses a lifestyle approach, that identifies *value* as a key criterion driving choice (Jansen, 2011, 2014; Kersloot & Kauko, 2004; Kauko, 2006; Salama & Sengupta, 2011). For example, housing attributes represent a form of value for consumers and the real estate market (Kauko, 2006). Critically, there is no single heuristic for examining the consumer's decision-making process (Marsh & Gibb, 2011). Hence, methods for consumer research should be decided according to the research aims (Jansen, 2011).

The data collection process for this research sought to collect the consumers' initial choice criteria before occupying the apartment (i.e. subjective housing preferences) to compare them against current experiences (i.e. revealed preference). Typically, comparing stated and revealed preferences is tackled through longitudinal panel studies (Mulder, 1996); however, a longitudinal panel approach was unsuitable given it is unable to forecast who will move into a wooden multi-storey building. Therefore, thematic interviews were conducted to explore how the housing choice decision-making process unfolded.

In this study, interviews were held with occupants who served on the board of the building's housing association and property managers of wooden multi-storey buildings. The choice to interview occupants is self-evident; however, emphasis was placed on collecting perspectives from board members because they represent all residents and their role as decision makers results in greater awareness of the building's attributes. Property managers were included because of their intermediary role with consumers (Peltomaa *et al.*, 2020) may afford them a clearer understanding of housing choice determinants (Levy *et al.*, 2008; Kauko, 2006). In addition, one reference interview was conducted with an occupant of a concrete multi-storey building. These additional groups were included to triangulate the data (Creswell, 2013).

Interview guide development

A thematic interview guide was developed to capture the subjective preferences and experiences evolving throughout the consumers' decision-making process. The guide comprised six themes. The first two themes, *General housing criteria* (Theme 1) and *Current satisfaction with the new home* (Theme 6), elicit housing criteria found across the decision-making process. The interview guide also elicits consumer preferences according to *Locality* (Theme 2), *Physical attributes of the house* (Theme 3), *Sustainability* (Theme 4) and *Services of the house* (Theme 5). The interview guide together with interview consent notice are found in [Appendix A](#) and [Appendix B](#).

The focus on themes 2–5 was developed using various consumer housing literature. *Locality* and *Physical attributes of the house* are dimensions commonly cited as driving consumer housing preferences (Marsh & Gibb, 2011). Physical attributes of a house reflect valuation topics of neoclassical economic theories, such as property type and size (Gibler & Nelson, 2003). Locality can be deconstructed to a number of attributes relating to the features surrounding the property, such as neighbourhoods. These attributes may be labelled in various ways, such as geophysical features (e.g. proximity to forest, water sources), socioeconomic features (e.g. proximity to private and public services) or sociocultural features (e.g. proximity to community members, family). Kauko (2006) identifies locality and physical attributes of the house as the two primary dimensions driving property value. Note that at that time, Kauko (2006) did not include *Sustainability* in his property value frameworks but has since argued for its inclusion (Lorenz *et al.*, 2017). Furthermore, *sustainability* is identified as a relevant theme to the research given that supply-side actors are found to have different views about the sustainability of wooden- and concrete-multi-storey buildings, for example, environmental criteria (Franzini, 2022; Lima *et al.* 2021, Salmi *et al.* 2022). Likewise, consumers hold distinct views on the benefits of wooden products and perceived usability of wood construction (Lähtinen *et al.*, 2019; Viholainen *et al.* 2020).

Data

In the first phase of data gathering, potential case cities were scanned based on availability of relatively new wooden multi-storey residential buildings in Finland

and Sweden. The aim was to include in the interviews residents living both in owner-occupied and rental buildings. After the scanning process, five case cities were selected in Finland and Sweden.

In the second phase of data gathering, potential interviewees living in approximately 40 buildings located in the Finnish and Swedish case cities were contacted. After contacting, interviewees living in seven wooden multi-storey buildings and one concrete multi-storey building were willing to participate in the study. The data collection took place between December 2021 and June 2022 and they comprised 10 semi-structured interviews. Some interviews included multiple interviewees living in the same household or residing in the same building, and each interview session lasted approximately 45 min. After 6 or 7 interviews, similar issues began to be repeated in the discussions, indicating data saturation in reference to the thematic interview guide of the study (see, e.g. Saunders *et al.* 2018). Table 1 presents the details of the interviews.

Content analysis

The interview data was analysed using quantitative content analysis (Schreier 2012). The analysis employs the use of a hierarchical coding framework to answer the main research questions. The framework may be theory-driven, data-driven, or both. In this study, the research questions seek to identify housing attributes preferences across different phases of the consumer's decision making process. Using a theory-based approach, a coding framework was developed on different categories of housing attributes following Kauko's (2006) attribute model, which includes locational and physical qualities of a home. Meanwhile, five different phases of the decision-making process were designated following Hasu's (2018) criteria, which builds upon the two-stage approach (Wong, 2002) and three-stage approach (Mulder, 1996; Marsh & Gibb, 2011) to the housing decision making process. The final coding framework included 16 housing attribute subcategories and five housing phases subcategories.

After the coding framework was developed, it was applied across the data in a systematic protocol. First, the transcribed data was segmented to identify relevant portions of the interviews that address the research question (i.e. discussions about

Table 1. Interview participants' according to case study.

Interview	City, country	# of interviewees	Interviewee role	Building ownership	Length	Date
1	Tampere, FI	2	Residents	Owner-occupied	40 min	14.12.2021
2	Turku, FI	3	Residents	Owner-occupied	47 min	24.2.2022
3	Turku, FI	1	Residents	Owner-occupied	36 min	9.3.2022
4	Tampere, FI	1	Property manager	Right-of-occupancy	45 min	3.5.2022
5	Vantaa, FI	2	Property manager	Rental	45 min	10.5.2022
6	Tampere, FI	2	Residents	Rental	42 min	31.5.2022
7	Tampere, FI	1	Property manager	Rental	42 min	3.6.2022
8	Växjö, SV	1	Residents	Owner-occupied	46 min	20.4.2022
9	Växjö, SV	1	Residents	Owner-occupied	101 min	20.4.2022
10	Uppsala, SV	2	Residents	Owner-occupied	34 min	29.6.2022

housing attributes); finally, all segments were coded with a category from the coding framework. Critically, no two subcategories from the same major categories were used to label the same segment. In other words, each segment of code could only receive one *housing attribute* subcategory label and one *housing phase* subcategory label. Once all the segments were coded, interrelationships between the categories were analysed to find meaningful answers to the research questions. The full coding framework and criteria for applying labels to a segment are provided in [Appendix C](#).

Results

A general overview of the different housing attributes topics discussed across the interviews is presented in [Table 2](#) together the co-occurrences between the housing attribute subcategories and housing phase categories. Following, the result presents expanded findings on the housing attributes emphasized according to each phase of the housing decision making process.

The following [Table 3](#) highlights different housing attributes co-occurring during the five decision-making phases. It shows co-occurrence of revealed housing attributes in interviews (rows) in the various decision-making process elements (columns). The value indicates how many segments of code were labelled with the subcategory on both the X and Y axes. For example, there are two segments labelled with both the code 2.1.2 Accessibility to important areas and 1.1 Trigger.

Trigger phase

Several interviewees reported that changes to the household's situation led to a desire to move (i.e. Interviews 1, 2, 3, 6, 9, and 10). Discussed alongside this desire to move was the need to satisfy certain housing attribute criteria. For example, people in Interview 6 discussed changes in the family's working life from COVID-19 leading to a search for a smaller and more affordable home that could also put the family closer to the locations where children pursued their hobbies: *'We used to live far away from everything and one of the most important features was accessibility. That's why we needed an apartment'* (Interview 6). Interview 9 participants shared that a sudden illness in the family led to the spontaneous choice to buy a new home closer to the medical facility providing care for the family member. Meanwhile, a person reporting from Interview 3 considered his own health problems (reduced mobility) and determined that they should move to an apartment building, where maintenance services are taken care of by others. Ultimately, only a handful of housing attributes were discussed. The desire to alter the aesthetics of the building, the building's construction materials or the building's sustainability qualities were never factors that precipitated the desire to move.

Housing specification

Almost all the housing attributes categorized in the coding framework were relevant during the housing specification phase. A common point of discussion that surfaced

Table 2. Categorization of the housing attributes of the residents.

Categories	Examples of housing attributes discussed in the data
Locational quality	
Services (location-related, external to the building)	Local everyday public and private services: grocery store, schools, kindergartens, shopping centre Recreational spaces: restaurants, cafes, sports parks, dog parks, Sanitary service: waste management (e.g. regional pipe collection system, availability of trash cans) Health care services: pharmacy, medical centre, dentist Work and education: business centre, university
Accessibility to important areas	Mobility: public transportation (e.g. bus/tram), transport connections (incl. own car), parking spaces, nearby places of interest (e.g. by foot or bike) Social reachability: closeness to family, other cities (e.g. capital area/family/summer cottage)
Social factors	Ambiance in the neighbourhood: coziness, attractiveness, peaceful, relaxed Life-style characteristics: youthful area, 'neutral area', 'housing heaven', personal appreciation Social characteristics: community, diversity of residents, 'enlightened residents' Negative characteristics: traffic noise, unrest
Physical environments/milieu	Milieu: city centre, urban area, harbour, old industrial area, university campus Proximity to nature (e.g. nice park, lake-/river-/seaside, forests), outdoor trails Feelings: newness, familiar area, developing area, 'nice area', density
Physical attributes	
Services (connected to- or available- in the building)	Shared spaces: storage spaces, laundry room, bike storage, vehicle parking, sauna, communal spaces, guest apartment, common patio/yard, shared courtyard house, recycling room Building services: mail pick-up boxes, maintenance services, waste management, accessibility for reduced mobility, residents' committee
Material of the building	Importance: Not a deciding factor, 'wooden house is a nice thing', 'extra bonus', 'became a criteria', nothing extraordinary, good choice Sustainable: ecological, renewable material, domestic material Positive attributes: allows alterations to own apartment, warmer feeling Negative experiences: house lives and sways, some cracks in corners, risk assessment, warranty repairs, wood is not visible
Durability of building	Quality: 'seems high-quality materials', long-lasting materials, quality of work, surface treatment for climatic stress, small problems on façade, trust that 'someone else' has taken care of durability issues Functionality, repairability Scepticism of wood material: life-cycle assessment is difficult in advance, safety issues (humidity problems, sound insulation, fire/waterproof), insulation, material choices out of economy
Energy use of building	Importance assessment: 'no significance in decision making', 'have thought about it', 'inability to influence', 'looks good on paper' Heating/electricity: comfort temperature control, green electricity/solar cells Energy efficiency: energy-smart, energy saving, good insulation, good level/standards in new houses, no compromises to be made
Ambiance of the building	Feelings: Newness, modern home, calmness, 'detached house feeling', positive energy, happiness, healthy Acoustics: sound insulation (quiet or disturbing), softness (acoustics), vibration Technical quality: cooling & ventilation, dry air, heating problems, 'house lives' Design features: spaciousness, ability to make changes to apartment, balconies (gives extra space, should have glass) Opportunities for community
Aesthetics of the building	Pleasant/design: Nice sight, brightness (large windows), architectural solutions, planner designed, decorative surfaces, nice green areas in courtyard Material choices: good finishes and material choices, visible wooden elements looks good, wood not visible, wooden stairs (nice and attractive), ugly façade materials, wood material changes with time. electrical appliances are visible (surface installation)
Apartment size/layout	Size: Suitable size, more/less space needed, number of rooms, family needs, two balconies, spacious balcony Layout: choice of low or high (floors), accessibility, flexibility to impact on layout, corner for remote work

(Continued)

Table 2. Continued.

Categories	Examples of housing attributes discussed in the data
Property value	
Resell (asset) value	Apartments as an investment, area with potential for value/price increase, developing/emerging area Property maintenance (well-maintained, value can be preserved)
Maintenance cost (Usage costs during occupancy)	Cost level: quite high in new house, 'positive surprise', relatively small, not considered Maintenance needed (and cost): laborious maintenance (vinyl floors), 'operating cost ideologies that could not be emphasized too much', considered during the design of the building, wood material requires maintenance, painting, technology (e.g. sprinkler systems), balcony windows would keep façade in better condition, high waste management costs (pipe collection system) Energy: heating costs, regulation of internal temperatures
Initial cost	System of allocating costs among users: heating and water billed by usage Affordable price: reasonable/good price or rent, discounts or willingness to negotiate by the builder Budget constraints: state-supported construction (price per sq m within a certain frame), budgetary issues, compromise (quality-price), trade in the design, more expensive to build (wooden house) Loans, flexibility: long-term corporate loans, possibility to redeem rented plot of land, debt burden of the house

Table 3. Co-occurrence of revealed housing attributes in interviews in the various decision-making process elements.

Housing attributes	1.1 trigger	1.2 housing specification	1.3 evaluation	1.4 finalization	1.5 occupancy
2.1. Location quality					
2.1.1 Services (location)	0	4	4	2	32
2.1.2 Accessibility to important areas	3	6	13	2	6
2.1.3 Social factors	0	5	6	1	12
2.1.4 Physical environments	1	9	19	2	20
2.2. Physical attributes					
2.2.1 Services (building)	1	8	7	2	42
2.2.2 Material of the building	0	8	21	11	24
2.2.3 Durability of building	0	0	2	5	10
2.2.4 Energy use of building	0	2	4	0	5
2.2.5 Ambiance of building	1	5	6	1	55
2.2.6 Aesthetic of building	0	2	6	3	16
2.2.7 Apartment size/layout	0	13	7	4	1
2.2.8 Other	0	3	2	2	3
2.3. Market value of home					
2.3.1 Resale value	0	2	3	2	3
2.3.2 Maintenance cost	0	1	2	5	12
2.3.3 Initial cost	1	10	20	7	1
2.3.4 Other	0	0	3	0	0
3.0 Sustainability discussion	0	4	7	4	5
Total	7	82	132	53	247

quickly after the household decided to move was the question of the new home's market value (Interviews 1, 4, 5, 7, 8 and 10). Thus, market value is seen as a constraining attribute. However, participants from Interviews 1 and 8 also recognized that the cost of a new apartment also has bearing on the future market value of the building (e.g. resale value). Hence, market value is realized as both a cost and an investment. Both housing attributes have bearing early in the decision-making process.

The location of the new building was highly scrutinized early in the decision-making process in all but two interviews (4 and 7). For example, Interview 2 participants comment that proximity to the city centre and riverside were essential criteria for their new home, while those in Interview 6 desired a shorter commute. On the other hand, a family from Interview 8 shared that proximity to a kindergarten and school would have future value because they expected to have a child in the new home. Therefore, the preferred housing attributes were impacted by both present needs and expected future needs.

The physical attributes of the building were also widely discussed during the housing specification phase. Topics of discussion included the desire for more space, for a newly constructed apartment, and for sufficient parking. For example, one reported from Interview 2 that the *'apartment should be just completed or about to be completed'* and a parent from Interview 6 wanted family members to have individual rooms to *'run away when things start to get a little rowdy'*.

When asked about the role of wooden materials, interviewees largely explained that the building's construction materials were initially inconsequential to the specification of the new home. For example, one resident conveyed that, *'whether it's a wooden house, or a stone house, or something [else], I don't have much input on it. Either would be suitable choice'* (Interview 9). This view is affirmed by a property manager who held a similar point of view that, *'the apartments could be rented quite easily, no matter what material they were made of'* (Interview 7).

In the same vein, when asked about the role of sustainability criteria in the housing process, only residents of Interview 10 distinctly considered sustainability issues early in the housing specification phase. This group constituted a homeowner association that actively engaged in designing of their new home. This vision emphasized especially social aspects and communal living. One resident stated that, *'We wanted to build a house where we could not only interact, where we could socialize but also have our own apartments; we wanted to build this in a way that is sustainable for the future and also flexible for different ways of living and with a diversity of people, making it possible for a diversity of people to join us'* (Interview 10).

Evaluation phase

Once the interviewees entered the housing market, they evaluated various housing attributes of their potential new homes. The most commonly discussed attributes were the home's physical surroundings, accessibility to important areas and market value cost.

Interviewees recalled evaluating whether the home was a short distance to city centre, had good transportation connections or was close to nature. For example, one resident stated that, *'You can basically get around by car/on foot/whatever at these*

distances so easily' (Interview 2). Some of the interviews considered the milieu and neighbourhood itself. For example, one resident had explored the construction of the new building in a familiar area, stating *'When they started to build this, I myself thought many times that this would probably be a good, nice area near the centre but it's still an urban area'* (Interview 6). Meanwhile, another resident was satisfied after discovering the closeness of a park near the potential new home, *'When I saw that we will have the park next to it, I was like, okay, it's fine'* (Interview 10).

Accessibility as an evaluation phase criterion is also visible in the non-owner-occupied buildings. Well-functioning public transport connections and parking spaces are recognized as important factors for the residents, as brought up by the property managers in Interviews 4 and 5. As one property manager explained, *'transport connections are also one of the factors today, that the better locations have access to public transport, whatever form it takes, that is an important factor'* (Interview 5). The view was shared by someone from Interview 4, who added a note about the importance of parking spaces: *'transportation or parking spaces have been other issues that have been complained about a lot lately. There should be a parking space next to good transport connections or either [in the close vicinity] of the apartment'* (Interview 4).

Related to the question of building materials, when respondents learned that their new home would be a wooden multi-storey building, it invoked different types of reactions. For example, some evaluated this development without incidence. For example, a person from Interview 1 stated that *'It's nice to have a wooden house but it wasn't really the deciding factor in the purchase decision; still it's a nice bonus'* (Interview 1). On the other hand, learning about the wooden material initially led an Interview 2 participant to feel sceptical and concerned. The novelty of the wood material in the multi-storey buildings was viewed as a potential risk and needed further investigation or information from a few respondents. As one resident explained, *'what can be found inside the walls and in the structures, so of course you were probably sceptical on some level, perhaps not understanding too much about the matter itself, what risks there might have been in choosing a completely wooden house versus a stone house. Then I investigated it to some extent and outsourced the investigation procedures, so I finally decided that I should dare to invest my money in this!'* (Interview 2).

Initial price played an important role for most of the residents (Interviews 1, 2, 4, 6, 8, 9, and 10) as a key criterion in the evaluation phase, sometimes simply referred to as affordability or low price of the apartment. As one of the residents described, *'one reason why we were also interested was because it was a good price, which we felt we could afford, and it was a good monthly rent and it matched the calculation that we had made'* (Interview 8). Meanwhile, those from Interviews 2 and 10 appraised the initial purchase price of the apartment as a compromise against their housing specification preferences. This trade-off is encapsulated by one of Interview 10's participants that *'we had to choose a simpler material because of financial reasons but we didn't want to step away from the original idea, so we were not willing to compromise too much'* (Interview 10). development process of their building and willingly emphasized sustainability in conversations with architects and builders.

Housing company loans were another factor that interviewees had been considering when making choices on buildings. While some respondents thought that the housing company loans had given more flexibility to their own finances, others considered

them as collateral financial risks. High shares of loans could be also seen to be attractive to housing investors, which was considered negative by some respondents (due to inability to affect which kind of people will be renting the apartments). As one participant described in interview 2: *'I was interested in how much of the construction was corporate loans. This was exceptional because it was fifty-fifty, that 50% was financed by [the construction company] itself and 50% came from the bank for that project. And that usually brings with it the fact that there aren't exactly the worst investors buying those small apartments, when there were companies in the neighbours where the share to be financed was 70% and the developer's share was 30%'* (Interview 2).

Finalization phase

In the finalization phase, respondents focused on the issues related to material choices made in the apartment and building, together with housing finance and maintenance costs. One of the residents evaluated the debt burden of the future housing cooperative: *'It seems to me that one such selection criterion is that the company's debt burden is not completely impossible, and I believed that the people who then acquire an apartment from the company, are the kind of people who will probably also pay off the company's loan. The company is quite strong when the amount of the loan is much smaller'* (Interview 2). Meanwhile, another resident emphasised the trade-off between the location and overall quality in the apartment covered with the initial price paid: *'Yes, it was the acquisition price that we experienced ... The location of the apartment and then the level of quality that this basic price included; those were the starting points of the solution that led us to accept this idea'* (Interview 3).

Wood as a material was experienced from a dual perspective; while some respondents simply stated that they had not been really interested in the material choices during the decision-making process for home selection, for many it had been only during the finalization phase that the material choices had made an impact. As one resident described: *'This wooden apartment building was not such an absolute requirement but it was without a doubt such an extra bonus when this choice was made, and in the end, it was a very easy solution'* (Interview 1). Another resident described the aesthetics of the wood material as pleasant, especially when used in the indoor surfaces of the building: *'There really is wood cladding but at least we got the same 'wow effect' when we went up the stairs. The frame of the stairs was clearly made of wood, big, handsome steps, so it was like, okay, now we're really in a wooden house and not in any concrete element'* (Interview 6).

Occupancy phase – experiences

Living in the new residential building during the occupancy phase transforms the housing attributes to housing experiences. The ambiance and aesthetics of the building, building materials and services in the building were commonly referred to in the interviews. Residents found the apartment in a wooden multi-storey building to be *'quiet'*, *'softer'*, *'nice'* and *'pleasant'* in terms of acoustics. As one resident described, *'In terms of acoustics, it's a little softer inside that house, of course, since there's that wooden frame. It's the sound world there in the room and*

in the house, a little softer. At least I think it's pleasant to be there' (Interview 4). One respondent found living in a wooden multi-storey building much like living in a single-family house: *'I still have such strong feelings after living here. This is very similar, although it sounds crazy, to living in a single-family house in an apartment building but this is really close to it. Here, there are only neighbours and floors up'* (Interview 6). At the same time, a few cases arose, where problems with the soundproofing were reported. For example, a participant in Interview 2 described *'noticeable shocks if a washing machine spins upstairs'*, while a person from Interview 6 reported disturbing sounds when *'someone is walking with shoes upstairs or kids dropping Legos on the floors'*.

When it comes to aesthetics of the wooden buildings, several respondents found that wood material is not visible inside the building, which does not make much difference from any other construction materials. In most of the cases, the facade was made of wood but inside the apartment, wood was not visible. One resident described this issue as follows: *'The building is a good example. When you go inside that apartment, you might not even know that it is in a wooden apartment building, no one would necessarily even pay attention to it'* (Interview 5). One property manager in Interview 4 had similar feedback from the residents, referring to fire regulations limiting the use of wood materials: *'It was a bit of a surprise for the residents, of course, that the wooden material can no longer be kept visible in the interior. They probably expected it to be a little different from a regular apartment building. They are not terribly different from the interior appearance. On the balcony, of course, more of the wood surface is visible'* (Interview 4). Some differences between countries seemed to arise, as in the Swedish case houses, the wood was sometimes allowed to be left visible inside the apartment. Furthermore, one resident had an opposite view on the aesthetics of wood material, especially related to wooden tiles used in the facade of the buildings in the neighbourhood: *'There are wooden tiles on this house, but it's, in my opinion, the ugliest facade material I've come across, really'* (Interview 9).

Related to the locational quality aspects during the occupancy phase, services and the local physical environment were appreciated in the housing experiences. According to the results, these mostly emphasized public (common) services (proximity of a grocery store, kindergarten and schools), together with closeness to nature and good transport connections. Some of the interviewees discussed mainly the potential/expected future services instead of the limited services currently available when starting as a resident of the newly constructed building. As one resident described, *'The services are still a little underdeveloped in this area, but there are a lot of promises or mentions of them. They won't be there for a year or two'* (Interview 2). Similarly, a property manager highlights the lack of grocery stores in the area: *'The services are currently a bit lacking in my opinion, you can't say bad but weak, because there isn't really a grocery store very close but there are improvements to that as well'* (Interview 5). This suggests that future (expected) locational quality mattered in the decision-making over short-term deficiencies. Some problems were also reported in Interview 3, related to 'temporary traffic arrangements' in the new neighbourhood, which had lasted quite a long time and restricted car parking in the area.

Most of the services inside the apartment referred to common/shared spaces in the building or at least in some of the housing company buildings. These varied significantly case by case. Large and well-functioning common areas may improve living quality and provide a sense of expanding one's apartment as in the case of an apartment building with spacious common areas, highlighted in the following quotation: *'My mental sense of where my home is expands; it's larger than the walls of my apartment so I realise that in my last apartment, the sense of where my home is, where the boundaries are, they were the walls of my apartment but here, it begins when I enter the building and it takes in all of these common areas and almost all of the house. Thus, it's like my sense of how large I live, now, I mean, my apartment is 30 square metres smaller than my last apartment but I feel that I live in a larger space now, which is really interesting'* (Interview 10).

The role of wood as a building material during the occupancy phase was often discussed during the interviews. In several cases the residents thought that wood was not really visible inside the building and apartments but only outside in the facades. In this respect living in a wooden multi-storey building was not perceived to differ much from living in a building made of any other material. One property manager described the use of wood in indoor spaces: *'The interior spaces are boarded up walls so there is practically no wood visible anywhere, except in the staircase you can see some wood. Otherwise, they look quite ordinary, just like any apartment building. All exterior surfaces are, of course, painted board'* (Interview 7). Where visible, wooden surfaces were generally perceived positively as providing a warm feeling to the apartment and improving the overall ambience of living as discussed earlier. Furthermore, a few of the respondents felt that wood material gives more flexibility to make adjustments to the apartment in the long run and that it's practical to hang goods on the wall (e.g. paintings or even a TV). One of the residents was considering the flexibility of wood material going as far as allowing potential transformations to the apartment layouts, *'as it's built of wood, it's easier to make adjustments and to make apartments larger or smaller, I think it's not, it can be done; it's not impossible to do'* (Interview 10).

The durability of the wood material together with potential risks and prejudices related to e.g. fire, acoustics or water leakage was often discussed. Generally, the respondents felt that these concerns had been explained or disappeared during the housing choice or after experience during the occupancy phase. *'I was mainly interested in the board cladding in terms of how it is, what kind of material it is made and the surface treatments in terms of how it withstands climatic stress. Let's say, what was explained at the time sounded quite reasonable and everything was OK'* (Interview 2). Similarly, residents in a rental apartment commented on their prejudices on the durability of the wood material disappearing along the way: *'The house itself as a wooden building was a bit scary, how is the sound insulation and partially health, is it built healthy, dry but fortunately we have been positively surprised that all the fears we had about wooden construction and the building have indeed disappeared'* (Interview 6). One resident (Interview 9) discussed the fire safety of the wooden building compared to concrete buildings, trusting that fire resistance has been taken care of yet acknowledging that he cannot be sure to what extent,

despite being the chairman of the board of the particular housing cooperative. *‘From a fire point of view, you can probably also prepare wood so that it doesn’t burn, I’m sure you can do, but I don’t know to what extent this has been done. I can’t really say that, actually’* (Interview 9).

Some of the features experienced and reported (related to use of wood material) were that the wooden house was felt to be *‘swaying’* especially in the upper floors: *‘We live on the fifth floor so we can feel the building sway. That’s probably what makes the big difference. I don’t think that the concrete element sways but we can clearly notice on the top floor that the leaves of the plants are swaying a bit and the TV may be swaying’* (Interview 6). Furthermore, wood was experienced to produce different types of noises, not necessarily uncomfortable but unexpected such as cracking noises during temperature changes, as described by a resident in Interview 10: *‘Sometimes, it really snaps so loudly, that you wonder what happened until you realize that it was nothing’* (Interview 10).

Summarizing results

Figure 1 below summarizes the study results by highlighting interconnections between consumer housing attributes during the decision-making phases. The main housing attributes are thematized under apartment type, area/location quality and affordability themes used in the study. In general, the results show that property value aspects in forms of initial price, resale value and maintenance costs are important in all decision-making phases. The locational quality aspects related to everyday services and accessibility to important areas are important during the evaluation phase, while attractiveness of the location (i.e. physical environment) and

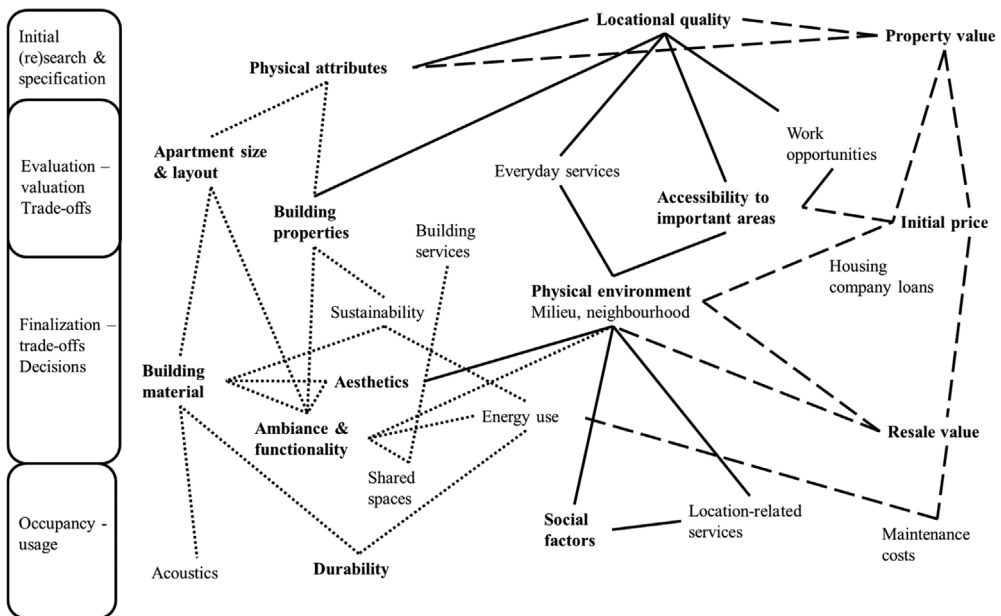


Figure 1. Themes of housing criteria during the decision-making phases

location-related services are highlighted at later phases in housing. Apartment properties (i.e. size and layout) are emphasized during the evaluation phase, whereas building material and more indirect impacts of it (e.g. aesthetics and ambiance of the building) gain more attention during the finalization and occupancy phases. Finally, issues related to acoustics and durability of the building are experienced in occupying the building.

Discussion

First, locational quality was highlighted especially by expectations for physical environment (e.g. specific location in the city) and accessibility in the early phases of decision-making process, whereas services in the neighbourhood mostly come into question during the occupancy phase. This was also the case regarding services connected to the building (including shared spaces available) that generally did not gain specific attention during the specification or evaluation phases, but mostly recognized during the occupancy in the building. Among the eight buildings composing the cases in this study, the availability of such spaces varied. According to the results some respondents would have preferred more shared spaces. Meanwhile, a few respondents had negative experiences with management of these common areas. Despite the COVID pandemic and wide adoption of remote working, the need for extra space for home offices did not arise as any particular topic in the discussions with respondents.

Second, traditional housing attributes (e.g. apartment size and functional floor plan together with available budget) were the most important decision-making criteria among locational quality. Meanwhile, the building's wooden materials only become a criterion for evaluation after the consumer was informed about it. This harkens back to the idea that housing choices are frequently constrained by limited information (e.g. Floor & van Kempen, 1997; Hasu, 2018). Upon acquiring the information that the building held wooden materials, the consumer may react with prejudice, as one respondent who was uncertain about the durability of the wooden building until independently investing the topic. Critically, this consumer had both the time and impetus to seek new information, but this is shown to not always be the case in housing decision making (e.g. Lähtinen *et al.* 2019; Viholainen *et al.* 2020). Thus, consumers who engage with purchasing an apartment in WMC for the first time could benefit from active intermediary knowledge brokers to alleviate consumer prejudices against different building materials. Lähtinen *et al.* (2023) argue that real estate agents are one possible candidate for this intermediary role. Ultimately, it is important to continue addressing the prejudices of consumers in the market because it appears consumers can overcome their uncertainties after gaining sufficient information about the topic.

Third, the role of building material as a criterion in the initial stages of a housing search was seen as rather neutral and not emphasized as a means toward low-carbon housing. However, over the different phases, and increasingly towards occupancy, building materials (e.g. use of wood) were addressed by the respondents. Wood as a structural material was viewed mainly as a positive feature, even though some prejudices against technical quality of wooden materials (e.g. fire risks) were

mentioned (e.g. Viholainen *et al.* 2020). In general, WMC is a new phenomenon also in countries with strong wood building traditions like Finland and Sweden, and thus prejudices against building with wood also relate to expectations in urban housing (Lähtinen *et al.*, 2021). Building materials were often assessed together with aesthetics, sustainability issues and durability aspects of the building. Interior wood materials were seen to give more flexibility to adjust decorations and living spaces, which in recent results of Harju & Lähtinen (2021) have been found to enhance possibilities to meet quality and sustainability expectations in housing among different types of consumers.

Fourth, acoustics inside the apartment were considered mainly positive (softer) during the occupancy phase with a few residents facing issues with the soundproofing. These findings confirm results by Viholainen *et al.* (2020) where occupants after one year living voiced in a more favourable light usability of the home, including the ease of mounting shelves onto the walls, enjoying the echoless soundscape and rather seemed to enjoy more living with clicking sounds and vibrating floors. The mentioned soundproofing disturbances experienced by the residents, such as impact sounds (e.g. knocking and footsteps), together with structural noises (e.g. squeaking, snapping or banging) of the wooden building are in line with earlier research (Lindblad, 2019; Karjalainen & Ilgin, 2022).

Fifth, related to overall property value, the future resale value of the apartment was addressed by many interviewees throughout all phases of the decision-making process (incl. occupancy), while the initial price of the apartment was a central factor considered during the evaluation and finalization phases. The selected apartment was often seen as a compromise of the price versus other quality aspects. Housing association finances were approached pragmatically: housing company loans and rental plots were seen to allow flexibility for individuals, although high levels of debt were mostly considered negative (increasing risks and attracting investors renting the apartments). Yet, maintenance costs were not generally thought during the housing purchase process but rather discussed as experiences during the occupancy phase. When considering a new apartment, life cycle aspects (incl. energy efficiency of the building and future maintenance and repair) were pondered especially when the future residents had limited experience or prejudices on WMC.

Sixth, sustainability did not appear as a critical quality attribute for residents when making decisions on new apartment purchase, even though a few exceptions did exist. The findings are partly in contrast to earlier studies (e.g. Karjalainen & Ilgin, 2022), where majority of residents in wooden multi-storey apartments have stated ecological issues to have affected their choices of residence. In our study, residents generally trusted that the builders (or 'someone else') had considered sustainable solutions during the construction phase of a new apartment building. However, it is fair to say that sustainability aspects related to low energy consumption and energy efficiency together with consideration of durability of materials existed in the discussions as disclosed earlier. Several interviewees reported they had yet limited experience with some of the issues (e.g. energy use of building or maintenance needs) after only a limited time of living in the new apartment. Moreover, it was brought up that assessing sustainability choices early in the housing decision

is complex and the fact that end-users have limited or no power to influence the material choices made for the construction of the new apartment buildings. This underlines untapped potential in construction business for a more active, early dialogue with consumers and their experiential knowledge, to open new opportunities to create added value by innovating more sustainable everyday housing solutions, as was addressed in Kyllikilähti *et al.* (2022).

In previous literature, adaptation in the housing sector to extreme events due to changing climate, and the threat of increasing future maintenance costs due to milder and rainy seasons, was seen as a real issue among the Nordic citizens (Vehola *et al.*, 2022). However, the building material-based opinion-making of residents under contemporary uncertainty regarding not only changing climate but also economic development is a complex topic; thus, substantial future research is needed.

Limitations

Although this qualitative study provides insights on housing attributes and the decision-making process of consumers, the lack of longitudinal collection of data can result in imperfect recall; thus, transference of preferences to criteria along the process is imperfect. The study evaluates perspectives of residents who finalized a move into a wooden multi-storey building. Thus, the study does not include perspective from individuals who have not succeeded to move into a multi-storey wooden building although they may have originally considered such a move.

Future research

For the WMC market development in case countries of Finland and Sweden, in Europe and in other regions, more information is needed on several aspects. First, some criteria for housing choices may be similar in different countries among consumers with similar lifestyles or life situation (e.g. free-time activities, sustainable consumption, retirement etc.) (e.g. Hasu, 2018). Thus, it would be valuable to know how WMC may contribute in relation to those preferences, which may be similar independently of country of residence. Second, some criteria in home selection are more specific to certain areas (e.g. in forest-rich regions consumers' familiarity with wood materials and general traditions to build with wood) and individual countries (e.g. ownership structures in the housing markets) (e.g. Andersson *et al.*, 2007; Lähtinen *et al.*, 2021). Consequently, abreast with criteria driven by lifestyles, information on those location-specific factors affecting consumers' preferences and knowledge on wood as a building material is also needed. Third, in the multi-storey building processes, material selection is in most cases made by construction companies (Jussila *et al.*, 2022), while future residents have a minor role in these decisions affecting sustainability change in the built environment. Yet, for example Roos *et al.*, (2022) have found consumers with preferences for sustainability in housing to be connected with positive attitudes towards building with wood. Fourth, economic realities affect housing choices and the results of this study showed, for

example, maintenance costs to be important for multi-storey building dwellers. Maintenance is strongly linked with climate change mitigation aims with WMC, since for consumers both the perceived sustainability and durability affect the acceptability of wood as a building material in more extreme weather conditions (Vehola *et al.*, 2022). Thus, consumer views on the potentials and risks of WMC in different regions also deserves more attention in the future.

Conclusion

WMC is seen to have strong potential to contribute sustainability change in the built environment. Still, consumer housing choices are still primarily driven by other criteria than those related to building materials. For example, benefits acquired through location and properties of building and characteristics of apartment clearly by-pass consideration of building materials in the home selection. Yet, from the perspective of WMC market development it is promising that wooden materials become an important housing attribute after the resident had knowledge about it, and gained more information against prejudices towards wood. Like in home selection in general, purchasing price, maintenance costs and resale value played a key role for majority of respondents. Thus, WMC market development requires alignment of demand and supply factors in the housing markets. First, future residents call for better knowledge on the benefits and risks of building with wood in relation to their housing expectations. Second, construction businesses need to adjust their capabilities and communication to learn from residents' housing experiences to meet the future consumer expectations.

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Appendix A. Interview consent notice

Before beginning the interview, we asked for permission to use personal data in accordance with the EU Data Protection Regulation.

The interview will be recorded as a replacement for taking notes and will be stored in the (Microsoft) cloud service used by the university, where it will be stored along with the personal information of the interviewees for the required time. The recording will not be published anywhere as such but will be transcribed into text, either by the research team or by using a special service provider. This file will be used as part of the research material and at this point the interviewees will be anonymized. The personal data of the interviewees are not combined with the research results or published as such.

Is it appropriate for you that we record the interview and obtain permission to use the material as described above?

Appendix B. Semi-structured interview guide

Theme 1. General Housing Criteria

1. **How did you end up buying an apartment from your current housing association? What were the issues that were important to you when you were looking for a new home? What finally made you choose this apartment?**
 - What expectations did you have regarding your new apartment? / (price, quality, location)
 - What about other key selection factors?
2. Where did you find information about the apartment?
3. Type of housing: Were you only looking for owner-occupied/rented accommodation?

Theme 2. Locationality

4. **Was location important in choosing an apartment? If so, how? What aspects of the location were especially important to you?**
 - the location of the residential area/accessibility of services more widely and the accessibility of services in the vicinity?
 - How important do you consider the attractiveness of the neighbourhood/neighbourhood to be (preservation of the value of the dwelling, preservation of jobs and services, etc.)?

- What about everyday services nearby (private and public; schools & kindergartens)?
 - When you made the purchase decision, did you consider the reputation and tranquillity of the area, and how, in your experience, have these met expectations?
 - What about the wider environment of the area (e.g., beautiful views, closeness to nature, spaciousness/density of buildings)?
 - Did you consider the needs of your pet when looking for an apartment?
5. **How well did these expectations for your location come true in your new apartment?**

Theme 3. (Physical Characteristics of a house): Construction materials and wood construction

6. **When purchasing an apartment, did you pay attention to the material solutions of the house and the apartment?**
- e.g., as a frame solution/ façade/ indoors?
7. Did you have information about the frame materials of the house and did it have an effect on the choice of the apartment?
8. **Has wood been used on visible surfaces in your home?**
9. What do you think about the use of wood in buildings? (e.g., visible wooden surfaces)
10. *Were the materials presented in any way in the materials for the sale or marketing of the dwellings?*
11. Did it matter which company was the builder/ developer when you bought the apartment? If so, why?
12. Did you talk directly with the builder's representatives when buying an apartment?
13. **Do you think that the building's material solutions have been successful? (a) in external cladding; (b) in interior spaces**

Theme 4: Sustainability in building & living

14. **Did you emphasize sustainability issues when buying a home?**
15. Did your perceptions of the environmental friendliness of building materials influence the choice of your home? If so, how?
16. Did the carbon footprint of building materials have an impact? (e.g., do you think the building acts as a carbon sink?)
17. Did the (domestic) origin of building materials and products have an impact?
18. And was the reparability/maintainability of structures and materials important when choosing a home?
19. What about the effects of a changing climate on the weather resistance of a building?
20. What about the energy efficiency of construction solutions?
- Were they related to the running costs during housing? Or to emissions caused by the use of energy in general? (In-service resource efficiency – economics/ecology)
21. What about arranging waste management in a housing association (e.g., recycling, waste sorting facilities)?
22. What about well-being issues? For example, are the materials particularly good for comfort or do they even have positive health effects? (Social effects during use).
23. **Do you think these have been successful for your apartment/building?**

Theme 5: Role of the Housing Company

24. **What kind of shared facilities and services do you have in your housing association and how well do these meet your needs?** (e.g., common areas/telecommuting opportunities)
25. Price and operating costs of the dwelling – Did you emphasize the low purchase price or the lowest possible operating costs during living when choosing the dwelling?
26. *Did the financial position of the housing association play a role in your choice of the dwelling?*

27. *Did the management of the housing association (e.g., board, property manager) play a role in your choice of the dwelling?*
28. *** Chairman of the Board: Is one's role as a decision-maker in a housing association and experience as a resident the same?*

Theme 6. Experience and Satisfaction

29. How satisfied are you with your apartment and the housing association as a whole?
30. **In your experience, how have your housing expectations (addressed before) been met after living in the new home/apartment?**
31. What kind of features have you found to be particularly good/functional in your new apartment? What about negative experiences?
32. **Is there anything else you would like to highlight about choosing a home or housing?**

Thank you for the interview!