

CHAPTER 5

3D PROPERTY RIGHTS IN RELATION TO THE SWEDISH MODEL

5.1 Introduction

The aim of this chapter is to look into the 3D property rights in Sweden. This is done by studying the Swedish country background information and cadastre system in Section 5.2 and Section 5.3, which is based on the Country Report on Cadastral Template (2003) (Osterberg, 2003) by the Permanent Committee on GIS Infrastructure for Asia and the Pacific (PCGIAP). This information is supplemented by other material collected mainly during the writer's internship programme with the Royal Institute of Technology (KTH) in Stockholm, Sweden. Section 5.4 and Section 5.5 will look at the rights in Swedish land and cadastre legislation as well as the description on boundary respectively. The last section will draw a summary of these studies.

5.2 Country Background Information

Sweden has a land mass of about 450,000 km² including lakes and watercourses. It is 1572 kilometres long and approximately 500 kilometres wide at its widest point. At the time of writing, the total population of Sweden is nearly 9.5 million and the population density is approximately twenty-two persons per square km. At the time of writing, about 80% of the population in Sweden live in urban areas.

Sweden developed from settlements after the last ice-age and the present country was unified into one kingdom around the year 1000. In medieval times, Norway, Sweden and Denmark were unified at various periods. The modern kingdom of Sweden was established around 1500 and the democratic State emerged around 1900. Finland and the Baltic States had, for different periods, been included in the Swedish kingdom; hence, they have been influenced by the Swedish Cadastre System.

Sweden has been a constitutional monarchy since 1809 and is nowadays known throughout the world for its neutrality. The country is one State governed by a central government and parliament, with the king wielding no political influence. There are three democratically elected levels of government, namely the *Riksdag* (Swedish Parliament) at the national level, the county councils at the regional level and the municipalities at the local level. Each has different duties and areas of responsibilities, and elections take place on the same day every four years for all three levels.

For administrative purposes, Sweden is divided into twenty-one counties and two hundred ninety municipalities. At county level, the State has a regional administration through the County Administrative Board. There is also a direct elected council with rights to levy taxes and that is responsible mainly for health care at the county level. Most social welfare and land use planning are the responsibility of the municipalities, which also have direct elected parliament and rights to levy taxes.

The ministries in the central government are small organisations, mainly dealing with policy formation and preparation of proposals to the parliament. The central administration is carried out by national authorities and agencies which implement policies independently within the framework of the legislation and budget frames. All government decisions are taken collectively within the government. The government cannot interfere in the decision-making in a national agency.

Before 1st June 2008, Swedish land registration and cadastral surveys were carried out by two independent organisations. Land registration was performed by the Land Register Authority, which was part of a District Court under the jurisdiction of the National Courts Administration within the Ministry of Justice. However, each Land Register Authority made its decisions independently. At the same time, the *Lantmäteriverket* (National Land Survey), established in 1628 and is today a part of the Ministry of Environment and Natural Resources, was responsible for the cadastral surveying. It decentralised the task of cadastral surveying to twenty-one county cadastral authorities.

The rationale for this arrangement was that the land information management and the land registration would be managed and coordinated more effectively. It was felt that the conditions for management and control of the land registration offices would be better with only one single organisation. Another reason for the decision was the overall objective to refine the courts to handle court matters only. About 90 registration offices which previously belonged to the Administrative Courts were reformed and were reduced to seven local registration offices under the purview of the National Land Survey.

Although the National Land Survey is entrusted with the responsibility for real property formation and official real property as well as geographic information in Sweden, it has a regional organisation in each county and local offices in all the municipalities. Hence, some large municipalities have established their own cadastral survey organisations and offices for real property formation. Many municipal offices do not have institutional links with the National Land Survey, which is responsible for the land information system that supports cadastral and land registration, but they are expected to operate according to the same principles and

standards. However, owing to administrative and bureaucratic structures, there seems to be some resistance to adapting to technological progress and new national *Lantmäteriverket*'s standards are not always adhered to (Stuedler, 2004).

The National Land Survey operates in three main areas, namely real property formation, geographic and land information as well as commercial services. The County Cadastral Survey Authority is handled as part of the real property formation area. Its responsibilities are connected to real property registration as well as supervision and support related to real property assessment, land use matters and development related to these tasks. As for geographic and land information, the *Lantmäteriverket* provides information pertaining to national mapping, basic geographic information, the Land Data Bank System and national boundaries. Providing access to information in the Land Data Bank System and the emerging geographical databases is one of the more important tasks in this area of work. Furthermore, in areas of commercial services, the tasks are performed on a purely commercial basis for municipal and land information. Among the services provided are production, digitising, measurements and calculations.

Although the overall responsibility for the data and registration functions are carried by *Lantmäteriverket*, various organisations cooperate in order to have an integrated cadastre and registration system in Sweden. First, for legal cadastre, i.e. Land Register, there is cooperation within the Ministry of Justice, National Land Survey and Local Courts. Second, for physical cadastre, i.e. Property Register, there is cooperation within the Ministry of Environment and Natural Resources, *Lantmäteriverket* and Cadastral Authority. Finally, for fiscal cadastre, there is cooperation within the Ministry of Finance, National Tax Board and Regional Local Tax Authority.

After 1st June 2008, *Lantmäteriverket* has been entrusted with the cadastral registration of real properties and rights to them in Sweden. It is responsible for cadastral surveys, property formation acts, registration of properties, rights and encumbrances through its local offices and for dealing with any related information about the real property. Furthermore, *Lantmäteriverket* also deals with developers and manages the Property Register, the Mortgage Deeds Register, the Real Property

Price Register and the Register of Joint Property Management Associations. Updates are taken care of by the Cadastral and Survey Authority and others.

5.3 Country Cadastre System

The modern Swedish cadastre is based on cadastral books from 1530 that were written for taxation purposes by the king. These cadastral books listed real properties according to each village and gave every unit a number in the village. This numbering system is still used for designation of real properties. During the seventeenth century, these cadastral books were complemented by village cadastral maps, showing all real parcels in the village. The purpose of these cadastral maps was mainly to improve the taxation of land and to make it equal by surveying the area and value of each land parcel. In order to carry out this task, *Lantmäteriverket* (National Land Survey) was created in 1628 as a governmental organisation.

Land registration has been confirmed since the beginning of history by Local Courts in order to make it known that a property has changed ownership. Written documents are available from the medieval times. In 1875, a title registration system was introduced. Court proceedings were compared to the cadastral books and cadastral maps. A special registry, the Property Register, was established during a 20 year period (1910 – 1930) in order to give definition to real property and a designation to this unit. The title registration system was based on it and its description of the property.

In the 1930s, work to establish a comprehensive and coherent national map in one national geodetic system was started. From the beginning, these maps were based on aerial photography, photo mosaics and later orthophotos. The maps were named economic maps and were produced in scales from 1:5,000 to 1:20,000. Cadastral boundaries were transferred from the old village maps to the new system by mainly photo interpretation of the boundaries and comparison with the old maps.

There were no attempts to calculate new areas for the property units in that period. This mapping programme finished in 1978 and is now maintained and complemented with land use plans, regulation and other features of importance for land use rights. Another important development was that the original cadastral books with its division of the village into real properties that also started around the 1600s were used by the State church for recording the population, births, deaths and places of residence. Such records have been maintained over the years. In present times, they have been taken over by the Tax Authority. In this way, all the people living in Sweden are connected to real property in a continuously updated census. Such records provide important data for use in land information and social data for public as well as private planning and administration.

In the 1960s, the Swedish government attempted to modernise the cadastral books in the Property Register with the proposal to computerise the Property Register. One of the main advantages was seen in the possibility of combining information in the Property Register with the Population Register through the property designation, thus making spatial analysis a support for physical and economic planning. For this purpose, each real property was assigned a central coordinate in the national system. This was actually one of the pioneer works which later led to the development of Geographic Information System (GIS). The decision to computerise the Property Register and Land Register was taken in 1968 and 1970 respectively. After the system was developed, Sweden became the first country to implement it with legal force in 1975. The system was completed for the whole of Sweden in 1995.

To conclude, up to the thirteenth century, land in Sweden was regarded as a family or kinship property and the emphasis of the law was rather to prevent rather than assist in trading land. In the fifteenth century, influences from Germany led to more modern dealings in land with written transfers and mortgages. The development of a centralised State, with its need for systematic taxation systems, led to the introduction of the Land Registration System in the sixteenth century. This became tied to land transactions and land mortgages. The eighteenth century brought an end to aristocratic privileges and a codification of existing land customs was

declared. Proposals for a new Land Code were put forward in 1909 but were not adopted until 1970.

5.3.1 Types of Cadastre System

Over the centuries, the cadastre system in Sweden has evolved into a very well-developed infrastructure. The Swedish system is based on the title registration system, which in turn is divided into cadastral units. The Swedish Cadastre System was developed systematically from simplified taxation records that were later linked to a comprehensive cadastral mapping system, covering the whole country and connected to a common universal reference system with a high degree of reliability.

The objectives of the cadastre system, including the land information system, are to promote and control sustainable and efficient land use, as well as to provide land information for land titling, land use planning, land taxation, environmental control and business development. From previous situations with different systems for urban and rural areas, the cadastre system is today with one unified system valid for all types of land and government. Sweden is probably one of the first countries to implement a nationwide database system that includes information from different organisations responsible for land information (Steudler, 2004).

Technologically, the Swedish system is one of the more advanced registration systems in the world. Presently it is fully functioning and computerised. The computerisation of the Land Data Bank System in Sweden was launched in 1970 and completed by 1995. Its two main databases contain information from the Property Register of *Lantmäteriverket* and municipalities, as well as from the Land Register. From the outset, the system includes information on the assessed value of the individual properties taken from the tax administration. Nowadays, the system has expanded to include buildings as well as information on addresses. In order to safeguard the data from damage, unauthorised access, unlawful changes and

destruction, significant funds were allocated for the development of high security mechanisms.

Physically, the database is located in the central server of *Lantmäteriverket* (National Land Survey) which is the only authority that can make changes in this data bank. The messages from its terminal sent by the registration body can be edited by the authorised registrar. The functions of the Land Data Bank System include establishing certainty of land ownership and rights, giving publicity and legal protection for land tenure, facilitating the transfer of land, and providing easy access to information about any parcel of land in the country. The system also plays important roles such as property taxation, agricultural statistics, land surveying, environmental monitoring, urban and regional planning as well as population registration.

All land in Sweden is divided into real property units that are subject to compulsory registration in the Land Data Bank System. Property units could be divided only in the horizontal plane before 2004. The government guarantees the content of the system, which has legal power. There are provisions for compensation for owners, should they suffer losses under specified conditions. The Land Data Bank System provides for constitutional openness and public accessibility. Documentary records can be accessed online for inspection purposes free of charge but there is a fee for copies.

The Land Data Bank System also contains information from other registers, such as from the Real Property Assessment Register that includes tax assessment values, properties of tax payers and types of land use. Another data source is the Population Register that provides the population density code, and the Register of Building that provides the identification numbers, addresses, locations, owner names, types of use, and values of buildings. Meanwhile, the property index maps are part of the Property Register kept separately from the textual part. The property index maps for rural areas are based on the land use map. They have been printed in the scale of 1:20,000, but are maintained on originals in the scale of 1:10,000 at the regional authorities. On the other hand, the property index maps for urban areas are

based on large scaled municipal base maps in a scale of either 1:1,000 or 1:2,000, and in some major cities 1:400 or 1:500.

The Swedish Land Code 1970 deals with all important aspects of private real estate laws. It includes rules about fixtures, purchase of land, mortgages, easements and registration of rights to real property. The code states that all land in Sweden is divided into real properties and it defines the legal boundaries between properties and the rights between neighbours. A property may consist of one or several land parcels or a water parcel with specific rights like hunting and fishing.

According to the Swedish Land Code 1970 (2006), objects or elements permanently fixed to a piece of land or constructions are belongings of the real property unit. Hence, a real property consists not only of the land but also of its fixtures. The most common fixtures are trees and buildings, although buildings are not parts of the property if they have been brought to the property by someone else other than the owner of the property, for instance a lessee.

A building's construction, fences, joint facilities, servitudes and others are regarded as fixtures to the land parcel. The fixtures can also be machines and other equipment if the immovable property is partly or fully used for production purposes. However, the fixtures cannot be related to the immovable property if the owner has declared this in the special form in the register of rights of immovable property. The territory of Sweden is thus divided into units of immovable property with their fixtures. The process of division of territory into the units of the immovable property is called property formation and its procedures are regulated by a special law in Swedish Real Property Formation Act.

The Swedish Land Code was amended on 1st July 2000, and on the same date, a new law called the Swedish Real Property Register Act was passed. The law of Property Register regulates the register and the selling of information from the register. This change and the new law brought about the full computerisation of the land and property register. The Swedish Land Code now regulates the system of computerised registration.

In short, a property unit is delimited horizontally or both horizontally and vertically. Real property is owned by the State, local municipalities or any other public body and by a private individual. Property units are registered and have unique identities as the registers are based on the property designations. A property does not exist legally before it has been registered in the Property Register. All transfers of real property must be registered in the Land Register within three months. The relevant legislation states explicitly what shall be contained in the registers and what can be registered. The interests that have been registered are of higher priority compared with unregistered interests. Apart from ownership, Swedish law recognises leaseholds, mortgages, tenures, building leases, easements and rights for electric power. The title registration is compulsory in Sweden. Therefore, the Property Register plays a very important role in the lives of the people of Sweden.

5.3.2 Purposes of Cadastre System

The most fundamental purpose of property and land registration in Sweden is to establish certainty of ownership and rights to land. Other important purposes are to facilitate the transfer of land and other land related activities and to provide accessible information about land. The Property Register, the Land Register, the Land Data Bank System and the registration processes are vital tools to achieve these objectives. The content of the registers is guaranteed by the government for compensation in the case of losses suffered under certain conditions. An extract from the Land Data Bank System containing the Property Register and Land Register contains assessment data which includes the use of the land and building. Stamp duties as well as the registration fees are set when applications for transfers and mortgages are registered.

The Property Register is the basic administrative register for real properties in Sweden. The register includes a cadastral map. This map is kept separately from the

textual register. The register is used in land registration, property taxation, agricultural statistics, land surveying, environment monitoring, urban and regional planning and other related matters. The documents, maps and marks on the ground produced in the property formation process form the legal basis for the division of land into real properties. The Property Register contains records of the area of real properties and the property designation. The register also contains information on easement, land control and zoning regulations and graphic references. The central coordinates for each parcel of the property are also registered as well as the street address of the properties.

On the other hand, the main purpose of the Land Register is to give publicity and legal protection for land tenure. An orderly and successful land registration system is a prerequisite for guaranteeing security and facilitating economic transactions. The State guarantees the content of the Land Register which has legal power. The register contains information about the name, address and civil registration number of the legal owner. It also contains information about mortgages and other encumbrances. The Land Register also receives notification from other authorities on matters such as bankruptcy and restoration orders.

Since the middle ages, Swedish urban cadastres have been linked with large-scale maps. Later, photomaps in the scale of 1:10,000 were developed in Sweden. All land inputs in the rural areas with their boundaries were clearly indicated in photomaps that were established as a registration index map. The current Swedish Cadastral System is based on historical maps that came from the cadastral founded in 1530. The primary purpose of the establishment of such a cadastral book was for taxation purposes by the king. The numbering system of the real properties by village cadastral maps was developed and used for designation of real properties. In the seventeenth century, the cadastral books were modified by village cadastral maps again. All real parcels of each village were indicated on the map. The map was established in order to improve the taxation system and promote equal shares considering the area and value of each parcel.

The initial example of the computerised real property register was developed by the force of law in 1970, and completed in 1995. The computerisation of

cadastral maps developed in two directions. In the first direction, the cadastral parcels were digitised from an existing economic map that had been fully digitalised and renamed as the real property map. The second direction saw the cadastral map digitised and connected with the land information system forming more accurate cadastral databases. The organisation responsible for dealing with the issues of real property formation is the National Land Survey. The focal government point is the Ministry of Environment and Natural Resources that has its own regional organisation in each county and local office in municipalities. In fact, bigger municipalities also have offices for real property formation.

In brief, the cadastral map is mainly used in land administration as a reference system especially for planning purposes. It can be viewed through accessible software in digital format for general use and on the internet. The cadastral map is used to describe and document changes in the land use, land ownership and land use regulations. The cadastral map is one of the legal documents in the collection of Sweden Geographic Data, together with other official maps. In the municipalities, it is a part of the urban base map system, which is used for planning and management of municipal functions regarding education, health, public utilities and other such matters. It is also principally used for land valuation for taxation purposes and forms the bases for the definition of value areas by using Geographical Information System technology. A sample copy of a traditional cadastral map is shown in Appendix A1.

5.4 Legal Framework

The Swedish Land Code 1970 is the primary source of legislation with respect to real property. The Swedish Land Code 1970 is divided into two parts. Part one describes legal relations affecting real property. Meanwhile, Part Two is concerned with title registration.

Despite the Swedish Land Code 1970 being the essential base for property legislation, other acts also support the legislation. Although there are numerous real

property related acts, they fall within the purview of the regulations outlined in the Swedish Land Code. There are Real Property Formation Act 1970, Utilities Easement Act 1973, Joint Facilities Act 1973, and Joint Property Units (Management) Act 1973. This section will cover major theories about the rights in 3D property in relation to Swedish model.

5.4.1 Strata Titles or Condominium Ownership

A proposal made in November 2008 in Sweden for the establishment of strata titles from the 1st May 2009 was approved by Parliament on 19th February 2009. A strata title pertains to a 3D property unit designed to accommodate with dwelling. The requirement for a strata title property to be formed is that it must be a cohesive unit of at least three buildings, with the parcel utilised for residential purposes within the last eight years. Hence, strata buildings can only be formed in newly constructed buildings or buildings newly converted to residential use from office use.

Individual condominium ownership is created when a building is divided, by law, into parcels and common properties. It is then possible for individuals to acquire ownership to the strata parcel. The strata title owners usually have the right to dispose of their property, although some statutory provisions or guidelines may limit this right. To grant a strata title ownership, the registration is made of a document showing how the property is divided into parcels and common properties. There are usually certain requirements for the buildings and land parcels within the strata title scheme, according to the by-laws and local authorities. Most statutes allow strata titles to be established before the buildings are constructed, such as the provisional block provision in Strata Titles Act 1985 (Act 318) for Malaysia. There are also provisions regarding whether the building has to be constructed on one single plot of land, as is the case in Malaysia, or whether it is possible to let a strata scheme be developed on several plots (Merwe, 1994).

According to United Nations Economic Commission for Europe (2002), some condominium laws are very comprehensive. As Paulsson states:

Apartment ownership is characterised by a division of the real property, but not a complete division, since only the apartments are individually owned, while the rest of the building, land, etc. is owned in common. The combination of this individual ownership and common ownership is what characterises the condominium system.

(Paulsson, 2007: 55)

In a strata title property, there must be a creation of essential rights to the other parts of the house and the land on which the house is constructed, otherwise, it would be impossible to differentiate ownership of the stratified property and other pertaining rights. Therefore, a strata title property may be included in a joint property unit encompassing parts of the building such as roofs, facades, staircases, stores and other things. A joint facility for the operation and maintenance of the facilities is also usually established, with both facilities managed by a joint property association.

Condominium can be applied to different forms of properties, such as multi-storey buildings for residential purposes, buildings containing both dwellings and units for other functions e.g. commercial purposes, and other building types such as town houses, terraced housing or other joined or connected buildings used for residential, mixed or non-residential purposes (United Nations Economic Commission for Europe, 2002).

Generally, there are two main types of strata title ownership. The first type is the individual ownership restricted to the parcel that is a separate property unit, whereas the land and other common property are jointly owned with other parcel owners. This type of strata title can be found in Denmark. The second type of strata title ownership allows multi-residential properties to be jointly owned by the

residents; the individual owner's share is connected to the exclusive right of use of a specific parcel in the building. This type of strata title exists in Norway.

Hence, a strata title unit is to be understood as part of a property that forms a clearly demarcated part of a building or a plot of land as described in a strata title document. An individual, a group of people, a company or a municipality can own these parts of a building containing parcels while the rest of the building is regarded as common property. In short, the current Swedish system for strata titles has been formulated to allow individual dwellings to have 3D property ownership. The dwellings are essentially 3D strata title properties.

The transfer of ownership of an individual plot of land to multiple ownership together with shared rights and obligations for the common properties ownership leads to the establishment of a property that is generally known by the term 'condominium unit' in European countries, or better known as 'strata title unit' in Malaysia and Australia. It may be regarded as one of the most important and fastest growing areas of co-ownership where two or more entities are entitled to use and enjoy a property with equal rights (Tracht, 2000). Laws on how condominiums systems should be established, regulated and function are now in force in many countries.

As mentioned above, a strata title property is a 3D property unit. 3D real estate has vertical and horizontal dimensions as well as a specific volume. Strata title properties can be distinguished from other 3D properties in the sense that strata title properties cannot contain less than three dwellings for each ownership. The definition also states that a strata title property cannot be a 3D property space that is a specific area of a traditional property. However, nothing can restrict a land area to be included in the volume-bound portion of the building. The concepts and definitions of 3D property are shown in Table 5.1 below:

Table 5.1: Concepts and definitions of 3D property

Concept	Definition	Short title/remark
3D property unit	A property unit is entirely delimited both horizontally and vertically.	3D property unit can consist of one or more areas (plots) and represents a closed volume. 3D property unit can be unit on-surface, above surface and below surface.
3D property space	A property space included in a property unit other than a 3D property unit and delimited both horizontal and vertically	3D property space will "sit together" with or be independent of the traditionally defined part of the property and representing a closed volume. One or more 3D property spaces may be involved in traditional property. 3D property space can be space on-surface, above surface and below surface.
Traditional property unit with 3D property space	A traditional property unit that includes one or more 3D property space	
3D joint property unit	A joint property unit that is distinct both horizontally and vertically	3D joint property unit can consist of one or more areas (plots). 3D joint property unit can be unit on-surface, above surface and below surface.
3D joint property space	A space contained in a traditional joint property unit and bound on both horizontally and vertically	3D joint property space will "sit together" with or be independent of the traditionally defined part of the traditional municipalities. One or multiple 3D joint property spaces may be involved in traditional communities. 3D joint property space can be space on-surface, above surface and below surface.
Traditional joint property unit with 3D joint property space	A traditional joint property unit that includes one or more 3D joint property spaces	
3D space	Space of a building joint property unit or delimited both horizontally and vertically	3D space includes: - 3D real estate (which consists of a parcel or multiple parcels) - 3D property unit (Which consists of a parcel or multiple parcels) - 3D property space or unit space that can sit together with or be independent of the traditionally defined part of the property space or property unit). 3D space can be space on-surface, above surface and below surface.

The new concepts related to 3D property subdivision have seemingly been largely committed to, and are being applied in practical applications. Nevertheless, the three related concepts of the 3D building, 3D property space and 3D joint property unit are not easy to differentiate, not just by the public. Property owners often misconstrue 3D property space, and think that there is a separate property even though it is an area (space) belonging to a traditional real estate. However, these three concepts would be essential and the clarity of their meaning to an interested party and the public may be seen as an information issue. While 3D joint property units are scarce, the issues with this type of property have been increasingly raised recently.

A strata title property can also be provided with additional space if it is of limited scale, and is directly linked to the actual living space. A typical example is the connecting space for a balcony, patio or similar outdoor area. Such features would require a certain airspace to be included in the strata titles property, as the balcony or patio space must form a volume. Any additional spaces should instead be connected to the property in the form of easement or by participation in a joint property unit and/or a joint facility.

In summary, it is assumed that a joint property unit would be formed by the elements of the cohesive unit that are not included in strata title properties. This property unit would thus comprise the walls, staircases, elevators and other items such as facades, roofs, attic, and foundation. Some airspace may also be included where appropriate, as it is similar for 3D properties in general. The joint property unit will result in solving demarcation problems regarding the right to attach interior details to walls, ceilings and floor of a strata titles property. If the right to the common space is included in the building, the owner can use the common space provided that no part of building is at risk of being damaged.

The institution of the condominium ownership offers many advantages to the owner of the property. One example is the better use of property and security of tenure. It is also possible for the purchasers to get lower costs for owning their own home since housing rights are valuable investment. In comparing owning with renting, owners of condominium units do not pay rent and they invest in their own

property. Some benefits are the possibility of selling for the market value, individual mortgage, profit from one's own improvements of the parcel, complete protection from eviction, as well as a greater influence on the management of common property. Compared with owners of single-family houses, the owners of strata titles enjoy services such as property maintenance, guard services, comfort and security of the property (Paulsson, 2007).

To conclude, even though the strata title scheme is initially proposed for residential purpose, it may have many other purposes, such as their use as shopping centres, office buildings, car parks, hotels and resort condominiums. It is also possible to have mixed developments, where different purposes are located within the same development scheme with mixed use, such as residential, commercial and industrial purposes. An example of a mixed development is a building with basement car parks, retail outlets on the ground floor, offices on the floors above and residential apartments above offices.

5.4.2 Conditions for the Creation of Strata Titles

The creation of strata titles is also subjected to basic provisions relating to real property Act. Hence, the specific provisions for 3D property would also pertain to strata titles, but with several important exceptions. For all types of property, the cadastral authority should take into consideration diverse individual and public interests.

The same rules for rent apply in the case of strata title property and duplex house. Site leasehold cannot be obtained for a strata title property. Under the existing rules, property owners have the right to exercise their freedom in transferring their property with user rights to another person. Similarly, anyone who owns a single-family house property has the freedom to rent out the house to anyone he or she wishes. The same opportunity is given to strata title property owners. For

this, there is also no obstacle in the form of a natural or a legal entity in owning several strata title properties and renting them out.

Strata title property must also comply with the rules on the transfer, compulsory purchase and mortgage of immovable property, but with the limitation of not being able to exercise the right of pre-emption. When a strata title property is transferred, the property is still subjected to the same rules on the form, deed and others as for other properties, as well as the provisions concerning a property owner's ability to charge mortgages and later encumber the property. Even with the execution of expropriation or other compulsory acquisition, the same rules apply as for any property. No limitations have been placed on the transfer of a strata title property. Therefore, the ownership of a strata title property can be transferred even before the building in which the strata title property is situated has been completed.

5.4.2.1 Lack of Alternative

The creation of strata titles is possible only if it is more suitable in fulfilling the intended purpose as compared to other creation of property Act. One basic principle of the Swedish Real Property Formation Act is that the creation of real property must not occur if the intended purpose could be realised by other means than the creation of property. It is also implicated in situations where matters regarding the creation of strata titles are brought up. The cadastral authority should not see this matter as a reason to refuse strata title property because the purpose could be met by the granting of user rights.

For the creation of 3D property, there is also a special provision regarding the option between the creation of 3D property and the creation of traditional property. As mentioned, the creation of 3D property may be considered only if it is evident that it is more appropriate than other measures to meet the intended purpose. The

purpose of the creation of 3D property is to ensure that 3D property shall be formed only in clearly justified cases.

5.4.2.2 Single Dwelling

The space segregated to form strata title property should be intended for the accommodation of one single unit for dwelling. A specific condition regarding the creation of 3D property stipulates that the property should either be formed or reformed or be established to accommodate a building or other facility or part of such. Hence, it is impossible to form a strata title property consisting of two or multiple dwellings. Neither do the provisions of strata titles apply to space intended for purposes that are not residential nor as facilities of various kinds. As a result, strata titles for commercial premises cannot be formed unless its function is changed to residential. However, home office use should be permitted provided the residential purpose is dominant. The right to utilise some of the properties for purposes other than residential is retained as for single-family houses.

The legislation states that when forming strata titles, the units should not contain spaces that are too small. Detailed size limits or other relevant provisions are not provided but the strata title property space should have a suitable size and design in order to function as an independent dwelling. It is possible to form a strata title property that comprises more than one lot. Nevertheless, this should be avoided wherever possible for simplicity of implementation. Storerooms and similar facilities are better provided through easements or participation in a joint facility or other joint properties.

5.4.2.3 Time Restriction

It is significant that strata titles can be formed only if it is evident that the space which the particular high-rise building should contain has been used for residential purposes for the last eight years prior to the application. This includes the use of the space as a dwelling by the owner or his tenant. In the latter case, it should be sufficient that the space has been granted, regardless of whether or not the tenant has moved in, if he has the owner's permission.

This rule means, in practice, first, that strata title properties are permitted to be formed in new housing constructions. New construction includes creating buildings or additional parcel buildings on top of existing buildings, regardless of the purpose of the existing building. However, strata titles properties are also permitted to be formed in older buildings which are converted to residential units, for instance reconstruction of an office building for dwelling purposes. It is also applicable to spaces in existing houses that have not been used as residential space. For example storage space can be altered for housing purposes. However, buildings which have been converted for the purpose of running hotel businesses are not considered as residential space. Hence, it is possible for such a building to be converted into a strata title property.

On the other hand, strata titles cannot be formed for spaces that have been already used for residential purposes in buildings with grants by tenancy, cooperative tenancy, tenant-ownership or any other tenure forms. Tenant-ownership apartments are used for short-term accommodation throughout and, in some cases, several months of the year. In this case, it is not possible for the formation of strata titles for spaces that have been once been used for residential purposes in the past eight years even though it is no longer used for residential purposes at the time of application.

On the other hand, there is no objection to the creation of strata titles for spaces that have functioned as residential dwellings more than eight years ago. The eight years period begins from the time the creation of property order was executed in the case. Considering the possibility that these rules may be evaded,

investigations need to be very thorough in order to determine the suitability of the formation of strata titles in existing buildings. The legal provision is therefore designed to make it clear that the space included in the strata titles should have been used as a dwelling within eight years prior to the property formation order. Nevertheless, this provision does not prevent the selling of strata title properties before they are formed.

5.4.2.4 Cohesive Unit

A strata title property must be part of a cohesive unit consisting of at least three properties. The common parts of the building should generally be a joint property unit, in which the strata titles have shares.

The creation of 3D property is warranted only if it is justified by the design and use of the facility, and if it would result in appropriate facility management, to guarantee the financing or the construction of the facility. The purpose of this rule is to avoid the unnecessary segmentation of existing properties. However, the above statements are not applicable in the creation of strata titles. This creates greater potential for suitable instruments for cooperation between adjacent residential properties, and increases the prospects for a good living environment as the strata title properties are kept together and not spread out in buildings that could otherwise be used for other purposes.

Generally, the parts of the cohesive unit that are not included in the unit should be common for strata title properties. However, the possibility of the common areas recurring within the residual property unit or belonging to another property formed for this purpose is not ruled out. In such exceptional cases, it must be ensured in the cadastral procedure that at least the joint facility is formed on the common property and the joint property association managing this joint facility

would acquire the particular property. There is nothing formally to prevent the acquisition of the share by anyone.

As a joint property unit results in a stronger and clearer connection between the individual units and surrounding spaces, this solution seemed the most suitable in most cases. The basic starting point is that the content of owning a strata title property should be as clear as possible. It indicates that separate solutions, as far as possible, should be avoided. The need for a coherent unit normally applies to both the formation and the reformation of strata titles.

There are two different scenarios distinguishable in which strata titles are formed.

(a) Single use within the building

One scenario is that the building is designated for strata titles purposes and common purposes, as shown in Figure 5.1. This applies to either a new building being constructed or a building that has been previously used for other purposes and is converted in its entirety for residential purposes.

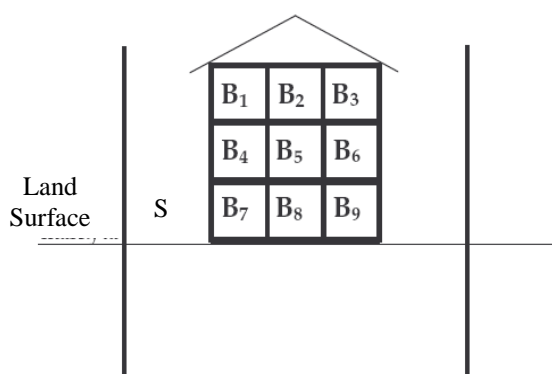


Figure 5.1: Single use within the building

Figure 5.1 illustrates nine strata titles properties (B1-B9) on three floors. The land and the parts of the building that are not included in strata titles properties are

indicated by 'S'; it is a joint property with shares. Hence, the strata titles do not erode the original residual property unit.

(b) Multiple uses within the building

The second scenario is that the building contains other uses, as seen in Figure 5.2 and Figure 5.3. This applies to either a new building being constructed on top of an existing building or parts of a building that was previously used for other purposes and is now converted to residential use.

Several different scenarios can be visualised when different uses occur within a single building. Even so, a constant situation in all of these cases is that the cohesive unit will comprise strata title properties which are separated only by common property. However, the details of this implementation can be different on a case-to-case basis. Figure 5.2 illustrates six strata title properties (B1-B6) on the top two floors. The bottom floor is a 3D property unit for shops (indicated by 'C'). The land (indicated by 'S') and the remaining parts of the building should then embody a joint property unit in which B1-B6 and 'C' have shares.

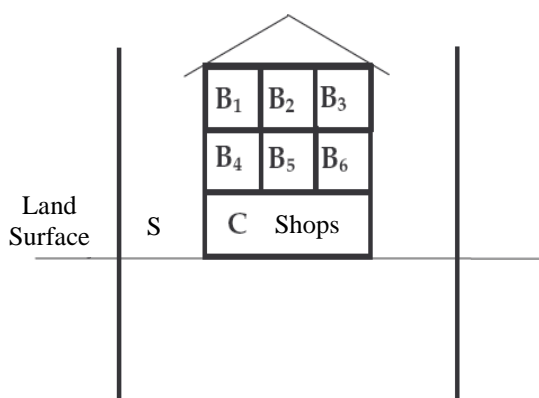


Figure 5.2: Construction for different uses or conversion of part of the building for residential purposes

Figure 5.3 illustrates an extension of three strata title properties (B1-B3) on top of an existing building with offices and shops. There is no desire to change the latter two uses. In such a case, it can be advantageous for the residual property (indicated by ‘A’) to be maintained and to form a joint property unit to act as part of the extension, which is not included in the building. On the other hand, where a few strata title properties are formed in only a small part of a large building with only one owner, this can be a reason to deviate from the joint property principle and allow other structures within the cohesive unit to remain on the residual property. In such cases, a joint facility should be formed, in which the strata titles participate to give them influence over management and maintenance of the building components that affect them.

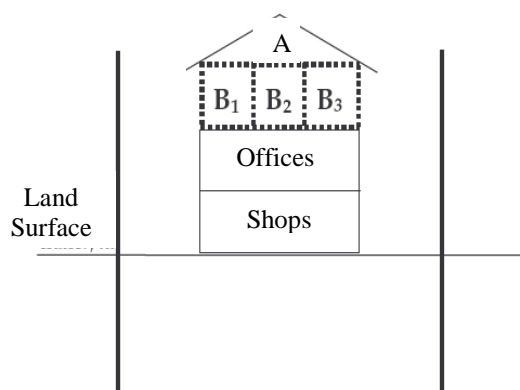


Figure 5.3: Additional storey with strata titles properties

5.4.3 Conditions Imposed on Provisional Block

The forming of provisional strata title property is permitted only if it is a prerequisite to guarantee the financing of or the construction of the building, and there is good reason to believe that the building’s intended purpose would be realised in the near future. Even though it is required for the 3D property to be linked to a building or another facility, may, to a certain extent, be done for provisional buildings or other facilities. To prevent the emergence of persistent “air property”,

specific conditions for such a measure to be implemented are needed. These provisions imply that 3D property in the case of new construction may be formed only if it is essential to secure financing of, or the construction of the intended facility and the property will achieve its purpose in the near future.

The requirement that the property achieve its intended purpose within the near future means that the construction project must be at a stage so advanced that the feasibility cannot be argued. This requires the establishment of building permit documents. In the case of a provisional strata titles property, the cadastral authority should decide on the period in which the building needs to be completed. The determination of the period should be in accordance to the deadlines for building permission. Provided there is specific reason, the deadline may be extended.

5.4.4 Types of Rights

It is important to look into the interaction between 3D property and needed rights. A strata title property shall ensure the rights necessary for the property to be used in an appropriate manner. The creation of a 3D property is permitted only if it has secured the rights necessary for it to be utilised in a suitable way. It is thus not sufficient for the property to have or be expected to have access to the facilities it needs, for example facilities for stair cases, elevators, water and sewage disposal. The asset must also be legally secured. Hence, a strata title property is not permitted to form so long as the property rights have yet to be secured.

5.4.4.1 Easement or Right of Way

The definition of an easement cannot be expressed in simple terms but it is vital to realise that every easement will involve two separate pieces of land. An easement is a property interest giving its owners a right or rights over the land of another. The most common example is a right of way. Easements are incorporeal hereditable. They comprise limited certain rights that one landowner may enjoy over the land of a near neighbour. An easement may be defined as a privilege without a profit acquired by one landowner for the benefit of his land over the land of another who is bound to submit to the enjoyment of that privilege by the first mentioned landowner.

The land that benefits from the easement is known as the dominant tenement, while the land that submits to the burden is the servient tenement. An easement allows the dominant owner to do something for his benefit or to prevent something being done on the servient land to his detriment. Easements are imposed on the servient tenement and not to the owner of it.

The creating of easement is to facilitate the strata titles scheme. As Paulsson (2007: 64) explains, “statutes may impose several reciprocal easements on condominium owners. Typical easements are for subjacent and lateral support, shelter, passage for water, drainage and other services, but can also be created for such things as lights, overhanging eaves and other projections.”

According to Swedish Land Code 1970 (2006), if calculated to promote appropriate land use, a right in the servient property unit may be granted to the owner of the dominant property unit to enjoy or otherwise use in a certain respect the servient property unit or building or other facility belonging to the same or to dispose of the servient property unit with regard to its use in easement.

An easement may only refer to a purpose of enduring importance to the dominant property unit and may not be combined with a duty on the part of the owner of the servient property unit to perform anything but the maintenance of a

road, building or other facility to which the easement refers. Also, an easement is granted in writing by the owner of the servient property unit. The document of grant shall indicate the dominant and servient property units and the purpose of the grant. A grant not satisfying these provisions shall be of no effect as grant of an easement.

Usually, buildings would be built on the surface but the structures in their entirety may be located below the surface. Even though 3D building would have an existing link to a specific utility, the boundaries are not required to exactly adhere to the outline of the utility. Instead, the boundaries are set based on what is appropriate in each case, which can also include the airspace. Furthermore, the boundaries should not be so constricted until it is not able to include smaller objects that naturally complement a building, such as exterior gutters, rainwater pipes, lamps and dishes. In addition, it may be usual for some room outside the building's actual design to be required for the use or management of the utility, to eliminate the need to encroach onto the neighbouring property. This can be in the form of the maintenance of gutters and downpipes, window cleaning and so on.

It should also be noted that according to the general principles of law on the relationship between neighbours, a property owner is entitled to the use of the airspace of a neighbouring property up to a certain extent, provided that doing so would not cause inconvenience to the neighbour.

Providing a buffer zone around the below surface 3D property may also be feasible if it is required to protect the utility from damage inflicted by neighbouring properties. This especially applies to underground 3D properties such as a tunnel or a cavern, and applies regardless of the fact that above surface 3D property may require right of entry into a space larger than the property to be effectively used for its purpose. This is exemplified by bridges and other transportation facilities, which are required to be conducted within a property for their respective purposes.

Given the assumption that there should be a linkage between an above surface 3D property and a particular building or utility, the question is on the limitation of space with regard to the building or utility. It can also be seen there is now a practice

whereby a utility structure leads three to five feet outside the buildings, to include different projections such as balconies, ventilations and antennae.

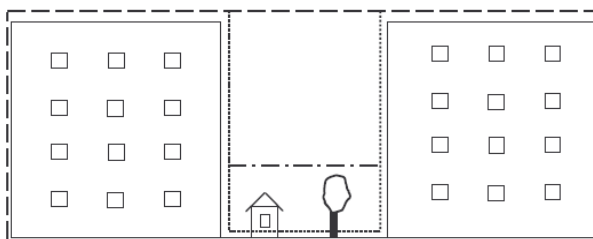


Figure 5.4: The limit for airspace above surface

Figure 5.4 illustrates the question of how much airspace may be permitted for a main building if there are several cells to be amalgamated in a single 3D space. It shows the border with the space between the buildings that must be adhered to as indicated by the dotted line, due to the strict implementation of the rules. The farmhouse is a 3D property unit and would be individually managed by the owner; therefore, the boundary distinction would have to consider the rights of providing various opportunities to use the farm for vegetation, additional facilities and so on. The boundary would be represented by the dash-dotted line. Nevertheless, there should be a concerted effort by practitioners to ensure that the creation of 3D property is the most rational and appropriate measure in permitting airspace while making sure the border follows the dotted line.

In the case of a less extensive underground facility, easements can be appropriate as the space may also be used for other purposes. Following this, a related issue is the amount of ground floor space that a 3D property should encompass. Figure 5.5 shows an example of piling for a 3D property. Given that the piles make up a site, the 3D space should not be prevented from being extended to that part. However, this situation only apply to the building that occupied the whole related lot without having any external support that need piling. In addition, for sky-bridge between two buildings, the right of support is based from the main structures of those two buildings.

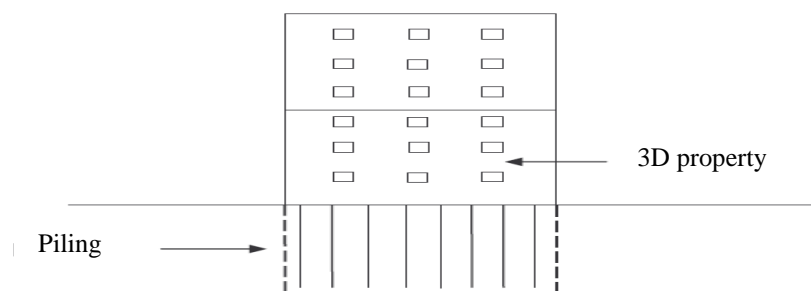


Figure 5.5: The limit for airspace below ground surface

As 3D units often have much in common with the surrounding land, and particularly, in order to regulate any issue concerning coordination, there should be a listing of various anticipated issues expected in the future. The benefits of this must be weighed against transparency as well as the prerequisites for a rational management. However, certain conditions may be changed or be amended over time, thereby complicating the prediction of future conflicts. Similar to traditional property system, three-dimensional system has been able to address cadastral issues as they arise.

In conclusion, the rights connected with facilities and utilities requiring maintenance usually result in the formation of easement or joint facility like elevators, stairwells, ducts, ventilation systems, etc. Joint facility is practical for facilities that are jointly used, whereas easement is desirable for the management of unequal ownership like a small 3D unit on the roof of a major commercial and office building. In some cases, the ability to form easements can be an appropriate alternative to joint facilities provided there is a maintenance service for the building. Whatever the solution is, the demarcation between private and public spaces should be made clear by the facilities that are partly common and partly individual. In the light of this, the provider's approach to the common connection point must be defined for wires for electricity and district heating. Finally, emphasis should also be given for the rights on evacuation routes and other fire protection devices.

5.4.4.2 Common Rights

According to the United Nations Economic Commission for Europe (2002), each unit owner owns a share of the common property. This ownership fraction is specific for each unit and is calculated as the gross area of a unit in relation to the sum of gross area of all units, and is normally expressed as a percentage. However, the area of the common property is not included in the sum of the gross area of all the units, and only applies to the common property of the condominium.

The willingness of owners to accept the need to pay higher costs for their parcel is a critical element in securing and strengthening the advantages of condominium ownership. Each owner of a unit in a condominium has very clear obligations and a responsibility to cover the costs related to maintenance, repairs and improvements to his own unit, as well as a certain share of all expenses connected to the common property of the condominium. It is important that these obligations and responsibility should be clearly understood.

Some statutes distinguish between general common property and limited common property:

Limited common property includes the parts of a condominium building that are reserved for the use of just one or some of the owners, but not for all of them. Usually the agreement of all owners is needed to create such property. The purpose of this can be obtained through a more fair division of costs for the maintenance of that area. Examples of such property are special stairs and elevators, private entrances and bathrooms shared by the apartments on just one floor.

(Paulsson, 2007: 66)

Paulsson (2007) asserts that, a joint facility consists of joint property belonging to the property units that are to take part in it, with a specific for each

property unit to distribute the costs (Eriksson, 2005). According to Swedish Joint Facilities Act 1973 (2006), a facility can be established which is common to several property units and serves a purpose of enduring importance to a joint facility. Below are some of the conditions for the establishment of a joint facility:

- a) A joint facility may not be established for a property unit other than that for which it is of substantial importance to have a share in the facility.
- b) A joint facility may be established only if the economic or other benefits of the facility outweigh the cost and inconvenience which the facility entails.
- c) A joint facility may not be established for a building or other structure not belonging to the property unit if increased expense or other inconvenience of importance may thereby occur to another participant in the joint facility.
- d) A joint facility shall be located and constructed in such a way that the purpose of the facility is achieved with a minimum of encroachment and inconvenience without unreasonable expense. A measure to facilitate future enlargement or increased use of the facility may be taken if the measure entails only a slight augmentation of the expense.
- e) In areas not covered by a detailed development plan, a joint facility may not be established if the facility would impede the appropriate use of the area, occasion unsuitable building development or frustrate suitable planning of the area.
- f) A joint facility may not be established if inconvenience of any importance occurs to a public interest. The foregoing shall not apply when the facility is overwhelmingly beneficial from a public viewpoint.

Paulsson (2007) makes a distinction between the two forms of joint facility and easement. While joint facility is intended to fulfil the need of several property

units whereas the easement fulfils the need of only one unit, even though it may be created for several property units for the same facility as well. As mentioned previously, an easement may only be granted in favour of a property unit and not of a person. Another difference is the regulation of costs, where this can be decided in the facility procedures according to the shares for the property units participating in the facility, but not when an easement is formed. When two property units are unequal in size and value, it is more appropriate for facilities to be included in one of the property units and access is given through easements, instead of forming a joint facility.

In summary, the shared rights within a strata title scheme, collective decision-making and voting require some form of allocation based on a participation quota, fraction of undivided interest or proportion of the common interest or unit entitlement, all of which come under the jurisdiction of the by-laws of each country. The quota is usually expressed as a percentage or fractions. It represents the numerical quantification of the share of each owner in the common property, the contribution to the financial expenses and voting right at the general meetings.

Paulsson (2007) found that specific facilities are needed for 3D property unit, e.g. water and sewage pipes, ventilation, stairs and elevator as well as load bearing structural parts, such as roof trusses. If these needs are not fulfilled within the property unit, they have to be supplemented with facilities outside their own unit. These can either remain in private ownership included in one of the property units involved, or be in common ownership of several property units, if several property units have a common need for a certain right. The legislation has not explicitly pointed out solutions for cooperation and partnership for the access and use of these facilities. Therefore, individual solutions have to be decided by the cadastral surveyor in the cadastral procedure. The main forms are joint facilities, created under the Joint Facilities Act and easements, of which the joint facility is given as the main alternative. Facilities that can be included in the common property of a joint facility are, for example, parts of the construction that are of common use for the property units, such as supporting constructions, façades, elevators and certain pipes.

The joint facility can be managed by an association formed by the owners, or by part owner management. The association constitutes a legal person. The frames of the management activities are defined by statutory provision, articles of association and decisions by meetings and the operational costs are paid by each property owner. For part owner management, all owners of the facility have to agree on all activities (Julstad and Ericsson, 2001). It may seem that many property owners are not fully aware of the possibility of having part-owner management instead of association management for joint facilities, even though the part-owner management is very suitable in situations with only two owners. For the relations between the property owners, the general rules for rights between neighbours are also applicable to 3D properties, but there are also some special rules concerning access to the adjacent property for repairs, construction work and so on.

Again, the choice of the form of right to use the facilities depends also largely on whether the 3D property unit is formed within an existing building or constructed with the purpose of forming 3D property units. In the latter case, the different facilities and functions can be separated as much as possible, and the use of easements or joint facilities can be reduced in order to avoid the need for cooperation between the property owners as much as possible. The existing legal rules for neighbour relations are often considered sufficient to regulate the relationship between the property units (Paulsson, 2007).

Paulsson (2007) further notes that there is much difference in opinions regarding what form of cooperation is the most suitable. For example, there is difficulty deciding on the form of ownership rights to common facilities, as the commercial owners lack sufficient knowledge about the available forms, such as easements and joint facilities. Therefore, they are reluctant to enter into such relationships with other owners such as tenant ownership associations and the dependency on them that it cannot be sold or given away. Accordingly, joint facilities in particular are avoided. Another reason to choose easements over joint facilities is that a commercial property owner (e.g. a corporation) is usually larger than a tenant ownership association and has more competence in the field, hence making it more logical to put the responsibility of ownership and management on the

larger party. Another view is that when separating the ownership of different parts within a building, the desire is to separate these parts as much as possible.

Paulsson (2007) concludes that since joint facilities are not so extensively used, property owners are often reluctant to participate in joint facilities and are wary of potential disputes. The general rules of rights between neighbours should be sufficient for most needs. For the management of joint facilities, part owner management is preferred to association management because many of the facilities concern only two owners. The easement form is mainly used when there is a need only for the single 3D property unit. An example of such a need is emergency exits.

The need of a building to cooperate with other properties shall first be guaranteed by establishing one or more joint facilities. In certain cases, the need of rights can be fulfilled only by being involved in the joint property unit that is presumed formed within the cohesive unit or by cadastral easement. A strata title property may be formed only if the property has secured the property rights for it to be suitably utilised. The property cannot simply have an actual access to the facilities required, for example staircases, elevators, different shafts and main pipes without the rights for their use or operation. Furthermore, the property should be legally secured.

Joint facilities should be formed especially in cases that depend on current operating and maintenance procedures, that is when the cost must be collected in the form of contributions from the co-ownership properties, either continuously or at intervals. Joint facilities thus should be formed for facilities within the building, and for the exit, parking, waste facility, playground and other such features outside the building. Even roofs and facades require maintenance at temporal intervals, so these generally also should be included in a joint facility. In addition, storage facilities should usually be managed in the form of a joint facility but can conversely be in the form of an easement for a specific storage space for each strata title property. The foundation and shell (joists and walls) should adequately be a part of the joint property unit formed within the cohesive unit. This can also pertain to extensively used open spaces outside the building.

Finally, the delimitation of a strata titles property should take into consideration such structures as balconies, bay windows and exterior doors, which are parts of the apartment. Of course, it does not prevent these facilities, which are either wholly or partly, being granted joint facility. For instance, the exterior surfaces are jointly managed. There may be a case-by-case assessment if joint maintenance is suitable or if the responsibility should be on the individual building owner. The same solution should normally be selected for all strata title properties within the cohesive unit. In cases where the apartments only take up a part of a building, the owners of these properties must cooperate with owners of the other parts of the building in a way similar to that for owners of 3D properties in general.

5.4.4.3 Rights to Make Rules

According to Paulsson (2007: 67), by-laws are optional in Western European countries whereas they are obligatory in the Anglo-American countries, “the provisions given by statutes in most countries are often not considered sufficient when it comes to the more detailed management of a condominium scheme. Therefore, special rules adapted to the particularities of each scheme are developed in by-laws, which are binding on owners as well as other occupants within the scheme. The main purpose of by-laws is to regulate management and administration of the condominium scheme, along with the rights of use for the owners, as well as to protect the interests of the developer and credit institutions”.

A study by Merwe (1994) states that such by-laws may further be supplemented with house rules (normally of lesser importance) which usually deal with daily use of the common property issues in the strata title scheme.

According to Swedish Land Code 1970 (2006), the by-laws contain rules regarding the use and enjoyment of the apartment and of the common property. Since these rules often are decided by the developer or owner, some statutes state

that they have to be reasonable and not arbitrary. Examples of such rules are prohibiting conduct that may cause nuisance and regulating pets. The importance of by-laws cannot be denied. They can be seen as a device designed to deal with the problem of community living and maintenance.

5.4.4.4 Rights to Manage Strata Scheme and Form Owner Association

According to the United Nations Economic Commission for Europe (2002), most condominiums in Western Europe and the United States of America are purpose-constructed and the scheme of property ownership is therefore established before or at the moment of the sale of units to the owners. Such condominiums may need special advice and assistance in their establishment and registration from the municipality. The registration of the owners' association should be mandatory where the association is a legal entity.

A joint property association is formed for the management to secure the necessary rights required for a strata title property. This management association must observe specific rules on funding and other related aspects. There are no specific rules on how joint facilities that fulfil the needs for 3D properties should be managed. For all facility-joint properties, the survey authority may initiate the formation of a joint property association provided it is in the interest of the public.

As the management of strata title units can be complex, it is important to have a structured and efficient organisation for the strata scheme to function properly. Different models are used in the management of the strata scheme. Owners can take care of the management themselves, or a professional person or company can be contracted to carry out these tasks (Paulsson, 2007). Weaknesses in management may result in disputes among the owners and to the financial institutions, which have an interest in the strata title scheme.

Some statutes make it mandatory for the owners of the strata scheme to employ a professional managing agent or administrator to manage the scheme. Usually the rights and duties of the agents are defined. In their capacity as the legal representatives of the owners, they are entrusted with carrying out tasks given by the committee, such as maintenance of the common property, and collection of maintenance fees from owners. It is also possible to make provisions for a special government board or council to assist the agents (Paulsson, 2007). In Malaysia, the Commission of Building and Strata Title Board serve this function. To sum up, how effectively the strata scheme functions depends largely on its management and/or the professional agent engaged to perform this task.

An owners' association is defined as a body established with the legal authority to act on behalf of all the owners. Such a body is considered a necessary feature for a strata scheme to protect the welfare of the individual owners, common ownership, as well as national and municipal interests (Merwe, 1994). Association membership is considered a legally inseparable part of the ownership of the strata unit and it is a private, non-profit organisation (United Nations Economic Commission for Europe, 2002). As Paulsson (2007: 69) puts it, "the members of the association decide by vote (on matters concerning the association). A board is elected by the members and has the responsibility for the running of the association. There can be an administrator adopted by the board, a legal person who is contractually charged with the day-to-day management of the owners' association, i.e. to take care of the maintenance and operation of the common parts, as well as all matters of common interest. These duties are regulated by provisions in the condominium acts, the regulations of the association, administration contracts, as well as resolutions and decisions of the owners' meetings. Such an administrator can either be an owner of a unit in the strata scheme or an external professional or company".

5.4.4.5 Method of Dispute Resolution

As the owners of strata scheme have many responsibilities and obligations, there needs to be well-organised procedures and rules to avoid conflicts of economic stability and to maintain communal harmony within the scheme. If the rights of the owners within a strata scheme are clearly defined by law, this can expedite the settlement of disputes among all parties (Tracht, 2000). Regarding the experience in many countries, Paulsson (2007: 75) writes Sweden “use courts to settle disputes between condominium owners or between the owners and the manager or the equivalent. Court procedures, however, are not always the most convenient way to settle such disputes, as they can be too cumbersome and expensive. It is common to provide for an easy access to a court procedure, in the first instance, normally involving the regular court within the district where the ownership scheme is situated”.

In some European countries, disputes may be submitted to Alternative Dispute Resolution (ADR). ADR includes dispute resolution processes and techniques that act as a means for disagreeing parties to come to an agreement short of litigation. ADR is generally classified into at least four types *viz.* negotiation, mediation, collaborative and arbitration. It is always cheaper than court procedures. Going to court is not always the best way to solve a legal dispute because it can be costly, time-consuming and very stressful. Another possibility is to settle the dispute in a general meeting. In some systems, a special cheap, fast and suitable procedure has been introduced to solve the disputes.

5.4.4.6 Subdivision, Partition and Amalgamation

The Swedish 3D property may also extend over or under several ground parcels. It is possible for the 3D property unit to consist of more than one separate

parcel. 3D property space has also been established. It is the space included in a property unit other than a 3D property unit and delimited both horizontally and vertically. It contains thus a delimited space within the space of on surface property unit other than to which it belongs. The difference from an actual 3D property unit is that it is not a separate property unit, but is included in another on-surface property unit. On the other hand, the 3D property space creates a hole in the remaining traditional property unit. The remaining parcel includes the rest of the ground and all airspace above and all ground below the 3D property.

Subdivision means the division of something that has already been divided and, since any existing parcels of land must necessarily be regarded as a 'division', any further division of it can be termed a subdivision. Thus, the process of partitioning land among heirs or co-owner necessitates 'subdivision'. Subdivision may result in a parcel of any size and the word in no way implies a necessarily adverse effect on land usage. Indeed, the purpose of subdivision is usually to secure development that is more intensive.

Beside the ownership of land can divided vertically, the ownership of condominium or multi-storeys building can subdivide horizontally. It is obvious that it was bound to happen as soon as buildings of more than one storey enabled one unit of operation to overlie and to be independently occupied.

According to Swedish Real Property Formation Act 1970 (2006), through subdivision, a certain curtilage of a property unit or the share of a property unit in a joint property unit may be segregated to constitute a property unit in its own right or to be included in an amalgamation. A subdivided curtilage or share is called a lot and the residue of the property unit a residual property unit. The term "subdivided parcel" refers both to residual property unit and to the lot. Meanwhile, a co-owned property unit may, on application being made by a co-owner, be divided up by partitioning into lots which can form property units in their own right or be included in amalgamation. In partitioning, a separate lot is defined for every co-owner requesting it. A co-owned lot is defined for those co-owners who so request and who have not presented any special request. Also, property units having the same owner and possessed by equal title may be amalgamated into one property unit. A property

unit amalgamated with another also apply to a part of a property unit parcelled out by subdivision or partitioning for amalgamation.

5.4.5 Registration of Strata Titles

Some of the issues related to the registration of strata titles in Swedish model are as follow.

5.4.5.1 Description in Land Registry

In Land Registry, 3D buildings are designated similar to traditional buildings; nevertheless, right next to the property name, there is a remark ***** WITH 3D SPACE ***** showing that the property in whole or in part, comprises a 3D enclosed space. The way it is designated is as below:

SHOW F=BETWEEN CITY OF NORTH 1:2 S = 1 - * WITH 3D SPACE *****

If a traditional property is undermined by any form of 3D space, there is a note ***** eroded by 3D SPACE ***** right next to the property name, as shown in the example below:

SHOW F=BETWEEN CITY OF NORTH 1:2 S = 1 - * eroded by 3D SPACE *****

The description in the land register has a similar remark for all types of 3D spaces, whether it is an entirely 3D property unit or a traditional building that includes at least three 3D buildings space and 3D joint property unit, as well as 3D

joint property unit space. The information on this type of property can be seen as in the example below. If all areas have the remark 3D SPACE, it is a 3D property. If at least one area has no such remark, it is a traditional property with a 3D space. The way it is designated is as shown below:

```

9 KOORD OMR K X-KOORD Y-KOORD PT MAP
      1   R  6741000   1580130   C  13786
      2   R  6739300   1575910   C  13775   3D SPACE

```

Area data are not disclosed for 3D spaces, even if they cover the soil surface. Other data on a given 3D space are represented in the "TREIF" transaction. The sample for a traditional property with 3D space is as shown below:

```

9 KOORD OMR K X-KOORD Y-KOORD PT MAP
      1   R  6741000   1580130   C  13786
      2   R  6739300   1575910   C  13775   3D SPACE

```

ADDITIONAL INFORMATION ON 3D SPACE USE TRANSACTION TREIF

Meanwhile, there are no formal restrictions concerning the height of properties, but it is suggested that some type of expression be used, for example:

- Between approximately +7.0 m and +9.4 m in approximately RH00
- Between about 25 and about 45 feet below ground surface
- Between the surface and approximately 12.5 feet below / above the ground

The word “approximately” is used, and a variation is made available in the number of decimal places in order to depict the accuracy of the contours. Moreover, data should be provided on the height and size of a gross volume of a 3D space. Spaces situated near a specified location cannot be inferred from the land registry, but should be obtained in the more detailed statements given in the other 3D property cadastral maps.

A strata title property is identifiable by having the cadastral number next to it listed ***** Condominium *****. The same style is utilised for the cadastral map for other 3D properties.

There are no specific legal provisions for the registration of strata title ownership, and such properties should thus be allocated the same type of cadastral numbers as other properties. However, it was emphasised in the legislative history that the cadastral register, including the cadastral map, should contain specific information so that strata title properties can be identifiable and also it would help to determine to what extent a traditional property has surrendered space to a strata title property. Even if a strata title property is defined as a 3D property, it has its own "label" in the cadastral register. Instead of ***** WITH 3D SPACE *****, which is stated for other 3D properties and traditional properties with 3D property space, ***** Condominium ***** is indicated. On the other hand, no area should be indicated for strata title property, similar to other 3D property. Neither should, as for 3D properties in general, the type of space, size and height level be stated.

Furthermore, there are also no equivalent standards for floors; neither are designation principles similar in diverse building projects. In order to make the information on floor unambiguous, the ground floor is consistently known as "**Floor 0**", one floor up as "**Floor 1**" and so on. If there is an exception with an apartment below the ground floor, this floor will be known as "**Floor -1**". For buildings consisting of space in several floors, so called split-levels, the floor should refer to the floor where the main entrance is located. Similar to other 3D properties, one must indicate the traditional property or properties that are being eroded by a strata title property.

Finally, on the 3D property cadastral map, a strata title property must be indicated similar to any 3D property, which is with a point-dashed boundary line, shading of the property's projected area and the cadastral number within a backslash as shown in Figure 5.6. The properties should be provided with the register designations according to the principle for the numbering in the apartment register, which is bottom-up and clockwise from the entrance on each floor.

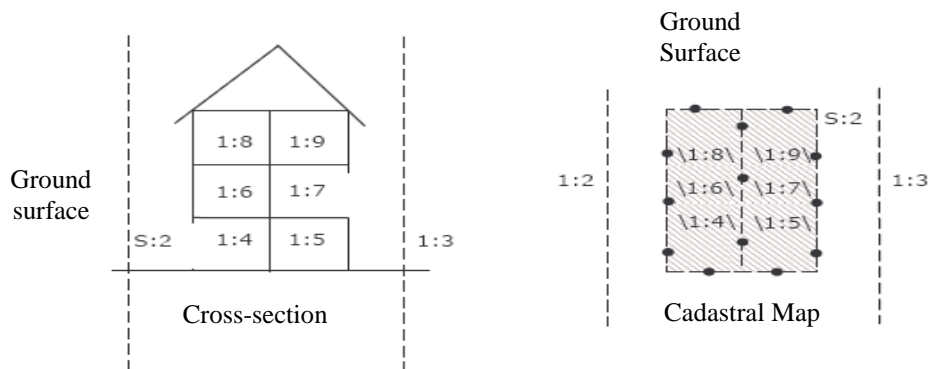


Figure 5.6: Description on the cadastral map

5.4.5.2 Description in Cadastral Map

The foundation for updating the register map is a 3D property cadastral map that details the 3D building's maximum range of horizontal projection at ground level. Therefore, the cadastral map must consist of the information required in the register map, which does not necessarily cover all the details of the boundary, such as bearings and distances. The presentation is related to the existing property division, the building or facility provided in a 3D building and other existing physical facilities of particular importance in situating the 3D building in the horizontal plane.

The 3D property cadastral map should be based on primary maps. In some cases, if the primary maps do not display the necessary evidence, clear presentation would be required. In addition, the 3D property cadastral map does not include the areas concerning rights such as easements, community facilities and rights of way. The presentation updates the register map in providing this information in a 3D property. A sample copy of 3D property cadastral map is shown in Appendix A2.

A 3D property map is indicated with backslash (\ **1:5** \). The property boundaries for 3D property are specified by the specific line type of points on a

dotted dash line. 3D property spaces are hatched and demarcated by a surface polygon. Furthermore, it would be suitable for a report on the overall level to provide vertical delineation in the cross sections and/or in the oblique angle, in order to elucidate the vertical distribution of the spaces. This can be supplemented by photographs, drawings or illustrations with the facade of the facility as the basis for such an accounting. The presentation of 3D spaces and rights must illustrate more than what is possible in 3D property cadastral maps as it indicates height as well.

Maps are produced based on schematic drawings, depicting both horizontal plans and vertical sections. These are supplemented by base maps using architectural drawings. The plan comprises small-scale drawings that show all or parts of the facility. In more complex cases, 3D property cadastral maps would comprise detailed information on the boundary. Such 3D property cadastral maps would display the 3D property boundaries and limits on the right areas in relation to different parts of the building or site. The resulting statements can then be used for architectural drawings depicting the current building parts.

Moreover, legal property decision provides the basis for registration. The legal property description must conventionally contain only the required information to update the general land registry. Additional descriptions of relevant properties and rights can also be included in a 3D property cadastral map to further clarify the ruling. It is useful to have verbal descriptions that distinctly document the boundary of a 3D space. For underground 3D spaces, the documentation should be supplemented with a technical description of the x , y and z values in known systems.

Strata title properties are reported with accuracy on strata cadastral maps and descriptions similar to that for other 3D properties. Given that delineation is standardised, the basis for the delimitation should always be explained also in words. It is quite natural that the boundaries of a strata title property cannot be set out and marked.

Based on the standard formulation for a property Order, document of formation is carried out in accordance with the map and description, in document appendix (KA) and (BE) respectively. Document appendix (KA) or the strata

cadastral map illustrates (in the registry map system) the horizontal projection of the apartments on the ground level and areas with rights in relation to the building and existing division of property units. A special strata cadastral map must be created for each floor. A suitable basis for the strata cadastral map is the register map and any new digital construction map. The strata cadastral map utilises the same style that is referred to in the register map.

The projection of the ground level made by a strata title property can be a larger area than the living area, as the latter is measured within the building partitioning walls and sometimes excludes the so-called additional area. The property also includes a surface layer, possibly an additional area such as a balcony or a terrace.

In addition to the strata cadastral map, some descriptions are drawn up in the document appendix (BE). As for all documents of property, there is a need for a real estate law description, normally document appendix (BE) that provides relevant information to be included in the land register. Examples would be the living area, floor, easements, joint facilities and utility easements. Unlike 3D spaces in general, the description for strata title property are made for each property unit and not for each area.

The strata cadastral map and legal description of the property are then presented with various attachments of the descriptions (BE) required in the single case to clarify the development as best as possible. Often it is appropriate to indicate the location of a strata title property, and include façade drawings describing the boundaries for the apartment. Simple cases need only one such drawing, but complex cases may require multiple drawings.

Moreover, several descriptions should be given both in the plan and in the section to explain the delineation of the strata titles properties. The illustrative basis for these descriptions would be in the form of architectural drawings (relationship drawings) in plan and section with the boundaries of the apartments and the areas of rights indicated in relation to the building. A floor plan and section drawings should be presented for each floor to clarify the report further. Again, simple cases may

require only one section drawing, whereas complex cases may require more such drawings.

In conclusion, strata titles should have a standardised presentation since it is important that the concept of strata titles stands for uniformity of the structure, regardless of its location. A general description of how the strata titles delineation is made should therefore always be given, and articulated as prescribed below, even if an adjustment to the current project is possible. In simple cases, the worded description is added to document appendix (BE1). It can conversely be a separate document appendix (BE), preferably document appendix (BE2), to which the reference is made in document appendix (BE1). For example, the boundaries of the strata titles property in relation to the building are as described below:

The following items are included in the strata title property:

- Floor: Surface layer and underlying layers down to the joists.
- Ceilings: Ceilings, attachment of the ceiling and above layer up to joists.
- Exterior walls, walls to other strata titles properties and stairwells as well as load-bearing walls: surface layer and base for surface layer until the frame/equivalent.
- Other walls: Included.
- Windows: Windows including frames, corners and case.
- Doors: Exterior door, balcony door and interior doors, in all cases including frames, corners and case.
- Balcony: Space including balcony railing and surface as well as underlying layer down to the supporting structure.
- Clarification: The load-bearing structure in horizontal level (joists) and in vertical level and shafts for main pipes, chimney stem and supporting columns are not included the strata titles property.

5.4.6 Termination of the Strata Titles

According to Swedish Land Code 1970 (2006), if a granted for a consideration is of no effect by reason of the foregoing, the holder of a right is entitled to compensation from the grantor for damage if he acted in good faith when the grant took place.

There is a need for the termination of a strata title scheme in particular circumstances. When buildings are destroyed, damaged or are badly deteriorating in any way, the strata titles cannot continue to exist. Thus, laws can provide for the termination of the strata title scheme, reconstruction of the buildings or partial termination or reconstruction with re-allocation of the remaining buildings (Merwe, 1994).

Strata title properties are also subjected to the rules on purchase of 3D properties that are no longer utilised for their intended purposes. The rules on 3D property subdivision are based on the idea that a 3D property will contain a kernel, which consists of a building or other structure or part of one. This facility or part of a facility can either already be existing or at least planned to be constructed in the near future. However, there is always the risk of a 3D property that no longer serves its purpose. This risk is prevalent if the facility that is the core of the property is destroyed or damaged to such an extent that it must be replaced with a new one. Similarly, a 3D property intended for a planned but unconstructed facility will be useless if the planned facility ends up never being constructed.

To prevent the termination of such 3D properties, there are special provisions for compulsory re-allotment. For instance, spaces that are useless to a 3D property and land can be transferred to the traditional property or properties or joint facilities. Hence, compensation can be decided upon either by the implementation of the rules on profit sharing or through the implementation of the expropriation law principles, if the property can be subjected to expropriation or similar disposal.

5.5 Boundary

There is generally no description of parcel boundaries in the statutes of most countries, although it is implied that they must be isolated by walls, floors and ceilings. Some countries stipulate that the parcels are not be delimited by parts of land or cubic airspace, but that the surrounding masonry must be included in the parcel. Conversely, it is usually possible to choose whether to locate the boundaries on the inside surfaces, outside surfaces or to the centre lines of walls, floors or ceilings of the parcel. Such a decision is usually determined by the developer. As Paulsson notes:

An apartment unit is usually regarded as an area or space that is enclosed by its boundaries together with all material parts included in that space.

(Paulsson, 2007: 63)

According to Swedish Land Code 1970 (2006), a boundary lawfully determined follows the course marked on the ground in due order. If the marking can no longer be ascertained, the boundary shall follow the course which, in the light of a cadastral plan together with documents, possession and other circumstances, was presumably intended. If the course of the boundary has not been marked on the ground in due order, the boundary shall follow the course shown by plan and documents. If a boundary has not been lawfully determined, the bounds or other markings anciently deemed to mark the boundary shall apply. A boundary having resulted from expropriation or suchlike compulsory purchase shall have the course which, in the light of a document of acquisition, possession or other circumstances, was presumably intended.

Also, a water area boundary which cannot be determined in the light of two paragraph mentioned above shall have such a course that there is added to each property unit that part of the water area nearest to the shore of the unit. However, in the case of a small island, no part of the water area shall be added to the property

unit. If the shore has shifted, its former position, if ascertainable, shall decide the course of the boundary. On a property unit having become separated from a neighbouring water area by reason of the shore shifting, the owner of the property unit is entitled to use the area between the property unit and the water, always provided that the area is small in extent and its owner suffers no injury or inconvenience of importance.

Although 3D property has been introduced into Swedish legislation, traditional property still exists as the main property type in Sweden. The 3D property form is only added as a complement, as the law states that 3D property can only be used when it is considered more suitable than other ways of fulfilling the intended purpose. The main laws that had to be amended to allow for 3D property system were the Swedish Land Code 1970 and the Swedish Real Property Formation Act 1970.

In conclusion, the special regulations that are valid only for 3D property are designed to reflect the peculiarities connected with that specific property type. These new rules are in accord with the existing principles of real property law. An important rule is that a 3D property may only be formed if this solution is found to be more suitable than other measures for obtaining the purpose. Some regard this as an extremely conservative legislation, where 3D property system is seen as a second option, even if it should be the best alternative (Paulsson, 2007). Property formation resulting in a 3D property is only allowed if the 3D property accommodates, or is intended to accommodate, a building or other facility or a part of the same, and if the 3D property is assured of the rights necessary for its appropriate use. This means rights for access to the property and to different facilities are needed for the functioning of the property, such as water and sewage, electricity, stairs, elevator and so on. The requirement for access to the ground level means that a 3D property unit cannot be formed consisting of the upper part of a building without access to a staircase or elevator, or a rock cavern without access to the ground surface. Access to the ground surface can be obtained for example through easements or joint facilities (Eriksson, 2005).

5.5.1 Determination of Three-dimensional Boundary

The method by which strata title properties are delimited are more standardised as compared to other 3D properties. A strata title property, which should consist of at least three units, is usually delimited by building space including a surface layer. The law does not specify how a 3D property should be bound in relation to other properties or joint facilities. It is thus determined by the cadastral authority, which determines the boundaries of 3D properties in the manner required by the circumstances of the case.

As boundaries are normally marked on the ground (Eriksson, 2005), no specific rules for the marking of boundaries between 3D properties have been introduced. If marking cannot be set out and marked in a suitable way, which is often the case for 3D property, the boundaries should be described with sufficient accuracy in the cadastral documents. This can be done in different ways through texts, maps and illustrations. The boundaries are often marked on building drafts with an additional explanation in words in the cadastral documents. It is not regulated by law exactly where to locate the boundary between two 3D properties, but this has to be decided from case to case by the cadastral officer in the cadastral procedure, based on what is regarded as suitable in the specific case.

As mentioned earlier, 3D property consists of an enclosed volume which is delimited both horizontally and vertically. This means that the border can often be sketched and identified as in traditional real property. A property's boundaries must therefore be specified or described adequately. 3D property or 3D property space occupies buildings or other premises. The boundaries around the 3D property are deduced in the manner deemed most appropriate in each case; this includes the light to the current building or external boundaries of design. In three-dimensional reorganising, demarcation can be marked on the ground to denote a volume that is delimited by the soil surface. In the case of 3D property below or above the ground surface, for example caverns or bridges, it may be marked at the ground level if the marking cannot be marked on the 3D spaces surface; such markings are not located

in a border point, but it relates to the border. Later, the surveyed coordinates (x, y, z) need to be indicated in the cadastral document.

The 3D property boundary concept is further illustrated in Figure 5.7.

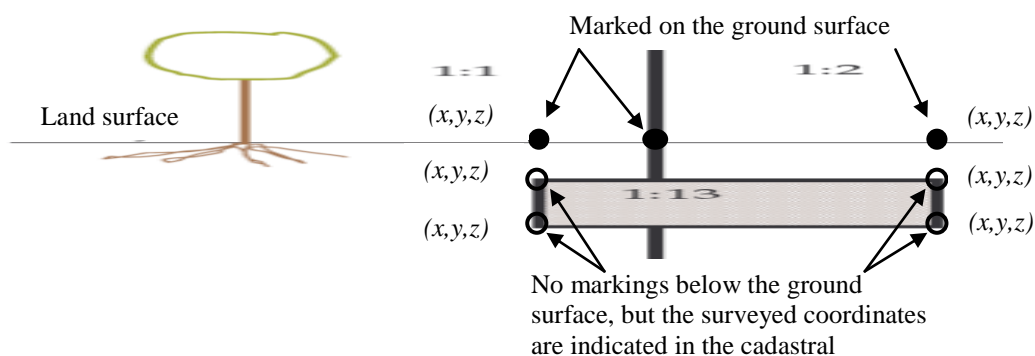


Figure 5.7: Demarcation for 3D property boundary below the ground surface

In actual implementations, the boundaries delineating the 3D properties are often drawn in the middle of an intermediate wall or joist. However, there are also other options available. It is vital that the essential documents be thoroughly investigated in each individual case in order to determine how the delineation was made. However, unlike other 3D properties, strata title properties are, to a large extent, owned individually. Hence, a standardised design is necessary so that not only would the extent of the individual buildings be easily identifiable, the rights and obligations connected to the ownership of a strata title property can also be established.

Given the above reasons, a strata title property should be delimited so that it consists of the building space that the property unit covers, including a surface layer. Surface layer thickness, and thus the extension of the property, should be determined so that the effective use of the building and surrounding properties is made possible. For example, the usual interior details of the living space can be mounted without

interference of someone else's rights, windows and exterior doors should be included in the buildings.

It is a standard procedure for 3D boundaries of a building to consist of the middle of the wall and the middle of the floor. This ensures that responsibility is indirectly joint for these structural elements, while each one is responsible for the surface layers on their side. There are also supporting structures, such as load-bearing walls, floors and other things to be established as a joint facility. Furthermore, borders should be identified around 3D spaces for each property in practice to obtain the resulting façade or equivalent. Conversely, the easements can be granted for access to the sealing layer and so on. However, the marking of 3D borders does not exist in practical application, with some coordinates displayed being not applicable for 3D buildings.

According to Paulsson (2007), a common solution is to locate the boundary to the centre of the wall and joists; another solution is to make joint facilities for these structures. In addition, the boundaries can be described either with reference to the walls, ceilings and floors, which is the usual case for buildings, or be fixed by x , y , and z coordinates for rock shelters and so on (Eriksson, 2005). In addition, when drawing the boundaries, a certain amount of airspace around the building may also be included to provide access for maintenance, or to allow for certain structures protruding from the building, such as antennas, or for smaller future additions. However, how much airspace may be included in a 3D property unit is not clearly stipulated in the Swedish Land and Cadastral Legislation (Paulsson, 2007).

3D property, in normal circumstances, can be defined by coordinates (x, y, z) for the various breakpoints in the property's boundaries. With regard to the boundaries of 3D property below surface, it may often be appropriate to specify the space location by coordinates. In some cases, it may be natural to refer to 3D property or 3D property space in relation to adjoining buildings, either traditional or 3D properties. This is especially true when a facility is divided among several buildings.

The 3D strata title boundary concept is further illustrated in Figure 5.8 and Figure 5.9.

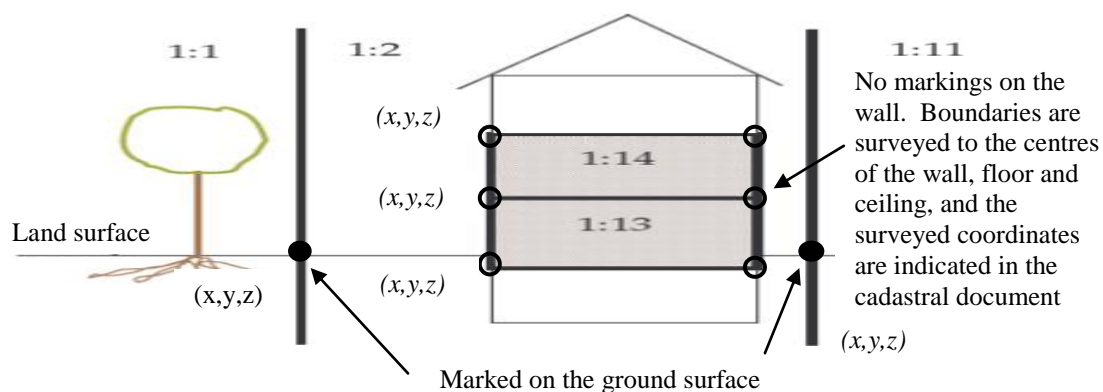
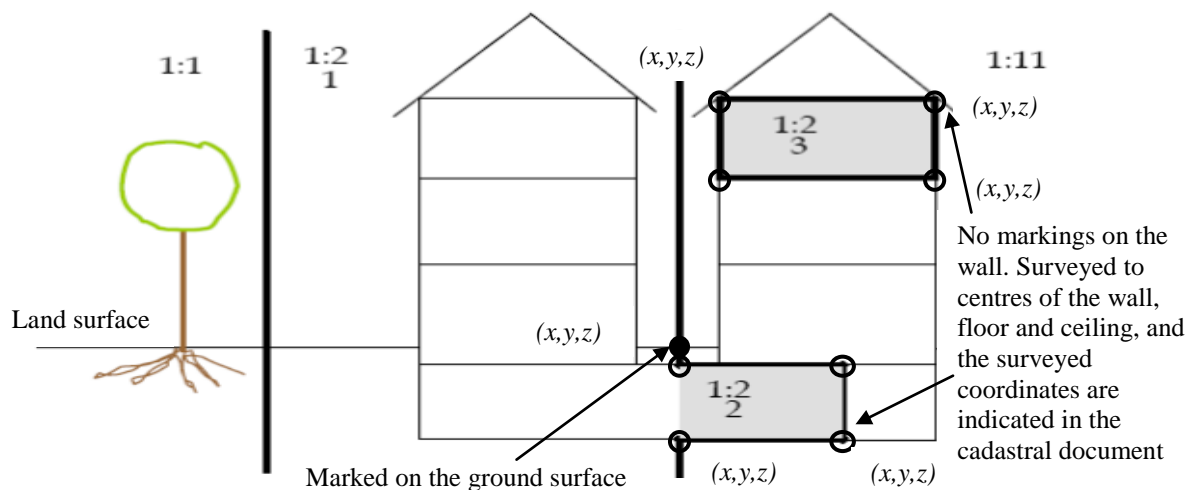


Figure 5.8: Demarcations for 3D strata title boundaries



A 3D property space can be directly connected to the traditional property or as a standalone space. The traditional property lot 1:2(1) includes two 3D units where one of which is directly connected to the traditional property (space 1:2(2)) and the other is standalone unit (1:2(3))

Figure 5.9: Demarcation for 3D strata title boundary that is directly connected to a standalone space

It is important that in the 3D property cadastral map, technical and legal descriptions in the land registry clearly indicate how the boundary lies in relation to the building. Property boundaries must also be described in the cadastral maps and

verbally indicated where the boundaries are in relation to the proposed building. The basis for reorganising the decision should be in detail; in principle, it should be equivalent to building permit documents.

Finally, technical and legal description in the land registry for the clarification of the boundaries of the intended building or facility should also be registered. If the buildings have been constructed in compliance with real property regulations, a normative border route for the future and further interpretation would not be required in the graphical presentation. On the other hand, if the building is a 3D property and is not constructed yet when the ruling regarding the reorganisation was made, minor modifications to the property boundaries may be necessitated when the building undergoes construction. Therefore, an amendment to the limit in such cases is achieved only through a land measure.

5.6 Summary

Three-dimensional land use has been insignificant for a long period in Sweden. On the other hand, recent developments have increased the need for legal separation of property ownership three-dimensionally and subsequently increased the need for larger, capital intensive and sometimes highly complex projects, where buildings or other structures are designed to accommodate different activities. These projects usually take place in areas with higher land use intensities, especially urban areas. For management and financial reasons, stakeholders frequently want to segregate the properties and facilities so that facilities or parts thereof can be owned and pledged separately, as is the case with independent properties. Given these circumstances, transportation and communications are often an issue. This can be exemplified by some road and railway tunnels and bridges that cut straight through properties, which are contrarily used for completely different purposes. There are also cases of partial or total integration of transportation and communication sites

such as station halls, bus terminals and other transport facilities with facilities of completely different nature, such as shops, offices and housing.

The ongoing and planned densification of buildings in cities also yields other examples. Due to the inadequacy of land for new settlements, the appeal of maintaining parks and other undeveloped areas and the utilisation of existing infrastructure for new development, diverse kinds of construction projects now necessitate the use of spaces above or below existing properties. This usually concerns building height, thus spaces above commercial buildings, public places or communication utilities can be utilised for residential or other purposes. The ability to multi-layer buildings and other structures in detached parts is appealing, for example a building that consists of two parts, for commercial and residential purposes respectively. This detachment for each part of the building may be better, as each part would be managed in a suitable manner. Hence, the stratification of a building allows for completely different ways in managing the premises.

There have been questions on whether 3D property subdivision really needs to be as restricted as intended by the legislature. Experience shows that demand have not increased for what is regarded as unreasonable reorganising, which can result in a considerably fragmented real estate subdivision. Although a careful application is still regarded as desirable, there are doubts whether all the different criteria and conditions for three-dimensional reorganising are actually required.

3D property is selected if it is the best option in meeting the intended purpose, in line with the existing requirements. A fundamental condition for three-dimensional reorganising is that the measure is clearly more appropriate than other measures in fulfilling the intended purpose. Given that it may be hard to determine whether 3D property is the most appropriate in individual cases, this raises the question on the formation of 3D property as it is uncertain whether other measures would meet the purpose equally well or better. Usually, it is normal for the new legislation to be implemented cautiously until more experience can be gained. The three-dimensional solution must be supplementary to traditional measures in compliance with the precautionary principle.

Hence, the equilibrium between the three-dimensional reorganisation and other alternative solutions in land survey is to be determined by appraisal and then choosing the most appropriate measure. There must be no risk that the application and modification would be in a generally unfavourable direction.

A general view of experts and practitioners working with the creation of 3D property in Sweden is that while the legislation is working well, it has not been used to the extent anticipated. It is thought that more amendments would be made to accommodate cases where large investments have been made and the rights of owners of 3D properties need to be protected. The future for this legislation is regarded to be generally positive. There are opportunities to involve more interested parties. It is likely that the interest in 3D property will increase in the coming years, and would spread from the cities to the suburbs as more multi-storied buildings are constructed where the land has premium value.