SOCIAL SUSTAINABILITY AND CO-HOUSING: A READING OVER SEDAD HAKKI ELDEM'S STUDIES ON TRADITIONAL TURKISH HOUSE TYPOLOGIES

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ABSTRACT

SOCIAL SUSTAINABILITY AND CO-HOUSING: A READING OVER SEDAD HAKKI ELDEM'S STUDIES ON TRADITIONAL TURKISH HOUSE TYPOLOGIES

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Reconsideration of sustainability as a holistic approach to meet today's societal and ecological challenges requires the integration of environmental, economic, social, and cultural dimensions to sustainability's subject matter. Among other dimensions, implementing *social sustainability* to architectural productions results in the creation of built environments which are respectful to both natural and social conditions. As a primary component of the built environment, housing is a setting for environmentally protective and socially viable attitudes to be realized. In this context, variety of housing models has been experimented to provide socially sustainable environments to its users.

Among many alternatives, *co-housing* appears as a promising model in fulfilling both the social needs of individuals and enhancing environmentally protective behaviors. It encourages ***positive social relations*** and ***social cohesion*** through ***participatory lifestyles*** and enhances ***social connectedness, well-being, efficient sharing of resources, practical or moral support between community members*** and ***adoption of environmentally sensitive behaviors.*** Therefore, co-housing is considered as a contemporary method for developing socially and ecologically sustainable housing environments.

It is argued in this thesis that socially sustainable way of life of co-housing communities and architectural values of co-housing designs are not new discourses for traditional Turkish housing culture. Some social objectives of co-housing communities have been adopted and appreciated by traditional Turkish households for a long time. In terms of ***enhancing collective ways of behavior, increasing social interaction, encouraging socially connected communities, providing means for effective sharing and use of spaces and resources***, spatial organizations of traditional Turkish houses display similar compositional and configurational principles with contemporary co-housing designs.

Disclosing socially sustainable qualities of traditional Turkish dwellings with reference to co-housing necessitates the use of typology as a means for a correlative evaluation. Excluding the nationalistic references which the term "Turkish House" denotes Sedad Hakkı Eldem's extensive typological studies on the "Turkish House" will be used for a solid ground for the re-evaluation of existing house types. Therefore, traditional houses will be examined through their compositional elements and configurational principles to uncover their similarities between co-housing models with relation to the concept of social sustainability.

Keywords: Social Sustainability, Co-housing, Turkish House, Sedad Hakkı Eldem, Typological Studies

ÖZ

SOSYAL SÜRDÜRÜLEBİLİRLİK VE ORTAK KONUT: SEDAD HAKKI ELDEM'İN GELENEKSEL TÜRK EVİ TİPOLOJİ ÇALIŞMALARI ÜZERİNDEN BİR İNCELEME

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Sürdürülebilirliğin günümüzün toplumsal ve ekolojik zorluklarını karşılamaya yönelik bütünsel bir yaklaşım olarak değerlendirilmesi, çevresel, ekonomik, sosyal ve kültürel boyutların sürdürülebilirlik konusuna entegrasyonunu gerektirmektedir. Diğer sürdürülebilirlik boyutlarının yanı sıra, sosyal sürdürülebilirliği mimari üretimlere uygulamak hem doğal hem de sosyal koşullara saygılı yapılı çevrelerin yaratılmasıyla sonuçlanır. Yapılı çevrenin birincil bileşeni olarak konut, çevreyi koruyucu ve sosyal olarak uygun davranışların gerçekleştirilmesi için uygun bir ortamdır. Bu bağlamda, kullanıcılarına sosyal olarak sürdürülebilir ortamlar sağlamak için çeşitli konut modelleri denenmiştir.

Pek çok alternatif arasından ortak konut hem bireylerin sosyal ihtiyaçlarını karşılamada hem de çevreyi koruyucu davranışlarını pekiştirmede uygun bir model olarak karşımıza çıkmaktadır. Katılımcı yaşam tarzları aracılığıyla pozitif sosyal ilişkileri ve sosyal uyumu teşvik eder ve sosyal bağlılığı ve refahı, kaynakların verimli paylaşımını, topluluk üyeleri arasında pratik veya ahlaki desteği ve çevreye duyarlı davranışların benimsenmesini geliştirir. Bu nedenle, ortak konut, sosyal ve

ekolojik olarak sürdürülebilir konut ortamları geliştirmek için çağdaş bir yöntem olarak kabul edilmektedir.

Bu tezde, ortak konut topluluklarının sosyal olarak sürdürülebilir yaşam biçimlerinin ve ortak konut tasarımlarının mimari değerlerinin geleneksel Türk konut kültürü için yeni söylemler olmadığı tartışılmaktadır. Ortak konut topluluklarının bazı sosyal hedefleri, geleneksel Türk aileleri tarafından uzun süredir benimsenmiş ve takdir edilmiştir. Kolektif davranış biçimlerini geliştirme, sosyal etkileşimi artırma, sosyal olarak birbirine bağlı toplulukları teşvik etme, mekanların ve kaynakların etkin paylaşımı ve kullanımı için araçlar sağlama açısından, geleneksel Türk evlerinin mekânsal organizasyonları, çağdaş ortak konut tasarımlarıyla benzer plan kompozisyonu ilkeleri sergiler.

Geleneksel Türk konutlarının sosyal olarak sürdürülebilir niteliklerinin ortak konut ile bağlantılı olarak açığa çıkarılması, ilişkisel bir değerlendirme için tipolojinin bir araç olarak kullanılmasını gerektirmektedir. Sedad Hakkı Eldem'in "Türk Evi" üzerine yaptığı kapsamlı tipolojik çalışmaları, "Türk Evi" kavramının ifade ettiği milliyetçi referanslar göz ardı edilerek, mevcut ev tiplerinin bu açıdan yeniden değerlendirilmesinde bir vaka çalışması olarak kullanılacaktır. Bu nedenle geleneksel Türk konutları, ortak konut modelleri ile arasındaki benzerlikleri ortaya çıkarmak için kompozisyon unsurları ve mekânsal kurguları üzerinden sosyal sürdürülebilirlik kavramıyla bağlantılı olarak incelenecektir.

Anahtar Kelimeler: Sosyal Sürdürülebilirlik, Ortak Konut, Türk Evi, Sedad Hakkı Eldem, Tipolojik Çalışmalar

To my family,

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CHAPTER 1

INTRODUCTION

The term *sustainability* has become a buzzword after it was realized that uncontrolled development and industrialization present serious challenges to ecology and human development. In this respect, many public and policy discussions initially centered around the topics including mitigating the effects of climate change, saving wildlife and ecosystems, protecting natural resources from overconsumption thus ensuring future generations to have access to the necessary resources (Boström, 2012; Cuthill, 2010; Eizenberg & Jabareen, 2017).

Following the national and international awareness on environmental protection in the 1960s, sustainable development discourse has played a major role in international policies (Carson, 1962; United Nations Environment Program, 1972; International Union for Conservation of Nature, 1980; World Commission on Environment and Development, 1987) and mainstream conferences (United Nations Conference on Environment and Development, 1993; Kyoto Climate Change Conference, 1997; World Summit on Sustainable Development, Johannesburg, 2002) (in Cuthill, 2010).

In 1984, World Commission on Environment and Development assembled primarily to formulate "A global agenda for change". This agenda included strategies for mitigating environmental degradation, providing long-term sustainable development paths and encouraging cooperation among developed and developing countries (WCED, 1987). After three years, the commission published a report "Our Common Future" or commonly known as "Brundtland Report" (WCED, 1987) which stands out among the other important documents for *"it marked a profound change in the attempts to connect bio-physical environmental, social and economic policy goals"* (Vallance et al., 2011). Report's definition of the term *sustainable development* has

been referred to numerous discussions on sustainability since then. According to this report;

> "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (WCED, 1987)

Although the report gave references to social conditions necessary for the sustainable development (i.e. meeting the needs of present and future generations), social dimension of sustainability was neither separately articulated nor clearly defined. According to Littig & Griel3ler's perspective on the needs, fulfilling human needs only in terms of providing "healthy environments" is not always enough. Economic conditions of individuals need to be taken care of and their sociological and cultural needs should also be satisfied (Littig & Grießler, 2005).

In the following years since the publication of the report, it has been acknowledged that the concept of sustainability is wide-ranging, multi-dimensional, international, and intergenerational. Therefore, reducing such a broad concept to find solutions only for the environmental problems jeopardizes its potential (Vallance et al., 2011). In this respect, the discourse on sustainability and sustainable development has been widened to incorporate other issues. Among many different subject-matters economic, social, and later cultural issues, have become more prominent in sustainability discussions. The linkages and inter-dependencies of these different sustainability areas are frequently represented by John Elkington's proposal of ***"triple bottom line"*** framework. The main components of this framework are often referred as "dimensions" or "pillars" and the three main pillars of this tripartite structure are environmental, economic and social. These three dimensions is also referred as "the three "Ps" (Planet, Profit, and People) or the three "Es" (Environment, Economy, and Equity)" (Boström, 2012).

A considerable amount of research, today, argues that sustainable development is to be achieved through a ***balanced*** and ***integrative approach*** to ecological, economic, and social components of the triad model of sustainability (Boström, 2012; Cuthill, 2010; Eizenberg & Jabareen, 2017; Littig & Grießler, 2005; Vallance et al., 2011).

Because the long terms success of the sustainable development depends upon the stability and sustainability of all the three systems (Littig & Grießler, 2005). This thesis acknowledges the importance of the integration and appreciation of the three dimensions in achieving sustainable development, yet the focus will be on the specific branch of sustainability which is particularly concerned with social issues.

Renewed interest in social sustainability has shifted focus by challenging the dominant understanding of sustainability and adding different considerations to its agenda. In response to the increasing levels of social needs, current planning and practices are needed to be reconsidered to tackle social challenges and minimize the long-term impacts of environmental problems on today's as well as future generations. Along similar lines, policymakers should also broaden the scope of social objectives in their policies by considering more intangible aspects of social life as complementary for the ***viability of communities*** and ***sustainability of ecosystems*** (Casey, 2005; Colantonio, 2009; Cuthill, 2010; Eizenberg & Jabareen, 2017).

In the context of architecture, Guy and Farmer (2001) reject the notion which sees sustainable buildings as only differently configured technical structures since green buildings should be the representations of ***sustainable aspirations, social values,*** and ***environmental awareness.*** They further propose that complex and variety of logics should be adopted to develop different interpretations of *"what a sustainable place might represent".* In this respect, the importance of acknowledging motives of actors towards shaping their environment, the range of techniques employed and considering contextual and social differences while developing sustainable buildings are emphasized (Guy & Farmer, 2001).

In this sense, social, economic and cultural aspects are needed to be embraced together with environmental sustainability in order to implement more holistic and comprehensive approaches in developing sustainable buildings. Other strands of sustainability should also be recognized as key dimensions for sustainable design strategies since they are related to each other and environmental sustainability.

Therefore, pursuit of only one is not adequate for the fully achievement of sustainability (Chiu, 2004, p. 65). However, this thesis specifically traces the social branch of sustainability and its relationship with housing and domestic life while it suggests that sustainability is a holistic approach with all its environmental, economic, social and cultural parameters.

As a major component of the built environment, housing presents serious challenges to ecological systems. Housing industry supported by rapid urbanization and industrialization is a major threat to environment. Since earth's resources are limited and ecological systems are incapable of supporting such a rapid growth, developing sustainable housing models is crucial. In this sense, parallel to sustainable development debates which have gained importance since 1980s, sustainability of housing has been primarily associated with materialistic characteristics of houses or technological systems that are implemented. Because initial concerns for the provision of sustainable housing were environmental and economic.

In providing sustainable housing environments in all aspects, both pro-environmental attitudes and social pre-conditions conducive to the development of sustainable behaviors should be supported (Chiu, 2004). However, current housing developments aim for sustainable environments in terms of environmental protection and economic benefits. This results in houses which disregard social requirements of the users. Therefore, many newly formed residential areas lack the socially livable qualities while they provide good profit for stakeholders (Curwell & Cooper, 1998). Consequently, chaotic mass production of houses has resulted in urban areas with ***congestion, pollution, noise, deterioration of street life*** and ***lack of public spaces.*** Besides, the lack of social quality of housing influences well-being and sustainable attitudes of residents negatively (Curwell & Cooper, 1998).

On this basis, Chiu points out that housing development should preserve the environment and resources and should not limit the ability of future generations to meet their housing needs**.** Moreover, housing needs to improve the social well-being of residents and the quality of living environments. Thus it should be socially

sustainable (Chiu, 2004). To this end, materialistic characteristics and social qualities of housing developments should also be improved to promote social sustainability. Based on the literature review, for the provision of socially sustainable housing:

- Appropriate settings for harmonious social relations should be provided,
- Social parameters conducive to the production of socially sustainable housing should be supported,
- Equal distribution and sharing of resources and spaces of housing should be encouraged,
- Positive social relations among community members should be reinforced through shared and collective activities or spaces,
- Satisfactory quality of housing interior and exterior conditions should be provided (Ancell & Thompson-Fawcett, 2008; Bramley & Power, 2009; Chiu, 2002, 2003, 2004; Dempsey et al., 2011; Meltzer, 2000; Williams, 2005c).

In this regard, various models of alternative housing have been developed since 1920s. Among many alternatives, co-housing appears as a promising model in fulfilling ecological and social sustainability objectives through its community organizations and physical settings. It is accepted that co-housing corresponds to the changing lifestyles and entails a reconsideration of public and private domains of housing in order to challenge current problems including alienation, loneliness and ecological degradation, social inequalities and safety (Ataman & Gürsel Dino, 2019; Jarvis, 2015; Krokfors, 2012; Meltzer, 2000; Williams, 2005b). Therefore, researches on co-housing try to examine physical and social qualities of co-housing which make it a novel form of housing in terms of social and environmental sustainability (Ataman & Gürsel Dino, 2019; Marckmann et al., 2012; Meltzer, 2000, 2010; Tummers, 2015).

A significant number of research documents that everyday routines and practices of ***intentional communities of co-houses*** form social structures that foster environmentally responsible and socially sustainable behaviors (Jarvis, 2015;

Williams, 2005b, 2005c). What differentiates co-housing from other types of housing is this "*social capital/capacity"* or *"soft infrastructures"* which is embodied by *"hard infrastructures"* of architectural components (Jarvis, 2015, p. 94). Many researchers state that the ***social capacity*** of co-housing is the key for residents' disposition to build vibrant communities with strong bonds which in turn foster positive attitudes towards environmental protection. The social contact design principles encourage formal and informal socializing thus increase collaboration between residents in many ways otherwise that would be impossible in conventional models (Ataman & Gürsel Dino, 2019; Jarvis, 2015; Marckmann et al., 2012; Tummers, 2016; Williams, 2005b, 2005c).

Moreover, co-housing encourages (1) ***positive social relations*** and (2) ***social cohesion*** through ***participatory lifestyles*** and enhances (3) ***social connectedness,*** (4)***well-being,*** (5) ***efficient sharing of resources,*** (6) ***practical or moral support between community members*** and (7) ***adoption of pro-environmental behaviors*** (Ataman & Gürsel Dino, 2019; Jarvis, 2015; Krokfors, 2012; Meltzer, 2000; Williams, 2005c). In that regard, co-housing enables a ***potential shift*** in community organizations and daily practices of the residents to achieve environmentally, economically and socially sustainable environments (Jarvis, 2015; Tummers, 2016).

On the other hand, above-mentioned physical and social qualities of co-houses have been practiced in Turkish traditional residential environments for a long time. Social structure of ***extended families*** of traditional houses also shares similarities with intentional communities of co-housing. Unlike co-housing's families which choose to live collectively, multiple families are living together in traditional residential settings due to economic requirements and social conditions. However, the ways traditional households use shared spaces while they maintain their privacy and individuality within housing environments have created plan configurations in which correlations with co-houses can be derived. Compositional and configurational aspects of traditional Turkish houses also (1)***enhance communality,*** (2) ***create places promoting social interaction,*** (3)***provide social cohesion*** and (4) ***encourage sharing and support.***

1.1 Problem Definition and Research Questions

Renewed interest in social sustainability after John Elkington's proposal of "triple bottom line" framework has extended sustainability's focus from taking only ecological measures for environmental protection to considering social factors which affect quality of life. Although this growing interest is favorable for the recognition and appreciation of the social pillar, many and varied interpretations of the term have led to a degree of conceptual chaos which compromises its utility (Vallance et al., 2011).

Furthermore, social sustainability studies focus on practical issues and policy objectives and try to derive social sustainability indicators without paying much attention to the conceptual issues. For this reason, such attempts tend to define the social sustainability in terms of general social and political indicators such as social standards, institutional sustainability, and democratic rights (Littig & Grießler, 2005) As Cuthill points out that some studies refer to *community-based research* to set criteria and objectives for the social sustainability. While diverse social topics discussed under the community-based research can widen the discussions on the social sustainability and provide a practice-oriented view, their role in constructing a broader conceptual framework is limited (Cuthill, 2010).

Therefore, a review of the literature suggests that studies specifically addressing the theories of social sustainability are limited (Colantonio, 2009). It is also the fact that a clearer understanding and widely accepted definition of ***what social sustainability means*** is still missing. Questions regarding which social issues that should be addressed, what are the main objectives of social sustainability and how these are related to the physical environment are open to discussion, with a lack of consensus on how these issues are to be answered (Colantonio, 2009; Dempsey et al., 2011; Murphy, 2012; Vallance et al., 2011)

In this respect, numerous attempts have been made by planners, practitioners, and academicians from diverse areas to address the concepts of social sustainability

(Boström, 2012; Cuthill, 2010; Littig & Grießler, 2005; Murphy, 2012). Although these efforts are seen in the areas including architecture, urban design and planning, agriculture, trade, tourism, and corporate social responsibility, there has been little attention given to developing links between social sustainability and built environment (Dempsey et al., 2011; Murphy, 2012). Therefore, there is a need to further identify the relationships between social dimension of sustainability and built environment for these seemingly individual areas are interwoven with each other (Cuthill, 2010; Littig & Grießler, 2005; Murphy, 2012).

On this basis, a conceptual framework is required to evaluate social qualities of physical settings and to decide whether they are socially sustainable. In this sense, the relationships of commonly referred concepts of social sustainability (i.e., ***sense of belonging to a community, mutuality, increased social interactions, social inclusion and cohesion***) with the built environment should be well established. Furthermore, social sustainability of the built environment should be evaluated within a wider perspective by means of interdisciplinary research and practice. To this end, understanding the social processes behind how people shape their immediate physical surroundings can present guidelines for developing social sustainability frameworks (Littig & Grießler, 2005).

Following these discussions co-housing is considered as a novel form of collective living and an innovative solution to provide socially sustainable environments. However, it is noticed that research recognizing traditional residential architecture as an established form of collective living and as a ***typological reference*** for developing socially sustainable housing models is limited. In fact, spatial configurations of traditional houses enable collective living and ecologically sensitive practices to take place. Furthermore, they encourage shared activities, social contact and provide means for shared use of spaces and resources thus promote socially sustainable lifestyles. Within this perspective, this study attempts to discuss whether traditional houses in Turkey share common social and spatial characteristics with contemporary co-housing designs.

On this basis, the underlying questions of this thesis are:

1. *Can traditional Turkish residential architecture be accepted as a setting for collective and socially sustainable living and as a traditional typological reference for co-housing?",*
2. *In analyzing traditional housing's physical and social qualities, is it possible to make interpretations for co-housing designs?*
3. *In terms of the social structures, do intentional communities of co-housing and extended families of traditional Turkish houses share similar social qualities with each other?*
4. *In terms of the physical aspects of co-housing and traditional Turkish houses, can analogies between "shared spaces and the sofa", "private dwellings and the rooms", "public pathways and circulation spaces", "green spaces and courtyards" be derived?*

1.2 Aim of the Thesis

In this study, it is accepted that the social and physical factors are *co-constitutive* in the formation of socially sustainable housing environments. In this respect, first, it is attempted to understand the relationships between physical settings and social structures of residential environments in promoting social sustainability. Second, co-housing models will be examined with respect to the identified concepts of social sustainability. How these new housing models support collaboration, positive social relations, social connection and sharing will be questioned. Third, traditional Turkish residential architecture will be studied regarding spatial configurations of houses and social life of the families. Sedad Hakkı Eldem's typological studies on the "Turkish House" will be used as a methodological tool to study how defined concepts of social sustainability are represented in traditional housing domains. And lastly, correlations between physical and social structures of co-housing and "Turkish House" are tried to be presented with relation to the identified concepts of social sustainability which are:

1. ***Collective living*** or ***Communality***
2. ***Positive social relations*** *and* ***Increased social interaction***
3. ***Social connection*** *and* ***Cohesion***
4. ***Sharing*** *and* ***Support***

Considering these, the main aim of this thesis is to analyze whether traditional Turkish houses display similar social and spatial characteristics with contemporary co-housing designs. With such a correlative analysis, it is intended to approach current socially sustainable housing discussions from a different perspective. It is expected that increasing the number of research which use typological studies as methodological tools can help to establish guidelines in developing socially sustainable housing.

1.3 Boundary and Scope of the Thesis

> "Architectural products are manifestations of the socio-cultural characteristics of the society to which they belong." (Asatekin, 2005).

As architectural representations of familial social order ***"vocabulary of existing traditional house forms"*** can be reinterpreted (Asatekin, 2005). In the context of this thesis, traditional Turkish domestic environments will be reinterpreted considering the identified concepts of social sustainability. However, the topic of traditional Turkish housing is itself a very wide-ranging subject-matter. Therefore, it is not possible to include all housing examples in an analysis of social sustainability concepts in traditional Turkish housing. In this respect, Sedad Hakkı Eldem's typological studies on traditional Turkish houses will be used as a case study within the scope of the thesis. Typological studies which are parts of architectural seminars led by Eldem are very significant documentations of traditional Turkish houses. They are not mere categorizations of historical buildings. Presented types can be used to find ways of understanding operative processes which eventually led to the formation of similar forms of houses.

In this respect, Eldem (1968) introduces four main house types based upon plan organizations of traditional Turkish houses. According to Eldem, the houses, which are built in the District of Marmara, are the fundamental types of Turkish houses. They reflect the typical physical characteristics which are later affected the formation of new types in different geographies. In this respect, Eldem uses the term "Turkish House" to cover traditional houses which are built according to the principles of houses in Marmara Region (Eldem, 1968). In the context of Eldem's discourse, use of the word "Turkish" also aligns with the concept of nationalism. However, in this thesis, the term "Turkish House" is adopted to refer to the traditional houses in rural settlements of Anatolia. Therefore, all the nationalistic references that the term denotes are out of scope.

Furthermore, as Asatekin (2005) points out that Eldem's traditional housing typology "depends on a de facto acceptance of extended families living in these dwellings (Asatekin, 2005). Therefore, Eldem's identification of house types can be used to analyze the physical characteristics of Turkish houses which are related to the social structure of extended families. In this sense, spatial layout of the Turkish House is one of the design elements that allows for co-living of multiple families. Collective living aspects of the Turkish House are most apparent in the "*the piano nobile—the first floor of the main building of the dwelling unit"* (Asatekin, 2005). The first floor is shaped through the configurations of rooms and sofa (hall) according to each other. Being one of the compositional elements of the first floor, location of the sofa (hall) changes due to environmental, economic, and social conditions, whereas its function as being the physical and social center of the Turkish House remains same in each house (Asatekin, 2005).

The identified social sustainability characteristics of the Turkish House can also be used for relational analysis of traditional houses with their contemporary counterparts. In this respect, correlations between the Turkish House and a socially sustainable housing model—co-housing—can be explored. Therefore, this thesis tries to analyze in which dimensions the Turkish House and co-housing correspond to each other. The starting point, in this sense, is to look for similarities between the

Turkish House and co-housing in social and physical aspects. However, in exploring common social features of both housing cases, a comprehensive study on family or community life is not intended. In fact, social structures of Turkish families and co-housing communities are only mentioned in order to comprehend the underlying factors that are effective in production of physical spaces. In this sense, rather than analyzing all the aspects of social organizations, in both housing cases, factors that have direct influences on physical settings and design of houses are explored.

1.4 Theoretical Framework and Methodology

Sustainability characteristics of traditional buildings and settlements in Turkey have been discussed in academic literature. In the case of residential buildings, many scholars agree upon that traditional houses correspond to the environmental sustainability conditions in terms of planning, architectural layout, construction methods and use of materials (Gezer, 2013). Moreover, the suitability of traditional houses to the lifestyles of their users are accepted as a positive aspect in terms of sustaining social and cultural thus promoting social sustainability.

On this basis, social sustainability features of traditional residential architecture can be used as guidelines for recent housing developments. Therefore, this thesis will analyze the social sustainability characteristics of traditional Turkish housing in terms of selected concepts of social sustainability. Architectural schema, physical characteristics and social organizations of traditional Turkish houses will be reconsidered whether they inherently promote the identified concepts of social sustainability which are;

1. ***Collective living*** or ***Communality***
2. ***Positive social relations*** and ***Increased social interaction***
3. ***Social connection*** and ***Cohesion***
4. ***Sharing*** and ***Support***

In such an analysis, physical characteristics of houses should be mentioned and their relations with social life of families should be examined. In this respect, typological studies can be used as a methodological tool to analyze these aspects. In the context of traditional Turkish housing, there are various studies which analyze the architectural characteristics of traditional dwellings in Turkey and attempt to classify similar types of houses under particular groups based upon several factors. Asatekin (2005) points out that the factors which influence "the evolution of the archetypes" vary from religious and cultural to functional, economic and geographical conditions (Asatekin, 2005). On this basis, Asatekin (2005) groups several classification studies under three main categories according to the analysis methods of the studies.

The first group of studies contains widely approved classifications according to plan types. Since plan typologies are determined by two major living spaces (sofa and room), studies that favor sofa or room in their classifications are included in this group. Studies in the second group categorize houses according to construction techniques and materials. Construction techniques and materials are influenced by the region's climatic conditions, flora and traditions. Therefore, it is indicated that classifications on the second group view various regional factors as effective in the use of materials and construction techniques to varying degrees (Asatekin, 2005).

The third group of classifications focus more on climatic conditions of different regions and try to reveal architectural differences based on that. Although second and third groupings share similar aspects, they differ from each other in terms of their scope and scale. Second group of studies approach traditional houses from a narrow perspective which only include materials and building techniques, whereas studies in the third group consider wide range of regional climatic factors as influential in the forms of dwellings (Asatekin, 2005).

Considering these, this study uses the first group of classifications for an evaluative analysis of social sustainability characteristics of traditional Turkish housing. Planimetric categorizations based on similar house types will be examined. In this context, being one of the first typological studies which takes plan organizations as

basis for the classifications, Sedad Hakkı Eldems typological studies on existing, modest-scale, traditional Turkish houses will be used as a case study for the re-evaluation of existing house forms with reference to the concepts of social sustainability. In addition, other studies on Turkish traditional housing will be referred to give general understanding of the architectural and social qualities of the Turkish House.

1.5 Structure of the Thesis

Structure of the thesis consists of five chapters in which the concept of social sustainability is discussed with references to co-housing and traditional Turkish residential architecture.

- The **first chapter** starts with the general overview of the concept of social sustainability in housing domain. It also includes main concerns of the study.
- The **second chapter** will elaborate more on the concepts of social sustainability and housing. How social sustainability is included in sustainability discussions will be discussed. The main principles of socially sustainable housing will be introduced through a theoretical framework. Following this framework, alternative housing models (co-housing) will be introduced and their place in social sustainability discourse will be analyzed.
- The **third chapter** begins with a general definition of co-housing and continues with identification of social qualities of the co-housing communities and materialistic features of cohouses.
- The **fourth chapter** uses Sedad Hakkı Eldem's studies on traditional Turkish houses (Turkish House) as a case study for a relational analysis of social sustainability concepts and housing. However, identified concepts of social sustainability (i.e., communality, social interaction, social connection and sharing) will be evaluated through a correlative study on co-housing settings and Turkish houses.

The last chapter, **chapter five**, will include conclusions and prospective ideas for future studies. The importance of the ideas articulated in this study will be questioned in terms of the potentials they offer for existing housing discussions.

CHAPTER 2

SOCIAL SUSTAINABILITY, ARCHITECTURE AND HOUSING

Interest in the concept of social sustainability has begun when it was realized that changes in the ecological systems and depletion of the natural resources pose serious threats for the futures of both environment and society. Although it is difficult to predict what is the long-term effects of these problems, societies have begun to experience the *negative social outcomes* related mainly to the uncontrollable development of an increasingly urbanized, proletarianized and consumer-based population over the past 30 years (Casey, 2005; Cuthill, 2010; Ray Forrest & Kearns, 2001).

Since social structures are influential in interactions between people and their immediate physical surroundings, understanding and preferably improving the society-nature relationships, which will be favorable in terms of developing sustainable strategies, are desirable (Casey, 2005; Cuthill, 2010; Ray Forrest & Kearns, 2001; Littig & Grießler, 2005). However, there is a common agreement that social dimension of sustainability is still mostly neglected or considered to be of secondary importance in the discussions compared to the environmental and/or economic pillars (Colantonio, 2007; Cuthill, 2010; Murphy, 2012).

The main reasons for this unequal treatment of the three pillars are that environmental and economic problems often have immediate and convincing outcomes and that in many real-life policies ecological and economic benefits are prioritized over social gains (Colantonio, 2007; Littig & Grießler, 2005). Concerns over (1) ***improving quality of life,*** (2) ***preserving the social and cultural conditions which are beneficial for environmental protection,*** (3) ***understanding the social structures and processes which effects society's attitudes towards their natural surroundings,*** and (4) ***enhancing social relationships to build vibrant and***

environmentally responsible communities are very unlikely to attract attention in sustainable policies and practices (Littig & Grießler, 2005).

Furthermore, *"intangible nature"* of the concept of social sustainability makes it difficult to integrate it with more concrete environmental and economic goals (Colantonio, 2010). Therefore social component of the sustainability is approached individually without developing an integrative methodological framework which include other areas (environmental and economic) for identifying common indicators and objectives (Littig & Grießler, 2005). Consequently, this discriminatory approach tends to exclude the social circle of the sustainability (Eizenberg & Jabareen, 2017; Littig & Grießler, 2005).

In this respect, within the framework of this chapter, first the concept of social sustainability will be elaborated and its connections with housing will be analyzed. Then identified concepts of social sustainability will be discussed in the contexts of co-housing and traditional Turkish housing.

2.1 Exploring the Concept of Social Sustainability

In the book "The Risk City", Josef Jabareen highlights the risks and uncertainties deriving primarily from global warming and its inevitable result of climate change and mentions that many scientists from various fields agree that natural disasters related to the climate change poses serious risks to the social life of individuals as well. This will likely increase in the near future. In fact, some scientists argue that the destructive impacts of global warming have already been experienced (Jabareen, 2015). According to Jabareen, climate change's negative impacts increase the number and variety of risks that city-dwellers are facing.

> "Contemporary cities and their residents are currently facing phenomenal mounting levels of evolving risk and vulnerability stemming, inter alia, from social polarization, the growth of urban poverty levels, urban conflict and violence, terrorism, natural disasters, and, most recently, climate change. Cities have been contending with risks related to security and some aspects of environmental disasters since ancient times, and the intensive

> urbanization, growth, industrial development, and technological progress of the twentieth and early twenty-first century have compounded long-standing risks and uncertainties and created new ones." (Jabareen, 2015)

Literature on the *environmental justice* concept points out negative social consequences of environmental problems and their ***unequal distribution*** among various groups or people. Inequalities in distribution mean that environmental burdens due to the uncontrolled development patterns are disproportionately and unequally distributed among people (Eizenberg & Jabareen, 2017). Therefore, specific groups are vulnerable to the ***environmental bads (or risks)*** more than others regarding to their economic conditions, gender and race (Boström, 2012; Murphy, 2012). On the other hand, these vulnerable groups experience inequalities in accessing ***environmental goods (or benefits)*** such as resources and good quality environments (Boström, 2012).

Social problems are not limited only to these issues. In fact, they comprise a wide range of matters and vary considerably depending on the spatial, social, and temporal situations. According to Colantonio these diverse social challenges can be grouped under two main themes which he identifies as ***"hard or traditional"*** and ***"soft" themes of social needs.*** He proposes through a chronological analysis that;

> "Traditional themes, such as equity, poverty reduction and livelihood, have increasingly been complemented or replaced by more intangible and less measurable concepts such as identity, sense of place and the benefits of social networks in the social sustainability debate". (Colantonio, 2009)

Although ***poverty, injustice, equity, difficulties, and inequalities in accessing basic needs*** are still considered as common social problems, emerging concepts such as ***loneliness, isolation, social exclusion and inclusion, sense of belonging, safety, well-being, empowerment, and participation*** have gained increase attention in developed countries which satisfy basic needs of their citizens (Colantonio, 2009).

On this basis, starting from the late 1990s a considerable body of literature has started to accept social sustainability as a fundamental component of the sustainable

development and as a practical tool for addressing and dealing with a complex interrelated social challenges (Colantonio, 2009; Cuthill, 2010)

2.1.1 The Importance of Social Dimension in the Sustainability Discourse

Various issues can be discussed under the concept of social sustainability since it has a potential to gather participants from different disciplines and perspectives around a ***shared language.*** In that regard, it is considered as a ***meeting place*** and ***communicative platform*** (Cuthill, 2010).

> "A focus on the concept of 'social sustainability' was seen to provide a meeting place, which drew together participants' diverse perspectives around a relatively new concept that did not carry any political or academic baggage from previous use. This concept provided an umbrella under which existing disciplinary and operational perspectives, relating to the social dimensions of sustainable development, could be sheltered." (Cuthill, 2010)

Boström, emphasizes the ***"interpretative flexibility"*** of social sustainability while he particularly mentions that it plays an important role in facilitating and encouraging communication among different actors with conflicting interests. Therefore, policymakers and practitioners can communicate with each other, decide strategies, and implement them in real life policies with the helps of an overarching framework of the concept of social sustainability (Boström, 2012).

Furthermore, social sustainability can be a useful ***conceptual tool*** for dealing with social problems in practical ways (Cuthill, 2010). Boström (2012) points out that social sustainability reinforces decision-making through participatory processes including various actors, which in turn enables establishing coherent, realistic, and consistent social criteria and objectives. Effective participation of multiple stakeholders is also helpful in identifying "structural limitations" and "inherent contradictions" of the concept. Therefore, all or nothing understandings, wide-ranging definitions, unrealistic expectations (or "high ambitions") and narrow framings of social sustainability will be eliminated (Boström, 2012).

As Cuthill (2010) further observes, the benefit of social sustainability lies under *"its preventative approach to social issues, addressing the causes rather than just treating the symptoms"* (Cuthill, 2010). Consequently, social sustainability studies have brought many previously underdeveloped and overlooked social issues into focus. Therefore, these can be discussed and studied by academics, policy makers, and practitioners. It is among the few such conceptual tools which has opened a ***"portal into a series of debates"*** (Boström, 2012). Although it fails to encompass all the inner complexities of social life and its structures, it certainly has a potential to incorporate environmental, social, and economic dimensions of sustainability and to study society-environment relationships (Boström, 2012).

On this basis, social sustainability studies can present important guidelines for dealing with both environmental and social issues and formulating sustainable development strategies (Eizenberg & Jabareen, 2017; Vallance et al., 2011). In this context, Littig & Grießler (2005) point out the importance of analytical and normative aspects of the social sustainability. They consider the analytical aspect as significant but mostly overlooked in developing conceptual frameworks and suggest that this feature of social sustainability has a potential to provide "a sound theory of the relationship between society and nature". As development in all sense is closely connected to "its natural prerequisites" and social processes determine the ways society manage its environmental resources are determined by the social processes, the question will be *"How can societies regulate and change their processes and structures so as to ensure the chances for development of future generations?"* (Littig & Grießler, 2005). Furthermore, Littig & Grießler (2005) underline that analyzing the relationships between sustainable development and the social concepts including equality, justice and participation can be instructive in fully achieving sustainability objectives (Littig & Grießler, 2005).

On the other hand, normative aspect of the social sustainability should not be neglected since it refers to the social imperatives that society should maintain to promote sustainable development. The role of, the values and ideals, in this context, will be to provide *"well-informed, theoretically robust, yet pragmatic"* solutions to

the current ecological and social problems (Vallance et al., 2011). Therefore, a smoother and more equitable transition from less to more sustainable futures can be attained (Vallance et al., 2011).

2.1.2 Theoretical Frameworks and Concepts

Recent years have seen notable efforts from diverse areas to identify social aspects of sustainability and integrate them in real life policies and practice. Therefore, the contribution of various disciplines to the social sustainability discourse has created a ***"mosaic of various conceptual frameworks"*** and not one ***"hegemonic theory"*** (Boström, 2012). On the one hand, many scholars acknowledge that this comes from the "interpretative flexibility" aspect of social sustainability and is "constructive". Because one overarching framework would fail to address all social problems which are unique to temporal and contextual situations in different geographies (Boström, 2012). On the other hand, there is also an agreement that ***an order is needed*** for a greater understanding of the social dimension. Because the plurality of varied approaches towards social sustainability has created a ***"conceptual chaos"*** that people need to elaborate and define what social sustainability means every time they want to address it (Boström, 2012; Cuthill, 2010; Littig & Grießler, 2005; Murphy, 2012). Correspondingly, numerous attempts have been emerged to theorize and study social sustainability by means of typologies and frameworks. On this basis, the literature on developing theoretical framework has proliferated which helps to framing and constructing social sustainability.

In this context, a few studies from literature, which offer conceptual frameworks, will be elaborated in this section. These references are specifically selected considering their given emphasis on the relationships between society and nature (or social and environmental sustainability) and on the implications of social sustainability concepts over urban planning, architecture and housing. Boström proposes that "these efforts make social sustainability more visual, measurable

through qualitative means and hence more legitimate for both academics and practitioners" (Boström, 2012).

The selected studies provide general overview on the definitions and main concepts of social sustainability. Related aspects, themes, concepts, or indicators of social sustainability are subsumed under the ***conceptual categories*** or ***umbrella groupings*** in the proposed frameworks which is summarized in Table 2.1 (Murphy, 2012). In addition, the selected works briefly suggest how the concept of social sustainability should be delimited, operationalized and related to the other dimensions (Boström, 2012).

In the descriptive article about the two-year action research process, Cuthill (2009) identifies the potential benefits of a social sustainability framework to develop regional responses towards rapid urban growth in The South East Queensland region in Australia. He emphasizes that a conceptual framework should have linkages to and information about the long-term regional policies and current practices so that "just and sustainable" societies to be established. Moreover, he asserts that environmental problems are socially oriented. Therefore, improvements in social conditions are as crucial as finding solutions to prevent environmental degradation.

On this basis, he proposes a social sustainability framework which includes four main components; (1) ***social capital,*** (2) ***social infrastructure,*** (3) ***social justice and equity,*** and (4) ***engaged governance.*** These key factors are identified drawing from a review over social sustainability literature and the collective knowledge of a research team. Theory and practice-oriented aspect of Cuthill's study provides both a basis for developing a theoretical framework and empirically test its key components through ongoing practices. This way it is also possible to identify new factors affecting social sustainability and these factors can be analyzed through further research (Cuthill, 2010).

Table 2.1 Key Issues in Social Sustainability Discourse

Author(s)		*Conceptual Categories*
Murphy (2012)	*Overarching concepts of social sustainability*	Public awareness Equity Participation Social cohesion
Littig & Grießler (2005)	*Social dimensions of sustainability*	Basic needs and quality of life Social justice Social coherence
Cuthill (2009)	*Key factors of social sustainability*	Social capital Social infrastructure Social justice and equity Engaged governance
Dempsey et al. (2011)	*Dimensions of social sustainability*	Social equity Sustainability of community Social interaction Participation in collective groups and networks in the community Community stability Pride or sense of place Safety and security
Chan & Lee (2008)	*Factors of social sustainability*	Social infrastructure Availability of job opportunities Accessibility Townscape design Preservation of local characteristics Ability to fulfill psychological needs

Littig & Grießler (2005) emphasize the apparent lack of theoretical understanding of social sustainability and propose their definition based on (1) ***the concept of needs*** outlined in the Brundtland Report and suggest (2) ***work as a facilitator of the exchange between society and nature*** (Littig & Grießler, 2005). The concept of work, in its broader sense, is referred to introduce key components of social sustainability (Boström, 2012). Littig & Grießler (2005) interpret social sustainability as the *"quality of societies"* which are in direct exchange with nature through work. In this sense, they suggest that social sustainability is attained if work and its related institutional arrangements are arranged to meet the needs of present and future generations. Moreover, these arrangements should help nature and its reproductive capabilities to be preserved over a long period of time and the normative claims of (3) ***social justice***, (4) ***human dignity***, and (5) ***participation to be fulfilled*** (Littig & Grießler, 2005). Accordingly, Littig & Grießler (2005) group existing themes of social sustainability under three main indicator categories. These are summarized from sociological theory and can be used in assessing social conditions of societies (Table 2.2) (Littig & Grießler, 2005).

Murphy (2012), on the other hand, contributes to the social sustainability literature in several ways. First, he presents a typology which comprises eight key groupings of existing research on social sustainability. He identifies primary texts in each branch of sustainable development literature and organize them in groups based on how they discuss social concepts and policy objectives. Second, he emphasizes on the current need for a theoretical understanding of social sustainability and suggests his conceptual framework. He constructs his framework over *"four pre-eminent social concepts"* which are: (1) ***public awareness,*** (2) ***equity,*** (3) ***participation,*** and (4) ***social cohesion.*** With these four conceptual categories and their related aspects, Murphy aims to introduce a social sustainability framework which has clear environmental references (Murphy, 2012). The proposed framework consists of thirteen policy objectives with both social and environmental dimensions. While this framework does not include a detailed set of indicators, the proposed categories and

objectives can also be used as a basis to develop *"an alternative sets of social indicators"* (Murphy, 2012).

Table 2.2 Social Sustainability Indicators

Groups	*Indicators*
The First Group	
"The satisfaction of basic needs and the quality of life"	Individual income, Income distribution, Poverty, Unemployment, Education and further training, Housing conditions, Health conditions, Subjective satisfaction with work, Security.
The second group	
"Social justice regarding the distribution of economic goods or income" *"Equal opportunities regarding quality of life and participation in society"*	Equal opportunities for education, Gender equity, migrants.
The third group	
"Social coherence"	Integration into social networks, Involvement in activities as volunteers, Measures for solidarity, Tolerant attitudes towards other people.

2.1.3 A Relational Analysis Between Social Sustainability Concepts with Housing

The various frameworks such as those briefly discussed in the previous chapter and their key issues listed in Table 2.1, as well as the social sustainability indicators suggested by literature and policy documents, shed light on topics that ought to be considered in terms developing socially sustainable strategies. All these attempts are favorable in their efforts for framing the social sustainability and presenting starting points for further studies. However, it is argued that there is a lack of attention which has been given towards the concept of social sustainability within built environment disciplines (Dempsey et al., 2011; Murphy, 2012). In this respect, a few studies examining the relationships between physical settings and the main concepts of social sustainability will be represented in this chapter. The identified concepts will be used for further inquiry and the interpretations of social sustainability concepts in co-housing and traditional houses in the following chapters.

In the paper, which focuses on social sustainability at the neighborhood level, Dempsey and colleagues point out that associated aspects of social sustainability such as (1) ***social capital,*** (2) ***social cohesion,*** (3) ***social inclusion*** and (4) ***social exclusion*** are discussed separately without relating them to physical settings. Even though, there has been an increasing tendency in recent European policy which tries to incorporate the concepts as ***sustainable communities*** and ***social cohesion*** with the built environment, these attempts are more policy oriented. For example, "The Bristol Accord", which is built on previous EU documents defines "sustainable communities" as:

> "The places where people want to live and work, now and in the future. They meet the diverse needs of existing and future residents, are sensitive to their environment, and contribute to a high quality of life. They are safe and inclusive, well planned, built and run, and offer equality of opportunity and good services for all" (ODPM, 2006, p. 12).

Such definitions describe sustainable communities in terms of both physical and social qualities but they do not explicitly refer to the term social sustainability

(Dempsey et al., 2011). In this sense, Dempsey and colleagues aim to contribute to the literature by reviewing social sustainability dimensions and their associated aspects which are to some extend influenced by the built environment. To do this, they identify a wide variety of factors from the urban social sustainability literature according to their direct or indirect relations to the physical environment (Dempsey et al., 2011). Drawing upon this, the identified factors of social sustainability fall under two broad underlying concepts: (5) ***social equity*** and (6) ***sustainability of a community*** (Dempsey et al., 2011). Moreover, these two concepts are claimed to reflect collective and sustainable aspects of daily life at the neighborhood scale in the urban context (Bramley & Power, 2009; Dempsey et al., 2011).

While Dempsey and colleagues focus generally on the relationships between urban environment and the concepts of social equity and sustainability of communities, Bramley and Power are more interested in relationships of these concepts with a particular type of urban form which is "compact, high-density and mixed-use" (Bramley & Power, 2009; Dempsey et al., 2011). In this context, based on the results from a wider study (The CityForm project) and the literature, Bramley and Power analyze the relationship between high-density and mixed-use housing and its relation to the two main dimensions of social sustainability including social equity and sustainability of community. They suggest that urban planning with sustainability in its agenda has aimed to shape the physical form of cities by means of regulating land-use, minimizing use of energy and reducing need for travel. This situation, therefore, has led to the preference of denser and more compact urban forms which enable multiple uses in planning policies. They further question whether such forms have ***desirable social outcomes*** through an empirical research. The results show that, although socio-demographic factors and problematic neighborhoods play an important role in people's perception of their environment and their satisfaction levels, the role of urban form in providing (7) ***positive social relations*** should not be underestimated (Bramley & Power, 2009).

It is worth mentioning here that (9) ***positive social activity*** is claimed to be more likely to occur in ***high quality physical environments*** (Bramley & Power, 2009; Dempsey et al., 2011). However, assuming good environmental quality will always provide socially sustainable settings does not always reflect the truth (Dempsey et al., 2011). For instance, high quality housing environments may be provided by promoting "exclusive communities" in which social cohesion is only attained between same income, age, race or gender groups. The opposite may also be the case that, for example, collective perceptions of poor environmental quality act as a catalyst for socially cohesive activity and interaction. While these examples demonstrate it is not easy to decide whether the concepts such as social cohesion, social capital and social interaction may have positive outcomes in all respects, it is widely assumed in theory, policy, and practice that they are positive and desirable social goods (Dempsey et al., 2011).

2.2 Alternative Socially Sustainable Housing Models: Co-housing

Changes in the urban environments due to population growth and the increasing migration rates necessitate rethinking of urban fabric to provide socially inclusive environments while complying with sustainability objectives (Ataman & Gürsel Dino, 2019). While increase in ***congestion, pollution*** and ***noise levels*** have negative impacts on the environment, ***deterioration of street life, lack of public spaces*** and ***increase in crime rates*** influence well-being of individuals negatively as well (Curwell & Cooper, 1998). As a primary component of the built environment, chaotic mass production of houses, which lack the socially livable qualities while they provide good economic profit for stakeholders, has exacerbated these problems.

In this respect, development of sustainable housing alternatives has become more crucial. However, as it is noted that achieving sustainability in housing environments does not always mean reducing energy consumption levels, using eco-friendly materials, adopting green technologies and waste management (Guy & Farmer, 2001). Sustainability in housing, therefore, should aim for holistic approaches for

dealing with complex and interrelated issues of sustainability including ***reducing the environmental impacts of houses, providing livable spaces, increasing affordability, providing equal distribution of resources, enhancing community activities*** or ***encouraging solidarity between individuals*** (Ataman & Gürsel Dino, 2019)

Collective living (co-living), in this sense, provide revisiting of existing housing practices by means of addressing environmental and social aspects of sustainability (Ataman & Gürsel Dino, 2019). Ataman & Dino (2019) define co-living (or co-housing) models ***"as the architectural counterpart of the sustainable development"*** (Ataman & Gürsel Dino, 2019). In their article on co-housing and sustainable living, Marckmann and colleagues identify four main indicators to examine the sustainability advantages of co-housing based on empirical studies on Danish eco-villages. In this respect, some of the main advantages of co-houses which make them to be accepted as ***"a sustainable alternative to current housing"*** are:

1. More alternative and sustainable technologies are adopted in the construction and management of houses.
2. Density is higher due to compact arrangements which in turn decreases floor space area and its related energy consumption.
3. Living in a co-housing community means being surrounded with environmentally sensitive people thus makes it easier to realize personal aspirations towards environmental protection.
4. Sharing of resources and spaces with other families are beneficial since ecological footprint for one and two-person households is decreased (Marckmann et al., 2012).

Therefore, the environmental advantages of co-housing are (1) ***resource sharing***, (2) ***reducing energy consumption***, (3) ***preventing over-consumption through sharing*** and (4) ***decreasing floor spaces and ecological footprints of houses***. On the other hand, social benefits are (5) ***to increase social interaction***, (6) ***to provide***

participatory environments, (7***) to increase support*** and thus (8) ***to create a sense of community*** (Ataman & Gürsel Dino, 2019; Marckmann et al., 2012).

2.2.1 Brief History and General Characteristics

> "Collective housing, primarily as co-housing, is most frequently found in Denmark, Sweden, Holland, and Germany. A large number of projects were completed in the 1970s and 80s, but in the 90s, the pace slowed down in these Northern European countries, while co-housing grew in the USA and Canada." (Vestbro & Horelli, 2012)

There was widespread experimentation of collaborative communities and co-operation in the United Kingdom, United States or Australia in the 1970s. However, co-housing has appeared as a different form of communal living following these examples (Jarvis, 2015). There are three separate development waves of the co-housing. The first wave occurred in northern Europe with the intention of providing more egalitarian conditions for working parents and their children in terms of child caring and housekeeping (Vestbro & Horelli, 2012). The second wave, which is more common in today's developments, has developed in the United States since the 1980s. The aim is to recreate high density urban areas with an alternative form of sustainable, low-density suburbs. The third wave, in accordance with the second wave, has occurred in Australia's rural areas with a strong emphasis on environment and self-reliance (Jarvis, 2015).

Furthermore, Vestbro (2000) indicates that the term "collective housing" is an umbrella term which covers various alternative housing examples from Europe and United States. His identification of five different models of "collective houses" is based on the activities of collective living and the collective housing structures. These are summarized in Table 2.4. Vestbro further refers to "co-housing" as a subgroup of "collective housing". However, in all cases the common aim is to create *"housing with* ***more communal spaces*** *or* ***collectively organized facilities*** *than in conventional housing"* (Vestbro, 2000).

The widely used North American term “co-housing” is adopted in this thesis for further research. The term co-housing usually refers to Danish bofaellesskab and Swedish kollektivhus (the self-work model) (Vestbro, 2000). It consists of ***private dwellings*** for individual households and ***shared common facilities*** (such as a central kitchen, dining hall or living room). The main intentions of its residents is *“to create, with no set ideology, a* ***supportive living environment*** *and* ***a sense of community”***. In this sense, the layout and design of co-housing are developed to ***enhance social contact***. This is also promoted by the site arrangements which adopt design principles such as building attached and/or clustered houses in close proximity to centrally located independent common house, locating car-parking at the peripheries, providing green spaces and promoting pedestrian movement (Fromm, 2000).

Table 2.3 Types of collective living

Types of Collective Living		*Location*	*General Descriptions*
First Model	*Kollektivhus* *(collective housing unit)*	Sweden	Housing unit with a central kitchen and common facilities usually connected to private units
	Classical collective housing unit		It aims at reducing housework done by women through an employed staff.
	Det lilla kollektivhuset *(the small collective housing unit)*		It is unit of 15-50 private dwellings where residents manage their meals based on communal work (the self work model).
	House for elderly		It is provides services for the elderly along with communal activities or facilities
Second Model	*bofaellesskab*	Denmark	Rather than reducing the burdens of housework it aims to create a stronger sense of community with its typically low-rise houses.

Third Model	*Service block/ Integrated service center*		Collective services are provided to facilitate housework, care and communal participation.
Fourth Model	*Collective housing for special categories*	Scandinavia	Special facilities for elderly, students and people with other disabilities
Fifth Model	*Commune*		More than four persons who are not relatives group to live in usually a large one-family unit.

(Vestbro, 2000; Vestbro & Horelli, 2012)

2.2.2 Co-housing Model's Place in Social Sustainability Discourse

In general terms, co-housing is seen as a ***promising model*** for the provision of sustainable housing in urban areas (Tummers, 2016). Although variety of research on co-housing focuses on materialistic characteristics of co-houses which support environmentally sustainable designs, materials and systems, the importance of social organizations of co-housing communities in encouraging environmentally protective behaviors should also be acknowledged (Meltzer, 2000).

> "Community oriented housing projects really only take on life through their residents. More and more people sense the impeding crisis, and look for shared, local responses, seeing a great place to begin in their own home!" (Tummers, 2016).

Therefore, social structures of co-housing facilitate the adoption of sustainable attitudes and environmentally friendly alternative technologies (Ataman & Gürsel Dino, 2019; Marckmann et al., 2012; Meltzer, 2010).

While forming and maintaining a co-housing community, resident groups engage in social arrangements and develop social skills which constitute the core of self-organizing housing (Jarvis, 2015). Even though concepts and methods employed in forming communities are not entirely new discourses, it is the combination of social elements and physical qualities that makes co-housing projects suitable for today's urban environments (Tummers, 2016). Accordingly, understanding the social processes behind the formation and continuation of co-housing communities can shed light on developing strategies to deal with the social and environmental challenges that societies are facing today (Jarvis, 2015; Tummers, 2016).

On this basis, in his study on North American co-housing communities, Meltzer (2000) tries to analyze how and to what degrees the social and physical properties of co-houses contribute to putting pro-environmental behaviors into action. He states that the sense of being in a ***supportive community*** with strong environmental aspirations is the thrust to transfer ecological concerns into practice. Based on this notion, Meltzer defines eight different ***"Categories of Influence"*** which shapes pro-

environmental attitudes in co-housing (Meltzer, 2000). These categories include a review of the settings and systems of co-housing. How residents collectively shape their residential environments are summarized under the category of setting. On the other hand, the category of systems introduces particular systems which are adopted by community members to manage daily tasks and maintain social cohesion and community relations. Although Meltzer focuses on physical context and management systems in terms of their specific roles in improving pro-environmental behaviors of residents, the identified characteristics can also be used for a social sustainability reading in co-housing.

Based on this, as an innovative and connected way of living co-housing encourages (1) ***communality,*** (2) ***solidarity,*** (3) ***social coherence,*** (4) ***mutual respect,*** (5) ***dynamic social relations*** and (6) ***vivid social life*** through its deliberative architectural design characteristics, all these qualities build up vibrant communities and alternative physical settings which can be considered as socially sustainable (Ataman & Gürsel Dino, 2019; Jarvis, 2015; Krokfors, 2012; Meltzer, 2000; Torres-Antonini, 2006; Tummers, 2016; Williams, 2005c). On this basis, it is the combination of *"social capacity/capital"* or *"soft infrastructures"* and *"hard infrastructures"* of architectural components what differentiates co-housing from other types of housing and makes it a promising sustainable model in terms of environmental and social aspects (Jarvis, 2015).

CHAPTER 3

CO-HOUSING: A MODEL FOR SOCIALLY SUSTAINABLE LIVING

In an attempt to frame the sustainability potential of co-housing, first, common physical and social aspects of co-housing are identified through a literature review. Meltzer (2000) tries to identify main factors influencing resident's sustainable attitudes towards their environment (Table 3.1). In this sense, he introduces eight different ***"Categories of Influence"*** (Meltzer, 2000). Although Meltzer forms his categorizations by taking into consideration of sustainability concept. These categories can also be used to analyze socially sustainable characteristics of co-houses.

Table 3.1 Meltzer's Categories of Influence

Category	*Descriptions*
Setting	Location in the urban context Building site organizations Architectural components
Systems	Managed infrastructure and facilities
Influence	Influence among members The effect of peer pressure
Exchange	Communication with other members Sharing knowledge and experience Learning from others
Sharing	Working together Resource sharing Using common facilities or areas
Support	Practical or moral support Encouraging each other
Belonging	Feeling part of a group Sharing a common purpose
Efficacy	Bringing intentions into action

(Meltzer, 2000).

Moreover, co-housing Association in the United States defines the main social and physical characteristics of co-housings as:

1. participatory processes in all aspects,
2. good quality neighborhood designs,
3. common areas,
4. resident management and decision-making,
5. no shared economy (Co-housing Association of the United States, 2010)

Findings from various literature and practical documents are adapted through a methodological framework to analyze the social and physical qualities of co-housing with relation to the concepts of social sustainability. In this sense, Table 3.2 highlights two main groupings which are ***"Physical Setting"*** and ***"Social Organization"***. These two categories are also divided into smaller subgroups. While subgroups of the physical aspects include ***architectural features, compositional elements, site design***, social qualities are subdivided into the concepts including ***communality, vivid social relationships, sharing*** and ***support.***

Table 3.2 Physical and Social Characteristics of Co-houses

	Factors	*Detailed Description*
Physical Context	*Site Design*	***Location*** determines the proximity to commercial and service facilities, dependency on vehicles and participation to surrounding local community (Meltzer, 2000). ***Clustering and compact arrangement*** of co-housing units limit vehicle access, maximize open spaces and provide more opportunities for common areas. Clustering of some units around a shared facility in larger developments also prevents the negative effects of overcrowding and encourage people to socialize in smaller communities (Meltzer, 2000). ***Proximity*** affects *"repeated passive contacts"* and communication between residents. However, physical closeness does not influence social contact alone since *"functional relationships"* between community members play importance role as well (Williams, 2005c).

	Architectural Features	***Smaller and compact housing* units** with denser organizations preserve more land as open space and provide more efficient land use. It also decreases individual energy consumption (Marckmann et al., 2012; Meltzer, 2000). ***Opportunities for surveillance*** increase participation to communal activities and social interaction. Architectural layout of co-housing enables residents to see and hear others then to decide whether they want to socialize with them (Williams, 2005c).
Physical Context *(Continued)*	*Compositional Elements*	***Communal spaces, which are in a good quality, suitable*** for use, flexible and visible, maximize potential for social interactions when they are placed on center or shared pathways (Williams, 2005c). Good quality ***common facilities*** reduce the need for private spaces (Marckmann et al., 2012). ***Less private space*** encourages spending time outside private units when it is supported by the provision of social spaces (Williams, 2005c). ***Semi-private spaces*** function as buffer zones to provide gentle transition from public to private spaces and help residents to overcome exposure to overcrowding in co-housing community (Meltzer, 2000).

Social Organization	*Sharing*	***Sharing*** builds social relationships but it is also dependent upon them. Having common facilities requires cooperation and commitment to operate and maintain them which in return enhances social interaction and cohesion (Meltzer, 2000). ***Sharing of resources and spaces*** are a defining characteristic of co-housing which enhances environmental practices (Meltzer, 2000).
	Support	In both ***practical and community support*** the essential ingredient is the social glue. Practical support can be seen in informal elderly and child care, whereas community support includes equal treatment to all members, promoting adoption of environmentally sustainable practices (Jarvis, 2015; Meltzer, 2000). Variety of ***sources of support*** is experienced in co-housing communities from more tangible to intangible as peer influence and circuits of learning (Jarvis, 2015). Empowering residents to pursue their environmental aspirations to the degrees that is in the limits of group's "mission statements" is an another example for intangible support (Meltzer, 2000).
	Vivid Social Relations	Frequent and diverse ***formal social activities*** increase social interaction (Williams, 2005c). ***Diversity in community members*** in terms of social class, education, affluence, religion and culture creates attractiveness among residents which leads to interaction with others. Children interaction leads to interaction among parents as well (Williams, 2005c).

Social Organization *(Continued)*	*Communality or Collective Living*	· Shared intentions or common vision functioning as the "glue" that binds and endows meaning to community relations which leads to feeling of belonging to a larger community. They also determine whether a particular co-housing community remains inclusive, autonomous, and/or innovative. · Core values of a community can be to live responsibly, to be in contact with others' lives and to reduce environmental footprints, etc. (Jarvis, 2015). · Shared experiences, history and traditional activities create community culture thus increase sense of belonging and communality. On this basis, visions and values have to be realized in collaboration with others (Jarvis, 2015).

3.1 Social Qualities of Co-housing Communities

Jarvis (2015) points out to the importance of ***"the social architecture or soft infrastructure"*** of co-housing which allows sharing and social interactions to be realized. She emphasizes that it is the social architecture of co-housing that differentiate it from any other forms of housing. The social architecture of co-housing is the composition of various factors such as motivations of the residents towards living collaboratively, formal and informal relationships of community members, mutual understanding and respect to others. It is also underpinned and/or reinforced by the ***"hard infrastructure"*** or the ***"material qualities of physical settings"***. Therefore, soft infrastructure together with hard infrastructure produce "a setting and system" which ***reinforces communality, sharing*** and ***social interaction*** (Jarvis, 2015). In this respect, understanding ***"the group processes, shared visions and interpersonal capabilities – the 'glue' binding collaborative community"*** is crucial to contemplate the material characteristics of co-housing designs (Meltzer, 2000). Therefore,

> "The more we understand the social mechanics of sharing in an intentional setting such as this (co-housing), the better informed we will be to overcome the wider challenges in urban planning and practice" (Jarvis, 2015).

From this point of view, deconstructing the social characteristics of co-housing communities will help us to understand social mechanisms which lead to the formation of socially sustainable housing models. On this basis, before examining the material characteristics of co-housing designs, it is important to understand the intricacies of the social processes behind the formation of co-housing communities.

3.1.1 Alternative Ways of Living Together

It is commonly accepted in the literature that co-housing represents an alternative way of living which gives importance to ***mutual co-existence***, ***reciprocity*** and ***social relations.*** In this respect, Jarvis (2015) indicates that co-housing differs from the

general "shared-space environments". Because spatial organizations of co-housing are deeply associated with the "lifestyle choices" of its residents which (1) ***challenge the dominant culture of materialism***. It is the intentions of community members which encourage them to live in co-housing. In this respect, co-housing and its related intentionally living together communities (2) ***represent a "post material transition"*** and (3) ***encourage changes in behaviors and practice*** (Jarvis, 2015). On this basis, a significant number of research, documents that everyday routines and practices of individuals in intentional communities create social structures which (4) ***foster environmentally responsible and socially sustainable behaviors*** (Jarvis, 2015; Williams, 2005a).

Furthermore, co-housing provides opportunities (5) ***to cope with loneliness and alienation,*** (6) ***to flourish and preserve local identities under the negative effects of globalization*** and (7) ***to establish values which are favorable in terms of sustainability*** (Jarvis, 2015; Tummers, 2016). The existing social structures of co-housing communities also (8) ***enhance social interactions*** which in turn (9) ***helps residents to know each other***, (10) ***builds trust between them***, (11) ***enables sharing and exchange***. Therefore, (12) ***socially connected and collaborative communities are maintained*** (Williams, 2005a).

In this respect, Jarvis (2015) specifically challenges the priority usually given to the material characteristics of home and neighborhood design in co-housing studies as she states that the social relations and sense of belonging are distinctive components of collaborative communities (Jarvis, 2015).

> "…the virtuous character does not thrive on individual acts of conformity to moral rules but rather draws inspiration from belonging to a larger community." (Jarvis, 2015)

She further proposes four interlocking and interrelated social characteristics of co-housing communities that distinguish them from other communities. These are intentions, interpersonal relationships, shared governance and collective work (Jarvis, 2015).

3.1.2 Living Socially Connected through Harmonious Social Relations with Community Members

Jarvis (2015) particularly notes that *"domains of life activity function within the setting and system of home and neighborhood"*. Since social activities between household members are realized in housing settings, physical characteristics of housing are important factors in reinforcing ***social relationships***. Furthermore, pre-determined physical features act as a means for flourishing ***social connection (or interaction)*** and ***mutual support*** (Jarvis, 2015). To this end, various studies try to analyze the relationships between physical settings of co-housing and social life of its residents (Jarvis, 2015; Torres-Antonini, 2001; Williams, 2005c).

Figure 3.1. Dinner at the common house of Trudeslund Community
(McCamant & Durrett, 1994)

On this basis, Torres-Antonini (2001) examines the intentionally designed aspects of co-houses (i.e. proximity to others, provision of common spaces, opportunities for visual connection, etc.). Based on her studies she asserts that physical settings of co-housing provide optimal conditions for ***social interaction***, ***sharing*** and ***support*** to

take place. It is the intentionally designed properties which encourage ***social connectivity*** and promote ***supportive communities*** (Torres-Antonini, 2001).

Figure 3.2. Design co-housing spaces should encourage a sense of community and allow for casual social interactions.
(McCamant & Durrett, 1994)

Moreover, Williams (2005c) tries to identify the key factors influencing social interaction between the members of co-housing communities. In this respect, she identifies that (1) ***proximity between dwelling units***, (2) ***creating high density and compact form of residential environments for mixed-use***, (3) ***enabling visibility to observe social activities*** and (4) ***buffer zones for the social activities*** are important design features for social interaction. Moreover, (5) ***shared pathways, communal spaces and less private space*** are also very important in terms of providing spaces for social interaction to take place (Williams, 2005c).

> "Social contacts are enhanced in a community when residents have opportunities for contact, live in close proximity to others and have appropriate space for interaction" (Williams, 2005c)

Besides emphasizing the importance of the design characteristics of co-houses, Williams (2005c) points out that (6) ***informal and formal social structures of co-housing communities*** and (7) ***personalities of its residents*** are also influential in establishing reciprocal relationships. While formal factors include organized social activities, resident management activities, decision-making processes, and previously agreed set of intentions and core values, informal social factors encompass social interactions between individual members of the co-housing community (i.e. children playing, socializing and chatting with neighbors, working

together). Furthermore, personal factors such as personality traits, values, norms, and people's background (family, social class, education, affluence, religion and culture, etc.) are all effective in determining their attitudes towards socializing (Williams, 2005c).

3.1.3 Mutually Supportive Communities

Williams (2005c) teases out the spatial characteristics of co-housing which are operational in encouraging ***social support*** between community members. In this respect, she proposes that physical qualities of co-housing are purposefully designed to increase the levels of social interaction and community relations. Accordingly, social contact design principles are adopted to provide ***"optimal conditions for social connectivity and support"*** (Williams, 2005c) The principles embraced also encourage formal and informal socialization within co-housing communities thus increase ***collaboration between residents*** which is more likely difficult in conventional housing. She further asserts that the design criteria shaping social relations, collaboration and connection are subjected to personal, formal and informal social factors. At the same time, personal and social factors reinforce design features which encourage more social interaction and connection in co-housing communities (Williams, 2005c).

Figure 3.3. Collaboration in every respect is supported through co-housing environments. (McCamant & Durrett, 1994)

Furthermore, ***sharing*** is considered as an important characteristic for co-housing communities for it reinforces social interaction which contributes to ***solidarity***, ***support***, ***reciprocity***, and ***connection*** (Ahrentzen, 1996; Jarvis, 2015). Jarvis (2015) describes co-housing as a living arrangement in which people live according to an ethos of sharing and caring. It provides intentional settings where social mechanisms of sharing can be realized. Co-housing's living spaces themselves are one of the primary elements where sharing is practiced. Consequently, in every open space and especially in common areas *"it is possible for neighbors to swap and share a whole variety of goods and knowledge and to establish the enduring social relations necessary to lubricate this process"* (Jarvis, 2015). Therefore, co-housing can be accepted as a ***combination of a shared form of domestic space*** and ***socially reinforcing communities*** since "it uses design and formal or informal social structures to encourage social interaction in physical settings" (Jarvis, 2015; Williams, 2005c).

Figure 3.4. Sun & Wind co-housing courtyard. Spontaneous gatherings can happen anytime during a day.
(McCamant & Durrett, 1994)

In this respect, Ahrentzen (1996) argues that the practice of sharing and physical settings are co-constitutive in the formation of co-housing communities and their associated environments (Ahrentzen, 1996). Following this she identifies three types of sharing which are crucial for mutual support to flourish (see also Jarvis, 2015). The first type of sharing "co-presence" is “a passive form of sharing” and signifies the notion of living together with others. Therefore, aiming to achieve this type of sharing is likely to decrease the feelings of isolation or loneliness, to develop a sense of security and to provide grounds for establishing community identity. The second type of sharing, “affiliation” (involvement in socially oriented interaction with other members) represents the opportunities to develop social networks, companionships, neighborly relations, and social support and to exchange knowledge. The level of social interaction between individuals is also highly influential in deciding the ways of sharing resources and spaces of co-housing communities. Instrumental sharing or as Jarvis (2015) proposes “endeavor” is the third type of sharing. It includes, first, sharing the amenities with other households to increase the accessibility to a variety of goods and services, and second, sharing the responsibility for mundane tasks, child or elderly care with other members to save time and effort (Ahrentzen, 1996; Jarvis, 2015).

3.2 A General Overview on Physical Characteristics of Co-housing Designs

Each co-housing community requires variety of spaces which correspond to their intentions whether it is living in a supportive community with strong social bonds or practicing alternative methods for environmental protection or completely for economic reasons. Although there is no definite method for answering the wide-ranging requirements, some common principles for creating physical settings of co-houses can be identified from different co-housing models (Fromm, 2000; McCamant & Durrett, 1994; ScottHanson & ScottHanson, 2005). On this basis, Jarvis describes "the look and feel" of co-housing environments as follows:

- 10–40 modest homes are clustered around a common house.

- The environment is largely car-free.
- The surplus of private amenities (such as guest and hobby spaces) are located outside of private dwellings or replaced completely with extensive common facilities and shared outdoor space (Jarvis, 2015).

To this end, the design approach of co-housing also embraces the "urban design principles" which aim to create livable neighborhoods with vibrant and socially connected communities. The urban design principles including ***creating higher density environments***, ***providing good visibility (surveillance)***, ***clustering of units***, ***placing car parking on the edges of shared and private spaces*** are tried to be implemented in many co-housing projects (Williams, 2005c).

In addition, McCamant & Durrett (1994) in their analysis of different site plans of co-housing developments identify ***pedestrian circulation*** as a fundamental element for organization of houses on the site. Pedestrian traffic can be provided either through a spine-like pedestrian street or by a "plazalike" central courtyard(s). They further emphasize the importance of ***transitional spaces*** between "private, common, and public realms".

To sum up, all the mentioned physical characteristics of co-housing aim for vivid social life through housing settings which are car-free, child-friendly and high quality. Drawing upon this, the main architectural components of co-houses (common house, private dwellings and outdoor spaces) will be briefly described in the following sections.

Figure 3.5. Schematic site design for Muir Commons Co-housing:
1.common house, 2.terrace, 3.tot lot, 4.garden, 5.gathering nodes, 6.wood and auto shop, 7.orchard.
(McCamant & Durrett, 1994)

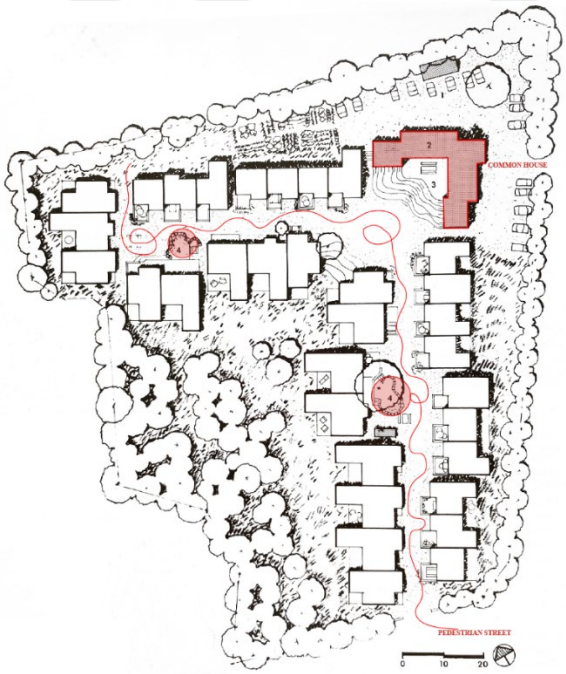

Figure 3.6. The Trudeslund Co-housing Site Plan
(McCamant & Durrett, 1994)

3.2.1 Community Spaces

Co-housing differs from other types of housing since *"it is built with communality in mind"* (Jarvis, 2015; Williams, 2005b, 2005c). In this sense, a well-designed, centrally located communal space (or common house) is the key feature of any co-housing model. Because the design of this shared space has a significant impact on community relations and sustaining them. In this respect, the accessibility of the common house is an important factor affecting its use and location on the site. Since the common house is meant to be used by all community members, (1) ***it should be visible and*** (2) ***easy to access***.

In this sense, (3) ***it should also be located at the center or on the shared pathways*** if it is possible (Fromm, 2000; McCamant & Durrett, 1994; ScottHanson & ScottHanson, 2005). Moreover, Marcus (2000) mentions ***the scattered organization of common spaces***—common kitchen or dining room, in which 5-6 units are clustered around the common house, provides more opportunities for social connection. Since these spaces serve smaller groups of people, residents are more willing to interact with each other in these spaces thus opportunities to form cohesive communities are increased (Marcus, 2000).

Moreover, ScottHanson & ScottHanson (2005) indicate that the common house is an important point of focus for the social relations, therefore, its size, number of stories and architectural features should correspond to the requirements and intentions of co-housing residents. In this respect, a well-functioning common house (4) ***should provide spaces for diverse functions and activities.*** Because it is the ***hearth of social activity*** which keeps a co-housing community alive (ScottHanson & ScottHanson, 2005). Consequently, they summarize the most popular functions of the common spaces as;

- A dining area and gathering space: which is open for the use of most of the community members, their guests and, in some cases, for the wider public,

- A common kitchen: which contains all the necessary utilities and is capable of hosting more than one cook at the same time,
- A children's play area: which has visual contact with other common spaces but is acoustically isolated from them,
- A mail box area: which also acts as community information center where members can get information with bulletin boards.

DANISH COHOUSING AND COMMON FACILITIES[1]

	COMMUNITY	YEAR BUILT	# OF UNITS	TENURE[2]	SIZE OF COMMON HOUSE (s.f.)	COMMON AREA PER UNIT (s.f.)	MEALS/WEEK[3]	LIVING ROOM	LAUNDRY	CHILDREN'S RM(S)	CHILD CARE[4]	TEEN/MUSIC RM(S)	WORKSHOP(S)[5]	STORE OR FOOD CLUB	GUEST/RENTAL ROOM	SITE PLAN (E)=Existing CH=Common House
1	Sættedammen	1972	27	Private (P)	3,010	112	6d	X	X	X	X		2	X		2 Courtyards
2	Skråplanet	1973	33	P	3,770	114	5d	X		X	X		1			Semi-detached terraced houses
3	Nonbo Hede	1974-76	15	P	3,530	235	3	X	X	X			2		4	2 Clusters
4	Gyldenmuld	1976	12	P	3,900	325	5	X	X			X	1		2	Cluster
5	Gyndbjerg	"	14	P	2,150	154	4			X		X	1			Street/CH in (E) farm house
6	Drejerbanken	1978	20	P & Rental	5,110	226	7	X	X	X			2			2 Courtyards
7	Tinggården	"	79	Rental	9,680	122	0-2	X	X	X			4		16	6 clusters w/separate CH's
8	Tørnevangsgård	"	6	P	2,040	340	2	X	X			X	1		1	Courtyard /CH in (E) bldg.
9	Jerngården	"	8	P	2,010	251	7	X	X	X			2			Renovated rowhouses
10	Æblevangen	1979	36	P	6,460	179	6	X	X	X		X	3			4 courtyards
11	Mejdal I	"	12	P	2,150	179	3	X	X	X			1			Clustered detached single family houses
12	Stavnsbåndet	"	26	P	5,170	199	4+	X	X	X	X	X	1		1	2 courtyards
13	Bakken	1980	25	P	5,800	232	5	X	X	X	X	X	2		3	Street / 3 rentals in (E) bldg.
14	Bofælleden	"	8	Private Coop.	?	?	7	X	X	X			1			Reused school bldg.
15	Faldengrund	"	12	P	3,860	322	5	X	X	X			2	X	3	Detached single family houses
16	Frugthaven	"	12	P	2,480	207	4	X	X	X	X		1		1	4 clusters
17	Gug	"	22	P	4,520	205	7	X	X	X	X		2		6	Rowhouses
18	Overdrevet	"	25	P	6,840	274	7	X	X	X	X	X	2	X	1	2 courtyards
19	Sol & Vind	"	27	P	5,920	219	7	X	X	X			2	X	2	Streets & courts/50% detached houses
20	Vildrosen	"	12	P	4,306	359	5	X	X	X		X	3	X	1	3 courtyards /detached houses
21	Jernstøberiet	1981	21	P	3,230	154	5	X	X	X		X	1			Reuse of factory bldg. /interior court
22	Kolbøtten	"	6	P	1,185	197	1	X	X		X		1			Units & CH attached
23	Trudeslund	"	33	P	8,610	261	7	X	X	X	X	X	2	X	1	Street
24	Bondebjerget	1982-83	80	Rental	15,500	194	3-7	X	X	X			8	X		4 clusters w/separate CH's
25	Drivhuset	1983	18	Cooperative	2,530	140	5	X	X			X	2	X	4	Glass covered street
26	Grømosegård	"	7	P	3,230	461	4	X	X	X			1		1	Rowhouses w/ CH in (E) farm house
27	Ibsgården	"	21	Cooperative	3,730	178	7	X	X	X			1	X		Courtyard w/ CH in (E) farm house
28	Nørgårds Plantage	"	24	Cooperative	1,185	49	2	X	X				1			Streets w/carport next to each home
29	Uldalen	"	18	Cooperative	2,700	150	5	X	X				1		3	Rowhouses
30	Vejgård Bymidte	"	40	P	1,350	34	5	X	X							Reuse of factory bldgs. + new rowhouses
31	Åbakken	1984	15	Cooperative	4,430	295	3	X	X	X		X	1		5	Courtyard
32	Andedammen	"	18	Cooperative	3,000	167	7	X	X	X	X		1	X		Rowhouses w/ CH in (E) bldg.
33	Askebakken	"	17	Cooperative	2,820	166	5	X	X	X			2		2	Rowhouses
34	Savværket	"	21	Cooperative	4,310	205	7	X	X	X	X	X	3	X	4	Glass covered street
35	Blåhøjen	1985	25	Cooperative	5,920	237	7	X	X	X			1	X	1	3 Courtyards
36	Håndværkerparken	"	32	Rental	5,670	177	5	X	X	X		X	2		2	Glass covered street
37	Mejdal II	"	14	P	1,600	114	?	X	X				1			Clustered detached single family houses
38	Thorshammar I	1986	20	Cooperative	3,230	162	7	X	X	X			3		4	Courtyard w/glass covered walkway

X Includes at least one such facility.
1 Subset of total of 46 cohousing communities studied by the authors in 1984/85. All have common kitchens and dining rooms, and many have additional facilities not shown here. Covered street space and out buildings are not included in size.
2 Private refers to forms of ownership similar to condominums. Cooperatives use government-sponsored financing which limits members' equity. Rentals are owned by private, non-profit housing developers.
3 "d" represents weekly dinner clubs in which residents typically participate once or twice a week, although dinners are available five to six times a week.
4 Child care is readily available in Denmark and therefore not a high priority in cohousing. Danish communities often organize programs when they have a group of similar age kids and switch to other facilities when there is less need. Both past and current programs have been included.
5 Includes wood working, bicycle repair, auto repair, photographic dark rooms, sewing, and craft work spaces.

Figure 3.7. Some Danish co-housing communities and common facilities (McCamant & Durrett, 1994)

It is also possible to add more functions within the common house or as an extra facility. In this respect, function and use of common spaces may vary according to preferences. For example; a loung area, guest rooms, laundry rooms, storage areas,workshops, music or TV room, rooms for the young, office area and gym can

be implemented withing the physical arrangements of co-houses. However, the intentions of creating ***common spaces should be community-oriented*** (ScottHanson & ScottHanson, 2005).

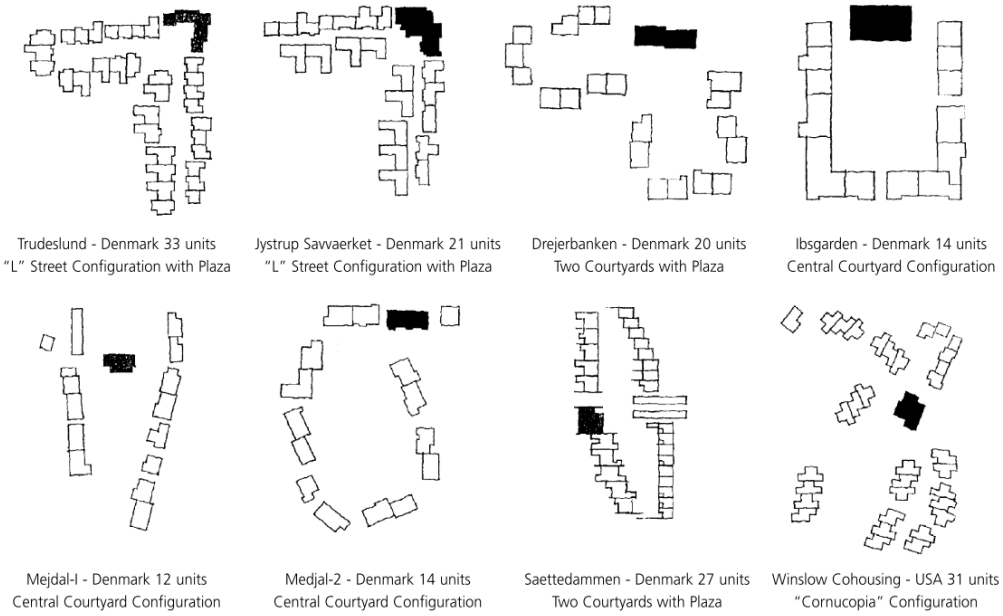

Figure 3.8. Various locations of the common house in different co-housing site plans. (ScottHanson & ScottHanson, 2005)

3.2.2 Private Units

Private units of co-houses contain mainly similar living spaces with any ordinary dwelling. However, studies on co-housing indicate that ***the size of the individual dwellings are lower*** than in other types of conventional houses. In many co-housing examples, private units *"take up less space in total per resident than other housing"* (Marckmann et al., 2012) (See also Meltzer, 2005). This is due to the fact that generally unused spaces, such as laundry rooms, guest rooms, hobby spaces and workshops are located outside of individual dwellings and open for community use. Placing all the relatively unused spaces at the common areas allows for more open space thereof (Marckmann et al., 2012) (See also Meltzer, 2005).

Figure 3.9. Housing spaces can be decreased.
(McCamant & Durrett, 1994)

Furthermore, the smaller houses can be grouped together in more ***compact arrangements*** to decrease the floor space area of housing units while providing more space for shared and outdoor spaces (Marckmann et al., 2012). It is also pointed out that compact organizations provide physical proximity between dwelling units which in turn is a positive aspect for neighborly relations (Williams, 2005c) (See also Chapter 3.3.2).

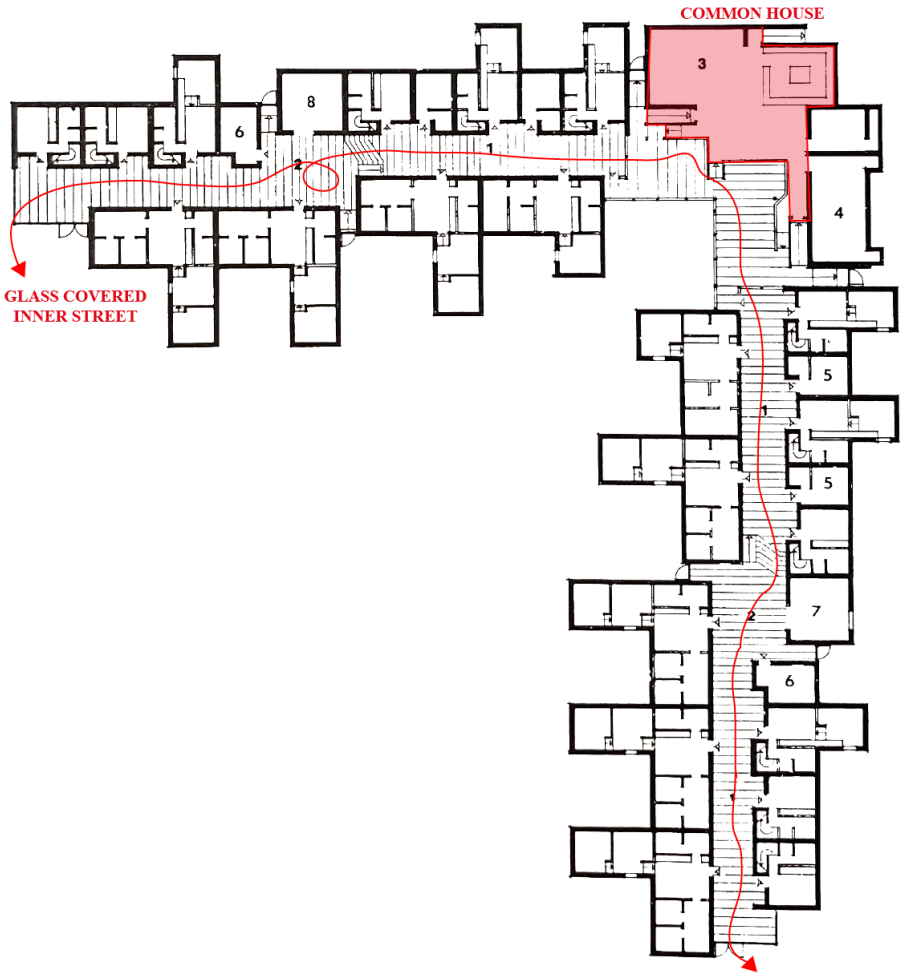

Figure 3.10. First floor plan of Jystrup Savvaerket Community.
(McCamant & Durrett, 1994)

In addition, co-housing literature argues that less private space is favorable since it encourages people to spend more time outside their dwellings and to interact with each other (Fromm, 2000; Marcus, 2000; Marcus & Dovey, 1991; McCamant & Durrett, 1994). However, Williams (2005c) emphasized that "without suitable spaces for interaction there will be no increase in socializing within the immediate community" (Williams, 2005c). Based upon this, ***the provision of in-between areas*** which "provide a gentle transition between public and private space" are crucial for social interaction (Abu-Ghazzeh, 1999).

Semi-private areas between shared and private spaces act as buffer zones, thus provide adequate levels of privacy for co-housing residents. This is due to the fact

that although increased social interaction between neighbors is desired, one of the main considerations of co-housing is to *"combine the autonomy of private dwellings with the advantages of community living"* (Williams, 2005c). In this respect, placing small gardens with front doors opening to it, facing kitchen or service windows towards shared pathways, providing transitional spaces between public and private areas are important features in the design of the private dwellings.

3.2.3 Positive Outdoor Space

> "In co-housing, the treatment of spaces between the buildings contributes as much as the buildings themselves to the quality of life." (McCamant & Durrett, 1994, p. 175).

McCamant & Durrett (1994) observe that the areas between private units of co-housing can be used for various activities such as sitting, walking, socializing, playing and gardening. On this basis, outdoor spaces in co-housing vary from vast open lands for agriculture to small courtyards or from pedestrian streets to playgrounds and sport fields. These spaces can be formed in many ways depending on the organizations of dwellings on the site. However, clustering of houses is accepted as the most suitable way for creating usable open spaces (McCamant & Durrett, 1994).

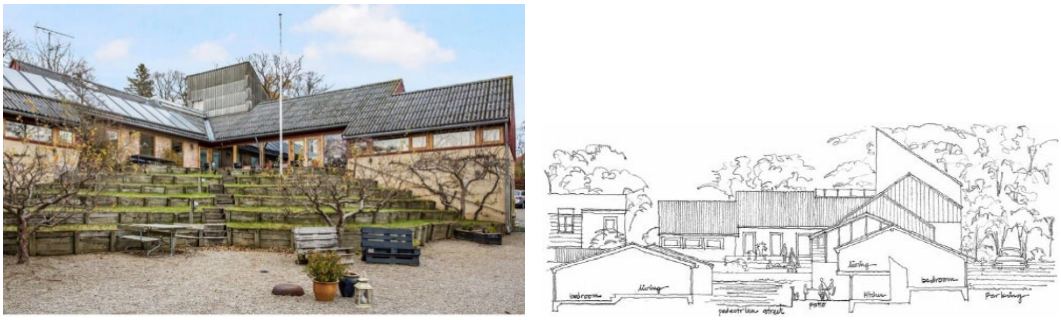

Figure 3.11. The Trudeslund Co-housing Section
(McCamant & Durrett, 1994)

As a general aspect of co-housing designs, car parking is located at the peripheries of the site to provide safe outdoors for children to play and residents to relax. Since

providing children-friendly housing environments is one of the main objectives of co-housing, outdoor spaces should be in adequate numbers and good quality. Moreover, they should "accommodate different types of play". They should also be centrally located to provide sight for parents to watch their children while they are playing (McCamant & Durrett, 1994).

3.3 Intentionally Designed Architectural and Social Qualities of Co-housing to Encourage Collective Living, Positive Social Relations, Social Connection and Sharing

> "People do not generally think about the impact of design on community life, but the social consequences of co-housing design are of particular importance." (McCamant & Durrett, 1994, p. 174)

As it is mentioned in previous chapters, intentionally formed and maintained social organizations of co-housing communities are one of the most important factors which make co-housing an innovative form of living. However, the design of the physical environment is also influential in supporting interaction between community members thus providing livable housing environments (McCamant & Durrett, 1994). Therefore, the adopted design principles of co-housing can also be used as important guidelines for developing socially sustainable housing models. In this respect, the previously mentioned concepts of social sustainability can be discussed within the context of co-housing.

Literature indicates that the physical settings of co-housing support socially sustainable behaviors between residents (Abu-Ghazzeh, 1999; Fromm, 2000; McCamant & Durrett, 1994; ScottHanson & ScottHanson, 2005; Williams, 2005b, 2005a, 2005c). On this basis the socially sustainable behaviors including living collectively, having positive social relations and connection with other community members and sharing will be discussed in the context of co-housing. Therefore, the following chapters present the characteristics of physical settings of co-housing regarding to the social dynamics and behaviors involved.

3.3.1 Communal Spaces for Knitting People Together

The members of co-housing communities have intentions of ***"being involved in other people's lives"*** and ***living in collaboration with other members*** to reach their shared notions. Achieving goals and aspirations as a cohesive community is not always possible unless there are communal spaces to gather. To this end, shared or communal space of co-housing has a vital role as ***a glue that binds and endows meaning to the community relations.*** Because communal activities, rituals and group socializing are mostly performed collectively in the shared spaces (Jarvis, 2015).

In this respect, Torres-Antonini (2001), in her detailed analysis on the adopted social contact design features which are effective in social behaviors of co-housing residents, identifies the common house as a key component for co-housing designs. Since the common house has influence on social interactions, participation to social activities, establishing community support between members, promoting sense of unity and safety, its location in site plan, size and functional properties are all effective in facilitating or inhibiting these social behaviors (Torres-Antonini, 2001).

In terms of the common house's location on the site plan, individual houses are generally clustered around the common house so that each member can observe what kind of social activity is happening and can easily access there to socialize with other members. Therefore, ***visibility (or opportunities for surveillance)*** and ***accessibility of the common house*** encourage participation in various social activities thus enhance social connection (Jarvis, 2011).

3.3.2 Being in Close Proximity to Others: Clustering of Private Units

In co-housing each private housing unit is grouped together in different ways to form livable spaces—houses can be located (1) on the edges of main circulation street, (2) around the one or more courtyards, (3) in the combination of both streets and courtyards, (4) within one building (Figure 3.4.). Which housing organization is

applied depends upon preferences of co-housing communities. However, clustered housing is preferred when attempting to create a vivid social environment (McCamant & Durrett, 1994).

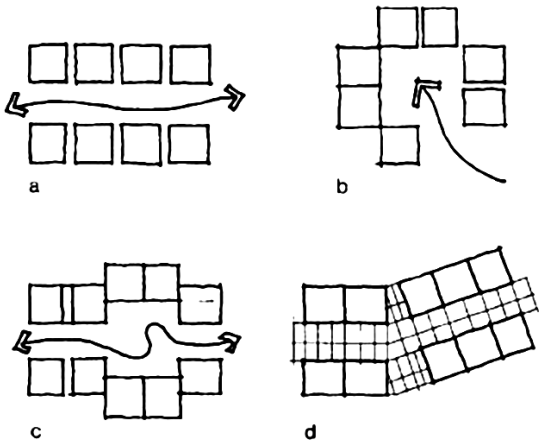

Figure 3.12. Different types of site plans. a. pedestrian street, b. courtyard, c.&d. combination of street and courtyard
(McCamant & Durrett, 1994)

Grouping or stacking individual houses together have both social and environmental benefits (McCamant & Durrett, 1994; ScottHanson & ScottHanson, 2005). Living in close proximity to other community members encourages neighborly relations. Because people often tend to interact with their neighbors who live nearby. And these community relations support residents to tolerate higher densities in return (McCamant & Durrett, 1994; ScottHanson & ScottHanson, 2005; Williams, 2005c). Clustering also saves land and resources since length of paths is decreased and more open areas are provided in the site. The environmental benefits, on the other hand, include energy conservation, reduced infrastructure costs, use of less building materials and increased green areas (ScottHanson & ScottHanson, 2005).

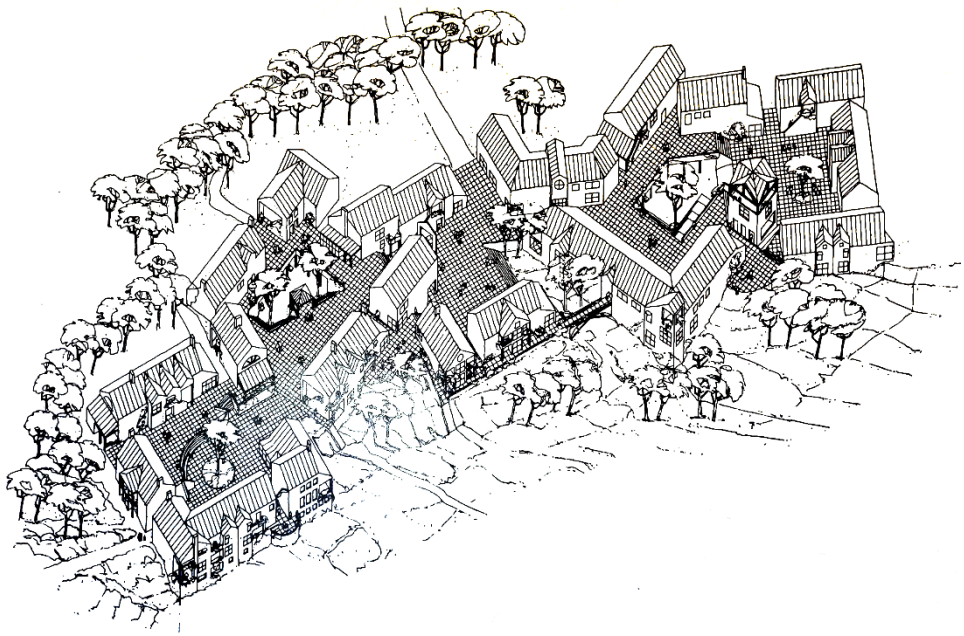

Figure 3.13. Sketch of a clustered housing for seniors.
(McCamant & Durrett, 1994)

3.3.3 Transitions within Outdoor Spaces Providing Social Connection

The provision of ***semi-private transition areas*** is as important as providing open spaces for co-housing residents. In this respect, designing pedestrian movement according to the hierarchy of spaces "helps support community life and relationships among people" (McCamant & Durrett, 1994). Because the transitional areas act as buffer zones where people can choose whether or not to participate to any social event happening in shared areas or the common house (Marcus, 2000). In this respect, they are crucial in maintaining "spontaneous social atmosphere and community life that residents value" (McCamant & Durrett, 1994).

Placing these transitional areas between shared and private spaces increase the opportunities for residents to observe the common areas and to see the activities they may want to participate. For example, including small gardens or comfortable sitting places around private units provides maintaining ***visual connection*** of a community member with others while he/she performs his daily tasks. Accordingly, he/she can

decide to socialize or meet with other members (McCamant & Durrett, 1994). Furthermore, McCamant & Durrett (1994) refer to the term ***"casual surveillance"*** as an effective way of building security. Since neighbors have appropriate spaces for watching outside, they also notice suspicious strangers.

Moreover, McCamant & Durrett (1994) point out that the shared outdoor spaces themselves should contain various kinds of activity pockets where relatively smaller groups of people can gather and socialize. These activity pockets may vary from small porches, pavilions, benches, tables to low walls and steps. People can meet with their immediate neighbors in these areas if they do not prefer to join bigger social activities happening inside the common areas. Although some residents concern that such local gathering places may promote closed small groups within co-housing communities, they are also beneficial for an active community life.

CHAPTER 4

LEARNING FROM THE "TURKISH HOUSE": A TYPOLOGICAL REFERENCE FOR SOCIALLY SUSTAINABLE CO-HOUSING MODELS

This chapter uses Sedad Hakkı Eldem's typological analysis as a case study to further question can traditional Turkish houses be accepted as traditional counterparts of co-housing in terms of social and spatial aspects. In this sense, first, traditional Turkish extended family structure is briefly described and its common properties with co-housing's intentional communities is discussed. Later, fundamental living spaces and physical characteristics of the Turkish House are mentioned. Since the Turkish House forms and spatial arrangements are formed to provide appropriate living conditions for multiple families, parallels can be drawn with common, semi-private and private spaces of co-housing. Lastly, all the previously mentioned social and physical characteristics of the Turkish House and co-housing are referred to analyze their role in promoting the concepts of social sustainability such as;

1. ***Collective living*** or ***Communality***
2. ***Positive social relations*** and ***Increased social interaction***
3. ***Social connection*** and ***Cohesion***
4. ***Sharing*** and ***Support.***

On this basis, sofa and room correlation will be emphasized since the relationship between these two fundamental living spaces is accepted as an important element in determining planimetric arrangements of the houses and social organizations of the families (Eldem, 1968, 1984; Küçükerman, 1996). In fact, according to Asatekin (2005) the relationship between the sofa and room is not always enough for evaluating social and physical aspects of the Turkish House. The dwelling unit should be considered as a whole with all its floor levels, living and service spaces. Besides interrelations between these spaces, their place in the social structure of a family should also be analyzed (Asatekin, 2005).

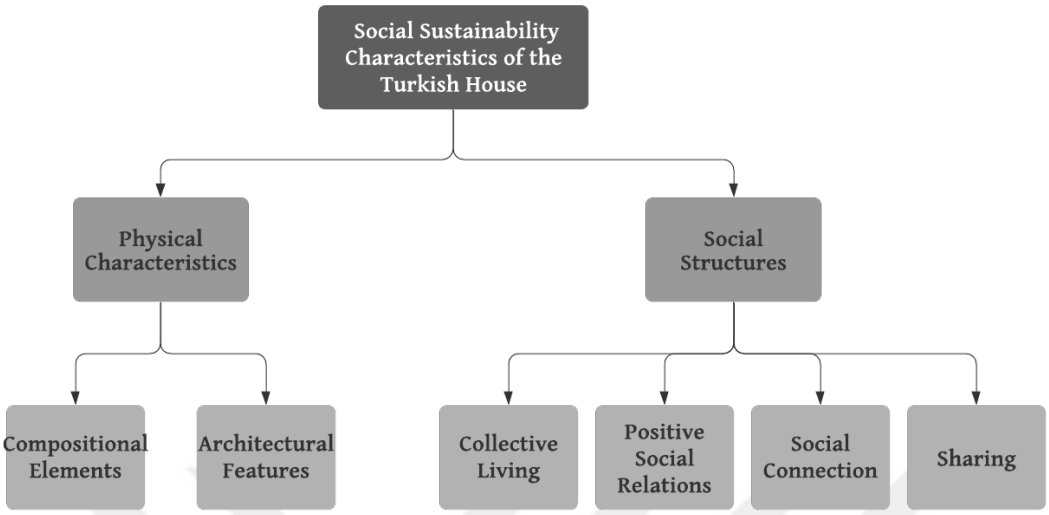

Figure 4.1. Social sustainability characteristics of the Turkish House.
Drawn by the author.

4.1 Uncovering Correlations Between Social Structures of Traditional Turkish Extended Families and Co-housing's Intentional Communities

Social life of the residents and house forms are closely intertwined especially in pre-industrial societies and to some extent in current rural settlements (Kuban, 2013). The definition of "rural settlement" refers to "a community in which the division of labor has not been developed, having agriculture-based economy, extended family structure, face-to-face neighborhood relations". In this sense, it is accepted that all these features of a rural community are represented socially by traditional Turkish families and physically by Turkish houses (Asatekin, 2005; Bozkurt & Altınçekiç, 2013; Ercoşkun, 2016; Günay, 2004; Karahan, 2017; Kuban, 2013; Küçükerman, 1996).

On this basis, a reading through house typologies can inform us about social structures of traditional Turkish families that are effective in the formation of Turkish houses. Because houses are built to meet the requirements of Turkish families and to provide functional spaces for intended uses (Bektaş, 1996; Kuban, 2013). From this

point of view, Kuban (2013) argues that the reason behind why traditional house forms have not changed for a long time is that the daily life of Turkish families and the ways they use domestic spaces have remained mostly same especially in rural areas (Kuban, 2013). In view of these, the main features of traditional Turkish families which are living in Turkish houses will be examined.

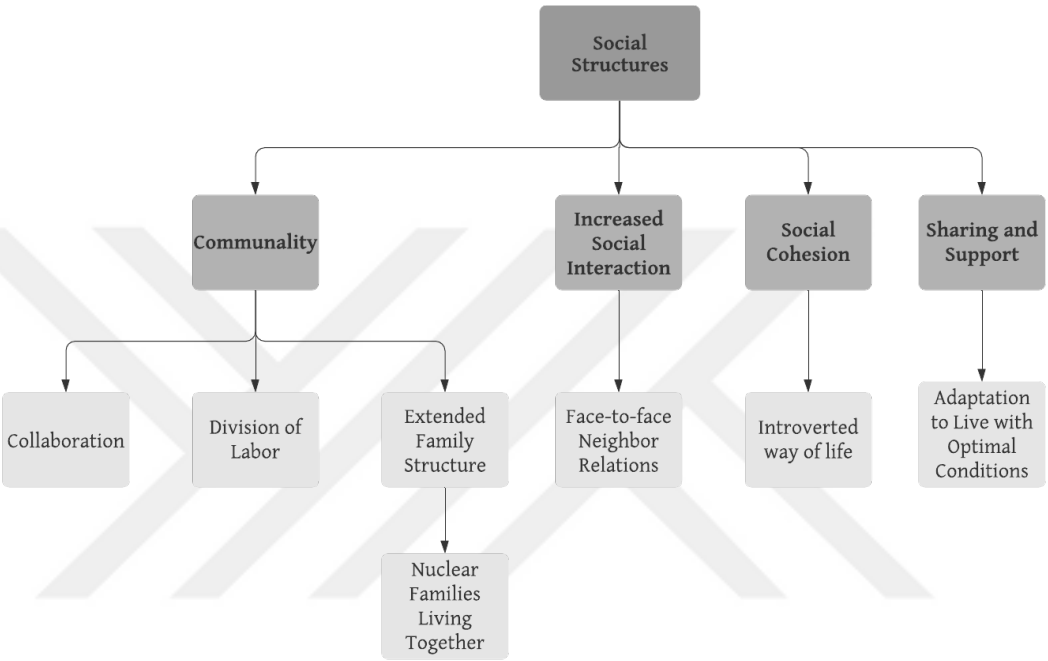

Figure 4.2. Social structures of Turkish families
Drawn by the author.

4.1.1 Extended Family Structure— Traditional Ways of Collective Living

Traditional Turkish families are composed of ***several families living together.*** Sons of the family continue to stay in the house after they get married in order to help daily chores and occupational activities. In some cases, close relatives or old members can also join the family and live in the same dwelling unit (Günay, 2004; Kuban, 2013; Küçükerman, 1996; Küçükerman & Güner, 1995). Social and cultural norms also necessitate the co-existence of multiple families. According to the cultural codes, girls are sent to other houses when they get married whereas boys of the family stay and start their families under the same roof (Günay, 1998;

Küçükerman, 1996). Since several families are living together, the form and spatial configurations of the Turkish House are developed to provide appropriate spaces for each family. Therefore, the ***extended family structure*** is one of the major denominators in shaping the Turkish House forms (Asatekin, 2005; Günay, 1998, 2004; Kuban, 2013; Küçükerman, 1996).

Figure 4.3. Elderly members living together with their children and grandsons (Günay, 1998)

The ***concept of privacy*** and the ***hierarchical organization*** between family members are other factors which are influential in both the social life of a family and its related spatial organizations. These concepts are more related to the position of women in the society and family in traditional Turkish settings (Bektaş, 1996; Günay, 1998; Kuban, 2013; Küçükerman, 1996).

> "The individual members of the family were graded according to their importance by the man of the house and his wife. Being the most important member of the household, the man had the best-appointed room. The room known as "baş oda" (chief room) or "selamlık" (reception room) took a form which reflected the relationship between master, guest and servant. Its main function was to provide a place for male gatherings." (Küçükerman, 1996, p. 49)

On this basis, houses are divided into two parts, with spaces which are open to the male members and their guests and with spaces which are closed to the outside world and mostly used by women. If the separation of the house as “haremlik” and “selamlık” cannot be achieved due to economic and social conditions, particular rooms (the room of the head of a family “baş oda”) used for such meetings. Apart from these reception rooms, other interior spaces belong to women who organize them according to their needs (Bektaş, 1996; Günay, 1998, 2004; Kuban, 2013; Küçükerman, 1996; Küçükerman & Güner, 1995).

Furthermore, Günay (2004), in his study on Turkish houses in the Safranbolu region, points out that one general characteristic of the Turkish extended families, which also affects the house forms, is how they ***adapt to living with optimal*** conditions. Each member of traditional Turkish families uses the nature and its resources effectively due to economic factors, environmental constraints, and social conditions. Common use of resources and spaces also provide efficient sharing of resources thus act as a catalyzer for environmentally sustainable behaviors in the context of both traditional Turkish houses and urban environments (Ercoşkun, 2016).

Considering all these factors, it can be argued that social organizations of traditional extended families living in the Turkish House and intentional communities of co-housing correspond to each other in some respects. The first and most obvious correlation is the co-living of multiple families in the same housing unit. However, the ways how the co-living are practiced differentiate. In the case of Turkish families, cultural factors and social and economic co-dependency of family members to each other are influential in the formation of traditional Turkish extended families. Since the division of labor is required for daily tasks and the maintenance of house, collective living is, in a sense mandatory in Turkish houses. On the other hand, in the context of co-housing, communities are formed intentionally by prospective residents. It is the shared goals and intentions which enable community members to live in close proximity and in connection with other members.

Secondly, the concept of privacy and how it is interpreted in housing communities are similar in both housing cases unless the term privacy refers to the women's exclusion from the society. Therefore, if the concept of privacy is interpreted as the isolation of an individual—or family as it is for this case—from public—or other families and strangers—correlations between the Turkish House and co-housing can be examined, in this respect. On this basis, the Turkish House with its form and spatial configurations provides opportunities for an introverted way of life for an extended family. The privacy of smaller families living in the same house is also provided through rooms. In the context of co-housing, communality and co-living of multiple households are also desired goals. However, members of co-housing communities maintain their individuality within their private housing units which are similar to the rooms of the Turkish House.

Adaptation to living with optimal conditions of Turkish families can be related to intentions of the co-housing communities towards living environmentally responsible. In both housing examples environmental behaviors have impacts on the form of houses. In co-housing adoption of pro-environmental behaviors are more significant since some of co-housing communities are particularly formed for this reason. Therefore, co-houses are designed for zero-waste, efficient use of environmental resources and reducing energy consumption. On the other hand, the Turkish House respects the nature inherently. Houses are situated on the land considering typological characteristics, sun and wind direction, and closeness to natural materials.

4.1.2 Social Interactions of Extended Families

Research on the Turkish House indicates that ***introverted way of living*** of traditional Turkish families is the dominant factor which shapes house forms and determines use of spaces (Asatekin, 2005; Bektaş, 1996; Eldem, 1968, 1984; Günay, 2004; Kuban, 2013; Küçükerman, 1996). Accordingly, the ground floor of the Turkish House is constructed as a fortress which protects private life of traditional Turkish families from the street life. In this respect, in many examples, houses do not contain wide openings on the ground floor and windows are placed mostly on the walls of service spaces where ventilation is necessary. On the contrary, upper floors of the Turkish House are open to the street as much as possible. They are designed to provide visual connection of family members with the street life. While family members can see what is happening on the street, anyone passing below cannot observe the inside of the house thus the privacy of the family is provided (Eldem, 1968, 1984; Günay, 2004; Küçükerman, 1996).

Figure 4.4. Each house is isolated from the outside street.
(Küçükerman & Güner, 1995; Sözen, 2001)

The introverted organization of the Turkish House also leads to the exclusion of women from the social life (Günay, 1998). Due to cultural factors, social norms and Islamic tradition, women are confined within the boundaries of the house and can only connect with the outside world visually. On this basis, the ***visual connection*** is provided on the upper floors by the windows behind wooden shutters which are used to block the view from the outside (Bektaş, 1996; Eldem, 1968, 1984; Günay, 2004; Kuban, 2013; Küçükerman, 1996). Therefore, the visual connection occurs only in one way which does not mediate social interaction between the women of the house and someone outside the house unless they are close relatives and/or women neighbors. However, even in this introverted lifestyle good relationships with neighbors are seen important.

In this respect, Bektaş (1996) indicates that traditional Turkish houses are built simple with lack of ornament and architectural elements. Because social and cultural codes among the society condemn excessive behaviors such as making a display. This is important because it leads to less segregation between community members and creates more ***socially cohesive neighborhoods*** where each member can easily interact with each other (Bektaş, 1996). However, social and cultural rules are also influential in relationships between neighbors. The women of a house cannot interact directly with the men of other houses. Therefore, men and women can only socialize separately from each other in the different parts of the house.

Figure 4.5. Women socializing with each other
(Küçükerman, 1996)

On the other hand, based upon the plan schema of Turkish houses it can be argued that ***social interactions*** of family members within the house are highly encouraged through house forms and spatial configurations. Apart from the rooms—private spaces of families—and service areas—kitchen, lavatories, storage, spaces for animals—other spaces of the house can be used for short social encounters or family gatherings and events. In this respect, the sofa stands out as a place where most of the social interactions take place due to its physical characteristics and location in the plan layout. It is an appropriate and easily accessible space for social activities (Eldem, 1968, 1984) (See Chapter 4.2.1 for more detail). Furthermore, Bozkurt and Altınçekiç (2013) present courtyard as the second integrative space after the sofa where interaction between family members occur. Simultaneous involvement of household members in various activities at the courtyard provide ***social contact*** (Bozkurt & Altınçekiç, 2013).

In the light of these, it can be concluded that introverted family life of Turkish families is in a sense different from what is tried to be achieved in co-housing. Because Turkish families are deliberately isolated from the outside so as to maintain family privacy. Although social connection is provided visually to some extent through windows on the upper floors, direct social encounters can only happen once other people are invited inside houses. Even in that case, women family members cannot directly interact with men visitors. This is in a sense different from what is tried to be achieved in co-housing. Because members of co-housing communities have intentions to live together, and they want their neighbors to be within easy reach of them. As it is discussed in previous chapters, co-housing members choose to live collectively for various reasons, but mostly the main goal is to be in connection with others. Although in some co-housing cases mutual living of various families in a shared physical environment can result in exclusive communities, it is essentially aimed for establishing strong social bonds with wider community as well (Torres-Antonini, 2001).

On the other hand, introverted way of living is not maintained within the boundaries of the Turkish House. Because interior spaces of Turkish houses enable numerous social interactions between the members of an extended Turkish family to take place. Besides family members (especially women of the house) can freely meet, sit, eat with other family members. When considered from this point of view similarities can be derived between social organizations of traditional Turkish families and co-housing communities in terms of reinforcing social interactions between housing residents.

4.1.3 Collaboration in All Aspects of Domestic Life and Work

Günay (2004) indicates that Turkish extended families are just like small businesses. Since each family produces their own food in their agricultural lands or green spaces within the courtyards of the houses more families are needed for the division of labor. Daily chores such as cleaning of the big houses, cultivating the lands, feeding the

animals, cooking for the family, doing laundry, elderly and child care all require manpower (Günay, 2004). ***Collaboration***, in this sense, is a very important social factor in affecting house forms (Günay, 2004; Kuban, 2013; Küçükerman, 1996).

Figure 4.6. Preparations for the winter are done in-collaboration with other members. (Küçükerman & Güner, 1995)

In this respect, internal spaces of Turkish houses are shaped according to provide ***functional spaces*** for collective work (Günay, 2004). Among others living spaces, sofa (an inner hall) stands out as a space which provides flexibility for daily work, recreation, and relaxation. It is the major activity center for Turkish households. All the private spaces (rooms) and service spaces (lavatories, cellars or stairs) are connected with the sofa which make it accessible for daily activities (Asatekin, 2005; Bektaş, 1996; Eldem, 1968, 1984; Günay, 2004; Kuban, 2013; Küçükerman, 1996).

Figure 4.7. Women are weaving carpets collectively.
(Küçükerman & Güner, 1995)

Traditional Turkish extended family structure provides the care need to the elderly, children and disabled members and gives economic ***support*** to widow or unmarried female members (Günay, 2004, p. 23). Although the rooms are isolated to provide privacy for a couple living in the house, due to their close proximity to the sofa, any family member can easily reach other rooms to ask for help. Knowing that it is easy to reach for help provides a feeling of security to other family members. In this respect, besides being a passageway, the sofa is also a place where family members maintain their connection with each other and ask for support when it is needed.

Co-housing has initially appeared as an experimental form of housing to address the needs of people living in contemporary societies and feeling the negative effects of dramatic demographic and economic changes. Supported by ideas of women's movement, pioneers of co-housing have started to experiment new housing forms which aims for liberalizing women from their household burdens. In this respect, people, who choose to live in a co-housing community, are aware of they will live in a housing environment which fit their contemporary lifestyles. This does not mean the residents are completely abandoning their current living patterns and living as a

commune. On the contrary, they have opportunities to be isolated from community and being a part of it at the same time.

> "In Denmark, people… tired of the isolation and impracticalities of single-family houses and apartment units, they have built housing that combines the autonomy of private dwellings with the advantages of community living." (McCamant & Durrett, 1994)

One of the distinctive characteristics of co-housing communities which differs them from shared households, communes, cooperative movement and others is how co-housing community members organize and manage their common facilities and their housing environments. ***Cooperation*** in every respect is desired and supported through house forms and physical settings. Daily chores including laundry, meals, child and elderly care are performed in cooperation with community members. Such a cooperative social environment also encourages people to achieve common ideals and goals. For example, environmentally sustainable behaviors are more easily adopted in co-housing, according to some scholars. Since co-housing physical arrangements provide ***functional, shared*** spaces where community activities can be performed by the members of co-housing who are willing to work with others. For example, the kitchen located inside the common house is used for preparing common meals for the whole community. Each adult member is responsible for the preparation of the common meal in the determined days of a week. Participation is not mandatory but most co-housing members are voluntarily participating in these activities which they believe is beneficial for the formation of strong social bonds with others.

On the other hand, other shared facilities such as workshop, bulk storage, laundry room, storage, guest rooms, and many other spaces included according to the needs of the residents, provide practical advantages to community members which are, otherwise unlikely to happen in single-family houses. Resources and spaces can be shared between community members, and this reinforces social relations between community members thus creates ***supportive communities.***

This is, in a sense similar for Turkish housing environment as well. Since Turkish extended families are formed with multiple families living together each family member has a particular role in daily chores and maintenance of the house. Women mostly take care of household activities such as cooking, cleaning, washing dishes, laundry and so on, whereas men are responsible for occupational activities. Therefore, ***collaboration*** is naturally practiced through traditional extended families of the Turkish House. Furthermore, Turkish houses accommodate ***flexible, functional spaces*** which enable diverse social, economic and daily activities to take place. In this respect, the sofa and courtyard are used by family members to gather and perform household chores. Although there are more specialized spaces for particular tasks such as lavatories, kitchen, storage, stable, and warehouse, in some housing examples the sofa and courtyard also contain areas for cooking, washing or doing laundry. Since it is easy to access the sofa and courtyard every family member can participate these activities.

4.2 Drawing Parallels Between the Architectural Elements and Physical Characteristics of "Turkish House" and Co-housing

The concept of ***functionality*** plays a vital role in the formation of the Turkish House (Bektaş, 1996; Günay, 2004; Kuban, 2013; Küçükerman, 1996; Küçükerman & Güner, 1995). Bektaş (1996) points out that the Turkish House interiors are first formed according to the functions of spaces and later house forms are created—in other words house forms follow function as it is the case in the modern architecture discourse. On this basis, simplicity in every aspect of the domestic life is represented in simple but highly articulated forms of the Turkish House. Each house is shaped to meet the requirements of its users, not to showing off to the neighbors (Bektaş, 1996). Therefore, the adopted ***principle of simplicity*** and avoiding the use of decorative elements lead to the architectural forms in which houses of rich and poor are not easily distinguished (Bektaş, 1996; Günay, 2004). Another common feature of the Turkish House is its flexibility which provides opportunities for different uses.

The ***principle of flexibility*** also allows for the house to be enlarged or divided according to the changing needs of its users (Bektaş, 1996).

Level differentiation is also another factor that shapes house forms and physical characteristics of each floor, thus effecting spatial arrangements and use of living spaces respectively. Since houses are mostly built on random sites the ***ground floor*** of the Turkish House can show variations to conforms to the topographical conditions. It also acts as a transitional level which connects upper floors with the immediate surroundings and includes service and storage. In some examples, between the ground and first floor there is a ***mezzanine floor*** which is used during cold seasons and for cooking (Küçükerman, 1996). The ***first floor*** is the ***"real floor"*** which includes all the living spaces and gives the main form to the house (Küçükerman, 1996). Although the number of storeys has increased in later examples of the Turkish houses one of the upper floors is always considered as the most important floor which maintains the "constant characteristics of the Turkish House" (Küçükerman, 1996). Because first floors are usually constructed according to a ***"single fundamental principle"*** (Bektaş, 1996; Eldem, 1968, 1984; Günay, 1998, 2004; Kuban, 2013; Küçükerman, 1996).

On this basis, Sedad Hakkı Eldem analyzes the fundamental characteristics of traditional Turkish houses and uses the unchanging element—the sofa—in planimetric organizations of the first floors to form his classifications. Following that he takes the location of the sofa in the "piano nobile" (the first floor) as a basis to group similar traditional housing examples under various categories (Eldem, 1968, 1984, 1986). On the other hand, some studies on Turkish houses take rooms as major determinants in grouping similar houses together. For example, Küçükerman (1996) proposes that Turkish houses should be classified according to the organizations of the rooms in the first floor (Küçükerman, 1996).

Considering the literature on the Turkish House and studies of Sedad Hakkı Eldem, rather than prioritizing the sofa over rooms or the rooms over sofa, it is accepted in this thesis that these two spaces are mutually related to each other. While the sofa is

a shared space which is open for each family member, the rooms are more private spaces for nuclear families. However, there are also other living spaces of the Turkish House where social and daily activities are performed. These are courtyards and some parts of the circulation spaces that contain spaces for various activities. Therefore, physical characteristics of these fundamental living spaces will be briefly described in the following sections.

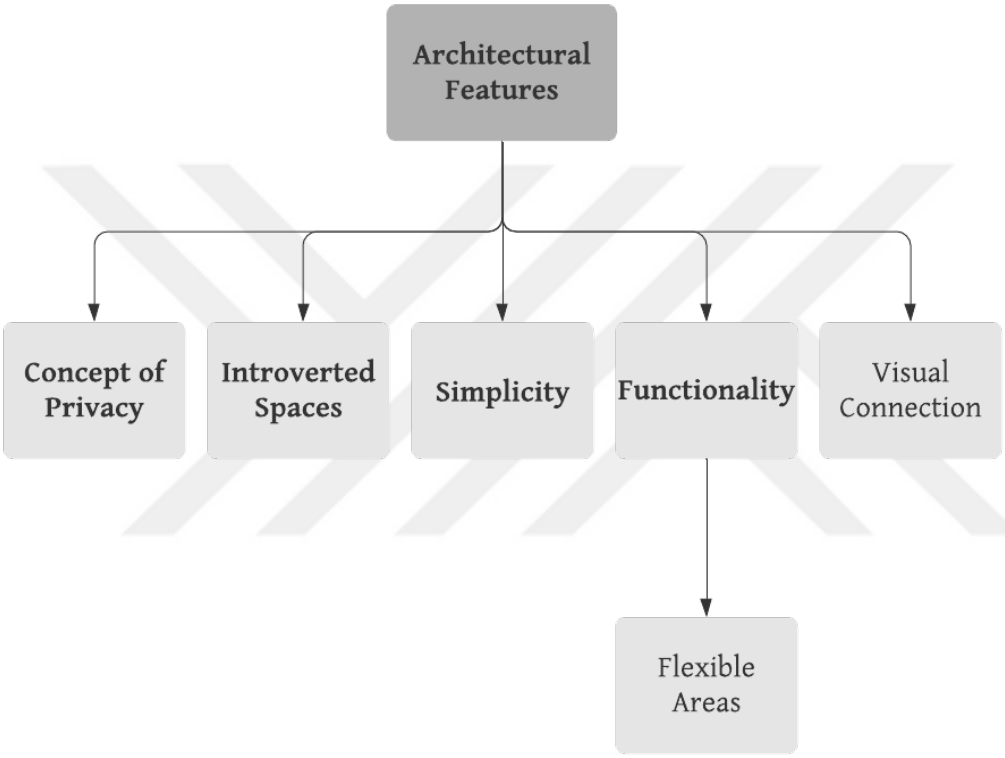

Figure 4.8. Architectural characteristics of the Turkish House
Drawn by the author.

4.2.1 The Sofa (Hall)— A Shared Space of Turkish Families

Eldem (1984) considers the sofa (the central hall) as one of the most important elements of the Turkish house. As it is in in European houses, there are no corridors in the Turkish house. Because the sofa gives access to all the private spaces—rooms—and service spaces—lavatories, cellars or stairs. Pedestrian movement

inside the Turkish House is provided by passing through the sofa (Eldem, 1984, 1986).Therefore, it is the ***main circulation and distribution space*** (Asatekin, 2005; Eldem, 1968, 1984; Günay, 1998, 2004; Küçükerman, 1996; Küçükerman & Güner, 1995). In this respect, Eldem (1984) indicates that the sofa resembles to a public square or connection of various streets (Eldem, 1984).

> "After comparing the room or former "dwellings" with individual houses, it is difficult not to establish a connection between the hall and the public street or square. The rooms opened onto the hall it was either closed on one or two sides like a street, or it stood in the middle, in the semblance of a square. It is in this that the Turkish house differs most greatly from its West European counterpart; in the fact that every room gives onto the hall and that the hall is the means of access to the whole house." (Eldem, 1984, p. 21)

Furthermore, Eldem (1984,1986) indicates that the spaces, which are outside the circulation area of the sofa, can contain ***specialized areas for various uses***. In more simpler houses, a small lavatory in the corner, sometimes a coffee service area and even a cooking area can be added. In most of the houses the secluded parts of the hall, which are free from circulation, are used for sitting. The separation from the rest of the sofa is provided either in the form of a recess (eyvan) or in the form of a projection (cumba) which also includes seating. Divans (sedir) are placed in the empty walls and next to the windows of the sofa. Moreover, raised platforms (sekilik or taht) which are open on two or three sides can be added to the sofa to provide view. In some houses these raised platforms transform to separate pavilions or kiosks with more windows and openings (Eldem, 1984, 1986).

Figure 4.9. Specialized spaces of the sofa
(Küçükerman, 1996)

As it is observed in later examples of Turkish houses additional functions (such as eyvan, sekilik, taht, or köşk) can be integrated into the sofa to accommodate different activities. However, the main purpose of the sofa has remained same as being ***"a common area between the rooms"***. Therefore, the sofa can be an open or closed space, but it is always a semi-private space which is used for household activities and circulation (Eldem, 1968, 1984; Küçükerman, 1996). The sofa's characteristic as being a meeting center for several families and a common place for different household activities will be explored in more detail in Chapter 4.3.1.

In drawing parallels between the sofa of the Turkish House and the common house of co-housing, it should first be emphasized that both spaces are located at the center or in close proximity to other living units. In this sense, they are connection and meeting points for both Turkish households and co-housing communities. In co-housing's site design, as it is mentioned in Chapter 3.3.2, private dwellings are usually clustered around the common house. The common house is usually located on the shared pathways or at the center of housing cluster in order to increase the frequency of its use. The purpose here is to make the common house visible to the residents while they are on their way home. So, they can see what social event is

happening inside while passing by or stop to check if there is someone they want to talk to. On this basis, the common house itself is not the main distribution space as it is the case for the sofa of Turkish houses. There are main circulation routes for the pedestrian movement in co-housing.

The common house, on the other hand, is a shared space which is designed for multiple use. McCamant & Durrett (1994) mention that "the primary purpose of the common house is to supplement the individual house." In this sense, a wide variety of functions can be implemented within the common house (McCamant & Durrett, 1994). It can be used for common meals, doing laundry, picking up stored goods or vegetables, drinking tea, relaxing, children playing, doing sports, or practicing music. Although it is assumed that all the different activities require separate spaces within the common house, through careful design and resident management same space can be used for multiple purposes. This also the case for the sofa. Because as it is mentioned earlier it has specialized areas for sitting, cooking, washing hands, or meeting with others.

4.2.2 Rooms— Private Dwellings for Each Nuclear Family

The chapter in the third volume of Sedad Hakkı Eldem's book "Turkish Houses: Ottoman Period" starts with the sentence "Every room in a Turkish house is an ***independent unit***." (Eldem, 1986, p. 16). Moreover, in Turkish terminology rooms are referred as "göz" (room) or "hane" (house). Therefore, from the term "hane" it can be understood that the rooms are mostly self-contained spaces for nuclear families living under the same roof with the head of a family (Eldem, 1984). Each main member of the household has a room of their own which answers their basic needs. In this respect, rooms have been adapted to be used as a sitting room, a dining room, a bedroom, a bathroom (for ritual washing) and a prayer room (Eldem, 1986).

> "As a matter of fact, the Turkish room is in itself the equivalent of a house. It is used to sit, eat and sleep in; for each of these various activities, the room is

> provided with cupboards, closets, built-in wardrobes and side-board." (Eldem, 1984, p. 20)

The most important room the "baş oda" (chief room) or "selamlık" (reception room) belongs to the head of the household which is the oldest male member of a family (Küçükerman, 1996). Küçükerman (1996) points out that;

> "The differentiation of the various activities inside the house is at its greatest in this room; the areas allotted to servants, guests, and the master of the house are clearly defined and designed accordingly." (Küçükerman, 1996, p. 49)

Interior arrangements of the rooms are shaped according to standard design criteria in which some common unit measurements are applied (Eldem, 1986). As one of the main architectural elements of the rooms, a horizontal timber member, which is also used as a shelf, is kept to a maximum of 2.2 meters high. This height is determined by considering the ***functional use*** of the shelf (Küçükerman, 1996). Therefore Küçükerman (1996) states that "the basic principle that utility areas should not exceed human stature brought about a tangible, visible upper limit". This horizontal line creates a visionary boundary between spaces for everyday use and spaces for display. Doors, windows, utility areas and cupboards are all located below this limit and suitable for daily use. On the other hand, the space above the line is mostly used for upper windows, left empty or decorated for visual display in later examples. (Küçükerman, 1996).

Figure 4.10. Internal organziations of the rooms
(Küçükerman, 1996)

Eldem (1986) defines the interior arrangements and physical characteristics of the rooms as follows; The rooms are free from the moveable furniture (i.e., cupboards, tables, chairs, etc.). The objects used for daily activities (i.e., floor tables, bedding, bed and table linen, etc.) are kept inside the built-in cupboards and closets after use. An entire wall can be covered by closets which include alcoves, fireplace, niches or shelves having a function of their own. In some houses, small lavatories for ablution are included inside the closets. Divans—sedir, fixed seating area—are placed on one, two or three sides of the rooms next to the windows with heights closer to the floor. A fireplace is generally sunk into an empty wall of the room which has direct access

to outside. In some rooms built-in stoves can also be used for heating. They can be in front of a wall or embedded inside of it or else hidden inside the cupboards and alcoves (Eldem, 1986). All these arrangements leave the middle of the rooms open for various uses.

Figure 4.11. Built-in shelves of the rooms
(Küçükerman, 1996)

> "The beauty of co-housing is that you have a private life and a community life, but only as much of each as you want." (McCamant & Durrett, 1994).

This explains the fundamental logic of co-housing. Providing privacy for residents is as important as creating housing environments which reinforce communality and togetherness. In this respect, the design of co-housing is important since they should provide both private houses and shared facilities and encourage relationships among variety of residents. Therefore, each member can preserve their individual characteristics, and at the same time be a part of wider community when they want to participate. This is also the case for the rooms of the Turkish House. Each room

is a separate house for smaller households and the members can leave their private domains and be together with other members of an extended family if they want to.

Furthermore, the common house supplements the most functions of private houses. Therefore, residents do not hesitate to share similar housing functions with each other. This means that some main spaces of private houses can be located outside and shared with all the community members—laundry room, guest room, workshops, gym are no longer needed inside the house. Some housing spaces can also be decreased in size—the floor areas of kitchens or living rooms are decreased in number because residents tend to eat their meals in the common house. In Turkish house organization, the sofa takes the form of the common house and used as a shared space for most of the daily activities. Although in some housing examples it is an area between rooms, household members often adjust the sofa depending on their purposes of use.

In co-housing, individual housing units are also built considering flexibility and functionality for use. Because co-housing communities aim to have a diversity of household types. Thus house forms should be designed for accommodating various households. This is provided through various dwelling unit sizes and arrangements. Changes and additions can be made to the core housing plans as household needs fluctuate. Therefore, each private dwelling adapts to changing needs and demands of their users. This aspect has been adopted by traditional Turkish houses as well. Members of nuclear families use their rooms as their separate dwellings. In this regard, rooms of the Turkish House should help to maintain individuality of them within their private realms. Therefore, flexible spaces to answer the changing needs during the day are required. Based upon the previous studies on the Turkish House Üstün (2018) points out that the differentiation of service and living spaces in the rooms is similar to what Louis Kahn is tried to achieve in his buildings. This design consideration of modern architect has been implemented in the rooms of the Turkish House for a long time. Placing built-in closets and seating at the edges leaves the center of the room open for multiple functions (Üstün, 2018).

4.2.3 Courtyards— Enclosed Green Spaces

The Turkish House is mostly located inside a surrounding courtyard which provides greenery and open space for the family. The courtyard is surrounded by walls that are taller than average human height to ensure the family's privacy by preventing view from the street. The access to the courtyard is from the ground floor (taşlık) or directly from the street through a double-winged door. As it is the first place entered in the house and is connected to the street acoustically and visually, Bozkurt and Altınçekiç (2013) refer to the courtyard as a semi-private living space (Bozkurt & Altınçekiç, 2013).

The courtyard is also an important production area for the household. In this respect, some parts of the courtyard are used to grow food on a small scale to meet daily consumption of fresh vegetables and fruits (Günay, 2004). Trees are planted to provide shade for daily activities. In fact, as Küçükerman (1996) mentions;

> "Most Turkish urban neighborhoods are devoid of trees apart from the fountain square or the vicinity of the mosque. On the other hand, individual gardens are full of plants and trees. One of the reasons for this is that the housewife spends the whole of her day at home and in a sense the Turkish house has been designed for woman, providing her with separate areas for her work, leisure and social relations." (Küçükerman, 1996, p. 18)

Furthermore, according to the needs and daily requirements of the users the courtyards can contain stables, storage areas, workshops for rug waving and carpentry. For preventing odor within the house toilets and animal shelters are also placed at the courtyard (Bozkurt & Altınçekiç, 2013). Bozkurt & Altınçekiç also indicate that food preparation is usually done at the courtyard which contains traditional oven, kitchen (aşhane), or floor furnace (tandır) especially in hot seasons.

4.3 A Correspondence Between "Turkish House" and Co-housing with respect to the Social Sustainability Concepts of Communality, Social Interaction, Social Cohesion, Sharing and Support

Günay (2004) mentions that although the concept of ***communality*** influences the physical characteristics of traditional Turkish houses, houses also support ***individual qualities of smaller groups of people***. Design of the Turkish House, in this sense, provides optimal solutions for the needs of every member of multiple families. (Günay, 2004). Therefore, the ways multiple families use shared domestic spaces while they protect their own privacy in the Turkish House can be considered as traditional counterparts of co-living practices in co-housing.

Furthermore, the social sustainability concepts which are embraced in co-housing models can be discussed in the context of Turkish houses based upon the previously mentioned social and physical aspects of the Turkish House. In this respect, correlations between physical and social structures of co-housing and Turkish House are tried to be presented in this part under four main subtitles with specific emphasis on the concepts of (1) ***communality***, (2) ***mutual support***, (3) ***social interaction*** and (4) ***social integration*** respectively.

4.3.1 The Sofa and the Common House: Social Heart of Extended Families and Co-housing Communities

The sofa's function in the Turkish House as a main circulation space is mentioned in Chapter 4.2.1. In addition to providing access to other parts of the house, the sofa is also a connection center for the social life of family members (Asatekin, 2005). On this basis, Eldem (1986) emphasizes that the sofa is not simply a passageway, in fact, it is an important ***activity and meeting center*** of a household. As the main living area, ceremonies, family meetings, and "all the moments of communal family life are lived out" in the sofa (Eldem, 1986). It is a ***shared space***— a space which is used for daily activities and socialization (Asatekin, 2005). In this respect, Eldem (1984)

points out the similarity between the sofa and Saxon and English halls as he mentions that the sofa is also used for wedding and feasts (Eldem, 1984).

On this basis, it is possible to establish correlations between the sofa and the common house in terms of their role in the social life of residents. The common house is social activity and meeting center for co-housing communities. It is a shared space where community activities, social events, rituals, and group socializing happen (Jarvis, 2015). Therefore, it can accommodate various functions—a common kitchen, a dining area, a children's play area—to gather people for different social activities (ScottHanson & ScottHanson, 2005). All these spaces can be used all day and they are essential parts of daily community life. Being the community's primary meeting place "the common house is the heart of a co-housing community" (McCamant & Durrett, 1994).

If we return to the Turkish House, specialized areas or activity pockets within the sofa provide opportunities for various ***social interactions*** and ***social activities*** to take place. As it is mentioned in previous chapters, places for sitting are located around the edges of the sofa (See Chapter 4.2.1). Family members spend most of their time in the seating areas while they are carrying out daily chores, relaxing or having conversation with others. Therefore, as a family member passing over the sofa, he/she can have small momentary conversations with other family members who are sitting there, and then decide whether or not to join them for socializing. In this respect, as Küçükerman indicates the sofa is a place where ***social interactions*** can be realized at the most since it is both a room for movement and for gathering (Küçükerman, 1996).

> "The sofa is a very important element in the arrangement of the Turkish house. A very specific solution has been found for this area. With time its character developed, and it became an area for ***social relationships*** which could not be realized in the rooms. The sofa is carefully designed and, according to circumstances, became more significant in daily life." (Küçükerman, 1996, p. 60)

Similarly, supplementary spaces—a lounge area, guestrooms, laundry rooms, storage, workshops—can provides ground for establishing community relations and

maintaining them (McCamant & Durrett, 1994; ScottHanson & ScottHanson, 2005). McCamant & Durrett (1994) indicate that the common house bring people together formally or informally. Predetermined social activities such as communal meals, management meetings are formal ways of bringing people together. However, spontenous encounters and informal meetings in the common house also contribute to the relationships between residents. For instance, use of the common laundry rooms, picking or returning something from the common store, sitting in a shared living room all bring people to the common house. In this regard, the design should allow residents to see if there are others in the common house while they are using it. In this way, residents can meet and interact with each other spontenously thus forming social bonds and connection with each other (McCamant & Durrett, 1994).

Parallel to these arguments, Küçükerman (1996) proposes that relationships can be established between the sofa and an in-between space of nomadic tents. In this respect, he mentions that rooms are placed around the sofa like the nomadic tents of each individual family organized around a central space. Therefore, like the spaces between the nomadic tents, the sofa has a similar function for each member of separate families who wants to leave their private units and join a social activity in a shared space (Küçükerman, 1996).

In both housing examples, the provision of relatively more public spaces—the sofa in the Turkish House and the common house in co-housing—encourage residents for higher levels of social interaction without making compromises between socializing and their privacy. On this basis, providing different levels of privacy in co-housing settings is an important design feature which provides gradual transition from private to public realms and encourages people to leave their unit and socialize with others(Ataman & Gürsel Dino, 2019). In the Turkish House this is provided through the sofa as an in-between space among the rooms. The rooms have no direct access to each other. Physical connection is achieved through individual openings of the rooms to the sofa (Eldem, 1984; Küçükerman, 1996). Therefore, as a transition space family members need to pass through the sofa immediately, once they leave their private rooms. Besides being a passageway, the sofa is also a place where family

members maintain their connection with each other and ask for support when it is needed. Family members intentionally or unintentionally communicate with other members while passing through the sofa. In this respect, knowing that it is easy to reach for help provides a feeling of security to other family members as well.

4.3.2 Mutually Supportive Living: Rooms Placed Around the Common Space

Asatekin (2005) points out that traditional "dwelling unit" as "a physical object" reflects ***"intra-familial and inter-familial (social) relationships"***. Therefore, internal spatial organizations of traditional Turkish houses are determined by an extended family structure and its associated lifestyles. Following this, co-living of several families in the same house is supported through physical characteristics and spatial arrangements of traditional Turkish houses (Asatekin, 2005). On this basis, Eldem (1984) indicates that it is the combination of more than one room which forms the type of plans as he states;

> "The type of plan with a central hall requires at least four rooms for its realization, while the type with a side hall cannot be conceived with more than two or at the most three rooms." (Eldem, 1984, p. 20).

Furthermore, according to Eldem *"the rooms and the hall (the sofa) are* ***mutually related*** *to each other"* (Eldem, 1968). In this sense, the "sequential addition" of the rooms to the common area (the sofa) form the "core of the house" (Küçükerman, 1996). Therefore, the unchanging element of house plans—the sofa—always acts as an ***integrative element*** between the rooms and other living spaces of the houses (Toker & Toker, 2003).

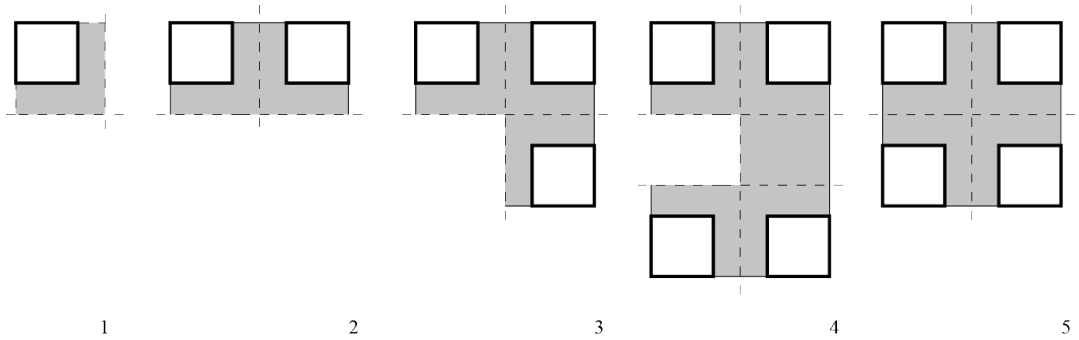

Figure 4.12. Relationships between the rooms and common area in the Turkish House
1.The smallest unit, 2.Two-unit arrangement, 3.Three-unit arrangement,
4. & 5. Four-unit arrangement. Diagram re-drawn from Küçükerman (1996)

In this respect, Eldem (1968) forms his plan typologies considering the position of the hall (the sofa). The rooms are either aligned in a row at one side (houses with an outer hall) or at two sides (houses with an inner hall) or clustered around the sofa (houses with a central hall). Although there are some examples without the sofa, these examples are from earlier period of houses (Eldem, 1968). These four basic house types are represented in detail in Appendix B. In each house type (except the ones without the sofa) the sofa is a shared space for all the family members. On the other hand, rooms are private spaces for married couples.

Figure 4.13. Rooms located at the one side of the circulation
(McCamant & Durrett, 1994)

Figure 4.14. Rooms located at the one side of the sofa
(Günay, 1998)

In a similar way, private housing units ***cluster around*** the common house in co-housing. This creates physical environments with strong community bonds and vivid social atmosphere. Clustering, in this respect, provides public (outdoors) and semi-public (the common house and in-between spaces) where residents can meet frequently. It also supports informal gatherings that can happen on the way home or the common house. Therefore, physical arrangements of the houses as building clusters create a social environment where sense of community and strong neighborly relations are maintained.

Furthermore, Günay (2004) indicates that in Turkish houses, the privacy of each room, which is clustered around the sofa, is ensured through various design features. Although each room is directly connected to the sofa, they are not visible from it and to that end, entrances to the rooms are indirect. Doors are placed in the corners of the rooms (Fig 4.15) or in transitional spaces (eyvan) within the sofa (Fig 4.17). In some houses, the corners of the rooms are bevelled and doors are located in these corners (Fig 4.16). If neither of these possible, a wooden screen is placed in front of the doors. In each situation the rooms are protected from direct access of other family

members. Moreover, once it is entered to the room there is a transition space which is called “sergen” or “seki altı”. This area is smaller and lower than the rest of the room. It is sometimes separated from the main area of the room by wooden separations and/or level differences (Günay, 2004).

In this respect, the provision of ***buffer zones and semi-private areas*** around private dwellings in co-housing designs can be accepted as a common aspect with the Turkish House. The design features of co-housing such as facing kitchen or service windows towards shared pathways, providing space for small gardens between common spaces and housing units are adopted to protect residents from exposure to excess social interaction with wider community.

Figure 4.15. Hacı Salih Paşa Summer House - Top Floor Room Entrances

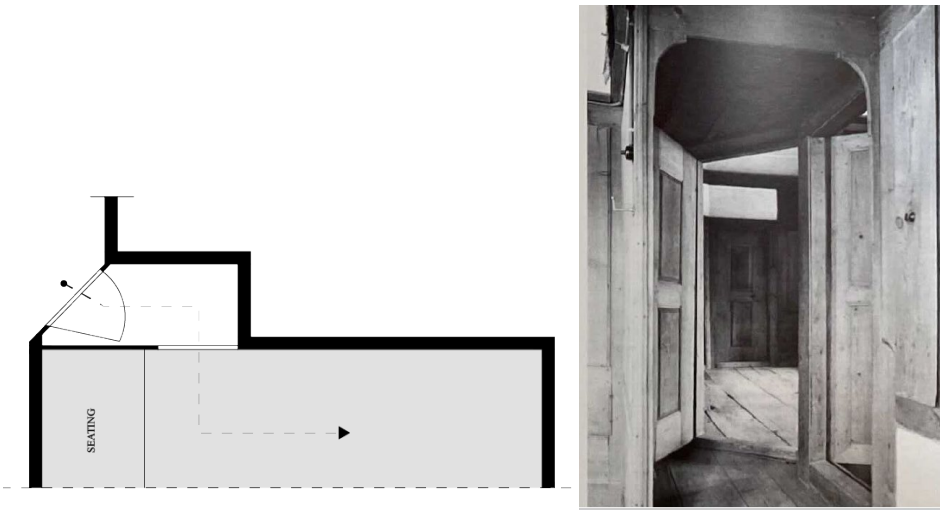

Figure 4.16. Indirect entrance to the rooms

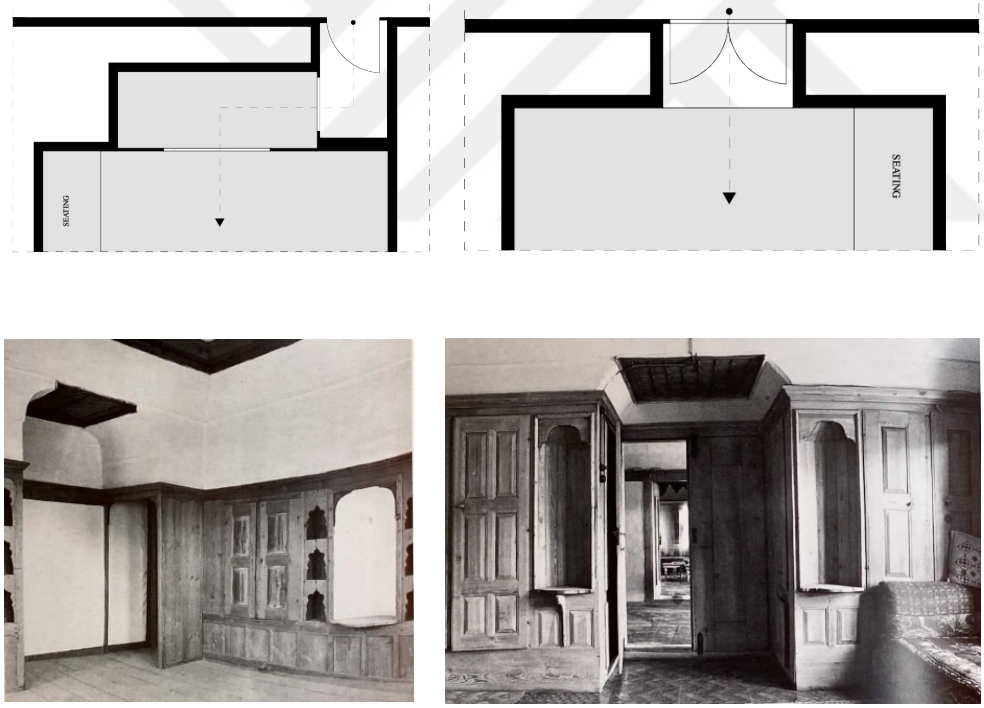

Figure 4.17. Entrance to the rooms through transition spaces

4.3.3 Courtyards as Socially Integrative Spaces of Household Activities

Bozkurt and Altınçekiç (2013) analyze the characteristics of courtyards in Safranbolu traditional Turkish houses and indicate that courtyard is the second integrative space after the sofa where relationships between family members are reinforced (Bozkurt & Altınçekiç, 2013). According to Asatekin (2005), rather than being only a transition space, the courtyard is a multi-purpose space which can accommodate various activities (Asatekin, 2005). From this point of view, the courtyard can be an area for recreation and relaxation, a playground for children, a place to connect with the street, an interaction area where momentary conversations and small gatherings with neighbors happen, a place for drying fruits and vegetables for the winter, a service space where clothes are washed and dried, and finally a land for agriculture (Bozkurt & Altınçekiç, 2013). All things considered, the courtyard is one of the main social interaction areas of the Turkish House. Because it can collect family members around variety of shared activities, social events and daily chores.

Furthermore, Eldem (1986) mentions that Turkish houses are connected to the nature through the courtyard and/or with the sofa which has direct to the courtyard (Eldem, 1986). In this respect, the courtyard is a living space of the house where family members can directly interact with nature. Although the courtyard is physically restricted from the outside world through walls and/or other architectural elements, it can be accepted as a semi-private space as it provides visual and auditory connection with the street (Bozkurt & Altınçekiç, 2013).

CHAPTER 5

CONCLUSION

Parallel to the environmental protection movements in the 1960s, sustainable development discourse initially centered around the topics including mitigating the effects of the climate change, protecting wildlife and natural resources from overconsumption. Therefore, sustainable strategies only included environmental and economic concerns to its subject matter. The interest in the social dimension of sustainability started in the 1990s when it was realized that the problems which societies are facing cannot be reduced to only finding solutions for environmental issues. In fact, these problems are wide-ranging, multi-dimensional, international, and intergenerational. Therefore, focusing only on environmental and economic problems would overlook other important issues concerning society and social life of people. In this respect, today, a considerable amount of research agrees upon that providing healthy and sustainable environments is not always enough. In fact, economic and social conditions of people should also be improved and their culturally determined expectations should be satisfied in all respects.

In the light of these, the provision of sustainable housing options has become even more important as negative impacts of building construction on climate, wildlife, ecological systems, natural resources, and social life increase each day. Chaotic mass production of houses, which is supported by rapid urbanization and industrialization, is a major threat to environment, economy and society. In newly formed residential areas ***congestion, pollution, noise, deterioration of street life*** and ***lack of public spaces*** are the main problems which need specific attention. Furthermore, many residential environments lack the socially livable qualities while they provide good profit for stakeholders. To overcome these problems, equal importance should be given to improving the physical and social conditions of housing. As Chiu (2004) points out housing should provide appropriate settings for positive and harmonious

social relations to be established and maintained. To this end, sufficient numbers of and good quality shared housing spaces should be provided to facilitate easy communication between community members through social activities.

In the context of social sustainability, numerous attempts have been made by planners, practitioners, and academicians to determine the necessary conditions for creating socially sustainable urban forms. To this end, understanding the social processes behind how people shape their immediate physical surroundings, and how they use building spaces to socialize with wider public can present guidelines to improve social dimension of sustainability. In this sense, this study accepts that social and physical factors are co-constitutive in promoting socially sustainable built environments. Therefore, understanding the relationships between physical settings and social structures is required to formulate frameworks for evaluating social sustainability characteristics of built environments. On this basis, the concepts of social sustainability— (1) ***communality,*** (2) ***positive social relationships*** or ***increased social interaction between people,*** (3) ***social cohesion and connection,*** (4) ***sharing and support***—are identified through a literature review. Based upon these four main concepts, this thesis attempts to evaluate social sustainability characteristics of two housing cases.

> "Cohousers are simply creating consciously the community that used to occur naturally." (McCamant & Durrett, 1994, p. 37)

First one—co-housing—was chosen for it is accepted as an innovative approach to deal with current social problems. However, the way of co-housing offers collective living opportunities to its residents is not a new concept. Various types of living together have been practiced in villages, pre-industrialized societies or even today in rural settlements. The members of these relatively small communities are dependent upon each other in many respects. Community relationships facilitate co-operation among them whether it is harvesting the crops, or childcaring, or sharing daily chores. Therefore, co-operation provides practical benefits to each member of a small community. Co-housing, on the other hand, re-creates all the beneficial aspects of being in a tightly knit small community within the context of twentieth-century

life. Because unlike those who lived in the past or who are still living in rural environments away from the rest of the world, citizens of modern, consumerism-based, chaotic urban environments have started to feel themselves alienated, lonely and overwhelmed due to living in unhealthy, unsafe and inequal environments. In this respect, among many alternatives co-housing is one of the novel forms of housing which has a potential to correspond to the changing lifestyles and provide opportunities for living in socially sustainable domestic environments.

On the other hand, Turkish houses are traditional examples of dwellings which provide spaces for multiple families living together. Therefore, established forms of collective living practices have been performed within the Turkish house context for a long time. Living in an extended family necessitates some behavioral codes which are not reflected in contemporary single-family dwellings. First of all, work and home life are closely connected to each other. This makes ***the division of labor*** compulsory in order to perform daily tasks and maintain the house. In this sense, each member of an extended family has specific roles—women do household work while men work outside for money. Although ***an introverted way of living*** is a dominant factor which shapes house forms and determines social relationships between residents and the wider public, within the boundaries of the house social interactions between the members of an extended family are supported in various ways. As a facilitator of social relations ***collaboration*** is also an important social element which encourage support between family members.

All the social aspects considered, it can be concluded that the spatial arrangements and forms of Turkish houses correspond to the requirements and social life of extended families. Isolated spaces for each family member to maintain their privacy and appropriate spaces for shared activities to take place are all provided through internal organizations of Turkish houses. In this respect, as architectural representations of familial social order, Asatekin (2005) emphasizes that the "vocabulary of existing traditional house forms" can be reinterpreted. Based on this, this thesis reinterprets traditional Turkish domestic environments according to the identified concepts of social sustainability. Therefore, this thesis also tries to

question whether traditional Turkish residential architecture can be a typological reference for socially sustainable housing models especially for co-housing. It is proposed through this study that traditional Turkish houses have potentials to offer paradigmatic architectural models for the appreciation and implementation of co-housing in Turkey. In this regard, it is aimed to make an inquiry on Turkish house types which can introduce new perspectives on current socially sustainable housing models. From this point of view, spatial configurations of Turkish houses are examined in order to identify their similarities with co-housing.

It should be noted here that, traditional Turkish housing is a very wide-ranging topic. Therefore, it is not possible to include all housing examples in a correlative analysis of social sustainability concepts. In this respect, Sedad Hakkı Eldem's typological studies on traditional Turkish houses will be used as a case study within the scope of the thesis. Based upon these studies, this research tries to answer the questions including; ***"Do intentional communities of co-housing and extended families of traditional Turkish houses share similar social qualities with each other?"*** and ***"In terms of the physical aspects of co-housing and traditional Turkish houses, can analogies between "shared spaces and the sofa", "private dwellings and the rooms" be derived?"***. However, this thesis does not attempt to favor the Turkish House over co-housing. Similarly, co-housing is not promoted as a suitable model for Turkish housing development as well. In fact, they can be accepted as complementary to each other. While co-housing is more experimental form of housing, some forms of co-living have been practiced within the boundaries of the Turkish House in the course of time. In this respect, sets of design strategies can be derived from the Turkish houses to implement in co-housing models. Since social structures of extended families of Turkish houses promote cooperation and sharing thus enhancing socially connected lifestyles, all these qualities can provide guidelines for the formation and continuation of co-housing communities. Similarly, some aspects of co-housing models can be used as answers to the changing needs of Turkish people who are mainly living in conventional single-family houses.

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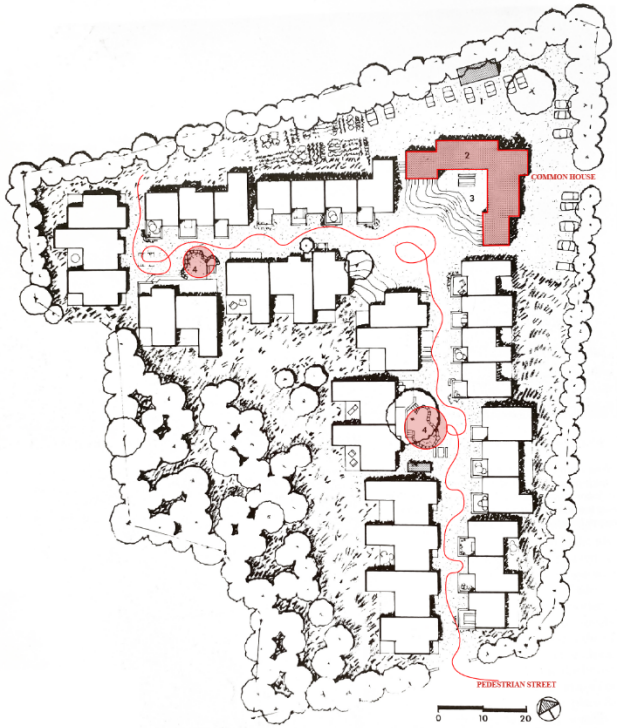
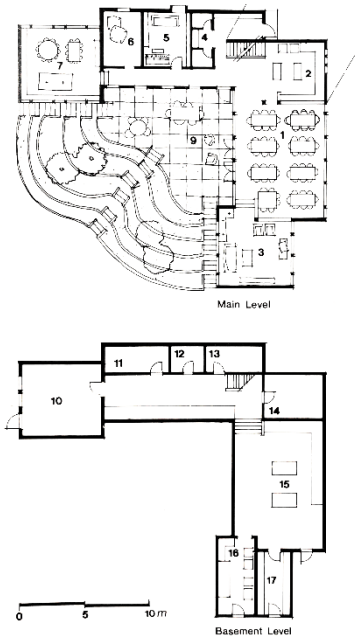
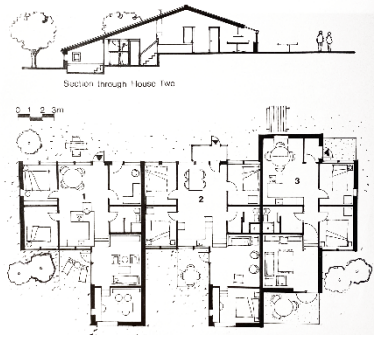
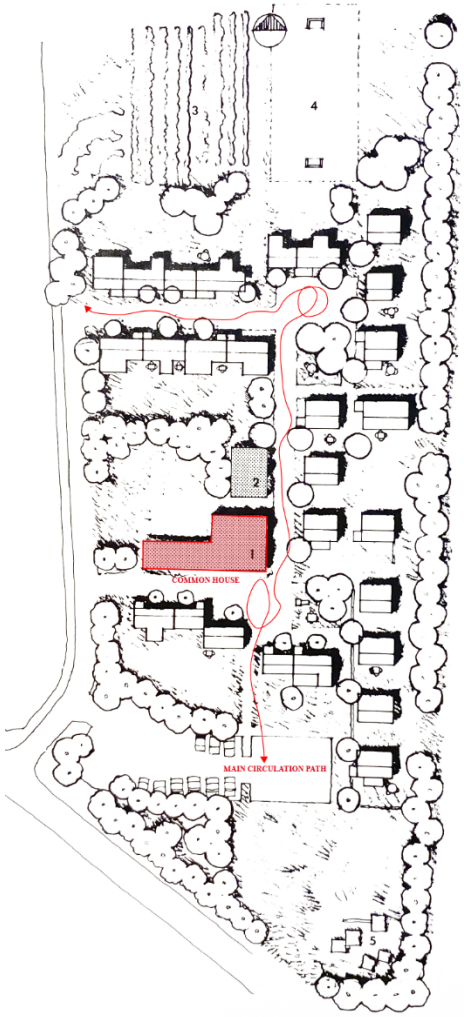
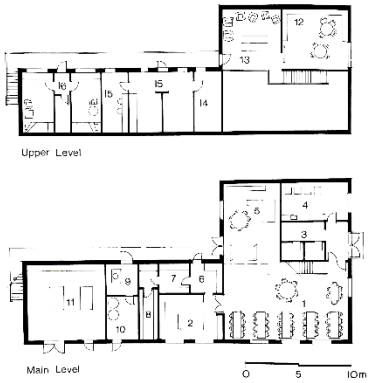
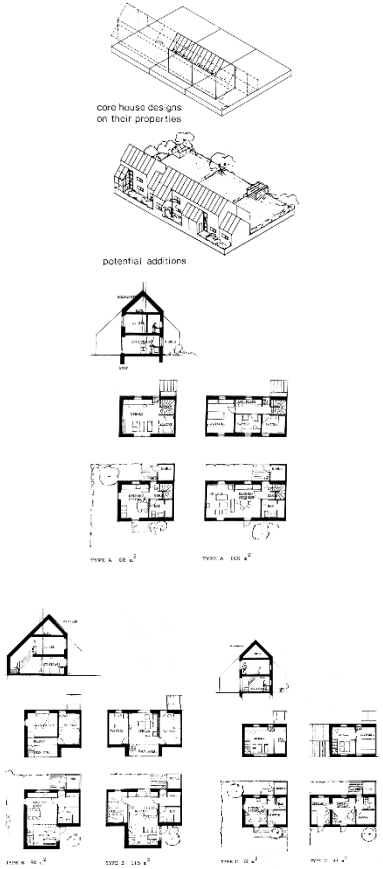
A. Co-housing Communities Plan Matrix

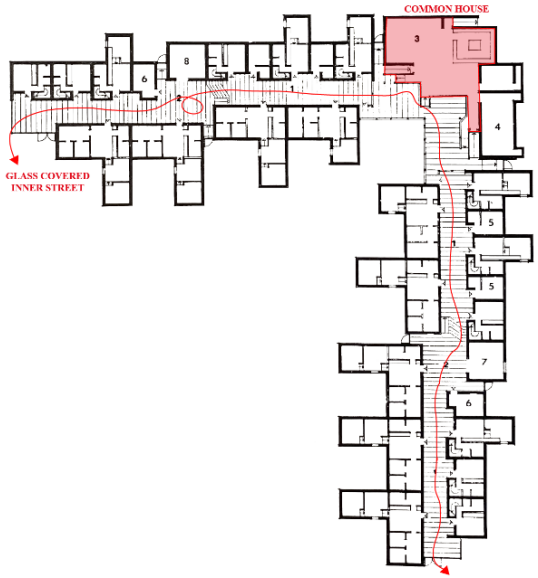
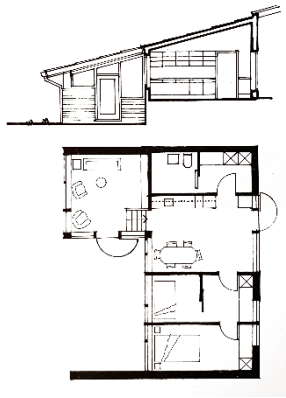
Name of Community	*Site Plan*	*Common House Floor Plan*	*House(s) Floor Plan(s)*
The Trudesland Community			

Sun & Wind

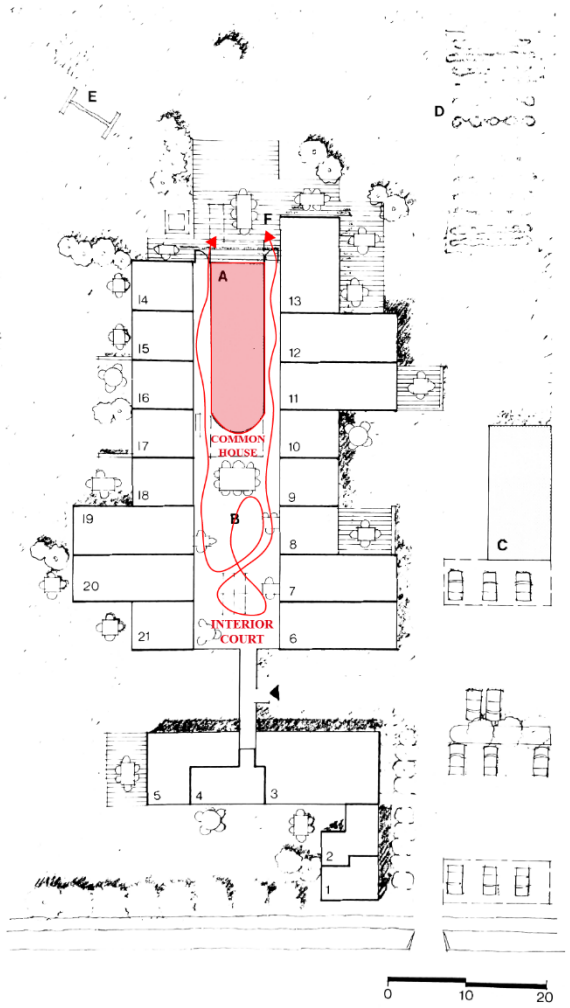

COMMON HOUSE
MAIN CIRCULATION PATH

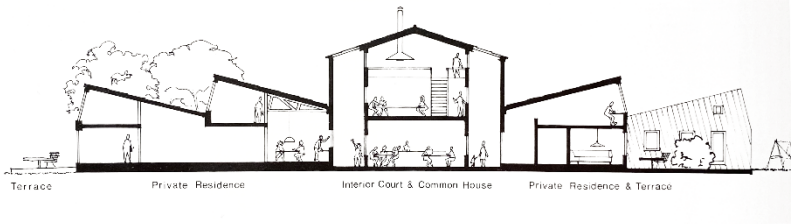

Upper Level
Main Level
0
5
10m


core house designs
on their properties
potential additions

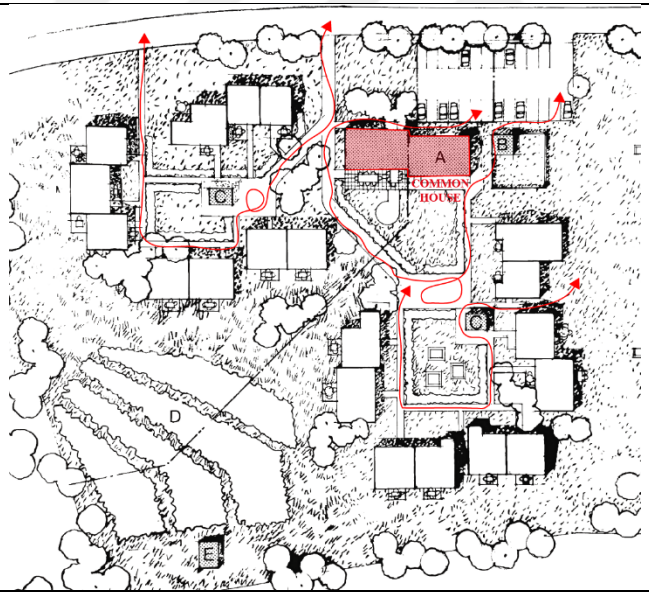
Jerngarden		X	X
Jystrup Savvaerket		X	

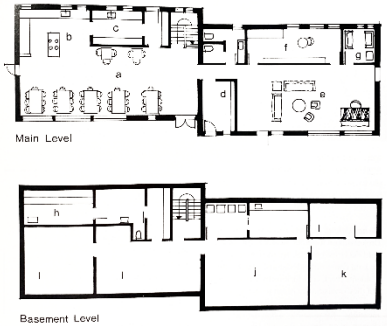
Jernstoberiet

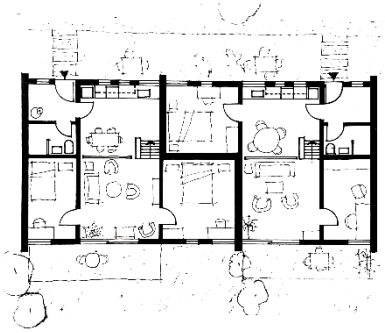




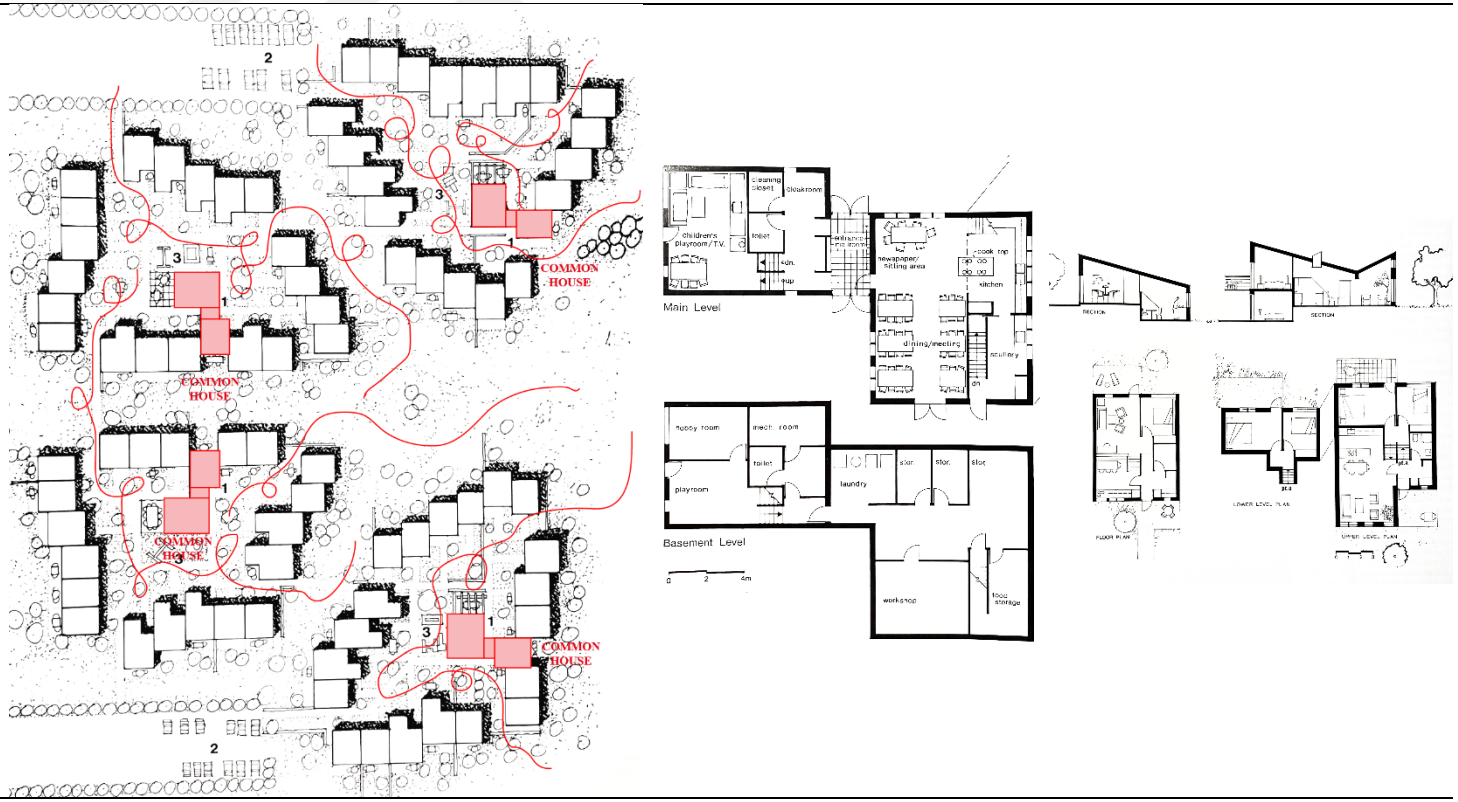
Drejerbanken







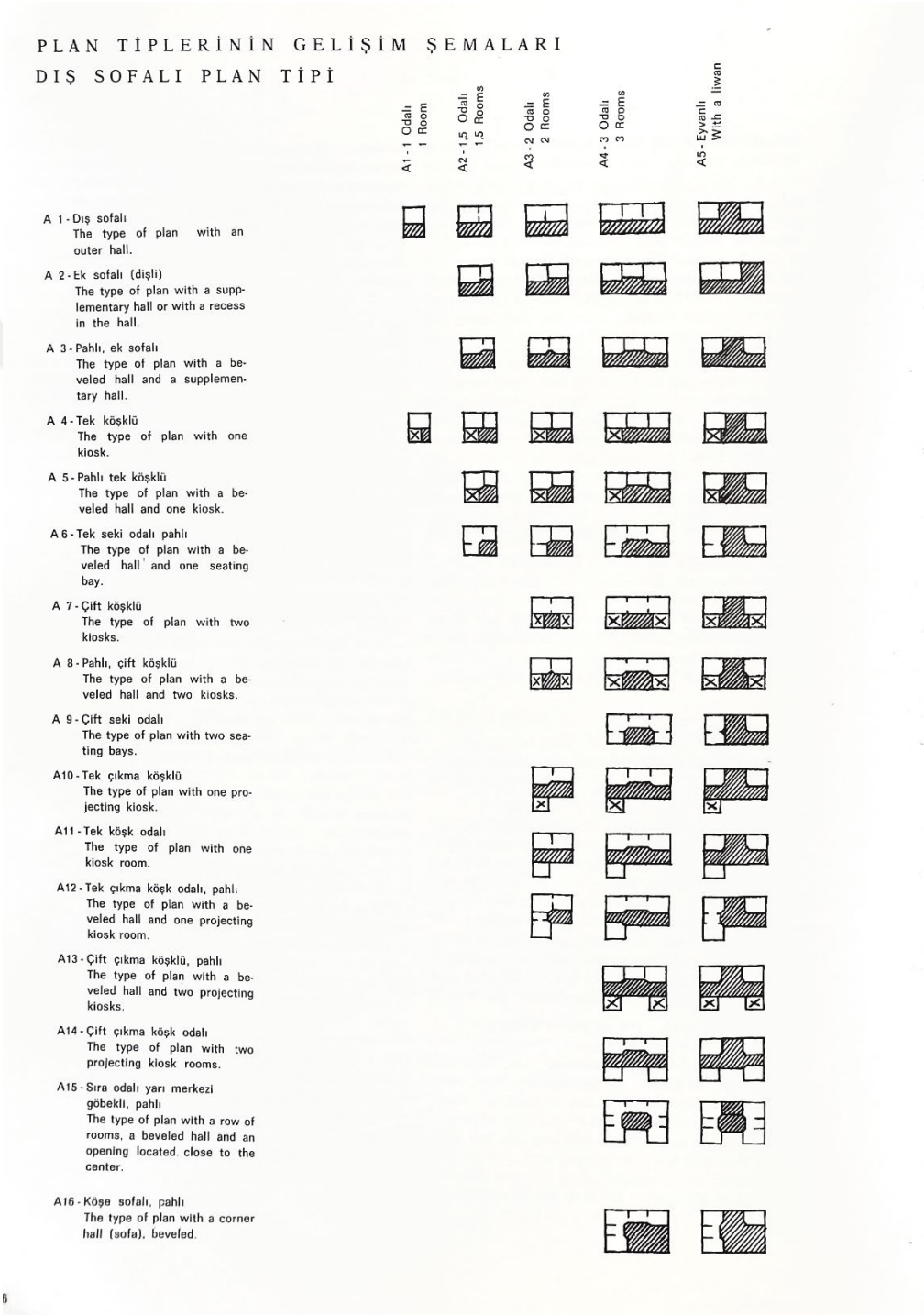
Bondebjerget



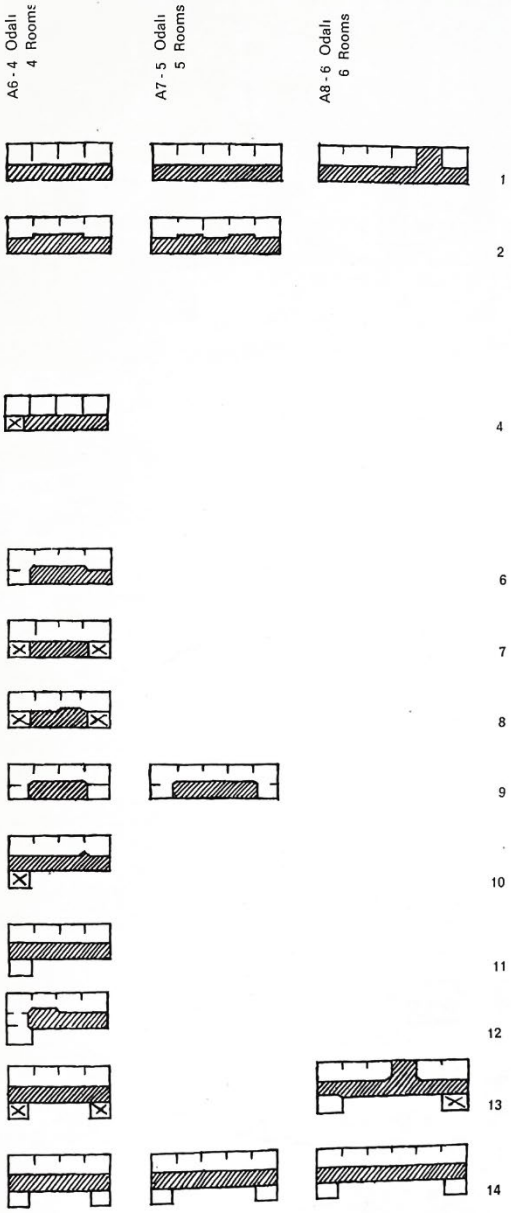
Source: Diagrams are adopted from (McCamant & Durrett, 1994).

B. Sedad Hakkı Eldem's Turkish House Plan Matrix

Turkish House with an outer hall (sofa)



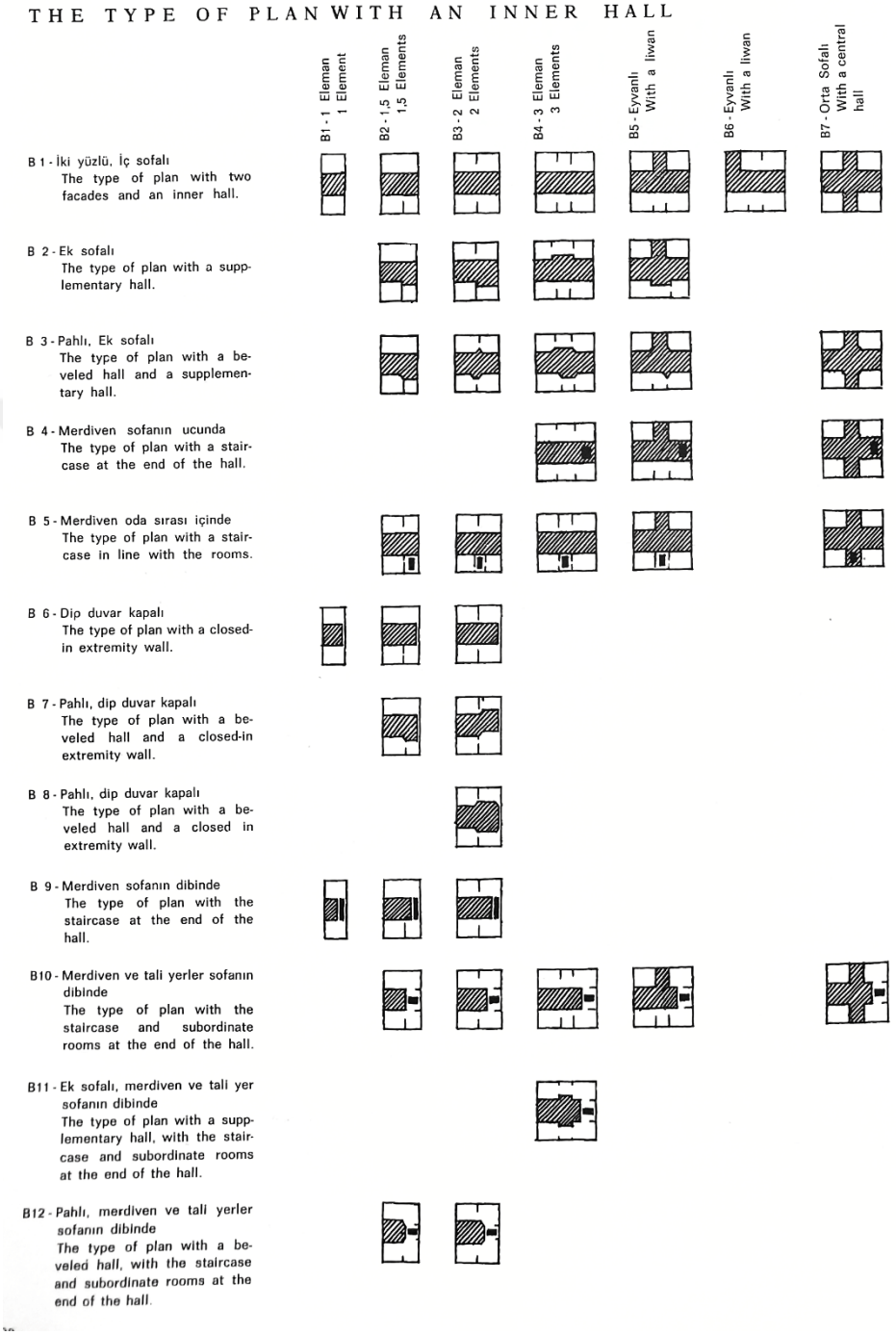
THE DEVELOPMENT PROCEDURE OF THE PLANS
THE TYPE OF PLAN WITH AN OUTER HALL



Turkish House with an inner hall (sofa)

İÇ SOFALI PLAN TİPİ

THE TYPE OF PLAN WITH AN INNER HALL



Turkish House with a central hall (sofa)

ORTA SOFALI PLAN TİPİ

THE TYPE OF PLAN WITH A CENTRAL HALL

C1 - Orta sofalı plan tipi
The type of plan with a central hall.

C2 - Dört köşe sofalı
The type of plan with a square hall.

C3 - Pahlı sofa
The type of plan with a beveled hall.

C4 - Yuvarlak köşeli sofa
The type of plan with a hall with curved corners.

C5 - Dişli yuvarlak köşeli sofa
The type of plan with a hall with recesses and curved corners.

C6 - Oval sofa
The type of plan with an oval hall.

C 1 - Dört tarafı kapalı sofa.
The type of plan with a hall closed in on four sides.

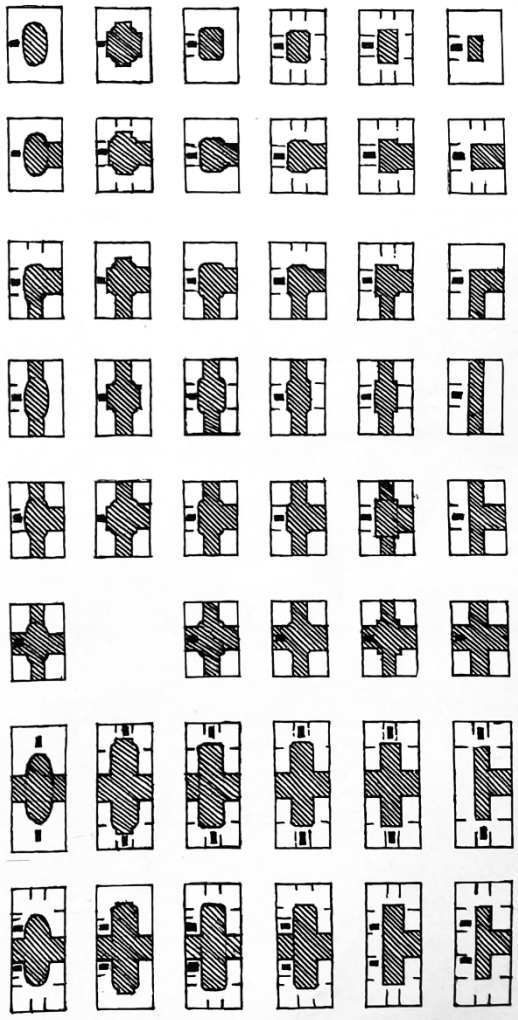
C 2 - Bir tarafı eyvanlı merkezi sofa, merdiven oda sıraları içinde.
The type of plan with a central hall and a liwan (antechamber) on one side, the staircase in line with the rooms.

C 3 - İki eyvanlı sofa, merdiven oda sıraları içinde.
The type of plan with a hall and two liwans (antechambers) the staircase in line with the rooms.

C 4 - İki eyvanlı merkezi sofa, merdiven oda sıraları içinde.
The type of plan with a central hall and two liwans (antechambers), the staircase in line with the rooms.

C 5 - Üç tarafı eyvanlı merkezi sofa, merdiven oda sıraları içinde.
The type of plan with a central hall with a liwan (antechamber) on three sides, the staircase in line with the rooms.

C 6 - Dört tarafı eyvanlı sofa, merdiven sofanın ucunda.
The type of plan with a hall and a liwan (antechamber) on four sides, the staircase at the end of the hall.

C 7 - Uzun sofalı çift merdivenli, merdivenler sofanın iki ucunda
The type of plan with a long hall and two staircases, the staircases on two ends of the hall.

C 8 - Uzun sofalı çift merdivenli, merdivenler oda sıraları içinde
The type of plan with a long hall and two staircases, the staircases in line with the rooms.