THESIS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

Common spaces in assisted living for older persons

Aspects of usability from the residential and workplace perspectives

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Gothenburg, Sweden 2013

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Abstract

This thesis is about space. It assumes that space forms a necessary part of the structure of existence. The architectural space becomes an existential space in the encounter with the user. Common unit spaces in assisted living (AL) for older persons are the principal venue for social interaction and have no parallel in ordinary housing. The usability of these spaces is discussed here from the residential and workplace perspectives. These perspectives are explored in relation to the concept of AL and involve residents, staff and other stakeholders in buildings in use. Special housing for older people is currently in focus worldwide due to demographic developments, entailing an increasing proportion of older people. Residents in AL are increasingly old and multi-diseased, which changes the conditions for residential care in its present form.

Four methods were used, involving 14 AL facilities (ALFs) in Sweden: observations, group interviews, individual interviews and self-completion questionnaires. An explorative strategy was adopted, combining qualitative and quantitative methods to enhance the validity of the results. The results were analysed using statistical analyses, Qualitative Content Analysis (QCA) and triangulation.

The results show functional demarcations between apartments, dining rooms, sitting rooms and kitchens in a private-public continuum, with varying adherence to the respective residential and workplace perspectives. It also shows that these perspectives entail diverging objectives for use of the common spaces. The dining rooms were utilized most by the residents, but the kitchens were not used at all. The daily activities promote a focus on collective aspects above individual needs. The increasing use of assistive technology causes space shortages and suggests a mismatch between the actual users and the users conceptualised at the planning stage, which entails a focus on care aspects at the expense of the residential perspective. It shows that the common spaces are not perceived as a part of the home environment; rather an addition. The dementia and somatic units presented diverging objectives for use, but the physical environments did not differ significantly. The functions of the common spaces were perceived differently among users, planners and architects. This suggests that these spaces have ambiguous meanings in a social context and may lead to ineffective use of the spaces. Along with a complicated body of regulations, this calls for a redefinition of AL. Design strategies are suggested that are more up-to-date with the users' needs in relation to the usability of the common spaces. The residential and workplace perspectives have to be considered concomitantly when planning ALFs, otherwise inherent conflicts will become manifest as a result of the physical design, which affects usability.

Keywords: buildings in use; usability; residential and workplace perspectives; social interaction; user involvement; mixed methods

List of papers included in this thesis

I. Andersson, M., Lindahl, G., Malmqvist, I. (2011). Use and Usability of Assisted Living Facilities for the Elderly. An observation study in Gothenburg, Sweden. *Journal of Housing for the Elderly*, 25(4), 380-400. A previous version of this paper was included in my licentiate thesis, presented and defended in June 2011.

II. Andersson, M., Paulsson, J., Malmqvist, I., Lindahl, G. (2013). The use of common spaces in assisted living for older persons. A comparison of somatic and dementia units. A revised version of this paper is considered for publication with minor revisions in *Ageing and Society*.

III. Andersson, M., Ryd, N., Malmqvist, I. (2013). Exploring the function and use of common spaces in assisted living for older persons. A revised version of this paper has been accepted for publication with minor revisions in *HERD*.

IV. Andersson, M., Malmqvist, I. (2010). Participant Observation Study of Use and Usability in five Assisted Living Facilities for the Old in Gothenburg Sweden. *ENHR 2010, 4-7 July, ISTANBUL, 22nd International Housing Research Conference. WS-15: Housing and Living Conditions of Ageing Populations. Conference proceedings, 1-14.* This paper was included in my licentiate thesis, presented and defended in June 2011.

V. Andersson, M. (2010). A Visit to Bellevue Assisted Living: Reflections of a Relative. Abramsson, M., *et al.* (eds.). *Rum för Åldrande - Essäer om äldres boende.* University of Linköping, 50-55. ISBN/ISSN: 978-91-7393-307-0. (Translated from Swedish by David Ordoubadian, Accent Språkservice)

Other publications not included in this thesis

i. Andersson, M., Malmqvist, I. (2013). Att skapa hemkänsla på särskilt boende. In Wijk, H. (Ed.). *Vårdmiljöns Betydelse*. Lund: Studentlitteratur. Scheduled for publication in spring 2013.

ii. Andersson, M., Svennerlind, C., Malmqvist, I., Anckarsäter, H. (2013). New Swedish forensic psychiatric facilities: visions and outcomes. *Facilities*, 31(½), 24-38.

iii. Andersson, M. (2011). *Användning och användbarhet i särskilda boendeformer för äldre. Aspekter på användning och användbarhet i boendemiljöer för äldre inom den kommunala äldreomsorgen i Göteborg.* Gothenburg: Chalmers University of Technology. Dissertation for licentiate in engineering.

iv. Andersson, M., Svennerlind, C., Malmqvist, I., Anckarsäter, H. (2011). Contemporary Design of Facilities for Forensic Psychiatric Care in Sweden: Differing Visions and Outcomes. *Abstracts of the XXXII International Congress on Law and Mental Health*. Berlin 17-23 July 2011, 201.

v. Andersson, M., Malmqvist, I. (2010). Assisted living facilities for the old – Aspects of use and usability. *HaCIRIC 2010, Edinburgh Scotland: Better healthcare through better infrastructure.* Conference proceedings PhD Workshop, 29-36.

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den verkliga upptäcksresan
består inte i att söka efter nya vyer
utan i att se med nya ögon

Marcel Proust

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Preface

The research environment in which I have been based has played an important role in providing me with the proper tools for conducting research. This environment is physically located at Chalmers Architecture but contains researchers in different academic traditions and in different locations. Housing research at Chalmers Architecture has proud traditions. Researchers such as Jan Paulsson, Lisbeth Birgersson, Solveig Schulz, Ola Nylander, Inga Malmqvist, Birgitta Holmdahl, Christina Redvall, Birgit Modh, Annika von Schéele, Eva Hurtig, Gittan Ekvall, Sten Gromark and others have contributed to the body of knowledge concerning different aspects of housing. The Centre for Healthcare Architecture at Chalmers (CVA) has provided both a physical proximity and an affiliation with the research field of healthcare architecture. The Nordic Network for Research on Housing for the Elderly has contributed national and international contacts.

Important experience with regard to the craft of research has been gained at conferences, where this work, and other studies, have been presented to an international audience: At HaCIRIC 2010, in Edinburgh in Scotland (Other publications iv); at ENHR 2010, 22nd International Housing Research Conference in Istanbul, Turkey (Paper IV) and; at XXXII International Congress on Law and Mental Health 2011 in Berlin (Other publications iv).

My interest in housing for older persons has stayed with me throughout my professional career, beginning after completing high school in 1984 when I worked in geriatric psychiatry for some years. Following my MSc in Architecture in 1995, I have been employed as an architect by the City of Gothenburg, first at the City Planning Office and since December 1997 in various positions within issues concerning management and planning of facilities with special housing for disabled or older persons. I have been working on research and development issues in relation to special housing for older persons, e.g. seminars and education, since 2004. Since 2009, this work has been conducted in tandem with my research project and I have had opportunities to work in an area where research meets practice. A reference group, consisting of representatives from the financiers - the City of Gothenburg and Chalmers Architecture - has regularly contributed valuable input. My professional experiences give me three points of departure; that of the end-user, that of the planner and that of the researcher - all are related to buildings in use.

Synopsis in Swedish

Denna avhandling handlar om rum. Rummet utgör en nödvändig del av tillvarons struktur. Det arkitektoniska rummet blir ett existentiellt rum i mötet med användaren. De gemensamma utrymmena i särskilt boende för äldre är den dagliga scenen för social samvaro och har ingen motsvarighet i ordinärt boendet. Dessa rums användbarhet (*usability*) diskuteras utifrån boende- och arbetsplatsperspektiven och utifrån det särskilda

boendet som företeelse. Studien handlar om byggnader i bruk och omfattar boende, personal, anhöriga och andra aktörer inom äldreomsorg och fastighetsförvaltning.

Särskilt boende för äldre människor är i fokus i Sverige, såväl som i stora delar av världen, på grund av den demografiska utvecklingen, som medför en ökande andel äldre personer. De boende är idag äldre och mer multisjuka vilket förändrar förutsättningarna för särskilt boende i sin nuvarande form. Ett komplicerat regelverk gör också planeringsförutsättningarna oklara.

Studien omfattar 14 särskilda boenden i Sverige. Fyra metoder har använts: Observationer, gruppintervjuer, enskilda intervjuer och enkäter. En explorativ strategi har använts och kvalitativa och kvantitativa metoder har kombinerats för att öka resultatens giltighet. Resultaten har analyserats med kvalitativ innehållsanalys (QCA) och statistiska analyser. Metod- och datatriangulering har använts.

Resultaten visar funktionella avgränsningar mellan lägenheter, matrum, vardagsrum och kök i ett privat-offentligt kontinuum. Rummen har olika relation till boende- och arbetsplatsperspektiven. Dessa perspektiv innebär divergerande mål för användning av de gemensamma utrymmena. Matrummen var de mest utnyttjade av de boende, medan köken knappt används alls. De dagliga aktiviteterna i de gemensamma utrymmena främjar kollektiva aspekter framför individuella.

Den ökande användningen av tekniska hjälpmedel orsakar platsbrist och visar en diskrepans mellan de faktiska användarna och de användare som avsågs i planeringsskedet. Detta innebär ett fokus på vårdaspekterna, på bekostnad av bostadsperspektivet.

Resultatet visar att de gemensamma utrymmena inte uppfattas som en del av hemmiljön, utan snarare som ett tillägg. Studien visade också signifikanta skillnader i användning mellan somatiska och demensavdelningar, medan de fysiska miljöerna uppvisade mycket få variationer. De gemensamma utrymmena och dessa funktioner uppfattas olika av olika användare, anhöriga och andra aktörer inom äldreomsorg och fastighetsförvaltning. Detta tyder på att rummen har tvetydiga betydelser i ett socialt sammanhang, vilket kan leda till ineffektiv användning av utrymmen.

En omvärdering av särskilt boende krävs för att kunna ta fram designstrategier som är mer i samklang med användarnas behov. Det är uppenbart att både boende- och arbetsplatsperspektiven måste finnas med i planeringen av särskilda boenden. Annars manifesteras inneboende konflikter som ett resultat av den fysiska utformningen vilket påverkar användbarheten. Att förutse framtida behov är högst relevant, men också att bygga robusta miljöer som har rum för ett visst mått av förändring.

Abbreviations

AL	Assisted Living
ALF	Assisted Living Facility
EBD	Evidence-Based Design
NBHW	National Board for Health and Welfare (Socialstyrelsen)
SFS	Swedish Legislative Publications (Svensk Författningssamling)
SOU	Government Report (Sveriges Offentliga Utredningar)
UD	Universal Design
QCA	Qualitative Content Analysis

Definitions

Assisted living for older persons: Or "special housing for assisted living and complex care" (Paulsson 2012, Vestbro 2010). Special housing facility containing residential care for older persons.

Common spaces: Shared spaces for communal activities on AL units, containing "functions and equipment for cooking, daily social interaction and dining" (Boverket 2012).

Demarcation: "Marking of boundaries or limits" (The Concise Oxford Dictionary 1982). The boundary between different functions, manifested in the organisation of the spaces and/or in the actual use.

Eldercare: Care and services directed towards older persons, containing home-oriented care and services or out-of-home housing, e.g. AL.

End-users: Residents and unit staff.

Facility: "Something such as a room or a piece of equipment that is provided at a place for people to use" or "an area or building used for a particular purpose" (Macmillan 2013). In this context, buildings containing AL functions.

Older persons: Persons aged 65 and above.

Other stakeholders: Includes relatives, architects and people with strategic functions in eldercare or in the planning of eldercare environments.

Residential care: Care and services directed towards persons in ordinary or special housing.

Social interaction: People being together for social reasons.

Special housing: Or sheltered housing. Housing facilities containing functions and services that cannot easily be provided in ordinary housing. AL is a form of special housing.

Unit: The subdivision of an ALF in groups of apartments/residents. Unit is here equivalent to this "group", as in "group living".

Workplace: The physical environment in which work is performed.

1. Introduction

1.1 Structure of this thesis

This is a compilation thesis containing five papers. The papers are numbered with the three journal papers first, followed by the conference paper and finally the essay. This thesis can, however, be understood chronologically, based on when the empirical material was collected and the date of publication. The chronological order of the papers subsequently reflects the gradual development of the study; V, IV, I, II, III.

Four methods have been applied in the following order (Table 10): Participant observations (described in papers I, II, III and IV); group interviews (described in papers II and III); a second round of observations performed after the group interviews (described in papers I, II and III); individual interviews and a self-completion questionnaire (described in paper III). Paper V was written before any empirical material was gathered.

The results presented in the papers are discussed and further analysed in the thesis. The analysis is based on the research objectives and the framework presented in the Introduction section. The Methods section describes the research design, the samples and the methods in detail. The Results section describes the empirical material and gives a summary of each of the five papers. The Discussion section elaborates on the results and their validity and relevance, along with final conclusions and implications for further research.

1.2 Background

Global demographic developments indicate a continuously growing proportion of old persons (Lutz *et al*. 2008). The number of persons aged 65 or above in Sweden has increased by 57 per cent in the last 40 years, while the total population has increased by 17 per cent (Nilsson 2013). A similar development is forecast in most countries in Europe, and constitutes both social and economic challenges for the public sector. In Sweden, where the municipal sector is responsible for public eldercare, about 20 per cent of the total municipal resources are consumed by eldercare. More than half of this share is directed towards special housing for older persons. Although there has been a reallocation of eldercare resources from special to ordinary housing in Sweden since 2000, the cost per resident in AL increased by 61 per cent between 2000 and 2009 (SALAR 2009a). The reason for this is that residents are moving in at a later point in life and consequently demand an increasing amount of care. The total cost for eldercare is expected to increase by 70 per cent by 2050 (Swedish Government 2013).

Housing conditions for older people are currently under debate in Sweden (Dagens Nyheter 2013, PRO 2013) as well as in other countries (New York Times 2013, China Daily 2013, Berlingske Tidende 2006). Special housing is in focus due to the increasing number of older people in need of complex care and the high costs for providing this care. Proposals have been made to "simplify" the AL concept (Göteborgsposten 2013). This thesis therefore has a societal relevance as well as implications for future research.

Facilities used for AL in Sweden have been built for various purposes over a long period of time and present different approaches to care and residence. Today all ALFs are used for residential care. More resources directed towards home care and home services for older people, and an increasing focus on end-of-life medical and care aspects, entails changing user requirements and, consequently, a changed use for the ALFs. In addition, other forms of residential facilities for senior citizens are currently expanding within the ordinary housing market. These forms are relatively new in the Swedish context; the two most apparent being senior housing and senior housing for assisted living.

This new situation makes it relevant to discuss the intended functions of ALFs in relation to the building in use. It also makes it relevant to explore the perspectives of the end-users; the residential and workplace perspectives. Common spaces are the daily venue for social interaction in the units; a function for which there is no parallel in ordinary housing. This makes them relevant to discuss in the AL context.

1.3 Research objectives

The research objectives have been reformulated on an on-going basis and are the result of the research process (Dewalt & Dewalt 2002, Fangen 2005, Miles & Huberman 1994).

1.3.1 Home and workplace

The first objective for this thesis is to explore the functional demarcations and objectives for use of shared common spaces from the residential and workplace perspectives. The residential perspective is related to the concept of home and the workplace perspective is related to providing care and other services. The common spaces constitute a physical and functional intersection between the residential and workplace perspectives. The subdivision of the facilities in units, or groups, with shared common spaces for social interaction can be seen as a manifestation of a collective idea in AL. The social interaction described in this thesis is mainly related to the use of the common spaces. It is also limited to people being physically together. Other social media, such as telephone, computer or social interaction occurring elsewhere, is not the focus here.

Question 1a concerns whether the residential and workplace perspectives produce divergent objectives for use and, in turn, if implicit or explicit conflicts are manifested in the daily use of the common spaces. This includes how to demarcate the functions of the common spaces in relation to the physical environments of the units. *Question 1b* concerns the different experiences and expectations of the groups and individuals that are part of the study. This includes how to incorporate their knowledge of buildings in use in the planning for future ALFs, as well as management and maintenance of existing facilities.

QUESTION 1a: How are the functions of the common spaces for social interaction demarcated in the physical environment and how are diverging objectives for use between the residential and workplace perspectives manifested?

QUESTION 1b: How to define and obtain knowledge from the end-users in buildings in use that is relevant at the planning stages?

1.3.2 Intended function and actual use

The second objective is to explore the divergence between the intended function and the actual use. The intended function is the result of the original intentions of the architect and originates from the planning stage (Fig. 1). It may also be the result of a subsequent re-building process, the short-term configuration of the spaces, or organisational and situational factors. Architecture, and the study of architecture, must therefore always incorporate the temporal aspect. It is not created once and for all, "but is instead continuously transformed by the uses to which works of architecture are put" (Granath 1991:55). The characteristics and needs of the imagined users are manifested in the physical structures, whereas the actual users are related to the on-going use and short-term configuration of the facilities.

Question 2a concerns the divergence between the intended function and the actual use of the common spaces. On the one hand, this is related to the planning stage and the planners and architects and, on the other hand, to the building in use and the users. *Question 2b* concerns structural aspects (relating to the physical environment) and organisational aspects (relating to organisation and routines). This, in turn, is related to the planned usability vs. the perceived usability of the buildings in use.

QUESTION 2a: Do the functions of the common spaces correspond to the requirements of the users in the context of the buildings in use?

QUESTION 2b: How is the usability of common spaces affected by the discrepancy between the intended functions, or lack of functions, and the actual use?

2. Framework

This research is conducted within the field of architecture, a discipline inherent to architectural academies. An interdisciplinary approach is adopted in order to explore the contextual complexity of buildings in use (Groat & Wang 2002). The theoretical framework is therefore to be found in architecture, as well as in sociology, psychology and medicine. Architecture is discussed here in a social context; common spaces for social interaction. The interdisciplinary approach is also reflected in the choice of the publication media (Papers I-V).

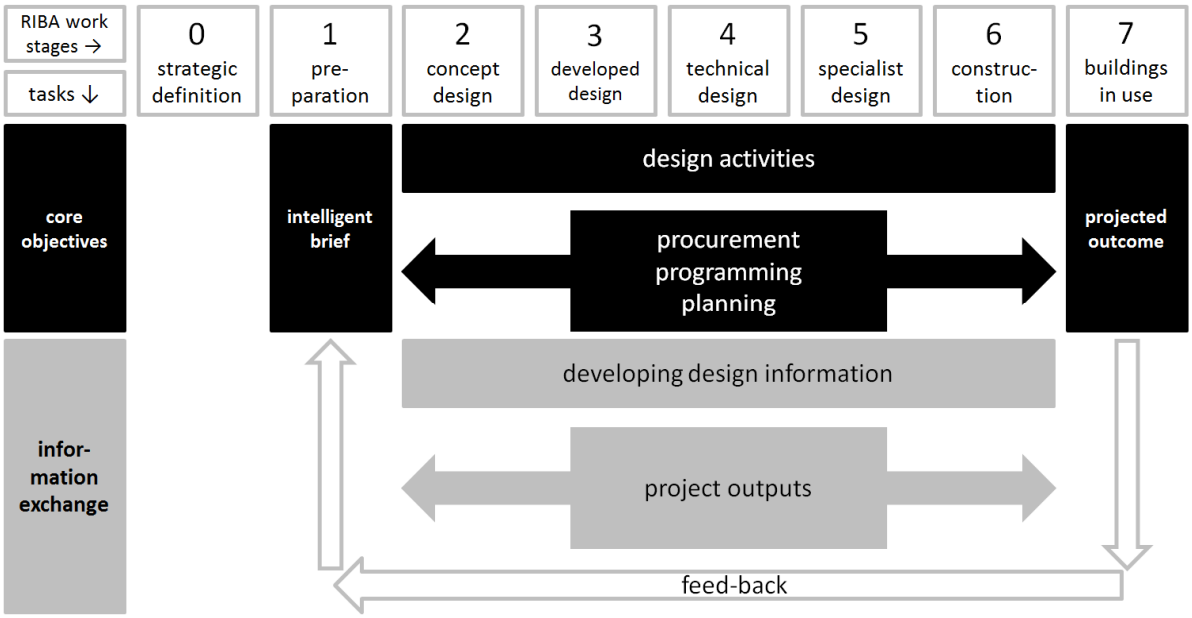

FIGURE 1: *A simplified version of the RIBA Plan of Work 2013. Stages 1-5 represent front-end activities at the planning stages.*

We cannot exist without space. In common with Heidegger (1954, in Norberg-Schulz 1971:16), this thesis assumes that "you cannot divorce man and space. Space is neither an external object, nor an internal experience. We don't have man and space besides…". Cornell (1959:19) describes architecture as "practical reality, aesthetically organized". This thesis draws on this notion that there is a practical reality to be explored, and it is explored here by studying the building in use. This thesis includes both spatial and temporal aspects in describing the context of the building in use, or buildings that are "not just whole in space, but whole in time" (Brand 1994:2). Like Norberg-Schulz (1971:17), this thesis also assumes that "space forms a necessary part of the structure of existence". The architectural space becomes an "existential space" in the meeting with the user (ibid.15). It is based on the assumption that "Society is spatial. The space is social. The interaction between society and space takes place in the built environment" (Birgersson 1996). The basis for understanding the prerequisites for use of the common spaces is

therefore the actions taking place in this communal context. The use is explored from the end-users' point of view – from the residential and workplace perspectives. A profound dynamic lies in the twofold function of AL; home and workplace. Home is related to the residential perspective and is represented by the individual residents. The workplace perspective is represented by the staff.

2.1 The concept of assisted living

No universal definition of AL exists (Leith 2006), although attempts have been made to describe the phenomenon systematically (Brandi 2004, Cutchin *et al.* 2005, Cutler 2007, Dobbs 2004, Hernandez 2012, Imamoglu 2007, Kalymun 1991, Nord 2013, Paulsson 2002, Regnier 1994, Roth & Eckert 2011, Wilson 1990, Zimmerman & Sloane 2007). Leith (2006) describes AL as a form of long-term care (LTC) housing. Some authors have used hotels or resorts as comparative models in relation to similar eldercare environments (Andersson 2011a, Bland 1999, Briller & Calkins 2000, Keen 1989). This thesis uses the concept of AL to describe the predominant form of special housing for older persons in Sweden. The full term would be "special housing for assisted living and complex care" (Paulsson 2012, Vestbro 2010).

Although the definitions may vary, there are major structural similarities between AL in different countries (Anderzhon, *et al.* 2007, Kalymun 1991, Paulsson 2002, Zimmerman & Sloane 2007). The ALF provides housing for the resident. This includes the assistance of care staff around-the-clock. The similarities also include the subdivision of the facilities into smaller units, or groups with shared spaces for social interaction (Fig. 2). In contrast to ordinary apartment blocks (Fig. 2a), the AL (Fig. 2b) belongs structurally to an institutional tradition, like hospitals, nursing homes and prisons (Goffman 1961, Gubrium 1975, Martin 2002, Nord 2013, Åman 1976). This structure typically contains horizontal communication areas, common spaces for communal activities and spaces for staff functions, schematically shown in Figure 2b. ALFs also contain smaller apartments, compared to ordinary housing blocks.

In spite of structural similarities between different countries, eldercare is obviously organised differently. Varying care concepts connote divergent resident characteristics, with the number of residents and staff per unit differing greatly and the domestic character of the facilities displaying cultural diversities (Verbeek *et al.* 2009). There are also differences between the USA and Europe in terms of financial models and tenure but also in terms of interior design and furnishing of the facilities (Street & Burge 2012). A major difference is also the evaluation procedures, concerning the assignation of AL apartments.

How the physical environment affects the users (Paper I, IV) has been the subject of comprehensive research efforts (Berg 2005, Cunningham & Michael 2004, Day *et al.* 2000, Dijkstra, *et al.* 2006, Howell 1980, Lorenz 2007, Marquardt 2011, Ulrich *et al.* 2008). Other researchers have studied the environmental qualities of care and the physical environment (Cohen & Day 1993, Grant 1994, Regnier 2002, Åhlund & Ohara 1998).

Most dementia units are smaller than those designed for persons with mainly somatic disorders. Small groups of "patients" or "residents" have long been advocated as a means

to obtain a home-like environment and facilitate the maintenance of normal social interaction (Alverman 1979, Coons 1991, Leichsenring & Strumpel 1998, Street & Burge 2012, Verbeek *et al.* 2009).

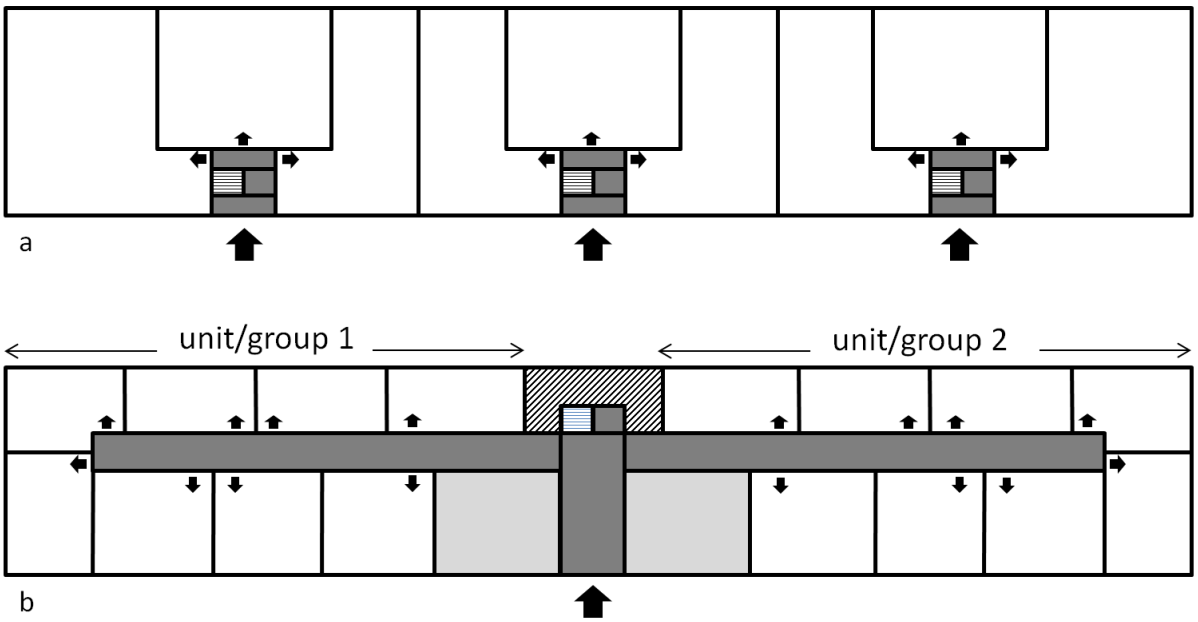

FIGURE 2: *Figure 2a shows a schematic distribution of the communication spaces (dark grey) in an ordinary apartment block, consisting of staircases and central communications. Figure 2b shows the common unit spaces (light grey) and the communication spaces (dark grey) in an ALF. The schematic floor plan is divided into two units, or groups. Staff functions are hatched. The apartments are represented by white areas and marked with arrows.*

It has also been demonstrated that persons diagnosed with dementia follow different patterns of movement compared to other residents, related to the degree of dependency on staff for self-affirmation and calm (Andersson 2011a). Cutchin and colleagues (2003) show the importance of retaining established social contacts in the transition to AL. Street and colleagues (2007), on the other hand, show the importance of in-house social contacts.

2.2 Assisted living in Sweden

The so called "Ädel Reform" was implemented in 1992, transferring responsibility for old, chronically ill and disabled persons from the county councils to the municipal authorities (Swedish Government 1990, SFS 1990:1403). This radical reform also entailed a change of perspective from institution-like to more home-like environments (Paulsson 2002). Today there are 290 municipal authorities in Sweden, including large cities like Stockholm and Gothenburg and small entities with less than 3,000 inhabitants. The larger cities are subdivided into district administrations, to which the administration of eldercare is delegated. According to the Social Services Act, "the municipal authorities shall provide special housing [in Swedish: "särskilt boende"] for service and care of older

people in need of special support." (SFS 2001:453). In this thesis the term "assisted living" is used congruently with this form of special housing (Paper II and III).

The apartments in AL are regarded as the private homes of the residents, with legal tenures (SFS 1970:994, NBHW 2011). Common spaces for "cooking, daily social interaction and dining" are included (Boverket 2012). The state allocates grants for the production of ALFs. The grants are presently limited to 35 square metres per apartment and 15 square metres per apartment in shared "spaces for dining, for social interaction, hobbies and recreation" (SFS 2007:159). This includes other common spaces, located within the facility but not on the units. The term "unit" is here used congruently with "group" to describe the subdivision of ALFs in groups, normally of 5-20 apartments with shared common spaces. Several governmental publications have emphasised the residential perspective in AL (Ministry of Health and Social Affairs 2009, NBHW 2011, Swedish Government 2009). Although there are no national design guidelines, such guidelines for ALFs have been produced locally (e.g.: City of Gothenburg 2002, City of Halmstad 2010).

The principle of Aging in Place is adopted in Swedish eldercare (Ministry of Health and Social Affairs 2008). Harris (1988) describes this as "remaining in the same residence where one has spent his or her earlier years". Other actions, such as home care and other home-based care and service measures are always considered before out-of-home solutions and this principle has been a concern for political efforts since the 1950s (Brodin 2005, Edebalk 1990, Ministry of Health and Social Affairs 1956). More resources allocated towards home care and home services, new forms of residential facilities for senior citizens, accessibility measures in the ordinary housing and improved health among older people is currently reducing the number of ALFs in Sweden. This entails that persons moving into AL are increasingly old, frail and multi-diseased. In 2008, there were 94 200 persons living in AL, or 5.8 per cent of the population 65 years or older. This entailed a 20 percent decrease, compared to 2000 (NBHW 2008). In 2013, the correspondding figure is 92 900, or 5.1 percent of the population 65 years or older (NBHW 2013).[*] A comparison between different countries shows that Sweden has proportionally less people living in AL, or special housing, than in Iceland, Switzerland, Belgium and the Netherlands but more than in Norway, Denmark, Finland, Spain, France and Germany (NBHW 2012).

Although the legislative framework distinguishes dementia care in AL from other eldercare (NBHW 2010, Swedish Goverment 1990), somatic and dementia units present very similar physical features. The main differences are that the dementia units contain fewer residents, that they often have passage control systems and that there is more staff available per resident. In practice, however, persons with dementia may live in somatic units for different reasons. These units are referred to "mixed units". Furthermore, ALFs

[*] The figures include five sub-categories. 1. AL for persons in need of daily care. 2. AL for persons with dementia. 3. Service housing. 4. Respite care in ALFs for permanent residents. 5. Respite care in ALFs for short-term care only.

in Sweden are regarded as private housing units and are subject to the same regulations as ordinary housing, regardless of their specialty (Boverket 2012, SFS 1970:994).

2.3 Housing and care for frail older people

Historically, the vast majority of all people have aged and died in their own homes. Those with the financial means have received the necessary care there. In medieval Europe, public care for the elderly and the poor was the responsibility of a range of authorities. It might be the secular authorities in the form of kings and feudal potentates, the cities, the church or the guilds (Mathiasson 1978). Sanctuaries were located in the towns, containing old people, children and the poor (Pernler 1999). By the time of the reformation in the 1520s, the state had assumed responsibility for the sick, whereas the poor and old were the responsibility of the cities and parishes. The Poor Relief Act of 1847 (SFS 1847:23) gave the municipal authorities - then consisting of 2,453 towns, boroughs and parishes (Wångmar 2003) responsibility for the poor and the elderly (Åman 1976). This was concomitant with the municipal reforms of 1862, which concerned the reformation of the municipal sector and included the formation of county councils (Kaijser 1962). The municipal authorities received economic compensation for the poor and old from the state and could choose how to distribute those funds from several options. For example, the persons concerned could receive food or live-in, and it was common that they "rotated" between different households. They could also be placed in one of the many *paupers' asylums* that were built as a result of the legislation (Hansson-Preusler 1962), often containing one or more large dormitories and a common room for working – those who could were obliged to participate in some sort of work – and being together (Åman 1976).

The Poor Relief Act of 1918 (SFS 1918:422) introduced *old people's homes*. Relief could be provided as cash or a place in an old people's home. As a consequence, new buildings were erected all over the country according to the resulting national standard architectural prototypes that were developed (Ministry of Civil Affairs 1920). These standards were based on an architectural competition, arranged by SAPRA (Swedish Association of Poor Relief Aid) in 1907 and emphasised home-like exterior features (Fig. 3b) and rooms for one to four persons rather than large dormitories (Fig. 3a) (Andersson 2011a). The buildings also contained common spaces consisting of a separate dining room, common for the facility and one or more day-rooms, shared by a smaller group. The arrangement presents features that are similar to modern group living, with the distinction that the residents did not have private apartments. In some cases the buildings contained "work-rooms" for therapeutic work (Ministry of Civil Affairs 1920). Since the bedrooms were small and often shared, the day-room fulfilled the function of a living-room.

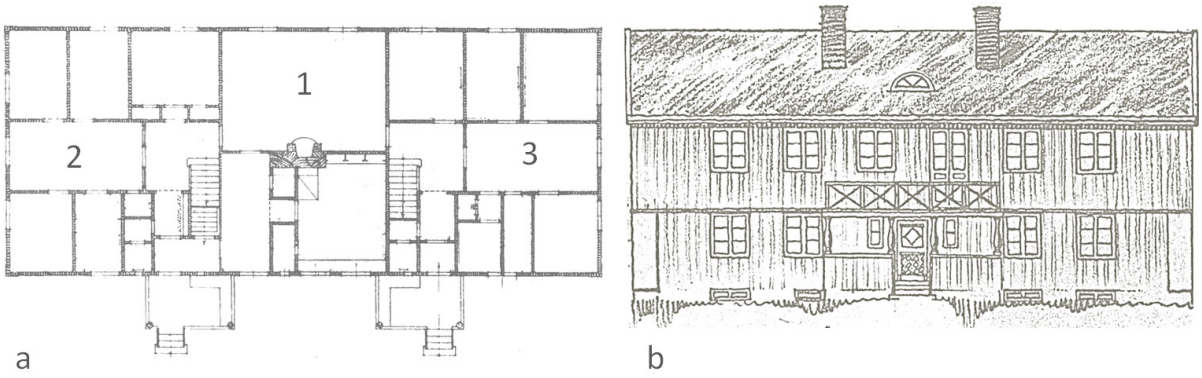

FIGURE 3: *The plan (a) shows the ground floor in a two story building for 25 old people. The dining room (1) is common for the whole building. One day-room (2) is shared by a group of three persons, while the other (3) is shared by six persons. The façade drawing (b) shows an old people's home for 20 persons. Source: Ministry of Civil Affairs 1920.*

In 1947 the government decided on a large-scale expansion of old people's homes. However, the public debate put pressure on the government to abandon these plans (Gaunt 1995). The old people's home was compared to the paupers' asylums and represented an outdated, "dictatorial" philosophy (Gaunt 1995:374). The expansion was therefore implemented on a smaller scale, although the buildings tended to become larger in order to accommodate more people - up to 60 persons (Andersson 2011a).

During the 1950s and 1960s, more hotel-like concepts were developed, containing restaurants and other services (Andersson 2011a). This debate was concomitant with the introduction of the new Social Welfare Act (SFS 1956:2), where home care services were included in the responsibility of the municipal authorities, thus enabling more old persons to remain in their homes. Apart from the old people's homes, another municipal form of housing already existed; *pensioners' homes*. State grants were allocated for their construction from 1939 (Gaunt 1995).

The first *service housing units* were built in the late 1960s (Paulsson 2002) and, after the new Social Services Act (SFS 1980:620) was passed, a large-scale expansion was initiated by the municipal authorities from 1980 (Ministry of Health and Social Affairs 1979). They often contained common spaces for social interaction, but the residents were expected to have their main meals in a restaurant together with people from the facility as a whole (Paulsson 2002) (Fig. 4).

In parallel with developments in the municipalities, increasing life expectancy in combination with medical advances resulted in a growing number of old, multi-diseased persons in the geriatric departments of hospitals. The public debate focused on the often miserable conditions in these long-term care environments. This debate was animated, both here and in the USA (Andersen 1973, Gubrium 1975, Jersild 1978), with the result that nursing homes were built on a large scale.

FIGURE 4: *Service housing "Bagaren" in Skövde. The entrance floor contains a restaurant where the residents have their meals together with seniors in the vicinity. It also contains a variety of service functions, a physiotherapist, a doctor, a health care center and a few apartments. This particular facility is not subdivided into smaller units and therefore has no common spaces on this level. The apartments contain a hallway, bathroom, kitchen, living room and a separate bedroom. The building was converted to AL in 2000. Arkitektgruppen E. H. Heinemann 1980.*

In 1964 the government proposed three measures to improve conditions for old persons (Swedish Government 1964); state grants for construction of nursing homes, state loans to individuals for housing improvements and grants for the improvement of home care services. The nursing homes had been the responsibility of the counties since 1952 (SFS 1951:155), and the other measures were directed at the municipal authorities. Design guidelines were developed during the 1970s for both old people's homes (SPRI 1971) and nursing homes (SPRI 1979, 1980). The nursing homes contained common service functions, but rarely restaurants, and patients were expected to have their meals on the units. In 1927, state grants were allocated for the construction of homes for frail old people and the chronically ill (Åman 1976). Nursing homes and hospitals for this purpose were built in an institutional tradition in healthcare buildings, dating back to the 1800s, with patients' rooms distributed along corridors and common spaces for communal activeties (Fig. 5). This institutional tradition was incorporated to a certain degree in the layout of later nursing homes (Fig. 11a), and is still to be found in modern AL facilities (Fig. 6).

When the municipal authorities assumed responsibility for the old, chronically ill and disabled (Swedish Government 1990, SFS 1990:1403) in 1992, they also took over responsibility for the facilities. Whereas the nursing homes had been designed as health care environments, the stock of municipal facilities for older persons was built within the social welfare system. So-called *group living*, with six to ten flats around common functions, have existed since the 1980s (Paulsson 2002). One early example in Gothenburg was the "Bäckelidsprojektet" at Kallebäcks nursing home, where one unit was divided into two groups.[*]

The *old people's home* concept was revived in a modernised form in the 1990s (Boverket 1988). ALFs that are built after 1992 are all subdivided into groups. The terms *nursing homes*, *service housing* and *old people's homes* are currently in use in many

[*] The author took part in this project while working as an attendant in geriatric psychiatry 1984-1990.

municipalities to describe different forms of special housing for assisted living as referred to in the Social Services Act (Micasa 2013, City of Linköping 2013, City of Västerås 2013). The term *residential care home* (Paulsson 2002, Ministry of Health and Social Affairs 2008) is also used (City of Luleå 2013, City of Stockholm 2013, City of Eskilstuna 2013). Table 1 shows an overview of the four of the concepts described above.

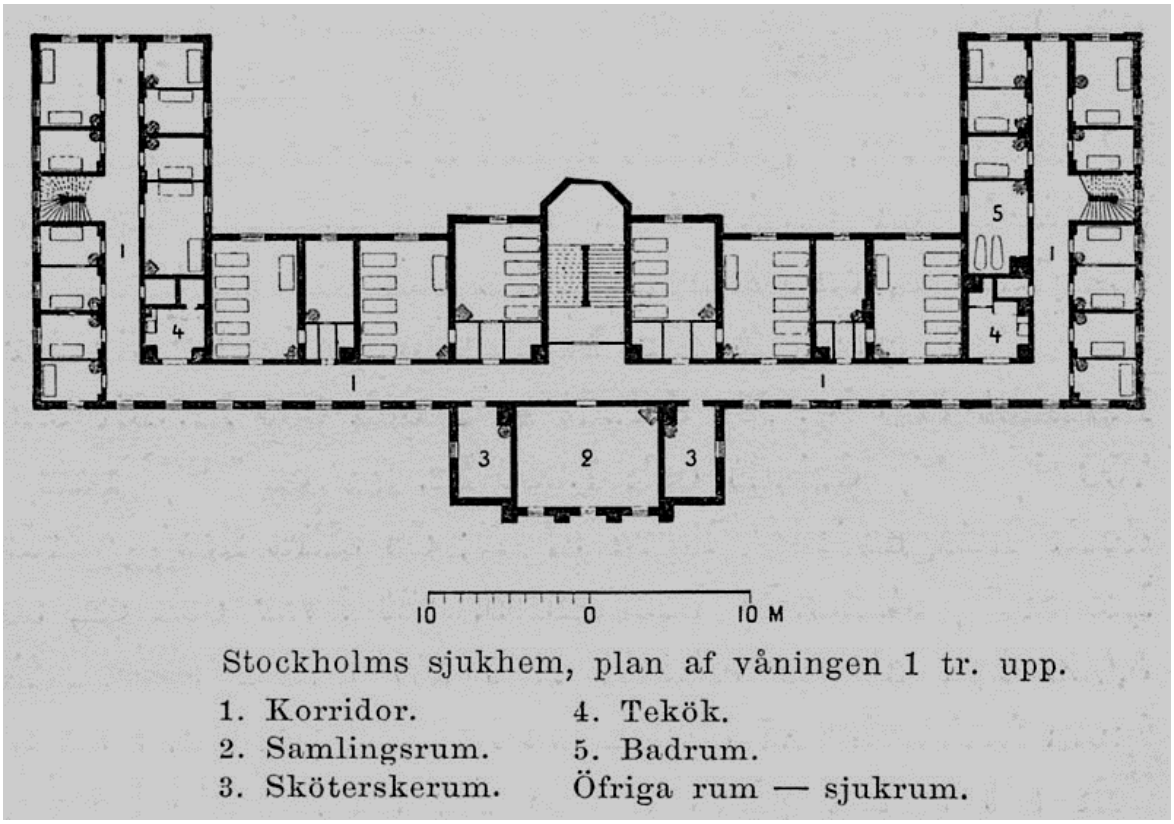

FIGURE 5: *Stockholms Sjukhem (Stockholm Nursing Home) built in 1890. The plan shows two units with rooms for one to six patients. The two units have separate rooms for nurses (3) and a shared room for common activities (2). The building was originally intended for persons with epilepsy and other diseases that were regarded as "offensive" to the public (Source: Hultgren 1917). The building is a typical example of public care institutions from the 1800s, represented by hospitals for patients with mental and somatic diseases, correctional institutions and paupers' asylums (Åman 1976:104-252).*

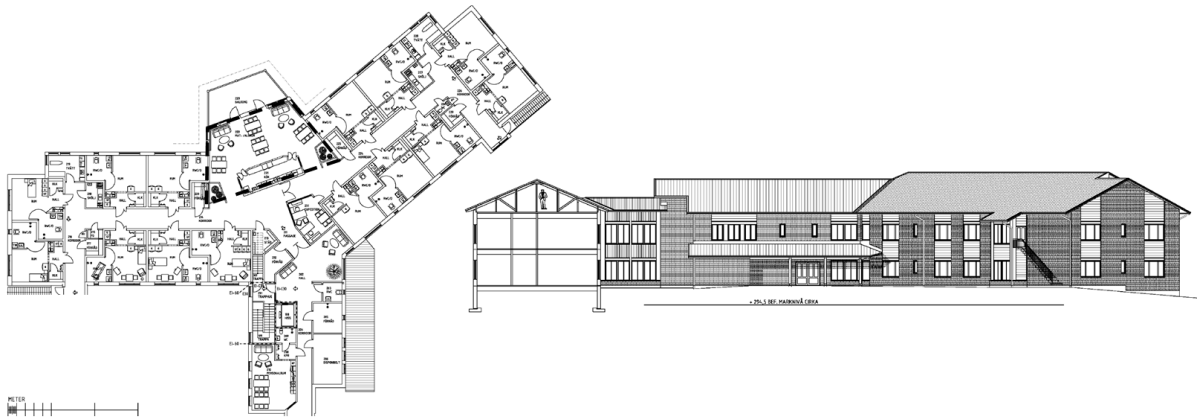

FIGURE 6: *ALF in northern Sweden. The unit contains 14 apartments with separate, shared dining and sitting room in one multi-purpose space, from which a communal balcony is accessible. The unit is divisible into two groups with seven apartments each. There is a separate staff room and an office for administrative and clerical work. Storage rooms are present in connection with the elevator. The apartments are 36 square metres in size and the common spaces 100 square metres. Månsson & Hansson Arkitekter 2005.*

TABLE 1: *Housing and care facilities for older persons*

	Period	*Target group*	*Individual space*	*Intended functions of the common spaces*
Old people's homes	1918-	Older people with low dependency [1]	Shared rooms for two to four persons. Shared sanitary facilities.	Shared day-rooms for a group of residents. Usually dining rooms common for the facility, intended for all meals.
Service housing	1960s-	Older people with low dependency	Individual apartments with one or more rooms.	Often (but not always) shared day-rooms and dining rooms for a group of residents intended for breakfast and coffee. Restaurant common for the facility, serving lunch, supper and sometimes smaller meals.
Nursing homes	1960s-	Older people with high dependency and/or chronic illness	Rooms for one to six persons, often with shared sanitary facilities.	Shared day-rooms for a group of residents. Dining rooms on the units intended for all meals.
Assisted living	1992-	Older people with high dependency	Individual apartments with one or two rooms.	Shared day-rooms for a group of residents. Dining rooms intended for all meals. Kitchens are part of the common spaces.

Note: [1] Dependency on staff for their daily life.

2.4 Home, ageing and assisted living

The concept of home in AL and other care environments has been the subject of research (Briller & Calkins 2000, Calkins & Marsden 2000, Cohen & Weisman 1991, Cutchin *et al.* 2003, Dekkers 2011, Dobbs 2004, Falk 2010, Hurtig 1995, Imamoglu 2007, Leith 2006, Lewinson *et al.* 2012, Lundgren 2000, Marsden 2001, McColgan 2005, Nagy 2002, Sörensdotter 2001, Utton 2006, Verbeek *et al.* 2009, Zingmark 2000). Several studies show that older persons are more reluctant to move, compared with younger people (Fransson 2004, Gottschalk *et al.* 2005, Mutschler 1992, Oldman & Quilgars 1999), and that most people prefer to remain in their own home, rather than move to a new environment (Falk 2010, Fogel 1992, Wiseman & Roseman 1979).

The home is a constant in times of change and an area where personal competence can be maintained (Rubinstein & Parmalee 1992). Of particular relevance is the fact that older people spend more time in their homes (Gurney & Means 1993). They are often emotionally attached to their home and therefore more reluctant to leave their friends, neighbours, and physical home (Cadwallader 1992, Hurtig 1995, Lawton 1990, Moss & Lawton 1982). Gurney and Means (1993) describe from a sociological standpoint how one's home becomes increasingly important with age. The fact that the physical range decreases in older people also reduces the social range (Pastalan & Schwarz 1993, Sixsmith 1990). This is certainly the case in AL.

This warrants a further exploration of the concept of home in AL, since one of the objectives of this thesis is to discuss the functional demarcation of home, and the relationship between the residential and workplace perspectives. This demarcation is defined by a number of parameters. Firstly, it is related to differences in the degree of use in terms of the number of persons using the spaces. Secondly, it is related to how the participants relate to and perceive the spaces.

AL provides residential care for older people in a home-like setting (Swedish Government 1990). It provides three main functions for the residents; an individual housing unit, or home; domestic care; and a social context (Paper III). The guidelines for dementia care in AL (NBHW 2010) stipulate that the municipal social services:

> "should offer people with dementia a place in small-scale residential care specifically designed for people with dementia. Social services should also work to ensure that the accommodation environment is personalised, home-like and enriched, and that those who need to be outdoors are given the opportunity to do so".

Ageing entails a loss of daily living skills, associated with the frailties of ageing. Normal ageing includes loss of visual and auditory capabilities, reduced orientation, impaired balance and loss of cognitive ability (Wijk 2001). Gustation is marginally affected in the ability to distinguish between sweet and salt, whereas olfaction deteriorates to a greater degree (Dehlin *et al.* 2000). There is also a gradual loss of social roles (Pastalan & Schwarz 1993). Moving to AL entails a break in the continuity of life and a certain degree of "disengagement" from the wider society (Cumming & Henry 1961). In turn, this makes

the in-house social interaction even more important. Alexander (1977) points out the terrible dilemma of growing old. On the one hand, the increasing discontinuity when children move, neighbourhoods change and partners die. On the other hand, the increasing dependence on social connections and the social context. Researchers have pointed out the staff as social facilitators in eldercare environments (Ball *et al.* 2009, Bland 1999, Nord 2011b, Ryvicker 2011, Williams & Warren 2009, Zimmerman *et al.* 2003).

De Beauvoir (1970) describes three approaches to ageing: chronological, physiological and sociological. This includes the number of years lived, the physiological and mental functionality and the conceptualisation of age in relation to the society. Jönsson (2003) makes a classification into chronological ageing and functional ageing. In this thesis, the definition of an old person as aged 65 or older is based on chronological ageing and this definition is used by Swedish authorities and many other countries (Ministry of Health and Social Affairs 2008, WHO 2002). In other words, AL is intended mainly for persons aged 65 or older.[*] A sub-classification in Sweden is made between young-old, 65-79 and old-old, 80 and above (County Council of Östergötland 2009). Similar classifications are to be found elsewhere. Given and Given (1989) use young-old, 65-74, mid-old, 75-84 and old-old, 80 and above. Field and Minkler (1988) use young-old, old-old and very old to describe the same spans. Laslett (1989) makes another categorisation into four "ages". The first age contains development and education and the second age contains independence, maturity, building relationships and taking responsibility. The third and fourth ages represent old age. The third age is life after retirement and contains fulfillment of personal qualities whereas the fourth age represents dependence, physical decay and death. The overwhelming majority of persons living in AL in Sweden belong to the group old-old, 80 years and above, or the "fourth age".

Heywood and colleagues (2002:3) relate a housing unit to physical structures and a home to existential and experiential factors. Their point of departure is in social policy and sociology: "Housing is a physical structure in which a self-selected household lives". Similarly, Jan Paulsson (2002) describes four dimensions of housing from an architect's point of view: practical, social, communicative and existential. The practical dimension concerns location and design and other physical characteristics. The social dimension concerns the degree of interaction between people; for example, can you choose to be alone or to socialise with others? The communicative dimension concerns communication and way-finding. The existential dimension is related to the subjective perception of the place. Do I like this room or this facility? Do I feel at home here? How does this environment convey memories and connections to my past life? The existential dimension of home is also related to place attachment, as described by Schumaker and Taylor (1983) from the field of environmental psychology. This means that people develop bonds with, and in, places through long-lasting emotional involvement. The place must be explored

[*] The number of persons younger than 65 years, permanently living in AL was 4,100 on Oct. 1st 2012 (NBHW 2013).

through the space, or as Malpas (1999:45) puts it, "not only in terms of physical extension… but as a space for movement and for activity".

Calkins and Marsden (2000) divide the concept of home into three levels: a physical structure, a personal expression and a mental condition. Their points of departure are within architecture, psychology and gerontology. Personal expression concerns how people express themselves and mark their territory in their neighbourhood and in their home. The psychological level is about being in control, feeling safe and being in your own environment; being at home. In their view, the physical environment has a major impact on whether we feel comfortable in the room. Of particular relevance is the fact that older people spend more time in their homes. Edvardsson (2008) uses the term "at-homeness". In a study in four different care settings, older people used "home" in various combinations as being most related to well-being and comfort.

Spaces develop unique place identities in relation to the persons, or users, forming parts of the persons' identities (Proshansky *et al.* 1983). Rubinstein and Parmalee (1992) describe from a psychological standpoint how a geographic space becomes a place, charged with personal experiences and social interactions from the accumulated course of a life. Similarly, Cutchin (2003) discusses the concept of home in service settings and points out that "significant activity and meaning are generated there". Andersson (2011a) suggests that the greater the number of places for spending time in the common spaces, the greater the feeling of "homeliness". Johansson (1997) has developed a *context analysis model* in which built environment is geographically fixed, like a place, and people are actors in specific roles and with specific interests. The society is expressed by the actors as "culture" (Fig. 7). "Thick descriptions" can be used to describe this culture (Geertz 1973).

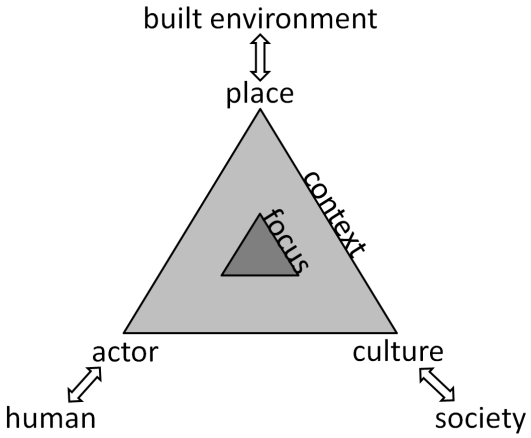

FIGURE 7: *Context analysis model according to Johansson (1997). The focus in this thesis is the common spaces.*

Öhlander (1996) and Zingmark (2000) have both studied care environments for people with dementia from an ethnographic and medical standpoint respectively, and stress that when you put together items from different life histories and different people's images of what home-like is, which is often the case in common spaces, this results in new recon-

structions of the home. These reconstructions can, at worst, create a very fragile reality for the residents in these units. Hauge and Heggen (2008) come to similar conclusions in a Norwegian study on the use of common spaces in nursing homes. They found that common living rooms were arranged like a private home but had no personal effects and looked both like a living room and a waiting room. This ambiguity produces unclear and somewhat inconsistent expectations. Verbeek and colleagues (2009) describe three characteristics related to home-likeness in residential care; physical, social and organisational. Physical characteristics might be private furniture and personalisation. Social characteristics might be taking part in daily activities and organisational characteristics might be whether the routines support the resident in the daily activities.

The architectural form naturally sets the boundaries of the physical environment; a "moulding form" for the activities performed there (Nord 2011b). Norberg-Schulz (1971) distinguishes six types of spaces; pragmatic, perceptual, cognitive, abstract, existential and architectural. He implies that the architectural space "makes concrete" the existential space, or that the physical features of a place manifest the existential dimensions of landscapes, cities, buildings and rooms. Architectural space should present "an imageable structure that offers rich possibilities for identification" (ibid. 114). In this context it is related to how we identify "home" in AL.

In common with Heywood and colleagues (2002), Hurtig (1995) also emphasises the difference between housing and home from an architectural standpoint. The experience of home is developed in close interaction with the site, but can shift focus. When we are abroad, our home country is home; when we are in another town, our hometown is home. When we are in another part of the city, our house or apartment is home. Similarly, Rowles (1985) places home in a physical continuum from the visual zone, the vicinity, community, sub-region, region and nation. The "visual zone" is cognitively differentiated from the space "outside" and is related to the length of residence (ibid. 143). The great difference between home as a continuation of the personal life (Atchley 1971, 1989) and AL is its "temporariness" (Andersson 2011a:61); similar to a stay in a hospital or a hotel.

AL facilities contain spaces for various functions. The common spaces often have spatially integrated kitchens, sitting and dining rooms. Yang and Stark (2010) call these "multi-purpose spaces". This is also the case as apartments in AL often have one single room to serve as both living room and bedroom. The bedroom is the most private space. Guests may have access to a toilet and bathroom. Cristoforetti and colleagues (2011) describe the bedroom as "the home's innermost sanctuary… an inviolable place." This situation is often reversed in the individual care situation, when the bed becomes the place where all interaction with other people occurs. For those who rarely or never leave their apartment, it becomes their universe. It is the stage for all aspects of their daily drama. The private spaces become semi-public places where all meetings with other people occur (Twigg 2002). In this situation the body is the last bastion of control or the "pivot of the place-world" (Casey 2001:688). No matter what, you cannot escape your body. Your physical body is also your "social body", regardless of whether it is being invaded by other persons or by medical equipment (Dyck *et al.* 2005).

People, however, create private spaces in public places (McColgan 2005, Nord 2011a). Goffman (1961) describes the connection to the place in terms of "front" and "back regions", related to the dichotomous relationship between public and private. An individual apartment in AL is a private housing unit and the common spaces are shared by the residents and the staff. It is evident that the concept of home is related to the circumstances of specific persons and groups (Moore 2000). This makes the AL context complex, and it must therefore be understood as "dynamic and context-bound" (Leith 2006).

2.5 The common spaces

The intended function of the common spaces in the five facilities included in the observation study must be related to the building structure. This study includes facilities constructed as service housing, nursing homes and AL. They are built for different purposes and the intended functions of the individual and common spaces differ in relation to the original structure (Table 1). The common spaces are part of the residents' housing (Boverket 2012):

> "For a group of residents, the rooms in the private apartments, concerning functions and equipment for cooking, daily social interaction and dining, may be partly located to common spaces. The common spaces must have the size and functions that they sufficiently compensate for the reduction of spaces in the private apartments" (3:224-25).

The relevance of the common spaces as venues for social interaction in AL, and in similar environments for older persons, has been documented (Hauge & Heggen 2008, Kim *et al.* 2007, Morgan & Stewart 1997, Tyvimaa 2011, Yang & Stark 2010, Williams & Warren 2009, Zavotka & Teaford 1997). The functions of common spaces in relation to the actual use have been discussed (Ice 2002, Nord 2011a, Zimmerman *et al.* 2007). Special attention has also been given to the interaction between eldercare environments and the residents/patients (Andersson 2011b, Day, *et al.* 2000, Verbeek, *et al.* 2009). Frankowski and colleagues (2011) discuss common spaces from an ethnographic perspective and show how daily life is commanded by the repetitive ritual of the three daily meals. They also point out how social interaction in the common spaces can stigmatise persons with declining abilities.

Moore (1999) discusses social interaction in the dining room of special care units for older persons with cognitive disabilities from an environment-behaviour perspective. He bases his discussion on Lawton and Nahemow's (1973) ecological model of ageing. He also refers to Goffman's (1961) ideas of how social interaction is either supported or constrained by the physical setting in which it occurs. His idea is that the greater the socially shared understanding of a place, the greater the social affordance the place provides (Moore 1999:152). He also describes how the perspectives of the staff and their organisation predominate during common meals (ibid. 149):

> "This multivalence leads to a sense of incongruence best exemplified in the conflicting negotiations that occur when residents desire to talk and staff desire to accomplish tasks… The desires of the social worlds involved are at cross-purposes: residents desiring the place to be in its natural state and staff desiring control to enhance the efficiency of their tasks".

Nord (2011b) discusses private-public as "dichotomous" and relates this dichotomy to access, control and agency in the physical environment. Like Sommer (1969), she argues that a person creates a "micro-spatiality" of privacy, also in public or common spaces. But, the common spaces do not belong to any particular individual, they are common. It is therefore not possible for a particular resident to actively reconfigure the environment for his or her specific purposes. Contrarily, the resident has to adapt to a fixed environment, resulting in a more passive use (Lawton & Simon 1968). It has been demonstrated that loss of control is associated with negative life events (Cairney & Krause 2008) and to a loss of psychological well-being (Heckhausen & Schulz 1995, Morgan & Brazda 2013).

Much of the action that takes place in common spaces is of a private character, normally taking place in the home (Lundgren 2000, Solove 2002). Twigg (2000) describes the private-public dichotomy on two levels; the contrast between the home and the surrounding world; and the contrasts between private and public spaces within the home. Researchers have long been pointing out that the common spaces should display home-like features to promote social activity in eldercare environments (Howell 1976, 1980) as well as in healthcare environments in general (Sommer 1969).

There is a conflict between the staff's intentions to stimulate social interaction and their need to maintain a certain degree of surveillance in order to safeguard the residents. The surveillance issue entails institutional features, as described by Goffman (1961). Bland (1999) argues that surveillance in AL counteracts the privacy of the residents. She suggests a "service approach" in residential care for old persons, related more to a hotel concept than a "social care approach". She means that the social care approach is the one most commonly adopted in eldercare today and it makes older people "socially incompetent". This approach is represented by hospitals "rather than the normal cultural expectations, surrounding the privacy and dignity which would apply in hotels and the home operating the 'service' approach" (ibid. 557-58).

2.6 Usability and accessibility in the physical environment

This thesis addresses how architecture is used and how it is perceived by the users in relation to the residential and workplace perspectives. Usability is discussed based on the intended functions of the physical environment in relation to the actual use. The intended function has been manifested in the physical structures during the *front-end activities* (Fig. 1). The degree of satisfaction experienced by the users is related to how efficiently the environment responds to the users' needs. Sommer (1969:17) provides a programmatical formulation of the role of the users in architecture. A formulation that to some extent fits the ambition of this thesis:

> "Satisfaction of occupant* needs should be the primary justification of architecture. Loyalty to materials, exciting form and appropriateness to the landscape are ways of accomplishing it. This is an invitation to a greater rather that lesser vision of architecture".

The International Organization for Standardization has several definitions of usability, two of which are discussed in this thesis. One of them concerns buildings and civil engineering works and also includes a definition of accessibility (ISO 2011). Here usability is a "characteristic of the built environment which can be used by everybody in convenience and safety". Accessibility is defined as "provision of buildings or parts of buildings for people, regardless of disability, age or gender, to be able to gain access to them, into them, to use them and exit from them". Swedish building regulations are partially based on this standard and the Swedish legal framework has defined usability as "The built environment has to allow any individual, in spite of impairments, to be able to perform daily activities within it" (Didón *et al.* 1987). This definition emphasises safety and technical performance of buildings or parts of buildings.

The other ISO-definition concerns the use of computer terminals and defines usability as "the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use" (ISO 1998). If the first definition emphasises the technical construction of buildings, the second relates more to the on-going use of products from an ergonomic point of view. It also emphasises the importance of usability more than simply the ease of use when considering the objectives for use (Bevan 2009). The scope of this thesis is the on-going use of common spaces, and also to bring information back from buildings in use to the planning stage. Lindahl and colleagues (2011) call this the *benchmarking perspective*. This perspective includes the on-going management of buildings in use.

Usability in the built environment can be described as an effect of the use in a specific context. This means that the effect of the interaction between users and artifacts results in usability (Blakstad 2001, Kernohan & Kelly 1992). When this practical effect is related to the functions of the artifact - in this context the physical environment - the extent of usability can be measured and discussed (Warell, 2001). Users are likely to be satisfied if the facilities are effective and their tasks can be performed efficiently. Hansen and colleagues (2005) describe usability as the effect of "functionality in use". Keinonen (1998) describes usability as a concept that refers to users' ability to utilize the functionality in practice. Functionality is therefore related to whether a task can be performed, whereas usability corresponds to the perceived effects of the tasks. Similarly, Bevan (1997) discusses "quality in use" as an effect of the product in a specific context of use.

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* The occupants in AL are both residents and staff, i.e. the end-users. They represent both the residential and workplace perspectives.

Since the "Ädel Reform" (Swedish Government 1990), ordinary housing standards have been applied in relation to AL, which concomitantly became the only municipal form of special housing for older persons (Boverket 2012). One exception is the rules for common spaces. National guidelines stipulate a low, normal and high level for physical access and usability; in AL the high quality level for access and usability is generally applied (SIS 2006). The differences between the levels, however, are minor. The guidelines provide minimum measurements for indoor spaces; passages, doorways, bedrooms, workplaces, dining areas, etc. Swedish building legislation regarding usability is intertwined with the accessibility aspect, where accessibility is a prerequisite for usability (Didón *et al.* 1987, Iwarsson & Ståhl 2003). Work environment legislation (SWEA 2009) also has ergonomic requirements for work with patients. Furthermore, the current allocation of state grants for the production of ALFs (SFS 2007:159) places limits on the size of apartments and common spaces.

From an architectural standpoint, an effective structure provides the functions desired by the users and enables efficient use. Alexander (1977) considers that a building cannot satisfy users "unless the physical spaces are congruent with the social spaces" (ibid. 941). This means that the activities taking place (i.e. actual use) must be congruent with the intention of the building (i.e. intended function). This, in turn, implies that the structure is "efficient" (ibid. 947).

Universal Design (UD) is related to accessibility and usability and how design either promotes or imposes barriers for use. Mace (1985) defines it as "the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design". One of the most important topics in UD is the relationship between the spatial order and the social order. The "barrier" is not a fixed, but a psychosocial construct, depending on the context and the user (Steinfeld & Maisel 2012). Similarly, Iwarsson & Ståhl (2003) emphasise that UD is not related to a definite result, but to a process, stressing the influence of a time-factor. Goldsmith (2001) points out that when comparing buildings and products, buildings are less amenable to UD accomplishments. First, they are less subject to technological advances. Second, the consumers are seldom able to freely choose the most usable or attractive building. Third, building projects are subject to minimum standards and production costs are always kept down, regardless of the long-term result. Fourth, architects seldom have any incentive to make buildings universally accommodating.

Fänge and Iwarsson (2003) discuss "person-environment-activity (PEA) transactions" in relation to accessibility and usability from an ergonomic point of view. They mean that the activity aspect must be incorporated when assessing usability. In this thesis, the activity aspect is a part of the use, which is a result of the users' activities in the common spaces. The effect of this use can be discussed in terms of usability. Wahl and colleagues (2012) stress the complexity of person-environment interactions and of the "user interface" and that this must be discussed in relation to the specific context.

Iwarsson & Ståhl (2003) emphasise an integrative analysis of PEA-transactions whenever using the concept of usability. The focus in this thesis is rather to disentangle

factors related to respectively, the users and the physical environment. Helle (2013:67) writes that accessibility in housing for older people is related to "person, environment, mobility device and activity". In the ecological theory of ageing, Lawton & Nahemow (1973) describe the relation between person, environments and activity in terms of the individual pressure that is generated by the dynamic relation between the properties of the physical environment, the competence of the individual and the nature of the activity.

A related model that attempts to describe the person-environment relationship is the *People, Process and Place Model*, created by Duffy and colleagues (1984). This *facility management* model outlines the intersection between process, place and people (Fig. 8).

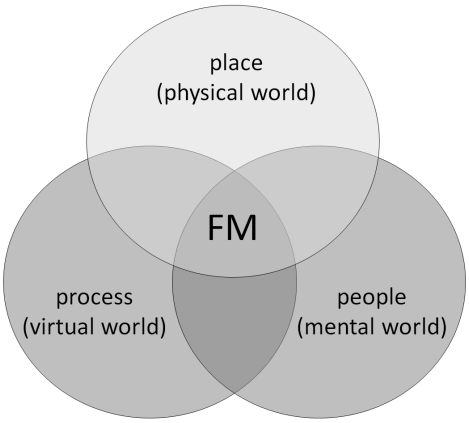

FIGURE 8: *People, process and place model according to Duffy and colleagues (1984).*

To discuss usability as an effect of use, users' experiences must be considered (Rasila *et al.* 2010). These perceptions are also dependent on social and cultural mechanisms (Fenker 2008, Lindahl & Granath 2006) and on the continuously changing context (Figure 17). One major issue is that the effects of use are always relational within the context. Another issue concerns how to identify the present and future users and, as a consequence, how to obtain and interpret relevant information. In this thesis, usability is not measured on the basis of any exhaustive quantitative material. The multi-methodological strategy is here used to describe the complexity of usability (Blakstad *et al.* 2008).

3. Methods

3.1 Research design

This research study applies an explorative qualitative strategy, although the methods used are not explorative methods by definition. This research design has allowed a continuous reformulation of the research objectives (Dewalt & Dewalt 2002, Fangen 2005, Miles & Huberman 1994). The research objectives formulated in this thesis, are the result of an incremental process, based on the analysis (Fig. 10). The research strategy has been to use a combination of qualitative and quantitative methods in order to strengthen the validity of the results (Greene *et al.* 1989, Groat & Wang 2002, Onwuegbuzie & Johnson 2006, Patton 2002, Yin 1994) (Table 2).

TABLE 2: *Research methods*

Method	*Participants*	*Persons directly involved*	*Time of data collection*	*Time in hours*
1. Participant observation	Residents	199	2009-2010, 2012	188
	Unit staff	103		
2. Group interviews	Unit staff	24	2011	10
3. Individual interviews	Residents	10	2012	10
	Relatives	4		6
	Planners	4		8
	Architects	3		6
4. Questionnaire [1]	Unit staff, heads	193	2012	50
	Number of persons involved:	*540*	*Number of hours:*	*290*

Note: [1] Including six additional facilities, see Table 4.

The criterion used here to choose methods is their methodological appropriateness (Patton 2002). Johansson (2002:22) calls this a "pragmatic and eclectic attitude" towards methodology. An interdisciplinary framework is used (Groat & Wang 2002). A case study design has been used, based on Yin (1994). He advocates a context-oriented approach where phenomena are studied in their natural context. Johansson (2002) also advocates an explicative approach in architecture research where the aim is to understand a complex whole by exploring the case in its context. Architecture is a complex area of research, with two major components; people and buildings. The research design is chosen to reflect this complexity by using methods that include describing the buildings and people, observing how people use the buildings and then asking them about it.

Internal validity concerns the question of whether the relevant methods and theoretical models have been applied to address the research objectives and to produce the correct results (Malterud 2009). In qualitative research, this also concerns the question of credibility, or how well data and processes of analysis address the intended focus (Graneheim & Lundman 2004). First of all, the methods were chosen from an explorative strategy,

entailing a formulation of hypotheses from the introduction of empirical material (Biederman *et al.* 1973). Non-structured and structured observations were used to map the activities related to daily use. The interviews were used to add new issues to the research objectives and to further explore the specific issues identified in the observations. Finally, the self-completion questionnaire was used to explore specific questions in a larger group. External validity concerns the question of whether the results are relevant outside the context in which they were produced. This is related to whether they are transferable to other contexts (Malterud 2009).

Graneheim and Lundman (2004) describe credibility and transferability as aspects of trustworthiness. The major structural similarities in AL environments in different countries indicate that the results are transferable to other contexts. Furthermore, the issues addressed are relevant for most AL, and similar, environments. The broad description of the context of this study, the sample and the collection and analysis of data are intended to facilitate the transferability of the results (Granheim & Lundman 2004:110).

FIGURE 9: *Schematic representation of the research design.*

Non-structured participant observation, semi-structured interviews with individuals or groups and document studies are qualitative methods (Patton 2002), while structured observation and questionnaires are quantitative methods. The methodological origin of participant observation, as well as interviews, is to be found in sociology (Bryman 2008, Dewalt & Dewalt 2002). By combining methods, the objective is to develop a broader knowledge through viewing the problem from different perspectives (Malterud 2009).

The results are analysed using both qualitative and quantitative methods and have been compared by method triangulation, using different methods, and data triangulation, using different data sources (Denzin & Lincoln 2005, Patton 2002). Figure 9 shows the different methods and analysis units. The same methods, or similar combinations of methods, have frequently been utilized in these types of contexts and by researchers from different disciplines (Ball *et al*. 2009, Hauge & Heggen 2008, Hujala & Rissanen 2011, Ice 2002, Martin 2002, Moore 1999, Nord 2011b).

Statistical data regarding residents' presence in common spaces was analysed using Pearson's product-moment correlation (Rider 1932) and Paired t-test (Hazelwinkel 2001) (Paper II). The textual analysis of the results has been processed by using qualitative content analysis (QCA), based on Graneheim and Lundman (2004) (Fig. 10). The material was coded by identifying *meaning units* and central *themes*. *Interview guides* (Bryman 2008, Patton 2002) with open questions were used and were revised according to Figure 10 (Paper II). The questions were adapted to each specific group of participants (Appendix 7.6). The data was organised systematically in order to triangulate the questions.

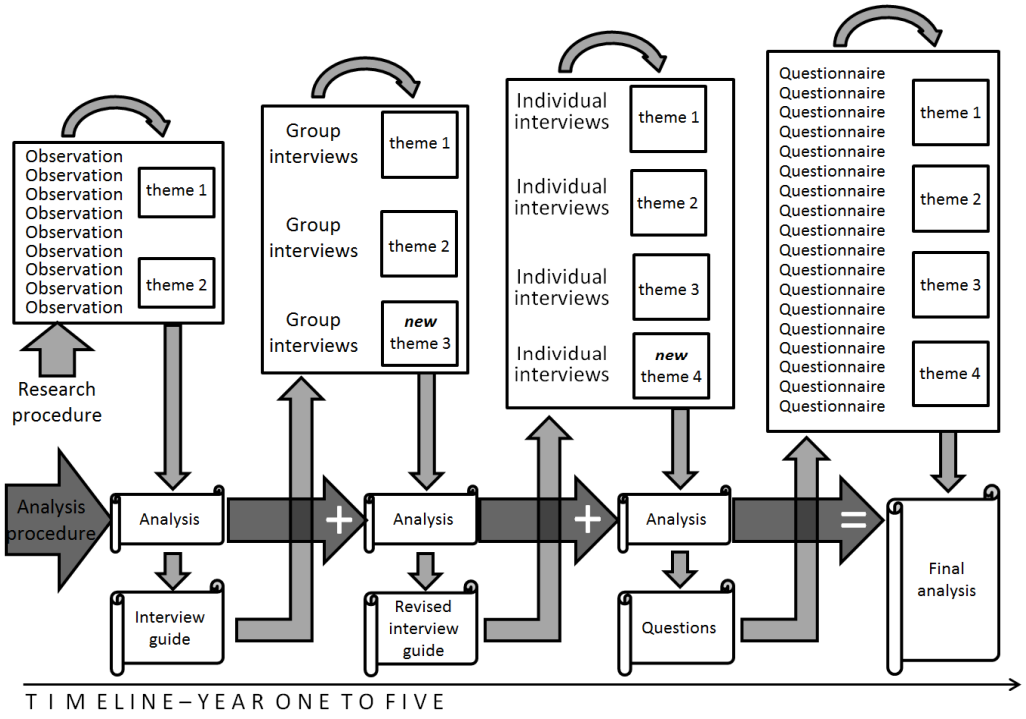

FIGURE 10: *Qualitative content analysis (QCA) procedure, based on Graneheim & Lundman (2004). The research procedure is shown in light grey and the process of analysis is shown in dark grey.*

To display the complexity of the context, thick descriptions, along with quotations, have been utilized in the papers to account for situations and phenomena (Geertz 1973). Table 3 describes the operationalisation and objectives of each method; research and analysis methods respectively.

TABLE 3: *Research Procedure*

Methods	*Operationalisation*	*Source/location*	*Objectives*	*Output*
Research methods:				
Participant observation	Non-structured. Moderate participation.	Five dementia and nine somatic units.	Observe the daily use, primarily of common spaces.	Paper I-IV
	Structured. Moderate participation.	Five dementia and two somatic units.	Observe the presence in common spaces.	Paper I-III
Semi structured group interviews	Interview guide with open ended questions based on the observations	24 staff members at the five facilities from dementia and somatic units.	Relate the observations to the attitudes and experiences of the staff. Identify new issues.	Paper II-III
	Photos used as examples.			
	Layout drawings used as templates.			
	Observation protocol excerpts used to exemplify.			
Semi structured individual interviews	Interview guide with open ended questions based on the observations and the group interviews.	10 residents on somatic units in the five facilities.	Explore the residents' perspective.	Paper III
		4 experts from the City of Gothenburg.	Explore the experts' perspective.	
		3 architects.	Explore the architects' perspective.	
		4 persons with relatives in four other facilities.	Explore the perspective of the relatives.	
Self-completion questionnaire	Closed ended questions.	Staff and heads at the five facilities.	Larger group.	Paper III
		Staff and heads at five additional facilities in and outside Gothenburg.	Include results from other facilities. More respondents. Specific questions.	
Complementary research methods:				
Documents	Governing documents	Laws, regulations, policies.	a) Illustrate. b) Support theories and hypotheses. c) Give background. d) Give validity to data obtained. e) In combination with other methods.	Paper I-IV
	Layout drawings	Plans, facades, sections.		
	Documentation about the facilities.	Building documentation.		
	Routines and procedures, textually or verbally mediated.	Schedules and routines on the units.		
	Photographic documentation.	Digital camera		

TABLE 3, continued: *Analysis Procedure*

Methods	*Operationalisation*	*Source/location*	*Objectives*	*Output*
Analysis methods:				
Statistical analysis	Pearson's product-moment correlation.	Observations. Interviews.	Presence.	Paper II
	Paired t-test.	Observations, interviews.	Relation between mobility and presence.	Paper II
	Quantifying the questionnaire.	Self-completion questionnaire.	Relating specific questions to the other methods.	Paper II-III
Qualitative Content Analysis (QCA)	Coding. Meaning units. Themes. Questions.	Observations, interviews.	Identifying research issues.	Paper I-III
Triangulation	1. Data triangulation	Different data sources.	Enhance validity.	Paper II-III
	2. Method triangulation	Different methods.		

The results in this study are derived from both the empirical material and from experiences from other eldercare environments. The focus is on the meaning of a phenomenon rather than on the phenomenon itself (Moustakas 1994:21). The results are not based on large quantities of data, aiming at mapping pre-defined phenomena, rather to explore common spaces in AL by applying a broad spectrum of methods. The knowledge base for this study is the collected empirical material. My own experiences from geriatric psychiatry in the 1980s and from management and development of ALFs from the 1990s onwards contribute to the understanding of the research field.

3.2 Facilities included in the study

The facilities were chosen to reflect variations concerning size, age, location and medical orientation, i.e. somatic or dementia units (Table 4 and Fig. 11). The five facilities included in the observations contain between 20 and 89 apartments, they were built between 1971 and 2001 and are located in very different parts of the municipality. The number of residents per unit varies between 6 and 16 (Table 6). The other nine facilities contain between 38 and 138 apartments, were built between 1912 and 2000 and are located in different parts of Sweden. The sample reflects the diversity of eldercare facilities that exists today.

All units in the study had multi-purpose spaces with integrated kitchen and dining room. Most of them had combined kitchen, dining and sitting room (Fig. 21 and 22). The average share for each resident in the common spaces in the sample was 7.5 square metres on the somatic and 9.4 on the dementia units, although their average size was the same, approximately 80 square metres (Table 5).

TABLE 4: *Facilities included in the study*

Facilities					*Units*		
Original purpose	*Location*	*Built*	*Rebuilt*	*Residents per facility*	*No. of dem units*	*No. of som units*	*Methods used* [1]
Private apts.	Central Gothenburg	1912	1992	39	1		4
Home for the aged	Smaller municipality	1959	1994	66		1	4
Assisted living	Smaller municipality	1966	1984	61	1		4
Assisted living	Smaller municipality	1966	2011	52		1	3
Nursing home	Central Gothenburg	1968	2009	138	1	1	4
Nursing home[2]	Central Gothenburg	1971	2005	75	2	2	1, 2, 3, 4
Service housing	Suburban Gothenburg	1971	2005	50		1	3
Hotel	Central Gothenburg	1976	2008	60		1	3
Service housing[2]	Central Gothenburg	1980	2009	98	2	2	1, 2, 3, 4
Home for the aged[2]	Suburban Gothenburg	1993	-	24		2	1, 2, 3, 4
Assisted living[2]	Rural Gothenburg	1993	2007	20	1	2	1, 2, 3, 4
Assisted living	Larger municipality	1994	-	71	1		3
Assisted living	Rural Gothenburg	2000	-	38		1	4
Assisted living[2]	Suburban Gothenburg	2001	-	72	1	1	1, 2, 3, 4
Number of facilities:	14			Number of units:	10	15	

Notes: [1] See Table 2. [2] Facilities included in the observations.

TABLE 5: *Size of units and common spaces*

	No. of residents per unit	*Size of units (m^2)*	*Size of common areas, corridors excluded (m^2)*	*Share per resident of common areas (m^2)*
Total average on all units	9.7	630.,2	80.3	8.3
Average on dementia units	8.2	548.5	81.2	9.4
Average on somatic units	10.7	684.7	79.8	7.5

FIGURE 11: *Four of the facilities included in the study. Common unit spaces are marked with dotted lines. AL1 (a) was built in 1971 with hospital-like architecture and rebuilt in 2005 (White Architects 1970 and Krook & Tjäder Architects 2004). AL2 (b) was built in 1980 as service housing in the form of a block of flats and rebuilt in 2009 (Kullenberg Architects 1979 Lundberg Architects 2009). AL3 (c) from 1993 (Lundberg Architects 1992) represents small-scale architecture, inspired by terraced houses. The three groups (units) are clearly discernible. Each apartment has its own small garden. AL5 (d) was built in 2001 (Arkotek Architects 2001) with small apartments in more large-scale architecture. The drawings are not to scale.*

3.3 Participant observation

The first method used was *participant observation* (Dewalt & Dewalt 2002, Patton 2002, Svensson & Starrin 1996). Direct observations and verbal communication, but no participation in the action taking place, entailed a *moderate* (Dewalt & Dewalt 2002) participation. The first round of observations was *non-structured* and was performed during various times of day and night, broadly recording aspects of daily use in order to discover relevant issues (McKechnie 2008). The mean age of the residents in the

observation study was 88.7, and the average age at which they took up residency was 85.1. The average duration of residency was 3.5 years. The study involved 90 female and 41 male residents and 92 female and 5 male staff members.

The long duration of the sessions is used to expose a maximum number of phenomena (Patton 2002:273). One year later, *structured observations* (Bryman 2008) were performed with the main objective to explore the presence of residents in the common spaces and to complete the material acquired in the first round.

TABLE 6: *Facilities and units included in the observations*

Facility	*Unit*	*Residents per unit* [1]	*Observation period* [2]	*Time*
AL1	dementia	9	1	13:00-21:00
	dementia 2	12	2	07:00-13:00
	somatic 1	8	1	07:00-15:00
	somatic 2	8	1	11:00-14:30[4]
			1	21:00-07:00
			2	15:00-21:00
AL2	dementia 1	7	1	13:00-21:00
			2	07:00-13:00
	dementia 2	7	1	11:00-14:30[4]
			2	07:00-13:00
	somatic 1	15	1	07:00-14:00
			2	15:00-21:00
	somatic 2	15	1	21:00-07:00
AL3	somatic 1	10	1	13:00-21:00
			1	21:00-07:00
			1	11:00-14:30[4]
	somatic 2	10	1	07:00-15:00
AL4	dementia	6	1	14:00-21:30
			2	07:00-13:00
	somatic 1	7	1	07:00-15:00
	somatic 2	7	1	11:00-14:30[4]
	facility[3]	20	1	21:00-07:00
AL5	dementia	8	1	12:45-21:10
			1	21:00-07:00
			1	11:00-14:30[4]
			2	07:00-13:00
	somatic	16	1	07:00-15:15
			Number of hours 2009-2010:	146
			Number of hours 2012:	42
			Total number of hours:	188
			Average duration, in hours, per session:	7

Notes: [1] Equivalent to the number of residents per unit. [2] Period 1=November 2009-February 2010, period 2=January 2012. [3] One dementia and two somatic units included. [4] Weekend sessions.

3.4 Group interviews

The *semi-structured group interviews* were performed in autumn 2011. An *interview guide* (Bryman 2008, Patton 2002) was used (Appendix 7.6), based on the themes derived from the observations (Fig. 10). It contained 30 open questions. The themes were related to space or users (Table 7). The notes were formulated together with the participants on an on-going basis, and they were given the opportunity to react to the written material at all

times during the interviews. The notes were made as detailed as possible but contain a certain degree of reduction.

TABLE 7: *Themes*

Spatial themes	*User themes*
common spaces	organisation and routines
apartments and related space	degree of use
other indoor spaces	somatic vs. dementia units
staff and service space	assistive equipment
outdoors and balconies	mobility
	environmental aspects
	social aspects and external contacts
	home vs. workplace
	conflicts
	group characteristics
	intended vs. actual use
	models and ideals

The 24 participants were selected from the five facilities included in the observations. To keep my own bias to a minimum, the facility heads were asked to choose at least one participant from each unit in the facility. The time was fixed, which entailed a degree of randomisation in terms of who was working at the particular time.

3.5 Individual interviews

In the individual *semi-structured interviews* (Bryman 2008), the interview guide was revised after the group interviews according to Figure 10. The notes were formulated together with the participants. They were given the opportunity to reformulate the written material on an on-going basis during the interviews.

In all, 21 persons were interviewed (Table 8). Ten of them represented the residential perspective. Seven of them represented the perspectives of planners, architects and researchers. Four of them represented the relatives' perspective.

Firstly, ten residents at the five facilities included in the observations (Table 4), five men and five women, were each interviewed individually for approximately one hour, during which 34 questions were discussed. 11 other stakeholders (for definition, see Table 8) were subsequently interviewed. Four persons who held key positions in eldercare or in the planning of eldercare facilities for older persons in Gothenburg were interviewed. Three of them represented the financiers of this study. Then three architects were interviewed, two of whom were responsible for the design of numerous ALFs in Sweden. The third architect was my own supervisor who also represented the researcher's perspective. Finally, four persons were interviewed who had relatives in AL.

TABLE 8: *Individual interviews*

Function	*Prerequisites*
Residents in the five facilities included in the observations	
Female resident	Aged 92, resident in somatic unit for 5 years, mobility 1[1]
Female resident	Aged 92, resident in somatic unit for 1 year, mobility 2
Female resident	Aged 89, resident in somatic unit for 7 years, mobility 1
Female resident	Aged 87, resident in somatic unit for 2 years, mobility 1
Female resident	Aged 83, resident in somatic unit for 7 years, mobility 1
Male resident	Aged 102, resident in somatic unit for 4 years, mobility 1
Male resident	Aged 94, resident in somatic unit for 3 years, mobility 1
Male resident	Aged 87, resident in somatic unit for 4 years, mobility 1
Male resident	Aged 82, resident in somatic unit for 3 years, mobility 2
Male resident	Aged 73, resident in somatic unit for 1 year, mobility 1
Other stakeholders [2]	
Female relative	Born 1960, with demented mother on dementia unit in mid-size town
Female relative	Born 1963, with aged father on somatic unit in central Gothenburg
Male relative	Born ca. 1950, with recently deceased mother on somatic unit in smaller municipality
Male relative	Born ca. 1960, with mother-in-law on somatic unit in suburban Gothenburg
Female architect	Born ca. 1970, with experience of designing ALFs
Female architect	Born ca. 1950, with experience of research into environments for older people
Male arhitect	Born ca. 1955, with experience of designing ALFs
Female head	Born ca. 1960, with strategic tasks concerning eldercare in Gothenburg
Male head	Born 1962, with strategic tasks concerning eldercare facilities in Gothenburg
Male head	Born ca. 1950, with strategic tasks concerning eldercare facilities in Gothenburg
Male head	Born ca. 1960, with strategic tasks concerning eldercare in Gothenburg

Notes: [1] See Table 9. [2] Includes relatives, architects, and people with strategic functions in eldercare or in the planning of eldercare environments.

The residents interviewed were chosen with reference to four criteria. Firstly, five men and five women were stipulated and at least one resident from each of the five facilities. Secondly, a varying length of residency was asked for; in the sample between three months and seven and a half years. Finding persons in different age cohorts was another objective; in the sample it varied between 73 and 102 years. Thirdly, one criterion was to have different mobility statuses represented. Two of the participating residents were categorised in mobility 2 (Table 9) and used small wheelchairs. The other eight were categorised in mobility 1; three of them used a walker, one used a walking stick and four were able to walk independently. One woman belonging to the latter group was blind. Fourthly, the residents all lived on somatic units. The reason for this is that all of them were able to give their active consent to participating. Furthermore, the physical environments presented very similar physical features, comparing somatic and dementia units. Having made my proposals to the facility heads, they were able to reject some of them as unsuitable to interview. Five of the interviewed residents were proposed by me and five were proposed by the heads.

TABLE 9: *Mobility*

	Mobility tot	*Mobility 1*	*Mobility 2*	*Mobility 3*
Average mobility on dementia units	1.9	50 %	13 %	37 %
Average mobility on somatic units	1.6	56 %	26 %	18 %

Notes:
Mobility 1: The resident can walk by him-/herself, with or without walking aids.
Mobility 2: The resident is dependent on a standard size wheelchair for transportation and can use the wheelchair to relocate independently within limited areas.
Mobility 3: The resident is completely dependent on aid from the staff and, as a minimum, dependent on a big wheelchair for transportation.

3.6 Self-completion questionnaire

A *self-completion questionnaire* (Bryman 2008) consisting of 19 closed questions was sent to 193 staff members, including 16 heads (Appendix 7.7). Prior to sending it out, a pilot version was made and tested on four colleagues in the Department of Architecture. This led to some revisions in the final version. It was sent to units in the five facilities included in the observation study plus five additional facilities; three in Gothenburg and two in other municipalities (Table 4). The purpose of this addition was to include a larger sample but not to make comparative analyses between the groups.[*] There were initially six additional facilities, but one did not wish to participate. The questions were based on the revised interview guide. The questionnaires were sent to the heads and contained as many questionnaires as there were staff employed at the respective units plus one each for the heads. Each staff member and each head received a questionnaire and an envelope, and could subsequently complete the form individually and return it by regular mail. The sample was chosen according to four criteria (Table 4). 1. All units from the observation study were included. 2. Other units in the five facilities were included. 3. There was an equal proportion between dementia and somatic units. 4. Five additional facilities were included; two of these were located outside Gothenburg.

The questionnaire was designed with *single option* and *multi option* questions. Each question was analysed separately and no correlational analysis was made of the specific questions or the aggregate result. Corresponding questions in the interviews have been compared with the specific questions and where applicable triangulated with the results from the observations.

[*] A comparison was, however, made between the five facilities included in both the observations and the questionnaire and the five additional facilities, included only in the questionnaire. The results show few divergences between the groups: The staff in the additional facilities were more inclined to regard the common kitchens as part of the residents' home environment. They were also more inclined to stress the attitudes and routines of the staff as important for the use of the common spaces. Furthermore, the staff in the five additional facilities reported more conflicts between residents and staff.

3.7 Ethical considerations

The Swedish Law on Research on Human Subjects (SFS 2003:460) stipulates precise rules for submitting research projects to an ethical committee for appraisal (§§ 3-6). These rules are not applicable here and it has therefore not been necessary to submit the project for appraisal. All person-related information which, "directly or indirectly, can be attributed to a living physical person" (SFS 1998:204 §3) has been anonymised. The participants have been guaranteed full anonymity.

This research has been conducted in a housing context where people have their homes. Furthermore, the residents are in a vulnerable situation, subject to the frailties of ageing and in many cases at the very end of their lives and being severely ill. This calls for special ethical consideration (Andersson 2007, Randall & Downie 1998). The Swedish Research Council's ethical principles for research in the humanities and social sciences have therefore been used as guidelines (Swedish Research Council 2002). These guidelines have four criteria.

1. Information. The participants must be informed about the objective of the research, their role, the conditions for their participation and that participation is voluntary.

2. Consent. The participants must give consent to the participation. Consent for the interviews and questionnaire is a prerequisite as the participants participated of their own volition.

3. Confidentiality. Person-related information must be stored with the utmost confidentiality so that no other persons can access it. The information must be reported so that no individual person can be identified.

4. Data. Data about individual persons may be used exclusively for research purposes, and for no commercial or other purposes.

The preparation for the observations was initiated by contacting the persons responsible for eldercare in the five district administrations where the facilities were located. They were informed about the study by mail. The heads of each facility then received the same information by mail and later by telephone. A visit was made to each facility where the heads could ask questions. Information about the study was attached to noticeboards in the units and at the entrance. The heads, in turn, forwarded the information to all residents, staff and relatives of the 15 units. Together with the heads, an observation schedule was established. Informed consent has been applied for the observations. Before the observation sessions started, checks were made to ensure that all participants had been informed. All residents and staff were contacted individually. They also received the relevant information then and there. Checks were also made to ensure that the relatives had been informed by the heads or by the residents' special contact persons (every residents has a member of staff who is specially assigned to help him or her with practical matters and to have contact with relatives and authorities). The participants in the group interviews were asked by their heads three weeks in advance if they wished to participate. Before the interviews, they were informed according to the criteria of the Swedish Research Council (2002). The participants in the individual interviews were also infor-

med, in line with these criteria, two weeks in advance by the heads. They all actively chose to participate and they acquired all relevant information prior to the interviews.

3.8 Critical issues

Numerous lessons have been learned through this study. The explorative strategy has involved an on-going reformulation of the research objectives. This process has been facilitated by my own previous experiences from eldercare environments. A validated instrument would possibly have facilitated the formulation of precise research objectives. It would also have produced a more precise outcome, in relation to the research objectives. On the other hand, an instrument might have counteracted the explorative strategy and the formulation of themes in the course of the study. This study presents evidence that is transferable to other contexts. New knowledge is generated that can be translated into practice. This knowledge can form part of the Evidence-Based Design (EDB) of ALFs.[*]

The choice to present the study in a compilation thesis fits the structure of the study in several respects. First of all, the continuous reformulation of the research objectives is reflected in the sequentially presented papers. Secondly, different aspects of the research objectives have been addressed sequentially, allowing more in-depth discussions in the respective paper. A third issue has been the opportunity to modulate the discussion in the thesis in relation to the results presented in the individual papers.

One issue concerning *overt observation* (Patton 2002:269), i.e. where the observer is visible to the participants, is whether participants behave differently compared to a normal situation. Sommer (1969:112) describes a research situation in a mental ward: "When I sat in the day room making observations, not only did patients and staff feel uncomfortable to see me there, but I personally felt unwanted". This was never the case in this project. It is, however, not possible to evaluate if and how the users were affected. Were the residents and/or staff more or less inclined to be in the common spaces? Were they more or less reluctant to have conversations with each other? Did they behave differently in other respects? Were other activities performed? To counteract this bias, long sessions were undertaken, displaying a greater complexity of observed events. In addition, observations were made over a long period on many units. The observations were made during the winter. This has to be considered when evaluating the results, since some of the common activities move outdoors in the summer. It can be argued, though, that this makes the winter the most appropriate time of year to study the use of indoor spaces.

Another issue is whether the facilities present a representative sample. Firstly, the sample reflects contextual variations concerning size, age and location of the facilities. The proportion in terms of medical orientation, i.e. somatic and dementia units, reflects the ambition to explore differences between somatic and dementia units. One limitation is

[*] EDB is here defined as "a problem-solving approach that intergrates the best available scientific evidence with the best experiantial evidence from architects or healthcare providers…" (Stichler 2010:9). Research systematically generates new knowledge, whereas EBD translates this knowledge into practice.

the concentration on Gothenburg; only four of the 14 facilities are located elsewhere. Another limitation is that no analyses are made concerning possible differences between urban and rural contexts. On the other hand, the structural similarities are overwhelming between Swedish ALFs (Andersson 2006, Paulsson 2002). The sample also represents diverse locations both with regard to the facilities in Gothenburg and the facilities located elsewhere in Sweden.

One factor that has not been addressed here is the increasing number of private AL providers in Sweden (SFS 1991:900). This, on the other hand, differs widely, as competetive tendering is optional in eldercare (SFS 2008:962). Only one of the 14 facilities in the sample is operated by a private care provider. The regulatory system, however, makes no distinction between private and public providers. Another factor is related to the on-going expansion of forms of residential facilities for senior citizens that are new in the Swedish context, e.g. senior housing and senior housing for AL. These new residential facilities present alternatives to ordinary housing and special housing, i.e. AL. How this will affect the future availability and function of AL is a concern for future research.

The interviews have entailed some considerations. There are difficulties in gathering the staff for longer periods or in larger groups, due to their schedules. This has been an important factor when choosing to compose the groups with staff from different units, as each unit was able to spare at least one member of staff. Interviewing staff from one unit separately would therefore have been very difficult. Interviewing the residents in their own apartments presented the most time-efficient and least exhausting alternative for them. One of the residents chose to be interviewed in the lobby. Another issue is the relatively small number of individual interviews in the respective category (residents, relatives, architects and people with strategic functions in eldercare or in the planning of eldercare environments). This entails obvious limitations in discriminating variations between the categories. The total number of interviews and their duration (Table 2), however, represents the basis for analysis.

There is an obvious risk of the staff being biased through their interests in their own unit versus other units and by their workplace perspective in relation to the residential perspective. An example would be where staff on the dementia units were more inclined to agree, compared to staff on the somatic units, that residents with cognitive disorders spend more time in the common spaces (Paper III). When, however, they were asked if residents frequently used the sitting and dining rooms in their own unit, staff on the somatic units reported high scores. This contradicts the observations to a certain degree, since they consistently showed a higher average presence on the dementia units (Paper II).

Some concerns are related to the interview guides and the questionnaires (Appendix 7.6). The questions are to a substantial extent congruent between the group interviews, individual interviews and the self-completion questionnaire. A complete congruence would have further enhanced the internal validity of the results. It did, however, prove problematic to apply this, the reason being that questions with the same content have to be formulated differently for different categories in order to make them comprehensible. Another reason is that some questions may be relevant to one category but not to another,

which means that specific questions appear in one interview guide but not in another. It is therefore not possible to subject these results to triangulation and they are, if applicable, accounted for separately.

There is also an obvious risk of the interviewer misinterpreting the participants, both in the group interviews and in the individual interviews. To minimise this bias, the notes were formulated in agreement with the participants there and then, which made further contacts redundant, thus simplifying the procedure.

The questionnaire has necessitated precise and unambiguous questions, unlike the questions in the interview guides. The reason for this is the risk of the questions in the questionnaire being misinterpreted due to different frames of reference, both between the respondent and the researcher and between different respondents (Bryman 2008, Converse & Presser 1986). The total response rate was 55 per cent. According to Bryman (2008:219), response rates of between 50 and 59 per cent are considered "barely acceptable". There were also major difficulties in collecting the results. Reminders were sent to the heads, asking them to remind their staff to fill in the questionnaires.

There is also a question of whether the participants represent a relevant sample and if the proportions are reasonable between the different groups. Since this study relies heavily on the staff, this has to be considered when discussing the relevance of the results. One limitation of the individual interviews is that all residents lived on somatic units. Another limitation is the small sample of individuals, however, considering the composition of the sample, a variety of perspectives was represented. Furthermore, there were very minor differences between the physical design of the somatic and dementia units. Arguments can be raised against the validity of small samples (Rider 1932), as when comparing the results from the interviews with other stakeholders with the other results (Paper III). It can be argued, though, that the great divergence in this small sample is significant in relation to the relative convergence in the larger group of residents and staff.

The empirical basis for the results presented here is comprehensive. The physical environments are found in 14 facilities in different parts of Sweden. The participants represent the perspectives of residents, relatives, staff, planners and architects. The 540 participants have been involved for a period of 290 hours, 188 of which were direct observations. The results from the study were made accessible to the participants through the publication of my licentiate thesis and other publications. The results have also been presented and discussed at two seminars for eldercare staff in Gothenburg.

4. Results

4.1 The empirical material

The data collected is diverse in nature. The non-structured observations produced a plethora of qualitative information. Both the non-structured and structured observations also produced quantitative data concerning, for example, the users, the facilities and the presence of residents in common spaces. The group interviews and individual interviews mainly produced qualitative information, but also quantitative data concerning the use of the facilities and about the user groups. The self-completion questionnaire produced quantitative data, allowing data and method triangulation to be performed. Documents and photos, related to the facilities and to pertinent issues, have produced both qualitative and quantitative data. Papers I to III present similar conclusions in some cases. The contribution of each paper must be understood through its chronological order (Table 10).

TABLE 10: *Methodological input for the five publications*

Papers in chronological order[1]	*V*	*VI*	*I*	*II*	*III*
Previous experiences	x				
Observations non-structured		x	x	x	x
Observations structured			x	x	x
Group interviews with staff				x	x
Individual interviews with relatives					x
Individual interviews with residents					x
Individual interviews with other stakeholders					x
Self-completion questionnaires for staff					x

Note: [1] Corresponds to the chronological order of data collection and publication

4.2 Summary of the papers

This thesis contains three types of papers; three journal articles, one conference proceeding and one essay. They are included for different reasons. Table 11 shows an overview of the papers and presents the different perspectives accounted for, research questions, methodological strategy and findings in brief.

Papers I to III address an international audience via peer-reviewed research journals. This meets the requirements of the Swedish National Agency for Higher Education (Högskoleverket). Paper IV was used to present the preliminary results, thus addressing an international academic audience at an early stage of the study. Paper V was written before any empirical material was gathered. The purpose was to introduce my own experiences from eldercare and from my architectural profession. In papers I, II, III and IV, the co-writers have contributed proofreading and advice but no textual input. In paper III, the second co-writer has also made a limited textual contribution.

TABLE 11: *Overview of the five papers*

Paper	I	II	III	IV	V
Group	1. Residents 2. Staff	1. Residents 2. Staff	1. Residents 2. Staff 3. Relatives and other stakeholders	1. Residents 2. Staff	1. Researcher 2. Relatives (3. Staff)
Methodo-logical approach	Non-structured and structured observations, document studies, photos, explorative case study, QUAL/QUAN, thick descriptions, inductive approach.	Non-structured and structured observations, semi-structured group interviews, document studies, photos, method and data triangulation, interview guide. Explorative, QUAL/QUAN.	Non-structured and structured observations, semi-structured group interviews, semi-structured individual interviews, questionnaire, document studies, method and data triangulation, interview guide, QCA. Explorative, mixed research strategy, QUAL/QUAN.	Non-structured observation, document studies, case study, thick descriptions, mixed strategies, phenomenology, inductive and deductive, bottom-up, flow-model analysis.	Narrative, critical reflection, own experiences.
Concepts and issues addressed	Usability (six *aspects),* function, functionality, effective, efficient, satisfaction, accessibility, flexibility, conflicts in use, diverging objectives for use, salutogenic, culture, transferability, validity.	Social interaction, the concept of home, home-like, care, private-public, institution, context, mobility, transferability, validity.	Social interaction, usability, actor-time-space perspectives, functionality, concept of home, hotel, care-environment, homelike, family-neighbor-guest, workplace, aging in place, home, the collective idea, PEA, agency, activity, user involvement, transferability, validity, transferability.	Usability, phenomenology.	Separation, home, home-likeness, assisted living experience, relatives, continuity, lifetime experiences,
Research questions	Is there an effective use of the physical environment? Can the observation be related to the accessibility of the observed environment? How is the observed functionality related to the usability of the environment? Is the current use congruent with the intended function? Are there diverging objectives for use? Are there user conflicts between individuals or groups?	What functions do the common spaces have in relation to the daily use of the facilities, comparing somatic and dementia units? How is the daily use of the common spaces affected by the incongruence between the intended function and the actual use?	How do the diverging objectives for use among the primary users affect the usability of the common spaces? What function and significance do the common spaces possess for the users in relation to the concept of home? How do the incongruences between the end-users' experiences and other stakeholders' preconceptions of the function and significance of the common spaces influence planning?	How is the studied physical environment used and how does usability relate to the physical properties of the environment and to the users' actions?	How can a visit at my aunt's AL be described, in relation to the physical environment?
Findings and results	Daily use deviates from the intended function. Conflicting objectives for use between residents and staff. Use of common spaces differs between somatic and dementia units, peaking on all units during meals. Congruent functions but differences in size, location and physical qualities of common spaces. Spaces for service/staff functions lacking. Conflicts between residents in mixed units.	Variations in use between somatic and dementia units confirmed. Few common activities besides meals. Few visitors. Residents rarely leave the units. Space shortage due to assistive technology. Mobility is not necessarily related to presence in common spaces. Providing social context and maintain control are most important on dementia units. Great efforts in moving residents on dementia units to common spaces and activities. Staff determines how common spaces are used. The physical environment (architecture) determines how it can be used. Daily use deviates from the intended function.	Explicit conclicts are rare. Diverging objectives for use between residential and workplace perspectives. Individual and collective aspects. Functional demarcation between private-public towards apartment, kitchen and dining room. Divergence between intended function and actual use. Diverging views on the demarcation of home and the common spaces between primary users and other stakeholders. Diverging views between staff on somatic and dementia units. Residential and workplace aspects have to be discussed concomitantly; otherwise inherent conflicts will be manifest. The residents' perspective is to a great extent not represented in the planning process.	Daily use deviates from the intended function. Use of common spaces differs between somatic and dementia units, peaking on all units during meals. Meals are short and few talk. Conflicts when residents with dementia live in somatic units. Work tasks of night staff differ greatly. Great differences in size, location and physical qualities of common spaces. Spaces for service/staff functions lacking. Spatial conflicts caused by diverging objectives for use.	The demarcation between special and ordinary housing, demarcation towards surrounding society. The demarcation between life in AL and the life before.

4.2.1 Paper I

Use and Usability of Assisted Living Facilities for the Elderly. An observation study in Gothenburg, Sweden.

This journal paper was written in early spring 2011 and, like paper IV, presents findings from the first rounds of observations. It was accepted for publication after minor revisions. The focus is not exclusively on the common spaces. Spaces for dirty utility, laundry and refuse are described to some extent, along with spaces for documentation and office work. Six questions are posed. Three questions are related to the functions and properties of the environments studied, addressing issues concerning accessibility and functionality. The other three are related to use and concern the objectives for use and the actual use in relation to the intended functions.

The results are presented in three ways: 1) As a broad and detailed description of a typical day on an AL unit. 2) As results related to different physical spaces and environmental parameters. 3) As a discussion of usability in relation to, respectively, intended function and actual use, and diverging objectives for use. The tentative results from paper IV are confirmed in relation to conflicts caused by space shortage and the spatial organisation of the common spaces. Conflicts between the residential and workplace perspectives and differences between the somatic and dementia units are identified and discussed. One striking example is where a programme to save electricity conflicted with the residents' need for adequate lighting, illustrating a contradiction between the intended function and the actual use. It shows that the usability of the environment is a result of both the properties of the physical environment and the actions of the users. The problem with "mixed units", i.e. units containing both residents with dementia and residents with primarily somatic diseases, is discussed and related to the principle of ageing-in-place and the usability of common spaces.

The paper is based on observations and is therefore influenced by the researcher's perspective. The strength of this paper, however, lies in its broad description of the contextual complexity of the AL unit and of the two basic parameters for discussing usability; the functions of the common spaces in relation to other spaces and the actions of the users, i.e. the use. The contribution of this paper to the thesis is the methodological discussion and the discussion of different usability aspects.

4.2.2 Paper II

The use of common spaces in assisted living for older persons. A comparison of somatic and dementia units.

This journal paper was written during the second half of 2012 and reports on both rounds of observations plus the group interviews with staff. The paper compares somatic and dementia units in terms of use of the common spaces and how the role of the staff as social mediators affects the use of the common spaces. It also explores the relation between the

residents' mobility (Table 9) and their presence in the common spaces and how assistive equipment affects the use of space.

Statistical analyses are applied to assess the degree of use of the common spaces, i.e. the number of residents present on the same occasion. The use of the physical environment is discussed in relation to the residential and workplace perspectives.

The observations show differences between the somatic and dementia units and these differences are confirmed in the group interviews. The average presence is higher on the dementia units than the somatic ones. The common spaces are often the sole venue for in-house social interaction between the old and multi-diseased residents in AL. The results also indicate divergent objectives for use between residents with dementia and other residents. Residents with dementia are reported to be more likely to stay in the common areas than others.

The results show that on average the residents of the units had very few visitors and other external contacts, and that they seldom left the facilities. Nor did they visit each other in their apartments. It also indicates that the residents' ability to relocate independently does not necessarily affect their presence in the common spaces and that the staff play a major role in how, and to what extent, the common spaces are used. There is an evident space shortage due to the use of bulky assistive equipment. This indicates a conflict between the efforts to create a home-like environment and the use of assistive equipment, whether used by staff or residents. It is evident that today's residents differ considerably from the residents imagined in the design process. The results also indicate a conflict between the staff's intentions to provide a social context and the physical and mental status of the residents. Very few of the residents used the common spaces as a venue for social interaction together with their relatives. This addresses issues of the functional limitations of the common spaces. It particularly illustrates the incongruence between the intentions of the staff to provide a social context for the residents and the difficulty in achieving this purpose in actual situations.

This paper does not discuss usability; the focus is on understanding the reasons for how the common spaces are actually used. The results rely heavily on statistical analyses. The residents' perspective is represented here by the staff or by observations. This paper's contribution is the discussion of the differences in use between the somatic and dementia units and the description of the diverging residential and workplace perspectives.

4.2.3 Paper III

Exploring the function and use of common spaces in assisted living for older persons.

This journal paper was written in spring 2013. The paper synthesises the results of the observations, the group interviews, the individual interviews and the self-completion questionnaires. The paper discusses the usability of common spaces from the perspectives of residents, staff and other stakeholders and explores their standpoints in relation to the function of common spaces as venues for social interaction.

The results explore the dichotomous relation between the residential and workplace perspectives. The results show divergences in how the concept of home is perceived and demarcated by residents, staff and other stakeholders in relation to the function of the common spaces as venues for social interaction. There is also a major divergence in how residents are perceived; as a family-like group, as neighbours, as fellow guests or as strangers. The results also show that the diverging objectives for use between residents and staff affect usability, although explicit conflicts are rare.

The strength of this paper is the multi-perspective analysis and the use of both qualitative and quantitative methods. The difficulty lies in the data triangulation, related to the relative disparity concerning the size and complexion of the samples. It is suggested that both the residential and the workplace perspectives must be considered when planning ALF's, otherwise inherent conflicts between these competing perspectives become manifest in the building structure as a result of the design strategies applied.

4.2.4 Paper IV:

Participant Observation Study of Use and Usability in five Assisted Living Facilities for the Old in Gothenburg Sweden.

This conference paper was written in spring 2010 and reports tentative results from the first round of observations, performed November 2009 – February 2010. The abstract was peer-reviewed and the full version was published as a conference proceeding. The paper was presented and discussed at the ENHR (European Network for Housing Research) conference in 2010 in Istanbul. The objective of this, mainly descriptive, paper is to give a broad account of the events taking place on a typical AL dementia unit over the course of an evening shift from 13:00 to 21:00. The residents - represented by fictitious names - are described by their age, mobility and duration of residence. It also describes reoccurring events over a period of 24 hours. The paper compares the physical environment of the facilities included in the study: physical properties, environmental factors and staffing regimes. The events that occurred are discussed in relation to the usability of the physical environments in AL.

The results indicate conflicts between the residential and workplace perspectives, caused by diverging objectives for use. These conflicts are related either to lack of space for staff and service functions, e.g. spaces for clerical work, or to the spatial organisation; e.g. multi-purpose spaces with integrated kitchen, dining- and sitting rooms. Visual, auditory and olfactory deficiencies are shown in the physical environment. Major differences were found in the work routines, e.g. for the night staff. The results showed a higher presence on average in common spaces the dementia units, compared with the somatic ones. The residents' presence peaked at mealtimes but meal sessions were of a very short duration on all units.

The contribution of this paper is the discussion of use and usability, derived from the broad description of daily life on a dementia unit. The results point out the common meals to be the most important reoccurring social event on all units, suggesting that to a great

extent meal routines govern daily life. The descriptive results are presented as first hand impressions and focus substantially on the properties of the physical environment.

4.2.5 Paper V

A Visit to Bellevue Assisted Living: Reflections of a Relative.

This essay was written in 2009, before any studies had been made. It is the outcome of the postgraduate course "Rum för Åldrande" held at the University of Linköping and was published as part of an anthology, edited by a committee of researchers. It has been translated from Swedish. This essay is based on my own experiences of three fields: as a relative, five years working as a nursing assistant in psychiatric eldercare during the 1980s, and as an architect working on special housing environments within the City of Gothenburg from 1997 until the present. The objective of this paper is to discuss the concepts of home and AL from the perspective of the end-user.

The essay relates cultural and social theories of ageing to the physical environment by describing an everyday situation; Robert visiting his aunt Laura on a sunny Friday morning in early summer. The text is simple and fiction-like and the context is comprehensible at four levels. Firstly, the environment in which the action takes place is the contextual frame. Secondly, the narrator makes mental outings from this contextual frame. Thirdly, the outings describe his relationship with his aunt, the environment in which she lives now, and the environment in which she previously lived. In the outings, he also makes general reflections referable to a wider context. The fourth level is represented by the author's references and notes, introducing theoretical perspectives.

The contribution of this paper is personal experiences of working in eldercare, both as a professional and as a relative. Another focus contribution is the discussion about what constitutes a home and how the special housing environment differs on an emotional basis from what we would call home. The essay explores the demarcation between home and care aspects in AL both from the resident's and the relative's perspective. It also discusses the problems involved in relocation in old age, or transition to or between care environments, an area that has been the subject of previous research (Carp 1974, Falk 2010, Morgan *et al.* 2006, Sixsmith & Sixsmith 1991, Walker *et al.* 2007, Wilmoth 2000). The essay points out a demarcation between life in AL and the life lived before moving in.

5. Discussion

5.1 Home and workplace

AL encompasses two functions; one as a home, or residential units, for the individual residents and the other as a workplace for the staff. This entails diverging objectives for use and indicates conflicts, implicit or explicit, between the residential and workplace perspective. This thesis discusses the workplace perspective based on the experiences of the direct care workers, or unit staff. It is important to point out that the workplace perspective is also represented by other groups of professionals, e.g. service staff, physiotherapists and others. It also includes maintenance staff and other groups, working directly with facility management (Linn 1997).

5.1.1 Residential and workplace perspectives

When these perspectives diverge, conflicts are created. In this context, "diverge" includes change, i.e. the time factor. The case of when an energy saving programme conflicted with the residents' need for adequate lighting is one example (Paper I) where diverging perspectives resulted in reduced usability of the common spaces for the residents (Moore 1999). Another example is where the staff turned off the dome lights after supper, which, in practice, prevented the residents from using the sitting room (Paper I). These examples show how routines can govern the use of the common spaces, promoting the workplace perspective above the residential. It also shows how collective aspects are promoted above personal preferences among the individual residents.

The residential perspective is complex because it is not represented by any homogenous "group". There are major cohort variations among the residents related to age, gender, economic and social status, etc. (Uhlenberg, 1988). How usability is perceived is also related to social and cultural factors (Fenker 2008, Lindahl & Granath 2006). AL environments in general and the common spaces in particular are complex phenomena in which complex social interactions take place. Cutchin and colleagues (2003:235) describe "AL residences" as "complex types of places with which older adults transact to create important life meaning".

In the modern apartment house, which emerged in the late 19th and early 20th centuries, there is a "total separation between the private zone of intimacy and the public room" (Gromark 1987:141). In AL, and similar environments, this separation can be understood in a private-public continuum (Figure 12). The major structural differences are a) that common spaces occupy a large part of the ALF ; b) that there are large horizontal communication spaces leading to the apartments in the ALF; c) that there are common spaces in ALFs, shared by a group of individuals within the building and; d) that ALFs are subdivided in units. These characteristics are found in hotels, hospitals and prisons (Andersson *et al.* 2013, Goffman 1961). The social structure of AL is therefore different from ordinary housing or a different "social type" of building (Malmqvist 1992:51-52). Bodin-Danielsson (2012:33) discusses privacy from a workplace perspective and stresses

individual and cultural factors in describing privacy. At a group level it plays a major role in how people communicate and collaborate.

Regardless of the differences and similarities, AL is everywhere a collective form of housing and the "collective idea" can be discerned on a structural level, with a number of people living together and sharing common spaces for social interaction. This collective idea is also manifested in the communal routines, e.g. the common meals and the congregation of persons in the same predicament. Figure 2 shows a schematic comparison between ordinary housing and institutional facilities. Nord (2013) describes two "care patterns" related to outdated design norms that partly govern the prevailing design model for AL. She points out that the strong focus on commonality (e.g. shared social activities) in the care activities, along with the "medical model" for AL (Bland 1999), contribute to preserve AL as an institutional form of care as the attention of architects and planners is drawn to care aspects. Less attention is consequently paid to the residential perspective, including consideration of individual needs. The common spaces are considered here as a manifestation of these patterns.

Nord (2013) goes even further in suggesting that the common spaces are made redundant, since the residents spend most of their time in their apartments. This study shows that the common spaces are used to a minor degree (Paper II) and that they must be regarded as an addition, with no parallel in ordinary housing (Paper III:19). It is reasonable, as Nord does, to ascribe institutional features to the AL scheme, which promotes collective activities above individual. It is, however, problematic to assume that a low degree of use is congruent with a low level of importance. The activities carried out here may still be important, e.g. common meals. It is also reasonable to assume that the common spaces are more important to some residents, but less important to others. All parties involved in this study stress their significance as venues for social interaction. Furthermore, a distinction must be made between somatic and dementia units.

The "temporariness" of AL (Andersson 2011a:61) also encompasses a limitation in relation to making AL home-like. The temporal aspect is related to the social and organisational aspects of home-likeness in residential care (Verbeek *et al.* 2009). There are no up-to-date data showing the mean duration of residence in AL in Sweden. In 2007, 22 per cent had died within one year after moving in and 62 per cent within three years (NBHW 2012). The residents included in the observations had in average lived 3.5 years in AL and seven out of the ten interviewed residents had lived in their apartments for three years or longer (Table 8). However, many people live for longer periods in their apartments. The temporariness of AL can therefore not be compared with the temporariness of hotels or hospitals where the duration of residence is counted in days or weeks. The comparison with these phenomena is therefore limited. A "service approach" (Bland 1999) would also be complicated, in view of the increasing focus on care aspects in AL. In spite of short residential periods and institutional features, AL constitutes the home environment of a substantial number of older persons during the final parts of their lives.

Alexander (1977:613) describes a spatial sequence from an architectural standpoint as an "intimacy gradient" ranging from private to public. The common spaces in every

building and in every social group within the building constitute the "centre of gravity of social life" (621). Their demarcation can be applied to the physical structure, as in a "space syntax" (Hillier *et al.* 1976). The different functions are here suggested to have different positions in a private-public continuum (Figure: Private-public). These demarcations are not always readable in the physical design; many of the common spaces are open, multi-purpose spaces. The demarcations are readable in their functional context. The common spaces are at the intersection between the residential and the workplace perspectives and they epitomize the collective idea in AL.

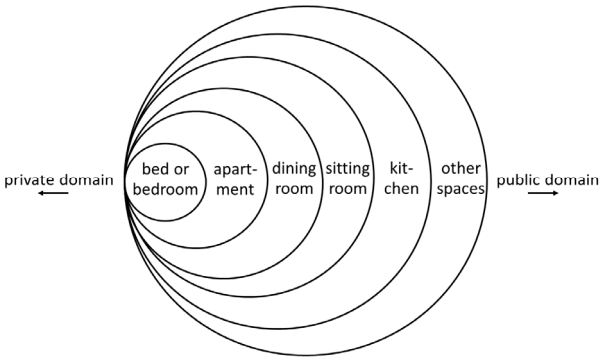

FIGURE 12: *The continuum of private-public functions in AL units. The circles represent functional demarcations.*

Paper III discusses the demarcation of home in relation to the physical structure of the units, focusing on the common spaces. Paper V describes a sequence of demarcations, from the street, via the entrance, the common spaces and to the apartment. As this study shows, where "home" fits in this continuum varies depending on whom you ask. It also depends on the position of the respondent (Fig. 13).

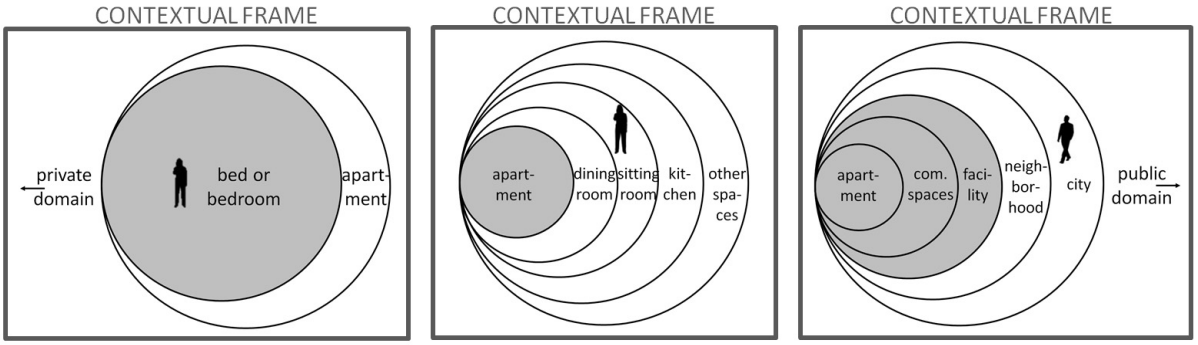

FIGURE 13: *The conceptualisation of home is marked in grey. The circles represent functional demarcations in relation to the conceptualisation of home. The three different contexts show different positions of the individual.*

All units in the study had multi-purpose spaces with integrated kitchen and dining rooms; most of them had combined kitchen, dining- and sitting rooms. How the concept of home

is applied to the common spaces and how home is demarcated is explored from the perspectives of residents, staff and other stakeholders (Paper III and V). In a major American interview study, the majority of participants perceived the common spaces in AL settings as neither private, personal nor home-like (Zavotka & Teaford 1997), whereas most participants considered their own apartment as their home. This is consistent with the results presented here, showing a demarcation between the apartments and the common spaces. The design of the common spaces may, however, differ greatly between different countries.

The results clearly demarcate the apartments; they are closest to the private domain. It is evident that the apartments are "more home" than the common spaces. The common spaces represent something else: "A lounge", "a place where we meet and have coffee", "they are important for social interaction", etc.* A majority of the participants in the project agree that they are important for social interaction. Perhaps they should not be seen as a part of the home concept. Instead, the common spaces represent an addition to the home experience, because they are not part of the private home, but an additional social arena.

The kitchens are intended to be a part of the residents' common spaces (Boverket 2012). The implication is, however, that they are hardly used by the residents at all, which shows another demarcation here (Fig. 14).

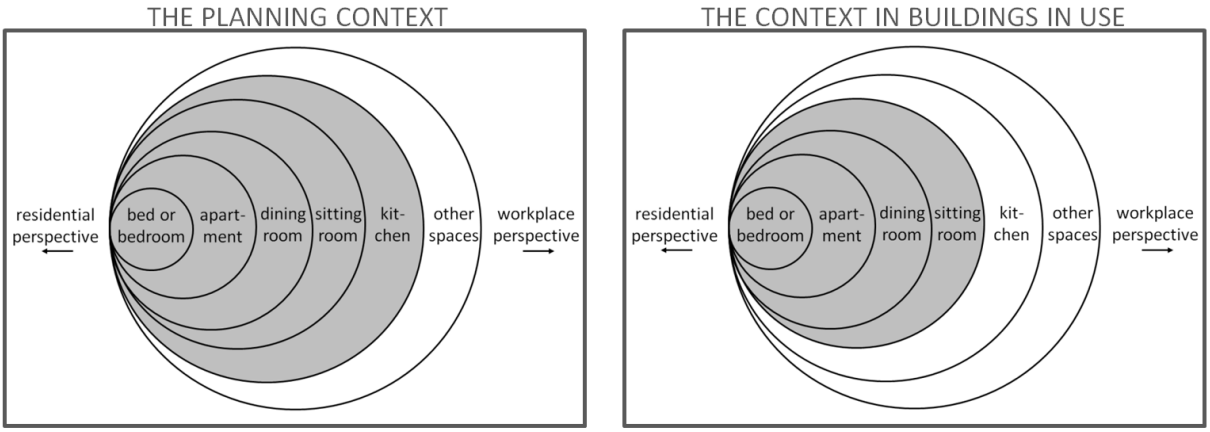

FIGURE 14: *Kitchens are a part of the residents' common spaces (Boverket 2012), but are not used by them. This indicates a divergence between the planning context and the context of buildings in use; or between the intended function and the actual use.*

Another consideration is the regulations concerning hygiene in connection with food preparation (SFS 2006:804, European Community 2002, 2004). They affect the use of the kitchens in AL e.g. with regard to hygienic procedures for food, the number of persons taking part in the food preparation and personal hygiene (National Food Agency 2007, SALAR 2009b).

* Quotations from the interviews with residents.

Paper II describes divergent objectives for use between residents with dementia and other residents, where residents with dementia are reported to be more likely to spend time in common spaces than others. The higher presence in common spaces on the dementia units means that residents spend more time in their apartments on the somatic units. Only three of the residents interviewed said they would like to socialise more than they did. All residents and staff, however, considered the common spaces to be very important as venues for social interaction; they all emphasised the social dimension. One reflection is that small units contain fewer persons to socialise with, while larger units offer more contacts from whom to choose. In a study in 2007 targeted at older people in Stockholm with home-care, a quarter of Stockholm's older population wished to move to service housing; many of them looked forward to communal social activities (Wånell 2013). The only physical differences between the somatic and dementia units in the study are that they contain fewer residents, that they have access control at the entrances and that there are more staff per resident.

The workplace perspective is always present in AL. Two roles, besides provision of care and other services, can be discerned for the staff; to survey and maintain order and to facilitate social interaction (Ryvicker 2011). The results show that, to a great extent, routines govern daily life on the units, predominantly the common meals. On the dementia units, there is an emphasis on control and overview, whereas the social aspects are emphasised on both dementia and somatic units. The degree of control is related to the degree of dependency of the individual residents (Fig. 15). The control and overview over the residents also promotes the workplace perspective above the residential.

A Swedish study (Hasson & Arnetz 2008) shows that staff in ALFs experience significantly higher levels of physical and emotional strain compared with home-care staff. They cite the higher dependence of AL residents as a reason for this. Other studies indicate point out the psychosocial workload in geriatric care environments (Goddard *et al.* 2013, Nübling *et al.* 2010).

Hujala & Rissanen (2011) explore the concept of *organisation aesthetics*. Like Norberg -Schulz (1971), they stress the connection between space and human being. Organisations are both material and non-material. They contain "the functionality of the working space and equipment, the organisational space and the emotional-aesthetic dimension of daily work" (Hujala & Rissanen 2011:439). Work space and organisational space (referred to as staff offices, meeting rooms, etc.) make up the material dimensions. The emotional-aesthetic dimension is related to the contradiction between officially stated values and the everyday work, entailing a shortage of care resources and time. As this thesis does, they point out that the residential perspective has to be discussed concomitantly with the workplace perspective. Otherwise, the result will be non-functional environments that counteract both perspectives. Similarly, Latour (1992) sees the artifact as a non-human actor which creates structures between human actors, affecting human activity. Martin (2002) points out that residential organisations are not homes in a usual sense. As with this thesis, she also stresses the conflict between the residential and workplace perspectives. "They [residential care organisations] are formally administered organisa-

tions with budgets, paid staff, trade unions, and structured mealtimes…" (ibid. 867). Angus and colleagues (2005:166) write that "the logics and conflicts of the field of healthcare become active within the home, which, as the domestic field, already possesses its own logics and hierarchical arrangements".

As the context and situation changes, the demarcation between the residential and workplace perspectives and between private and public aspects also changes (Fig. 12). The physical range and dependency of the resident is parallel to the degree of control that the staff has to maintain. This is reversed in relation to the control that the residents can exercise (Barnes 2006, Rodin 1986). Figure 15 shows how the situations change depending on the person and shifts focus between the residential and workplace perspectives.

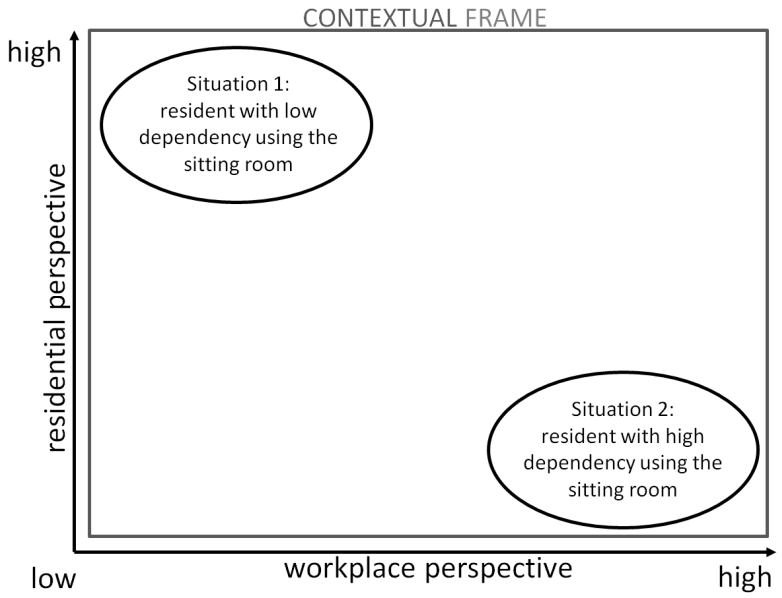

FIGURE 15: *The same space, shown as a contextual frame, is here related to two residents with different degree of dependency on staff for their daily life.*

Hauge & Heggen (2008) found that the residents had a "forced" relationship with each other. Like Nord (2013), they found that those who could, would withdraw from the common living rooms to their own apartments. This study shows similar results on the somatic units but not on the dementia units. They go even further in pointing out that the living room should be clearly defined as a public area to avoid the "ambiguous boundary between the public and private spheres" in the common spaces (Hauge & Heggen 2008:463). This ambiguity is related to what functions the users expect the common spaces to fulfil. If the structure and configuration of the physical environment is ambiguous, the expectations will also be unclear.

Different standpoints are discerned among the users and the other stakeholders concerning the function of the common spaces as venues for social interaction. This indicates that the usability of the spaces is perceived differently and may, in turn, affect the planning of ALFs. This study shows that the residents and staff have one view in common; that the common spaces are important as venues for social interaction on the

units (Morgan & Stewart 1997, Williams & Warren 2009, Yang & Stark 2010, Zavotka & Teaford 1997).

The residents left the units very rarely, few visitors were observed in the common spaces of most units, there were few contacts between residents on the units and the dining rooms were used mainly for common meals. This depicts an isolated environment, where the residents are highly dependent on the in-house social interactions that are offered there. Daily life is dominated by the common meals and by the contacts with staff and other residents. Hauge and Heggen (2008) come to similar conclusions in reporting a lack of social relations between residents. All aspects of daily life are concentrated here on a limited, or confined, space (Goffman 1961). The physical range also limits the social range among older people (Pastalan & Schwarz 1993, Sixsmith 1990). This limitation makes the common spaces even more important. The staff's ambition to create a social ambience is, however, counteracted by the residents' lack of ability or willingness to use them.

Another relevant issue concerns the care aspect, relevant to both the residential and workplace perspectives. The increased focus on care aspects entails a systemic change that affects the concept of home in AL. Older and more multi-diseased residents means more use of more space-consuming assistive equipment.

Besides the conflicts between the residential and workplace perspectives, there are conflicts between individual residents and between groups of residents. Paper III reports the results from the interviews and the self-completion questionnaire which show that explicit conflicts are rare, but when they occur, conflicts between individual residents dominate.

No data has been collected regarding the medical status of the residents (SFS 1998:204, SFS 2001:453), but the results show that mixed units may cause problems (Paper II). One example, not presented in the papers, is from a somatic unit, where a male resident entered the sitting room on various occasions with his walker and had a seat in an armchair, loudly calling for attention by yelling at the other residents and clattering the table. This single example has an implication for the usability of the common spaces for the majority of the residents on this unit.

5.1.2 Involving the users

The second question relates to what kind of knowledge the AL end-users have that is pertinent at the planning stage. This question is related to the outcome of this thesis and to the implications for practice (Paper III). It depends on what experiences and perspectives the users have as groups or individuals and on the context. The residential and workplace perspectives are, however, not completely congruent with, respectively, the residents and the staff, since to a great extent the staff also represent and advocate the residents' perspective. It is evident that the staff possess substantial knowledge both of the working environment and of the residents' needs. Obviously, the residents possess experiences of the residential perspective. One problem in both groups is that their experiences are limited to the specific context from which their experiences derive, and they are therefore often not able to relate to other contexts. Involving specialists can therefore help the users to interpret their needs and to help them formulate the requirements at the planning stage

(Alexander & Stevens 2002, Almberg 1997, Smith *et al.* 2003) (Paper III). Ryd (2003) calls them *briefing facilitators*.

Another problem is that the users may be biased. One example from the self-completion questionnaire is where the staff rate their routines and attitudes differently compared to other data (Paper III). The question could, of course, be posed incorrectly or misinterpreted by the respondents. This shows the importance of formulating and communicating the questions on equal terms and that they are understood by the respondents (Converse & Presser 1986).

The results indicate substantial differences in what activities are performed by the residents. Furthermore, the average mobility of the residents varied between somatic and dementia units (Table 9 and Paper II). Some of the following examples are not mentioned in the papers. On one somatic unit, only two out of ten residents could walk independently (i.e. with or without walking aids), and there was very little social activity in the common spaces. On another somatic unit, six out of seven residents could walk independently, with one female resident making daily excursions into the city by taxi and still active in a political organisation. A male resident on the same unit held regular candle light suppers, making three course menus for the other residents (this is the only case where a resident has used the common kitchen). In one dementia unit, the staff engaged the residents in various parlour games and reading aloud in the dining room. In another dementia unit, the majority of the residents were bed-bound and had all their meals in the apartments.

The long-term planning and building processes and the short-term process of continuous use and reconfiguration of the facilities are relevant when discussing usability (Figure 17). One issue for this thesis is to contribute knowledge at the planning stage by exploring the buildings in use. The roles that the users can have in the planning process are related to how the specific knowledge of individuals and groups can be integrated. Several researchers have recognised the importance of feedback from the end-users throughout a building's life cycle (Alexander 2006, Blakstad 2001, Fenker 2008, Kärnä *et al.* 2010, Leaman 2000) and there is a demand to integrate the end-users in the planning process (Blyth & Worthington 2001, Lindahl & Ryd 2007). It is therefore crucial to define the representative users, describe how to communicate with them and predict who the future users will be (Paper III).

5.2 Intended function and actual use

The intended function is related to the planning stages and is the result of planning process. The actual use is related to the exploration of the building in use.

5.2.1 Planning and use

The results show divergences between the intended function and the actual use. This illustrates, on the one hand, the usability of the common spaces related to the planning stages and, on the other hand, the usability of the buildings in use. The latter perspective includes the on-going management and maintenance of the facilities as well as the end-users' activities, i.e. the residential and workplace perspectives.

Similar to Duffy and colleagues (1984) (Fig. 8), three perspectives are proposed here in relation to the usability of the common spaces: actor, time and space (Fig. 16). As with the people perspective, the actor perspective means that the perceived usability differs depending on the users. The time perspective means that use inevitably will change over time due to both functional and organisational variables. Finally, the space perspective is related to the functionalities of AL. It is in the on-going use of a facility that the majority of the resources are invested, but the decisions made during front-end activities at the planning stages determine the physical limitations for use (Fig. 19).

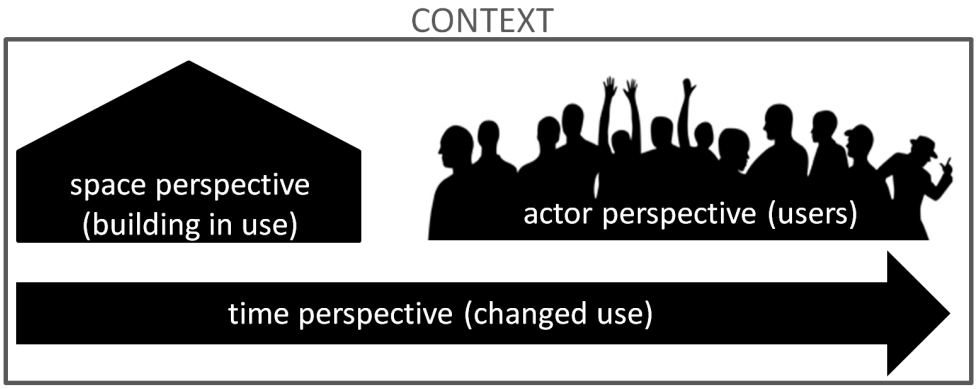

FIGURE 16: *The actor perspective requires both time and space to be considered, we are spatial and not disembodied, and thus it includes the built environment in which we act. This perspective is also related to the user configuration in the specific context and changes in it over time.*

5.2.2 Usability implications

Common spaces in AL represent a care environment with home-like features (Hauge & Heggen 2008). The question is whether they are used as a part of the home or not. Edvardsson (2008) describes a care environment as composed of "the physical environment, people's doing and being in the environment and the organisational philosophy of care". In this thesis, the environment consists of the physical structure as well as the situational configuration of the facilities, set in the contextual frame.

Figure 17 illustrates the contextual complexity in which common spaces in AL must be described. The contextual frame illustrates the building in use over the duration of the physical structure. Situations one and two present very different prerequisites and illustrate how usability will change depending on the situation. Changes in the physical structure are related to a low intensity of change, in terms of rebuilding etc. and a long-term periodicity of change. Changes in the user configuration are, on the contrary, related to a high intensity of change and short-term periodicity of change.

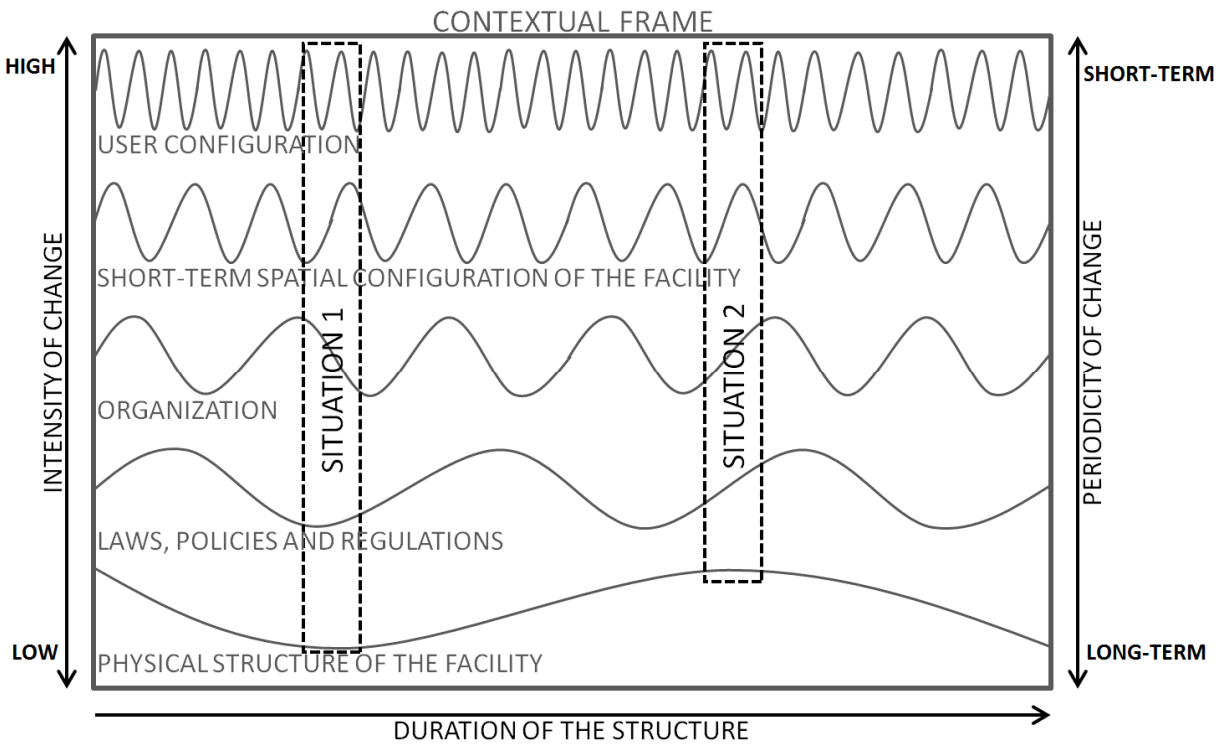

FIGURE 17: *The varying temporal wavelength of contextual parameters over time gives an ever-changing landscape of the usability of a building.*

This means that usability is the measurement of the effect of the interaction between users and artifacts, i.e. the use (Blakstad 2001, Kernohan & Kelly 1992). Figure 18 shows how the effect of this use can be discussed in terms of usability. We build a house and put people in it, which results in use. The output of this use is the effect of the use, which as a result can be discussed as usability. This study shows that the requirements of the AL residents, as imagined by the planners, do not correspond to the needs of the actual users, who are increasingly old and frail, which affects usability.

If Figure 17 shows the periodicity and intensity of change set in the contextual frame, Figure 19 shows the proportional relations between the resources, human and economic, distributed over time. This shows the importance of discussing usability in buildings in use from the contextual complexity that the building in use presents. The degree of usability is always relative to the context.

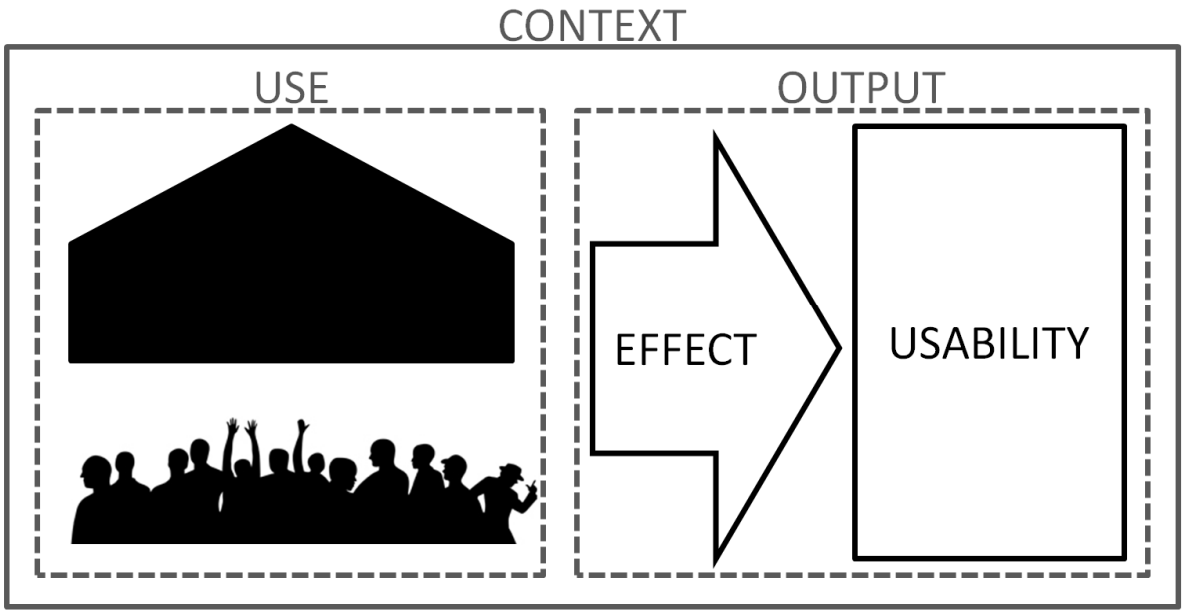

FIGURE 18: *Usability is here shown as a result of the effect of use in a particular context.*

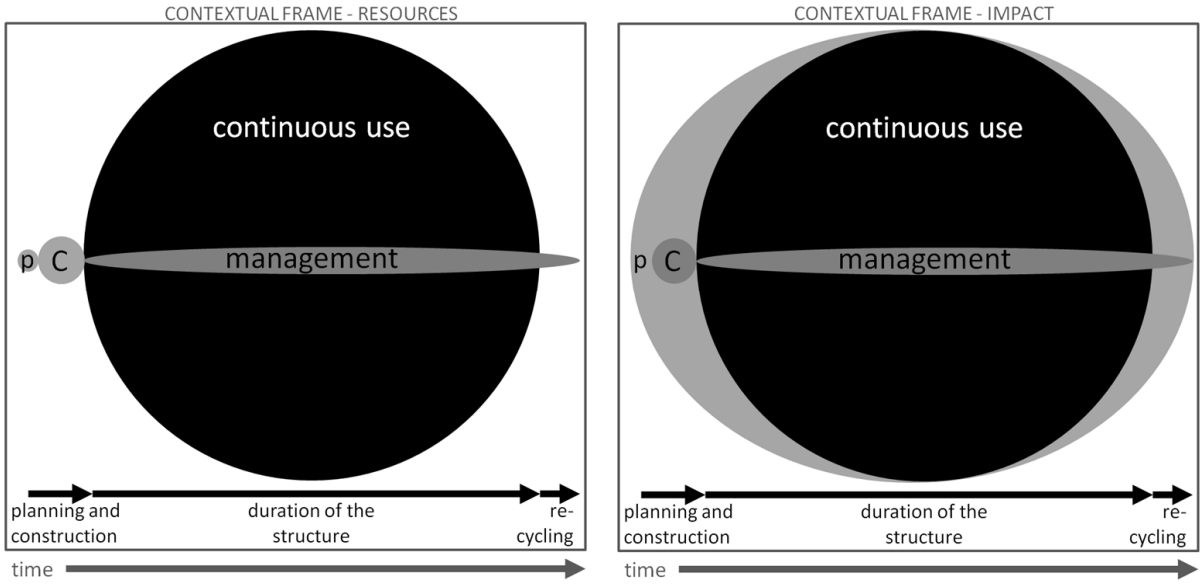

FIGURE 19: *The picture on the left shows proportional relations between resources invested in a facility. Front-end activities, in terms of planning (P) and construction (C) consume a proportionally small share of resources in comparison with the continuous use of the building. The picture on the right shows the proportional impact of the planning on the facility. Here the relationship is reversed.*

The following three, very different, examples are chosen to illustrate a number of problems related to usability. Two are facilities that have been rebuilt and one has been reconfigured by the users. One is a somatic unit and two are dementia units.

The first example only shows a part of the common spaces, a separate sitting room, which was in almost continuous use by the residents for watching TV. The second example shows common spaces, where the integrated kitchen-dining room was in continuous use by the residents for reasons other than watching TV. The third example shows common spaces that were used to a very low degree, mainly for short periods during meals. The average presence in the two dementia units was higher than in the somatic.

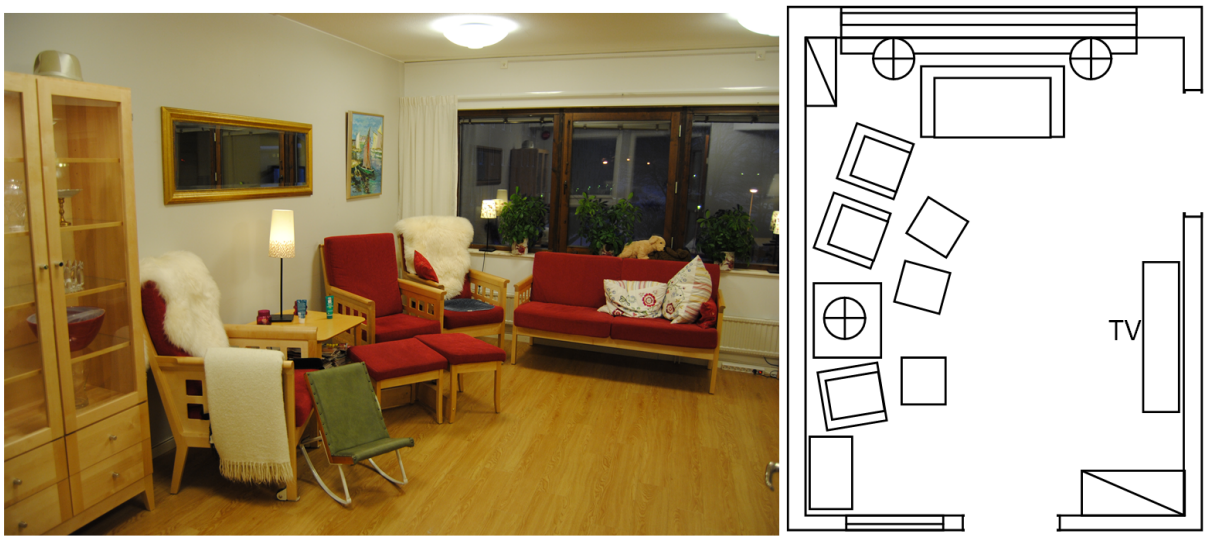

FIGURE 20: *Separate sitting room on a dementia unit for seven residents in an ALF in Gothenburg. The room is approximately 19 square metres, or four times five metres. In all, the common spaces are 64 square metres and comprise this room plus integrated kitchen and dining spaces. Each resident has 2.7 square metres in this room and approximately nine square metres in all. There are two entrances; one to the corridor below and one to the kitchen and dining spaces to the right.*

Figure 20 shows how interior decoration is used to create home-likeness. Warm colours, mirrors, soft lighting and the use of textiles and furs are home-like features. However, the absence of personal items, table cloths and carpets in combination with the institution-like dome lights and furniture clearly counteracts this home-likeness. The positioning of the furniture along the walls and the absence of a sofa table is also atypical in a Swedish residential context but has to do with the room mostly being used for watching TV. Note the reflections in the large window areas due to the darkness outside. This sitting room is the result of a rebuilding and has previously been used for other functions. The intended functions of the architect have been rendered invalid by a subsequent conversion resulting from changed user requirements. The changed user requirements are, in turn, the result of legislative changes. The furniture is specially designed for high accessibility for older persons, although the use of the two armchairs is obstructed by the footrest and the stools

and shows how furniture arrangements and assistive equipment can be barriers to accessibility. The room is quite small and there is not enough room for all residents. When the room was used, two or three wheelchairs were placed beside the other chairs, making the room crowded. Earlier disability studies show that the type and size of wheelchair affects use of space (Nichols *et al.* 1966, van der Voordt 1999). This room was used frequently by the residents.

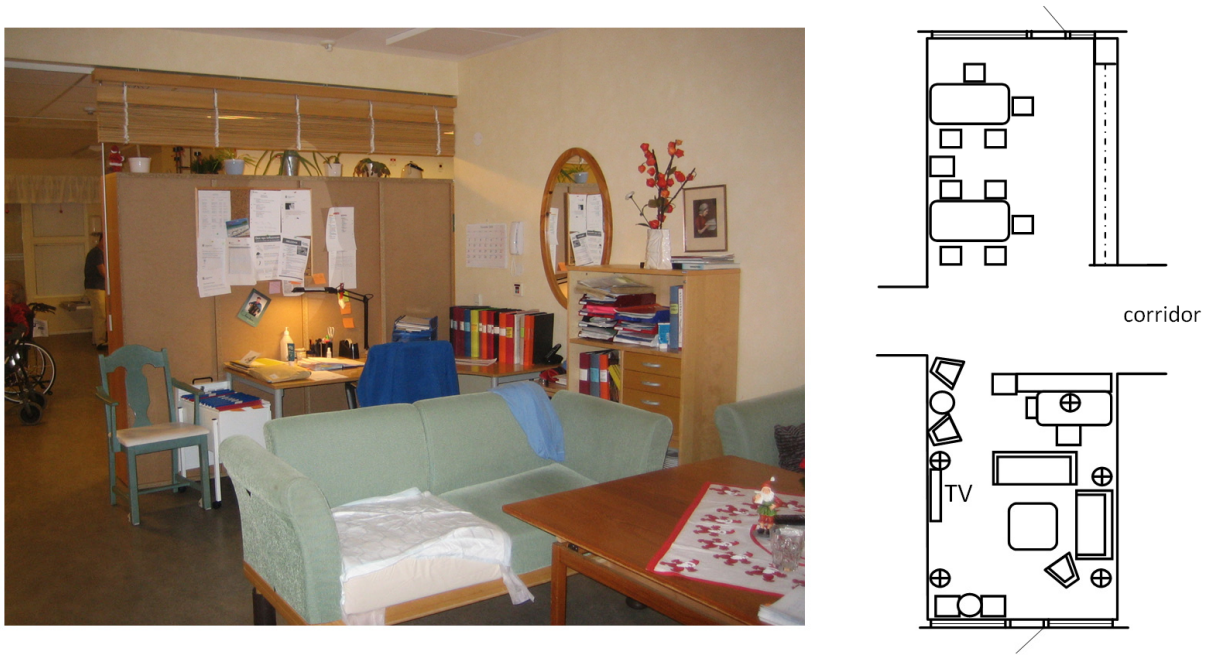

FIGURE 21: *Sitting room included in a multi-purpose space with kitchen and dining spaces on a dementia unit for eight residents in Gothenburg. The room is 75 square metres, or 5 times 15 metres. The share for each resident is approximately eight square metres. The picture shows how a workplace for the staff has been created in the residents' sitting room.*

Figure 21 shows how a part of the sitting room is used as a workplace by the staff. No spaces for clerical or office work were originally planned and there are therefore no other spaces for these functions. The reasons here are to be found in the front-end activities at the planning stages and have resulted in this later reconfiguration of the space. A conflict between the residential and workplace perspectives is evident. There are also security and integrity issues related to this arrangement. The common spaces were used frequently by the residents but most residents stayed in the dining room, to the left behind the desk.

FIGURE 22: *Multi-purpose space in a somatic unit for eight residents, containing sitting and dining spaces and kitchen. The room is approximately 94 square metres, or nine times ten square metres. The share for each resident is approximately 12 square metres.*

Figure 22 shows a high degree of physical accessibility, good daylight conditions, adequate and glare-free artificial lighting and sound absorbers in the ceiling. There are many home-like features such as a carpet on the floor, full-length curtains, a bookshelf, plants and a TV set. There are also institution-like features. A private home would have had more carpets and perhaps personal photos on the shelf. The large size suggests that it is a room for a lot of people. The ceiling has metal bars to support the dome lights, which indicates an installation loft above. The design and positioning of the dome lights correspond to a public institution or a hospital.

The size and physical properties of the three different examples shown above, the windows and the dome lights are related to the structure of the buildings. The furniture is related to both organisational aspects and the short-term configuration of the spaces. The use of lighting, the positioning of the furniture and which persons spend time in the room are related to both the short-term reconfiguration of the building and the situational user configuration. The characteristics and needs of the imagined users are manifested in the physical structures, whereas the actual users are related to organisational aspects, pertinent to the on-going use of the facility. This may result in a mismatch between the imagined requirements and the actual needs, thus affecting the usability of the facilities (Fig. 23). How do the intended functions, or lack of functions, that are manifested in the physical structures affect the usability of the common spaces? Are the common spaces effective for their purpose? Do they facilitate efficient user processes? What are the attitudes of the users? The results reflect diverse approaches to the demarcation and definition of home (Paper III) applied to this context.

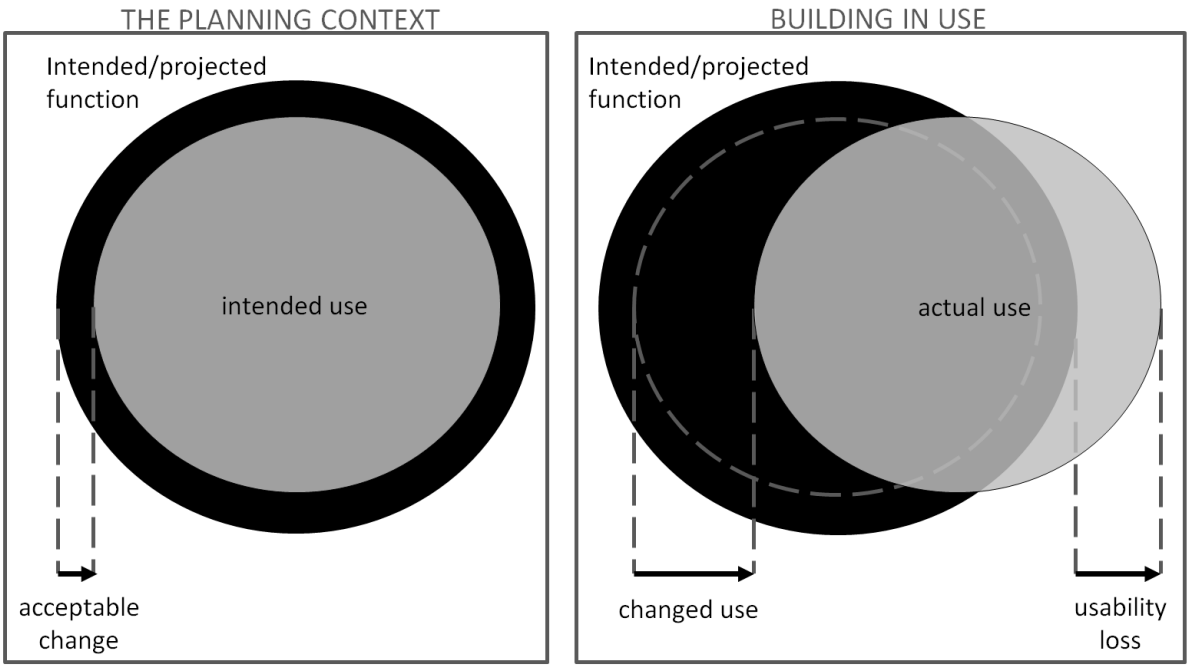

FIGURE 23: *The relation between planned, or intended, function and actual use changes over time, causing divergence. The picture on the left shows how the intended use fits within the projected functions. The projected function contains room for a certain degree of change of use, an acceptable change. The picture on the right shows how the actual use has changed and no longer fits within the intended use. The changed use causes loss of usability in the building in use.*

Usability loss (Fig. 23) can be caused by inadequate formulation of the end-users' needs in the front-end activities, preceding the construction stage. It can also be caused by changed circumstances; e.g. alterations in organisations and routines or in the user groups. It can, evidently, also be caused by long-term changes in the physical environment or short-term alterations in the spatial configuration (Figure 17). How usability is perceived depends on whom you ask (actor perspective, i.e. the residential or the workplace perspectives), the situation (time perspective) and the physical environment (space perspective) (Fig. 16).

One example of the end-users' needs not having been formulated is where the physical environment does not contain spaces for service or clerical functions, e.g. documentation (Paper I). In these cases, conflicts between the residential and workplace perspectives are manifested in the physical structure. Another example is where goods were delivered through the main entrance, causing problems related to logistic and security (Paper I). A third example would be when multi-purpose spaces cause security and hygiene problems (Paper III). Another example where the context was changed is where rebuilding measures had changed the structure of the units (Paper I). A final example would be the continuously changing target group, in that the residents are older and more multi-diseased than previously (Paper II and III). The ambitions of the staff to provide a social

context are counteracted by the physical and mental status of the residents. Moreover, routines may have a major impact on usability, as in the case where lighting routines made it difficult for the residents to access the common spaces.

The physical design of the dementia units in the sample does not differ significantly from the somatic; there are fewer residents, the units have access control at the entrances and there is marginally more staff. It is, however, evident that the objectives for use of the common spaces differ, as is reflected in the results. A predominant factor on the dementia units is having an overview, which is not the case on the somatic units.

The higher attendance on the dementia units also indicates an ambition to provide a social context for those who cannot choose for themselves (Paper II). It appears that the increasing need for assistive equipment compromises this ambition and greatly affects accessibility and usability of both the common spaces and the apartments. It is also the case that the use of the common spaces is mainly restricted to in-unit social contacts. Would a plausible strategy be to personalise a part of the common spaces for each specific individual, so that they have their "own" chairs, some personal items or their own cutlery? As the common spaces are used more as "living rooms" on the dementia units - is there call for more personalisation here? Or, reversely, would more personalisation in common spaces on somatic units entice the residents to socialise more?

A discussion of the design of future ALFs must consider the social aspects of the common spaces. The results show that common spaces have "an ambiguous boundary between the public and private spheres" (Hauge & Heggen 2008:460). Moore (1999) points out the connection between the socially shared understanding of a place and the social affordance that is provided by the place (ibid. 152). The discussion must therefore include the physical structure, the number of residents per group, multi-purpose spaces vs. more designated spaces and differences between somatic and dementia units.

Figure 24 illustrates three different contexts, relating to which perspective is predominant. In practice, this concerns who uses the spaces, how much they are used and how they are used. A series of conflicts has been identified, related to these three aspects of use in relation to their intended function. One overarching aim in AL is to create home-like environments (Swedish Government 1990). It is particularly emphasised in dementia units (NBHW 2010). This is counteracted by the increasing use of assistive technology.

Another issue is the different perspectives among end-users and other stakeholders. Disparities in how AL is conceptualised entail very diverse points of view and impact on the result of the planning process. One key issue here is how these concept of AL is communicated throughout the process and how AL is conceptualised (Fig. 1). Ryd (2003) formulates this problem as a conflict between strategic/external and operative/internal briefing processes.

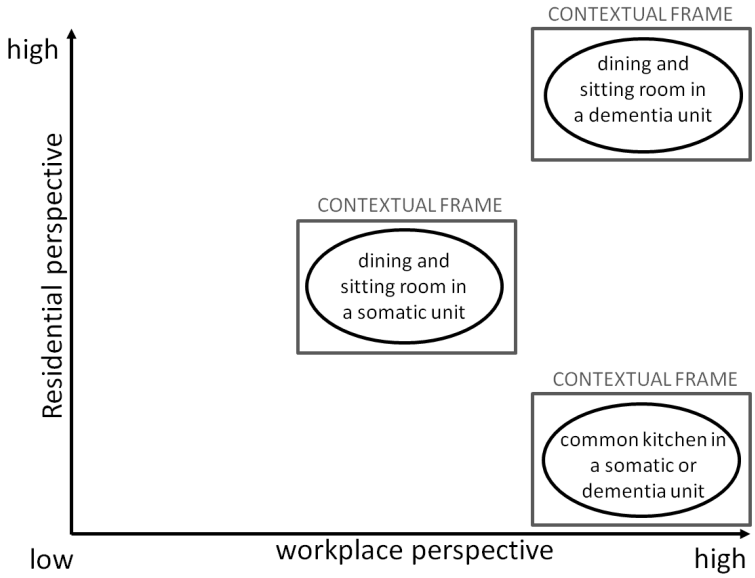

FIGURE 24: *The figure shows three different contexts. The demarcation of the kitchen places it close to the workplace perspective on all units. Dining and sitting rooms on dementia units are much used by both residents and staff, placing them close to both perspectives, whereas on the somatic units they are less used by both residents and staff.*[*]

5.3 Final conclusions

This thesis shows the complexity of the AL context. The results indicate that common spaces fulfil a function as the principal venue for social interaction on the units. Although these spaces are not primarily considered a part of home by the users, they are an addition to the home environment, with no parallel in ordinary housing. The results show different objectives for use of the common spaces on dementia units, compared with the somatic units. The legislative framework distinguishes dementia care in AL, but the physical environment display very few differences between somatic and dementia units; mainly regarding size and security. Overview and security issues dominate the staff's considerations in the dementia units.

It is shown that the common spaces are to a great extent not perceived or used as a part the residents' home environment. This makes personalisation difficult in common spaces. Moreover, functional demarcations between the kitchens, sitting rooms and dining rooms indicate that these spaces represent varying proximity to the concept of home and different positions in a continuum between the private and public spheres. Home-likeness

[*] The results present the degree of use in terms of residents present in the common spaces (Paper II). An analysis has, however, been made also with respect to the staff's presence. This shows that their presence corresponds to that of the residents; peaking at mealtimes and showing a higher presence on the dementia units. The results also show that the common spaces to a great extent are used by the staff as a point of departure for their work and also during their breaks (Paper I, III and IV).

in common spaces must therefore be a different issue than in the private apartments or in other, more public places.

The results also show that the common kitchens are not used at all by the residents, although they are legally a part of their common spaces. The sample represents facilities with very different qualities but the intended functions of the common spaces have been very similar. Rebuilding, including relocation and changed size of the common spaces, is governed by the dimensions of the original structures.

The results show that the concept of home in AL is perceived differently by different individuals and groups. This also suggests that the discussion of the home concept in common spaces is complex; they are not perceived as part of the home, but an addition. There is a substantial divergence in how the residents are perceived; as a family-like group, as neighbours, as fellow guests or as strangers. It is complex also because the common spaces are part of an institutional tradition, where collective activities are promoted above individual ones. The group or unit is an ambiguous entity, resembling a family-sized group and/or patients at a hospital ward. This makes the common spaces ambiguous places and calls for a reconceptualisation of AL with regard to what "social type" of building or environment AL represents – now and in the future.

It is evident that the residential perspective in AL has to be discussed concomitantly with the workplace perspective. If we do not take both perspectives into account when planning for AL, potential conflicts will inevitably become manifest as a result of the physical design. This affects both perspectives. The functional demarcation between the residential and workplace perspectives affects the usability of the common spaces and determines whether any conflicts between these perspectives will occur.

The results show how the increasing importance of home in old age is contradicted by the inevitable need for assistance due the frailties of ageing. This need is materialised here by moving to AL. The use of assistive equipment causes a divergence between the intended functions of the common spaces and the actual use because the target group, as imagined at the planning stage, clearly deviates from the actual users, showing how care aspects dominate over the residential perspective. This mismatch affects the usability of the common spaces and counteracts an efficient use of the spaces. It is also suggested that mixing residents with offensive behavior with other residents can cause usability loss.

The common spaces are intended for "cooking, dining and daily social interaction". The activities performed there are collective. The small number of visitors and external contacts confirms that the common spaces are the place where most daily in-house social interaction takes place. The common meals are the reoccurring routine around which all daily activities revolve; this makes the dining room the most utilized space. There is a contradiction here between the staff's ambition to provide a social context for those residents who cannot provide for themselves, and the individual needs of each resident. One of the core issues of this thesis is the diversity of views as to what the common spaces are. This diversity produces a lack of clarity in planning conditions and can result in AL facilities with a meaning that is ambiguous for the users.

The older population, directly or indirectly involved in eldercare as present or future users, is poorly represented in the planning of AL environments. This is emphasised by both staff and other stakeholders. This group is difficult to reach, since future users cannot be specifically identified. There is an evident risk that the perspectives of the end-users are not adequately represented in the planning and building processes, as well as in the short-term reconfiguration of the existing facilities. This thesis contributes to the discussion of the usability of common spaces in ALFs and uses the exploration of the building in use as one means to address the end-users perspectives – the residential and workplace perspectives. Their perspectives have to be integrated in order to identify critical issues related to the usability of the common spaces on AL units; both in the ongoing short-term configuration of the facilities and in the planning of new facilities. Along with the differing conceptions about what AL represents, this calls for a reformulated AL concept, one that is more resilient to change.

5.4 Implications for practice and further research

Swedish eldercare is changing rapidly. Increased efforts directed towards ordinary housing, the emergence of new housing concepts and the increased focus on care aspects in AL are emerging. The results confirm that there are different objectives for use on the dementia and somatic units. There are a number of functional demarcations in the physical environment on AL units. One suggestion is that a more diversified design would elucidate these functions. There is a particular need for overview and control the dementia units. It is reasonable to assume that this consideration will also become more relevant in the somatic units, due to the decreasing capabilities of this group.

Differing perspectives among users, planners and architects at the planning stage make the common spaces inexplicit places with a meaning that is ambiguous for the users. These different objectives for use must be taken into account.

The use of assistive equipment has direct implications for the design of future AL environments. This calls for new guidelines, not only in specific building projects, but nationally. It is time to redefine AL, both towards a more diversified concept but also in relation to other housing concepts, e.g. senior housing for assisted living. How to define and dimension the common functions – kitchens, sitting room, dining room – is a concern for the design of future ALFs.

The kitchens are included in the common spaces, but used very little by the residents. They are also regarded more as the staff's workplace than the residents' home. It is suggested that special attention be given to this function in the planning of future AL facilities.

Care aspects dominate as AL residents are old and multi-diseased. Residents may live for many years in AL facilities, but there is an obvious risk of the residential perspective being underemphasised, affecting the usability of the facilities for the residents. However, space shortage affects the workplace perspective as well. This is an issue for future research efforts.

This thesis has illuminated the importance of incorporating both the residential and the workplace perspectives when planning for ALFs. Common spaces represent both the

residential and workplace perspectives. It is therefore relevant to take both perspectives into consideration at the planning stage so that conflicts do not become manifest in the building in use. A discussion about the design of the common spaces is called for. This discussion must include the building structure, the number of residents per group, the size and location of the common spaces and multi-purpose spaces vs. more designated spaces (Fig. 25). It must also include differences between somatic and dementia units regarding the objectives for use.

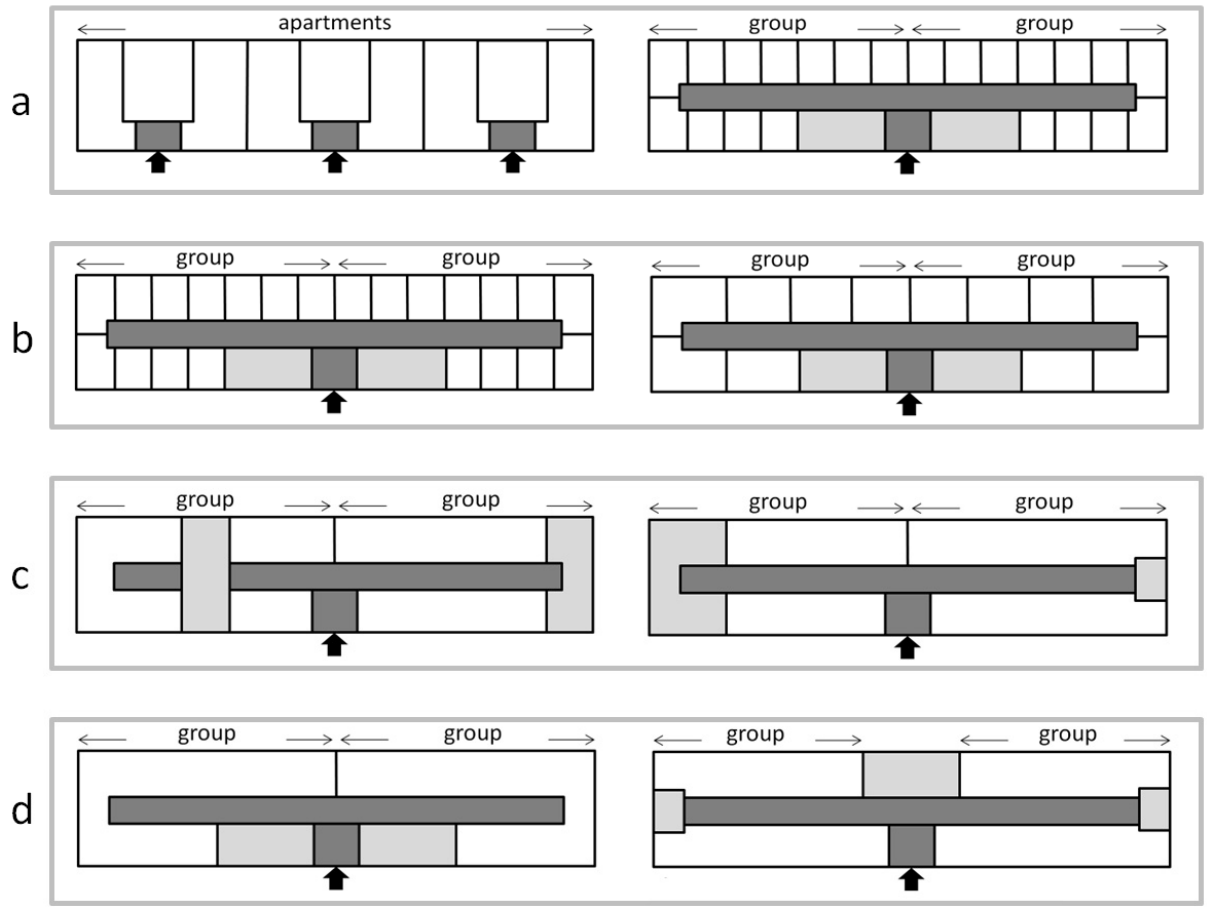

FIGURE 25: *Figure 25a shows the structural difference between ordinary housing (left) and AL (right). Also see Figure 2. Figure 25b shows a comparison between more (left) or less (right) residents per group or unit. Figure 25c shows different locations (left) and sizes (right) of the common spaces. Figure 25d shows multi-purpose spaces (left) and more designated spaces (right), e.g. by locational and functional separation of the common spaces.*

The common spaces are the principal venue for the in-house social interaction between residents and between residents and staff. They represent a physical addition to the apartments, with no parallel in ordinary housing. It is suggested that additional value can be added to daily life on AL units by giving special attention to these spaces at the planning stage. A further exploration of the social aspects in relation to the function and design of common spaces is called for. This knowledge is relevant in order to understand the

present AL context in relation to future requirements and presents an area for future research. The common spaces are between the private and public domains. A different approach to home-likeness is suggested here, compared to the apartments and to other more public spaces in the facilities. The question is whether it is relevant to discuss home-likeness in the common spaces.

A question for future research is what the absence of common spaces might entail, as is the case in ordinary housing. Would the frail residents then be forced to sit all by themselves in their tiny apartments, not being able to access spaces further away? How to incorporate the residential perspective in planning has a number of implications. The residential perspective is poorly represented by the actual users. To include their perspective is relevant in future planning and is an area of future research. Foreseeing future needs is relevant, but it is also important to build robust environments that are more resilient to change.

6. References

Alexander, C. (1977). *A Pattern Language*. New York: Oxford University Press.

Alexander, I. A. & Stevens, R. (2002). *Writing Better Requirements*. Glasgow: Bella & Bain.

Alexander, K. (2006). The application of usability concepts in the built environment. *Journal of Facilities Management,* 4(4), 262-270.

Almberg, C. (1997). *Servicelägenheter och gruppbostäder - en utvärdering av nybyggda särskilda boendeformer i Alingsås kommun.* Gothenburg: Chalmers University of Technology.

Alverman, M. (1979). Towards improving geriatric care with environmental interventions emphasizing a homelike atmosphere: An environmental experience. *Journal of Gerontological Nursing*, 5(3), 13-17.

Andersen, P. (1973). *Levande Död. Något om åldringsvård*. Malmö: Tusch.

Andersson, J. E. (2006). *Omsorgens Boenden - en forskningsöversikt över arkitektur, teknik och miljö i särskilda boendeformer*. Stockholm: Royal Institute of Technology.

Andersson, J. E. (2011a). *Architecture and Ageing. On the Interaction between Frail Older People and the Built Environment*. Stockholm: Royal Institute of Technology. Diss.

Andersson, M. (2007). *Äldre personers sista tid i livet*. Lund: Lunds Universitet. Diss.

Andersson, M. (2011b). *Användning och användbarhet i särskilda boendeformer för äldre*. Göteborg: Chalmers Tekniska Högskola 2011. Licentiatuppsats.

Andersson, M., Svennerlind, C., Malmqvist, I. & Anckarsäter, H. (2013). New Swedish forensic psychiatric facilities: visions and outcomes. *Facilities*, 31(½), 24-38.

Anderzhon, J. M., Fraley, I. L. & Green, M. (2007). *American Institute of Architects Design for Aging Post-Occupancy Evaluations. Lessons learned from senior living environments.* Hoboken, NJ: John Wiley & Sons.

Angus, J., Kontos, P., Dyck, I., McKeever, P. & Poland, B. (2005). The personal significance of home: habitus and the experience of receiving long-term home care. *Sociology of Health & Illness*, 27(2), 161-187.

Atchley R. C. (1971). Retirement and leisure participation: Continuity or crisis? *The Gerontologist*, 11(1), 13–17.

Atchley R. C. (1989). A continuity theory of normal aging. *The Gerontologist*, 29(2), 183–190.

Ball, M. M., Lepore, M. L., Perkins, M. M., Hollingsworth, C. & Sweatman, M. (2009). "They are the reason I come to work": The meaning of resident–staff relationships in assisted living. *Journal of Aging Studies*, 23(1), 37-47.

Barnes, S. (2006). Space, choice and control, and quality of life in care settings for older people. *Environment and Behavior*, 38(5), 589-604.

Beauvoir, S. de (1970). *Old Age*. London: Penguin.

Berg, A van den (2005). *Health Impacts of Healing Environments: A Review of the Benefits of Nature, Daylight, Fresh Air and Quiet in Healthcare Settings.* Groningen: Foundation 200 years University Hospital.

Berlingske Tidende (2006). *Nye ældreboliger bygges alt for små*. Homepage accessed 2013-10-22: http://www.b.dk/danmark/nye-aeldreboliger-bygges-alt-smaa. Published 26th Sep. 2006.

Bevan, N. (1997). Quality and usability: A new framework. In: van Veenendaal, E., and McMullan, J. (Eds.). *Achieving software product quality*. s'Hertogenbosch: Tutein Nolthenius.

Bevan, N. (2009). Extending quality in use to provide a framework for usability measurement. *Lectures Notes in Computer Science*, 5619, 13-22.

Biederman, I., Glass, A. L. & Stacy E. W. (1973). Searching for objects in real world scenes. *Journal of Experimental Psychology*, 97(1), 22-27.

Birgersson, L. (1996). *Att bygga mening och rum. Om Processer för Utveckling av Verksamhetsmiljöer.* Göteborg: Chalmers Tekniska Högskola. Diss.

Blakstad, S. H. (2001). *A Strategic Approach to Adaptibility in Office Buildings*. Trondheim: Norwegian University of Science and Technology.

Blakstad, S. H., Hansen, G. & Knudsen, W. (2008). Methods & tools for evaluation of usability in buildings. In: Alexander, K. (Ed.). *CIB W 111, Report 316.* Salford, UK: University of Salford.

Bland, R. (1999). Independence, privacy and risk: Two contrasting approaches to residential care for older people. *Ageing and Society*, 19(5), 539-560.

Blyth, A. & Worthington, J. (2001). *Managing the brief for better design*. New York: Spon Press.

Bodin Danielsson, C. (2012). *The office - an explorative study: architectural design's impact on health, job satisfaction & well-being*. Stockholm: Royal Institute of Technology. Diss.

Boverket (1988). The Swedish National Board of Housing, Building and Planning. *Det nya ålderdomshemmet. BFS 1988:25.*

Boverket (2012). The Swedish National Board of Housing, Building and Planning. Building Regulations. *Boverkets byggregler*. *BBR 2012.*

Brand, S. (1994). *How Buildings Learn. What Happens After They are Built?* London: Penguin.

Brandi, J. M. (2004). Nursing Home vs. Assisted Living: The Environmental Effect on Quality of Life. *Journal of Housing for the Elderly*, 18(1), 73-88.

Briller, S. & Calkins, M. P. (2000). Conceptualizing care settings as home, resort or hospital. *Alzheimer´s Care Quarterly*, 1(1), 17-23.

Brodin, H. (2005). *Does anybody care? Public and private responsibilities in Swedish elder-care 1940-2000.* Umeå: Umeå University. Diss.

Bryman, A. (2008). *Social Research Methods*. London: Oxford University Press.

Cadwallader, M. (1992). *Migration and residential mobility. Macro and micro approaches.* Wisconsin: The University of Wisconsin Press.

Cairney, J. & Krause, N. (2008). Negative life events and age-related decline in mastery: Are older adults more vulnerable to the control-eroding effects of stress? *Journal of Gerontology: Social Sciences*, 63(3), 162-170.

Calkins, M. P. & Marsden, J. P. (2000). Home is where the heart is: designing to recreate home. *Alzheimer's Care Quarterly*, 1(1): 8-16.

Carp, F. M. (1974). Short-term and long-term prediction of adjustment to a new environment. *Journal of Gerontology*, 29(4), 444-453.

Casey, E. (2001). Between geography and philosophy: what does it mean to be in the place-world? *Annals of the Association of American Geographers*, 91(4), 683–93.

China Daily (2013). *House-for-pension stirs debate on perfect elder care solution.* Homepage accessed Oct. 22nd 2013: www.chinadaily.com.cn/bizchina/2013-09/17/content_ 16976369. htm. Published Sep. 17th 2013.

City of Eskilstuna (2013). *Vem har rätt till särskilt boende?* Homepage accessed Sep. 10th 2013: www.eskilstuna.se/sv/Omsorg-och-hjalp/ Aldre-seniorer1/Boenden/Vem-har-ratt-till-sarskilt-boende/.

City of Gothenburg (2002). *Ramprogram för ombyggnad av servicehus till äldreboende 2002-04-12.*

City of Halmstad (2010). *Ramprogram för äldreboenden*. HN 2010/0385.

City of Linköping (2013). *Boende för äldre.* Homepage accessed Sep. 10th 2013: www. linkoping.se/sv/Stod-omsorg/Aldre omsorg/ Boende-for-aldre/Boende-for-aldre2/

City of Luleå (2013). *Omsorg stöd.* Homepage accessed Sep. 10th 2013: www.lulea.se/omsorg--stod/aldre-senior/vard--och-omsorgsboende.html.

City of Stockholm (2013). *Jämför äldreboenden.* Homepage accessed Sep. 10th 2013: http://www.stockholm.se/-/Jamfor/?enhetstyp= 8e433 7194f104c86850b480acc444b8c

City of Västerås (2013). *Stöd och omvårdnad.* Homepage Accessed Sep. 10th 2013: www.vasteras.se/stodomvardnad/ aldre/ boende/ Sidor/boende.aspx.

Cohen, U. & Day, K. (1993). *Contemporary Environments for People with Dementia.* Baltimore: The John Hopkins University Press.

Cohen, U. & Weisman, G. D. (1991). *Holding on to Home. Designing Environments for People with Dementia*. Baltimore: The John Hopkins University Press.

Converse, J. M. & Presser, S. (1986). *Survey questions - handcrafting the standardized questionnaire.* Thousand Oaks: Sage.

Coons, D. H. (1991). *Specialized Dementia Care Units*. Baltimore: The John Hopkins University Press.

Cornell, E. (1959). Humanistic Inquiries into Architecture. *Transactions of Chalmers University of Technology no. 219, I-III.* Göteborg: Gumperts.

County Counsil of Östergötland (2009). *Att åldras i Östergötland. 65 år och äldre.* Linköping: Landstinget i Östergötland

Cristoforetti, A., Gennai, F. & Rodeschini, G. (2011). Home sweet home: The emotional construction of places. *Journal of Aging Studies*, 25(3), 225-232.

Cumming, E. & Henry, W. E. (1961). *Growing Old. The Process of Disengagement*. New York: Basic Books.

Cunningham, G. O. & Michael, Y. L. (2004). Concepts guiding the study of the impact of the built environment on physical activity for older adults: A review of the literature. *American Journal of Health Promotion*, 18(6), 435-443.

Cutchin, M. P. (2003). The process of mediated aging-in-place: a theoretically and empirically based model. *The Journals of Gerontology, Series B*, 62(2), 129-34.

Cutchin, M. P., Owen, S. V. & Chang, P- F. (2003). Becoming "at home" in assisted living residences: Exploring place intregration processes. *The Journals of Gerontology, Series B*, 58(4), 234-43.

Cutchin, M. P., Chang, P.-F. J. & Owen, S. V. (2005). Expanding Our Understanding of the Assisted Living Experience. *Journal of Housing for the Elderly*, 19(1), 5-22.

Cutler, L. J. (2007). Physical environments of assisted living: Research needs and challenges. *The Gerontologist*, 47(suppl 1), 68-82.

Dagens Nyheter (2013). *Tvångsvård i hemmet när äldre nekas omsorgsboende.* Homepage accessed Oct. 22nd 2013: www.dn.se/debatt/tvangsvard-i-hemmet-nar-aldre-nekas-omsorgs boende/ Published Oct. 18th 2013.

Day, K., Carreon, D. & Stump, C. (2000). The therapeutic design of environments for people with dementia: A review of the empirical research. *The Gerontologist*, 40(4), 417-421.

Dehlin, O., Hagberg., Rundgren, Å., Samuelsson, G., Sjöbeck, B. (2000). *Gerontologi. Åldrandet i ett biologiskt, psykiskt och socialt perspektiv*. Stockholm: Natur och Kultur.

Dekkers, W. (2011). Dwelling, house and home: towards a home-led perspective on dementia care. *Medicine, Health Care, and Philosophy*, 14(3), 291-300.

Denzin, N. K., Lincoln, Y. S. (2005). *The sage handbook of qualitative research.* Thousand Oaks: Sage Publications.

Dewalt, K. & Dewalt, B. R. (2002). *Participant Observation, a Guide for Fieldworkers.* Lanham, MD: Rowman & Littlefield.

Didón, L. U., Magnusson, L., Millgård, O. & Molander, S. (1987). *Plan- och Bygglagen - En Kommentar.* Borlänge: Vägverket.

Dijkstra, K., Piterse, M. & Pruyn, A. (2006). Physical environmental stimuli that turn healthcare facilities into healing environments through psychologically mediated effects: systematic review. *Journal of Advanced Nursing*, 56(2), 166–181.

Dobbs, D. (2004). The Adjustment to a New Home. *Journal of Housing for the Elderly*, 18(1), 51-71.

Duffy, F., Bleeker, W. G., Alexander, K. & Prodgers, L. (1984). People process model. *IFMA Report 1984 #1.*

Dyck, I., Kontos, P., Angus, J. & McKeever, P. (2005). The home as a site for long-term care: meanings and management of bodies and spaces. *Health & Place*, 11(2), 173–185.

European Community (2002). *Regulation (EC) No 178/2002 of the European Parliament and of the Council of 28 January2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety.* Strasbourg: EU.

European Community (2004). *Regulation (EC) No 852/2004 of the European Parliament and of the Council of 29 April 2004 on the hygiene of foodstuffs.* Strasbourg: EU.

Edebalk, P. G. (1990). *Hemmaboendeideologins genombrott: Åldringsvård och socialpolitik 1945-1965. Meddelanden från Socialhögskolan 1990:4*. Lund: Lunds Universitet.

Edvardsson, D. (2008). Therapeutic environments for older adults: constituents and meanings. *Journal of Gerontological Nursing*, 34(6), 32-40.

Falk, H. (2010). *There is no escape from getting old. Older persons' experiences of environmental change in residential care.* Göteborg: Göteborgs Universitet.

Fangen, K. (2005). *Deltagande Observation*. Malmö: Liber.

Fenker M. (2008). Towards a theoretical framework for usability of buildings. In: Alexander ed.: *Usability of Workplaces, Phase 2. CIB W111 2008, research report*. Salford, UK: University of Salford.

Field, D. & Minkler, M. (1988). Continuity and change in social support between young-old and old-old or very-old age. *Journal of Gerontology,* 43(4), 100-106.

Fogel, B. S. (1992). Psychological aspects of staying at home. *Generations*, 16(2), 15−19.

Frankowski, A. C., Roth, E., Eckert, J.K. & Harris-Wallace, B. (2011). The dining room as the locus of ritual in assisted living. *Generations*, 35(3), 41-46.

Fransson, U. (2004). Lokal omflyttning och regional migration bland äldre - en översikt. In Fransson, U. (Ed.). *Äldrelandskapet*. Gävle: Institutet för Bostads- och Urbanforsking.

Fänge, A. M. & Iwarsson, S. (2003). Accessibility and usability in housing: Construct validity and implications for research and practice. *Disability and Rehabilitation*, 25(22), 1316-1325.

Gaunt, D. (1995). Ivar Lo, de radikala pensionärerna och striden mot ålderdomshemsfrågan. *Socialvetenskaplig Tidskrift*, 1995, 4, 370-389.

Geertz, C. (1973). Thick descriptions: toward an interpretive theory of culture. In Geertz, C.: *The Interpretation of Cultures*. New York: Basic Books.

Given, B. & Given, C.W. (1989). Cancer nursing for the elderly: A target for research. *Cancer Nursing*, 12(2), 71-77.

Goddard, C., Stewart, F., Thompson, G. & Hall, S. (2013). Providing End-of-Life Care in Care Homes for Older People: A Qualitative Study of the Views of Care Home Staff and Community Nurses. *Journal of Applied Gerontology*, 32(1), 76–95.

Goffman, E. (1961). *Asylums: Essays on the Social Situation of Mental Patients and Other Inmates*. Harmondsworth: Penguin.

Goldsmith, S. (2001). The Bottom-Up Methoology of Universal Design. In Preiser, W. F. E., Ostroff, E. (Eds.). *Universal Design Handbook*. New York: McGraw Hill.

Gottschalk, G., Boll Hansen, E. & Gleerup, M. (2005). *Ældres flytteovervejelser. Hvad fremmer og hvad hemmer flytninger? En analyse av 50-80-årige.* Copenhagen, DK: AKF.

Graneheim, U. H. & Lundman, B. (2004). Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today*, 24(2), 105-112.

Granath, J.-Å. (1991). *Architecture, Technology and Human Factors. Design in a Socio-Technical Context*. Gothenburg: Chalmers University of Technology. Diss.

Grant, L. A. (1994). Conceptualizing and Measuring Social and Physical Environments in Special Care Units. *Alzheimers Disease and Related Disorders*, 8(1), 321-327.

Greene, J. C., Caracelli, V. J. & Graham, W. F. (1989). Toward a Conceptual Framework for Mixed-Method Evaluation Designs. *Educational Evaluation and Policy Analysis*, 11(3), 255-274.

Groat, L. & Wang, D. (2002). *Architectural Research Methods*. New York: Wiley & Sons.

Gromark, S. (1987). *Fängslande arkitektur. Om den disciplinära arkitekturens födelse i franskt 1800-tal. Reflektioner kring arkitekturens betydelse och den europeiska modernismens förhistoria.* Göteborg: Chalmers Tekniska Högskola.

Gubrium, J. F. (1975). *Living and Dying at Murray Manor*. New York: St Martin's Press.

Gurney, C. & Means, R. (1993). The meaning of home in later life. In: Arber, S. & Evandrou, M. (Eds.). *Ageing, independence and the life course*. London: Kingsley.

Göteborgsposten (2013). *Editor's Column 15/10: Bygg enklare äldreboenden.* Homepage accessed Oct. 22nd 2013: http://www.gp.se/nyheter/ledare/1.2130440-bygg-enklare-aldreboen den. Published Oct. 15th 2013.

Hansen, G. K., Haugen, T. I., Jensö, M., Knudsen, W. & Tennebo K. (2005). Nord Trondelag University College, Nylana, Rostad, Norway', February 2005. Case Study. In: Alexander, K. (Ed.). *CIB TG51, Final Report on Case Studies 306.* Salford, UK: University of Salford.

Hansson-Preusler, K. (1962). Den kommunala fattigvården i arbete. In Palme, S. E. (Ed.). *Hundra år under kommunalförfattningarna 1862-1962*. Stockholm: Landstingsförbundet.

Harris, D. K. (1988). *"Aging in place"*. Dictionary of Gerontology. Westport, CT: Greenwood.

Hasson, H. & Arnetz, J. E. (2008). Nursing staff competence, work strain, stress and satisfaction in elderly care: a comparison of home-based care and nursing homes. *Journal of Clinical Nursing*, 17(4), 468–481.

Hauge, S. & Heggen, K. (2008). The nursing home as a home: a field study of residents' daily life in the common living rooms. *Journal of Clinical Nursing*, 17(4), 460-467.

Hazewinkel, M. (Ed.) (2001). *Student test. Encyclopedia of Mathematics*. New York: Springer.

Heckhausen, J. & Schulz, R. (1995). A life-span theory of control. *Psychological Bulletin*, 102(2), 284-304.

Heidegger, M. (1954). *Bauen Wohnen Denken. Vorträge und Aufsätze, Teil II.* Pfullingen DE: Verlag Neske (Translated by Macquarrie, J. & Robinson, E. 1962: Being and Time. New York: Harper and Row).

Helle, T. (2013). *Housing accessibilty methodology targeting older people. Reliable assessments and valid standards.* Lund: University of Lund. Diss.

Hernandez, M. (2012). Disparities in assisted living: Does it meet the HCBS test? *Generations*, 36(1), 118-124.

Heywood, F., Oldman, C. & Means, R. (2002). *Housing and Home in Later Life.* Buckingham: Open University Press.

Hillier, B., Leaman, A., Stansall, P. & Bedford M. (1976). Space syntax. *Environment and Planning B*, 3(2) 147-185.

Howell, S. (1976). *Shared Spaces in Housing for the Elderly*. Washington DC: Dep. of Health, Education & Welfare.

Howell, S. (1980). *Designing for Aging. Patterns of Use.* Cambridge, MA: MIT.

Hujala, A. & Rissanen, S. (2011). Organization aesthetics in nursing homes. *Journal of Nursing Management*, 19(4), 439-448.

Hultgren, E. O. (1917). *Stockholms Sjukhem 1867-1917. Minnesskrift*. Stockholm: N. B. Andersson.

Hurtig, E. (1995). *Hemhörighet och stadsförnyelse belyst i fyrtiotalsstadsdelen Sanna i Göteborg*. Göteborg: Chalmers Tekniska Högskola.

Ice, G. H. (2002). Daily life in a nursing home: Has it changed in 25 years? *Journal of Aging Studies*, 16(4), 345-359.

Imamoglu, C. (2007). Assisted living as a new place schema: a comparison with homes and nursing homes. *Environment and Behavior*, 39(2), 246-268.

ISO (1998). *Ergonomic requirements for office work with visual display terminals (VDTs). Part 11: ISO 9241-11:1998. Guidance on usability.* Genève: International Organization of Standardization.

ISO (2011). *Building construction — Accessibility and usability of the built environment. ISO 21542:2011.* Genève: International Organization of Standardization.

Iwarsson, S., Ståhl, A. (2003). Accessibility, usability and universal design - positioning and definition of concepts describing person-environment relationships. *Disability and Rehabilitation*, 25(2), 57-66.

Jersild, P. C. (1978). *Babels Hus.* Stockholm: Albert Bonniers Förlag.

Johansson, R. (1997). *Utvärdering av bostadshus i bruk. Om att bedöma kvalitet i boendet.* Stockholm: Royal Institute of Technology. Diss.

Johansson, R. (2002). Ett explikativt angreppssätt - fallstudiemetodikens utveckling, logiska grund och betydelse i arkitekturforskningen. *Nordisk Arkitekturforskning*, 2, 19-28.

Jönsson, H. (2003). *Ålderdom som samhällsproblem*. Lund: Studentlitteratur.

Kaijser, F. (1962). 1862 års kommunalförordningar. Tillkomst och innebörd. Ekonomisk och idépolitisk bakgrund. In Palme, S. E. (Ed.). *Hundra år under kommunalförfattningarna 1862-1962.* Stockholm: Landstingsförbundet.

Kalymun, M. (1991). Toward a definition of assisted living. *Journal of Housing For the Elderly*, 7(1), 97-132.

Keen, J. (1989). Interiors: Architecture in the Lives of People with Dementia. *International Journal of Geriatric Psychiatry*, 4(5), 255-272.

Keinonen, T. (1998). *One-dimensional usability - influence of usability on consumers' product preference.* Helsinki: Aalto University. Diss.

Kernohan, D. & Kelly, J. (1992). Design for Safety in the Commercial and Service Workplace. Palmerston North: *Proceedings of the NZ Ergonomics Society Conference. Ergonomics: design for usability.*

Kim, D. N., Yoon, Y. S., Moon, J. H., Byun, H. R., Chung, M., Hong, M. J. (2007). Characteristics of Space and Furniture Use of Common Living Rooms in Korean Nursing Homes. *APNHR 2007 Conference proceedings.*

Kärnä, S., Junnonen, J.-M. & Nenonen, S. (2010). Feedback system for developing the usability of workplaces. In Alexander, K. ed.: *CIB W 111, Report 330.* Salford, UK: University of Salford.

Laslett, P. (1989). *The Fresh Map of Life. The Emergence of the Third Age*. London: Weidenfeld & Nicholson.

Latour, B. (1992). Teknik är samhället som gjorts hållbart. In: Latour, B. *Artefaktens återkomst. Ett möte mellan organisationsteori och tingens sociologi.* Stockholm: Nerenius & Santérus Förlag.

Lawton, M. P. (1990). Residential environment and self-directedness among older people. *American Psychologist*, 45(5), 638-40.

Lawton, M. P. & Nahemow, L. (1973). Ecology and the aging process: In: Eisdorfer, C. & Lawton, M. P. (Eds.). *The Psychology of Adult Development and Aging.* Washington DC: APA.

Lawton, M. P. & Simon, B. (1968). The ecology of social relationships in housing for the elderly. *The Gerontologist*, 8(2), 108-115.

Leaman, A. (2000). Usability in buildings: the Cinderella subject. *Building Research & Information*, 28(4), 296–300.

Leichsenring, K. & Strumpel, C. (1998). *The use of small housing units for older persons suffering from dementia*. Wien: European Centre for Social Welfare Policy and Research.

Leith, K. (2006). Home is where the heart is… or is it? A phenomenological exploration of the meaning of home for older women in congregate housing. *Journal of Aging Studies*, 20(4), 317-333.

Lewinson, T., Robinson-Dooley, V. & Grant, K. W. (2012). Exploring "Home" Through Residents' Lenses: Assisted Living Facility Residents Identify Homelike Characteristics Using Photovoice. *Journal of Gerontological Social Work*, 55(8), 745-756.

Lindahl, G. & Granath, J.-Å. (2006). Culture and Usability. Changing User Demands on Buildings - Needs for Lifecycle Planning and Management. *Proceedings of Trondheim International Symposium, Trondheim, 12-14 June 2006.*

Lindahl, G. & Ryd, N. (2007). Client´s goals and the construction project management process. *Facilities*, 25(3/4), 147-156.

Lindahl, G., Blakstad, Hansen, G., S. H. & Nenonen, S. (2011). Useframe - A framework to understand and map usability research. *Proceedings of the 6th Nordic Conference on Construction Economics and Organisation. Copenhagen 13-15 April 2011. SBI.*

Linn, G. (1997). *Fastigheten som arbetsmiljö. Bygg rätt från början*. Stockholm: Svensk Byggtjänst.

Lorenz, S. G. (2007). The Potential of the Patient Room to Promote Healing and Well-Being in Patients and Nurses. An Integrative Review of the Research. *Holistic Nursing Practice*, 21(5), 263-277.

Lundgren, E. (2000). Homelike Housing for Elderly People – Materialized Ideology. *Housing, Theory and Society*, 17(3), 109–120.

Lutz, W., Sanderson, W. & Scherbov, S. (2008). The coming acceleration of global population ageing. *Nature*, 451, 716-719.

Mace, R. (1985). *Universal Design. Barrier-Free Environments for Everyone.* Los Angeles: Designer's West.

Macmillan (2013). Definition of: Facility. *Macmillan Online Dictionary of the English Language.* Accessed Oct. 31st 2013: http://www.macmillandictionary.com/ dictionary/ british/facility

Malmqvist, I. (1992). *Vardagshus i staden, en studie av hus med bostäder och verksamheter i bottenvåningen.* Göteborg: Chalmers University of Technology. Diss.

Malpas, J. E. (1999). *Place and Experience. A Philosophical Topography.* Cambridge: Cambridge University Press.

Malterud, K. (2009). *Kvalitativa metoder i medicinsk forskning*. Lund: Studentlitteratur.

Mathiasson, B. (1978). *Byggnader för sjukvård - en historisk översikt.* White Arkitekter och Forskningsstiftelsen för Samhällsplanering, Byggnadsplanering och Projektering. Rapport 2.78.

Marquardt, G. (2011). Wayfinding for people with dementia: A review of the role of architectural design. *HERD*, 4(2), 75-90.

Marsden, J. P. (2001). Framework for understanding homelike character in the context of assisted living housing. *Journal of Housing for the Elderly,* 15(1-2), 79-96.

Martin, P. Y. (2002). Sensations, bodies and the "spirit of a place": Aesthetics in residential organizations for the elderly. *Human Relations*, 55(7), 861-85.

McColgan, G. (2005). A place to sit-resistance strategies used to create privacy and home by people with dementia. *Journal of Contemporary Ethnography*, 34(4), 410-433.

McKechnie, L. E. F. (2008). Unstructured Observation. In Given, L. M. (Ed.). *The SAGE Encyclopedia of Qualitative Research Methods.* Thousand Oaks: Sage.

Micasa (2013). Homepage: http://www.micasa.se/sv/Fastigheter/. Accessed Sep. 10th 2013.

Miles, M. B. & Huberman, A. M. (1994). Qualitative Data Analysis. Thousand Oaks: Sage.

Ministry of Civil Affairs (1920). *Normalritningar till ålderdomshem, barnhem, m.m.* Stockholm: Civildepartementet.

Ministry of Health and Social Affairs (1956). *Åldringsvård. Betänkande om 1952 års åldringsvårdsutredning. SOU 1956:1*. Stockholm: Socialdepartementet.

Ministry of Health and Social Affairs (1979). *Om kommunernas skyldighet att inrätta bostäder med särskild service för äldre (servicehus).* SOU 1979/80:44, rskr. 385. Stockholm: Socialdepartementet.

Ministry of Health and Social Affairs (2008). *Bo Bra Hela Livet. Äldreboendedelegationens slutbetänkande.* SOU 2008:113. Stockholm: Socialdepartementet.

Ministry of Health and Social Affairs (2009). *Värdigt liv i äldreomsorgen. SOU 2009/10:116*. Stockholm: Socialdepartementet.

Moore, J. (2000). Placing home in context. *Journal of Environmental Psychology*, 20(3), 207-217.

Moore, K. D. (1999). Dissonance in the Dining Room: A Study of Social Interaction in a Special Care Unit. *Quality Health Research*, 9(1), 133-155.

Morgan, L. A. & Brazda, M. A. (2013). Transferring control to others: Process and meaning for older adults in assisted living. *Journal of Applied Gerontology*, 32(6), 651-668.

Morgan, L. A., Eckert, J. K., Piggee, T. & Frankowski, A. C. (2006). Two lives in transition: Agency and context for assisted living residents. *Journal of Aging Studies*, 20(2), 123-132.

Morgan, D. G. & Stewart, N. J. (1997). The Importance of the Social Environment in Dementia Care. *Western Journal of Nursing Research*, 19(6), 740-761.

Moss, M. S. & Lawton, M. P. (1982). Time budgets of older people. A Window on four lifestyles. *Journals of Gerontology*, 37(1), 115-123.

Moustakas, C. (1994). *Phenomenological Research Methods*. Thousand Oaks: Sage.

Mutschler, P. H. (1992). Where elders live. *Generations*, 16(2), 7−14.

Nagy, J. (2002). Kitchens that help residents reestablish home. *Alzheimer's Care Quarterly*, 3(1), 74-77.

NBHW (2008). National Board for Health and Welfare. *Vård och omsorg om äldre, lägesrapport 2008.* Stockholm: Socialstyrelsen.

NBHW (2010). National Board for Health and Welfare. *Nationella riktlinjer för vård och omsorg vid demenssjukdom 2010.* Stockholm: Socialstyrelsen.

NBHW (2011). National Board for Health and Welfare. *Bostad i särskilt boende är den enskildes hem.* Stockholm: Socialstyrelsen.

NBHW (2012). *Tillståndet och utvecklingen inom hälso- och sjukvård och socialtjänst.* Stockholm: Socialstyrelsen.

NBHW (2013). National Board for Health and Welfare. *Kommun- och enhetsundersökningen, vård och omsorg om äldre, 2013.* Stockholm: Socialstyrelsen.

National Food Agency (2007). *Vägledning. Offentlig kontroll av mindre förskolor, fritidshem och särskilda boenden m m.* Uppsala: Livsmedelsverket.

New York Times (2013*). Elderly Will Need Help as They Age at Home*. Homepage accessed Oct. 22nd 2013: http://www.nytimes.com/roomfordebate/2013/10/16/housing-thats-not-a-luxury/elderly-will-need-help-as-they-age-at-home. Published Oct. 17th 2013.

Nichols, P. J. R., Morgan R. W. & Goble, R. E. A. (1966). Wheel-chair users. A study in variation of disabilty. *Ergonomics*, 9(2), 131-139.

Nilsson, J. (2013). De äldre blir fler – och äldre. *Äldre i Centrum*, 3, 16-17.

Norberg-Schulz, C. (1971). *Existence, Space & Architecture*. London: Studio Vista.

Nord, C. (2011a). Individual care and personal space in assisted living in Sweden. *Health and Place*, 17(1), 50-56.

Nord, C. (2011b). Architectural space as a moulding factor of care practices and resident privacy in assisted living. *Ageing and Society*, 31(6), 934-52.

Nord, C. (2013). Design according to the law: juridical dimensions of architecture for assisted living in Sweden. *Journal of Housing and the Built Environment*, 27(1), 147-155.

Nübling, M., Vomstein, M., Schmidt, S.G., Gregersen, S., Dulon, M. & Nienhaus, A. (2010). Psychosocial work load and stress in the geriatric care. *BMC Public Health*, 10:428, 1-12. Open Access: doi:10.1186/1471-2458-10-428.

Oldman, C. & Quilgars, D. (1999). The last resort? Revisiting ideas about old people's living arrangements. *Ageing and Society*, 19(3), 363-384.

Onwuegbuzie, A. J. & Johnson, R. B. (2006). The Validity Issue in Mixed Research. *Research in the Schools*, 13(1), 48-63.

Oxford Dictionary, the Concise (1982). *"Demarcation",* page 253. London: Guild Publishing. Seventh Edition.

Pastalan, L. A. & Schwarz, B. (1993). The meaning of home in ecogenic housing: A new concept for elderly women. In Dandekar, H. C. (Ed.). *Shelter, women and development*. Ann Arbor: Wahr Publishing.

Patton, M. Q. (2002). *Qualitative Research & Evaluation Methods 3rd Edition*. Thousand Oaks: Sage.

Paulsson, J. (2002). *Det nya äldreboendet*. Stockholm: Svensk Byggtjänst.

Paulsson, J. (2012). Swedish care concepts. Translations to English. *Bo Bra på Äldre Dar.* Conference presentation 2012-04-18.

Pernler, S. E. (1999). *Sveriges Kyrkohistoria*. Verbum.

PRO (2013). *Äldres boende i dag och i framtiden. Underlag till diskussionen om ett boendepolitiskt program för PRO.* Stockholm: PRO (National Organisation of Swedish Pensioners).

Proshansky, H. M., Fabian, A. K. & Kaminoff, R. (1983). Place-identity: Physical world socialization of the self. *Journal of Environmental Psychology*, 3(1), 57-83.

Randall, F. & Downie, R. S. (1998). *Palliative Care Ethics. A Good Companion*. New York: Oxford University Press.

Rasila, H., Rothe, P. & Kerosuo, H. (2010). Dimensions of usability assessment in built environments. *Journal of Facilities Management*, 8(2), 143-153.

Regnier, V. (1994). *Assisted Living Housing for the Elderly-Design Innovations from the USA and Europe.* New York: van Nostrand Reinhold.

Regnier, V. (2002). *Design for Assisted Living. Guidelines for Housing the Physically and Mentally Frail.* New York: Wiley & Sons.

Rider, P. R. (1932). On the distribution of the correlation coefficient in small samples. *Biometrika*, 24(3-4), 382-403.

Rodin, J. (1986). Ageing and Health: Effects of the Sense of Control. *Science*, 233(4770), 1271-1276.

Roth, E. G. & Eckert, J. K. (2011). The vernacular landscape of assisted living. *Journal of Aging Studies*, 25(3), 215-224.

Rowles, G. D. (1985). Aging in Rural Environments. In Altman, I., Werner, C. M. (Eds.). *Home Environments. Human Behavior and Environment. Volume 8*. New York: Plenum Press, 65-86.

Rubinstein, R. L. & Parmalee, P. A. (1992). Attachment to place and the representation of the life course by the elderly. Altman, I. & Low, S. M. (Eds.). *Human behavior and environment: Advances in theory and research: Volume 12. Place attachment.* New York: Plenum.

Ryd, N. (2003). *Exploring Construction Briefing. From Document to Process*. Gothenburg: Chalmers University of Technology. Diss.

Ryvicker, M. (2011). Staff–resident interaction in the nursing home: An ethnographic study of socio-economic disparities and community contexts. *Journal of Aging Studies*, 25(3), 295-304.

SALAR (2009a). Swedish Association of Local Authorities and Regions. *Aktuellt på äldreområdet 2008/2009.* Stockholm: SKL.

SALAR (2009b). Swedish Association of Local Authorities and Regions. *Handbok för säker mat inom vård, skola och omsorg. Branschriktlinje för kök.* Stockholm: SKL.

Schumaker, S. A. & Taylor, R. B. (1983). Toward a clarification of people place relationships: a model of attachment to place. In Feimer, N. R. & Geller, E. S. (Eds.). *Environment Psychology: Direction and Perspectives.* New York: Praeger.

SFS 1847:23. *Fattigvårdsförordning* (Poor Relief Act).

SFS 1918:422. *Fattigvårdslagen* (Poor Relief Act).

SFS 1951:155. *Sjukhuslag*. (Hospital Act)

SFS 1956:2. *Lag om socialhjälp* (Social Welfare Act).

SFS 1970:994. *Hyreslagen* (Lease and Tenancy Act).

SFS 1980:620. *Socialtjänstlag* (Social Services Act [official translation]).

SFS 1990:1403. *Lag om ändring i socialtjänstlagen (1980:620)* (Law concerning changes in the Social Services Act).

SFS 1991:900. Kommunallag (Municipal Act).

SFS 1998:204. *Personuppgiftslag* (Law on Person-Related Information).

SFS 2001:453. *Socialtjänstlag* (Social Services Act).

SFS 2003:460. *Lag om etikprövning av forskning som avser människor* (Law on Research on Human Subjects).

SFS 2006:804. *Livsmedelslag*. (Law on Foodstuffs).

SFS 2007:159. *Förordning om investeringsstöd till äldrebostäder m.m.* (Regulation concerning state grants to housing for older persons, etc.)

SFS 2008:962. *Lag om valfrihetssystem* (Law on Free Consumer Choice).

SIS (2006). Swedish Standards Institute. *Svensk Standard 914221:2006.* Stockholm: SIS.

Sixsmith, A. (1990). The Meaning and Experience of Home in Later Life. In Bytheway, B. & Johnson, J. (Eds.). *Welfare and the Ageing Experience.* Aldershot: Avebury. 172−192.

Sixsmith, A. J. & Sixsmith, J. A. (1991). Transitions in home experience in later life. *The Journal of Architectural and Planning Research*, 8(3), 181-191.

Smith, J., Jackson, N. & Wyatt, R. (2003). A method for strategic client briefing. *Facilities*, 21(10), 203-11.

Solove, D. (2002). Conceptualizing Privacy. *California Law Review*, 90(4), 1087-1156.

Sommer, R. (1969). *Personal space, the behavioral basis of design*. Bristol, UK: Bosko Books.

SPRI (1971). Institute for the Planning and Rationalisation of Health and Social Welfare Services. *Ålderdomshem och dagcentraler. Lokalprogram med kommentarer. Råd 5.3.* Stockholm: Sjukvårdens planerings- och rationaliseringsinstitut.

SPRI (1979). Institute for the Planning and Rationalisation of Health and Social Welfare Services. *Lokala sjukhem. Underlag för planering och projektering*. *Rapport 1979b 12/79.* Stockholm: Sjukvårdens planerings- och rationaliseringsinstitut.

SPRI (1980). Institute for the Planning and Rationalisation of Health and Social Welfare Services. *Lokala sjukhem. Åtta förslag till en bättre vård- och arbetsmiljö inom långvården. Rapport 1980:35.* Stockholm: Sjukvårdens planerings- och rationaliseringsinstitut.

Steinfeld, E. & Maisel, J. M. (2012). *Universal Design. Creating Inclusive Environments.* Hoboken, NJ: Wiley & Sons.

Stichler, J. F. (2010). Research or Evidence Based Design: Which Process Should We Be Using? *HERD*, 4(1), 6-10.

Street, D., Burge, S. W., Quadagno, J. & Barrett, A. (2007). The Salience of Social Relationships for Resident Well-Being in Assisted Living. *The Journals of Gerontology, Series B*, 62(2), 129-34.

Street, D. & Burge, S. W. (2012). Residential context, social relationships, and subjective well-being in assisted living. *Research on Aging*, 34(3), 365-394.

SWEA (2009). Swedish Work Environment Authority. *Arbetsmiljöverkets Författningssamling AFS 2009:2*.

Swedish Government (1964). *Angående åldringsvårdsfrågor mm. Proposition 1964:85.* Government Bill.

Swedish Government (1990). *Ädelreformen: Om ansvaret för service och vård till äldre och handikappade med mera. Proposition 1990/91:14.* Government Bill.

Swedish Government (2009). *Värdigt liv i äldreomsorgen. Proposition 2009/2010:116.* Government Bill.

Swedish Government (2013). *LEV-Projektet. Långsiktig Efterfrågan på Välfärdstjänster: hälso- och sjukvård samt äldreomsorg fram till 2050.* Government Report.

Swedish Research Council (2002). Vetenskapsrådet. *Forskningsetiska principer inom humanistisk-samhällsvetenskaplig forskning* (Ethical principles for research in humanities and social sciences).

Svensson, P. G. & Starrin, B. (1996). *Kvalitativa studier i teori och praktik.* Lund: Studentlitteratur.

Sörensdotter, R. (2001). *Hemmet som omsorgens arena*. Falun: Dalarnas Forskningsråd.

Twigg, J. (2000). *Bathing - the body and community care.* London: Routledge.

Tyvimaa, T. (2011). Social and physical environments in senior communities: the Finnish experience. *International Journal of Housing Markets and Analysis*, 4(3), 197-209.

Uhlenberg, P. (1988). Aging and the Societal Significance of Cohorts. In Birren, J. E. & Bengtson, V. L. (Eds.). *Emergent theories of aging*. New York: Springer. 405-425.

Ulrich, R., Zimring, C., Zhu, X., DuBose, J., Seo, H.-B., Choi, Y.-S., Quan, X. & Joseph, A. (2008). A Review of the Research Literature on Evidence-Based Healthcare Design. *HERD*, 1(3), 61-125.

Utton, D. (2006). *Designing Homes for People with Dementia*. London: Hawker Publications.

Wahl, H. W., Iwarsson, S. & Oswald, F. (2012). Aging Well and the Environment: Toward an Integrative Model and Research Agenda for the Future. *The Gerontologist*, 52(3), 306-316.

Walker, C. A., Curry, C. C. & Hogstel, M. O. (2007). Relocation Stress Syndrome in Older Adults Transitioning from Home to a Long-Term Care Facility: Myth or Reality? *Journal of Psychosocial Nursing & Mental Health Services*, 45(1), 38-45.

Warell, A. (2001). *Design Syntactics: A Functional Approach to Visual Product Form. Theory, models and methods*. Gothenburg: Chalmers University of Technology. Diss.

Verbeek, H., van Rossum, E., Zwakhalen, S. M. G., Kempen, G. I. J. M. & Hamers J. P. H. (2009). Small, homelike care environments for older people with dementia: a literature review. *International Psychogeriatrics*, 21(2), 252–264.

Vestbro, D. U. (2010). Concepts and terminology. In Vestbro, D. U. (ed.), *Living Together. Cohousing Ideas and Realities Around the World.* Stockholm: Royal Institute of Technology 2010. Proceedings from the international collaborative housing conference in Stockholm 5–9 May 2010.

WHO (2002). *Active Ageing: A Policy Framework*. WHO/NMH/NPH/02.8.

Wijk, H. (2001). *Colour Perception in Old Age*. Gothenburg: University of Gothenburg. Diss.

Williams, K. N. & Warren C. A. B. (2009). Communication in assisted living. *Journal of Aging Studies*, 23(1), 24-36.

Wilmoth, J. (2000). Unbalanced Social Exchanges and Living. Arrangement Transitions Among Older Adults. *The Gerontologist*, 40(1), 64-74.

Wilson, K. B. (1990). Assisted living: The merger of housing and long term care services. *Long Term Care Advances*, 1, 2-8.

Wiseman, F. R. & Roseman, C. C. (1979). A typology of elderly migration based on the desicion making process. *Economic Geography*, 55, 4, 324-337.

Voordt, T. J. M. van der (1999). Space Requirements for Accessibility. In Steinfeld, E., Danford, G. S. (Eds.). *Enabling Evvironments. Measuring the Impact of Environment on Disability and Rehabilitation*. New York: Plenum Press, 59-88.

Wånell, S.-E. (2013). De äldre flyttar hem. *Äldre i Centrum*, 2, 6-9.

Wångmar, E. (2003). *Från sockenkommun till storkommun. En analys av storkommunreformens genomförande 1939-1952 i en nationell och lokal kontext.* Växjö Universitet. Diss.

Yang, H.-Y. & Stark, S. L. (2010). The Role of Environmental Features in Social Engagement Among Residents Living in Assisted Living Facilities. *Journal of Housing for the Elderly*, 24(1), 28–43.

Yin, R. K. (1994). *Case Study Research: Design and Methods*. Thousand Oaks: Sage.

Zavotka, S. & Teaford, M. H. (1997). The Design of Shared Social Spaces in Assisted Living Residences for Older Adults. *Journal of Interior Design*, 23(2), 2-16.

Zimmerman, S., Scott, A. C., Park, N. S., Hall, S. A., Whetherby, M. M., Gruber-Baldini, A. L. & Morgan, L. A. (2003). Social engagement and its relationship to service provision in residential care and assisted living. *Social Work Research,* 27(1), 6-18.

Zimmerman, S., Mitchell, C. M., Chen, C. K., Morgan, L. A., Gruber-Baldini, A. L., Sloane, P. D., Eckert, J. K. & Munn, J. (2007). An observation of assisted living environments: Space use and behavior. *Journal of Gerontological Social Work*, 49(3), 185-203.

Zimmerman, S. & Sloane, P. D. (2007). Definition and classification of assisted living. *The Gerontologist*, 47(suppl 1), 33-39.

Zingmark, K. (2000). *Experiences related to home in people with Alzheimer's disease.* Umeå: Umeå University.

Åhlund, O. & Ohara, K. (1998). *The physical environment of group living for people with dementia: 12 case studies in southern Sweden*. Tokyo: World Planning.

Åman, A. (1976). *Om den offentliga vården-byggnader och verksamheter vid svenska vård-institutioner under 1800- och 1900-talen - en arkitekturhistorisk undersökning*. Stockholm: Liber.

Öhlander, M. (1996). *Skör verklighet, En etnologisk studie av demensvård i gruppboende.* Lund: Studentlitteratur.

7. Appendix

7.1 Interview guides

Interview guide: Group interviews staff
Questions
Are the sitting and dining spaces frequently used?
Are the common spaces effective for residents and staff?
Are these spaces important and why?
Is a flexible use possible? Efficient, effective, accessible? Communication areas in the common spaces?
Who has decorated the sitting and dining rooms? Is the furniture accessible for the residents?
How are common spaces and apartments cleaned and maintained?
Where are technical and mobility aids placed when they are not in use?
Is this "in a home" for those who live there or is it "at home"?
What features makes it institutional / homelike? Combined spaces or partitioned?
The residents only stay at the dinner table for a short time. Why?
Staff changed on the units every two weeks. What does this entail?
What are the most positive and negative aspects of working here?
Between which individuals or groups?
Do you feel that you are working in someone's home or are people living in your workplace?
Different objectives for the use of the physical environment?
Diverging objectives for use?
Are the apartments effective for residents and staff?
Storage?
Balconies, access to the outdoor environment?
There were very few visits when I was here. Is this congruent with the actual situation?
Excursions?
Assembly halls, etc?
Staff spaces? Service space?
Spotlights?
Dome lights?
Call system?
Other auditory aspects?

Interview guide: Individual interviews residents
Questions
The participants were informed about the research plan; the objective for the research; methods; implications; the research institution; that participation is voluntary; and that the participant can abstain from participation according to the Law on Research on Human Subjects (SFS 2003:460, 16 §).
What activities, beside common meals, take place in the common spaces?
Do many of the residents spend time in the common spaces?
Would you like to spend time with the other residents, for example, doing something together?
Are the sitting and dining rooms part of your home?
Do you spend much time in the common spaces?
Do you have any mobility impairments?
Do you think the sitting and dining rooms works well for those of you living here? Is it usable? What is it that makes you think it is more or less usable? Is something lacking?
Do you think the interior is well furnished?
Do you think it is important to be able to gather for common meals and activities?
Do you use the kitchen facilities yourself or participate in cooking or other activities?
Are you happy with how the common areas are maintained?
Do you think the lighting in the common spaces is good?
Is there much noise?
Does it often smell bad?
How would you characterise the environment in this unit: Home, hotel or healthcare environment?
Do you feel safe here?
Do you think that the environment affects how you can live a good life?
Is life in assisted living what you had expected?
What functions do the other common spaces (assembly hall, etc.) provide?
Can you easily get outdoors? How often do you get out? Do you visit shops and other services?
Do you participate in activities outside the unit?
How important are the staff? For how the common spaces are used?
Do you think that the activities are organised in a satisfactory manner?
Do you often have visitors?
Are there conflicts between residents because they want to use the premises in different ways? Do the other residents irritate you?
Do you feel that the sitting and dining rooms are a part of your home or do you feel that you are "encroaching" on staff domains?
Is the apartment to your satisfaction? Do you have enough space, storage, etc?
The pros and cons of staying at home or moving here? Is the rent reasonable?

Continued:
Do you feel at home here? Is this your home?
Is the apartment more like home than other spaces in the unit?
Did you actively apply for an apartment or were you forced to move here due to different circumstances?
How do you view the other residents? Are they a family-like group, neighbours, fellow guests or strangers?
What are you most / least satisfied with?
Is there anything else you want to point out that is connected to the physical environment? What should we consider when we build new assisted living facilities?

Interview guide: Individual interviews relatives
Questions
The participants were informed about the research plan; the objective for the research; methods; implications; the research institution; that participation is voluntary; and that the participant can abstain from participation according to the Law on Research on Human Subjects (SFS 2003:460, 16 §).
What activities, beside common meals, have you experienced in the common spaces?
Do many of the residents spend time in the common spaces?
Do you think the residents would you like to spend more time with the other residents, for example, doing something together?
Are the sitting and dining rooms part of your relative's home?
Does your relative spend much time in the common spaces?
Does your relative have any mobility impairments?
Do you think the sitting and dining rooms work well for those who live here? Are they effective? What is it that makes you think they are more or less effective? Is something lacking?
Do you think the interior is well furnished?
Do you think it is important to be able to gather for common meals and social activities in the common spaces?
Does your relative use the kitchen facilities or participate in cooking or other activities?
Are you happy with how the common spaces are maintained?
Do you think the lighting in the common spaces is good?
Is there much noise?
Does it often smell bad?
How would you characterise the environment in this unit: Home, hotel or healthcare environment?
Do you think your relative can feel safe and secure here?
Do you think that the environment affects how you can live a good life?
Is life in assisted living what you had expected for your relative?
What functions do the other common spaces (assembly hall, etc.) provide?
Can you easily get outdoors? How often does your relative get out? Does he or she visit shops and other services?
Does your relative participate in activities outside the unit?
How important are the staff? For how the common spaces are used?
Do you think that the activities are organised in a satisfactory manner?
Does your relative often have visitors?
Are there conflicts between residents because they want to use the premises in different ways? Do the other residents irritate you or your relative?

Continued:
Do you feel that the sitting and dining rooms are a part of your relative's home or do you feel that you are "encroaching" on staff domains?
Is the apartment to your satisfaction? Is there enough space, storage, etc?
The pros and cons of staying at home or moving here? Is the rent reasonable?
Does your relative feel at home here? Is this his or her home?
Is the apartment more like home than other spaces in the unit?
Did your relative actively apply for an apartment or was he or she forced to move here due to different circumstances?
How do you view the other residents? Are they a family-like group, neighbours, fellow guests or strangers?
What are you most / least satisfied with?
Is there anything else you want to point out that is connected to the physical environment? What should we consider when we build new assisted living facilities?

Interview guide: Architects and others
Questions
The participants were informed about the research plan; the objective for the research; methods; implications; the research institution; that participation is voluntary; and that the participant can abstain from participation according to the Law on Research on Human Subjects (SFS 2003:460, 16 §).
What is your vision for your organisation?
Is the division between planning - construction - management within the City of Gothenburg optimal to create effective environments in general? (Planners)
How would you describe the assisted living facilities we have in Gothenburg?
At present, knowledge about living environments for older persons is located in architectural firms, in the municipal authorities (experts, residents, staff, etc.) and at the academies. How can we combine these skills in the planning and construction phase? (Architects)
Do you have a good picture of how the city of Gothenburg works in relation to planning, construction, management and eldercare? (Architects)
The most important functions that the physical environment of an assisted living facility must fulfil?
What can be improved in terms of assisted living facilities in Gothenburg in the short and long term?
What impact do you think the physical environment on the units has on those who live and work there?
Are common unit spaces important for social interaction?
Are they more important on dementia units?
Is the assisted living a "home" for those who live there?
Home, housing unit, hotel, institution?
How do you think you can create a home-like environment with the layout of the facilities?
How do you view the residents on a unit? Are they neighbours? Are they guests? Are they like family members? Or strangers?
The staff work in someone's home, but the residents also live in a workplace. What is your reflection?
Name one or two assisted living facilities that could be models or ideals. Explain.
Who should decide how the common areas are designed and furnished?
Who should represent the users at the planning stage?
The residents are older and more multi-diseased when they move in, compared to previously. But the assisted living facilities have not changed. Can you perceive any problems related to this??
Would it be better to reinstate the nursing home model for some assisted living facilities?
What do you think of the quality of the redevelopment of nursing homes and care homes into assisted living facilities that was carried out during the 1990-2000's?
What do you think of the idea to build facilities for flexible use, i.e. for different purposes? For example, to be able to convert between eldercare and school functions.
How do you view the cooperation between the City of Gothenburg and Chalmers in terms of this kind of research?
What do you think are the most important success factor to create effective environments for living and working in assisted living?
What knowledge development do you think the City of Gothenburg will benefit from in this project? (Planners)
Do you think this project can contribute to knowledge development in such a way that the architectural firms will benefit from it? (Architects)
How can the City of Gothenburg use this knowledge after 2013? (Planners)

7.2 Self-completion questionnaire

Questionnaire

Workplace (facility):	
Unit (mainly):	
I am:	female ☐ male ☐
Age:	<30 ☐ 30-39 ☐ 40-49 ☐ 50-59 ☐ 59-65 ☐ 65> ☐

		I agree that (One answer per question!)			
		not at all	**to a certain degree**	**to a great extent**	**completely**
1	I believe that the residents use the day room / dining room frequently in my unit.	☐	☐	☐	☐
2	I believe that the residents with some form of dementia problems are more likely to stay in in the sitting / dining room than other residents.	☐	☐	☐	☐
3	I think the sitting room / dining room in my department is well designed for the residents' needs.	☐	☐	☐	☐
4	I think the day room / dining room in my department is well designed for the staff's needs.	☐	☐	☐	☐
5	When I go into someone's apartment, I feel that I'm in someone's HOME.	☐	☐	☐	☐
6	When I go into a unit I feel that I'm in someone's HOME.	☐	☐	☐	☐

		every day	**several times a week**	**several times a month**	**rarely**	**never**
7	Are there conflicts about the use of the sitting and dining rooms? (One answer)	☐	☐	☐	☐	☐

		like a family	**like guests**	**like neighbours**	**like complete strangers**
8	Which alternative would best describe the relation between the residents? (One answer)	☐	☐	☐	☐

		the residents' home	**my workplace**
9	The PRIMARY function of the common kitchen is (One answer)	☐	☐

		the residents' home	**my workplace**				
10	The PRIMARY function of the sitting / dining room is (One answer)	☐	☐				
		always the same unit	**we rotate and change units regularly**	**I am intermittant and work on different units**			
11	What unit do You work on? (One answer)	☐	☐	☐			
		It is a private home	**It is a housing unit**	**it is like a hotel**	**It is like a hospital or nursing home**		
12	What description fits best to the assisted living facility where You work? (One answer)	☐	☐	☐	☐		
		the apartment	**the apartment plus the common spaces**	**the apartment plus the entire unit**			
13	The home or housing unit of the residents encompass (One answer)	☐	☐	☐			
		the design of the sitting and dining room	**the routines**	**staff's attitudes**	**the mental capacities of the residents**	**the physical capacities of the residents**	**the residents' need for social interaction**
14	What do You think has the greatest impact on how much time the residents spend in the sitting and dining room? (More than one answer)	☐	☐	☐	☐	☐	☐
		the extent to which the residents use the common spaces	**the possibilities to have social interaction**	**health and wellbeing of the residents**	**the routines**		
15	I think the design of the common spaces has great impact on (More than one answer)	☐	☐	☐	☐		

		between residents	between residents and staff	both between residents and between residents and staff	between staff			
16	If conflicts occur about the use of the common spaces; what kind of conflicts would that be? (More than one answer)	☐	☐	☐	☐			
		are large enough	**are too small**	**are well designed for the residents**	**constitute a good working environ-ment**	**lack space for technical aids**	**allow alternative placement of the bed**	
17	I think the apartments in my facility (More than one answer)	☐	☐	☐	☐	☐	☐	
		the apartments	**sitting and dining room**	**kitchens**	**sanitary facilities**	**clerical space**	**other common spaces in the facility**	**outdoor environ-ment**
18	Which parts of Your working environment are You most satisfied with? (More than one answer)	☐	☐	☐	☐	☐	☐	☐
		the apartments	**sitting and dining room**	**kitchens**	**sanitary facilities**	**clerical space**	**other common spaces in the facility**	**outdoor environ-ment**
19	Which parts of Your working environment are You least satisfied with? (More than one answer)	☐	☐	☐	☐	☐	☐	☐

Comments

7.3 Paper I-V