

SUPPLEMENTARY FILE 1. QUESTIONS FOR INTERVIEWEES

Article: Why is adaptable housing not mainstream? Perspectives of different stakeholders in Finland

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1. NEED FOR ADAPTABILITY:

GENERAL QUESTIONS FOR ALL INTERVIEWEES

- Are you involved in housing adaptability in your work?
- In your opinion or from your professional point of view, do you see any needs for adaptable dwellings? If so, what kind?

2. BARRIERS AND PRECONDITIONS TO ADAPTABILITY:

SPECIFIC QUESTIONS FOR EACH PROFESSIONAL GROUP

Market-oriented housing developers

- How has the adaptability concept that your company implements been received? What does its future look like? Is the volume of its production changing?
- How have you marketed your concept? Are you actively marketing it currently?
- Has the COVID-19 period influenced your customers' attitude towards adaptability? Has it changed your own views on adaptability?
- Have adaptable housing concepts incurred additional costs or extra work in your projects? Does adaptability involve any significant additional risks? If so, what kind?
- Has adaptability been reflected in the price of the end product, i.e. have you been able to transfer the possible additional cost to the price? Is an adaptable product less profitable/equally profitable/more profitable than your regular product?
- In what kind of projects are adaptability concepts considered? In which situations will they be eliminated?

Non-profit housing developers

- Taking a perspective of a long-term owner of the building, do you have any opinions on the needs or benefits of adaptability?
- Do your customers ask for adaptable flats? Has there been any demand for e.g. main flat/side flat combinations of dwellings with two entrances, which are suitable for multi-generational use?
- Have you had specific adaptability concepts aimed at tenants?
- What adaptability concepts do you consider most important?
- Has the COVID-19 period influenced the demand for adaptability in some ways?
- Is there any demand for special lease contracts¹ with adaptable flats?

Housing financiers

- Have new international initiatives, e.g. the European green deal or the like, produced new financing models which encourage adaptability from housing in some forms? If so, what are these models like?

¹ Example: a tenant rents a dividable flat with two entrances. If the tenant's spatial needs change later, a part of the flat can be divided off while the tenants continue living in the remaining part, and the company is responsible for finding a tenant for the new small flat.

- Do you have any 'green' financing instruments? Would adaptable buildings be eligible for such financing? Have they been granted for an adaptable building?
- Have external factors that have a major impact on financing (e.g. Basel IV) influenced the possibilities or even requirements for adaptability?
- Do you see adaptability as important from the risk management viewpoint? Do you think adaptability is a good investment?
- Do you have any special responsibility principles regarding Environmental, Social, and Corporate Governance (ESG)? Is housing adaptability related to those principles?
- If an adaptable building costs more than a regular one in the investment phase, how do you react?
- If the party applying for funding shows there is adaptability in the project, are you ready to offer better funding terms? Or vice versa?
- As a financier, is it clear to you what kind of building is adaptable? Do you emphasise certain adaptability concepts over others (examples: joinable flats/switchable rooms/optional rooms/neo-lofts)?
- Are there any criteria available in your organization to verify adaptability? Do you think there will be criteria for adaptability in the near future?

Urban planners

- What kind of adaptable housing projects have been implemented in the district you are responsible for? What kind of experience do you have of these cases?
- Do you think that societal interests require adaptability in housing production?
- Have you made detailed plans for plots or areas where adaptable housing has been specifically sought after?
- In your own position, do you see that detailed plans should take adaptability of residential buildings into account? Do you think that housing adaptability should be included in detailed plans?
- What kind of detailed plan would you make if you especially wanted to support housing adaptability? What kind of factors support or prevent adaptability in detailed plans?
- What kind of feedback on detailed plans have you received from architects who have designed adaptable residential buildings?
- Has the COVID-19 period or the new Finnish construction law to be enforced in 2025 changed your views on adaptability?
- To what extent are average floor area requirements or other requirements regarding the distribution of apartment sizes used in detailed plans these days to control the end result? Is it considered possible that, e.g. joinable flats may deviate from the ordinary flat size regulation?

Building inspection authorities

- What experiences have you had with adaptable flats? What kind of projects have you encountered?
- Are there some special issues in adaptable blocks of flats which are especially important for building inspection?
- Can the room allocation be left undefined at the building permit stage, or must it be fixed? What happens if it is implemented differently from what is specified when applying for a permit? Does this issue come across often in projects?
- Joinable/dividable flats: What kind of fireproofing or soundproofing issues, of interest to building inspection, may be encountered in this type of flats? What kind of interpretations have been made regarding joinable flats and the city's average floor area requirements/policies in housing?
- Neo-lofts: What kind of structural fireproofing requirements have been posed on gallery floor structures? What kind of dimensioning is required for internal stairs leading to galleries? What

are the kitchen requirements of a flat during the handover phase of the building? Are plugged drains and water pipes enough or must kitchen fittings be installed?

- A flat to be divided into two which requires the construction of a new bathroom: What kind of accessibility requirements apply to the bathroom? In such a case, could the floor level of the bathroom be higher than the one of the surrounding spaces?

Building services engineers

- What do you personally design, i.e. what is your area of competence (heating [H]/water and drainage [WD]/ventilation [V]/air conditioning [AC]/electricity [E])?
- How many housing projects have you participated in where adaptability has been striven for? What was designed to be transformable in them (H/WD/V/AC/E)?
- Have you had projects where the wet spaces of a flat were designed to be transformable?
- What kind of building technology was used in your adaptable project(s)? Were special solutions used to achieve transformability?
- Have H/WD/V/AC/E routings favourable for transformability been considered in your projects?
- What differences are there in solving transformability of H/WD/V/AC/E systems? Which of these systems is the most difficult to solve, technically and cost-wise?
- Joinable flats or main apartment/side apartment with a) flat-specific ventilation systems or b) a centralized ventilation system: Do they differ in terms of how easy flat modification is?
- Switchable rooms: How should ventilation and electricity be solved? Are there any differences between flat-specific or centralized ventilation systems to this end?
- Modification of the layout of a flat: What type of a ventilation system would be the best for a flat's transformability?
- Have the following solutions been used in your housing projects:
 - Raised floor systems
 - Zones, recesses, or grooves in intermediate floor structures
 - Cable conduits
 - Special electrical systems/components
 - Pump drainage
 - Other special technology

Structural engineers

- How many housing projects have you participated in where adaptability has been striven for?
- What special structural design issues were considered in the project(s) in which transformability was implemented? What was difficult to solve, what was easy? What matters were specifically discussed with building inspection authorities and/or architects?
- In what ways has the disassembly of structures pertaining to transformable solutions been considered in your projects? Or has it been considered at all?
- Have the life cycles of building components or building layers according to different lifespan expectancies been considered in your projects? How often or how rarely?
- Internal flat transformations: Have any systems which support this been used in your projects (e.g. relocatable partition systems)?
- Joinable/dividable flats: Is there anything special in terms of fireproofing, soundproofing, and load-bearing capacity that needs to be taken into account? Does positioning doorways between joinable flats cause any special considerations in terms of bracing the building frame?
- Switchable rooms: What would be a reasonable structural solution for them?
- Have the following solutions been used in your housing projects:
 - Raised floor systems
 - Zones, recesses, or grooves in intermediate floor structures
 - Partition systems that enable spatial transformations
 - Other technology