Co-ownership shares in condominium

A comparative analysis for selected civil law jurisdictions

Çağdaş, Volkan; Paasch, Jesper M.; Paulsson, Jenny; Ploeger, Hendrik; Kara, Abdullah

DOI
10.1016/j.landusepol.2020.104668

Publication date
2020

Document Version
Final published version

Published in
Land Use Policy

Citation (APA)
Çağdaş, V., Paasch, J. M., Paulsson, J., Ploeger, H., & Kara, A. (2020). Co-ownership shares in condominium: A comparative analysis for selected civil law jurisdictions. *Land Use Policy*, *95*, Article 104668. https://doi.org/10.1016/j.landusepol.2020.104668

Land Use Policy 95 (2020) 104668

Contents lists available at ScienceDirect

Land Use Policy

journal homepage: www.elsevier.com/locate/landusepol

Co-ownership shares in condominium – A comparative analysis for selected civil law jurisdictions

Volkan Çağdaş[a,*], Jesper M. Paasch[b,c], Jenny Paulsson[d], Hendrik Ploeger[e,f], Abdullah Kara[a]

[a] Yildiz Technical University, Department of Geomatic Engineering, 34220 Istanbul, Turkey
[b] University of Gävle, SE-801 76 Gävle, Sweden
[c] Aalborg University, DK-2450 Copenhagen, Denmark
[d] KTH Royal Institute of Technology, Real Estate Planning and Land Law, 10044 Stockholm, Sweden
[e] Delft University of Technology, Faculty of Architecture and the Built Environment, 2600 GA, Delft, the Netherlands
[f] VU University Amsterdam, Faculty of Law, 1081 HV Amsterdam, the Netherlands

ARTICLE INFO

Keywords:
Condominium
Co-ownership share
Ownership fraction
Participation quota
Share value
Unit entitlement

ABSTRACT

Condominium is a special and relatively new type of property right emerged in the last century to be a remedy for the management problems in multi-unit buildings. There are many types of condominium regimes, as described in EUI (2005), UNECE (2005) and van der Merwe (2016). The common elements include: (a) Individual right to an apartment, (b) co-ownership (joint ownership) of the common property or the whole property, and (c) membership of an incorporated or unincorporated owners' association (van der Merwe, 2015, p. 5). The ownership shares in the common property are here referred to as co-ownership shares; yet, alternative terms include ownership fraction, condominium share, participation quota, share value, and unit entitlement. Generally, these shares will determine the proportional contribution to the common expenses and the share of common profits, as well as the voting power of each condominium unit owner in the administration of the condominium. The most common approaches to the determination of the co-ownership shares are based on equality, relative size or relative value of each condominium unit, or a combination of such (van der Merwe, 1994, p. 57–58). The literature presents detailed descriptions and comparative analysis related to condominium systems in different jurisdictions (e.g. van der Merwe, 2015; 2016; Paulsson, 2007; EUI, 2005; UNECE, 2005); however, the procedural aspects related to the allotment of co-ownership shares still need to be further investigated. This article aims to describe condominium systems in the Netherlands, Sweden and Turkey, and compare legal provisions and procedures related to the allotment of co-ownership shares in these jurisdictions. The main purpose is to clarify the methodologies behind the determination of the co-ownership shares in national systems to bring new insights to countries, which are trying to revise their national provisions.

1. Introduction

Condominium is one of the prevalent forms of three-dimensional (3D) property rights (Paulsson, 2007, p. 32). It is different from the classical property concept which follows the maxim superficies solo cedit (cf. van der Merwe, 2008, p. 298). Condominium refers to a combination of a right (i.e. in most jurisdictions an ownership right, or in others a use right) to a specific unit of a building combined with a share in the common property that surrounds the unit (the land on which the building stands, the staircases and other facilities) and mandatory membership in the owners' association (Paulsson and Paasch, 2013, p. 9). The ownership shares in the common property are here referred to as co-ownership shares; yet, alternative terms include ownership fraction, condominium share, participation quota, share value, and unit entitlement.

The co-ownership share determines (i) the voting power of each condominium unit owner in the administration of the condominium, (ii) the proportional contribution to the common expenses and the share of common profits, and (iii) the ownership shares in the parcel when the condominium scheme is terminated.

The most common approaches to the determination of the co-ownership shares are based on equality, relative size or relative value of each condominium unit, or a combination of such (van der Merwe, 1994, p. 57–58). In value- and floor area-based approaches, the share is determined by dividing the unit's value or floor area to the aggregate value or the aggregate floor area of all condominium units, respectively.

* Corresponding author.
E-mail address: volkan@yildiz.edu.tr (V. Çağdaş).

https://doi.org/10.1016/j.landusepol.2020.104668
Received 15 July 2019; Received in revised form 24 March 2020; Accepted 2 April 2020
Available online 12 April 2020

In some countries (e.g. Singapore) a number of factors showing usage level of joint facilities can also be taken into account (cf. Christudason, 2008). According to Ngo (1987, p. 313), the value basis has the advantage that it represents the capital investment of the owner of the condominium unit, and therefore a more valuable condominium unit entitles the owner to a larger share in the parcel in the event of the termination of the condominium scheme. However, the floor area basis may be more equitable in allocating shares for the common property since it provides certainty and clarity by being simple and easy to implement, also enabling the democratic management of common property and sharing common expenses (Chen, 2016, p. 10). The relative advantages of the value and floor area basis, and their practical implementations, are open for discussion.

This article addresses legal aspects related to the allotment of co-ownership shares. Thus, there should be a clear description and discussion concerning the types of area and value (e.g. total floor area, gross external area, market value and cost value) used as the basis of co-ownership shares, criteria and methods for measuring and appraising area and value of different types of buildings (e.g. residential, commercial, and mixed use), the roles of stakeholders (e.g. owners, developers, valuation experts, and registrars), the relationship between co-ownership shares and management of the common property, and the necessary conditions for altering or modifying allocated co-ownership shares. The clarification of the legal provisions and methodologies related to the determination of co-ownership shares may provide a clearer understanding about national condominium systems and bring new insights to countries, which are trying to revise their national provisions.

This article aims to describe condominium systems in the Netherlands, Sweden and Turkey, and compare legal provisions and procedures related to the allotment of co-ownership shares in these jurisdictions. Since they all belong to the civil law legal family, this article mainly reflects on condominium concepts in civil law jurisdictions. The reason for selecting these countries is that they all represent different legal families within the civil law system. There is no agreed upon classification of civil law countries, but Zweigert and Kötz (1998) provides, among others, a taxonomy for legal families within the civil law countries, which is used in this article. Accordingly, the Netherlands belong to the Romanistic legal family, Sweden to the Nordic legal family, and Turkey to the Germanic legal family (see Bernitz, 2007). The focus on the civil law system is based on the authors' wish to go into detail with co-ownership shares in condominiums in one legal family instead of making a more general comparative analysis including other major legal families, which is subject to future research.

The following section briefly describes the condominium regimes in the selected jurisdictions and jurisdiction-specific rules and procedures for the determination of co-ownership shares. Based on the information provided in this descriptive section, a comparison is undertaken in Section 3. Section 4 concludes the paper with discussions related to the methods for calculation of shares.

2. The condominium systems in the selected jurisdictions

This section provides an overview of the condominium in the Netherlands, Sweden and Turkey, and compares legal provisions and methods applied for the allotment of co-ownership shares.

2.1. The Dutch condominium

Per 1 December 1952, the Dutch Civil Code offered the possibility to create apartment ownership (or to be more correct: the 'splitting' of a building with land into 'apartment rights'). Since 1992 this regulation is part of the New Dutch Civil Code, as Title 9, Book 5 (Articles 106–147, Book 5). The rules have been updated several times (in 1972, 2005, 2011, 2017) to accommodate practical needs, such as the introduction of a mandatory owners' association (1972) and the possibility to create apartment rights for land without any buildings (e.g. parking spots or harbour units) (2005).

In everyday language one will speak about an 'apartment owner', and also the Dutch Civil Code itself uses this expression (e.g. Article 106, Book 5 Civil Code). However, this is from a legal point of view misleading, as the Dutch system follows the so-called 'unitary system'. Each holder of a 'right of apartment', created by the 'transformation' (the splitting) of property rights in the real estate, holds a share in a co-ownership of the full building and land, and therefore the ownership of an apartment unit as such is unknown in the Netherlands.

A right of apartment is therefore a property right with special characteristics. To be more precise, the right of apartment includes three core elements (Akkermans, 2008, p. 286–287; van Velten, 2017, nr. 343–347):

- A share in the ownership of the complete building (or set of buildings) and the land (the 'apartment complex');
- The exclusive right to use a certain part of that complex, called the 'private part'. This use right is not a property right itself (and cannot be sold or transferred as such), but is an accessory right to the co-ownership share. These individual spaces are non-overlapping.
- The mandatory membership of the owners' association (Vereniging van Eigenaars, VvE).

Even in the case that all apartment rights (and therefore the co-ownership shares) are held by one person or one entity (e.g. the developer of the apartment complex), these rights are separate and distinct property rights (Akkermans, 2008, p. 288).

The property rights (the rights of apartment) are created at the moment of registration of the master deed (*splitsingsakte*, literally: 'deed of splitting') in the land register held by the Netherlands' Cadastre, Land Registry and Mapping Agency (*Kadaster*). This deed must be drafted by a Dutch civil law notary. The master deed contains a description of the apartment complex, a description of the individual units and their intended use (e.g. dwelling, storage) and bylaws. The bylaws provide a division of the common costs and the obligatory contributions in the payments by the apartment owners, rules for the management of the common parts, and will also contain the founding of the owners' association.

This master deed must include a description of the individual units, also by reference to the mandatory drawing registered in the land register that provides (on scale) an overview of the complex and the boundaries of the private parts (see Fig. 1). Each apartment right is individualized by reference to a cadastral identifier, such as 's-Gravenhage AN 5794-A1. In this system, the first number is the complex identifier (here 5794-A), followed by the number of each individual apartment unit (1, etc). Also, in the drawing each private part (unit) is identified by this number. The boundaries of the private parts are indicated by a thick black line on the drawing of the complex. Generally, these boundary lines will follow the outer walls of each unit. The parts of the complex outside the thick black lines are the common parts.

A private part (the 'apartment') might be any type of unit, such as a dwelling, a commercial unit, a parking spot, or even a plot of land. A unit may consist of different parts, e.g. a dwelling on the fourth floor and a parking spot in the underground garage. Article 106, Book 5 Civil Code, only requires that a unit must be a certain part of the building that according to its functional arrangement will be used as a separate private unit. In case a plot of land (without any building) is divided into apartment rights it is sufficient that the unit is indicated as a private part. In both cases (part of the building or part of the land), the drawing will play an important, but not exclusive, role to identify the private parts and their boundaries.

It is not needed that the apartment complex physically exists at the moment of the registration of the deed. Article 107, Book 5 Civil Code, literally says that the owner(s) of the land also can create an apartment complex for a planned building. However, the apartment complex must

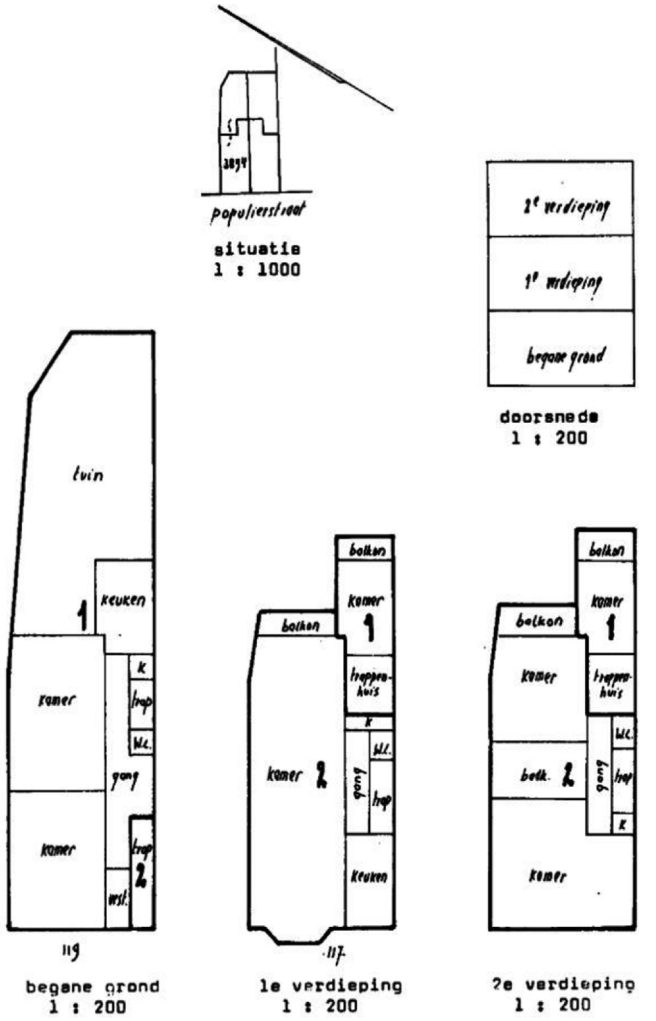

Fig. 1. Example of a drawing ("splitsingstekening") providing an overview of the apartment complex (Netherlands Kadaster, public registers).

be completed within three years after registration of the master deed in the land register (Article 144, Book 5 Civil Code).

The rights and obligations of the apartment owners are described partly in the Civil Code, and partly in the bylaws and the master deed. Article 108, Book 5 Civil Code, states that the owners have towards each other the duty to realise and preserve the construction and functional arrangement of the building and of the related land in accordance with the provisions of the master deed. The owners' association is responsible for the daily management of the common parts. However, the bylaws may give the association the power to provide rules of conduct that will also influence the use of the private parts. For example, it might be prohibited to change any part of the private unit without approval by the owners' association. Normally the association will decide by a simple majority vote (Article 127, Book 5 Civil Code), but the bylaws may provide different rules.

Every apartment owner must, pursuant to Article 113, paragraph 2, Book 5 Dutch Civil Code, contribute towards the owners' association and the other apartment owners to the debts and costs that, according to the master deed, are borne by the joint apartment owners ("common debts and costs"). For instance, in the case of payment of a fee for a ground lease, the duty of payment is divided among the holders of the apartment rights.

Unless the master deed states otherwise, an apartment right may itself be subdivided into two or more (daughter) apartment rights. After this subdivision the original apartment complex (now the "mother complex") and the apartment units remain, while the subdivided apartment right becomes a "daughter complex," with two or more "new" apartment units, and its own daughter owners' association. In turn, an apartment right in a daughter complex can be subdivided again, resulting in a granddaughter apartment complex. The law does not put any limitation on the number of subsequent subdivisions, and therefore offers full freedom to the apartment owners involved to reach a legal architecture that fits the particularities of the building complex and its users. Practically speaking, a subdivision of an apartment right means that the "scope of control" by the holders of the subdivided apartment right, and the daughter owners' association, is defined by the boundaries and description of the original apartment right (i.e. the private part) in the master deed of the mother complex. Such a subdivision of one or more apartment rights is not uncommon, and proves to be very useful, especially to facilitate the management of large complexes (Groetelaers and Ploeger, 2010). In the case of subdivision of apartment rights, all apartment rights in the complex (being part of the main, daughter, granddaughter etc. complexes) will receive a consecutive number as cadastral identifier, within the building complex itself. This might seem confusing for someone who is not familiar with this, however, the cadastral database will always indicate that an apartment right is subdivided, so that its origin can be traced back.

2.1.1. The co-ownership shares in the Dutch condominium

The share that each of the holders of a right of apartment has in the community of land and building(s) is an indivisible share. According to Article 113, paragraph 1, Book 5 Civil Code, the property shares are in principle the same. The same main rule is applicable to the contribution to the common debts and costs (Article 113, paragraph 2, Book 5 Dutch Civil Code). However, the bylaws in the master deed can specify different shares per apartment. This will indeed be the case in apartment complexes with units of different sizes. However, neither the Civil Code, nor the applicable cadastral instructions, provide any guidance on how to calculate the shares. Article 113, paragraph 1 Book 5 Civil Code, only stipulates that the master deed must provide the basis on which the co-ownership shares are calculated. The absence of detailed instructions is welcomed by legal practitioners as it offers flexibility (van Velten, 2015, nr. 10.15). In practice the determination of the property shares is based on more or less objective standards, such as floor size, or the original selling price of the apartment (van Velten, 2017, nr. 430). We note that any research that sheds more light on the application of these 'practical' standards is absent.

The Civil Code itself does not provide any relation between the share in the property (land and buildings) and the scope of the rights and duties of the apartment owners other than the proprietary entitlement. This means, in principle, that these shares will only play a role in the case of (partial) dissolution of the apartment complex. E.g. in case of expropriation, the share will be decisive for the compensation each apartment owner will receive.

However, in most cases both the distribution of the common debts and costs and the attribution of the voting rights in the owners' association will be based on the share each apartment owner holds in the community (van Velten, 2017, nr. 431). But as said, this relation is not mandatory because the Dutch Civil Code does not provide any directions. In fact the contributions can be arranged in such a way that different types of costs are borne by different owners. Such a distribution of costs is particularly justified if the costs are related to the use of a certain part of the apartment complex. For instance, it is possible to determine in the master deed that the costs of maintenance of a common elevator will only be paid by the apartment owners who have access to that elevator.

It often proves difficult to find a good basis for the distribution the common debts and costs. This in particular is the case if not all private parts have the same use (e.g. homes, offices and business premises), or are located in different buildings. It is not trivial to make changes in the shares afterwards, because of the requirements in article 139, Book 5

Dutch Civil Code. The master deed can only be changed with the consent and collaboration of all apartment owners, or by the board of the association of owners after a majority vote (by at least 80 %) by the members. Also, the change of the deed must be approved by the holders of limited rights in rem in the apartment rights (e.g. the holders of a mortgage), a creditor in case of a seized property and (in case of a ground lease or building lease) the landowner. In case of a non-co-operating apartment owner or refusal by a third party to provide approval, it is possible to obtain an authorization from a judge (Article 140, Book 5 Dutch Civil Code).

Finally, it should be noted that the relation between the apartment owners is governed by good faith. This is relevant because according to Article 8, Book 8 Dutch Civil Code, a rule in the bylaws does not apply insofar as this would be unacceptable in the given circumstances by the standards of good faith. This might be applicable in the case of an unreasonable division of the common costs. An example is the case of Van Gasteren/Beemster (Dutch Supreme Court, 1998) in which an apartment owner, being also the director of the project developer of the building complex, had the benefit of a very low share in the common costs. However, the courts will only grant such exception under very compelling circumstances.

All apartment owners are members of the owners' association. From 2008 onwards, it is mandatory to register the owners' association and the members of its board in the business register (*Handelregister*), the Dutch key registration for associations, foundations and businesses in general.

In principle, decisions are taken by the members by an absolute majority of votes (i.e. half plus one). The bylaws will determine the number of votes of each owner (Article 112, Book 5 Dutch Civil Code). Generally, the number of votes will be proportional to the co-ownership share, but this is not mandatory. As the Dutch Civil Code does not provide any rules on the distribution of the voting rights, it provides the flexibility to adjust to the characteristics of the complex and its owners. In particular, a different distribution will be needed if there is a risk that one of the members has a permanent veto right or might misuse his or her power. Examples are an owners' association with only two members, or one party owning a majority of the apartment rights (e.g. a housing association).

Article 127, Book 5 Dutch Civil Code, provides specific rules for the voting rights in case of a daughter complex. In this case, the apartments owners will have voting rights linked to the original (subdivided) apartment right in the main association. These voting rights are issued by the board of the daughter association.

2.2. The Swedish condominium

The concept of 3D property was introduced in Sweden (SFS (1970:944) in 2004 and the legislative basis for forming condominium units (apartments) (*ägarlägenhetsfastighet*) was added in 2009. The Swedish condominium belongs to the dualistic condominium ownership type, i.e. each resident owns the physical part of the building where the apartment is located and in addition has a share in the common property of the building and land. A condominium unit is defined as a three-dimensional real property not intended to contain more than one single apartment for housing purposes (SFS 1970:944, chapter 1, section 1a). Statutes regulating the formation and management of condominium are found in e.g. the Land Code (SFS, 1970a: 994), the Real Property Formation Act (SFS, 1970a:988), the Joint Facilities Act (SFS, 1973a:1149) and the Joint Property Unit Management Act (SFS, 1973b, 1973d: 1150).

After a slow start, in recent years there seems to have been an increased interest in condominium in larger urban areas, based on statistics from Lantmäteriet, the Swedish mapping, cadastral and land registration authority, see e.g. Lantmäteriet (2012, 2019a). According to these statistics, today approx. 1300 condominium units exist, mostly in the larger cities but also in smaller towns. A condominium unit is regarded as real property in the same way as traditional 2D property, exempt that its spatial extension is regulated also in the third (Z) dimension and with the addition of some other specific regulations (Lantmäteriet, 2019b). The forming of new condominium is strongly regulated in Swedish legislation and special conditions apply, provided for in the Real Property Formation Act (SFS, 1970b: 988, chapter 3, section 1 and 1a). Condominium can for example only be created if it is judged that this type of real property is more suitable than other forms of real property. First, a condominium has to be created for residential purposes. Second, it is only possible to create a condominium for one independent dwelling unit and furthermore it may only be formed for dwelling purposes. Therefore, it is not possible to create a condominium in business premises unless the status is changed to residential, which normally requires planning permission. A further limitation is that condominium cannot be formed in already existing dwellings, such as rented apartments or tenant-ownership apartments. A condominium must be part of a "collective unit" of at least three condominium units, meaning that it is not possible to create just one or two condominium units in a building. Other limitations are that a condominium unit only can be formed in new constructions, not in existing buildings. However, there is a possibility of forming condominiums in existing buildings if this space has not been used for housing during the recent eight years. It is possible to create a condominium which contains more than one physical space unit, but the general recommendation is that it should be avoided, (Lantmäteriet, 2019b, p. 126). Another condition for creating a condominium is that the access to stairs and other common facilities has to be secured.

According to recommendations (Lantmäteriet, 2009), the apartment unit within the condominium building should consist of the actual space of the condominium and the surface of the structures that separate the apartments. The condominium apartment should not consist of more than one area/space. It is not specified in the legislation exactly what parts of the building should be in private or common ownership, but there are recommendations for this as well.

A joint property unit is land legally attached to two or more real property units and it has traditionally been used for extracting natural resources, like timber or fish, but can now be used for many other purposes. The shares are not attached to the actual owners, but to the involved real properties. In other words, the share in the joint property unit follows the sale of the condominium, which is the legal shareholder, when sold (SFS, 1970b:988, chapter 1, section 3; SFS, 1973b,1973d:1150). The condominium units are individually owned by the shareholder(s).

There is no compulsory form of cooperation between the condominium units provided in the legislation. However, normally a joint facility and/or a joint property unit is formed. A joint facility is also required if joint property units are formed for the condominium. Since joint property is nearly always included, forming joint property and/or a joint facility will in most cases be the standard solution for co-operation.

The condominium owners have shares in a joint property unit (*samfällighet*) and joint facility (*gemensamhetsanläggning*), in order to secure co-ownership of the land the condominium is located upon and of common facilities, such as the building construction, stairs and other installations intended for common use. The condominium unit may also be granted the right to use individual parts of the joint property through easements, where the condominium owners have the right to use parts of another property unit containing the necessary facilities.

The plot of land on which the condominiums are located is normally converted into a joint property unit by the cadastral authority when they are created. Each condominium unit has a share in this joint property. A joint property unit may also include features of common interest, such as construction details like load-bearing beams, within the building. The co-ownership of the land the building is erected upon and areas of common interest are thereby secured for the (owners of the) condominium units by being part of a joint property unit. The

condominium units follow the same rules for formation of new units and subdivision and amalgamation of existing units as all other traditional 2D property units. In addition, they have to follow the special rules for the formation of 3D property and condominium units regulated in the Real Property Formation Act, as mentioned above.

The management of physical installations of common interest for the condominium (such as an elevator or heating central) are being secured by creating joint facilities. A joint facility is a right to own and maintain one or more constructions (facilities) beneficial for two or more real property units (SFS, 1973c:1144) on another real property. A joint facility may, for example, be a private road or a parking area, or other facilities where there is a mutual interest from owners of several properties in using or maintaining the facility, such as staircases and other installations beneficial for the condominium. Even roofs and facades may need maintenance and should be included in a joint facility for condominium (Lantmäteriet, 2019b). The share in the joint facility follows the condominium unit, i.e. the stakeholder property, when sold.

A joint facility can be classified as a real property right, since it resembles a right more than the earlier described joint property unit. The space occupied by the joint facility may be seen as a form of common easement-like right for the participating stakeholder properties (Paasch, 2011).

Several condominium units are not only created in buildings solely intended for housing, but, in buildings with mixed activities, such as housing, offices and shops. In those situations, other legal solutions instead of the formation of a single joint property unit may be more applicable. Usually, one joint facility is formed for each condominium building, but if needed there may be several joint facilities within the same building complex, or one joint facility but with differentiated shares for separate parts of the condominium building.

The joint facility also regulates other issues such as how construction and maintenance costs are divided among the shareholders (SFS, 1973a:1149). There are two different ways of managing a joint facility (SFS, 1973b,1973d:1150, §4): Directly by the shareholders if there are only a few shareholders or by a joint property association created for the purpose of managing the joint facility. If the shareholders directly manage the joint facility, they will have to agree on all decisions. A joint property association is a legal person consisting of the owners of the shareholder properties. The association manages the joint facilities in which the participating real properties have shares. The stakeholder properties in the joint facility have shares reminding of the share system of a joint property unit.

A joint property association is created by the cadastral authority. The co-owners in the joint facility become members of the association and select a governing body and the articles of the association (SFS, 1973b,1973d:1150). A yearly fee is normally to be paid by its members. The association articles describe what facilities have to be managed, the responsibilities of the governing body and how the annual general meeting of shareholders shall be conducted. A revision of the association articles can only be done at the annual general meeting, which is the highest decision-making authority of the association. The association normally has one general annual meeting, but extra meetings can be scheduled, if needed. The governing body is elected at the annual meeting and responsible for managing the facilities in accordance with the facility order. For that purpose, an annual general meeting is held. The association may, in order to facilitate construction work and maintenance, demand additional funds from the members or take loans.

It is the task of the owners' association to create clear rules for management and take action against disturbances amongst the residents, and to issue house rules for the use of the common property.

The general regulations for rights between neighbours are applicable also to condominium, but in addition there are some special rules concerning the possibility of access to the adjacent property for repairs, construction work, etc. The law also provides protection from insufficient maintenance or damage from the adjacent property. If occupants of the apartment units cause disturbances to the extent that it cannot be tolerated, the owner can be ordered under penalty that the disturbance should stop. It is, however, not possible to lose the ownership right.

The Real Property Register is a central register of major importance in Swedish land administration and evaluation and contains information on all 2D and 3D real properties and numerous rights in accordance with the Real Property Register Act (SFS, 2000a:224), the Real Property Register Ordinance (SFS, 2000b:308) and the Real Property Formation Act (SFS, 1970b:988). The registration of condominium is conducted in the same manner as traditional 2D property units, i.e. given unique registration numbers. However, one specific difference is that the boundaries of 3D property units and RRRs are defined by x, y and z coordinates, or defined by other types of textual description of the condominium extent by referring to details on the construction drawing or other documentation. An example is that a condominium unit is located "between level "CA" +31.2 m and level "CA" +55 m "(El-Mekawy et al., 2014, pp. 21–22).

The condominium shares in the joint property unit(s) and joint facilities are registered in the Real Property Register. The register consists of a textual part and the digital index map. The condominium unit is in the textual part marked as a 3D property with the additional information that it is a condominium unit. There is also a reference to the property formation dossier, which also has a unique identifier.

The spatial extension is subject to rudimentary registration in the digital cadastral index map. Only the footprint of the building is recorded together with cartographic text and identification number of the

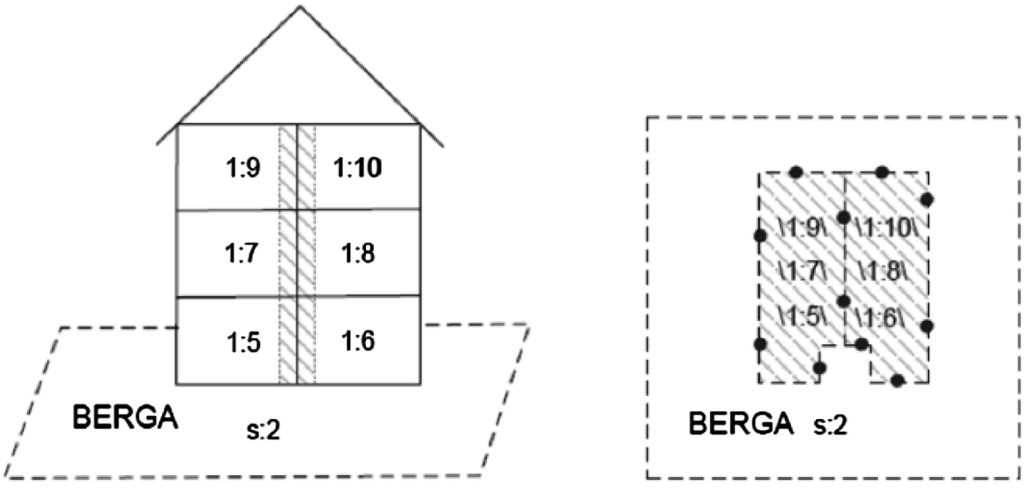

Fig. 2. Cross section of building with 6 condominium units (left) and their registration in the cadastral index map (right) (Lantmäteriet et al., 2004).

condominium units marked by "\ \", e.g. "\1:9\", and the cadastral boundary is visualised with a special layout, as shown in Fig. 2.

Joint property associations are registered in the national Joint Property Associations Register (Lantmäteriet, 2016, ch. 5). Joint facilities concerning 3D properties are registered in the national Real Property Register.

2.2.1. The co-ownership shares in the Swedish condominium

The condominium owners automatically become members of the association and have the right to vote. In the case where two persons co-own a real property having part in a joint property unit, they only have one vote since the share system is based on the participating real properties, not its individual owners, in accordance with the so-called method of principal number (*huvudtalsmetoden*). However, if the issue subject for the vote is of economic significance the votes shall be based on the shareholder properties' actual participatory shares in the joint property unit (*andelstalsmetoden*). This principle may lead to undemocratic decisions, if it was not for the limit that an individual member cannot execute more than 20 % of the total amount of votes (SFS, 1973b, 1973d, §49).

A participatory share in a joint facility is calculated for each condominium unit, based on how beneficial the joint facility is estimated to be for the condominium unit. In addition to this, a participatory share in the financial costs for operating and maintaining the joint facility is also calculated, based on to what extent the condominium unit is expected to use the facility. Swedish legislation (SFS, 1973a:1149, §15) only specifies that the shares shall be divided fairly among the shareholders but does not specify any method or parameters for calculating the shares. Neither do the existing guidelines for 3D real property formation or joint facilities from the cadastral authorities, e.g. Lantmäteriet (2018; 2019b), specify any methods. A survey (Blomberg and Söderqvist, 2017) noticed this lack of instructions from the cadastral authorities, which has resulted in different methods and parameters used for calculating participatory shares. This is in contrast to other guidelines for calculating shares for other types of joint facilities, for example joint facilities for roads (Lantmäteriet, 2018, p. 115). As a result, different methods for calculation of shares are used by the cadastral authorities (Blomberg and Söderqvist, 2017). One method is that condominium units in a building are given the same participatory shares in the joint facility. Another method is that shares are calculated based on the condominium area, indicating that a larger area means more people using the condominium unit, thus generating more wear on the common facilities in the building than smaller condominium units. Another example, again according to Blomberg and Söderqvist (2017), is that the floor number where the condominium is located has been used as a parameter in the calculation, based on the principle that common installations such as stairs and elevators are used more frequently by residents and visitors accessing condominium units located higher up in the building than units on lower floors, thus generating more wear.

The participatory shares in a joint facility may in some situations be changed by the steering committee of the joint property unit association, if they have been granted permission to do so by the cadastral authority SFS (1973a:1149, §24). Other situations resulting in the change of shares are when the shares are changed in cadastral procedures for a joint facility, or due to changes in the division of property units.

2.3. The Turkish condominium

The Turkish condominium is regulated by the Condominium Act (Kat Mülkiyeti Kanunu, KMK) 634 of 1965 and amendments made later to this act. It corresponds to the principles of the 'dualistic system' which integrates the individual ownership of an apartment and co-ownership of the common property into a composite ownership (cf. van der Merwe, 2015, p. 6; 2016, p. 132).

The condominium is composed of the private ownership of condominium units and co-ownership of common places. The condominium unit is regarded as a type of immovable property in the Turkish Civil Code (Türk Medeni Kanunu) of 2001. Currently, 20,747,354 condominium units, which constitute about 26 % of 78,158,279 immovable properties of Turkey as of November 2019, are registered by the General Directorate of Land Registry and Cadastre.[1] The ownership of the condominium units may be in the form of sole ownership, co-ownership, or joint ownership defined in the Turkish Civil Code.

The condominium can be established on immovable properties that include buildings having at least two physically divided units which can be used individually and independently. A provisional or off-plan condominium (*kat irtifakı*) can also be established on unbuilt properties to be constructed in the future and become a condominium when the construction is completed and the building occupancy permit is issued (KMK, Article 3). The condominium can be terminated by the annulment of register records from the condominium book upon the written demands of all owners (KMK, Article 46). Also, it terminates by itself in case of devastation of the main building completely (KMK, Article 47). In both situations, the owners of the units become co-owners of the parcel proportionately to co-ownership shares of their units. Additionally, the condominium is expired when the main property (land and building) is expropriated or completely destroyed (KMK, Article 46).

In the Turkish condominium, the immovable property where the condominium is established is termed as the main property (*ana taşınmaz*) and the structure itself as the main building (*ana yapı*). The Condominium Act categorizes the legal parts of the main property as the condominium unit (*bağımsız bölüm*), common place (*ortak yer*), and accessory part (*eklenti*) (KMK, Article 2). These legal parts are explicitly specified in the architectural drawing, which is one of the constitutive documents for the establishment of condominium.

The condominium unit is the part of the main property intended for independent and exclusive use, such as an apartment, office, shop, store or warehouse. The measure of the independence and exclusivity is related to the intended use of the condominium unit. For instance, an apartment to be registered as a condominium unit has to provide facilities which an ordinary apartment provides, such as kitchen, bedroom and bathroom. Moreover, each condominium unit has a co-ownership share in the common places; a division in which the co-ownership share has not been allocated cannot be considered as a condominium unit. A condominium unit may consist of more than one contiguous or non-contiguous division on the same or different floors provided that these divisions are of the same use type or need each other to perform the function of the condominium unit. Some non-isolated spaces, such as tennis courts and swimming pools, may also be registered as condominium units as long as they individually fulfil the intended use. Such places may also be designated as a common place or accessory part (see below) in the condominium deed. The location and area, interior partitions, type of use, co-ownership shares, and accessory parts of the condominium units are specified in the architectural drawing and the condominium deed.

The second legal part in the Turkish condominium is the common places which are co-owned by the condominium owners proportionally to the co-ownership shares of their condominium units. According to the Act, the common places include the parcel, building facilities, and installations located outside the condominium units and serve to protect and facilitate the common use of the main property. The common places may be determined in the condominium deed. However, the Act provides a list of building components and installations which are, in any case, deemed to be common places as follows; (a) structural components (e.g. the foundations and walls, ceiling and floors, yards, main

[1] https://www.tkgm.gov.tr/en

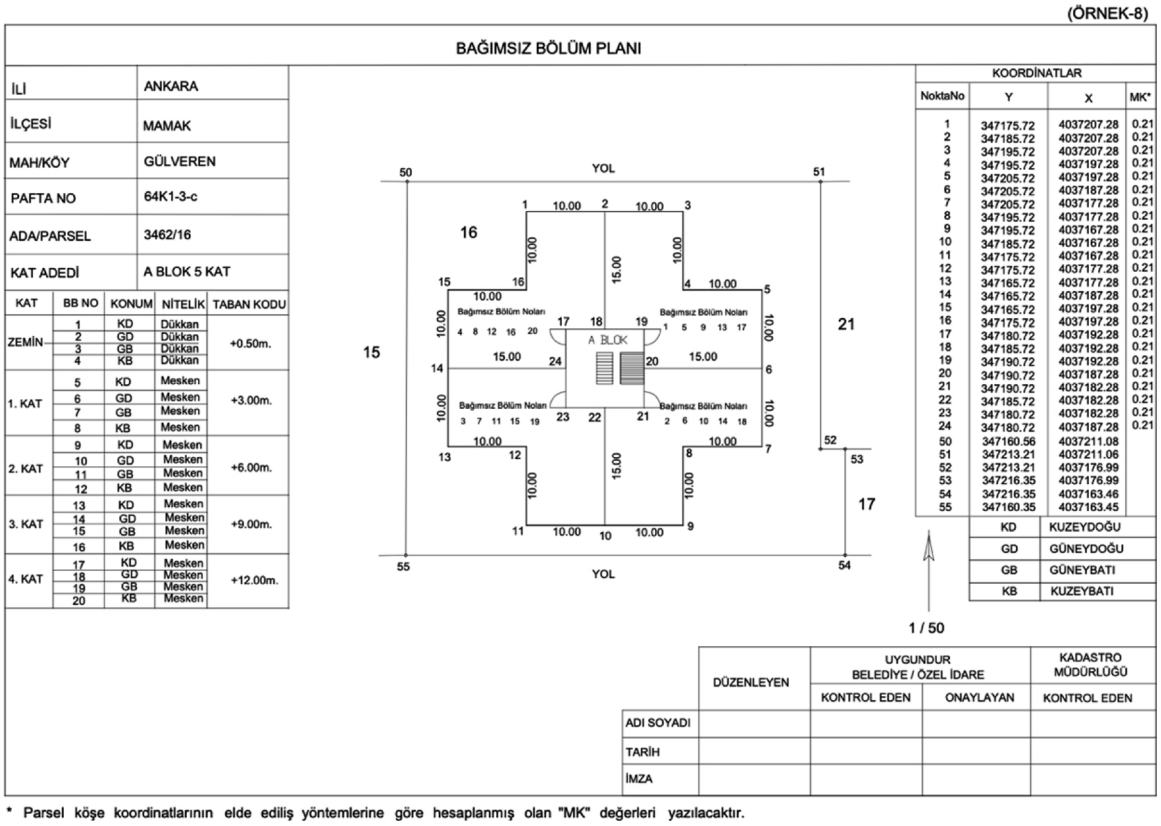

Fig. 3. An example of a condominium unit plan.
https://www.tkgm.gov.tr/tr/icerik/201913-nolu-genelgede-degisiklik-hakkinda-duyuru

entrance doors, corridors staircases, elevators, roofs, chimneys, and terraces), (b) joint facilities (e.g. common laundries and drying rooms, common garages, and central heating rooms), and (c) installations located outside condominium units (e.g. sewers, central heating, water, gas and electric supply, and telecommunication networks) (KMK, Article 4). The walls, floors and ceilings of balconies are also included in the common places. In addition, the spaces or components which are not listed in the Act but are indispensable for the common protection and use are deemed as common places. In practice, it is assumed that components of the main property are common places unless they are specified in the architectural drawing as a condominium unit or accessory part.

The last legal part is the accessory part that is outside the condominium units but directly allocated to the exclusive use of a specific condominium unit; for example, parking lots, cellar, and storage rooms can be specified as accessory parts, but components which are indispensable for common protection and use cannot be designated as accessory parts. An accessory part can only be allocated to one condominium unit and is considered as an inseparable part of that unit. Therefore, the ownership right on the condominium unit also covers the accessory part(s) allocated to this unit (KMK, Article 6). The boundaries of the accessory parts, their types of use, and condominium units that are allocated are indicated in the architectural drawing and the condominium deed.

The main property is managed by the assembly of condominium owners (*kat malikleri kurulu*) (KMK, Article 27) according to the resolutions taken in accordance with the provisions of the Act, the condominium deed, and the bylaw (KMK, Article 32). The daily management tasks can be entrusted to a manager or management board which may be appointed from the owners or a professional building management company (KMK, Article 34).

Condominium owners are mutually obliged to comply with the rules of equity, and, in particular, not to disturb each other, not to violate their reciprocal rights, and to conform to the provisions of the bylaw (KMK, Article 18). They are also obliged to maintain the main property and to preserve its architectural condition, beauty, and solidity. No construction and repair to the common places can be made without the consent of four-fifths of the owners. Additionally, condominium owners cannot undertake any repair, modification or installation in their own condominium units, which may damage the main property (KMK, Article 19).

The expenses entailed for cleaning, gardening, door keeping, and security are shared equally among the owners, while the cost and expenses made for maintenance, protection and repairing of the common places, operation costs of the common installations, and salaries of managers are shared proportionally to the co-ownership shares. However, different provisions can be made in the condominium deed or the bylaw. Owners cannot withhold from paying their share of costs and expenses by desisting from their right to use the common places or by stating that they do not benefit from some installations (KMK, Article 20). For instance, an owner whose condominium unit is located on the ground floor cannot refrain from contributing to the expenses made for elevator maintenance (Oğuzman et al., 2009, p. 532).

The quorum for the general meeting of the assembly of condominium owners is determined based on the number of owners and the co-ownership shares of their condominium units. The general meeting is quorate if attended by more than half the owners representing more than half the total co-ownership shares (KMK, Article 30). At this meeting, the decisions are taken based on majority votes. The owner of a condominium unit has one vote; an owner who has more than one condominium unit has a separate vote for each unit but not exceeding one-third of all votes (KMK, Article 31). The following issues require decisions to be taken by a majority of the owners with more than half the total co-ownership shares: (a) Appointing a manager or managerial board (KMK, Article 34), (b) appointing an auditor or an auditory board, and (c) renewing and making additions to common

places (KMK, Article 42). The unanimous resolution of all owners is needed for the following issues: (a) Changing the use type of condominium units (e.g. from residential to commercial) (KMK, Article 24), (b) modifying existing co-ownership shares in the event of creating a new condominium unit (KMK, Article 44), (c) restricting the main property with a limited property right (e.g. easement and right of way), subdividing the parcel, transferring the subdivided part to third parties, and renting common places (e.g. external walls for advertisement) (KMK, Article 45), and (d) converting the heating system (e.g. from a central system to an individual unit system) (KMK, Article 42).

The condominium is created by the registration made to the condominium book (*kat mülkiyeti kütüğü*) by the land registry (KMK, Article 11). The required documents for the registration of condominium include the architectural drawing (*mimari proje*), the bylaw (*yönetim planı*) and the condominium deed (*kat mülkiyeti sözleşmesi*) (KMK, Article 12–13). As for the cadastral registration, the layout plan (*vaziyet planı*) and the condominium unit plan (*bağımsız bölüm planı*) are needed. The layout plan shows the legal boundaries of buildings, while the condominium unit plan (Fig. 3, above) demonstrates the legal boundaries and locations of condominium units and their accessory parts.

2.3.1. The co-ownership shares in the Turkish condominium

A condominium is a special form of ownership which is related to the co-ownership shares (*arsa payı*) and common places in the main property (KMK, Article 3). The condominium unit and its co-ownership share are inextricably linked; thus, the co-ownership share cannot be transferred or conveyed separately from the condominium unit (KMK, Article 5). The co-ownership share is the main determinant for the use of common places, management of the main property, and the contributions to the cost and expenses made for the main property, as detailed below.

The co-ownership share determines the ownership shares of the condominium units in the common places. The owners of the condominium units have the right of use to the common places in proportion to the co-ownership shares of their units, unless otherwise is specified in the condominium deed or the bylaw (KMK, Article 16).

The co-ownership share has important functions in the management of the main property. It is one of the determinants for the quorum for the general meeting of the assembly of condominium owners (KMK, Article 42). Moreover, the appointment of a manager or an auditor, and renewal or additions made in common places, require decisions taken by a majority of the owners with more than half of the total co-ownership shares (KMK, Article 34–42).

The co-ownership share is also used for fairly sharing costs and benefits. The costs and expenses made for maintenance, protection and repairing the common places, operation costs of the common installations and salaries of managers are shared proportionally to the co-ownership shares. In terms of the insurance of the main property, the condominium owners are obliged to contribute to the charges in proportion to their co-ownership shares (KMK, Article 21). Similarly, if the main property is expropriated, the compensation will be distributed among the owners based on the co-ownership shares of their condominium units. Also, revenue gathered from the common places (e.g. renting external walls of the main building for advertisements) is distributed between the owners according to the co-ownership shares. Lastly but more importantly, the co-ownership shares will specify ownership shares of the condominium owners in the parcel and building when the condominium deed is terminated, or the main building has been completely destroyed.

The Condominium Act stipulates that the co-ownership share is calculated according to the values of condominium units at the date of registration of the condominium. The co-ownership share of each condominium unit is calculated by dividing the value of the condominium unit to the aggregate value of all condominium units. The co-ownership shares are determined by the project architect and subject to the approval of all condominium owners at the date of establishment of the condominium in the land registry. If the co-ownership shares have not been allocated proportionally with the values of condominium units at the date of registration, owners may apply to the court to alter their co-ownership shares. The co-ownership shares cannot be modified due to any increases or decreases in the values of condominium units in future (KMK, Article 3).

Neither the type of value nor the method of valuation to be applied is defined in the Turkish Condominium Act. In practice, the relative values of units are taken as the basis for the calculation of co-ownership shares. The valuation date is the date of the registration of condominium; therefore, any changes made in the condominium units after the registration cannot be taken into consideration. Only the two criteria of location and size are mentioned in the act in terms of the valuation of condominium units. However, the Court of Cassation of Turkey indicates other criteria that should be taken into account, such as the type of units (e.g. residential and commercial), number of floors, floor area, location, heating system, lighting, view, allocated accessory parts, and external effects; e.g. daylight and wind (cf. the judgement of the 18th Civil Chamber of the Court of Cassation, E. 2008/10404, K. 2009/700, T. 05/02/2009; E. 2008/1313, K. 2009/1268, T. 17/02/2009).

The co-ownership shares can be modified by a unanimous resolution of the assembly of condominium owners. In addition, they are modified when a new condominium unit is created in the main property (KMK, Article 44). In both cases, the land registry entry of the existing condominium is terminated, and a new condominium is created based on a new architectural drawing which shows the modified co-ownership shares of condominium units.

If all condominium owners do not consent to the modification of co-ownership shares, the co-ownership shares may be altered by the court decision upon the application of the owner(s) who claim(s) that the co-ownership shares have not been allocated proportionally to the values of the units at the date of the registration of the condominium. According to the jurisprudence of Court of Cassation of Turkey, the owners who were present at the registration and signed the application documents are deemed to have consented to the co-ownership shares calculated by the project architect, and therefore cannot demand the alteration of co-ownership shares by the court. However, third parties who became condominium owners after the establishment may apply to the court to alter the co-ownership shares.

The way in which the co-ownership shares are calculated is probably one of the most controversial issues of the Turkish condominium. Even though the Act clearly indicates that the co-ownership shares must be based on the (relative) values of the condominium units, a methodology has not been developed to date. Therefore, the valuation of condominium units is open to the subjective judgements of the project architect who may or may not have expertise concerning property appraisal. In practice, co-ownership shares may be determined based on the floor areas of the condominium units used for residential purposes and on the discretion of the project architect for commercially used units in mixed use condominiums. Since there was a lack of awareness on this matter, the co-ownership shares determined by the project architect had been generally accepted by the condominium owners. However, while the first generation of condominiums are going toward the end of their economic life, disputes related to co-ownership shares are emerging, especially in urban renewal projects where the rights and obligations of condominium owners are based on the co-ownership shares.

3. A comparative analysis of the allotment of co-ownership shares

3.1. General remarks

The condominium concept is regulated in the Netherlands by the Dutch Civil Code since 1952; in Sweden by the Land Code since 2009 and other related acts; and in Turkey by the Condominium Act since

1965. Sweden and Turkey have systems corresponding to the principles of the 'dualistic system', which combines the individual ownership of a flat and co-ownership of the common property. On the other hand, the Netherlands is an example of a 'unitary system'. In this, the condominium concept refers to the co-ownership share in immovable property that gives the co-owner the special right to use a certain condominium unit ("private part") exclusively.

The condominium is generally divided into the condominium unit and the common property. A condominium unit consists of a main part and a co-ownership share. In Turkey, a condominium main part may consist of one or more contiguous or non-contiguous building or land parts. Even some non-isolated spaces, such as tennis courts and swimming pools, may also be registered as condominium units as long as they individually fulfil the intended use. In Sweden, the condominium main part is recommended to consist of not more than one area or space. The Dutch Civil Code offers a very flexible system. Not only buildings, but also the land itself (without buildings) may be divided into apartment units. The only legal requirement is that the units are certain parts of the building that according to their functional arrangement will be used as a separate private unit. In case of land (e.g. a parking spot) it is sufficient that the unit is identifiable as a private part.

The common property, which is represented also by the terms of 'common parts' in the Netherlands, 'joint property' and 'joint facility' in Sweden and 'common places' in Turkey, refers to land and building parts which are co-owned and jointly used by the condominium owners. In the Netherlands the 'common parts' refer to those parts of land and building(s) that are jointly used by the owners or serve all apartment units. These are not only spaces (e.g. corridors, stairs), but also the common structural components (e.g. roof and foundation) and technical installations (e.g. elevators, common heating, sewers). The Turkish legislation provide classifications for spaces or building components which are deemed to be common property. Accordingly, it may include the land, structural components, joint facilities and installations. In Swedish legislation, the common property can consist of joint property and/or a joint facility. It may also include the types of property parts and facilities as mentioned for the Turkish case.

In some jurisdictions some building parts (e.g. garage, cellar, and storage room) can be assigned to a specific condominium unit for use. In Turkey, they are called 'accessory part' which can be allocated to only one condominium unit and is considered as an inseparable part of that unit. In the Swedish condominium system, the condominium units can be granted the right to use individual parts of the joint property through, for example, easements. These rights are connected with the condominium unit and are inseparable from it. The need for such other types of rights comes from the recommendation that the condominium unit should consist of not more than one single space, which means that for the purpose of providing individual rights to storage rooms, parking spaces, etc., other rights have to be created. Also, in the Netherlands, an apartment owner might be granted in the master deed the exclusive right to use a common part, such as a garden, balcony or elevator.

The condominium is established by an entry made in the land registry. The condominium unit is regarded as immovable property and recorded as an individual unit in the land registry (e.g. real property registers in Sweden, both the registration of deeds and cadastre in the Netherlands, condominium book in Turkey) in all investigated jurisdictions. In Sweden, joint property associations are also registered in the Joint Property Associations Register, which is a separate register that contains information about the name of the association, the joint facility that the association manages, the purpose of the facility, board members, etc. In the Netherlands, the owners' association must be registered in the business register (*Handelregister*), the key registration for associations, foundations and businesses in general. The constitutive legal documents include the master deed and drawing in the Netherlands; the application, the property formation order and the cadastral order in Sweden; the statement, the architectural drawings, the condominium deed and the bylaw in Turkey.

3.2. The co-ownership shares

The concept of co-ownership share refers to the ownership share in the whole immovable property, including land and all of the condominium units in the Netherlands, while in Sweden and Turkey it refers to the ownership share in the common property. The co-ownership shares play important roles in decision making processes, sharing common expenses and revenues and determination of ownership shares in the case of dissolution of the condominium.

3.2.1. The co-ownership shares in decision-making (voting) processes

The Dutch Civil Code does not provide any rules on the distribution of the voting rights. Owners in principle have equal votes in the owners' association. However, power of votes can be determined differently through bylaws. Decisions are taken by an absolute majority of votes. In the case of Sweden, in the decision-making processes only one vote per condominium unit is possible, not per individual owner, unless the issue subject for the vote is of economic significance and the votes shall be based on the shareholder properties' actual participatory shares in the joint property unit, although limited to not more than 20 % of the votes for an individual member. In Turkey, the co-ownership share is one of the determinants for the quorum for the general meeting of the assembly of condominium owners. The general meeting is quorate if attended by more than half the owners representing more than half of the total co-ownership shares. The decisions are taken based on majority votes. Each condominium unit has one vote. An owner who has more than one condominium unit has a separate vote for each unit but not exceeding one-third of all votes.

3.2.2. The co-ownership shares in distribution common expenses and revenues

In the Netherlands, the distribution of the common debts and costs may be calculated based on the co-ownership shares of apartment owners. But this is not mandatory. Generally, owners hold equal shares in the co-ownership and the common costs and debts. However, contributions can be arranged in the master deed in such a way that different types of costs are borne by different owners. In Sweden, the joint facility share is used for sharing the costs and benefits. The costs for constructing the joint facility may be based on another participatory share for the condominium unit than the financial costs for operating and maintaining the joint facility. It may also be decided that some of the costs will be distributed according to actual use and paid by fees, e.g. for water consumption. In the Turkish condominium, the co-ownership share is the main determinant for sharing cost and benefits, unless not specified otherwise by the condominium deed or the bylaw. The cost and expenses made for maintenance, protection and repairing the common places, operation costs of the common installations, and salaries of managers are shared proportionally to the co-ownership shares. The condominium owners are obliged to contribute to the insurance expenses of the main property in proportion to their co-ownership shares. Also, income gathered from common places is distributed to the condominium unit owners according to their co-ownership shares.

3.2.3. The co-ownership shares in dissolution of the condominium

The Dutch Civil Code itself does not put any formal relation between the co-ownership share in the property (land and buildings) and the scope of the rights and duties of the apartment owners. This means, in principle, that these shares will only play a role in the case of (partial) dissolution of the apartment complex. For instance, in the case of expropriation the share will be decisive for the compensation each apartment owner will receive. The Swedish condominium cannot be dissolved as such, but e.g. if the condominium building will be destroyed and not rebuilt, the condominium property units cannot continue to exist since a 3D property unit, as the condominium is, must be contained in some sort of physical construction. In that case, the 3D

property units will be transferred to the property unit(s) within whose space the condominium units are situated. The joint facility association will also be dissolved if the joint property unit that it manages has ceased to exist. In Turkey, the condominium terminates by the written demands of condominium unit owners, or in case of devastation of the main building completely or in the case of expropriation of the main property. In all mentioned situations, condominium is transformed to the landed property by the amendment made in the land register. This landed property is now subject to the shared ownership, and the owners of condominium units will be co-owners of the landed property proportionately to co-ownership shares of their units.

3.3. Calculation of methods for determining co-ownership shares

The determination of the co-ownership shares is under the responsibility of different actors, namely the owner(s) of the land and building at the moment of the creation of the condominium units in the Netherlands (in most cases a real estate developer, in practise assisted by the civil law notary responsible for drafting the deed), the cadastral authority in Sweden, and the project architect in Turkey.

In the Dutch condominium, the main rule of the Civil Code is that all apartment owners hold an equal share in the co-ownership. However, the master deed may, and in most cases will, specify different shares. In Dutch law, there is no instruction, nor any formal guidance on how to calculate the shares. The Dutch Civil Code only stipulates that the master deed must provide the basis on which the property shares are calculated. For the division of the shares in the common debts and costs, and also the attribution of the voting rights in the owners' association, such an obligation is even absent. In practice the property shares, and therefore the distribution of costs, debts and voting rights, is based on more or less objective standards, such as floor size, or the original selling price of the apartment. This is a quite flexible system that (based on the limited literature on this subject) seems to work very well in practice. Case law on disputes about the shares is scarce.

In Sweden, participatory shares are calculated based on, for example, estimated benefits derived from joint facilities. A participatory share in a joint facility is calculated for each condominium unit, based on, for example, how beneficial the joint facility is estimated to be for the condominium unit. In addition to this, a participatory share in the financial costs for operating and maintaining the joint facility is also calculated, based on to what extent the condominium unit is expected to use the facility. This means that there may be two types of shares provided for each condominium unit, or they will be the same for both construction and running costs. The Swedish legislation only specifies that the shares shall be divided fairly among the shareholders but does not specify any method or parameters for calculating the shares. As a result, different methods for calculation of shares are used by the cadastral authority as explained in previous sections. The results of this is that the shares may not reflect the actual use for the individual condominium unit. Since condominium was rather recently introduced in Swedish legislation, the regulations and recommendations for calculating shares are still mainly based on other types of facilities, such as roads in rural areas, and are not adapted to the conditions of common property within a condominium building.

In the Turkish condominium, the co-ownership shares must be determined by the project architect based on (relative) values of condominium units at the date of registration of the condominium. The criteria to be taken in the valuation of condominium units include type of condominium units (e.g. residential and commercial), number of floors, floor area, location, heating system, lighting, view, assigned accessory parts, and external effects; e.g. daylight and wind. There is a discussion in the literature whether the co-ownership shares should be modified according to further changes in the (market) values of condominium units. But this is not the case for Turkey. As mentioned above, the co-ownership shares cannot be modified due to any increase or decrease in the values of condominium units in future. The market value of condominium units can surely change over the time due to many internal and external factors, but such changes do not alter the unit owners' initial relative investment. Even though the Act clearly indicates that the co-ownership shares must be based on the values of the condominium units, a valuation methodology in Turkey has not been developed to date. Therefore, in practice, co-ownership shares may be determined generally based on the floor area of the condominium units used for residential purposes and on the discretion of the project architect for commercially used units in mixed use condominiums.

3.4. Modification or alteration of the co-ownership shares

The modification or alteration of the co-ownership shares in some specific circumstances is allowed.

In the Netherlands, a modification of the co-ownership shares needs a change of the master deed. In practice, this proves to be a cumbersome procedure as not only the consent and collaboration of all apartment owners is needed, but also the approval by all holders of limited rights in the apartment rights, creditors in case of a seized property and (in case of a ground lease or building lease) the land owner. Since 2005, the procedure is made easier because a change of the Civil Code introduced the possibility to replace the collaboration of all apartment owners by a majority vote (by at least of 80 %) in the owners' association. Still the approval by the third parties mentioned above is needed.

In Sweden, the participatory shares in a joint facility may be modified, which is normally made by application to the cadastral authority. This can be related to changes in conditions for the joint facility. An agreement may be made by the condominium owners, which must be approved by the cadastral authority. Modification of shares may also have to be made if property units are added or amalgamated.

In Turkey, the co-ownership shares may be modified through a unanimous resolution of the assembly of condominium owners. Moreover, they may be altered by the court decision upon the application of the owner(s) who claim(s) that the co-ownership shares have not been allocated proportionally to the values of the condominium units at the time of the registration. Turkish legislations allow modification of co-ownership shares in the cases of subdivisions and amalgamation and the extension of condominium units, and the demolition of one or more condominium units.

In concluding this section, it is evident, from just three different cases, that the regulations vary to a large extent. Where the Turkish system includes more detailed regulations, the Dutch and the Swedish systems seem to be more general and, to some extent, more based on recommendations and practice than on detailed law regulations.

4. Conclusions

This article describes legal provisions related to allotment of co-ownership shares, which is probably the most important but often ignored aspect of the condominium. The general content of condominium systems and methods applied for the allotment of co-ownership shares are documented for the Netherlands, Sweden and Turkey, and compared. All jurisdictions described belong to the civil law legal system. It appears that Sweden and Turkey have regimes that comply with the principles of the 'dualistic system', where a condominium owner has an exclusive ownership right in the condominium unit and an undivided share in the common property. A 'unitary system' is applied in the Netherlands, in which a condominium owner is a co-owner of the whole immovable property divided into condominium units and has only a special right of use with regard to the condominium unit concerned. The concept of co-ownership share in the Netherlands means therefore the share in the whole property consisting of the land and of all the condominium units, while in other investigated jurisdictions, it is understood as the share only in the common property. This legal concept

is also represented by the terms of 'participatory share' in Sweden.

The functions of co-ownership shares are investigated. As for financial matters, it is observed that in all investigated jurisdictions, cost and benefits are shared between condominium units proportionally to their co-ownership shares, unless otherwise specified in constitutive documents. As for decision making, each condominium unit has one voting right in all of the selected jurisdictions. However, decisions that may have economic consequences are taken by the votes based on participatory shares of the condominium units in Sweden. Both in Sweden and Turkey, there are limits which indicate that an individual owner cannot execute more than 1/5 and 1/3 of the total amount of votes, respectively. In case of dissolution of condominium, the co-ownership shares in the Netherlands and Turkey will represent ownership shares of condominium units in landed property.

The comparison demonstrated that the co-ownership shares are determined by a number of actors in the investigated jurisdictions, namely the landowner(s) (assisted by the civil law notary) in the Netherlands, the cadastral authority in Sweden, and the project architect in Turkey. Only in Turkey, co-ownership shares are calculated on the basis of the (relative) values of condominium units. Yet the existence of a formal valuation methodology has not been observed. In Sweden, participatory shares are calculated based on estimated benefits derived from joint facilities. In the Netherlands, the selection of criteria is left to the landowner(s) (in most cases a real estate developer).

As can be seen from the comparison of the case studies, there is a variation of the criteria used to determine the co-ownership shares. They can be rather detailed or rather general, and the basis for them can be related to area, value, floor, use benefit, or other criteria. It seems that there might be a need for an update of these rules related to actual conditions, but without making them too complex and complicated to determine. Objectivity and verifiability will be crucial. Moreover, a transparent and participatory approach steered for instance by a trusted (public) third-party (e.g. notaries, publicly appointed surveyors) for the allotment of the co-ownership shares would create a trust among the unit owners and thus prevent possible disputes.

Following van der Merwe (1987, p. 15), we might suggest using different criteria or basis for different functions of co-ownership shares. However, seen the differences of all three systems, and their functioning in practice, it is very hard to reach from our research general conclusions on the 'best', i.e. the most objective criteria. We propose the equality criteria for the allocation of voting rights, and the size or floor area criteria for the allocation of shares in common expenses and profits. As for determination of the co-ownership share in the parcel, the market value criteria can be applied, as proposed by the Uniform Common Interest Ownership Act of the United States. Accordingly, the co-ownership shares are determined immediately before the termination based on the market values of condominium units. The market values are appraised by independent valuers selected by the unit owners' association. In case of expropriation of the main property, the same procedures may also be applied by the courts for the determination of compensation amount for each unit. However, it should be noted that such a solution will not fit a unitary system as the Netherlands as the condominium owners hold a share in the full property ('individual' units included) and therefore the shares as set at the creation of the condominium will always be decisive.

CRediT authorship contribution statement

Volkan Çağdaş: Conceptualization, Methodology, Investigation, Writing - original draft, Writing - review & editing. **Jesper M. Paasch:** Methodology, Investigation, Writing - original draft, Writing - review & editing. **Jenny Paulsson:** Methodology, Investigation, Writing - original draft, Writing - review & editing. **Hendrik Ploeger:** Methodology, Investigation, Writing - original draft, Writing - review & editing. **Abdullah Kara:** Methodology, Investigation, Writing - original draft, Writing - review & editing.

Acknowledgements

The authors wish to acknowledge to the anonymous reviewers for their constructive comments to previous versions of this article.

References

Akkermans, B., 2008. The principle of numerus clausus in European property law. Intersentia 2008.
Bernitz, U., 2007. What is Scandinavian law? Concept, characteristics, future. Scand. Stud. Law 50 (1), 13–30.
Blomberg, C., Söderqvist, L., 2017. Andelstalsfördelning för gemensamhetsanläggningar i tredimensionella fastigheter [Participatory shares in joint facilities in 3D property formation]. (In Swedish). University West, Trollhättan, Sweden.
Chen, L., 2016. The changing landscape of condominium laws and urban governance in China. In: Lehavi, A. (Ed.), Private Communities and Urban Governance. Springer International Publishing, pp. 1–26.
Christudason, A., 2008. Legislation affecting common property management in Singapore: confusion or solution through fragmentation? Prop. Manag. 26 (3), 207–219.
Dutch supreme court, 1998. Van Gasteren/Beemster, Hoge Raad 30 October 1998 ECLI:NL:HR:1998:ZC2759.
El-Mekawy, M., Paasch, J.M., Paulsson, J., 2014. Integration of 3D Cadastre, 3D Property Formation and BIM in Sweden. In: Proceedings of the 4th International FIG 3D Cadastre Workshop, 9-11 November 2014. Dubai, UAE. pp. 17–34.
EUI, 2005. Real Property Law and Procedure in the European Union – General Report. European University Institute (EUI) Florence/European Private Law Forum Deutsches Notarinstitut (DNotI) Wurzburg.
Groetelaers, D.A., Ploeger, H.D., 2010. Management of redeveloped industrial areas with mixed use in The Netherlands. J. Leg. Aff. Disput. Resolut. Eng. Constr. 2 (1), 73–81.
Kat Mülkiyeti Kanunu, 1965. Turkish Condominium Act].
Lantmäteriet, 2009. Ägarlägenheter - information till lantmäterimyndigheterna. [Condominiums - information to governmental agencies]. Version 2009-05-04. Lantmäteriet, the Swedish mapping, cadastral and land registration authority (In Swedish).
Lantmäteriet, 2012. Fastighetsregistret. Helårsstatistik 2011. [Real Property Register. Statistics 2011]. Lantmäteriet, the Swedish mapping, cadastral and land registration authority (In Swedish).
Lantmäteriet, 2016. Handbok Fastighetsregistrering. [Guidelines, Real Property Registration]. Version 2016-01-25. Lantmäteriet, the Swedish mapping, cadastral and land registration authority (In Swedish).
Lantmäteriet, 2018. Handbok AL. Anläggningslagen. [Guidelines, Joint Facilities Act]. Version 2018-05-15. Lantmäteriet, the Swedish mapping, cadastral and land registration authority.
Lantmäteriet, 2019a. Fastighetsregistret. Helårsstatistik 2018.[Real Property Register. Statistics 2018]. Lantmäteriet, the Swedish mapping, cadastral and land registration authority (In Swedish) December 31st. 2018.
Lantmäteriet, 2019b. Handbok FBL. Fastighetsbildningslagen [Guidelines, Real Property Formation Act]. Version 2019-02-01. Lantmäteriet, the Swedish mapping, cadastral and land registration authority.
Ngo, M., 1987. Strata titles: a system of flat ownership and management. Prop. Manag. 5 (4), 309–316.
Oğuzman, K., Seliçi Ö., Oktay-Özdemir, S., 2009. Eşya Hukuku [Law of Things]. Filiz Kitabevi, 12'nci baskı, İstanbul.
Paasch, J.M., 2011. Classification of real property rights. A comparative study of real property rights in Germany, Ireland, the Netherlands and Sweden. TRITA-FOB Report 2011. KTH Royal Institute of Technology, Stockholm, Sweden, pp. 1.
Paulsson, J., 2007. 3D Property Rights – An Analysis of Key Factors Based on International Experience. Doctoral Thesis in Real Estate Planning, KTH Royal Institute of Technology.
Paulsson, J., Paasch, J.M., 2013. 3D property research from a legal perspective. Comput. Environ. Urban Syst. 40, 7–13.
SFS, 1970a. 994. Jordabalken [Land Code]. SFS (1970:994).
SFS, 1970b. 988. Fastighetsbildningslag [Real Property Formation Act]. SFS 1970:988.
SFS, 1973a. 1149). Anläggningslag [Joint Facilities Act]. SFS 1973:1149.
SFS, 1973b. 1150). Lag om förvaltning av samfälligheter [Joint Property Units (Management) Act]. SFS 1973:1150.
SFS, 1973c. 1144. Ledningsrättslag [Utility Easements Act]. SFS 1973:1144.
SFS, 1973d. 1150. Lag om förvaltning av samfälligheter [Joint Property Unit Management Act]. SFS 1973:1150.
SFS, 2000a. 224). Lag om fastighetsregister [Real Property Register Act]. SFS 2000:224.
SFS, 2000b. 308). Förordning för fastighetsregister [Real Property Register Ordinance]. SFS 2000:308.
Türk Medeni Kanunu, 2001. Turkish Civil Code].
UNECE, 2005. Guidelines on Condominium Ownership of Housing for Countries in Transition. UNECE. United Nations, New York and Geneva.
van der Merwe, C.G., 1987. The sectional titles act in the light of the uniform condominium act. Comp. Int. Law J. South. Afr. 20 (1), 1–46.
van der Merwe, C.G., 1994. Apartment ownership. Chapter 5. In: In: Yiannopoulos, A.N. (Ed.), International Encyclopedia of Comparative Law Vol. 6 Property and trust. Tübingen, Mohr.
van der Merwe, C.G., 2008. The Adaptation of the institution of apartment ownership to civilian property law structures in the mixed jurisdictions of South Africa, Sri LanKa and Louisiana. Stellenbosch Law Review = Stellenbosch Regstydskrif 19 (2),

298–313.
van der Merwe, C. (Ed.), 2015. European Condominium Law. Cambridge University Press, pp. 2015.
van der Merwe, C., 2016. European condominium law: nine key choices. In: Lehavi, A. (Ed.), Private Communities and Urban Governance Ed. Springer International, pp. 127–149.
van Velten, A.A., 2015. Privaatrechtelijke aspecten van onroerend goed. Wolters Kluwer, Deventer.
van Velten, A.A., 2017. Mr. C. Asser's handleiding tot de beoefening van het Nederlands Burgerlijk Recht, 5, Zakenrecht. Deventer, Wolters Kluwer.
Zweigert, K., Kötz, H. (Eds.), 1998. Introduction to Comparative Law. 3rd Revised Edition. Oxford.