



Architecture and ageing: lessons learned from a cohousing project

Gwendoline Schaff^{1,2} · Jan Vanrie² · Fabienne Courtejoie¹ · Catherine Elsen³ · Ann Petermans²

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Abstract

Considering population ageing and a housing system in crisis, new residential responses for older people are being sought and claimed. To meet their needs for social contact, empowerment and mutual support, while considering affordability and sustainability, older people are increasingly considering cohousing options. However, to successfully develop a cohousing project, several factors, including the architectural design process, are decisive. Yet, few studies have focused on the design phases of such projects, especially when including an older users' group. In this article, we therefore focus on a specific real-life case study (i.e., a Belgian cohousing project that supports ageing), in order to “open the black box of architectural work” and to understand both the design process and the design solution in that regard. During 10 months, we did meetings' observations, stakeholders' interviews and documents collection, throughout the early design phases. The results highlight the diversity of stakeholders involved and their impact; the architectural features addressed in the design and their interrelationships; the methods used for the project development; and the temporal factors that were associated. Finally, the study reveals the project's multi-level complexity and points out dual poles that emerged during the design process.

Keywords Cohousing · Older people · Architecture · Design process · Case study · Ageing

1 Introduction

In the context of an ageing population and the opportunities and challenges it raises, traditional living environments for (future) older people are questioned. Indeed, the two most frequent residential situations do not tend to meet the expectations of older inhabitants. On one side, ordinary single-family homes are generally inadequate for later stages of life in terms of (large) size (Dagnies, 2016), (difficult) maintenance (Bailey Fausset et al., 2011),

✉ Gwendoline Schaff
g.schaff@uliege.be

¹ Faculty of Architecture, University of Liège, Liège, Belgium

² Faculty of Architecture and Arts, Hasselt University, Diepenbeek, Belgium

³ Faculty of Applied Sciences, University of Liège, Liège, Belgium

(lack of) social relationships (Mallon, 2010) or (non-) accessibility (Granbom et al., 2016). On the other side, nursing homes have been frequently criticised and rejected for reasons of (significant) cost (Dagnies, 2016), (impersonal) atmospheres (Lundgren, 2000) or (non-) human considerations (Donaldson et al., 1997). In recent years, other types of housing, often referred to as “alternative housing” (Tually et al., 2022), have therefore emerged. The older people interested in those types of new housing forms often seek empowerment (Blanchard, 2013), social contact (Bamford, 2005), solidarity (Labit, 2015) or care (HCA, 2009), and aspire to a more positive view of ageing, instead of being considered a “burden” placed on children and society (Handler, 2014). These housing forms also occur in a context of housing shortage and unaffordability (Delfani et al., 2015), as well as increased environmental concerns (Hagbert et al., 2019).

Among these alternatives, an increasing number of older people are considering “cohousing” in the hope of a happy, active and supportive place for ageing. Several studies, for example in Belgium (Charlot & Guffens, 2006), Denmark (Andresen & Runge, 2002), Sweden (Choi, 2004), the UK (Brenton, 2013; Williams, 2005) and the United States (Durrett et al., 2015; Glass, 2009) have indeed shown positive impacts of cohousing on the happiness of inhabitants (Carrere et al., 2020). There is also evidence, from both academics and architects, that projects encouraging social interaction are beneficial to (older) people (Cooper, 2000; Jarvis, 2015; McCamant & Durrett, 2011; Williams, 2005). The home environment indeed has a strong influence on people’s health, quality of life and wellbeing (Rowles et al., 2016), especially when they age and that their home becomes even more important to them (Oswald & Wahl, 2005). Generally, five main dimensions appear essential for “ageing well” at home: the health, affective, social, built and contextual dimensions (Schaff et al., 2022).

When choosing cohousing, people want to live surrounded by others while maintaining privacy in their home; hence, “living together on one’s own” (Bamford, 2005, p. 44). They therefore have a private dwelling and share common facilities with the community (e.g., kitchen, laundry room). Cohousing can take many forms, whether in terms of number of units (ideally, around 10–20 according to some professionals, Qualidom asbl, 2016; or 20–30 according to others, Durrett, 2009); profiles (e.g., some are very heterogeneous in terms of age, while others only gather people over 50); management (e.g., self-managed, with public or private partners), or participation (e.g., in the design, construction, maintenance, management, and/or daily life stages). Each cohousing system also shows a unique design, group dynamics, set of visions or values (Falkenstjerne Beck, 2020). However, they all rely on “sharing of spaces, resources, activities, and knowledge”, so that their end-users can “achieve more than they could in isolation” (Hammond, 2018, p. 2). “Cohousing” can therefore be understood as a global concept that includes not only physical but also relational, organisational, and vision- and value-oriented dimensions (Falkenstjerne Beck, 2020).

Although cohousing has very often emerged from bottom-up processes (McCamant & Durrett, 2011), there is now a growing tendency towards top-down professionalisation of producing this type of housing or towards hybrid forms of top-down and bottom-up approaches (Falkenstjerne Beck, 2020). Initiating a cohousing project requires a lot of time and energy (Fernandez Arrigoitia & Scanlon, 2015) to gather all the necessary resources (land, funding, knowledge, procedural competences, networks, etc.; Boonstra, 2016), while anchoring itself in the values of the group, the “ethos” (Czischke, 2018). This workload is increasingly leading initiators to cooperate with other stakeholders, in order to manage “hybrid networks, resources interdependencies, undefined becomings, complexity, non-linearity and emergence” (Boonstra, 2016, p. 276). The roles of each stakeholder are specific

and can change during the process. It is not uncommon to see some inhabitants participate in the whole design and building phases, while others join the collective dynamics only once the building is built (Fernandez Arrigoitia & Scanlon, 2015). Architects' positions can also be very different, depending on the cohousing project: from simple technical advisor to traditional designer or even sometimes facilitator of the whole process (Czischke, 2018). Moreover, cohousing can nowadays hardly materialise without the collaboration of public authorities, landowners or financial institutions (Boonstra, 2016). This complex network of stakeholders around cohousing projects is essential and yet very little studied (Czischke, 2018).

Indeed, the recent body of international research on intergenerational cohousing and cohousing for older people (e.g., Brenton, 2013; Blanchard, 2013; Tummers, 2016; Jarvis, 2015; Durrett et al., 2015; Ruiu, 2016; Czischke, 2018; Quinio & Burgess, 2018; Housing LIN, 2018; Pupilampu, 2019; Falkenstjerne Beck, 2020; among others) has mainly focused on the physical layout and social aspects of these types of housing. On the other hand, few studies have looked at the dynamics within the emergence of cohousing initiatives (e.g., Fernandez Arrigoitia's research), and specifically their design processes. Today, despite increasing demand, the number of cohousing projects that eventually reach the construction phase is still very low and frequently limited to relatively wealthy and healthy individuals (Crabtree, 2011; Hammond, 2018). It is suggested that barriers and factors such as architecture, group composition (Chioldelli & Baglione, 2014), financial and social considerations are paramount in these developments and must be taken into account "right from the conception stage" of the project (Labit, 2015). There is however a serious lack of data on these phenomena, especially on (1) architectural processes studied in such contexts (Kasali & Nersessian, 2015), (2) co-housing from a design perspective (Tummers, 2015), and (3) expectations of older people when it comes to this housing option (Glass, 2013). In addition, to date, research on intergenerational cohousing or cohousing for older people has come mainly from English-speaking countries (e.g., Glass, 2009), Scandinavian countries (e.g., Falkenstjerne Beck, 2020), or the Netherlands (Bamford, 2005).

Given these gaps and challenges, the purpose of this article is to gain insights into the design process of a Belgian, French-speaking cohousing project supporting ageing. We aim to grasp the "passage", the "articulation" between the "social demand" and the "architectural space" (Prost, 2014). In line with similar current research (e.g., Nettleton et al., 2018), we "open up the black box of architectural work", by examining which and how concepts and desires related to "ageing well in cohousing" are operationalised into design. For this purpose, we focus on the early design stages (Luck & McDonnell, 2006), as most of the main properties of an architectural project are defined then. Since theoretical knowledge and methodological approaches about the design of cohousing for older people are still limited (Labit, 2017), our research is exploratory in nature: as other case studies (e.g., Stam et al., 2019), it focuses on one specific real-world design project at a time, in order to foster in-depth understanding of a phenomenon in real-life context (Flyvbjerg, 2006).

2 The case study

The cohousing project studied in this research seeks to address significant challenges of our time, specifically, according to its founders, (1) "ageing, isolation and progressive loss of autonomy"; (2) "living together", and (3) "sustainability". In addition, this cohousing aims to be: "inclusive", "supportive", "rooted in the neighbourhood", "participatory",

“innovative and reproductive”, “financially ethical”, “sustainable” and “adaptable”. The project thus targets younger people and families, but also autonomous or semi-autonomous older people. Indeed, the cohousing is envisaged as a living place allowing occasional support for some tasks or activities, through solidarity and the facilitation of certain services (e.g., home help). However, being conceived as a residential alternative between “traditional housing” and “nursing home”, it does not accommodate people who are completely dependent on services typically included in rest and care homes (e.g., 24-h care).

The project site is located in a rural village in Belgium; it consists of a large plot of 2.5 hectares and three main existing buildings. The objective was to renovate two of these buildings and to construct new ones, in order to provide approximately 70 housing units and shared spaces. Among these buildings there is one specifically dedicated to collective spaces, several ones mixing housing for people of all profiles, one for disabled people, one for young people in difficulty and one for people over 55. Our study mainly focused on the latter, which includes 15 housing units and common spaces.

Our research moreover focused on three main groups of actors: (1) the group of future older inhabitants of the building described above (the “inhabitants”), (2) the two architectural firms working on the project (the “architects”), and (3) the contracting authority of the project (the “managers”):

- (1) At the time of our observations, the group of future older inhabitants consisted of 6 single women and 2 woman-man couples from about 55 to 75 years old. They represented 8 flats out of the 15 planned in the building specifically dedicated to older people. However, not all of them were yet sure to join the project. The group was composed of financially heterogeneous people, but all were willing to keep rents low and to include a diversity of socio-economic backgrounds. They shared these values: (a) “respect for difference, privacy, dignity and freedom of choice in life”; (b) “a friendly neighbourhood allowing each person to be autonomous in his or her own private home”; (c) “maintenance of social links and openness to the neighbourhood” and (d) “internal solidarity through the group’s presence and support”. Most of the people composing this group of future older inhabitants have known each other for several years, as they started to reflect on the topics of ageing and housing before the emergence of the project itself. They were indeed part of a larger discussion group on the issue of cohousing for older citizens, facilitated by a local organisation specialised in housing and participation.
- (2) The architects are from two architectural firms, working together for this specific project. The first firm welcomes about fifteen employees and specialises in the construction and renovation of collective housing, mainly social housing in urban areas. They aim for qualitative accommodation, without economic or design excesses. For this project, 3–4 people from the firm, including one of the directors, participated in the meetings. The second firm consists of a single architect specialising in organic architecture and eco-construction, mainly in more rural areas. Both firms seem to value listening and paying attention to the users in their projects.
- (3) The managers of the project are a large regional non-profit organisation, leading a health and social role. This organisation initiated the project by establishing an agreement to use the site and is in charge of the project coordination. The managers therefore take the position of a “conventional promoter” in organising the process and finding funding, but have a completely different philosophy: their primary objective is not financial profit, but rather to provide a living place that supports the health and well-

being of the inhabitants and guarantees access to all through below-market rents. The project is intended to be economically self-supporting and is based on the “community land trust” model (Meehan, 2014): some housing units would be rented and some purchased, with an anti-speculation approach. This type of developer is still quite rare in Belgium and Europe: project initiators are usually the inhabitants themselves, traditional promoters or the municipalities in the case of social housing.

3 Methodology

We decided to closely follow the development of this specific project for two main reasons. First, because of its rarity: really few projects of this scale and this scope do emerge in Belgium. Given the initial intentions expressed by the managers and the fact that a group of older inhabitants would be involved through the design process, this case seemed a unique opportunity for us to research our scientific interests. Second, because of the access that was granted to this case: the third co-author indeed created an opportunity to discuss the scientific potential of this project with one of the architectural firms, thus easing access to the data and the process.

For a period of 10 months in 2021, we closely followed the design process of the project through the three main relevant stakeholders’ groups (Fig. 1). To facilitate a

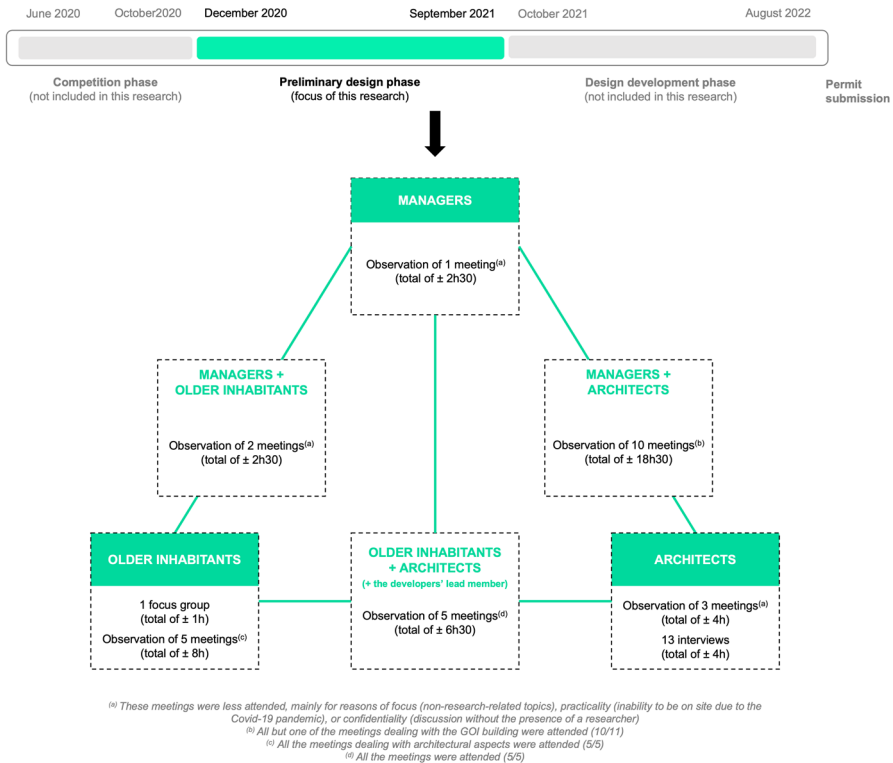


Fig. 1 Data collection through observations and interviews

holistic and situated understanding of the project, we used multiple methods of data collection (Yin, 2003): (a) Observations. The first author observed 26 of their meetings (5 in person and 21 online, due to COVID-19), for a total of about 42 h. She took notes and audio-recorded the meetings, but did not intervene in the design or decision-making process, in order to capture the interactions as they naturally occur in architectural practice (Luck & McDonnell, 2006). She did not intervene in the organisation of the meetings. The stakeholders conducted these in a traditional way, with the presentation of architectural plans or drawings, and without any particular methodology or tools to facilitate a participatory process. (b) Interviews. The researcher conducted weekly semi-directive phone interviews with the coordinating architect to understand the architects' reasoning, their professional realities, and the elements they take into account to enable inhabitants to "age well". An online focus group was also organised with the older inhabitants, right before the architects modified the first version of their sketches, to grasp their initial perception of some emerging themes. (c) Documentation. Documents related to the project were collected (e.g., architectural plans, feedback reports) to refine our understanding of the spatial features under consideration and their evaluation by the future users.

Data collection stopped once the building for older people was well defined. Currently, in early 2023, the whole project is under analysis by the municipality to obtain a planning permission.

Data analysis was conducted in three phases. First, recordings of meetings, interviews and the focus group were re-listened to, annotated and partially transcribed, focusing on the interactions related to the main spaces that older people would use, i.e. the building dedicated to the group of older inhabitants and the collective spaces. Second, the transcripts were encoded in the software "NVivo". We conducted a conventional qualitative content analysis (Hsieh & Shannon, 2005), as this inductive data-driven approach provides a rich description and understanding of the phenomenon under study (Downe-Wamboldt, 1992). The analysis consisted in examining language intensely by classifying large amounts of text into categories that relate to similar meanings (Weber, 1990). Third, relationships among these meaningful categories were identified and generated clusters (Hsieh & Shannon, 2005).

4 Findings

To understand the processes involved in the project, we highlight the results through four sections: *who* (i.e., the stakeholders and their dynamics), *what* (i.e., the interrelated layers of the project), *how* (i.e., the methods that helped the project to develop) and *when* (i.e., specific temporalities related to this project). For each of these sections, we illustrate our findings with quotations from meetings. Some information (e.g., names and architectural plans) are deliberately not included to ensure anonymity.

4.1 Who: the dynamics of stakeholders

In this first section, we focus on *the stakeholders involved in this process and how they interact with each other*.

4.1.1 The stakeholders' network

Throughout the study, we identified specific profile characteristics in our three main stakeholder groups (architects, older inhabitants & managers) that influenced the design process.

(a) Regarding the architects, goodwill, empathy and a pedagogical approach towards the inhabitants were observed. This strong human concern was reflected both through words and actions (e.g., facilitating a good understanding of the plans, asking questions to the users to understand their real needs). In addition, their approach was generally based on mediation and consensus. Finally, the architects had a strong focus on the budget and surface areas, although we perceived different perspectives between the two firms (e.g., different budget estimates, working methods, priorities).

(b) Regarding the older inhabitants, group cohesion was paramount. This desire for community was reflected in their housing choice (they gathered in one building instead of several), in the decision-making methods (they searched for solutions that are pleasant to everybody) and in the design of the housing units (uniformity of surface areas and rents for fairness¹). Another key aspect for the inhabitants concerned the high intellectual and cross-cultural capital of the members of the group. As most of them had been engaged in discussions related to “housing & ageing” for many years, they had a solid knowledge of related issues. Moreover, they—and especially one of them—had a good understanding of architectural processes and designs. A second key aspect for the inhabitants concerned the high intellectual and cross-cultural capital of the members of the group. As most of them had been engaged in discussions related to “housing & ageing” for many years, they had a solid knowledge of related issues. Moreover, they—and especially one of them—had a good understanding of architectural processes and designs.

(c) Regarding the managers, an unconventional stance was observed: while “traditional” property developers tend to have very definite demands and budget, the managers of this project were more flexible, favouring the health and well-being of the inhabitants rather than financial profit. Particular attention was paid to the philosophy of the project, the inclusion of users and partners and the integration of societal needs. The members also interacted with goodwill, openness and understanding towards the users. Its composition was varied and complementary (e.g., one member interested in financial matters, another in technical issues, a third in collective spaces, etc.).

The decisions, however, were not solely contingent on the architects, inhabitants and managers: many other stakeholders were to a greater or lesser extent involved in the process and therefore influenced the development of specific aspects. Figure 2 shows those main stakeholders, at the time of our study, through three roles: project users (i.e., those who are going to live, work and use the spaces), project developers (i.e., those who directly intervened in the design of the project), and project consultants (those who gave punctual opinions, pieces of advice, instructions or regulations on the project). Although this research mainly focuses on the groups in green, as highlighted by Czischke (2018), positioning them in this ecosystem of actors appears crucial to understand the dynamics generated in the decision-making system.

¹ Inhabitant: “to ask for the same rent for a flat of 52 m² and one of 65 m², I would be very embarrassed if I lived in the 65 m², and also in the 52 m²!”

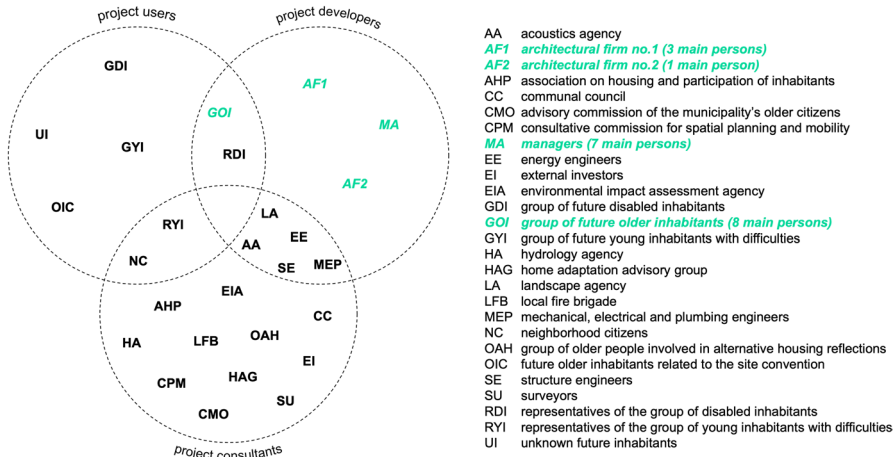


Fig. 2 Stakeholders involved in the project at the time of our study

4.1.2 The decision-making system

These numerous stakeholders brought complexity in the decision making, notably through successive impacts and interdependencies between each stakeholder, sometimes even leading to vicious circles (e.g., the architects needed the managers to define precise surface areas to determine the shape of the buildings; the landscape agency needed the shape of the buildings for the design of the surroundings; and the managers wanted to see the surroundings to decide on the surface areas of the buildings).

Indeed, at the origin of each decision, there are several actors, with their own needs and wishes, whether personal or professional (Fig. 3-I). These persons then gathered as groups (Fig. 3-II) through common roles and interests (e.g., older inhabitants) and, therefore, had to agree on common positions. Finally, once decisions were made within a group, they were discussed between the various groups (Fig. 3-III) to agree on appropriate architectural responses for all. In parallel, certain moments of ambiguity occurred when these three-scale clusters were not aligned: e.g., when a member of a group mentioned an option with another group, although this option had not been agreed upon “internally” before (Fig. 3-I). These clusters and the resulting decisions were also impacted (with delays, changes of position, etc.) by the consultancies conducted for the project (Fig. 3-II), or when there were uncertainties about who would actually use the spaces in the future (Fig. 3-III).

In the group of older inhabitants, although the members were still learning and testing decision-making methods, consensus decision-making was favoured and their overall goal was to gradually adopt “sociocracy”, i.e., “a harmonious organisation (of group dynamics) based on equality of voice, transparency and effectiveness” (Christian, 2003; Jarvis, 2015, p. 101). We therefore observed several moments of negotiations and discussions to find solutions that suited everyone (e.g., a balance between calmness and liveliness²). These moments were often time- and energy-consuming for them, as the group oscillated between

² Inhabitant1: “This street is a busy street with a lot of traffic” – [...] – Inhabitant2: “I find that passing cars, or passing people, add life and movement. Does it bother you so much?”

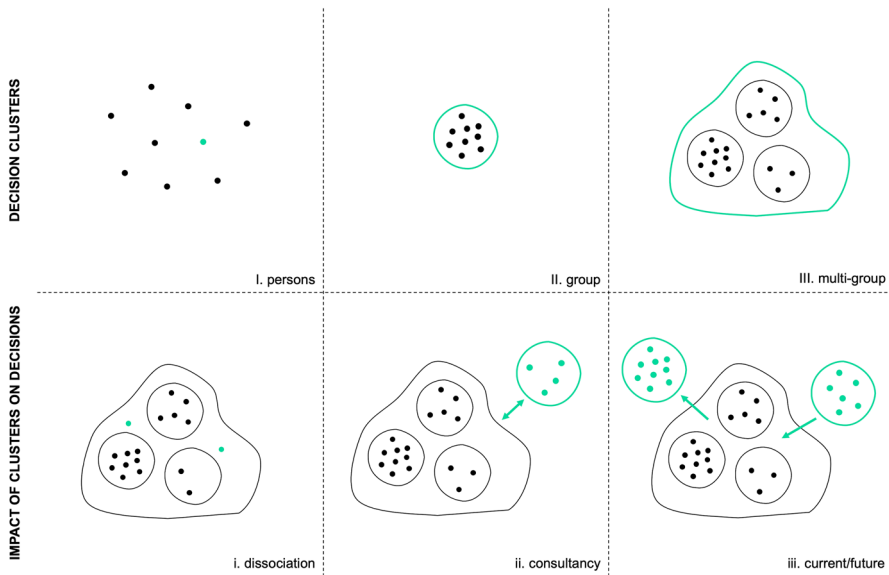


Fig. 3 Decision clusters & impact of clusters on decisions

various options and wondered how each could affect other people (e.g., the architects). Consensus was generally settled either by going for the same option for everyone or by accepting everyone’s preferences. This dilemma between “one decision for all” or “taking into account every individual wish” was also encountered by the managers, raising the issue of “who decides what”. We indeed noticed that the role of each stakeholder group in the decision-making was sometimes unclear, both for the inhabitants (who fluctuated between leaving the hand to the architects,³ deciding for themselves⁴ and rallying to the opinion of the managers) and for the managers (who fluctuated between the initial philosophy of the project, user needs and architects’ proposals). Yet the roles of the inhabitants and the managers were crucial in the development of the project.⁵

4.2 What: the various interrelated layers

These interactions between stakeholders were also complicated by the amount of data to be managed, i.e., the *various interrelated layers that were addressed in the project*. Indeed, to support the “ageing well” of inhabitants, several topics were discussed. Their relationships led to many design versions and real brain teasers for designers (which sometimes seemed to be overlooked by other stakeholders). Three categories synthesise these topics: the site, the circulation flows, and the living and activity areas.

³ Inhabitant: “I don’t think we should answer for the architects, I think we should give them the question and [...] they will give the arguments, ‘ok or not ok’, ‘it is feasible or not feasible’”

⁴ Inhabitant: “If we ask for too many things, we will end up letting the architects cut into it by saying ‘this no, this no, this no’ and we will miss essential things”

⁵ Architect: “[The client] is an important [member]. He must be able to position himself in relation to what we do, because [...] sometimes we don’t anticipate the use”

4.2.1 The site

Discussions about the site focused on the location of the buildings, their forms and inside-outside connections.

Regarding the location, the approach of the architects was to gather the main buildings and activities on a portion of the site, close to the village (livelier part), while leaving the rest of the site greener (quieter part).

The form of the building for the older inhabitants consisted of two floors and several wood facades, as were two other buildings on the site. These volumes were quite appreciated by the inhabitants, as their look was closer to, according to them, an “eco-village” rather than a conventional “nursing home”. However, in general, we noted that aesthetic issues were mostly delegated to the architects,⁶ while the resulting usability issues were of more interest to the inhabitants⁷ and the managers. This interrelation between the form of the buildings and its use occasionally resulted in the design of inappropriate or unnecessary spaces.⁸ However, a progressive listening and refining, combining several aspects besides aesthetics or techniques,⁹ was applied by the architects.

Inside-outside connections mainly concerned the orientation of the buildings: the inhabitants insisted on not having fully north-facing flats, but appeared surprised to realise that some wanted south-facing flats and others east-facing flats. In general, questions of natural light were very present in the reflections, both from the architects and the inhabitants.¹⁰ The building for older people was therefore designed to provide each apartment with a double orientation and the circulations integrated entries of light through the roof and the in-between floor. Two other main inside-outside connections concerned views on nature (that were particularly appreciated) and privacy or security issues of the ground floor (that seemed poorly addressed by conventional designs).¹¹

4.2.2 The circulation flows

Amongst the layers of the project, two major circulation flows emerged: circulation for vehicles and for people with reduced mobility (PRMs).

⁶ Inhabitant1: “But aesthetically, it will be less beautiful” – Inhabitant2: “Well, yes” – Inhabitant3: “But isn’t that their problem?” (talking about the architects).

⁷ Inhabitant: (referring to window sills) “If I don’t want to have 30 cm I’ll put a piece of furniture in front of it, or [...] I’ll cover the glass with something and that’s it. And if there’s a small wall that’s fine too because I can put little storage things”

⁸ Inhabitant1: (referring to a piece of roofing from the lower volume) “We don’t need a terrace for this guest bedroom, right?” – All: “No” – Inhabitant2: “I think it’s there for the look, it’s for the aesthetics”

⁹ Architect: “We are not just people who apply what the client asks. We try to bring an added value. We have [...] competences that the client does not have [...] and these competences are not purely technical. They are also skills of architecture, aesthetics, sensitivity, integration, and a story that we tell while building.”

¹⁰ Inhabitant: “LIGHT is VERY important, not having to turn on the light during the day in any of the private living rooms or even in the common area”

¹¹ Inhabitant: “how to be able to open the windows, especially in summer when there is a heat wave, [...] and at the same time keep them secure [...]” – Architect1: “[There are] relatively simple means which are tilt & turn windows [...] that go down like that and the ventilation is very good” – Inhabitant: “Yes, I know, we won’t be able to do better than that” – Architect2: “There are also special grilles [...] to have one of the windows protected by a grille, which is opened wide at night, so that as much air as possible gets in and there are no visitors” – Manager: “That sounds a bit like a prison!”

Vehicle circulation represented a major issue for the main stakeholders but also for the neighbourhood citizens, who were concerned about the consequences of traffic on their direct environment. This resulted in three major design decisions: the number of parking spaces imposed by the regulations was reduced by half; almost all of these were gathered in one place; and traffic inside the site was avoided (except for emergency vehicles). The latter however generated discussions: the architects and the landscape agency, more focused on landscape quality,¹² were favourable to a single, distant parking area (to encourage healthy walks and ensure a pleasant environment near the buildings). On the other hand, the inhabitants, more focused on usability,¹³ advocated for parking spaces near the entrance (to facilitate the access of people with difficulties or the drop-off of groceries). The stakeholders finally opted for the creation of some drop-off points, as they understood each other's points of view and agreed on the less desirable aesthetics of cars.

This point leads to the general circulation of PRMs. In that regard, we observed that the initial intentions of the stakeholders to design inclusively (e.g., for PRMs) shifted progressively into an "in-between" design (i.e., adapted or adaptable to PRMs but not totally). This "in-between" has been built on back-and-forth inputs of the three stakeholder groups, such as: mentions of the increase of surface areas and prices when adapted to PRMs; experience of associated constraints; unclear PRM specifications; or disagreements on the number and location of adapted apartments. Below are some examples, at the time of our study, of these in-betweens' decisions in the building for older people. They were sometimes assessed positively, sometimes negatively, depending on the objectives and the stakeholders involved.

- Common spaces and circulation are adapted for PRMs.¹⁴ However, the ground floor apartments, initially designed for PRMs, became adaptable.
- Individual bathrooms, initially designed for PRMs, are finally conventional, as a common PRM bathroom was also designed in the building.
- The terraces have a step, making access difficult for PRMs.
- Apartments were evolutive in terms of number of bedrooms but are no longer.
- Discussions regarding specific equipment for the circulation of PRMs (e.g., passage dimensions for medical beds or integration of storage for wheelchairs¹⁵) were initiated but not pursued.
- The land slope was initially managed to ensure a flat ground floor. However, the latest project versions included two slopes in the hallway.

¹² e.g., Landscaper: "I didn't plan any disabled parking space here because actually the four places fit right in the gable"

¹³ e.g., Architect: "you can't get to the door by car, that applies to all the buildings" – Inhabitant: "Yes, but we'll have people who can't walk!"

¹⁴ Inhabitant: "If you have wheelchairs, we have to plan for a larger space, even if we don't need it, but it's something we have to plan for because it's going to be a home for older people. We all have normal mobility, we are all still active, but we don't know what we'll be like in 5- or 10-years' time, so these spaces must allow [it]."

¹⁵ Manager: "I was in charge of a centre for disabled people. [...] As we age, the same type of equipment is added, i.e., tools and equipment to move around, such as rollators or chairs or lifts to take a bath. Are these elements integrated or can they be integrated into the current surface areas? [...] a lot of surface areas have been created to park wheelchairs [...] or to store rollators [...]. These are important issues in my opinion for the ageing reflection."

- The traditional staircase evolved into staircases that are easier to climb for older people¹⁶ (thanks to a longer step and a reduced step height) and the elevator into a platform lift. The vertical circulation was the source of many reflections, especially on the most appropriate equipment (e.g., stairlift chair? Elevator? Traditional stairs? “Easier” stairs?) and the location of an elevator (e.g., in every building? In the building for older people? Nowhere, requiring older and disabled people to automatically live on the ground floor, even when not desired due to fears of intrusion). Eventually, only the building for older people had a platform lift.

4.2.3 The living and activity areas

The third category of topics concerned the living and activity areas (i.e., the spaces, their functions, and interrelationships), through four specific zones: private, common, collective and public (Fig. 4).

Regarding the private areas (Fig. 4-I), many discussions took place to define the proximity of spaces and their connections in the apartments. Among the wishes of the inhabitants were: a kitchen close to the dining room, no night corridor, and a toilet that directly connects to the bedroom. The latter reflected a common objective from the inhabitants and architects, although arising from different reasons (issues of ease and comfort related to ageing for the inhabitants¹⁷ versus issues of space related to more traditional architectural concerns for architects). Moreover, bedrooms-related questions were prominent in the debates: for older people or a couple, are studios, 1-bedrooms or 2-bedrooms better? What about modular bedrooms accessible from common circulations? What kind of openings between the bedroom and the living room (no door, curtain, opening door, sliding door, sliding door integrated in the wall?)? Finally, many discussions of the inhabitants concerned furniture and focused on: height of sills to put furniture against walls; lower furniture for easier access; and lost spaces for furniture due to sliding or opening doors, radiators or curved walls. Storage location was also questioned: is a private dedicated room needed? Are common corridors used for storage? The latter was preferred, while insisting on the need to avoid “*falsely habitable*” spaces in the entrance areas.¹⁸

The transition between the private (Fig. 4-I) and the common (Fig. 4-II) areas was much discussed. First, from an acoustic perspective: the inhabitants wanted entrances to private apartments separate from the common room, and no bedrooms directly adjacent to common areas or to private living spaces. This attention to acoustics from the clients, quite unusual for architects, mainly came from an association of old age with hearing problems (both from the managers¹⁹ and the inhabitants themselves). Another strong link between the private and common spaces was noticeable in terms of surface areas. Regarding the building for older people, the managers and architects favoured interconnections: the more

¹⁶ Inhabitant: “We need [...] a good staircase, and we insist a lot because we are going to try to go upstairs as long as possible but for that the steps must be very easy”

¹⁷ Inhabitant: “the couple’s room is too far from the bathroom. Could we swap the two rooms?” – Architect: “The couple’s bedroom is in a privileged situation as it gives access to the terrace” – Inhabitant: “Yes, but it is more important maybe, well at least as important, to have a quick access to the bathroom during the night!”

¹⁸ Inhabitant: “[There are] many wasted spaces at the entrance of the apartments. [They are] unusable spaces, disguised as living spaces because they are stuck, without light, without possibility of storage, so small”

¹⁹ Manager: “We are talking about older people so they can put the TV on very loud”

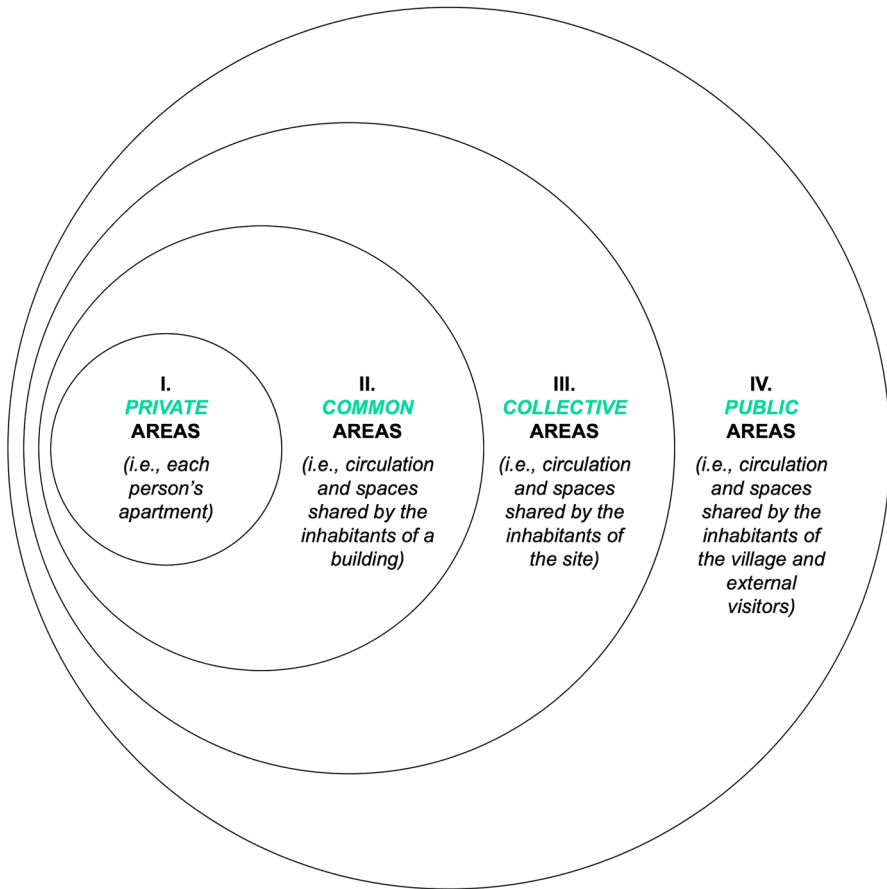


Fig. 4 Four specific zones of the project

space there is in the common areas, the less there is in the private areas, and vice versa. However, the inhabitants, in a hope to create a small, selected and caring community with similar values and activities, favoured larger common spaces. For them, the common areas represented an extension of the private areas; they were “*real private spaces but shared with others*”, used daily, in an “*ordinary way*” (not only occasionally, in an “*extraordinary way*”). The importance of the “social architecture”, of the “soft infrastructure” beyond the “hard infrastructure”, can be grasped here (Jarvis, 2015). Indeed, “invisible affective dimensions (of well-being and motivation), inter-relationships (people and place), thinking, learning, practice and performance” (Jarvis, 2015, p. 94) are raised through these reflections. Similarly, the common spaces were envisioned as the opposite of a nursing home. They included a large kitchen, dining and living room (that could be divided into different zones to enable various activities simultaneously), a laundry room, a guest bedroom with

a bathroom for PRMs, and cosy circulations.²⁰ The circulations also encouraged sharing (e.g., integration of benches, storage) but were separated from the common spaces to avoid lack of privacy and freedom when entering or leaving an apartment.²¹

The collective areas (Fig. 4-I) included multi-purposed rooms and a co-working space. They were the subject of many discussions and versions, as the managers and architects had difficulties in agreeing on their ideal size, cost and functions.

This vagueness about surface areas and functions was also reflected in the design of public spaces (Fig. 4-IV). These few spaces, mainly envisaged as flexible and directly related to the outside environment, represented a crucial element of the project, as they were envisaged as catalysts for life, both for the managers and the inhabitants.

4.3 How: the project development methods

This third section focuses on the “how”, *the methods that emerged among the stakeholders to develop the project*: (1) quantification, (2) prioritisation and compromise, (3) comparison, (4) projection and (5) specific communication.

4.3.1 Through quantification

A method strongly used by the architects to concretize the project was quantification through budget and surface areas. Indeed, while generally in favour of large areas in terms of architectural design²² (within the scope of what seemed reasonable for them), they were more reluctant in terms of budget (as being partly responsible for its management). Several times, they insisted on the need to quantify these areas in relation to the costs, beyond conceptual principles: a pressure to “get into the numbers” was felt and demanded. At the time of our observations, although some solutions were envisaged to reduce costs (e.g., distribution of costs over a large number of apartments, some finishings realised by the inhabitants), the project was difficult to finance and hardly accessible to people with low incomes. This situation was reinforced by: a desire for below-market prices while maintaining the philosophy of the project (i.e., unusually large and numerous shared spaces); current higher and more variable construction costs; different cost estimates between the architects of firm 1 and firm 2; and low familiarity with economic issues or precise surface areas among the inhabitants and some members of the managers. This led to different opinions on the project (e.g., the collective spaces were considered ideal by the managers, too large by the architects and too small for the inhabitants. In general, the inhabitants considered that large spaces are needed to be used, while the architects considered that (too) large spaces would

²⁰ Inhabitant: (remembering architectural proposals of the competition phase) “Often, they were big straight corridors painted in grey with a chair in the corner [...] we said several times [...] ‘Oh that looks like a nursing home!’”

²¹ Inhabitant: “Something that reminded me of a nursing home was a large common room and rooms that opened into the common room. You see, there was something that diminished the possibility of privacy and the possibility, yes, of being free to go or not to go”

²² Architect: “The bigger the commons, the more beautiful the project will be. I have no problem with the architectural aspect”

not be used) and sometimes to moments of “annoyance” or “letting go” in these surface areas²³

4.3.2 Through prioritisation and compromise

Second, to turn “living intentions” into “spatial design”, stakeholders made choices through prioritisation and compromise: they identified “essential” and “secondary” elements to reach a concrete outcome. The common objective of each stakeholder was to achieve a satisfying balance for all, which led to the emergence of these main questions:

- What is included in the older inhabitants’ *private* apartments, the *common* areas of their building and the *collective* areas of the site?
- Which spaces are already completely *adapted* to PRMs, which are *adaptable*, and which are *conventional*?
- How to provide a diversity of *inhabitants* (e.g., how many inhabitants, men, woman, (frail) older or disabled people, in each building, floor, part of the site?) and *habitats* (e.g., how many buildings on the site, housing units per building, rooms in the housing units? Homogenization or heterogenization of the plans?)?
- How to combine site and building *aesthetics* with *usability*?
- How to *facilitate* mobility (issues of proximity and accessibility standards) but also *encourage* it (issues of distance and positive health)?

A difficulty in achieving these compromises often came from different priorities between stakeholders. A key example of these divergent “ideal balances” related to the curved shape of the building the architects defended these curves as being integrated into a landscape ensemble and as giving a more domestic scale to the building, while the inhabitants were rather reluctant about these curves as they complicated the interior arrangement of the spaces. The compromise found was to keep these curves on the outside but to limit or eliminate them on the inside of the building.

In addition, we also noticed that stakeholders had sometimes similar priorities, but different ways of achieving them. For example, at first the managers were reluctant to gather the older inhabitants in one building (rather than a dispersal throughout the site) with large common spaces. This was mainly driven by a fear of non-openness towards the rest of the site and the collective, due to the possibility for the older inhabitants to live independently in their building. Yet, the openness on the site was, on the contrary, important to the group, which saw this gathering as a springboard for collective life²⁴ and as a daily life facilitator.²⁵ The priority was therefore identical (i.e., foster the collective life of the site) but the

²³ Inhabitant1: “So it will be a one-bedroom apartment and we will see how big we can make it depending on the architect” – Inhabitant2: “But we are the ones who have to tell the architect what size to put!”.

²⁴ Inhabitant: “On the contrary, this common and this group, that will have a life between them, will really be a springboard, will help people [...] because it’s not always easy to approach a very big collective space, very neutral, very polyvalent. [...] Older people are not necessarily going to approach this kind of place so easily. It will be much easier if it is WITH others”

²⁵ Inhabitant: “We are talking about ageing and even OLD people and I can’t imagine someone who is even with reduced mobility, or not, but somebody who starts to have trouble walking, to bring his laundry bin to the building next door, in winter or in the middle of summer, to go wash his laundry and then bring it back on the other side after”

methods differed between the managers (i.e., by a “macro distribution” of populations and activities on the site) and the inhabitants (i.e., by taking into account “user experiences”).

Finally, a last point impacting the achievement of these compromises and priorities lay in the difficulties that the inhabitants sometimes had in identifying what was feasible or not. This leads us to a third method.

4.3.3 Through comparison

Three types of comparison emerged during the design process. First, the stakeholders compared the project to references, both architectural (i.e., examples of similar housing) and theoretical (i.e., guides). For example, these references were employed to discuss collective spaces or adaptation of spaces for PRMs. However, a severe lack of references of similar projects was noted: architects would have appreciated finding projects of comparable scale to gather experiences on collective spaces (especially as the programme was rather new for them), and the managers would have been interested to include experts on these issues in their meetings to help them with specific reflections.

Second, stakeholders used comparison with “real spaces”. Both the managers and architects insisted on the importance of visiting spaces, as an educational method to develop the project in a more realistic way.²⁶ However, while these visits did help the inhabitants in their reflection²⁷ and decisions²⁸ about spaces (perception), they were not as effective in objectively considering surface areas (numbers).²⁹ At several times, the inhabitants therefore measured their own living spaces to imagine how they could design their future housing, to the point of even realising that they were living in a smaller home than they imagined.³⁰ In addition, measuring raised their awareness of rather “usual” or more “specific” architectural features. For example, they learned the traditional height of a classic staircase compared to a more easily climbed staircase. This “usual”-“specific” duality was also used as a method by the architects to confront the sometimes surprising requests of the managers with “known” tangible elements (and thus make them aware of their demands by other comparisons).³¹ Finally, the architects also used this method to support their design choices, justifying them as “usual”.³²

Third, stakeholders compared with their own experiences: they transposed their past or current experiences into the socio-spatial context of the project to express their preferences

²⁶ Architect: “They don’t realise the surface area, but that’s a rather educational question, [...] perhaps show what a 50 m² room looks like, [...] that will help them understand that they have gone into something that is probably too large”

²⁷ Inhabitant: “It hit me when we saw the common room at [name of a cohousing], [...] it was very interesting to see effectively ‘in so many square meters, here is what we can do’. Because we are not architects, the notions of space are not easy to apprehend”

²⁸ Inhabitant1: “Can you live with this idea?” – Inhabitant2: “Yes because I saw it at [name of a cohousing] and it was great”

²⁹ “It was a nice space but I have no idea how many square metres it is”

³⁰ Inhabitant1: “I realised that I was living in 70 m²!” – Inhabitant2: “Oh yes, everyone sent emails like that!” – Inhabitant1: “I was really dumbfounded by all this!”

³¹ Architect: (talking about storage in each apartment) “3 m² is a lot! [...] it will increase everything [...] it’s almost a bathroom!”

³² Architect: (talking about the parking) “The intention is to remain [...] at a distance of 15-20 m, you know, it’s quite usual”

or concerns (e.g., regarding the usefulness of an office space for a couple, managing a common laundry room, etc.).

4.3.4 Through projection

During their meetings, stakeholders, and particularly the inhabitants, had very extensive and detailed reflections on the use of spaces. Table 1 gives examples of projections, with the envisioned situations (left) and the related spatial features under discussion (right).

4.3.5 Through specific communication

A last method that had a major influence in the process was the communication used.

First, “denominations” issues (i.e., words employed and meanings behind them) appeared essential: not only to capture the essence of the project (e.g., links with “hospitable”³³), but also because different interpretations of key notions occasionally caused misunderstanding or disagreement between the stakeholders (e.g., when some saw “surface areas” as gross while others saw them as net). Sometimes, a vocabulary specific to architecture, and therefore non-familiar to other stakeholders, caused these confusions (e.g.,

Table 1 Projected situations and related spatial discussions

Projected situations	Related spatial discussions
Being motionless in your chair	Height of the window sill
Needing to stay in your bed	Possibility of removing the wall between the bedroom and the living room
Meeting, sitting, talking and reading in front of your apartment without being able to stand for long	Size of the corridors and possibility to sit there
Wanting to put a flower pot outside and a chair in the sun	Having a small individual terrace
Having one person in the couple that passes	(Non)occupancy of the bedroom
Wanting to use the common areas for: meetings, parties, eating, reading/sharing books, indoor cycling, sewing, TV, games, etc	Size and design of the common areas
Taking your groceries upstairs with mobility problems	Systems to access the second floor
Wanting to bring some furniture	Size and design of the apartments
Cooking with smells	Closure between the kitchen and the bedroom
Having to black out the windows during a heat wave	Window shading systems
Making sauerkraut or getting spaghetti	Location of the common storage
Making washing machines at night	Acoustics between the bedroom and the laundry room
Needing to access the cabinets that go up to 2m70	Storage accessibility
Doing meditation on your terrace	View on the parking lot
Being at the cafe and letting the kids play	Proximity of functions

³³ Inhabitant: (talking about the French word “hospitalier”) “What we want to do is not at all a hospital structure. Hospitable, yes, in the human sense, but not a hospital. A hospitable place, where you want to go. In a rest home we don’t want to go at all; we go because we have to”

“passageway”). Other times, they were due to unclear notions for the architects, because not or little defined by the managers (e.g., “modularity”). More punctually, the inhabitants also invented vocabulary to translate more succinctly architectural arrangements (e.g., “fries”), but that was not always understood in the same way.³⁴

Moreover, ways of communicating to other stakeholders were paramount: strategies were sometimes developed, mainly on the elements to be communicated (or not), and when, in order to ensure a good understanding by every stakeholder, and/or try to sell an idea.³⁵

Beyond words, communication through graphic documents was also paramount, as architectural plans were discussed in most meetings. This graphic communication occasionally led to distorted impressions but seemed, in general, relatively well understood by the stakeholders. In the group of older inhabitants, one of the members had a significant role in this regard, explaining several subtleties that were not understood by other members of the group. As with verbal communication, graphic communication proved to be important to vary according to the audience concerned, not only through architectural codes but also views: larger representations of the site were indeed desired on several occasions, both by the managers (to discuss the exterior arrangements) and inhabitants (to discuss the public and collective spaces).

Finally, a last major communication element concerned the feedback provided by the stakeholders to the architects. Throughout the process, the inhabitants reacted precisely and rigorously to the design proposals, also via written documents with comments. This feedback was, according to the architects, very beneficial to the project progress. The managers, on the other hand, were more vague and less explicit about their expectations, which was rewarding for the architects (as they had more freedom and the managers were often positive about their designs) but also unsettled them on several occasions and slowed down the development (as the requests were always changing and architects needed answers to move to the next stage).

4.4 When: the specific temporalities

In this last results section, we focus on *time-related factors* that impacted this project, particularly: (1) process temporalities (i.e., how the design process unfolded over time) and (2) living temporalities (i.e., temporal elements linked to the daily life of the inhabitants).

4.4.1 Process temporalities

Regarding the building for older people, the design process began with what was called a “dream phase”, partly initiated by the managers: the inhabitants identified their desires for each space and reported all of them. Although sometimes confusing,³⁶ this approach was

³⁴ Inhabitant1: “I don’t think we’re talking about the same fries. I’m talking about a living room that’s all lengthy with no light in the background, and you’re talking about the small corridors, right?” – Inhabitant2: “Yes, the ‘L’s”

³⁵ Architect: “The negative remarks were quite right and we had anticipated them [...]. The access for disabled people up to the door, we tried it, we said: ‘let’s propose it and see’ but we knew that it was a bit far, that they would be a bit reluctant. So, it’s normal and we know how to change that.”

³⁶ Inhabitant: “The problem is that until now we’ve been stuck in the creative process because we wanted to have our cake and eat it too, and [name of the main manager]’s smile too. [...] I agree to dream, but then knowing that we are in the dream and not yet in the constraints”

gradually refined by a re-evaluation of needs based on precise feedback from every stakeholder. This feedback made this building the most developed in the process.

For the rest of the site, the process took longer than expected. Indeed, for several months, the project specification was not sufficiently defined by the managers³⁷ (e.g., regarding surface areas or PRMs issues). This vagueness in the programme led to even more variability in the project (in addition to the complexity of any architectural project and the significant size and ambition of this project in particular³⁸). Late requests, late decisions and late changes of opinion also contributed to this delay.

In parallel, we observed different temporal approaches between the managers and the architects of firm 1. First, concerning the temporal order of the project development: the architects of firm 1 favoured a clear knowledge of the numbers and programme before the design and integration into the existing buildings, while the managers favoured a designed vision of the project before refining the numbers and programme. The unclear programme eventually led the architects to design the project according to their own visions and experiences, sometimes without conviction regarding the method³⁹ or some outcome.⁴⁰ Another different temporal approach between stakeholders related to “time pressure”: the architects tended to show the plans during or shortly before the meeting (to better explain the project),⁴¹ whereas the inhabitants would have liked a longer period between this reception and the meeting (to discuss and digest everything).

Finally, we noted that the stage of the building permit was particularly addressed, given its decisive, regulatory and fixing nature. On several occasions, decisions were taken precisely in relation to this permit, including adding buildings or features “just in case”, so as not to have to reintroduce a second permit later. This practice underlines the mismatch between urban planning regulations and the progressive use and appropriation of a site by its inhabitants, which leads us to the last section.

4.4.2 Living temporalities

The design was finally impacted by temporal elements linked to the daily life of the inhabitants. Table 2 highlights these specific living temporalities and their resulting design reflections.⁴²

³⁷ Manager: “We are aware that the fact that we don’t have a highly defined programme for this building is uncomfortable for the architects to progress”

³⁸ Architect: “It’s very complicated this kind of project, there are lots of pitfalls, all the time, so you have to stay the course, but it’s not impossible that one of the decision-makers decides to [give up] [...]. And if you don’t [give up], it could simply be a refusal”

³⁹ Architect: “When we don’t have a choice, we propose, but when we propose, the problem is that we’re not sure, and for the same price, the client says ‘well, no, that’s not what I want’ or [...] ‘well, OK, fine’. And then sooner or later he’ll be confronted with the reality that he’ll have to put his hand in the wallet to build this thing, and he’s not going to do it if he doesn’t have a clear idea of what he’s going to do inside”

⁴⁰ Architect: “We’re going crazy trying to get everything to fit when in fact we have the impression that these [small buildings] will never be made”

⁴¹ Architect: “In my experience, it’s important to be able to explain things, and if you don’t explain things, then people do their thinking in their heads and sometimes take the wrong path. In fact, they misunderstand things and that can sometimes crystallise if you want and then you can’t convince them anymore [...]. It’s not at all our aim to hide things from them but [...] we know that they won’t have the same view of these plans knowing that they’ve had an explanation of everything”.

⁴² Inhabitant: “She had the experience of sharing a place with other young people, with families, with children, but they are very busy [...], they have their activities according to the age they have. [...] people are away at work; the children are at school; and there is still a certain kind of isolation”

Table 2 Living temporalities and resulting design reflections

Living temporalities	Resulting design thoughts/decisions
Older inhabitants having different life rhythms than younger people ^a	Older people gathered in a building
Hurry to move in, given their age	Project divided into several time phases, allowing a faster construction of the seniors' building (at the same time as the development of the site)
Approaching the end of life and considering this housing as a last living place	Accommodation allowing a transition into (very) old age, possibly with health problems and a certain dependence (e.g., through adaptability)
Turnover of inhabitants expected to be more frequent with an older group	Questionings on the future inhabitants' distribution, the reorganisation of the spaces and expenses when one person of the couple leaves, the sobriety of the finishing of the apartments, and features encouraging different uses at different times (e.g., two housing units could become one large unit). These flexibility principles, however, were more discussed by the inhabitants and the managers than designed by the architects, probably due to a lack of clarity and budget
Appropriation of the project by future (unknown) inhabitants	Some spaces on the site were left voluntarily empty and, in general, one of the managers was very attentive to "leave possibilities of various uses" to the inhabitants and therefore flexibility of spaces, while ensuring attractiveness

5 Discussion

5.1 Complexity building through stakeholders, topic layers, methods and temporalities of the project

The study described in this paper reveals the complexity in which stakeholders operate to create cohousing for older people.

First, this complexity is rooted in the stakeholders themselves, their attitude and relationships ("who"). Although it is widely recognised that architects have a key role in the design process, which goes beyond responding to specifications (Dehan, 2009), our research also showed the crucial role of the managers in such developments (e.g., in terms of complementary within the team, definition of the guidelines, budget and roles, provision of feedback, etc.). In parallel, the study highlighted the significant impact of future older inhabitants and, therefore, joins a whole series of studies supporting the need to integrate users into the design process, to develop co-design approaches (e.g., Blair & Minkler, 2009; Lee & Ho, 2012). The progress of the building for older people was indeed greatly facilitated and concretised by these future inhabitants, through their knowledge, reflexive capacity, attention, assertiveness and organisation. However, while participatory or democratic approaches consider users as real and active key-stakeholders in the process, the decisions of the inhabitants in this project were subjected to the approval of the managers. This non-egalitarian relationship is mainly due to the system in which this project is embedded (e.g., the managers are in charge of the whole site, the older inhabitants will be tenants). It raises a question of "power slider" between the decision-makers and the users, as well as the delicate in-between position in which the

architects operate (as subject to the decisions of an “authority”, while designing “for users”). The development of this project indeed showed how unclear the stakeholders sometimes were about the final decision-maker (i.e., the managers, as they are the main clients? The inhabitants, as they will live there? The architects, as they are the most competent about architectural issues? The future unknown inhabitants, as they could appropriate the spaces?). Eventually, a qualitative listening and collaboration between these stakeholders, which is recognised as being essential (Mechkat & Bouldin, 2006), helped to navigate these issues, even when the visions and focus differed between the groups. This has resulted in long hours of work for every stakeholder and raises the question of their involvement and their remuneration (Palmer & Tummers, 2019). In the context of such complex collaborative projects, the integration of “middle-agents” specialised in ageing and/or co-housing (e.g., group facilitators) could potentially be more efficient for their development (Fernandez Arrigoitia & Tummers, 2019).

Second, the complexity of the development was also expressed through the inter-relationships of the elements composing the project (“*what*”). As emphasised by Dehan (2009), more than the sum of the parts, the question here is the overall quality of the “architectural whole”. Through the articulations of the site, the circulation flows, and the living and activity areas, several features were questioned. About ageing issues more specifically, the architects underlined several favourable aspects that are in line with the key dimensions identified by our previous research (Authors, 2022): the “implementation of direct desires of the people concerned” (affective dimension); the integration of guest rooms and shared spaces to “talk together”, “help each other”, “share needs and problems”, “feel less lonely” and “receive people” (social dimension); the design of “very rational small apartments” that are “new and therefore easy to maintain” and which allow for “relatively independent living”, as well as “very comfortable staircase” and the possibility of “installing a lift if needed” (health and built dimensions); and finally a non-isolated location allowing the “creation of dynamics and neighbourhood relations” (contextual dimension).

Third, to deal with the multi-level complexity, stakeholders (un)consciously adopt various methods (“*how*”). In this article, we highlighted: quantification; prioritisation and compromise; comparison; projection; and specific communication. Through all these approaches, answers were sought to deal with new and unusual factors. Indeed, this novelty is reflected not only in the project as such (i.e., there is no other project of this scale and with these objectives to date in Belgium), but also in the type of managers (i.e., usual property managers are more accustomed to architectural processes and value economic profit above all) and in the integration of users (i.e., inhabitants are usually little involved in the design of projects of this scale, especially when they are tenants). Moreover, the decisions were complicated by the double-scale design. Indeed, on one hand, the group of older people aims to design a cohousing that reflects their common values through “sociocracy”. However, on the other hand, they are also part of a larger scale project, the intergenerational cohousing on the whole site. Although the values of the older group and the overall project shared similarities, the priorities were sometimes different, leading to misunderstandings and extensive discussions between the stakeholder groups.

Fourth, the multi-level complexity of the project is impacted by changing temporalities (“*when*”), not only in the design process but also in the inhabitants’ lives. This variability led stakeholders to: have to decide on a design at a given time while knowing that it will evolve afterwards (for the managers and inhabitants), constantly have a plan B in mind (for architects), and respond to current needs while anticipating possible futures (for all). In

addition, by specifically targeting older people, the temporalities of both the process and the design outcomes become specific, especially in terms of life rhythms and projections.

5.2 Identification of dual trends

In addition, and directly linked to these four previous points, it appeared that the project was built in a complex juggling act that tends to balance generally opposing factors. Indeed, a design that supports “ageing well” might lead to the emergence of “tensions” or “competing poles”, which sometimes need to be simultaneously considered (Authors, 2022). In this project, in particular, we identified seven main ones (Fig. 5).

First, there was a tension of *homogeneity vs heterogeneity* in relation to the population age, mainly in terms of distribution of the inhabitants’ profiles throughout the site. This issue is also raised by Labit (2015), who highlights both this homogeneity (as the project can then more easily take into account needs of older people) and heterogeneity of age (as the project can then include people that won’t have difficulties that appear at the same time). This question of intragenerational vs intergenerational, although nuanced by the stakeholders of our project as presenting “intergenerational within intragenerational” (i.e., a group of people from 55 to 100+ include several generations), raises the broader question of “desired” or “imposed” relationships by the managers (when they were concerned about older people being in one building rather than scattered throughout the site): does “cutting” certain ties (here, intragenerational) really “favour” others (here, intergenerational)?

A second directly related tension in the project concerned the *private vs shared* spaces. For the future older inhabitants, the distinctions between private and common spaces were intended to be fluid, as they were seen as an extension of each other, but with clear limits to maintain privacy. These subtle connections between private and collective spaces as well as the atmospheres created were particularly important for the wellbeing of the older group, as these elements strongly influenced whether or not they feel like they are in a “nursing home”.

Third, the *singular vs universal* nature of spaces, or the *personal vs collective* aspiration, or even sometimes the *particular vs ordinary* question appeared in the process. In other words: should we design in a particular and personalised way for each person or in an ordinary and generalised way for a group of individuals sharing common characteristics? In this project, “group” design prevailed over a design of “singularities” advocated by Andrès (2017). However, this design was counterbalanced by a significant projection and future appropriation from the inhabitants. This duality also questions the specificity of housing “for older people”. Indeed, most of the topics discussed during the meetings would also have been discussed in the case of a cohousing for younger people: a home for “ageing well” should primarily be a home for “living well”, regardless of age. However, this “particular-ordinary” tension should be properly tackled: by only considering “age-specific” factors, the architectural design could become too medicalised (e.g., nursing homes-like); conversely, if only “general” factors specific to all humans are considered, housing may become unsuitable for ageing (e.g., conventional housing).

This issue raises a fourth competing pole, about the *fixed vs polyvalent* nature of spaces, or *mono-function vs poly-functions* tension, also widely addressed in this project. In that regard, the architectural work of Delhay (2021) is particularly interesting, as she tends to design “spaces of freedom” rather than predefined “functions”. Such an approach encouraging appropriation was particularly supported by some managers,

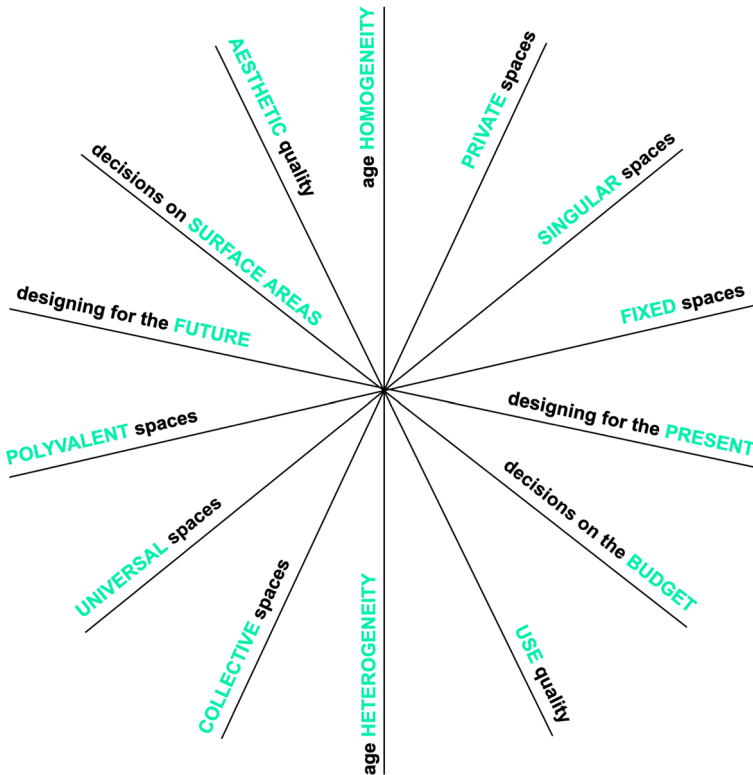


Fig. 5 Seven tensions of the project

but was rarely embraced by the designers, who rather sought precise surface areas and functions. Yet, rather than black and white, this tension could be conciliated, as Stam et al. (2019) discuss with the notions of “specificity” (“having influence on usage”) and “openness” (“without controlling it”). These considerations are essential since living habits change with life and old age: for example, often, the number of bedrooms needed decreases, the living areas used gradually shrink, and the time spent in the home increases. How could we therefore design homes that are suitable for any age, depending on the time of the day, the year or even the life?

This is directly linked to the fifth tension identified: designing for the *present vs future*. In the project, this question arose in particular regarding the accessibility of spaces, for which the stakeholders favoured a twofold approach: both by bringing a joyful vision of ageing through the concept of positive health (without reducing it to a physiological definition, as also supported by Hammond, 2018), and by taking into account possible difficulties that may arise in the course of ageing. It can be noted, however, that while many features facilitating the mobility of people and the flexibility of spaces were envisaged and discussed, not all of them were implemented in the project, due to cost, surface areas and definition issues.

Indeed, the sixth tension, *budget vs surface areas*, was decisive in several respects. It even led to contradictions among the stakeholders: for instance, the managers requested small common areas but chose the largest version of the architects’ proposals for collective

spaces; older people were looking for affordable rents but at the same time asked for larger living areas; and the architects, were reluctant to design large areas from a budgetary point of view but not from an architectural point of view. Several times, spatial and living quality were associated with surface areas. However, this research highlights numerous additional factors involved in this spatial quality (e.g., inside-outside connections, private-collective connections, etc.).

Finally, a last tension, *aesthetic quality vs use quality*, emerged during the project, especially through two examples: the curves of the building (positive for the landscape quality but negative for the furnishings, according to the older inhabitants) and the parking places (far away for visual purposes, too far away to ease access of frail people). These differences in perspective are in line with some findings indicating that clients generally prioritise qualities of use over formal issues, even if the latter are valued as complements (Segaud, 1988).

6 Conclusion

An increasing number of older people are looking to develop or integrate cohousing facilities, as a way of approaching the opportunities and challenges related to their ageing process. Yet, to date, few projects are actually completed. We therefore aimed to understand the early real-time processes and outcomes of an age-friendly cohousing project. To grasp this development, we followed the interactions occurring between architects, a group of future older inhabitants and the managers during a 10-month period. The results presented in this article highlight design dynamics through the stakeholders involved (who), the subjects addressed (what), the methods used (how), and the associated temporalities (when). More specifically, they reveal the architectural project as a multi-level complexity, especially through seven tensions in the case of cohousing for older people.

This cohousing project was based on ambitious intentions and defines inspiring guidelines for future housing of older people. Its objectives of inclusion and creation of social links, beyond economic profit, were particularly commendable. Through its development, however, difficulties, weaknesses and shortcomings related to this type of housing design were identified. These factors sometimes extend well beyond architecture and call for further development of similar projects and related research, for example, by exploring innovative stakeholder eco-systems including “middle-agents” (Fernandez Arrigoitia & Tummars, 2019); by connecting such architectural processes to decision-making research from sociology, organisational behaviour, or complexity theory; by delving further into these age-related collaborative dynamics in the still underdeveloped Belgian context; or by understanding how these seven identified tensions are shaped in (and do shape) other housing projects for older people. Finally, we also encourage additional detailed-research similar to this study in order to better understand how to foster housing and design processes conducive to the well-being of older people.

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Declarations

Conflict of interest The authors declare that they have no conflict of interest.

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