

Residential architecture for the frail ageing aiming for innovation – trapped by speculation

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Abstract

In 2006, a Swedish municipality, part of the expansive building market that the Greater- Stockholm region constitutes, opened an architectural competition that focused on a renewal of local residential architecture for the ageing citizens. The competition also included the task to design the very initial part of a new development that today is the buzzing area of new futuristic housing for modern Sweden. With this dual objective, the municipality hoped for innovative housing for both able and not so able seniors at the same time as the controversies around dismantling a former military airfield were settled. Some 33 proposals were submitted.

In 2012, after a five-year programming and construction process the new residential care home was finally inaugurated. Or, more accurately, this was the end of a building contract that was obtained in a public tendering process, but severely affected by building contractors wish to enter the then overheated building market at the Swedish capital. Put crudely, this was the beginning of a 10-year municipal building project of constant maintenance work to make the building functional for its frail residents and ultimately as a residential care home.

The present study is based on a follow-up research project that for 16 years followed the idea of the municipality to renew architecture for ageing by an open architectural competition with an extended competition brief on future-oriented architecture for seniors. The study describes the tumultuous conversion of the winning proposal for a new residential care home through a building, refurbishment, and renovation process in which the first frail residents and staff become the hostage. What was intended to be a swift and easy building project turned into an exploit of public tenders to conquer a new building market.

Key words: residential care home architecture, building market, tendering, architectural quality.

Introduction

An air-borne virus challenged all achievements of the modern welfare society during the period of 2020-2021. Among the Nordic countries, Sweden was the country that was the most touched by the pandemic. With such a drastic historical change it is an open question whether research pre-pandemic will have the same relevance as research post-pandemic, at least, when it comes to research about architecture for the frail ageing process that requires 24-hour care and caregiving. Several conclusions on Swedish eldercare during a pandemic suggest that existing design solutions must be revised, however, the mechanics of architectural competitions, tendering processes and building and construction are probably also in need of revision. This study is about a residential care home with an innovative ambition that met the harsh realities of modern building, 10 years before the pandemic.

By the end of the 20th century and in the beginning of the new millennium, the typical ageing process of senior Swedes changed appearance (Szebehely 2005). The expected age-related problems, i.e., high blood pressure, heart diseases, respiratory and locomotory problems started to decline, while the number of brain-related problems and diseases rapidly increased. Gradually, the envisioned model for eldercare and the architectural design solutions for housing for older persons in need of regular caregiving became obsolete. Focused on solving problems for a person with predominantly somatic age-related problems and living independently in a homelike environment with a high level of accessibility of the physical

setting, the municipal eldercare faced a completely new group of seniors. This group often maintained an overall good personal physique with few somatic problems, instead, they experienced a continuous cognitive decline due to brain diseases, i.e., dementia (Fratiglioni et al. 2010). This resulted in an increasingly larger dependence on care staff and relatives to uphold activities of daily life. For this group, an independent living in a three- to four-room flat was not desirable, rather a community living with smaller flats, often a studio flat with kitchenette, connected with a larger communal space for dining and socializing was the best alternative (Paulsson 2001).

Residential care homes and municipal responsibility

During the 1990s and the first decade of the new millennium, the architectural design for new residential housing revolved around a spatial unit-prototype that described 8-10 studio flats organised around communal space that was divided into space for daily meals (breakfast, lunch, snack, dinner) and space for leisure activities, often with the television set in a central location in this space (Schwarz 1999). Given the spatial entities, the unit included a long passage, a corridor, with flats on both sides, or the passage integrated in the communal space so that the flats all had a direct connection to this space (Dehan 1997, Regnier 2002). Ultimately, the number of units that were put together depended upon the demographic need in the specific municipality. Hence, in the inner-city environment, several units were assembled to form multistorey solutions, while at the countryside, some 4-6 units were needed to solve the local ageing problem.

Coinciding with a revolutionary change in Swedish eldercare, the so-called noble reform in 1993 – noble after the Swedish abbreviation for the parliamentary committee that prepared the reform – transferred the responsibility for providing appropriate housing for older people in need of eldercare from the counties to the local municipalities (Brodin 2001, Selander 2001). This shift meant that convalescent homes adjacent to larger hospitals needed being converted from the hospital-like environment into a homelike environment along the described spatial prototype. During the same time, the Swedish building industry experienced a deep recession that paralyzed further investments in new housing and other buildings. The amount of new housing dropped to levels like the ones of the late 19th century (Boverket 2012). Contemporary Sweden still suffers from this decline in available housing, especially troublesome for both the younger and older part of the population.

Public procurement and recession

The public procurement of residential care homes for older people started to develop during the 1990s and the first decade of the new millennium. During this period, the conversion of older hospital buildings into new housing for frail older people following the reform in 1993 along with newly built residential care homes constituted an essential market that allowed for the large Swedish building companies to survive on the national market (Holm Bodin 2004). The recession also forced these companies to participate in competitive biddings outside the Swedish market, in other Nordic countries, other EU-member states or internationally. Given the sudden expansion in the numbers of older persons with a dementia-related diagnosis together with attempts to assume the new municipal responsibility after 1993, municipalities re-used successful programming documents for already built residential care homes for other homes around cities or at the countryside, thus deliberately repeating an architectural design or allowing for new design solutions (Andersson and Rönn 2013).

The main criterion was to avoid to the largest extent possible an institution-like environment and to promote a setting that most users, i.e., - residents, relatives, and staff – perceived as a positive homelike setting. Since 1983, the national recommendation for the setting in a residential care home was to create a homelike environment, since both national and international research on people with dementia suggested that a recognisable setting had a supportive quality for this group of older people (NBSW 1983). Existing residential care homes were evaluated in terms of user satisfaction – residents, relatives, and staff – so that exemplary models for appropriate residential care homes were defined and could be visited by other municipalities. Especially, residential care homes with a special take on eldercare that focused on the older person's individual needs were forwarded, like the residential care home residential care home Vigs Ängar in southern Sweden (Husberg 2014, Husberg and Ovesen 2007, Andersson 2017). Both the building design and the caregiving had an anthroposophical approach and with the unique

circumstance that the architect for the building also became the head of the residential care home.

Architectural competitions as a socio-political instrument

Architectural competitions were used as a socio-political instrument for either defining an architectural prototype for a specific building brief or to renew and integrate innovative ideas on appropriate eldercare in novel architecture. During the period 1995 to 2015 some 80 architectural competitions were organised by Swedish municipalities in close collaboration with the professional organisation for architects, Sweden's Architects (Sveriges Arkitekter) (Andersson 2014). Being officially appointed as the key stakeholder in the organisation of competitions for architecture and design, the Swedish organisation for architects has a strong influence on how architectural competitions are realised nationally. The organisation supplies guidance for the organiser on how to write a competition brief and advice on the appropriate type of competition format to choose for the task. In addition, the organisation helps the organiser to form a competent jury with at least two expert members who are appointed by the organisation based on their documented architectural experience of the specific building task and previous experience as jury members.

The service also includes a secretary who will follow the competition from the formulation of the competition brief to the jury evaluation of proposals that are submitted in response to the brief. The secretary also monitors and assemble a jury assessment report that summarize the competition with short summaries of each proposal that have obtained first, second, and third prize, or an honorary mentioning by the jury. In 2010, the Swedish government allocated some fifty million Swedish crowns (SEK) for various activities that would improve housing for older people living in residential care homes or in need of a flat in that type of housing (Andersson and Rönn 2013). In the end, some 20 million SEK were invested in architectural competitions that five municipalities organised (ibid.). However, just three municipalities were able to organise architectural competitions. The modest outcome was due to the poor availability of buildable sites since Swedish planning regulations stipulate a ratified detailed plan for a site. The detailed plan contains all programming requirements for the future building.

Aims and purposes

The background that is presented above on residential care homes built during the period of 1990-2010 describes a firm belief among Swedish authorities in the use of exemplary models for care facilities and a trust in programming documents for realizing an envisioned level of building design and quality of eldercare for older persons with a frail ageing process. However, other research from the same period suggests that qualitative values often have a weak position in relation to quantitative values when the design process proceeds from vision to concrete realisation and practice.

To study this phenomenon closer, the following text is concentrated on one case. This case was a 10-year follow-up study of the realisation of a residential care home project that started with the highest ambitions for the creation of a new innovative residential care home but ended up being a building not in pace with its inhabitants and intended usage. Consequently, a series of adjusting measures has had to be undertaken during a course of years to correct these flaws and make the residential care home into what it was originally was planned for. The research question for the study was whether the design for a residential care home followed the traditional definition of designing an artefact according to design theory or whether this definition must include more steps to correctly depict the process of defining an architectural design for a municipal residential care home.

Theory

The noble quest of solving a spatial problem within a stipulated amount of time, anonymously submitting drawings that demonstrate a solution and being evaluated by a board of jurors is part of architecture history since the mid-18th century. This cult of genius had a strong influence on the classical training to become an architect, the so-called Beaux Arts tradition. With the French Revolution, competitions in architecture took the leap from being an educative element of the classical training of architects into becoming a professional tool for the corpus of architects in western Europe during the 19th century (Chupin, C. and Helal 2015). Today, most countries that are members of the European Union recognize architectural competitions as a tool for public procurement of different buildings, infrastructure, and

complex spatial problems. The architectural competition often includes four clear stages:

- 1) Defining the competition task and writing a competition brief (organiser);
- 2) Selecting architects to take part or making an open call (organiser);
- 3) Responding to the demands of the competition brief and assembling an architectural design in answer to this (participating architects);
- 4) Evaluating and designating the most feasible and suitable solution on the spatial problem at hand (organiser through the competition jury).

Swedish architectural competitions are focused on boosting the creative input rather than balancing architectonic vision with functional requirements. Hence, the fifth step, which refers to the realisation of the winning proposal by the winning architect, is sensitive to political manoeuvres and public opinion. This is the ultimate gain of participating in an architectural competition – to have a spatial idea realized – but this is also perhaps the most critical moment of the competition. Architecture history but also a recent Swedish case show that the winning proposal in a competition not always is realised, e.g., the winning proposal in the prestigious competition for an extension of the Stockholm City Library opened in 2006 and terminated in 2009. Architectural history holds examples when the potentially most suitable architectonic solution has not been realised, rather, second or third prizes due to the heated debate that architecture or matters of taste seem to generate. In 1664, the jury in the architectural competition about the east? Façade of the Louvre dismissed the proposal that Italian architect X Bernini had been invited to submit (Andersson, Bloxham- Zettersten and Rönn 2013). In 2009, the layman representatives of the jury in the Swedish competition about a new residential care home in the municipality of Ljungby in southern Sweden chose to designate a proposal from a local architect as winner while the expert members advised against and voted for another proposal (Andersson 2011).

According to design theorists, the germ of an architectural idea can be found in a word, an image, a sound, or any type of stimuli – the so-called generator image – that set off the spatial imagination by the architect or group of architects (Darke 1979). The architectural idea is normally focused on a specific problem, not necessarily to solve it, rather to handle and potentially integrate it in the architectural design. To design implies defining and deciding about the shape of an artefact that may refer to a building, a car, or any man-made object (Cross 2011). Design theorists normally situate the concept design process to the early phase of this decision-making process that involves a dialogue between the designing player, the deciding player, and the context in which the design evolves (Lundequist 1995). The American philosopher Donald Schön describes the design process as a reflection in action in which the designers' acquired knowledge, both theoretical and practical knowledge, is challenged through the design task, the commissioners of the specific design and decisions about the orientation of the design (Schön 1983).

The aim of the design process is to develop a prototype of the intended object that fulfils both artistical ambitions by the designers and functional requirements by the commissioners. At this point, the initial phase, the conceptual design phase, ends the design process and a new phase is opened. The prototype has achieved an envisioned level of detailed information. The main design phase begins, which means that the prototype is further programmed and specified through diverse types of drawings, architectural and engineering drawings, and calculations, which aim for realising the prototype as a full-scale building or other types of artefacts. At this stage of a building, the assembled information about the design product can be submitted as documentation for a building permit according to national building legislation. The very final stage, the detailed design phase, includes further adjustments of the prototype along functional, practical, and legal requirements.

The two final stages refer to the realisation and the utilisation phase of the building. During both stages, minor adjustments will occur to address errors and flaws that often appear despite the most meticulous planning for a new design product (Ryd 2003). These adjustments can be related to mistakes when preparing the prototype or changes made to building products that will necessitate other changes of the full design. Danish research on the national realisation of residential care homes suggests that decisions taken during the realisation process often are disconnected from the initial ambitions that have steered the architectural design. Instead, financial, or rational concerns take priority (Knudstrup, Hovgesen and

Moeller 2007). Finally, users of a new building will adjust space with artwork, furniture, textiles, and electrical lighting but also other means that can be ranged under the roof of the psychological term of appropriation of space, i.e., attributing space with spatial markers that define individual territories that we humans often require to create an existence in a built environment.

Methodology

The following research is based on one individual case, a residential care home in the municipality of Järfälla that was inaugurated in 2012. The municipality is part of the Greater Stockholm-region. The architectural design was the result of an open architectural competition that was held in 2006-2007. The competition had a clear focus on innovating architecture for the frail ageing with increasing dependency on caregiving. After the winning entry was declared in February 2007, the author of this paper, either as expert consultant or as researcher, followed the realisation process from 2007–2010. After its competition in 2012, follow-up interviews and study visits with students in elective courses followed. In 2014, funding was received to make a follow-up study of the realisation process of the residential care home. This study occurred during 2015 to 2019.

The main source for the study was interviews with persons in key positions in the realisation process of the building. The interviews were recorded and lasted up to 1 hour and half. They were later verbatim transcribed and sent for approval by the informant. Due to a complex realisation process, it was early decided to anonymize the informants, which today also is logical given demands on research ethics and the GDPR. A secondary source is close reading of documentation from the realisation process 2010 to 2012 (Brummett 2010, Groat and Wang 2002). A third source was the study of architectural drawings and other blueprints from this stage in the realisation that corroborated knowledge acquired from the interviews. Fourthly, over the years 2012 to 2019, the residential care home was part of the education that the author gave at the School of Architecture at the Royal Institute of Technology, KTH, in Stockholm. The residential care home was subjected to regular study visits by students and visiting researchers, among others study groups from Australia and Japan.

Result

This section is divided into four independent sections. The first part is concentrated on the architectural competition and the evaluation process of submitted proposals. The following part, the second one, is focused on the adjustment and programming phase prior to the production of construction documentation. The third part describes the steps towards a building permit and tendering documents. The fourth entails the building process and realisation of the winning proposal into built space. The fifth and final part presents the way towards making the building usable as a residential care home.

1. Architectural competition and evaluation

At the beginning of the 21st century, the population's ageing of the municipality of Järfälla indicated an increasing need of eldercare and new residential care home. Being one of the many municipalities around Stockholm that experienced a dramatic change during the 1960s and 1970s, i.e., turning from a mainly agrarian land-use and population into bustling varied industrialisation and rapid population increase, this was the first time the demographic composition indicated an imminent need for housing for the ageing citizens parallel to housing for younger persons. The municipal survey suggested the need for an architectural rethinking, since most buildings for this purpose were based on obsolete recommendations that promoted an institution-like environment rather than a homelike environment. The inquiry was led by the municipal administration for social matters, in the following AFSM, which soon picked up new tendencies in residential care home architecture and an individualized eldercare with clear associations to the previously mentioned Vigs Ängar.

Grappling with the problem of finding suitable locations for new residential care homes as well as developing a suitable programming document, the AFSM soon realized that the matter of new residential care homes must be paired with the overarching problem of finding exploitable land in the municipality. The latter matter involved the future for the large land area that a former military airbase occupied, 15 km north-west of Stockholm city. As way of solving both problems at the same time, the Administration for physical planning, in the following AFPP, suggested an architectural competition for architects and

other design-related professions (open architectural competition). The conditions for the competition were elaborated in close collaboration with the professional organisation Swedish Architects (Sveriges Arkitekter), which monitors and supervises the use of architectural competitions in Sweden. Swedish was the official language to use on drawings and in other documentation. Uncommonly, the writing of the competition brief became a task for the AFSM. Consequently, the competition task became two-fold, housing for older citizens and physical planning of the very first stage of turning the airbase into a modern housing area, now called the Barkarby staden (the city of Barkarby). The brief intended to boost rethinking about housing for older people by including added information about medical-technical products, photos from an inspirational residential care home, in this case, Vigs Ängar, and a historical backdrop to housing for frail older people. Some 33 proposals were submitted by an equal number of participants.

The competition brief addressed a series of matters stretching from physical planning to a vision of ageing at home comfortably. The brief envisioned the integration of new medical technologies and installations both in the ordinary and special housing setting so that life-long medical diseases could be treated in the home environment. The brief used both textual and imagery material to evoke the envisioned direction that the proposals would assume. The evaluation process involved a x-members jury who at its disposal had three advisory groups within two fields of expertise: 1) future-oriented group on residential care homes assembling different experts within and outside the municipality; 2) referential group assembling local representatives of NGOs active in the field of care and housing for older people and local representatives of local parties. Quite soon after the first exposition of all submitted proposals, the jury found a handful interesting proposals on which they focused their analyses. The evaluation focused on level of innovation in the architectural design of the residential care homes and how eldercare could be integrated in ordinary housing, but also performed in the main area of the new city.

In February 2007, after six meetings, the jury assigned a Danish proposal with the poetic name Flower Meadow as the winner of the competition. A second but no third prize was also issued as well as three honorary mentions (Järfälla_Kommun 2007). The jury report especially highlighted the fact that the residential care home was positioned in the centre of the new settlement close to a natural creek in a west-east direction that was liberated from the concrete encasement that the airbase activities had resulted in. The central location along with a variety of forms of housing – terrace houses, flats in low-rise and high-rise buildings – and the access to green space were qualities that the jury found especially valuable in a settlement mainly oriented to senior citizens aged 60 years or higher. The residential care home also included a restaurant and spaces for venues which opened this building towards the surrounding settlement. The jury considered the flats in the residential care home too small and the units in need of further revisions. Customary to most jury reports in Swedish architectural competitions, other remarks that related to the brief and the submitted proposals seen as an entity were also discussed in relation to the winning proposal.

II. Preparing for winning ideas to come true

Quite imminently, the municipality took organisational measures for the realisation of the project, both the detailed development plan and the residential care home. A special project group was formed by associating key persons from the municipal government office, the administrations for physical planning, real estate, and social matters. In addition, the two most influential politicians from the left- and right-wing parties were included in the organisation since although the majority between the political blocks tended to shift in the local elections every fourth year, a consensus was struck in communal matters. In this case, the communal matter for the two blocks was closing the old airbase and redevelop the area into a new settlement. In April, the new formed project group embarked on a trip to Denmark to study the latest Danish residential architecture outside Copenhagen and down to the city of Aarhus. The winning architects organised the three-days trip. In the mid-2010s, architecture for the frail ageing process was a lucrative business for Danish architects since new state funding had been released after a national research inquiry on appropriate space for ageing over the years 2000–2003 (Knudstrup et al. 2007). The trip included representatives from the two largest political parties, two representatives of the AFSM and one representing the AFPP.

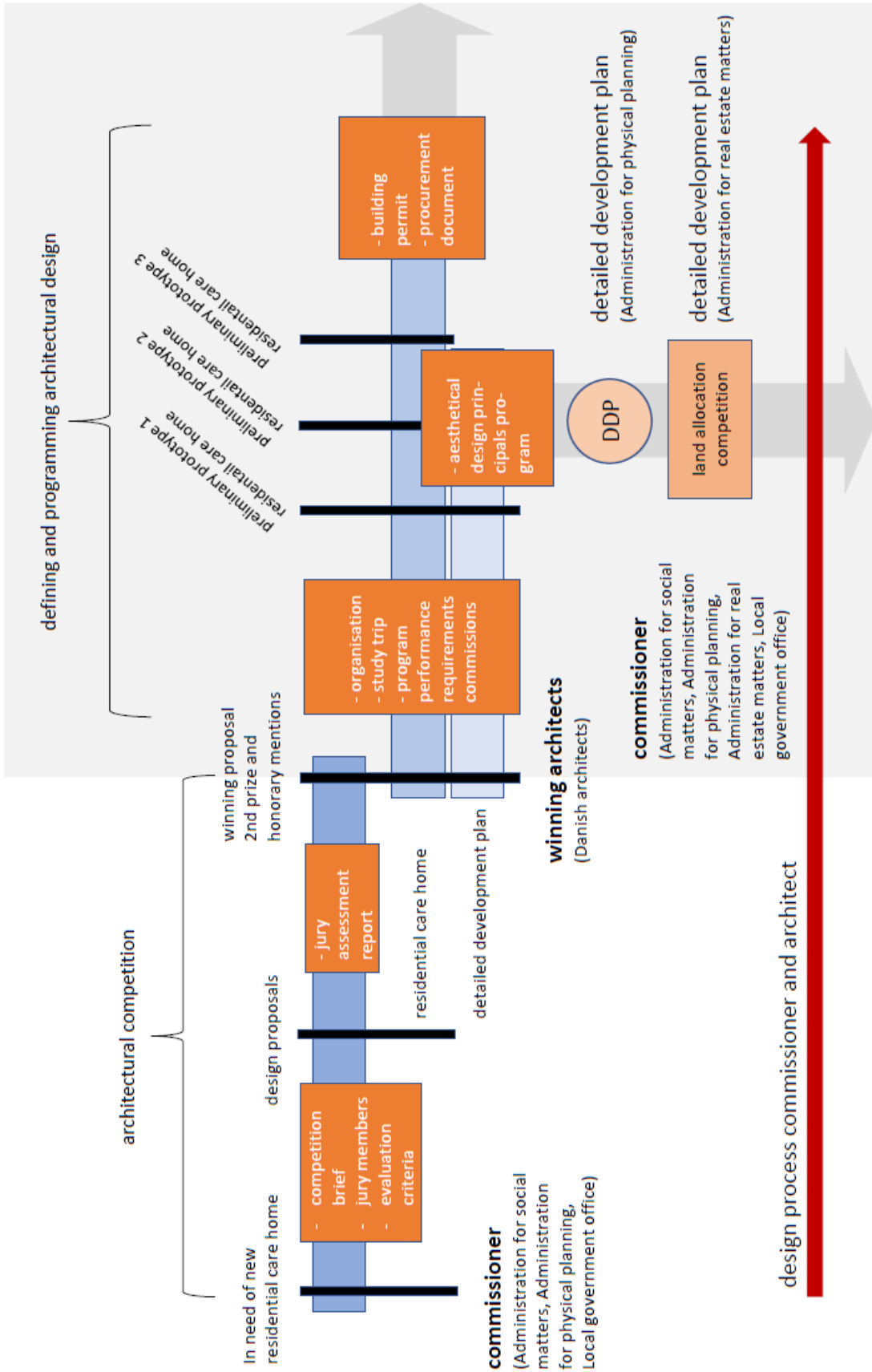


Figure 1. Overview of the design process concerning new housing for frail older people and the development a detailed development plan using an architectural competition that continues as an architecture commission.

Directly following upon the announcement of the winner of the competition, the municipality of Järfälla initiated a task group to respond to the winning design proposal for the residential care home. This turned out to be a thorough analysis of the configuration of the individual flat and the configuration of a unit. Overall, the AFSM was positive to the full design proposal, however, they saw problems with an S-shaped building and asked whether the design could assume an 8-shape so that connection points were created that allowed for shortcuts and continuous loops inside the building. This idea would create advantages for both the staff and for the older residents but also integrate new knowledge on appropriate architectural design for people with dementia (Dehan 1997, Pynoos and Regnier 1991). The municipal response also contained other information about functional requirements for modern residential care homes. Thus, the document could be seen as a preparatory draft of a performance requirement program for the new residential care home, covering necessary fitments and installations of the different spaces inside the building. The Danish architects adjusted their design proposal for the residential care home according to the municipality's analysis.

In August 2007, preliminary drawings of the two-storey building were ready. A consultation process with key actors within the municipality was initiated to scrutinize the configuration and layout in detail. During the fall, representatives from the municipal care staff and the local representatives of unions were invited to sift through the drawings and discuss appropriate sizes for studio flats and space for communal space for a unit. Five meetings were held with this group of professionals within eldercare. This consultation concluded that the studio flats were too condensed and lacked space for storing assistive equipment like wheelchairs, walkers and similar, but also additional space for turning with such devices. In addition, the configuration and design of the bathrooms was discussed in detail from a dual perspective, either the older user with limitations in body movements or the care staff member who would assist in that situation. It was concluded that this space also needed further revisions and additional space. In the end, the bathrooms became somewhat larger and equipped with an individual washing machine and dryer mounted on top of the other. Besides hygienic benefits for the resident and the care staff, this also meant that space for communal laundry rooms could be somewhat smaller. In addition, the communal space, i.e., restaurant, spa, and space for venues, possible to use either by the residential care home or actors from the neighbouring housing and other exterior activities needed further studies to become feasible.

III. Development plan and a residential care home

The competition brief contained a duality that became evident during the jury's evaluation of the project, i.e., the competition task could be summarised as two-fold, firstly, a detailed development plan for the first phase of the redevelopment of the old airbase into a new settlement for some 25 000 residents, and, secondly, the architectural design of a residential care home along a new concept. A new important actor in the project team that was formed after the competition was the administration for real estate matters, in the following AREM. This administration supervised and monitored any building project in the municipality and would do so also in this case. The AREM suggested that the project would be realised in a comparable way as the other residential care homes in the municipality, i.e., the municipality normally opted for an external real estate owner from which the municipal eldercare rented the building. Following the Swedish regulations for architectural competitions, the municipality suggested that the winning proposal should be converted into two commissions for the Danish office:

- 1) a detailed development plan for the full competition site, and,
- 2) an architecture commission for a new residential care home.

Following the normal procedure for new settlements in the municipality, the municipality imagined that the other building types, which the winning proposal proposed as age-friendly housing and situated around the residential care home, were to be developed as land allocation agreements. This implied that the municipality opened different tendering processes around the different allotments into which the full plan for the competition site could be divided. Here, the municipality could only recommend the tenderers to include the Danish architects as partners. In June 2007, the AREM invited some 18 construction companies to be part of the development of the competition site into a new residential settlement with different types of housing and a residential care home. Five construction companies accepted the municipal invitation to develop the allotments, but neither of the companies chose to hire the winning

architects from the architectural competition as their architecture consultants.

Given the complexity of Swedish regulations for physical planning, the Danish architects could not take on the full assignment of creating a detailed development plan. Instead, they produced an aesthetical design principles program for the site in 2007, which, in turn, the AFPP turned into the necessary legal documents that the Swedish planning and building act (PBL) requires for physical planning, i.e., a detailed development plan (textual documentation with drawings, maps and design principles program). In September the following year, the physical planning for the competition site was concluded and the new detailed development plan was adopted a legal binding document. A detail that complicated the architecture commission for the residential care home was the mere circumstance of whom to be appointed as the developer, a role that the municipality hoped to avoid. To meet the innovative approach suggested in the winning proposal, the municipality finally realised that the only solution was to assume this responsibility with respect of the act on public procurement (SFS2007:1091) due to the intended dual usage of communal space to be run by a private entrepreneur but receiving both municipal and private clients.

The second problem that complicated the commission for the residential care home was the circumstance that the AREM recommended a Turnkey contract like other building commissions in the municipality. Such a contract implies that the commissioner presents drawings and envisioned requirements for a future building that the contracted building company assumes the responsibility to deliver but independently compliant to the requirements, i.e., the client's requirements are not mandatory only a recommended solution. Although the Danish language has similarities with the Swedish language, pronunciation and vocabulary were put forward as reasons for not continuing collaborating with the Danish architects. However, bound by the Swedish competition rules, it was not possible for the municipality to break this obligation. As a way of solving this problem, the supervisor at the AFSM for architecture and real estate matters, was appointed as special negotiator between the municipality and the architects, thus, commuting between Järfälla outside Stockholm and Aarhus in Denmark on regular basis. Consequently, the Danish architects received an 18-months commission for developing the winning proposal for the residential care home into a main design program, to be used as a documentation for a building permit and tendering documents. An application for a building permit was submitted on 15 February 2010. The application was swiftly processed, and a permit was issued 1,5 months later.

IV. Tendering in an overheated economy

At distinct stages during the process of landing a main design proposal for the new residential care home, the AREM was consulted. The proposal was submitted to various calculations, mostly outside gross area paired with estimates concerning recent building costs appraisals. In the beginning, the full construction costs were estimated to around 170 million Swedish Crowns (SEK), but cuts and reworks by the Danish architects, for instance the surface of the basement was drastically diminished, made the project some 30 million SEK less expensive. The basement construction had to be executed in water-proof concrete since the groundwater was so close to the ground level (AREM Informant). In early February 2010, the architectural drawings with adherent documents were ready for the open invitation to tender that was publicised at the tendering website that EU-member states use. It was the same drawings that ten days later were sent for the application for a building permit.

By 2010, the building market in the region around Stockholm was overheated and building companies from other parts of Sweden tried to get hold of lucrative projects to enter this more profitable market than their home arena. The municipality expected that some of the 18 previously contacted construction companies would participate in the bidding. However, just a dwindling number of seven tenders were the outcome from the competitive tendering process, but neither from the previously contacted submitted a bid. At least two of the tenderers were constructions companies that the municipality had worked with before, but with negative experiences and, therefore, hesitated to work with again. Then, there was a bid from a complete newcomer and with the most attractive bidding of them all. Given the Swedish legislation for tendering, harmonized with the EU Directive 2014/24/EU for public procurements, public authorities and other agencies experience severe problems in using other decision criteria than the most advantageous numeric value over other evaluation parameters (European Parliament 2014). Thus, the

municipality accepted the newcomer's bidding of about 110 million SEK to realize the residential care home, i.e., some 30 million SEK below the estimated building costs. As the project proceeded, it would later become clear that this sum was overoptimistic, and the company would admittedly state on several occasions that "their calculations had become corrupted" (AREM informant).

In May 2010, the first meetings were held with the contracted building company. At that time, the consultants for the detailed design phase were not yet contracted, and typical procedures for the Swedish building market were upheld. This implied a building process governed by agreements within the Swedish building sector and a reliance of a full command of the Swedish language. The Danish architects were never invited to give a tender for the detailed design phase other than supplying CAD-files in DWG-format to the later contracted players. A Swedish architect took over the architectural design work, which to a significant extent meant converting tender documents in a broken Danish-Swedish language to correct Swedish and terminology. Here, the contracted company committed a fundamental error which would obliterate a creative idea for the interior design of the units: merely doors important for the residents were to have a contrasting colour or be in a contrasting material (oak veneer was proposed) in relation to the surrounding wall, while non-important doors would have a light colour tone close to wall colour. This in line with American recommendations to improve wayfinding for people with cognitive problems primarily in units for people with dementia (Dehan 1997, Pynoos and Regnier 1991). Instead, all interior doors around the building were executed in metal and in a dark greyish nuance that created heavy contrasts against surrounding walls.

V. Making a brand-new building usable for all

By accepting the newcomer's bid, the municipality of Järfälla entered a tumultuous path towards a new residential care home, first under all the duress that a Turnkey building contract may entail, then assuming the corrective responsibility to make the building usable for all, especially the frail older persons who would live there. During the building period other design related issues resulted in problems for the end-users, but also delivery problems due to financial issues following the crash of the overheated building market in 2011. Two contracted companies went bankrupt during 2011 which prolonged the building process with a year: first the supplier of structural framework in concrete, and then, the contractor responsible for ground and gardening works.

In February 2012, parallel to ongoing construction works, the building was prepared for opening the first units so that older residents in need of regular caregiving could start to move in. The first resident moved in March 2012. In an interview with a municipal representative and a representative for the care entrepreneur, they both describe how the newly delivered furniture for the different units quickly were used as equipment for finalizing late installations works but staining the textile. This collision between building work and caregiving would continue through 2012. Although the residential care home was officially inaugurated on March 18, 2012, controls, and final inspections for functional and quality requirements of executed building and installations would continue throughout 2012 until the end of the Turnkey building contract. In early 2013, a series of unsolved problems originating from the contract remained to be handled.

The municipality chose to follow the ending of the contract without legal actions against the building company. Instead, they assumed responsibility for the remaining adjustment works to make the building usable for its purpose as a residential care home. In 2013, the basement was flooded due to faulty pumps for draining the high groundwater, which was the second incident of this type, the first flooding already occurring during construction works 2011. Another major problem that materialized was that the large, glazed walls allowed for high indoor temperatures due to sunlight penetration. The need for air conditioning and mechanical ventilation systems had been overlooked during the main design phase. Partly this flaw can be related to a cultural difference between Denmark and Sweden, the former opting for natural ventilation system, while the second prioritize mechanical ventilation due to harsh climate conditions over the year, however, the wrong type of glazing without sun-blocking coating had been used by the building company. In 2015, a series of corrective measures continued at the care home. Other measures motivated out of sustainability reasoning have also materialized, e.g., the installation of solar panels at the roof in 2018. Slowly, corrective measures have turned into maintenance operations despite

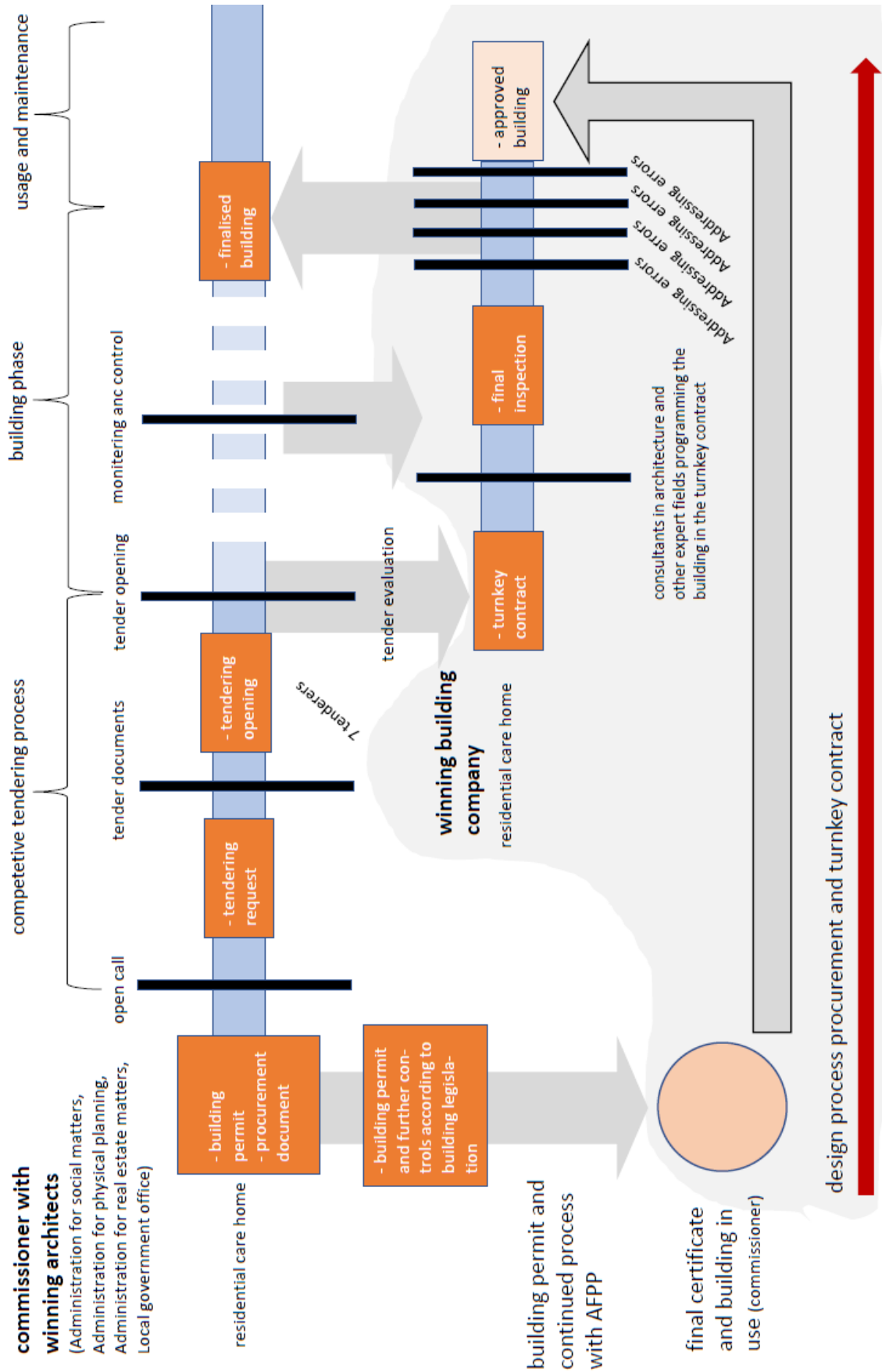


Figure 2. Overview of the design process concerning new housing for frail older people and its further development through procurement, building process, and building in use subject to maintenance.

the circumstance that they all originate from building errors committed during the building phase.

Conclusion

The present case study of the residential care home in the municipality of Järfälla allows for some conclusions on buildings that derive from architectural competitions and are to be realised through a continuously refined design process.

- Firstly, given the complexity of the future use of the building as a care facility, it is questionable whether an open architectural competition that is focused on innovative architectural designs is the best possible manner to solve this matter. The subsequent process that this specific building went through suggests that a project competition would have been a more desirable competition format so that functional and technical requirements for this usage could have been integrated in the architectonic vision. Alternatively, a two-step competition could have allowed for some early exchange of ideas outside the competition brief between the commissioner and the competing architects. Since the mid-2010, the competition instrument has evolved and nowadays, it is probable that another competition format could have been used.
- Secondly, the case suggests that an architectonic vision is not a universal language, but very much subject to barriers that culture and language may create. The case suggests that the use of a special player who acts as an intermediary between the commissioner and the winning architects is of key importance. In this case, this player was found at the commissioner's side of the table, but it could very well have been a person close to the winning architects.
- Thirdly, the case suggests that the design process is ongoing until the very end of the project, or even may continue afterwards as in this case to solve problems that have not been sufficiently covered in the early phases of the design process. In contrast to design theorists, the case demonstrates that the design process can be divided into intense phases that occur when the balance between idealism and realism in the architectonic vision is disturbed. Hence, the design process is always intense in the beginning of a new building project, but it may always resume this quality at unforeseen changes during the development of the project.
- Fourthly, the case clearly demonstrates that realisation of winning proposals in an architectural competition is subject to a series of decisions by the commissioner and the contracted builder but also by surrounding factors that can be related to geographical location and proximity to hotspots in the local, regional, or national areas for financial growth. As the case demonstrates, such hotspots may prove detrimental to the realisation of an ambitious architectural project with a public commissioner.
- Fifthly, the case also lends support to the idea that the realisation of an architectonic vision cannot only rely on the ingenuity of the architects but also the spread of the vision so that it becomes a shared vision by all persons involved in the project – from the highest-ranking decision-maker to the labourer of the simplest tasks.

Being just a particular case, this study calls for some caution in generalising the conclusions. The only tangible indication for the veracity of the findings of this study is the fact that public procurements depend upon how the biddings are evaluated, where quantitative assessments are considered as being more accurate than qualitative ones.

Discussion

The research presented in this paper was the result of a 10-year follow-up study of the realisation process of a winning proposal for a residential care home with ambitions to innovate eldercare and housing for frail older persons. As a particular case study, there are always reasons to be cautious with drawing too far-reaching conclusions. Seen as an entity, both the programming and realisation phase lend support to

the Danish conclusion that the visionary input behind an architectural design will undeniably lose its momentum as a driving force for the full project once the project starts to involve constructive and financial dealings (Knudstrup et al. 2007). The inspirational input is replaced by realistic reasoning and thinking about the project. Thus, the realisation of the specific residential care home also reflects the fate of most winning proposals in architectural competitions – the architectural vision needs constant supervision and support to reach its full potential.

This insight leads to at least two questions about the architectural competition concerning a residential care home in the municipality. Firstly, the format for the competition: Obviously, the open invitation to architects or other design-oriented professions had an effect since some 33 proposals were submitted. However, just 5-6 proposals were of such standard that they immediately attracted the jury's attention and interest. This means that just 15-18 per cent of all submitted proposals responded in an appropriate manner to the competition brief and the competition's design task. Hence, most of the proposals can supposedly be seen as either too futuristic or too conventional. Potentially, the municipality would have gained time and effort by choosing an invited competition and, thereby, let the invitees' previous project serve as selection criteria. In addition, a competition format with a clearer steering of the participants' creative thinking could also have focused the outcome to become more in line with the organiser's expectations. Seen over time, this is also what has happened in the Swedish use of architectural competition since 2010: open architectural competitions are less used while the number of invited competitions has increased substantially (Sveriges_Arkitekter 2022).

The second question concerns the linkage between the architectural competition and the subsequent building process. The study demonstrates clearly that the winning proposal did not fully meet the organiser's vision, since the organiser felt the need for delivering a detailed response that served as a list of revisions of the winning proposal that the architects undertook. As such, the case confirms design theory that designing a building is a decision-making process concerning alternative solutions that involve architects and the commissioners. However, the full case suggests that the design process will take place step by step in interlinked fields of expertise with the architectural field as fundamental field but in a constant dependency on other more specialised fields like building technologies, building economics and public procurement of building services and caregiving, just to mention a few of them. In design theory, the focus is on the creative approach for the architectonic vision, but the case demonstrates that overlooking the other fields may lead to a detrimental effect of this vision. Thus, the case suggests that at least in the case of buildings for special purposes must include not only the architectural competence but also competences in other relevant fields of expertise.

In contrast to design theorists, the case demonstrates that the design process is an iterative process in which more focused design processes take place upon each new step towards realisation. The case demonstrates that good architecture is as much about the over-arching vision as about appropriate planning, programming, procurement, when going from imaginary ideas to hard-fact realism. If architecture can be paralleled with being an artefact, then the link between generator image and end-user value must be considered during all these stages towards realisation, i.e., all along the full process that starts with a spatial idea and ends with a physical built space.

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