Analysis of Graphic Standard Regulations: the Case of Cyprus

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We certify that we have read this thesis and that in our opinion it is fully adequate in scope and quality as a thesis for the degree of Master of Science in Architecture.

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ABSTRACT

Cyprus issue has constituted a conflict by means of using distinctive implementations on the process of professional practices convenient by distinctive governmental organizations and proper professional organizations. During European Union membership process, above current professional implementations between North part and South part of Cyprus, the regulations and implementations should design according to the European Union standards under the aim of being European Union membership. Therefore, the architectural profession must be clear within the European Union rules in which Northern part of the Cyprus can renovate its existing architectural graphic standards accordingly in link and association with South part of the island. The architectural regulations and graphical standards are the pattern of language to express the architectural procedures and methodology, from design towards architectural practices.

The thesis aimed to elaborate the gap in between both sides of Cyprus. For examining existing rules and architectural graphic standards in North and South parts of Cyprus, data was collected by literature review, sample projects, and interview survey in the case of North part and South part of Cyprus.

This study will be organized in for chapter. In the first chapter, introduction is given. Than in the second chapter will show the theoretical information about architectural design processes and architectural drawings. Moreover, in the third chapter, the evaluation of architectural graphic standards in different periods of Cyprus, which is contain from British Colonial Period, Republic of Cyprus period, and the period of

Cyprus today. Besides, in the same chapter, the European Union architectural graphic standards are also explained. Finally, conclusion and recommendations are given.

The results from the comparison of the architectural graphic standards of Cyprus are show that, the standards of North Cyprus have some “gaps” and “advantages” for the adaptability to the architectural graphic standards of South Cyprus and also European Union Regulations. Such as; lack of system detail drawings and lack of presentation technique are examples for a gap of North Cyprus graphic standards. Moreover, more detailed drawing techniques and compatibility of the graphic standards with the Universal standards are examples for advantages of North Cyprus graphic standards.

Keywords: Adopting, Regulations, Graphic Standards, Architectural Drawing

ÖZ

Kıbrıs sorunu, farklı hükümet organları ve ilgili meslek organları tarafından uygulanan mesleki uygulamalar sürecinde farklı metot ve işlemlerin kullanılmasıyla bir sorun yaratmıştır. Avrupa Birliği üyelik sürecinde, adanın Kuzey ve Güney tarafları arasındaki mevcut mesleki profesyonel uygulamalar temel alınarak, kurallar ve düzenlemeler AB üyesi olma hedefi göz önüne alınarak AB standartlarına göre yeniden düzenlenmelidir. Bu nedenle, mimarlık mesleği, adanın kuzey kesiminin mimarlık çizim standartlarının Kıbrıs Rum kesiminin koordinasyonunda ve işbirliğinde Avrupa Birliği normlarına göre düzenlenebileceği anlaşılabilir olmalıdır. Mimari yönetmelikler ve mimari grafik standartları, tasarımdan uygulamaya doğru proje sürecini yansıtacak dil türüdür.

Bu tez çalışması, Kuzey Kıbrıs'taki Kıbrıs Türk Mimarlar Odası'na kayıtlı profesyonel Mimarlar ile gözlem yapmayı amaçlamaktadır. Kuzey Kıbrıs ve Güney Kıbrıs'taki mevcut kuralların ve mimari grafik standartlarının analizi için, Kuzey Kıbrıs ve Güney Kıbrıs'ta gözlem, literatür taraması ve mülakat yoluyla toplanan veriler değerlendirilecektir.

Bu çalışma dört bölümden oluşmaktadır, ilk bölüm giriş, ikinci bölüm ise mimari tasarım süreci ve mimari çizim hakkında teorik bilgiler yer almaktadır. Bir sonraki, üçüncü bölümde ise Kıbrıs'ın farklı dönemlerindeki mimari çizim örnekleri değerlendirilmiş ve karşılaştırılmıştır. Sonuç kısmında ise elde edilen bulgular doğrultusunda öneriler getirilecektir.

Kıbrıs'taki mimari çizim standartlarının karşılaştırılması sonucunda, Kuzey Kırısın, Güney Kıbrıs ve Avrupa Birliği Standartları uyumluluğu açısından eksiklikleri ve avantajları olduğu tespit edilmiştir. Bu eksikliklere, Kuzey Kıbrıs'taki mimari çizimlerde sistem detayı çiziminin ve farklı sunum tekniklerini bulunmaması örnek olarak verilebilmektedir. Öte yandan ise, Kuzey Kıbrıs'ta daha detaylı çizim tekniğinin aranışı ve dolayısıyla Evrensel standartlara uyumluluk kolaylığı, avantajlara örnek olarak verilebilir.

Anahtar Kelimeler: Uyum, Düzenlemeler, Grafik Standartları, mimari çizim

To My Family and Cyprus.

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I would like to thank Prof. Dr. Resmiye Alpar Atun as my supervisor; for her continuous support and guidance in the preparation of this study and I would like to convey a special thanks to Prof. Dr. Yonca Hürol who taught me how to do research, Also, I am thankful to my jury members: Prof. Dr. Resmiye Alpar Atun, Assist. Prof. Dr. Nevter Zafer Cömert and Assist. Prof. Dr. Kozan Uzunoğlu for their valuable comments and guidance on this study. At least, I would like to thank to my parent who dedicate this thesis with them encourage and concern.

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Chapter 1

INTRODUCTION

Architecture is continuously adapting to new technologies and shared information and ideas. According to this evolution, architectural professionals must have understanding of the realities of our century and be open tirelessly to changes. This research focused on the established architectural rules and regulations of graphic standards in Cyprus to determine the current situation and any problems. With this information, the research aimed to propose recommendations for mending gaps in architectural practice between the North Cyprus and South Cyprus.

Since 1974, peace talks between North Cyprus and South Cyprus have continued in an effort to reach a joint solution for Cyprus. Once a solution is reached for the island, North Cyprus should be prepared for renovations by starting to adapt rules and regulations to European Union standards now. This preparation is very significant for being ready to integrate with South Cyprus. Turkish Cypriot architects need to design the future with technological developments in mind. Architectural regulations and graphical standards can serve as a pattern of language for expressing professionality and design ideas in the application process. Architects should present architectural drawings in detail, demonstrating high quality and standards.

For instance, new digital drawing tools and computer software can be effectively used to increase the quality and accuracy of architectural drawings while decreasing

the duration needed to submit drawings to clients, approval processes, and contractors. Turkish Cypriot architects have preferred to use a single digital tool, AutoCAD software, for the development and monitoring of architectural projects. This has limited their capacity. On the other hand, the Technical Chamber of Cyprus (ETEK) – in accordance with European Union standards and South Cyprus architects – recommends use of alternative architectural software such as Revit and BIM. According to technological developments, existing rules and regulations should be reorganized in North Cyprus to able to present better design work in a more comprehensible way. The Turkish Cypriot Chamber of Architects should consider revisions to their rules and regulations according to the Technical Chamber of Cyprus' (ETEK) standards under the European Union rules and regulations with inspection (Uraz, et al., 2007).

1.1 Problem Definition

The Republic of Cyprus has been a member of European Union since May 2004 (Nugent, 2010). After this membership, the Turkish Cypriot Chamber of Architects suggested making improvements to their regulations. However, today these improvements and studies have stopped and had not initiated any more discussion about adopting rules and regulations or graphical standards (Uraz, et al., 2007). This is the definition of the problem: measures are needed to mend the gap in architectural graphic standards between Cyprus' two parts to target a common graphical language provided by the EU.

1.2 Aims, Objectives and Research Question

Since Cyprus is a divided island, where the south part is a member of the European Union and the north part is in the accession process, it served as case to be discussed comparatively. According to the aims and objectives of this research, North Cyprus'

regulations, particularly those related to the procedures for getting professional approvals in the process of project implementation, will be elaborated according to EU norms in preparation for accession to the European Union.

-How can we define architectural graphical standards for rules and regulations to be used across North and South Cyprus in Architects Union?

-How were the architectural rules and graphic standards during different historical periods in Cyprus? What have been the changes to architectural activities since establishment of the Republic of Cyprus up to today? How can these differences be considered for projection into the future?

1.3 Research Methodology

In this thesis, two distinctive methods were utilized: literature review and comparative analysis The literature review to define with observations survey. The analysis included the data and knowledge of the existing rules and regulations on architectural graphic standards of North Cyprus as well as the architectural graphic standards of South Cyprus. Observations were based on photographs and architectural drawings of existing sample architectural projects from North and South Cyprus. The examples were analyzed, evaluated, and discussed to compare results of design regulations from both sides of the border. Comparison was also performed with these against those of the literature review.

1.4 Limitations

According to the Turkish Cypriot Chamber of Architects (2016), their membership totalled 1352 people in North Cyprus. However, the Turkish Cypriot Chamber of Architects (2016), only registered a total of 88 architecture offices. The observation

survey of this research is based on ten present of the registered architecture offices. Therefore, eight owner-architects of registered offices from North Cyprus and 8 owner-architects of offices from South Cyprus participated in the observation survey and were asked questions analysing existing situations in research about the architectural profession and architectural graphic standard regulations in Cyprus. For further discussion and evaluation the results of the data collected for North and South Cyprus has been illustrated with charts and graphs.

Chapter 2

ARCHITECTURAL DESIGN PROCESS AND ARCHITECTURAL DRAWING

Architecture is a general discipline in our century. Architecture is a part and assumes an significant in human life. For human scale accessibility within the city, functions and spaces should be designed and sustainability should be established for life's economic, social, political and cultural dimensions. Architecture presents the design for life within the conceptual and physical context of urban life and communicates via the conventional process of architectural drawings. These methods are significant acts of communication used to externalize concepts to collocutors (Kıyıcı, 2016).

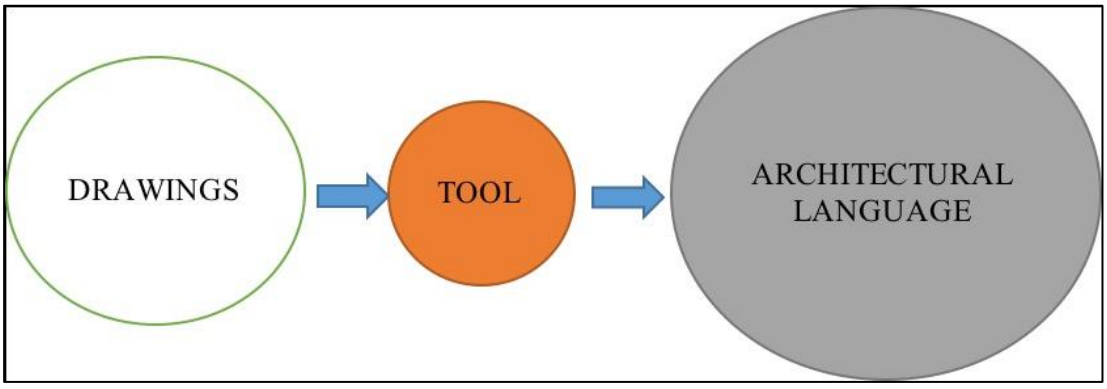

Figure 1: Relationships of Drawings and Tools with Architectural Language.

Architectural drawings are the language to express objectives to collaborators. In architecture, design and drawings are potently connected to each other and inseparable. Architectural drawings are exploratory tools that form an essential element of the design process (Kıyıcı, 2016).

Architectural drawings are highly essential conventions. The main aim of the architectural drawings is to represent the building; however, the drawing is always different from the building. No matter how fervently a drawing is developed to be 'proper' or 'ambient,' it indispensably keeps the qualities and view of a drawing. Thus, drawings directly engage and increase connection between the sense of the main concept and advancing the requirements of the design to stakeholders.

According to Schram; Communication is not only an academic discipline, which explained by physic and economy. It is a discipline, which brings together to many approaches." (Lazar, 2009, p. 11). Schram examined the determination of the meaning of the communication in architecture (Lazar, 2009, p. 11).

The concept of communication in architecture should be regarded as an interdisciplinary act of the architect who aims to improve the knowledge of architecture by combining the data from distinctive disciplinary approaches into its epistemological approach.

2.1 Architectural Design Process

The architectural design process is a systematic action until the final set of detailed working drawings are produced and submitted to the contractor for building construction. The primary role of the process is to decide a base model. The main

framework of progress toward the decision is data coming from local rules and regulations and the client's or constructor's ideas.

The success of the architectural project's process is related to the project's objectives, the right project process, the right labour force utilization, and the proportion with the right economic budget.

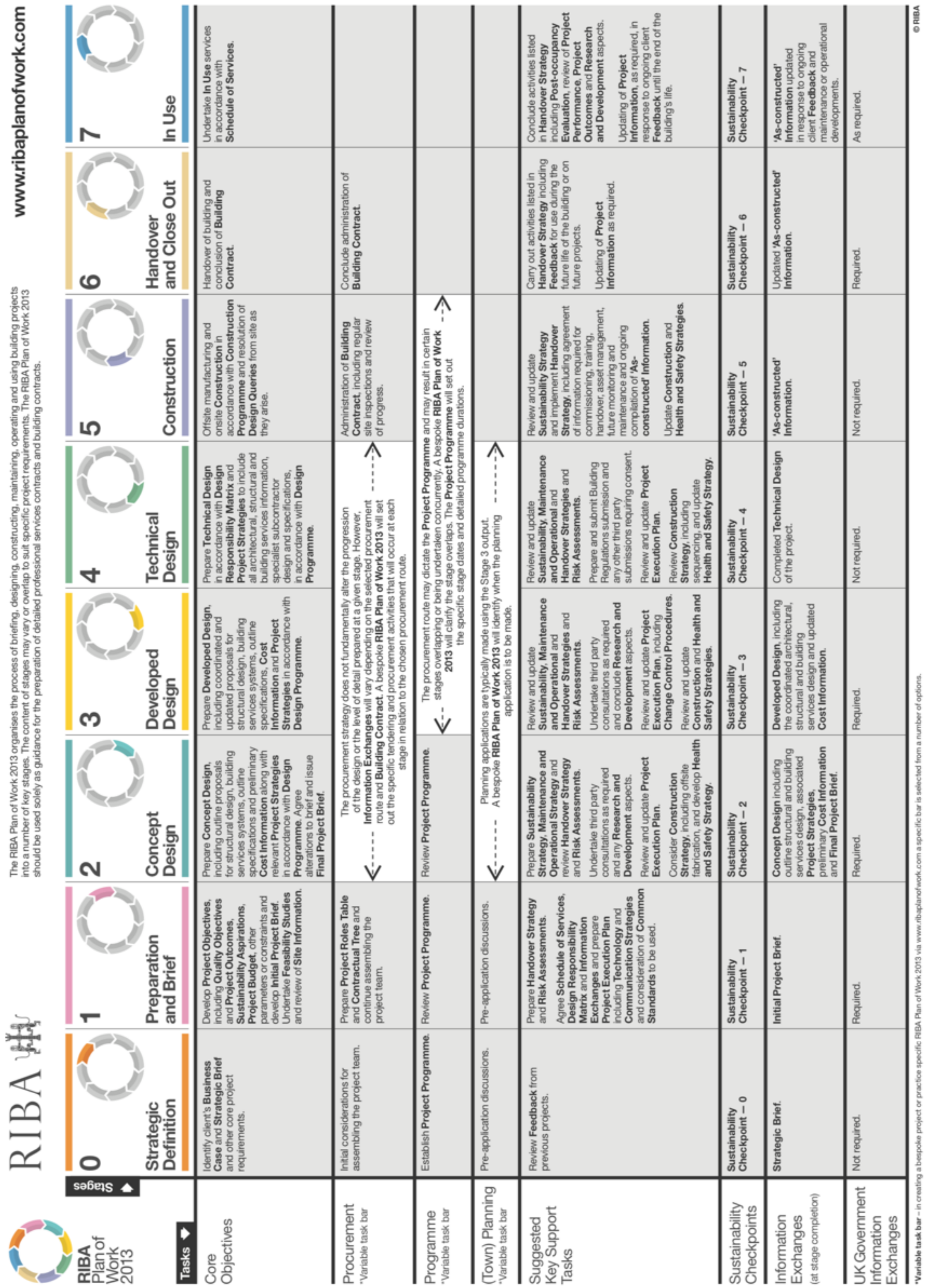

Figure 2: Royal Institute British Architects Plan of Work (Architects, Royal Institute British, 2017).

In this part, the architectural design process was evaluated until the completion of the design and preparation stage of architectural drawings with standards and details.

The Royal Institute of British Architects (RIBA) illustrated and published work stages of the design process (Figure 2). RIBA suggested managing and organising the stages for a quality design process for architects. The RIBA working process is the best known and best example from European Union countries (Architects, Royal Institute British, 2017).

The RIBA work stages are totally structured from zero to seven as illustrated in Figure 2.

0. Strategic Definition
1. Preparation and Brief
2. Concept Design
3. Developed Design
4. Technical Design
5. Construction
6. Handover and Close Out
7. In Use

The RIBA work stages from Strategic Definition to Technical Design were the focus of this study and are defined based on Figure 2 in the following subsections.

2.1.1 Strategic Definition

The core objective of the strategic definition stage, as described by RIBA, is identifying the client's requirements for the project. In this part, the key requirements and the opportunities are taken into account and discussed with the architect to establish the procurement method and determine primary needs of consultants and project team members. In this stage, pre-application to town planning discussion is

taken into account to complete the procurement strategy and establish the project's programme (Architects, Royal Institute British, 2017).

2.1.2 Preparation and Brief

The core objective of this stage is developing project objectives related to quality objectives and intended outcomes of the project. The initial project brief and feasibility studies are undertaken with review of the site plan and other site information. The procurement is prepared and furthered by making contracts with project team members. Pre-application discussions are continued with the project team. The schedule of services, design responsibility, and information exchanges between client, project team members, and government are programmed and the communication strategies and standards to be used are considered (Architects, Royal Institute British, 2017).

2.1.3 Concept Design

According to the core objectives of the tasks, architects prepare and complete conceptual designs with the team members. According to RIBA (2017), *the Architect's Job Book* lists the following consultant services: quantity surveying, structural engineering, mechanical engineering, electrical engineering, landscape and garden design, civil engineering, town planning, furniture design, graphic design, industrial design, and interior design. These also may be provided within the architect's own office by partners and associates or those directly employed as staff.

The structural engineers are responsible for the building structure. Often there will be a division of duties within the structural work. As well as the division between the designers and detailers or drafters, there will often be specialization between reinforced concrete work, structural steel work, structural timber work, structural

masonry work, et cetera. The design team will consist of architectural staff, together with the staff responsible for the specialized areas of project (Thompson, 1990).

The concept of the designed project proposal includes the structural system, the building services system, frame, specifications, and preliminary costs of the project. The completely designed project proposal is prepared according to the Strategic Definitions of the project and the design programme. The architects advance this part with procurement and suggest key support tasks such as sustainable strategies with risk assessments, construction strategies, and health and safety strategies according to regulations. Data sharing with project team members and clients further with project strategy included with detail of structure, building services design, cost information, and final project brief (Architects, Royal Institute British, 2017).

2.1.4 Developed Design

The architects develop the concept design with the coordination of the team members and update the proposed project. The proposed projects include structural systems, building services systems, outline of the specifications of the designed building, and the project strategies according to the design programme. The proposed developed project further with the basis of the form Town Planning procurements. The developed projects updates are review with Sustainability, maintenance, operational, handover strategies and Risk assessments as suggested key support tasks of the RIBA. The data sharing and exchanging's furthered as updated project parts with the project team members as illustrated at Figure 2 (Architects, Royal Institute British, 2017).

2.1.5 Technical Design

In the last step, the architect and the team of project engineers (construction technologies, structural analysis, thermo-analysis, mechanical system, plumbing systems, acoustics, lighting) design the detailed working drawings of the buildings, typically at a scale of 1/50 or 1/20. These detailed projects present the exact dimensions of the building and specify the construction techniques and the materials to be used. But for the purpose of 3D reconstruction, they contain so many details that the resulting 3D representation would rapidly become too complex geometrically to be useful (Tombre & Ah-Soon).

The technical design drawings prepared according to the project responsibility matrix and design programme with the project team members. The procurement according to the tasks will continue with construction stage. However, reviews and updates complete and prepare for submitting according to the building regulations and other third party submission requiring consents as illustrated at Figure 2.

2.2 Architectural Drawings as a Tool for Communication

In architecture, design and drawing are connected with each other and inseparable whether the drawing is by hand or computer is for the moment, irrelevant. They are exploratory tools that are the primary element of the design process.

Drawing become a tool through communicating to the designer and recipient of the design. Their ability to do so depends on certain conventions which need to be understood. In this sense, architectural drawings – plans, sections, and elevations – differ from other drawings like works of art.

The architectural drawing should be evaluating as a means of communication not just a potential means of representation. It is useful to specify that architecture is the structure or representation of productions. The scope of analysis of the architectural drawing can be determined from the representative approach containing the visual productions.

The architect prepares visual information in the design of the space to estimate both its design and its communication to its colleagues when dealing with the concept of communication.

Thus, drawings that are prepared for communication are becoming transferable according to the context in which they belong. Architectural drawing has undergone major evolutionary conversion in recent years, especially in historical process, depending on both communication models and production forms.

The technological revolutions, discoveries and increasing data capacity that we have been living in for centuries have brought humanity from the industrial century to the digital century. In the name of the architecture discipline, architectural drawing plays a determinative role in the history of architecture, in the development of architectural philosophers, in the study of typologies (Köksal, 1994).

The necessary skill that must be mentioned in addition to discourse and criticism skills in the design of a space that is being worked or drawing is the role that it undertakes in the design process. The organization of design in accordance with the social and cultural form of society is widely achieved through this means, namely

architectural drawings. The architects are following the methods in design phases for architectural drawings and the drawings are classified into three issues:

- Location Drawings
- Assembly Drawings
- Component Drawings

Location drawings present detailed information of the design in a classified including to definition under the drawing techniques. The location drawings include: Site Plan, Floor Plans, Sections and Elevations (Thompson, 1990).

2.1.1 Site Plan Drawings

The main principle of the design as a stage is site analysis and drawing. Architects need to research the ability and sustainability of the building design. The site analyzes related to research about some factors on site plan. The research associated with reflecting existing effective factors of the design to the technical drawing correctly and understandable. The primary effective point can be described as the site dimensions and boundaries.

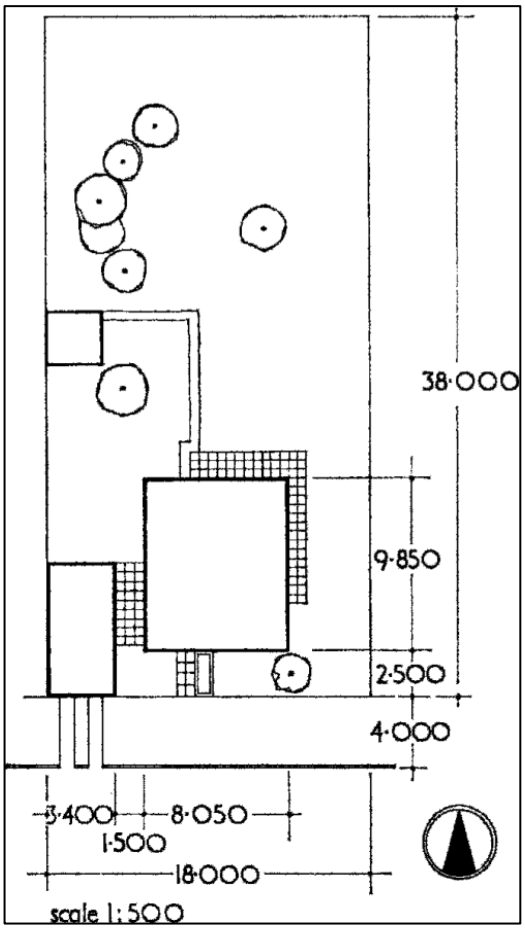

Figure 3: Site plan drawing example (Littlefield, 2008)

This could affect the design positively or negatively at the decision period. The site boundaries specify the constraints of the design in the first stage. Secondly, the topography of the site determinate the structural system, access, cost and levels of the design. The drawing scale depends of the land and the project drawing technique. The under the conditions of the mentioned issue the scales are 1/100, 1/200,1/500 (Styles & Bichard, 2004).

2.1.2 The Floor Plan Drawings

The importance of the plan in architecture stems, from the constructional obligation to set out walls on the ground. This primary need then also becomes the first step in the design process. It is definitely this drawing of the plan as the first abstraction and

analogue of the building which makes Le Corbusier's statement "The plan is the generator" so correct and so in line with everyday design experience. On the other hand, Kahn makes a very similar statement: "The plan expresses the limits of form". Form, then a harmony of systems, is the generator of the chosen design (Brawne, 2003). The plan is the revelation of the form.

The first step of the organizing the form, defining with the dividing elements and functions in scale at floor plans. Two different types of dimension units and scale are used in the world as standards. The first is imperial dimensions and scale. The units illustrating technique in feet, inches and fractions of an inch to an accuracy of 1/16th inch, followed by the equivalent in brackets to the nearest millimetre. The reverse should never be required. Imperial dimensions defined by the abbreviation's "ft." and "in": 4ft.-6 in., or illustrating with single or double commas: 4'-6". The second types of dimension and scale is using in the world, metric system. For example, The United Kingdom, since the amendment to metric following as principle at the practice, the millimetre used instead of the centimetre. The units should not be mixed at the architectural drawings. It should be followed millimetres, centimetres or meters as standards. The abbreviations of millimetres are "mm", centimetres are "cm" and meters are "m" or "M" (Adler, 1999).

The internationally agreed and suggested set of scales used in the architectural drawings are illustrated in Figure 5. The scale should be defined for each of the architectural drawings in text style. Where two or more drawings presented or drawn in the same sheet, these should be represented clearly as architectural drawings (Adler D. , 1999).

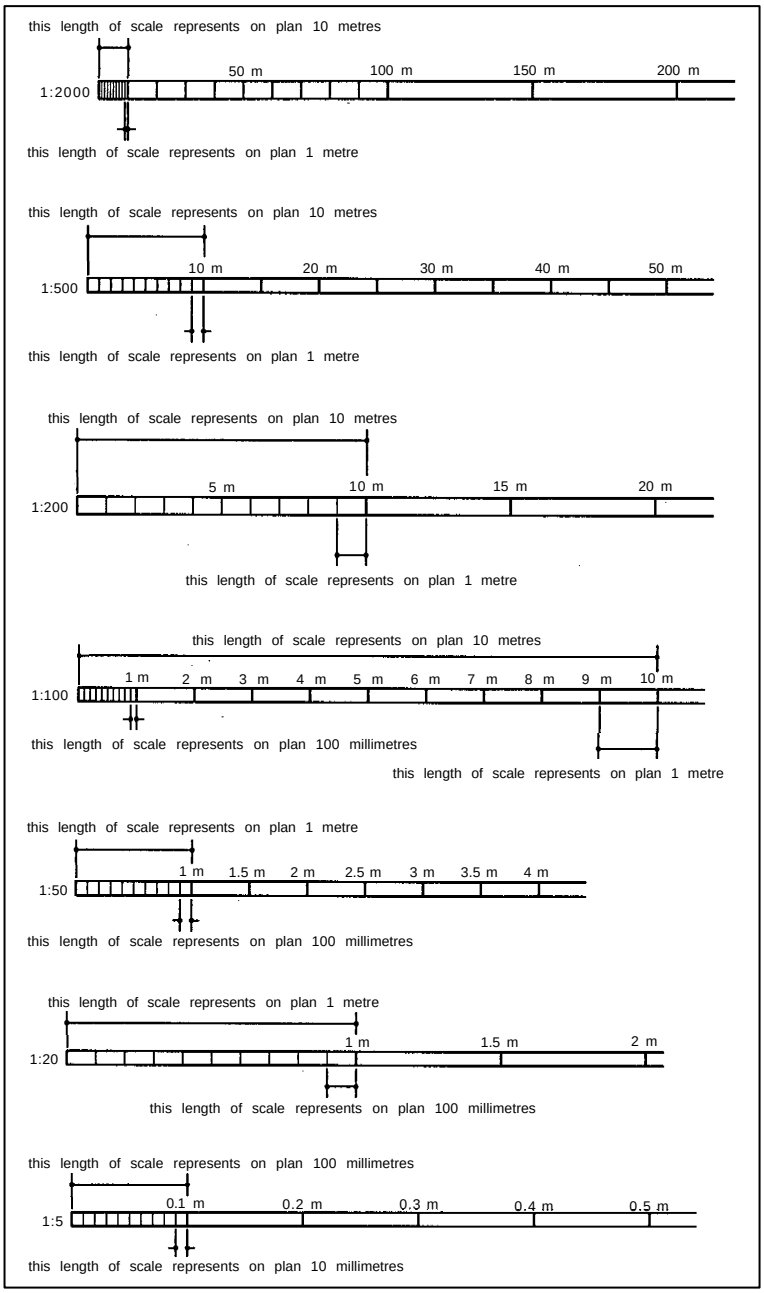

Figure 4: The representation of lengths to scale (Adler D. , 1999).

The walls are the primary elements for defining the functions in floor plans. The structural system identifies the building construction system and the walls are joining and complete the form in floor plan drawings. The drawing techniques with line thickness and line weight, separate from other construction elements in this approach.

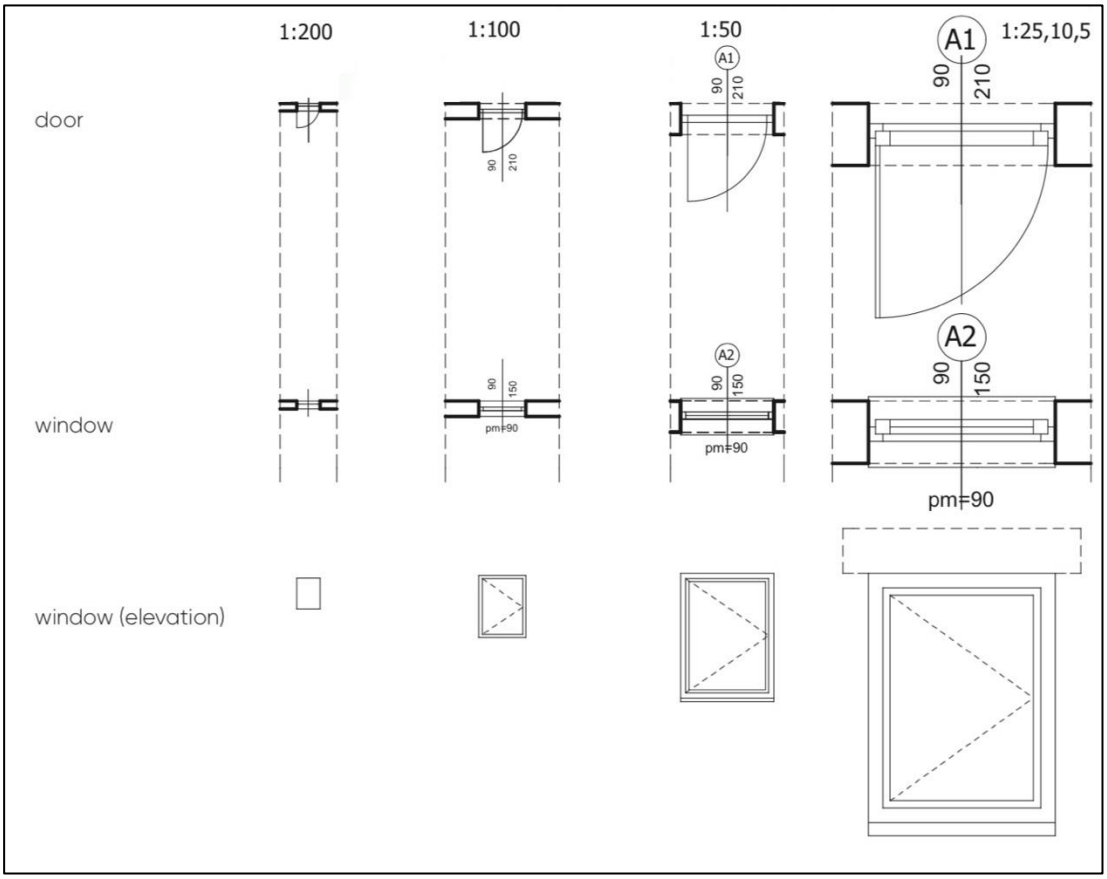

Figure 5: Different types of doors and windows drawing for floor plans (Budapest University of Technology, 2017).

The doors and windows drawing technique composed and identify the spaces and define access, ventilation and relationship with interior and exterior functions. The general convention techniques of door and Windows define operation methods and the size of the materials from top view at floor plan drawings as illustrated at Figure-6.

The variations of the stable elements are defined spaces. The kitchen, toilets, washbasins, and stairs illustrated with different type of line and line weights to define and classify the spaces as drawn at Figure-7.

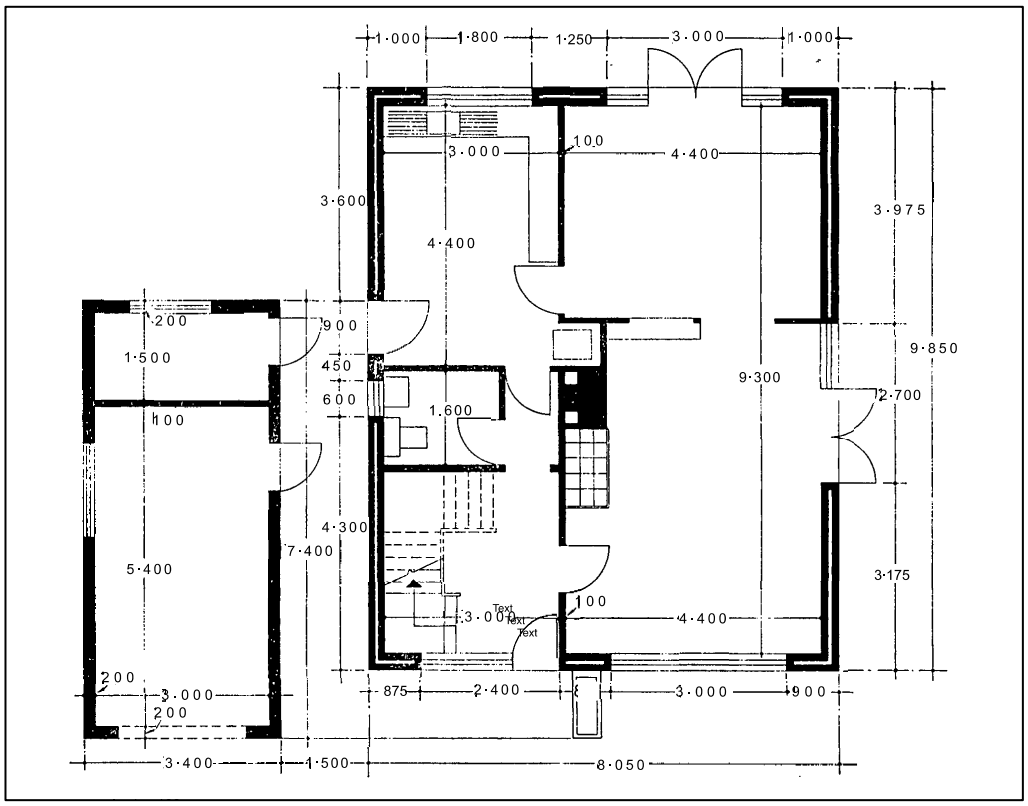

Figure 6: Example Floor plan at Location Drawings (Adler, 1969).

The dimensioning technique define the location of the doors and windows between walls at horizontal and vertical. On the other hand, this technique, continuously follow same method at the exterior of the floor plans as illustrated at Figure-7.

The continuity of the dimensioning defines the length of the spaces at horizontal and vertical line as illustrated at Figure-7. The continuity with dimensioning is different between interior and exterior as method. For exterior, dimensioning composed with the construction lines as illustrated at Figure-8. The construction lines defined with alphabetic and numeric texts inside the circles for classifying every construction line. The construction lines continued and the intersection points are illustrating the columns at Figure-8.

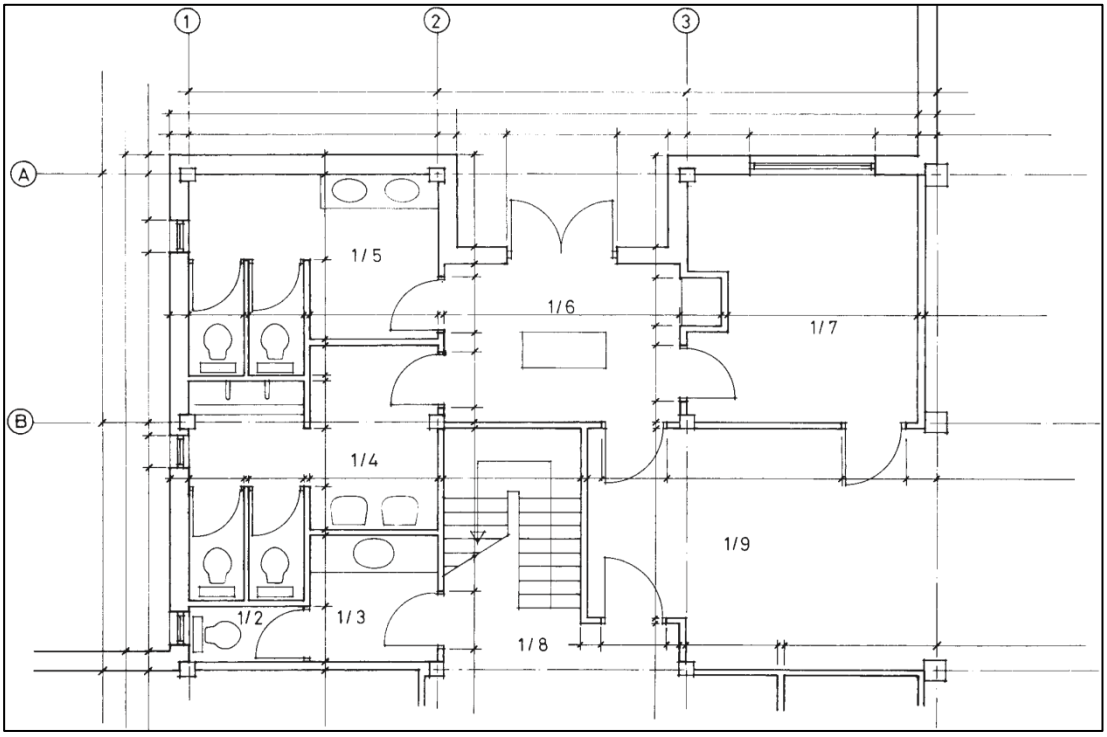

Figure 7: Typical dimensioning and construction lines location of floor plan (Styles & Bichard, Site Plans, 2004).

The continuity of the dimensioning from exterior of the floor plan present dimensions between intersection of the columns and total end of the line present horizontal and vertical dimension of the building as illustrated at Figure-8.

The dimensioning method line types and line weights depend on the scale of the architectural floor plan. The doors and windows dimensioning supported with coding method for classification the doors and windows.

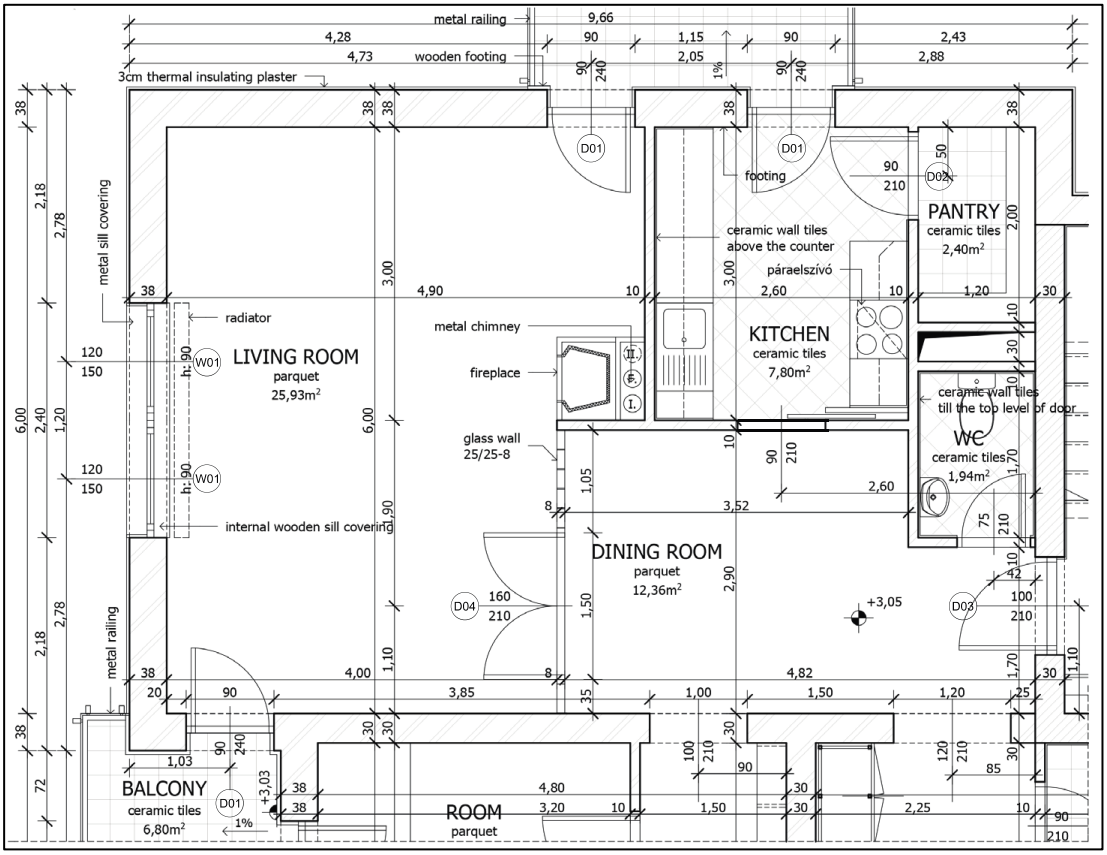

Figure 8: The Example final Floor plan-scale:1/50 (Budapest University of Technology, 2017).

The main aim of the coding system in floor plans, describing the heights and lengths of the doors and Windows. The classification of these elements, depends on their length on floor plans as illustrated at Figure-9. As mentioned from Figure-4, the stable elements are defining the kitchen, toilets and sink at floor plan. The flooring materials illustrated with hatch technique in different line weight at floor plan. The leveling symbols illustrated and the level illustrated in different text height at Figure-9. The spaces define with text styles and the calculated areas reflected at floor plan in disciplinary and the composed architectural standard with the drawing technique.

2.1.3 Section drawings

The main aim of the section is describing the building with a cutting technique direct from the form of a plan of the building on horizontal and vertical axis. The sections

at the same times display the hidden side of the building as elevation like interior spaces. This technique is discussing interior and exterior with thickness of the walls, floor layers, materials and functions. The section drawing technique is the graphic convention technique with the line types and thicknesses to convey and reflect describing various forms, materials and functions. The orthographic section the interior is also define the interior view of the main architectural surfaces, when the combining of a section with a perspective defining in dimension of the interior as a function or space, with the perspectival reflection technique (Lewis, Tsurumaki, & Lewis, 2016).

The section drawing technique is starting with the visualization of the hidden part of the form. Sections present a form of knowledge as unique. At the same time, section demonstrates the changing differences between multiple perspectives of architectural space, making clear the crossroad of proportion and scale, view and side. In section drawing technique, the interior views of walls and floors are display.

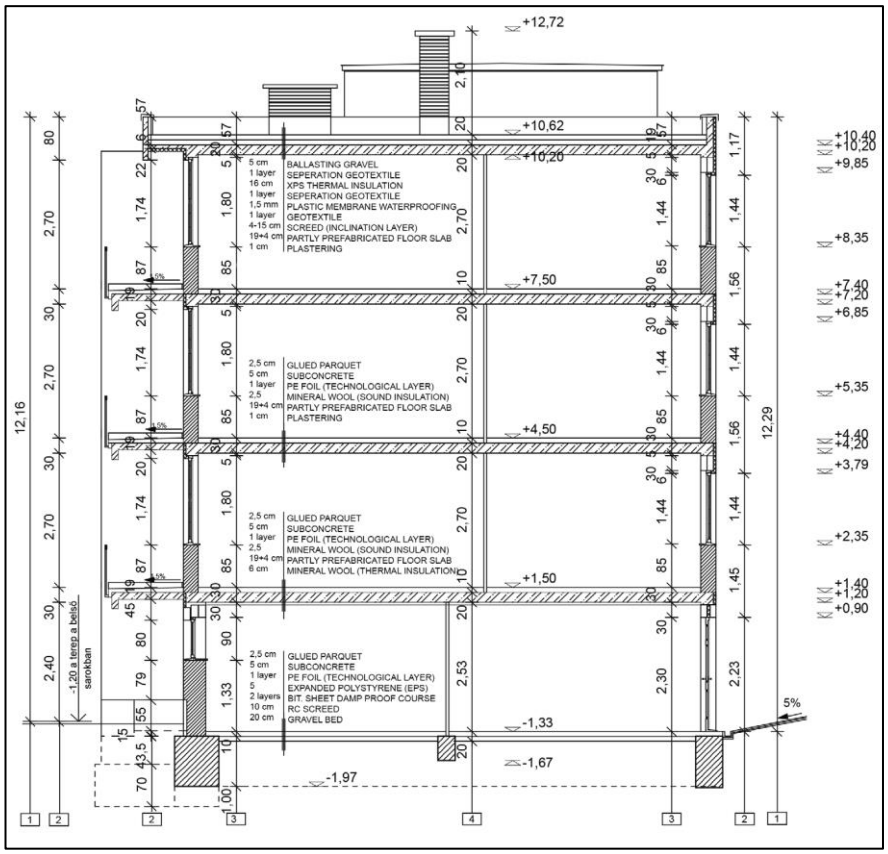

Figure 9: Section drawing technique as sample (Budapest University of Technology, 2017).

The section drawings and plan drawings are the analogous representational techniques as conventions. These offer a significant function for comparison. They demonstrated a relationship that is not directly comprehensible between space and function.

On the other hand, the section drawing, organize the spaces with the dimensions and the scale with harmony as illustrated at Figure-10. The drawing technique is arguing the floor plan, vertical and horizontal section line present direction and represent the structural and functional operation inside and outside of the proposed building.

The type of the section types are usually defined by the scale according to the cutting lines: site plan section, building sections, detail section, wall sections. Wall and detail sections are containing technical purposes with using graphic conventions of different type of line, line weights, hatching technique, material identifications with texts, dimensioning, symbolic conventions with levels and tectonics as illustrated at Figure-10. The main aim of the site sections is representing a form, levels and the relationship between the site levels and environmental factors. But the building sections are including various significant includings as social, formal, political, spatial, organizational, structural, technical and thermal. (Lewis, Tsurumaki, & Lewis, 2016).

2.1.4 Elevation drawings

The main aim the elevation is seeing the exterior functions of the building. Architects also proposing to communicate the exterior views of a building will include materials in detail. This is the one of the drawing types and technique in architectural projects. Drawing an elevation is an orthographic reflection of drawing that illustrate different views of the designed building. The purpose of this drawing is describing materials, texture profiles, building levels and relationship between elements like windows and details. The main principles of the elevation drawings are using line types to describe mass and functions according to the importance of functions and front and back of the building. This is illustration and presentation method of the identification the designed building for better graphic communication in any scale of drawing. Four different side of elevations are customarily drawn.

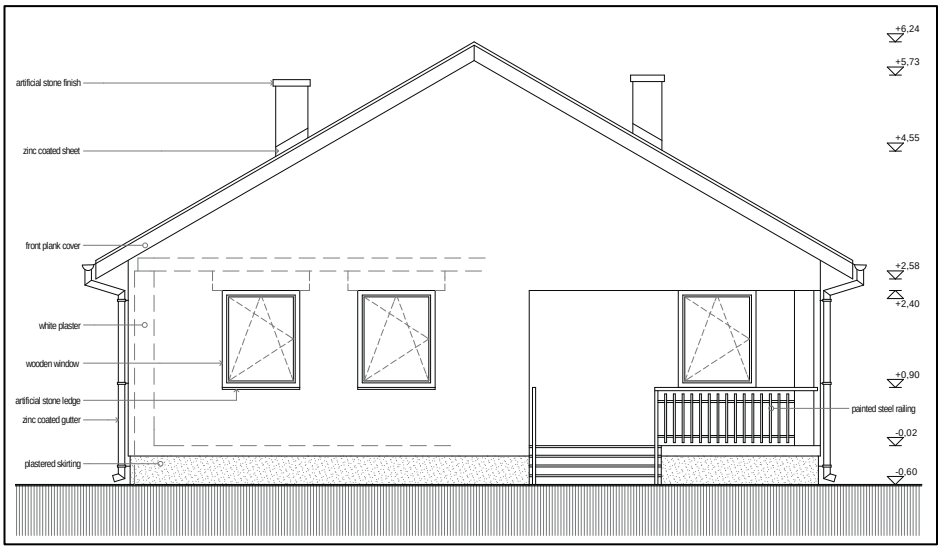

Figure 10: Elevation drawing technique as sample (Budapest University of Technology, 2017).

According to the main drawing principles of Figure-11 Elevations are ordinarily including following points:

- Identification of the specific side of the building that the elevation represents
- Finished floor and ceiling levels.
- Location of exterior wall corners.
- Windows and doors.
- Roof features.
- Porches, decks and patios.
- Vertical dimensions of important features.
- Material symbols.

2.1.5 System detail drawings

Often times, an overall view can't show enough detail to communicate how some functions in detail is constructed. When architects need to show more, they use detail views. Detail sections show cuts through a portion of a building in order to describe

the construction technique and material use. Other details simply show the shape and texture of things (Littlefield, 2008, p. 16).

Chapter 3

EVOLUTION OF ARCHITECTURAL GRAPHIC STANDARDS IN CYPRUS

3.1 Architectural Graphic Standards in British Colonial Period in Cyprus

The British Imperial administration was inspired largely by the Roman Imperial system. However, unlike the architecture of the Roman Empire which imposed a uniformity of style throughout its possessions, there was no single, uniform British Imperial architectural style. This also applies to the British colonial architecture in Cyprus (Georghiou, The issue of architectural style and its symbolism, 2013).

The British Colonial Period was a significant crossroad for architecture in Cyprus. Many significant public projects were supervised by the Royal Engineers up to the end of 1879 in British Colonial Period. However, the Royal Engineers and the Cyprus Government Engineers Department showed no obvious interest using magnificent architectural styles in Cyprus that would reflect the glory of a colony. Cyprus was not yet officially a British Colony and certainly to the deficiency of finances available for primary financing on public architecture. The Public Works Department (PWD) was founded with the establishing of the British Colonial Government on the island in 1878 (Georghiou, The Character, Ethos and Operation of the British Colonial System, 2013).

The British Colonial Government employed architects for Public Works Department to support designing a government official houses in Cyprus in early 1920's. Then Public Works Department licensed eight new positions in 1925 and 1931 for progressing skill of design new public building projects and residences in Cyprus (Schaar, Given, & Theocharous, 1995).

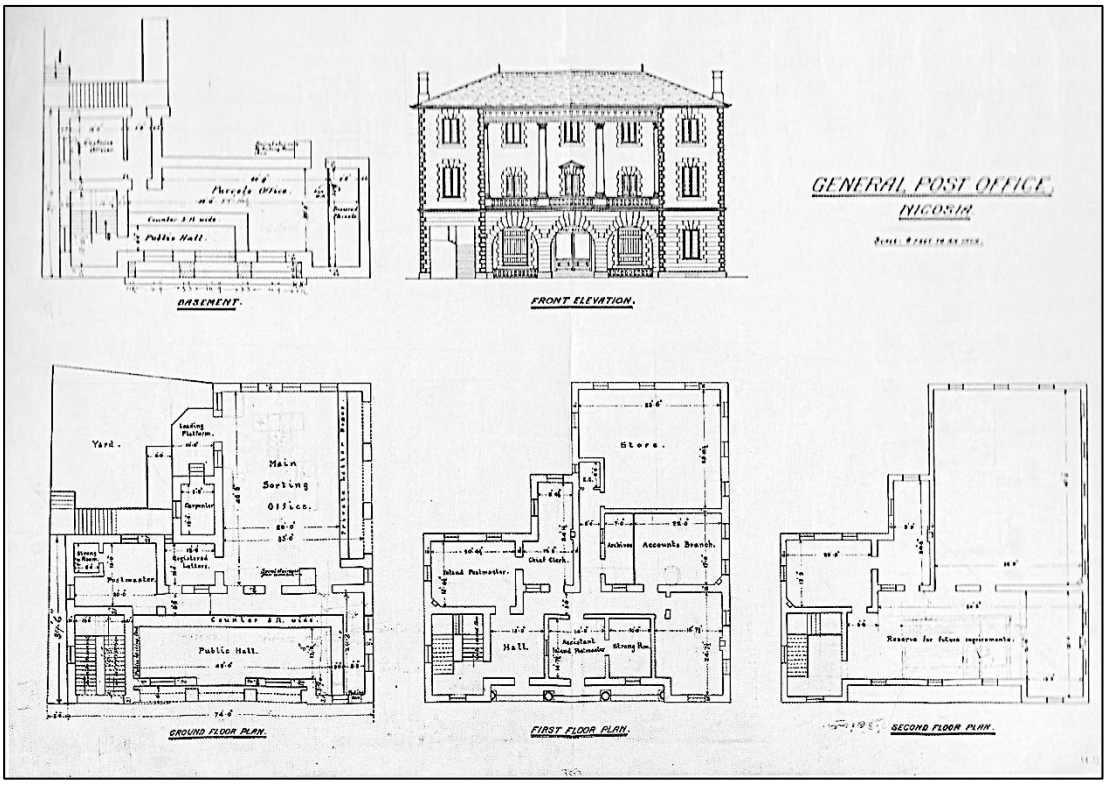

Figure 11: General Post Office architectural drawings (Georghiou, 2013).

The first architectural organization established in Cyprus with the Cyprus Civil Engineers and Architects Association (CCEAA). It was pioneered in 1940 by architects and civil engineers at English Colonial Period. However, because of the Second World War, the organization managed and worked unofficially until 1956, when it was registered as a Limited Obligation Non-Profitable Company based on its foundation declaration and memorandum (CCEAA, 2017). For architectural graphic standards in British Colonial Period, the primary unit of measurement was imperial

under the Weights and Dimensions Law in 1824 (Zupko, 1990). An architectural drawing of the Nicosia General Post Office was drawn with dimensioning using the feet-inch system and scale. It is illustrated at Figure-12 (Georghiou, 2013).

The regulations for building construction and the arrangement and construction of streets, including road-widening layouts, were organized during the first quarter of the twentieth century. The colonial government's implementation of the regulations was achieved by 'Building Committees' in each town. The committees included community delegates, a colonial government engineer, and a health officer. However, these organizations had insufficient resources and were not very potent. Building permits were extracted by the municipalities and they collected fees. The Building Committees did not possess town planning powers and could not dictate land use zones, public open spaces, or parks. The city mayors of Cyprus published a declaration to the British Colonial Government in order to establish a convenient town planning system on the island in 1932. The mayor of Nicosia replied by asking that the Building Committees be canceled and their responsibilities be given to the Municipalities. The government found the estimated costs of founding a convenient Town Planning Service to be unaffordable and decisions were postponed until the Second World War. The 1927-38 Laws for Construction of Buildings, Streets and Wells were canceled in 1946. The Municipal Corporation Laws of 1930-1945 were refurbished by Law No 12 of 1946. It was 'A Law to consolidate and amend the Laws relating to the Construction of Streets and the Erection of Buildings'; it continued until 1959. 'The Streets and Buildings Regulation Law' was later on created and continues up until to this day, although it has had many amendments'. The 1946 Streets and Buildings Regulations Law supervised the construction of

buildings and streets and the platting of land into building plots. The authority responsible for the enforcement of legislation in town municipal regions was the Municipal Council. In village municipalities 'Appropriate Authority' was held by the Commission with a Chairman, the Mayor, the Deputy Mayor, District Medical Officer, and District Engineer as members. In non-urban areas the law was managed by the District Commissioner and his staff but for building in suburban villages the District Medical Officer and Division Engineer frequently was also involved. British architects reflect the British architectural procurement, regulations, and graphical standards because of the colonial management in Cyprus. The organization and procurement shaped the Public Works Department (PWD) procurement and architectural discipline in Cyprus. The design of public projects generally was demanded by the Colonial Governments and the PWD architects served a primary role in the projects (Georghiou, Building and Planning Regulations, Urban Design and Town Planning, 2013).

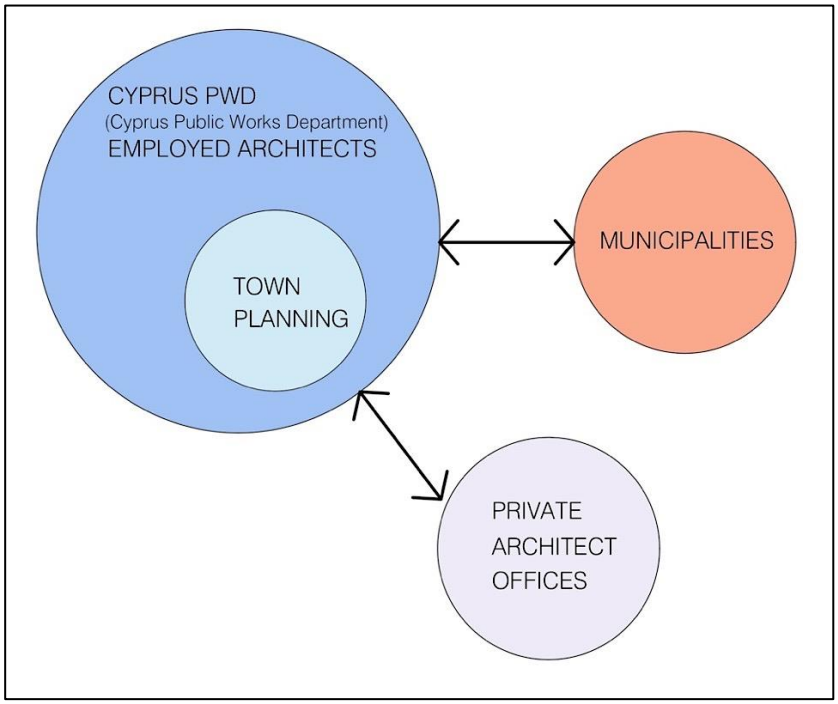

Figure 12: Architectural project approval process in Colonial period in Cyprus (Drawn by Author, 2018).

Andreas Meletiou was a Cypriot architect in the British Colonial Period and graduated from England. He was a member of Royal British Architects Association (RIBA) after graduation and a qualified architect. He designed a house project at Nirvana Street in Nicosia. Meletiou was a PWD Architect of the British Colonial Government (Georghiou, Late Colonial House at Pavlos Nirvanas Street, Nicosia, 2013). His Nirvana Street house project reflected his qualified knowledge and education as well as the regulations through his drafting technique. However, the architect did not plot and submit the site plan but he did organize architectural drawings for this house project (Georghiou, Late Colonial House at Pavlos Nirvanas Street, Nicosia, 2013):

a) Floor Plan (Scale:1/100)
b) Section (Scale: 1/100)
c) 3 Elevations (Scale: 1/100)
d) (Georghiou, Late Colonial House at Pavlos Nirvanas Street, Nicosia, 2013)

3.1.1 Floor Plan Drawings

The to-scale architectural graphic defined British Government Standards in this period. In the floor plan the architect illustrated the inside and outside spaces with “foot” and “inch” measurement as well as a 1/100 scale (Georghiou, Late Colonial House at Pavlos Nirvanas Street, Nicosia, 2013).

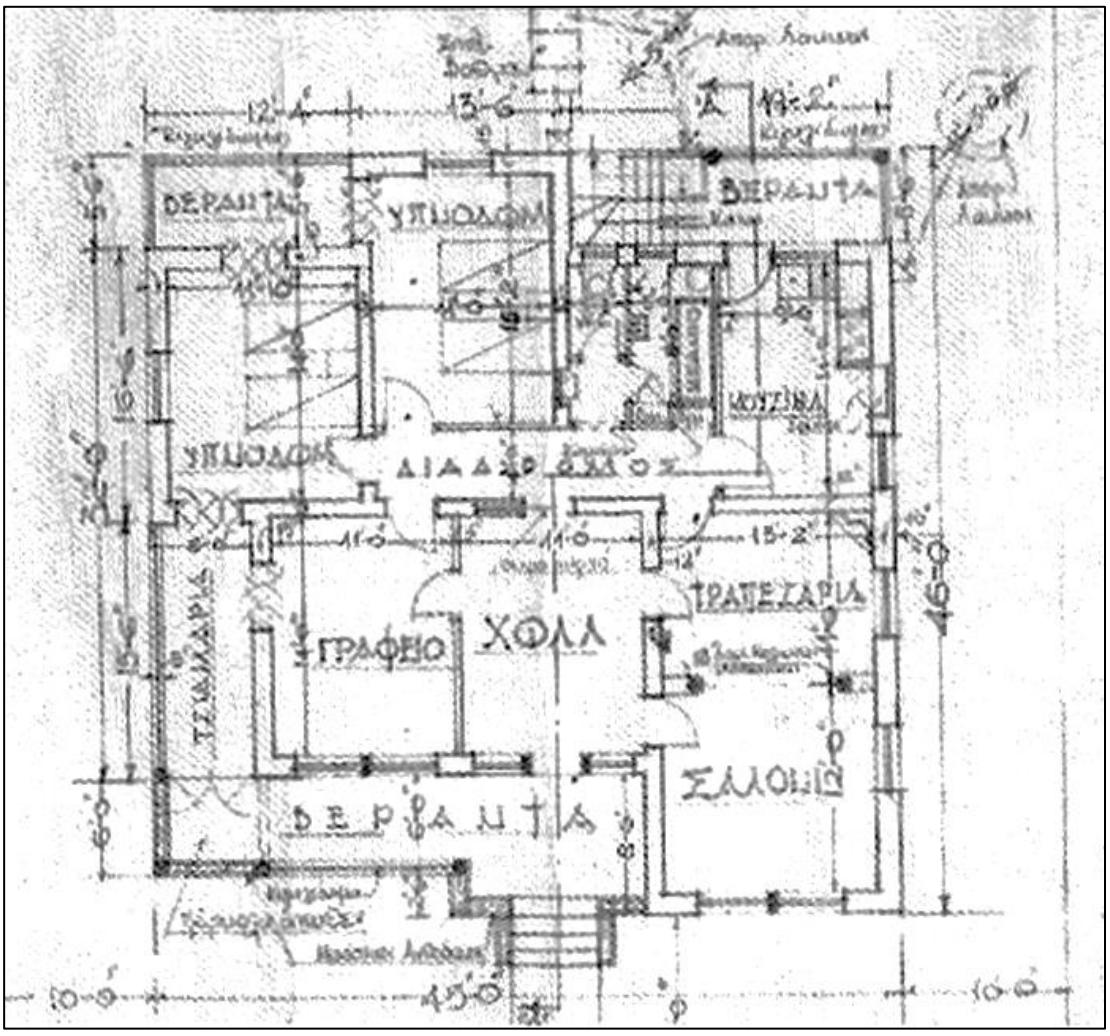

Figure 13: A Typical house project floor plan designed by PWD Architect Andreas Meletiou (RIBA) in 1951 (Georghiou, Late Colonial House at Pavlos Nirvanas Street, Nicosia, 2013)

Outside measurement lettering types were represented bigger than interior measurement lettering. The lettering technique was represented without stencils and done freehand in this period. The line type drawing technique reflected dividing elements, material thickness, doors, and windows in the floor plan. The most important point of discussion is the dimensioning from the front of the building to the land border, the distance defined as “10 feet” from east and west. The architect indicated this dimension on the floor plan even though he did not present a site plan for this project. This was not compulsory for the residence projects in British Colonial Period.

3.1.2 Section Drawings

The main principles of section drawing technique were followed by the architect. The heights of spaces were not presented in the scale of 1/100 (Figure 4) but symbolically by the architect's graphical standards. In section, drawing the heights of the space defined two critical points.

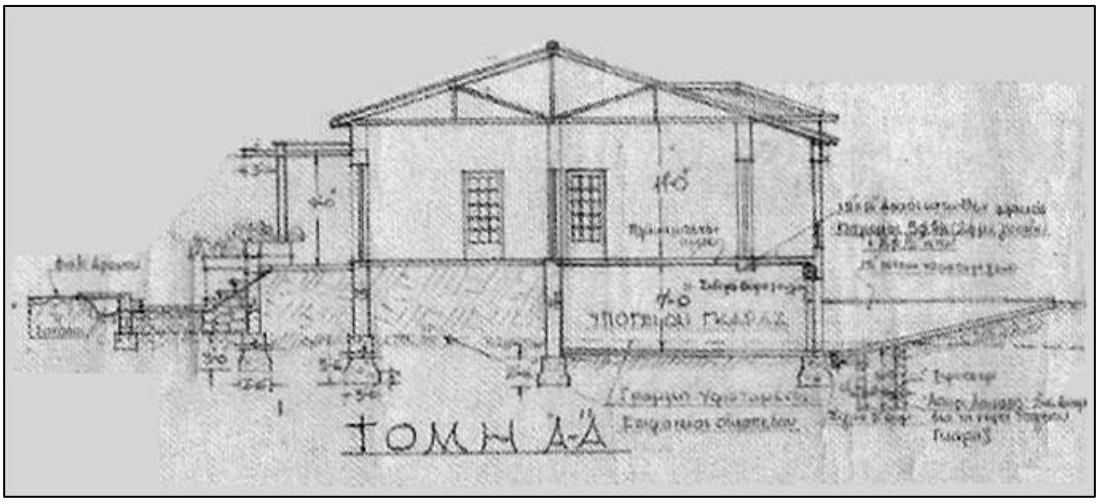

Figure 14: Typical House Project section by PWD Architect Andreas Meletiou (RIBA in 1951 (Georghiou, Late Colonial House at Pavlos Nirvanas Street, Nicosia, 2013).

The main principle of section drawing is the dividing technique from the plan and carrying axes from the divided point of the dividing elements. The architect successfully drew the section and divided the most understandable axes of the building from the entry to the backyard of the house. This represented the levels from the outside to the inside of the building in coordination with the scale. The structural system and relationship with subsoil must be understandable in section. The foundations and structural system were defined by line thickness and indicated with hand lettering. The height of foundations were expressed by dimensioning systematically in section.

3.1.3 Elevation Drawings

The architect reflected his identity and quality in this part of the drawing. The main principle of drawing elevations is the technique of illustrating the outside of the building based on the floor plan. The scale of the floor plan and the elevation must equal the scale of the section at 1/100 and the elevations must align with the section and levels of the building.

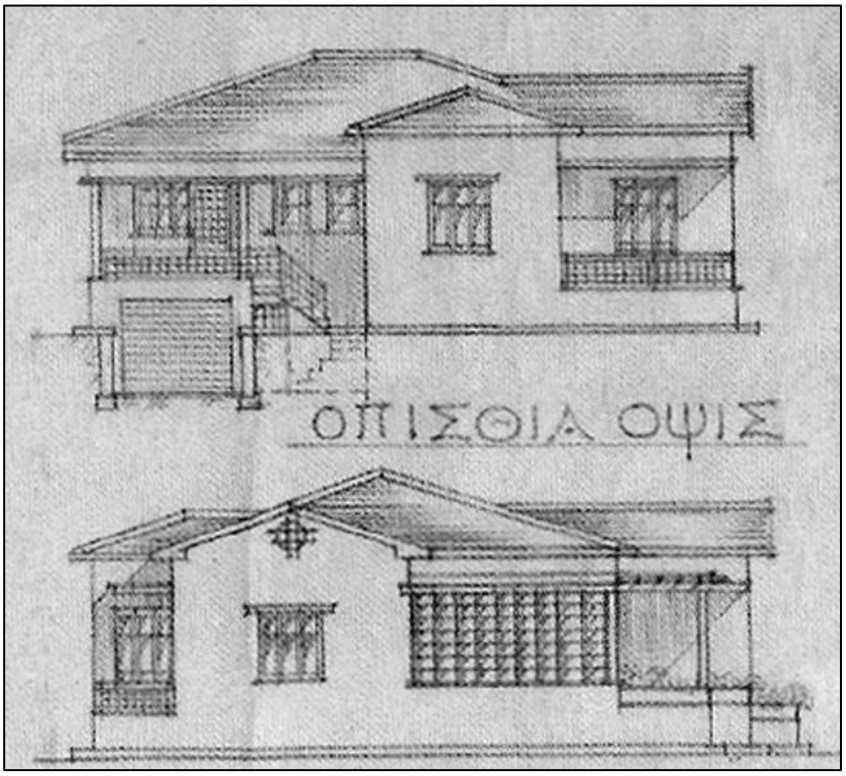

Figure 15: Typical house project elevations by PWD Architect Andreas Meletiou (RIBA) in 1951 (Georghiou, Late Colonial House at Pavlos Nirvanas Street, Nicosia, 2013).

The character of the building was drawn by the architect in Figure 16 with elements, materials, and openings. The main issues were expressed by the architect using line thicknesses and shading techniques on the elevations. However, dimensioning nor levels were not represented technically or were not defined by lettering in this part of the graphics.

3.2 Republic of Cyprus

The Republic of Cyprus Period underwent evaluation of and interaction about the administrative, social, and technological movement in Cypriots life. This evaluation reflected individuals' life standards and demands. The life standards were conveyed by quality of buildings, construction materials, and workmanship on the island. Modernism started to affect these standards in the 1950s and continued into the 1960s. Multi-story building projects were constructed using reinforced concrete structural system in stages during this period.

In 1960, the new republic had its own team of competent, well-educated, and practiced architects. Their experiences were gained from the Public Works Department and they still served with the new government. Additionally, architectural organizations developed under the community's local authority law procurements. The legal procurements of architectural projects and approval procedures developed under the law of the Republic of Cyprus for both communities.

Furthermore, the metric system was adopted for measurements and scale units in architectural graphic standards for both Britain and Cyprus in this period (Powell, 2001).

The Cyprus Civil Engineers and Architects Association (CCEAA) was developed and organized with the constitution of the Cyprus Republic and was supported under society law regulations in the 1960s. The town council was founded with the technical committee in Cyprus. This organization started to approve the first memberships of architects graduated from technical universities (such as İstanbul

Technical University and Athens University or other equivalently-proven universities).

The Republic Period saw the first steps toward establishing organizations of Turkish Cypriot architects in Cyprus. The Turkish Architects and Engineers organized first with society, then they established the Turkish Cypriot Chamber of Architects and Engineers Union in 1970. This organization was registered after establishing the Turkish Republic of Northern Cyprus 12/76 policy number after 1974 and was supported with professional regulation policies.

Solmaz & Arif Feridun were registered Turkish Cypriot architects in the Republic period in Cyprus. Their projects reflected architectural graphical standards for evaluating the Republic Period in Cyprus.

Architect Solmaz and Arif Feridun designed a residential project in Nicosia for the Tangül Family. The project was totally contained on two sheets and included site plan, floor plan, sections, and elevations (Feridun & Feridun, 2013).

3.2.1 Site plan drawings

The amendment to scale, which was adopted in the Republic Period, was the use of metric units for architectural graphic standards. The designed building was drawn with a top view of the roof plan as a mass with line thicknesses in different layers in scale. The borders of the site were dimensioned free hand.

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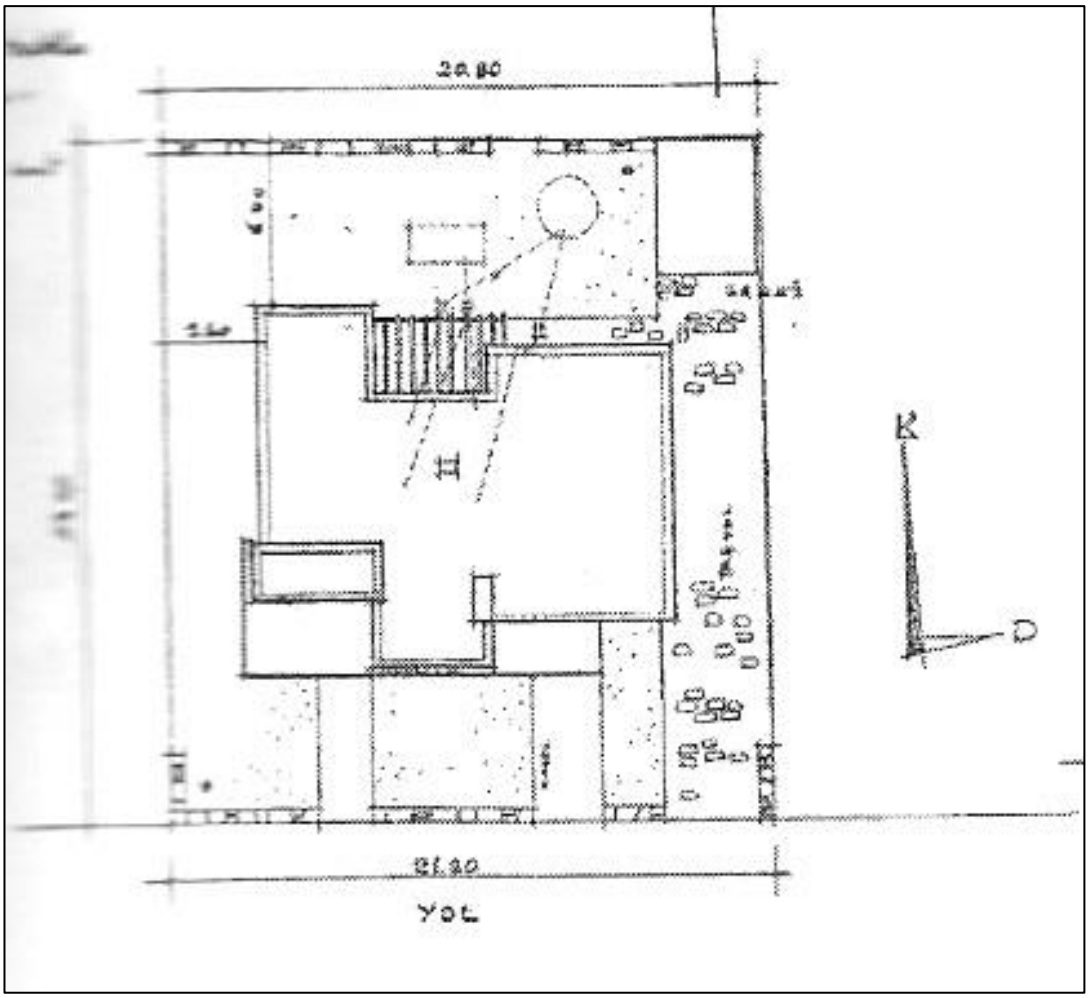


Figure 16: Tangül Family Residence Project Site Plan (Feridun & Feridun, 2013)

The designed building was located within the site and dimensioned to the north side of the building to determine landscaping around building as illustrated in Figure 17. The relationship of the building to the road and access points was defined also. The garage was located to the north-east of the building and the access from the road defined with the material for the ground in the site plan drawing (Figure 17) (Feridun & Feridun, 2013).

3.2.2 Floor Plan drawings

The Republic Period experienced the effects of the modernism movement in architecture and reflected the new construction technology. The renewed floor plan drawing technique applied architectural graphic standards. The structural system was

represented on the floor plan as reinforced concrete for the Tangül Family Residence project (Figure 18). The reinforced concrete columns were drawn with different thickness of line and hatching was applied inside the columns.

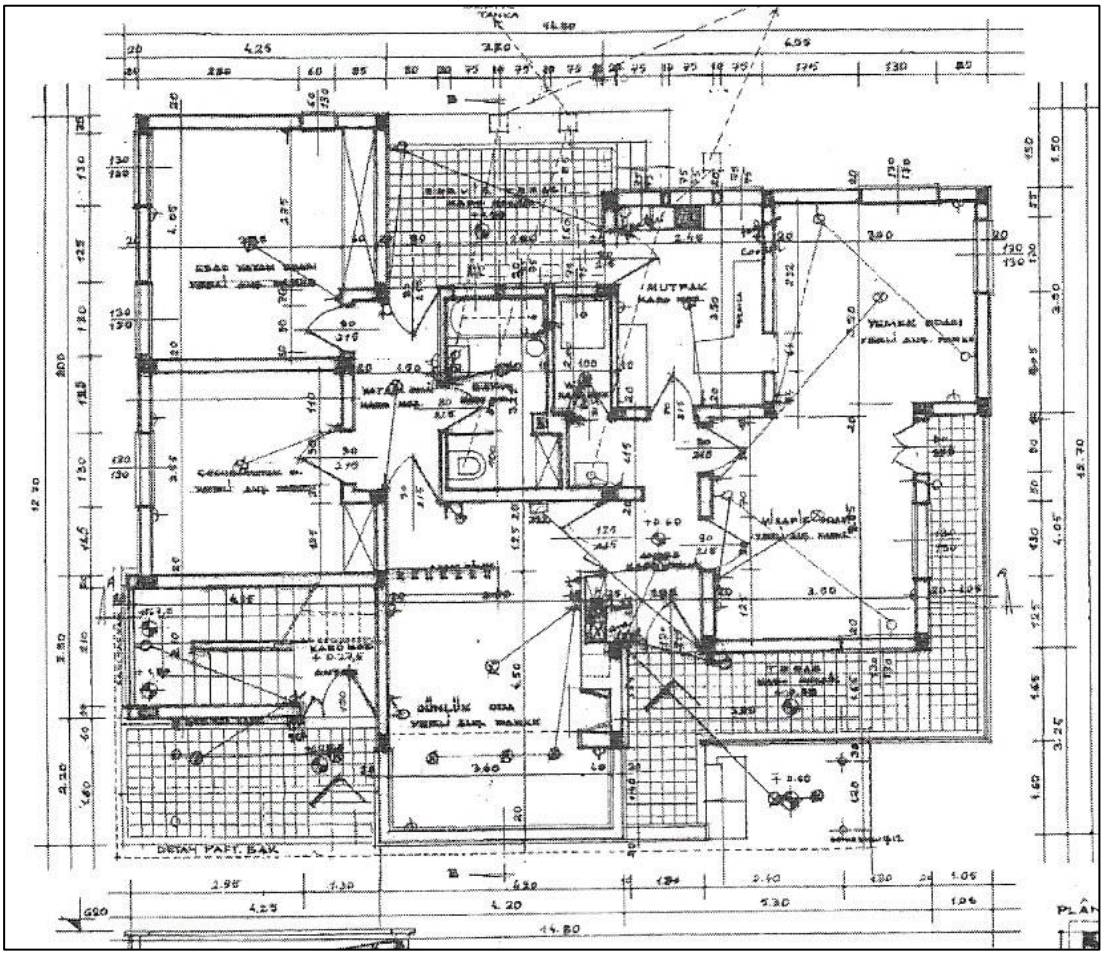
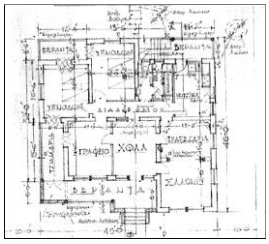
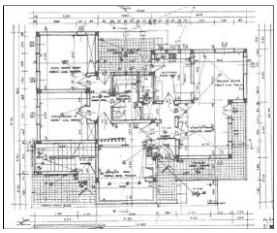


Figure 17: Tangül Family Residence Project Floor Plan (Feridun & Feridun, 2013).

Opposite from the Colonial period, technical symbols started to be represented on floor plans such as levels, and coding of doors and windows. In general, the representation technique of the floor plan was generated according to the harmony of the line types and to reflect the importance of the architectural materials in floor plans as illustrated in Figure 18. The floor plan drawing was represented by the architect at the scale of 1/50. Interior functions were defined by freehand lettering and the freehand technique continued for regular dimensioning (Figure 18).

However, the dimensioning of the floor plan differentiated from the outdoors area of the plans of this period. The dimensioning increase from 1 to 3 for floor plans. First level dimensioning defines the openings such as doors, windows, and the diversity of masses from outside. The second level of dimensioning expressed total measures from one point to another for masses. The final level of dimensioning calculated total length of one side of the building. The definition of the interior spaces with dimensioning was harmonized and protected. The different openings and elements were expressed by a single line on the x-y coordinate for every space continuously as illustrated in Figure 18 (Feridun & Feridun, 2013).

Table 1: The discussion and evaluation the floor plan drawings between British Colonial and Republic Period Architectural Graphic Standards

	CODES		OVERALL EVALUATION	OVERALL DISCUSSION
 **BRITISH COLONIAL PERIOD FLOOR PLAN** (Georghiou, Late Colonial House at Pavlos Nirvanas Street, Nicosia, 2013)	Columns hatch		1.The line thicknesses in a classification according to the materials 2. Imperial units and dimensioning used in 1/100 3. Interior dimensioning used only in single line to defining the spaces 4. Exterior dimensioning used only in single line to defining the spaces 5. The space names identified by free hand text in floor plan. 6. Interior stable elements and furnitures illustrated with different layer.	1. The imperial units used as scale 1/100 and dimensioning 2. The exterior dimensioning used only in single line 3. The flooring materials not illustrated with hatch. 4. The door and windows codes not used 5. The levels not illustrated 6.The flooring materials not illustrated with hatch at intrior and exterior.
	Wall layers with line weight	•		
	Column layers with line weight	•		
	Scale /Units	•		
	Level symbols			
	Interior Dimensions	•		
	Exterior Dimensions	•		
	Section line	•		
	Door codes			
	Window codes			
	Interior stable elements	•		
	Flooring materials (interior)			
	Flooring materials (exterior)			
 **REPUBLIC OF CYPRUS FLOOR PLAN** (Feridun & Feridun, 2013)	Columns hatch	•	1. Structural system idetified with different layer and linetype 2. The columns identidied with hatch 3. Metric units used as scale and dimensioning 4. Levels illustrated with conventional symbols and text 5.The space names idendified in text 6. Interior dimensions define spaces only in single line 7. Exterior dimensions define spaces in three line 8. Door and window codes define their dimensions 9.Flooring materials defined with hatch at exterior	1. The metric units used as scale and dimensioning in scale 1/50 2. The hatch used to define columns 3. The leveles illustrated with conventional symbols 4. Exterior dimensioning define building in three line 5. Door and windows coding used to define their dimensions 6. The hatch used to define exterior flooring materials.
	Wall layers with line weight	•		
	Column layers with line weight	•		
	Scale /Units	•		
	Level symbols	•		
	Interior Dimensions	•		
	Exterior Dimensions	•		
	Section line	•		
	Door codes	•		
	Window codes	•		
	Interior stable elements	•		
	Flooring materials (interior)			
	Flooring materials (exterior)	•		

3.2.3 Section drawings

The analysis of Figure 18 is explained with the number of sections; two sections were drawn from two different sides by the architect. The main principles of drawing technique were applied as the methodology. The first intent was to cut the floor plan and analyse the structural system. The same architectural graphic standards and

technique were parallel with the floor plan. The rhythm of the line types with the importance of the construction elements were reflected strongly for understand ability.

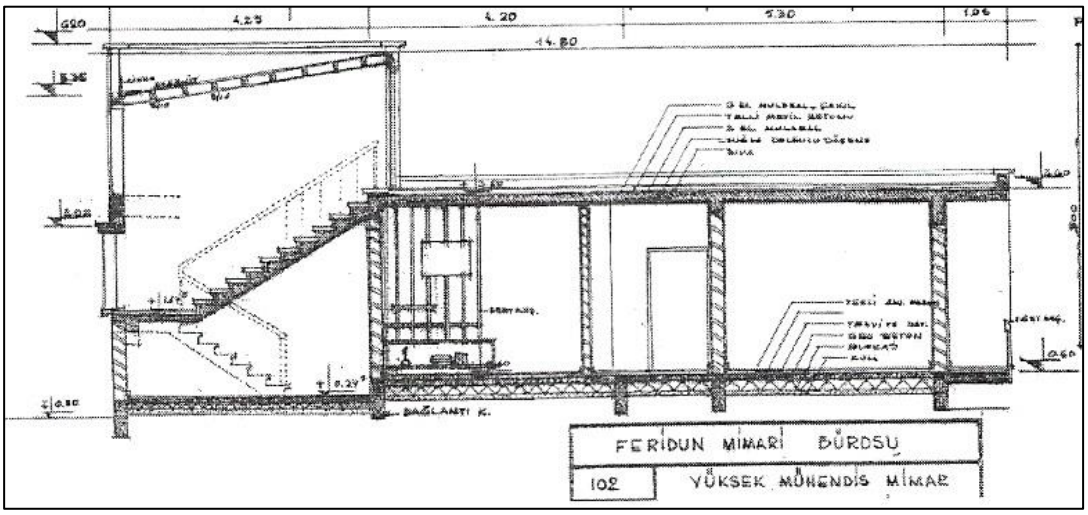
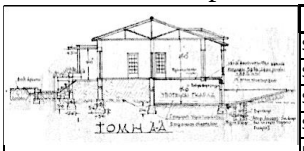
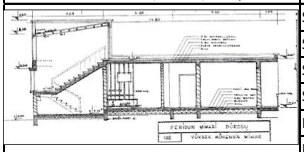


Figure 18: Tangül Family Residence Project Section Drawing (Feridun & Feridun, 2013)

The thickness of the line types emphasized the project's structural system of floor slabs, columns, and foundations as illustrated in Figure 19. The hatch technique was drawn to assign the reinforced concrete system in section. The staircase with handrails was drawn in the same scale as the floor plan to reflect its relationship with the structural system. The architect drew the doors and stable elements of the interior space in section because those are on the section view. However; these elements were drawn using different line type because of the principle of distance from the section cut line. The level differences between floors were drawn with symbols and numbers by freehand for continuity. The determined construction materials and the layers of the floor slab were determined by freehand notes on every floor slab systematically as shown in the Figure 19 architectural drawing.

Table 2: The discussion and evaluation the section drawings between British Colonial and Republic Period Architectural Graphic Standards

	CODES		OVERALL EVALUATION	OVERALL DISCUSSION
 **BRITISH COLONIAL PERIOD SECTIONS** (Georghiou, Late Colonial House at Pavlos Nirvanas Street, Nicosia, 2013)	Scale /Units	•	1. Imperial units and dimensioning used in 1/100	1. The imperial units used as scale 1/100 and dimensioning 2. Interior dimensions illustrated as single line
	Structural system linetype	•	2. Structural system idetified with different layer and linetype	
	Structural system hatch			
	Sub-structure hatch	•	3.Substucture defined with hatch	
	Level symbols		4. Interior dimensions illustrated as single line	
	Interior Dimensions	•	5.Materails defined in text style	
	Material definitions in text	•	6. Interior functions defined with linetype	
	Interior elements view	•		
 **REPUBLIC OF CYPRUS SECTIONS** (Feridun & Feridun, 2013)	Scale /Units	•	1. Metric units and dimensioning used in 1/50	1. The metric units used as scale and dimensioning in scale 1/50 2. The hatch used to define structure 3. The leveles illustrated with conventional symbols
	Structural system linetype	•	2. Structural system idetified with different layer	
	Structural system hatch	•	3.Structural system identified with hatch	
	Sub-structure hatch	•	4.Substucture defined with hatch	
	Level symbols	•	5.Levels illustrated as symbol in text	
	Interior Dimensions	•	6.Materails defined in text style	
	Material definitions in text	•	7. Interior functions defined with linetype	
	Interior elements view	•		

3.2.4 Elevation drawings

The primary principle of architectural graphic standards related to elevations is drawing with line weights and line types to convey the exact view of the side of the building. The architect successfully catches the discipline and presents details in the elevation drawing.

The doors, windows, and handrails were drawn in the same scale as the floor plan and section. The floor slabs were identified by dash dots with soft line weights and complete with levelling.

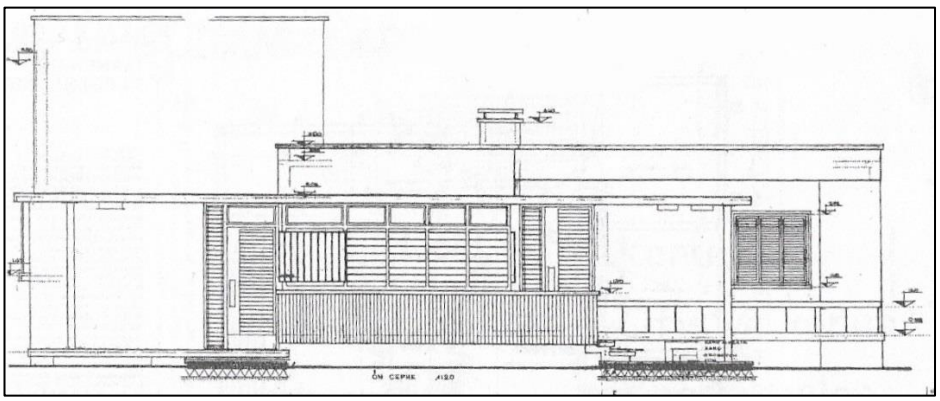
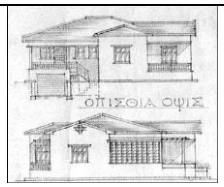
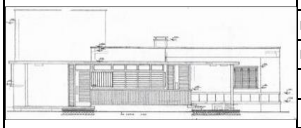


Figure 19: Tangül Family Residence Project Elevation Drawing (Feridun & Feridun, 2013)

The level differences from soil to roof and chimney were drawn with continuity. The architects presented the discipline and the architectural graphic standards at the residence project in this period as illustrated in Figure 20.

Table 3: The discussion and evaluation the elevation drawings between British Colonial and Republic Period Architectural Graphic Standards

	CODES		OVERALL EVALUATION	OVERALL DISCUSSION
 **BRITISH COLONIAL PERIOD ELEVATIONS** (Georghiou, Late Colonial House at Pavlos Nirvanas Street, Nicosia, 2013)	Scale /Units	•	1. Imperial units and dimensioning used in 1/100	1. The imperial units used as scale 1/100 and dimensioning 2. The linetypes and lineweights used to reflect character of building
	Structural system linetype		2. Structural system idetified with different layer and linetype	
	Lineype/line weight harmony	•		
	Level symbols			
 **REPUBLIC OF CYPRUS ELEVATION** (Feridun & Feridun, 2013)	Scale /Units	•	1. Metric units and dimensioning used in 1/50	1. The metric units used as scale and dimensioning in scale 1/50 2.Structure idenrified with dot-lines 3. The leveles illustrated with conventional symbols
	Structural system linetype	•	2. Structural system idetified with different layer	
	Lineype/line weight harmony	•	5.Levels illustrated as symbol in text	
	Level symbols	•		

3.3 Architectural Graphic Standards in North Cyprus

The architectural projects prepared according to the developed Chapter 96 city planning rule under the roads and streets regulations law. This law was used in South Cyprus as well and came from the British colonial period. After establishing the Architects Union under the Turkish Cypriot Architects and Engineers Association, the permit bureau was founded for developing technical supervision and positively supporting architects (2008 Mimarlar Odasi Vize Tüzüğü. (n.d.)).

The main assignment of the permit bureau was supervision of projects according to the roads and buildings regulations and permit bureau's drawing standards. According to the permit regulations by the architect's union, member architects had

to submit their projects under the permit rules and regulations and get permit permission by submitting to municipalities (Mimarlar Odası Vize Tüzüğü, 2008).

The first evaluation unit in state is city planning department. Project are evaluate consisting of street and buildings rules and regulations law. After declared temporary laws and regulations after Annan plan period, the city planning department gain big role for giving approval on projects. For city planning approval only architectural project compulsory with land document and applying forms. The architectural drawings which submitted to city planning office only criticized according to the street and buildings regulations. Getting permission from city planning department started to be compulsory before getting permit from architects union. With approved city planning file, submitting the form of agreement, statistical building form and technical specification forms with 1/100,1/50 and 1/20 scaled project compulsory for applying architects union. Architects Union permit department started to evaluate architectural projects according to the categorizing groups and criticize.

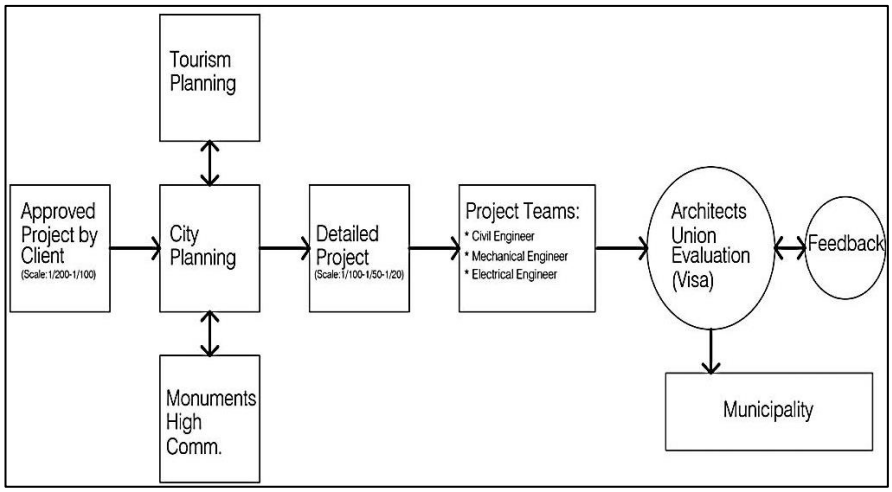


Figure 20: Architectural Project approval process in North Cyprus (Mimarlar Odası Vize Tüzüğü, 2008).

Turkish Cypriot Chamber of Architects Permit department analyse the problems on project architectural graphic standards and feedback architects for solving problems and submitting again. The architectural project approval process with project team projects illustrated as Figure 21.

Turkish Cypriot Chamber of Architects Permit department published common regulations and rules about architectural graphic standards and set of architectural project submission for getting approval from the department. The contracts and reports, prepared by hand. On the other hand, the freehand drawings on and sheet of the project are prohibited by the permit department. The units illustrating technique is centimeter and meter for the floor plans, sections, and elevations. The identification of the spaces with the text style must be in harmony in a scale and in line with 90 degrees vertical or horizontal direction according to the design. The harmony must be in continuity with the layers, line types, line thickness, line weights and hatch styles according to the standards. The standard legend style is compulsory for whole of the drawing sheets. The drawing sheets must be in a disciplinary and in a standard according to the scale. Two legend types are standard. The site plan legend and standard sheet legends. The legends must identify the names of the owner of the project or client name, classification of the project, scale of the project and the name of the architect and engineer. The typical Site plan must include the standard legend identifications and information about title deeds, location and calculations of the total amount of project according to the proposed areas. (Mimarlar Odası, KTMMOB Mimarlar Odası, 2009).

The architectural drawing scales according to the graphical standards is 1/50. On the other hand, the architectural drawing scale can be change according to the

classification of the architectural project. The includings, classification and the total area is the primary factor and the projects can be submitting in scale 1/100 for floor plans, sections and elevations. The scale of the site plans is changeable according to the area of the land and can be acceptable in 1/100, 1/200 and 1/500 with the protecting the architectural standards in the harmony. The system detailing submission is compulsory in scale 1/20 and the system sections must the direction above the direction from the upper floor. In the system detail sheet, the system plan is the compulsory and in the harmony with the system section standards and illustration technique (Mimarlar Odası, KTMMOB Mimarlar Odası, 2009).

3.3.1 Site plan and plan drawings

The site plans is the primary key of the architectural project to define designed building and relationship between neighborhood plots, roads, sea, topography and existing buildings. The main aim is the locating the frame of designed building inside the plot and technically expression the North and wing effect on the building. The laws and regulations of the local governments and the permit department of the Turkish Cypriot Chamber of Architects declared compulsory for every type of Architectural project to determine building on the site with various scales (Mimarlar Odası, KTMMOB Mimarlar Odası, 2009).

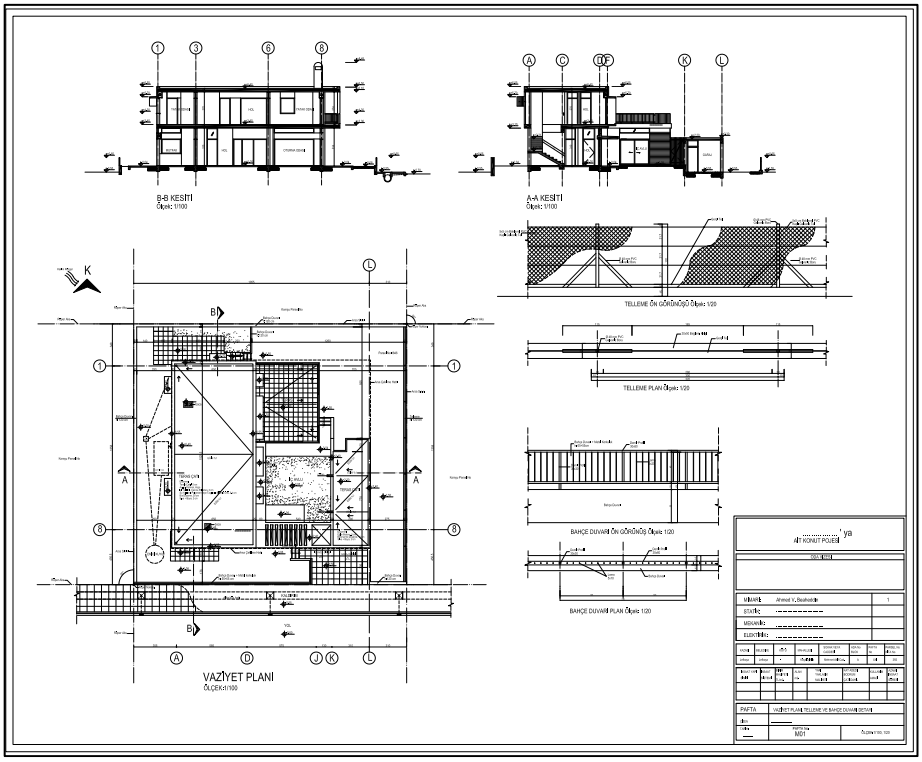


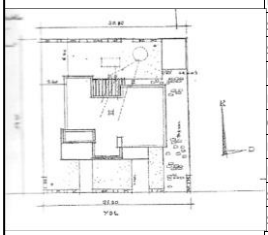
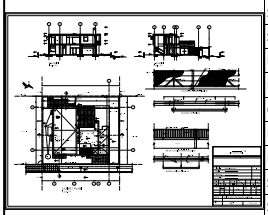
Figure 21: Example Site plan for Turkish Cypriot Chamber of Architects (Mimarlar Odası, 2017)

Turkish Cypriot Chamber of Architects published Architectural graphic standards, to determine techniques and monitoring disciplinary under the permit regulations Chamber of Architects. The membered architects shaped their disciplinary in architectural graphical standards under published standards for take supervision and approval from permit department. Firstly, designed building drawing technique in a mass defining with line types according to the building heights of codes. The drawing technique can be change according to the various scale. The site plans drawing technique in architectural standards in scale of 1/100-1/200 or 1/500 according to the building type and total area on the site plan as illustrated at Figure-22. The geographic location (North) and Wind effects on site plan must understandable with expression. The Streets and Building Regulation Law, define the buildings limits on line such as distant from the neighbor plots and road. The

Architects examine in design and define exact location according to the topography and discuss access points and define in technical according to the graphical standards (Mimarlar Odası, KTMMOB Mimarlar Odası, 2009).

The Street and Buildings Regulations Law determine heights of the building and at the site plans must understandable about illustrating the heights and levels of the designed building. Two method expressed in standards. The first method expressed on the building mass with differentiates and relationship with garden and road. Second method is two sections from two different side of designed building according to the standards in technique of scale. The main aim is the drawing in schematic sections in scale levels of the building with parallel of the mass and discussion with the plot and road level as illustrated at Figure-22 architectural graphical standard.

Table 4: The discussion and evaluation the elevation drawings between Republic of Cyprus and TRNC period.

	CODES		OVERALL EVALUATION	OVERALL DISCUSSION
 **REPUBLIC OF CYPRUS PERIOD SITE PLAN** (Feridun & Feridun, 2013)	Scale /Units	●	1. Metric units and dimensioning used in 1/100	1.Site and building levels not illustrated
	North sign /symbol illustration	●	2. North direction illustrated with symbol	2.Section lines not illustrated
	Site boundaries with line weight	●	3.Site boundaries defined with lineweight	3.Scematic sections not ilustrated
	Site boundaries garden wall	●	4.Dimensioning from the border corner of the	4.The rainwater drainage system not
	Dimensioning from building to site border	●	North/west corner of the proposed building	defined with layers
	Building/car park entry sign		5.Dimensioning of the site as total length	5.The legend and project informations
	Construction lines illustration with layer		6.Flooring materials and garden wall ilustrated	not defined on site plan
	Levels illustration on site		with graphical drawing technique.	
	Levels illustration on designed building			
	Section lines with linetype/lineweight			
	Scematic sections from designed building			
	The rainwater drainage system on building			
	Dimensioning on designed building	●		
	Flooring materials illustration with hatch	●		
	The legend& Informations about project			
 **NORTH CYPRUS SITE PLAN** (Mimarlar Odası, 2017)	Scale /Units	●	1. Metric units and dimensioning used in 1/100	1.The site levels and designed building
	North sign /symbol illustration	●	2.The North direction illustrated with symbol	levels defined with symbolic convention
	Site boundaries with line weight	●	3.Site boundaries defined with lineweight	2.The section lines defined with linetype,
	Site boundaries garden wall	●	4.The garden wall defined with line weights	lineweights underthe layer
	Dimensioning from building to site border	●	5.Dimensioning from site border around building	3.Scematic sections defined with levels,
	Building/car park entry sign	●	6.Building and carpark entry signs with symbols	construction lines and hatch of the
	Construction lines illustration with layer	●	7.Construction lines with linetype/lineweight	structural system
	Levels illustration on site	●	8.Levels illustrated with symbol on site	4.The rainwater drainage system defined
	Levels illustration on designed building	●	9.Levels illustrated with symbol on building	with linetype, lineweight and symbols as
	Section lines with linetype/lineweight	●	10.Secrion lines defined with lineweights	arrow to present directions.
	Scematic sections from designed building	●	11.Scematic sections with harmony of plan	5.The legend illustrated as define site
	The rainwater drainage system on building	●	12.Rainwater drawinage symbols with arrows	informations as location, proposed area,
	Dimensioning on designed building	●	13.Dimensioning building between constr.lines	calculations of the construction cost,
	Flooring materials illustration with hatch	●	14.Flooring materials with hatch	architect info. and project owner info.
	The legend& Informations about project	●	15.Legend illustration of project informations	

The first methodology to be followed in drawing floor plans at architectural graphic standards is catching harmony of depends on the importance functions and construction elements with line types and line weights. The definitions explained as drawing technique at the table-4.

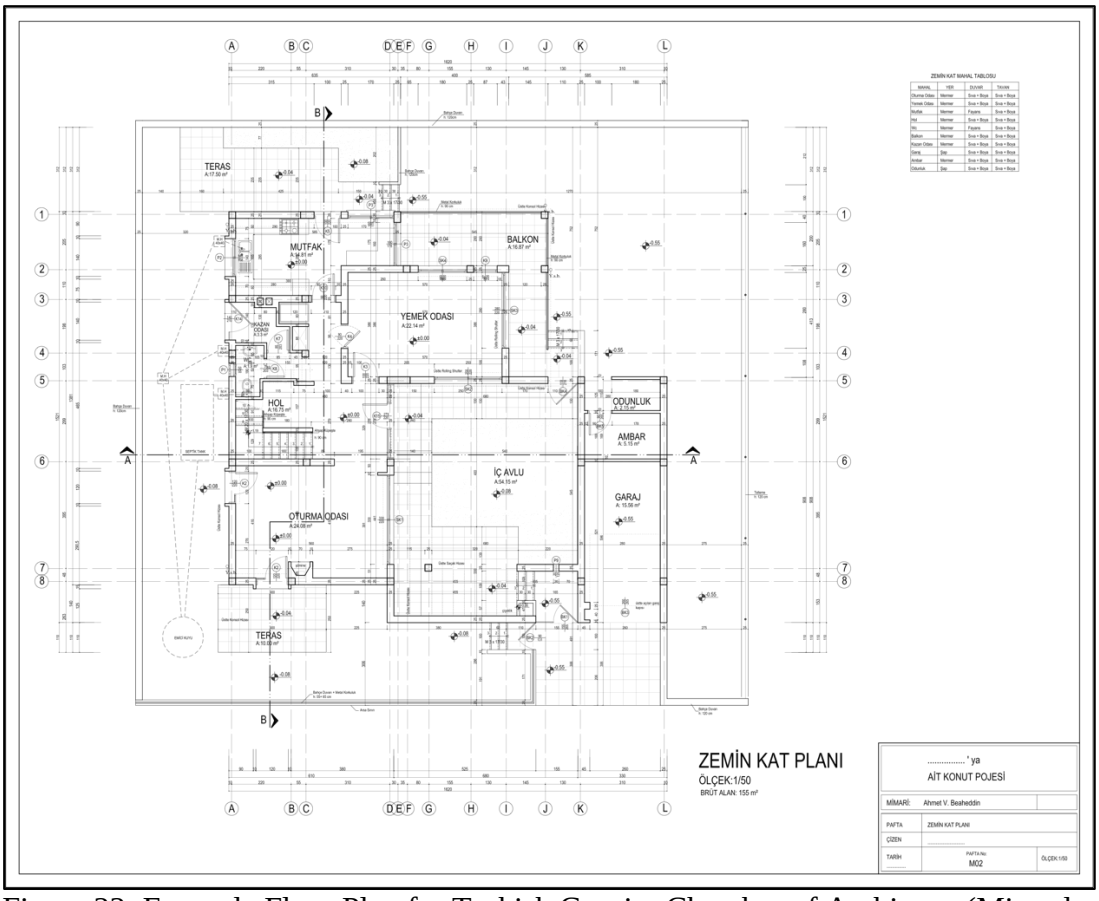


Figure 22: Example Floor Plan for Turkish Cypriot Chamber of Architects (Mimarlar Odası, 2017)

The columns and walls differentiated with line weights under the different layers. The hatching applied on columns to determine structural system as reinforce concrete. The columns drawing followed drawing construction lines on x and y coordinating system with different line types and line weights. This coordinating

system supported with the harmonically numbers and letters inside the circles for understandable column and beams. The coding illustration and symbols must explain with numbers or texts in elements in floor plans with 1/50 scale drawing technique as illustrated at Figure-23. The line weights and layers illustrated at table-5 and the harmony of coding depends of the length of doors and windows. The stairs drawing technique is depends on the design. However, according to the Figure-23, every step from ground floor must numbered to define total steps and the direction of stair symbolized with arrow. The stairs level and technical product information depends on the illustrating with formula. The determining the stairs total step from one level to another, the main dimension is the height of the step. For example, "M18x18/30" is examine the calculating total height and level difference. "M" is the first letter of the stair in Turkish and "18" is the total step of the stair. The total step is multiplying with height of the step and divide depth of the step measurement. The measurement must equal with level difference between floors. The level between different floor plans must illustrate in disciplinary of architectural graphic standards with level symbols at floor plans. The soil or garden level code is starting point to examine level differences until roof level in floor plans.

The second drawing technique is hatching to determine flooring materials in floor plans. The primary spaces for illustrating flooring materials are toilets, washbasins and bathrooms for determine difference between other spaces. The line weight and layers differences so important to protect harmony and to avoid complexity in floor plan line weight harmony. The hatching technique is illustrated with drawing for outdoor spaces as well to determine flooring material at Figure-23.

The dimensioning with x-y coordination perimeter of the floor plan and the interior spaces highly recommended. The dimensioning technique is differentiated according to the interior and outdoor. The interior spaces dimensioning line weights and heights of the numbers illustrated at table-5. The aim of the dimensioning is drawing differences of the construction material and walls, structural system, stable materials, and different construction product points on the direction view. The dimensioning method consists of the two continuous lines. The first line is detail dimensioning of difference every point of view in every space. The second must consist only total length of the view and the interior space. This method is continuing in every direction of the spaces on x-y coordinate in architectural drawings. The same principles are viable the external of the building. However, the line weights and heights of the numbers are increase for external dimensioning. The external dimensioning is consisting same principles and aim with interior spaces but totally include four lines. The first line method is same with interior spaces. The Second is determine the total dimension of the point to point of the difference mass and functions. The third line continue on the construction lines and the consist of the length between construction lines. The final dimensioning technique is expressing the total length of the side of the building. The definition of the drawing sheet in plan drawing compulsory with text in scale according to the architectural graphic standards at Turkish Cypriot Chamber of Architects Permit procedures. The sheet legends are the key of the project for definition the project title, architect identity, scale, date and sheet number. The project title defined “Ground Floor Plan” defined at Figure-23 with scale and total area in Turkish language. The text procedures continued with definition of spaces inside floor plan with the repetition in standard height of letters. The area calculations defined under the space definition in different

text height. The legend including as mentioned in the sheets of drawing and the "Space Table" is compulsory also in floor plans for definition the flooring materials, walls and ceiling materials in every space of the floor plans as illustrated at Figure-23.

Table 5: Graphic Standard Principles for the Floor Plans at the scale 1/50 under the visa supervision of Turkish Cypriot Chamber of Architects (Redeveloped by Mimarlar Odası, Teknik Dokümanlar, 2017).

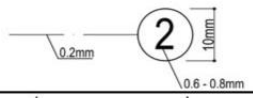
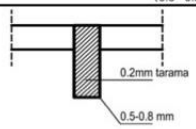
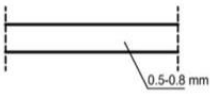
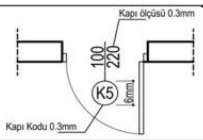
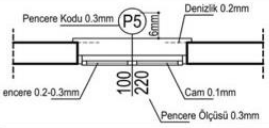
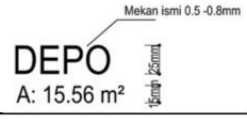
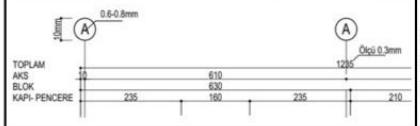
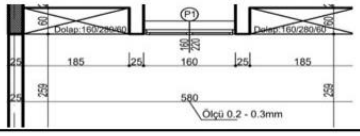
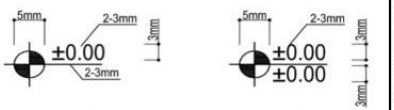
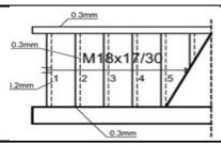
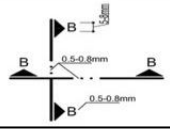
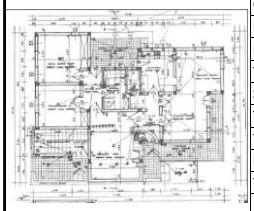
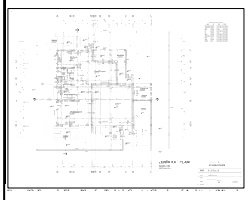
ELEMENTS	EXAMPLE DRAWING	LAYER DEFINITIONS
CONSTRUCTION LINES AND CIRCLE		Construction line thickness: 0.2 mm Circle diameter: 10mm Circle text thickness: 0.6-0.8mm
COLUMNS		Column line thickness : 0.5-0.8mm Column hatch thickness: 0.2 mm
WALLS		Wall line thickness: 0.5-0.8 mm
DOORS		Circle diameter: 6mm Circle thickness: 0.3 mm Door text thickness: 0.3mm
WINDOWS		Window code: 0.3 mm Window code height: 6 mm Glass line thick: 0.1mm Window line thick: 0.2-0.3mm Window dimension thick: 0.3 mm
SPACE NAMES		Space text thick: 0.5-0.8 mm. Space text height: 25mm Area text height: 15mm
DIMENSIONS (EXTERNAL)		Dimensions layer thick: 0.3mm Circle height: 10mm Circle Text thick: 0.6-0.8mm
DIMENSIONS (INTERNAL)		Dimensions layer thick: 0.2-0.3mm
SHEET NAMES	ZEMİN KAT PLANI 8-14mm	Text height : 8-14mm
SCALE & AREA ON SHEET	ÖLÇEK:1/50 5-6mm A: 155 m² 3-4mm	Text height (scale) : 5-6mm Text height (area) : 3-4mm
LEVELS (PLANS)		Text height (levels): 3mm Text thick: 2-3mm Circle diameter: 5mm Circle line thick: 2-3mm
STAIR DIMENSIONS		Line thick: 0.3mm Dashed line thick: 0.3mm Stair numbers thick: 0.2mm
SECTION LINE		Text height : 5-8mm Section line thick: 0.5-0.8mm

Table 6: The discussion and evaluation the floor plans between Republic Period and TRNC period

	CODES		OVERALL EVALUATION	OVERALL DISCUSSION
 **REPUBLIC OF CYPRUS PERIOD FLOOR PLAN** (Feridun & Feridun, 2013)	Scale /Units	•	1. Metric units and dimensioning used in 1/50 2. Dimensioning of interiors illustrated in single lines with continuity 3.Dimensioning of exterior illustrated in three lines with continuity 4.The door/window heights and lengths defined with codes. 5.Spaces defined in text with areas 6.The flooring materials defined with hatch also outdoor of the building 7.Structural system (columns) defined hatch 8.Section lines defined with line weight 9.The furnitures defined with line weights 10.Levels defined with symbol at interior&exterior 11.Building entries defined with text and symbol	1.Construction lines not illustrated 2.Construction lines circles not illustrated with codes in text and numeric classifications 3.The stair definitions not illustrated with numeric 4.The space table not illustrated 5.The upper floors not illustrated with line type lineweight under the dash-dot line type
	Construction lines illustration with layer			
	Construction lines circle and text codes			
	Dimensioning interior	•		
	Dimensioning exterior	•		
	The coding definitions door/window	•		
	Space definitions in text with area	•		
	The stairs definitions with numerical			
	The space table			
	Flooring materials illustration with hatch	•		
	The upper floor definition/dash-dot line			
	Structural syst.definition with lineweight	•		
	Columns definition with hatch	•		
	Section lines with linetype/lineweight	•		
	The furniture definitions with lineweight	•		
	Level symbol definition/interior&exterior	•		
	Building entry sign and definition	•		
 **NORTH CYPRUS FLOOR PLAN** (Mimarlar Odası, 2017)	Scale /Units	•	1. Metric units and dimensioning used in 1/50 2.Construction lines defined with linetype and lineweigts 3.Construction lines supported with code circles 4.Dimensioning ofthe interior defined with two lines 5.Dimensioning of the exterior defined with four lines with definition of the measure between construction lines. 6.The window/door dimensions defined with codes 7.The spaces defined in text with area 8.The stairs defined numerical and levels and dims 9.The spaces defined with space table 10.Flooring materials illustrated with hatch 11.The upper floor lines defined with the dash-dot line type with linetype 12.The structural columns defined with hatch 13.The section lines illustrated with linetype and lineweight 14.The furnitures defined with lineweight 15.The level differences illustrated with level symnbol in numeric text style 16.Building entrance defined in text with symbol	1.Construction lines defined with linetype and lineweigts 2.Construction lines supported with code circles 3.The stairs defined in numerical with levels and dimensions 4.The spaces defined with space table 5.The upper floor lines defined dash-dot line type with linetype
	Construction lines illustration with layer	•		
	Construction lines circle and text codes	•		
	Dimensioning interior	•		
	Dimensioning exterior	•		
	The coding definitions door/window	•		
	Space definitions in text with area	•		
	The stairs definitions with numerical	•		
	The space table	•		
	Flooring materials illustration with hatch	•		
	The upper floor definition /dash-dot line	•		
	Structural syst.definition at lineweight	•		
	Columns definition with hatch	•		
	Section lines with linetype/lineweight	•		
	The furniture definitions with lineweight	•		
	Level definition/interior&exterior	•		
	Building entry sign and definition	•		

3.3.2 Section drawings

The general principles and aim protected from Cyprus Republic Period in Turkish Cypriot Chamber Of Architects Graphic standards. However; some principles and amendments, renovated and taken to the account according of the technological changings. Under the method of the unity and harmony of the graphical standards, the section must follow and extend the graphical standards of the floor plans quality and scale. The structural system definition and drawing technique supported with the line weights and hatch technique.

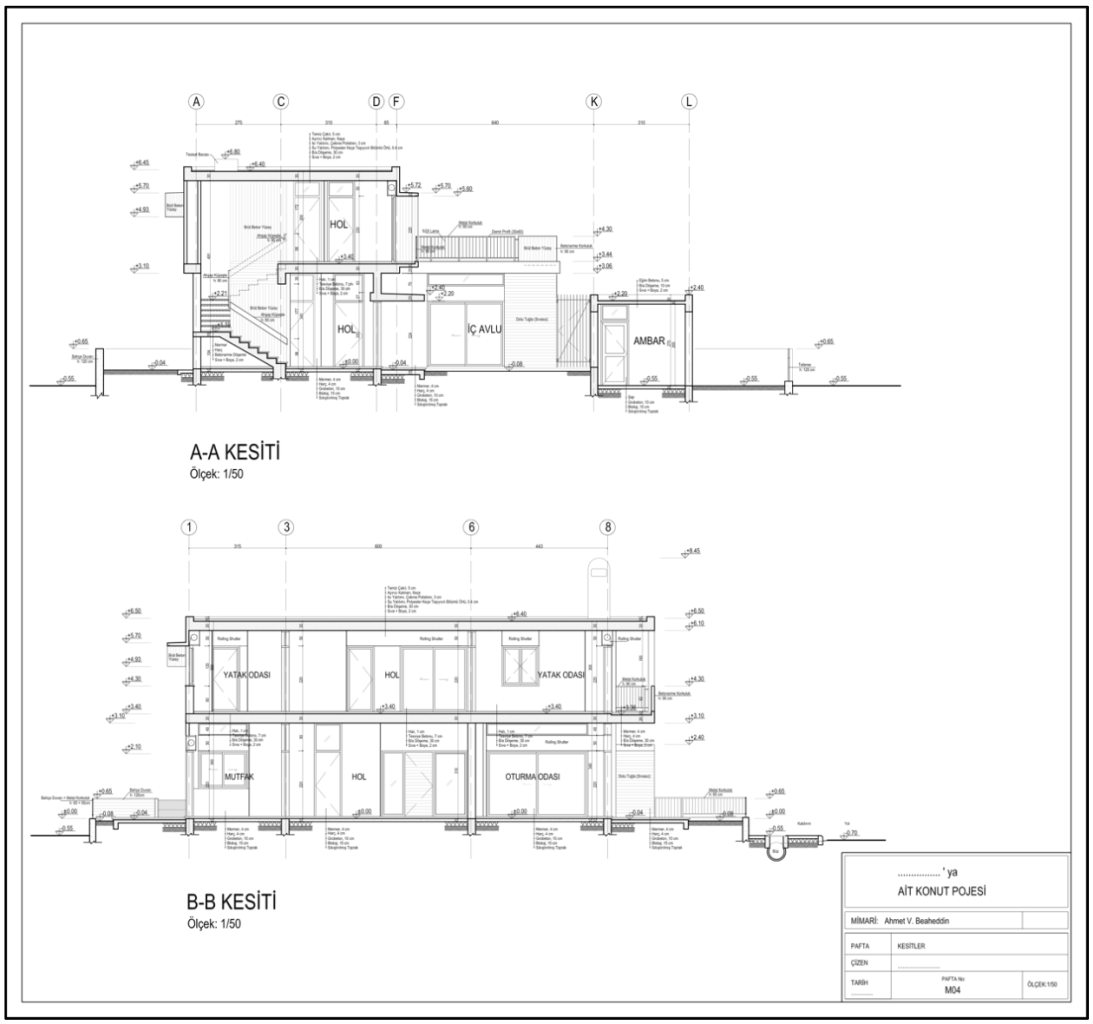
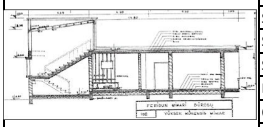
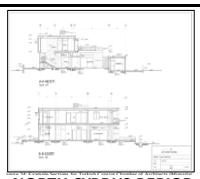


Figure 23: Example Sections for Turkish Cypriot Chamber of Architects (Mimarlar Odası, 2017)

Turkish Cypriot Chamber of Architects supervised minimum two cross section for monitoring in a set of sheets at architectural projects as illustrated at Figure-24. The structural system drawing technique must highlight with line weights. The columns, reinforced concrete slab, retaining walls, foundations and stairs must unify in same layer under the line weight and line type. The hatch is supported to understandable these elements as reinforced concrete. The hatching line weights is determined at table-5. The construction line drawing with same principles under the line weight is link between site plan and its compulsory in sections. The drawing of the materials which is cut from the cross section is compulsory such as rendering, flooring and

insulation material. The materials drawing line weights and thickness and definitions compulsory in section drawings. The one of cross section must cut through the direction of the stairs. The aim is to determine the relationship of the stair with structural system and explaining with materials as construction technique. The doors and windows are sometimes in cross section and their drawing technique must unify and equal with height and type of material and operating principles at Figure-24. The direction of view after cross section is elevation of the interior. Some parts in functions corners, doors, windows, beams, columns or stairs. The elevation parts drawing technique must be separate line weight under the separate layer but it must be same with ground floor. The dimensioning method is link with floor plan interior dimensioning disciplinary. However, it continues with perpendicular in every floor and every space. The level differences between different floor and soil is symbolized and drawing and equal with floor plan levels. The foundations and reinforced concrete slab include materials with material layers. The definition of the materials is expressing separately with text and followed step according to the construction operating procedures. The material definitions must start from foundation level until roof level and explain thickness or dimensions of materials. The text procedures continued with definition of spaces inside floor plan with the repetition in standard height of letters. The sheet legends are the key of the project for definition the project title, architect identity, scale, date and sheet number. The project title defined “Sections” at Figure-24 with scale.

Table 7: The discussion and evaluation the sections between Republic Period and North Cyprus-TRNC Period

	CODES		OVERALL EVALUATION	OVERALL DISCUSSION
	Scale /Units	•	1. Metric units and dimensioning used in 1/50	1.Construction lines not defined
	Structural system linetype	•	2. Structural system idetified with different layer	2.Construction line circles
	Structural system hatch	•	3.Structural system identified with hatch	not defined
	Sub-structure hatch	•	4.Substurcture defined with hatch	3.Interior dimesions not
	Level symbols	•	5.Levels illustrated as symbol in text	illustrated
	Contruction lines illustration			
REPUBLIC OF CYPRUS PERIOD SECTIONS	Construction line circle/codes			
	Interior Dimensions			
(Feridun & Feridun, 2013)	Material definitions in text	•		
	Interior elements view	•		
	Scale /Units	•	1. Metric units and dimensioning used in 1/50	1.Construction lines defined
	Structural system linetype	•	2. Structural system idetified with different layer	2.Construction line circles
	Structural system hatch	•	3.Structural system identified with hatch	defined in text and numeric
	Sub-structure hatch	•	4.Substurcture defined with hatch	3.Interior dimesions illustrated
	Level symbols	•	5.Levels illustrated as symbol in text	in two lines in every spaces
	Contruction lines illustration	•	6.Construction lines defined with line type/weight	
	Construction line circle/codes	•	7.Construction line circle/codes defined	
NORTH CYPRUS PERIOD SECTIONS	Interior Dimensions	•	8.Interior dimensions defined in two lines	
	Material definitions in text	•	9.Materails defined in text style	
(Mimarlar Odası, 2017)	Interior elements view	•	10. Interior functions defined with linetype	

3.3.3 Elevation drawings

Under the link between floor plans and sections and the architectural graphic standards, four separate elevation compulsory for set of projects according to the regulations in North Cyprus. The elevation drawings scale is similar with the floor plans and sections. However, the line weights and layers must understandable for expression the depth and functions in front according to the view. The layers must follow the steps of the line weights and thickness of the lines and organize composition.

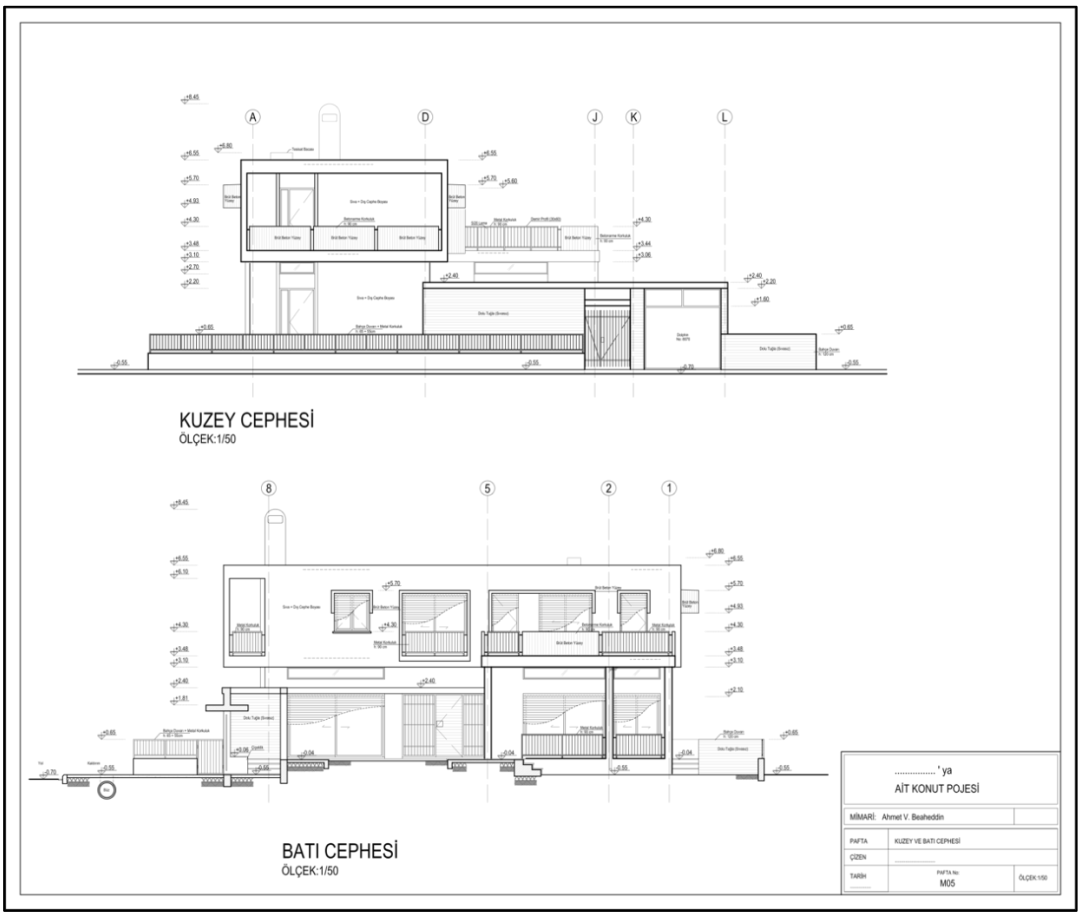


Figure 24: Example Elevations for Turkish Cypriot Chamber of Architects (Mimarlar Odası, 2017)

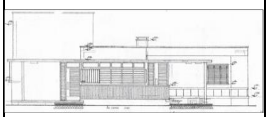
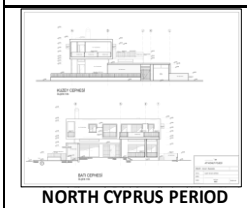
The details of the windows, doors, handrails or other construction material must be in detail and present information about openings and operation or product detail. The openings of doors and windows can be drawn with “dot lines” in same line weight with windows as illustrated at Figure-25.

The coding system is compulsory as mentioned from floor plans at Figure-23. The external doors and windows coding compulsory. However, this coding is numeric inside the circle. The structural system defined at floor plans and sections in detail. The reflection technique to elevation is not in detail but in elevations, only construction lines drawn with parallel with the floor plan and exact view. The

alphabetic and numeric coordinates are compulsory with construction lines. The construction lines are the data about the columns and beams coordinates. The reinforced concrete slabs are drawing with “dot lines” with thin line layer. The material definition is present with text on the appropriate side of facades. The text and level numeric symbols are under the same standards with section drawings but in coordination at Figure-25.

The sheet legends are under the same standards and procedures. The project definitions, the project title, architect identity, scale, date and sheet number are compulsory.

Table 8: The discussion and evaluation the elevations between Republic Period and North Cyprus-TRNC Period

	CODES		OVERALL EVALUATION	OVERALL DISCUSSION
 **REPUBLIC OF CYPRUS PERIOD SECTIONS** (Feridun & Feridun, 2013)	Scale /Units	•	1. Metric units and dimensioning used in 1/50	1.Construction lines not defined
	Structural system linetype	•	2. Structural system idetified with line type layer	2.Construction line circles
	Level symbols	•	3.Levels illustrated as symbol in text	not defined
	Contruction lines illustration		4.Levels illustrated as symbol in text	3.The rainwater drainage syst.
	Construction line circle/codes			not illustraed with linetype and
	Material definitions in text			defined in text
	Rainwater drainage			4.The door and window codes
	Door/window codes			not defined in text/numeric
				5.Materials not defined in text
 **NORTH CYPRUS PERIOD SECTIONS** (Mimarlar Odası, 2017)	Scale /Units	•	1. Metric units and dimensioning used in 1/50	1.Construction lines defined
	Structural system linetype	•	2. Structural system idetified with line type layer	2.Construction line circles
	Level symbols	•	3.Levels illustrated as symbol in text	defined in text and numeric
	Contruction lines illustration	•	4.Construction lines defined with line type/weight	3.The rainwater drainage syst.
	Construction line circle/codes	•	5.Construction line circle/codes defined	illustraed with linetype and
	Material definitions in text	•	6.Materails defined in text style	defined in text
	Rainwater drainage	•		4.The door and window codes
	Door/window codes	•		defined in text/numeric
				5.Materials defined in text

3.3.4 System detail drawings

The set of architectural projects must include the system details from the stairs. The system details are containing system plan and system section at scale 1/20 according to the floor plans. The design of the project can be containing different type of the stairs. The system details can be increase according to the typology of the stairs and

must classified in typology each of the stair at system details. The drawing technique of the system plan and system section is the similar with floor plans and sections according to the graphical standards. The structural system illustrated with the differentiated as methodology of defining the line types, line weights and layers.

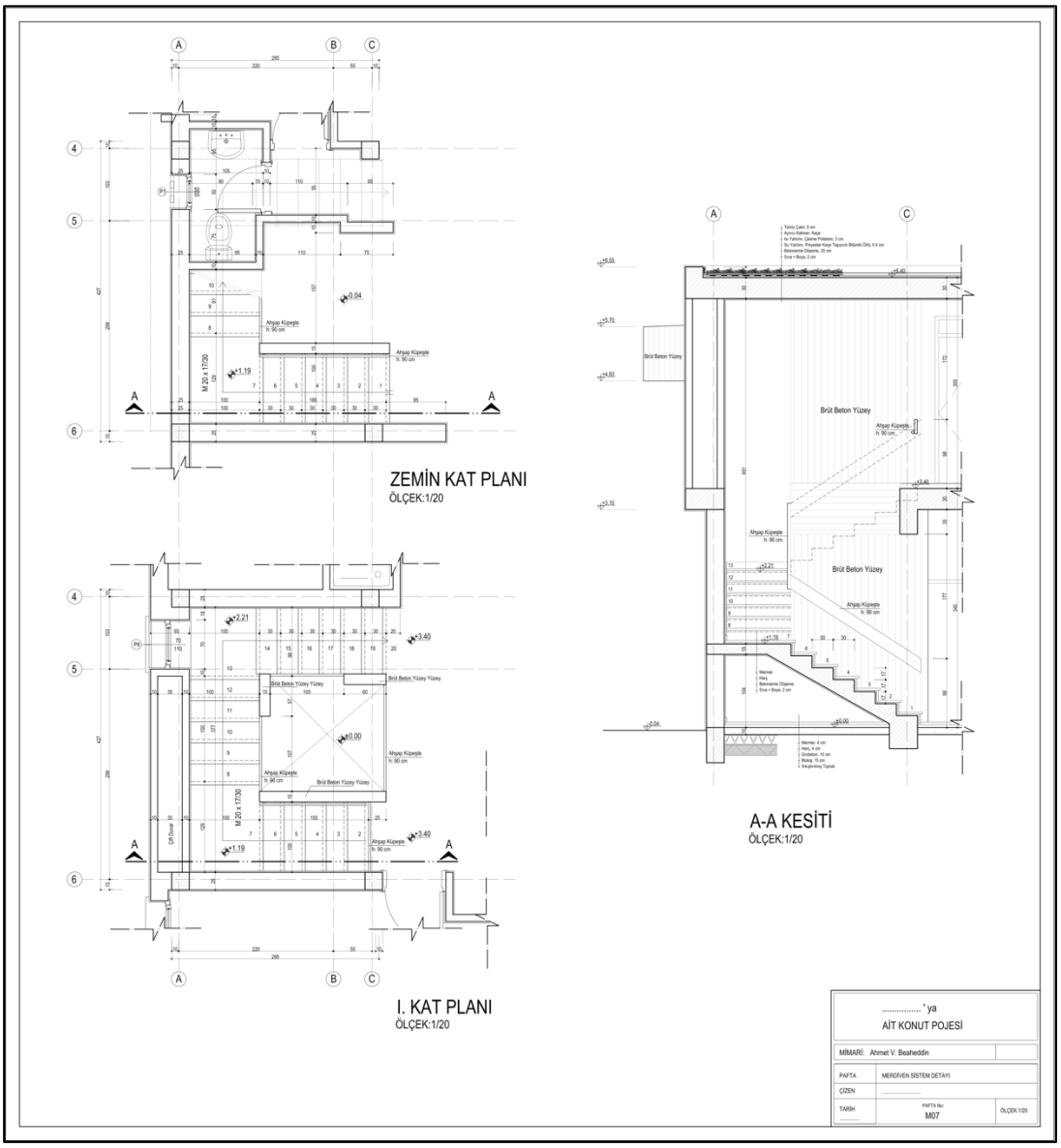


Figure 25: Example System Details for Turkish Cypriot Chamber of Architects (Mimarlar Odası, 2017)

The reinforced concrete columns hatched and defined with the vertical/horizontal coordinated construction lines at system plans and system sections. The system plan

and sections levels illustrate with symbol and levels define with every floor and stair landings at Figure-26. The levels are the connection with the floor plans, sections and elevations. However, the illustration technique must be understandable under the standards of the scale of 1/20. The dimensioning taken to the account the aim of the continuity in every floor of the system plan and section. On the other hand, the dimensioning must be appropriate and in similar dimensioning system under the scale of 1/20. The layer standards and line weights must compose the accordance at system details.

The main principles of the section taken to the account as similar with section at system section. The section lines illustrate the reference points and the direction present the interior elements and functions. The functions are in drawing technique as elevation. The line types are following harmony according to the functions distance from section line reference point. This drawing technique is effective for the system section. The functions and elements drawing techniques are in the scale of 1/20 and the operations with references highly important. The construction materials and product details are support in the harmony with definitions in a disciplinary by the text in system detail scale as illustrated at Figure-26.

3.4 Architectural Graphic Standards in South Cyprus

The first architectural organization started to establish by group of pioneer architects and engineers at British Colonial Period in 1940. However, this organization continue unofficially until 1956 because of the second world war. The registration was limited

The architectural projects design principles and approval schemes organized under the rule of Streets and Building Regulations Law in South Cyprus. After the issuing of the planning permit, an application needs to be submitted to the designated Building Authority, and after its examination a building permit is final process.

First of all, the architectural projects is submitting the Town Planning Department under the Ministry of Transport Communications and Works, which should assess whether the proposed architectural project is compatible with the provisions of the Town and Country Planning Legislation, the provisions of the relevant published Development Plan and any other material consideration. At the same time, the Director of the Department of Town Planning and Housing has been designated as the island-wide Planning Authority for large-scale and complex developments. This balance of powers is one of the prominent characteristics of our control system (Republic of Cyprus Ministry of Transport, 2018).

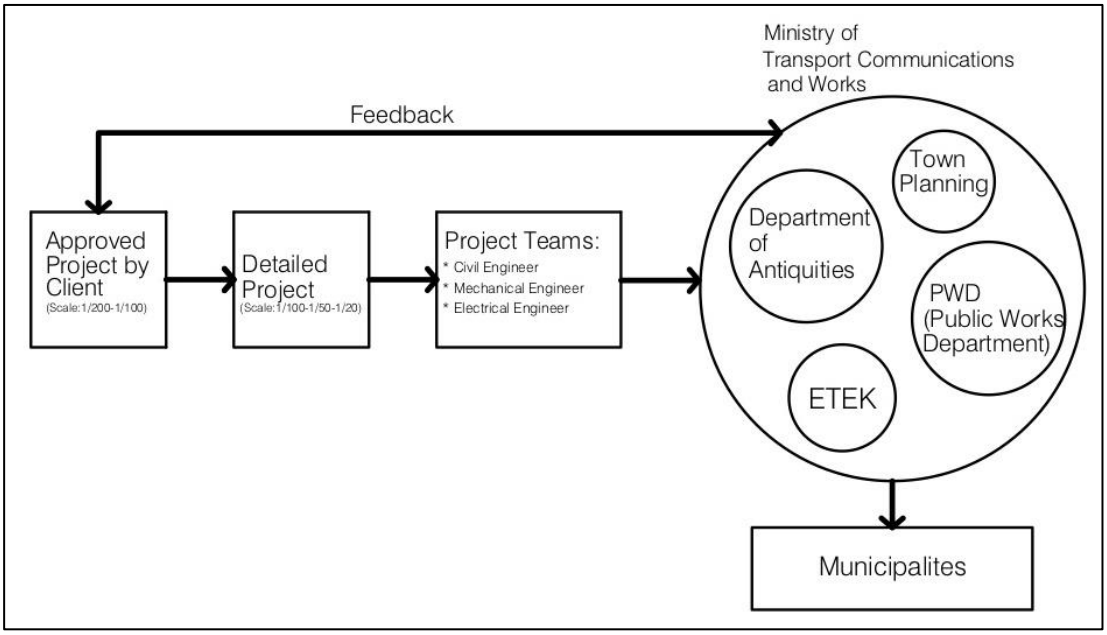


Figure 26: Architectural Project approval process in South Cyprus

The role of The ETEK (Technical Chambers of Cyprus) is advisory authority under the Ministry of Transport Communications and Works (Republic of Cyprus Ministry of Transport, 2018). Whereas, Technical Chambers of Cyprus (ETEK) is not criticize submitted architectural project, structural engineering, mechanical engineering and electrical engineering projects as illustrated at the project approval process at Figure-27. This mission organized with membership criteria and the compulsory educations under the ETEK regulations. Membered architects and engineers are take responsibility on architectural projects graphical standards and the site control. The graphical standards and ability of drawing projects examined to be gaining membership criteria depended on professional practice at offices and educations under the regulations of ETEK (Technical Chambers of Cyprus, 2018).

The architectural project graphical standards based on the architectural education and the regulations of the ETEK. The architects organized their graphical standards, style, disciplinary for their design and projects. On the other hand, Architectural offices can submit their architectural set of projects and can be prefer different cad programs as a tool. The Architectural graphical standards can be consisting colors; with line types, layers and different hatch styles. However, the graphical standards must understandable, clear and in the harmony with line types, line weights and dimensioning. Whereas; the primary organization is using their own graphical standards effectively and understandable with architectural drawings in technically for application. This means that, the drawings can be present at 1/100 scale according to the classification of the projects (Bozatlı).

The set of architectural projects are including under the regulations in South Cyprus: The site plan (for residential projects depends on the responsibility of architects) ,

Floor plans, Sections (min.2), Elevations (min.4) and System details. The contents of the set of the projects main criteria for submission to authorities depends on the architect's graphical standards. On the other hand, the scale of the projects, depends on the classification of the project. However, the scale of the system detail is 1/20, 1/10 and 1/5 and standard for set of architectural project contents (Bozatlı).

In terms of planning control, the power mainly rests with department of the government, considering their obligation to consulting for the local authority's opinion and opinion for most types of development according to the Architect Emre Bozatlı

The analyzing and evaluation the architectural graphic standards at South part of Cyprus, supported with an interview of the Architect Emre Bozatli. Emre Bozatli was a member of the design team as an Architect in Simpraxis Architects at South part of Cyprus.

3.4.1 Site plan and plan drawings

The site plan drawings submission procedure can be change according to the classification of the architectural project in South part of Cyprus. On the other hand; this issue is under the responsibility of the Architect. The first impression to evaluate about the site plans is about the color and hatch technique under the issue of the presentation technique for approval. The main aim is to determining site plan understandable. The architects drawing methods is not in a limitation about the architectural graphic standards. The private architectural offices or teams under the responsibility of organizing their presentation standards any of the tool as architectural drawing software.

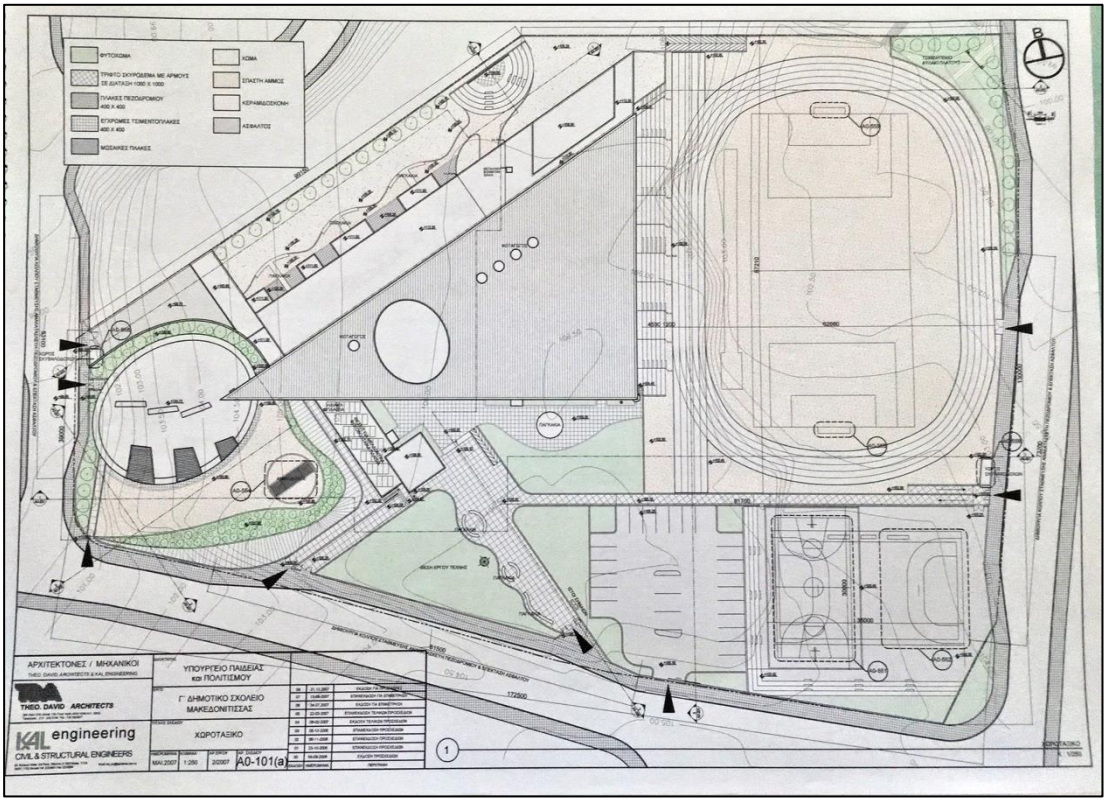


Figure 27: The Primary School Project Site Plan drawing by Architect Emre Bozatlı. The harmony and importance of the functions and the drawing techniques (Emre Bozatlı Achieve).

The drawing technique with color with different hatches illustrated at Figure-28 by Architect. The main aim drawing with color was identification and classification of the flooring materials, functions, carparks, roads, pathways, landscaping and activity functions supporting with layers and hatches. The determining of the materials presentation technique on the sheet drawn separately as table for understandable. On the other hand, the functions are illustrated with legend as table and the spaces defined with numeric classification. The site plan drawing technique furthered with the symbolic identifications as levelling. The levelling methods followed in two section. The first drawing method drawn under the minimum line weight as topographic. The topography of the site plan drawn and defined with the levels. The second levelling technique illustrated at the top of the building functions and

relationship with the ground level. The entry of the building and the location illustrated with arrow symbols and north direction in Figure-28.

The different procedures are depends of the architects and can be approve from the authorities. The site plan drawing is not compulsory for residential project in South side according to the experience of the Figure-28 and Figure-29 Architect Emre Bozatlı. The main reasons are the drawing of roof plan is compulsory to understand the building roof levels difference from the road and ground level. However, the drawing of the such elements to evaluate with relationship of the site boundaries, landscape, leveling and dimensioning are compulsory at ground floor plan.

The plan drawings composed with site plan drawing technique at Figure-29. However, the main principles of the drawing techniques are protected for floor plan. The structural drawing techniques are compulsory to define. On the other hand, some issues are depending on the architect's responsibility on the site control. The columns drawing technique differentiated with the line types and line weights as bold. The columns and reinforced concrete retain walls hatched to determine structural system. The column coordinates supported with the construction lines and alphabetic or numeric identification in text with circles.

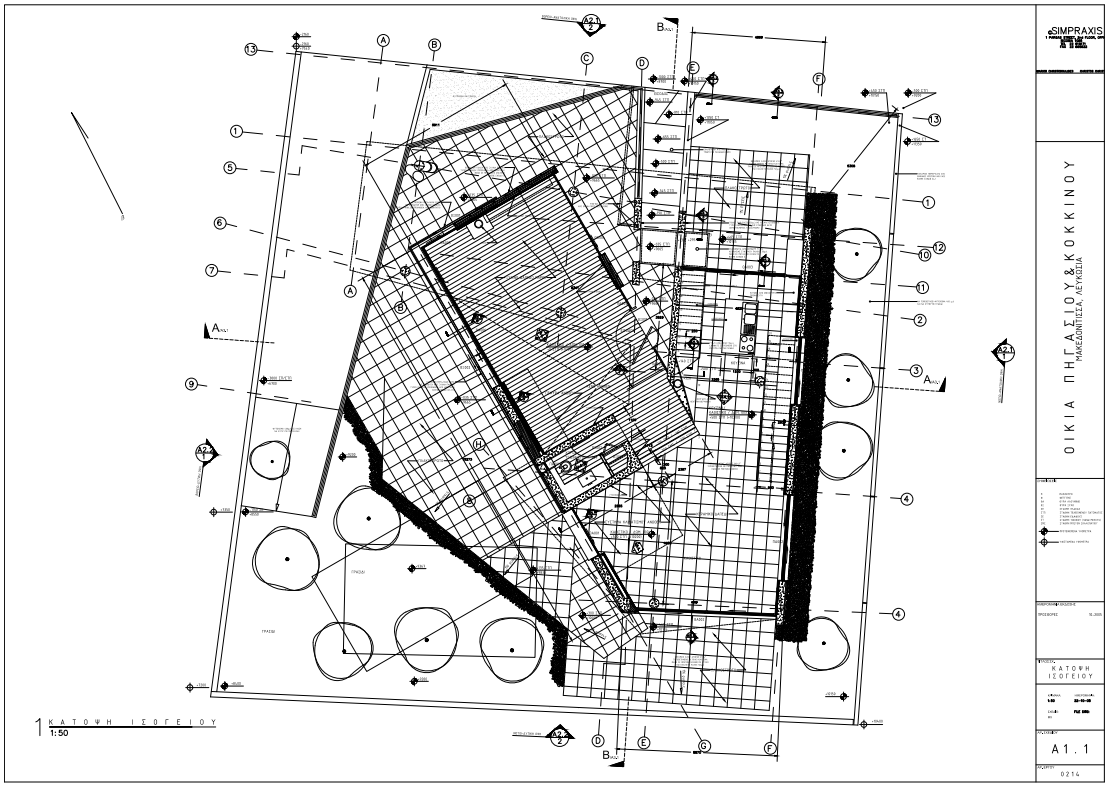


Figure 28: Residence Project Floor Plan designed by Sypraxis Architects (Bozatlı)
The coding technique for determining the dimensions of door and windows applied

with text. However, this coding technique determined as just for alphabetic or numeric classification with operation technique. The level differences illustrating is highly important in architectural graphic standards. The level symbols used in floor plan in two types in order to express relationship with site level. The line weights and line types are differentiating the materials according to the importance in floor plan. The wall thickness, window thickness, door thickness with operation differentiated according to the harmony of layers to become understandable as illustrated at Figure-29

The hatching technique is not only applied on the columns and retaining walls. The flooring materials expressed with hatching technique and explained with text and classifications at indoor and outdoor. The text definitions not used only determining materials for flooring. The sheet definitions of the project identity with sheet legends

definitions highly recommended for identify the architectural project as illustrated at Figure-29

The dimensioning is the reference issue of floor plans at interior and exterior. The measurements illustrated at floor plan both of the side as interior and exterior under the different line weights and numeric text styles. The dimensioning technique defines the reference of the application the structural system with exterior dimensions of the building at exterior of the plan. However, this method is not compulsory and not followed as criteria in Figure-29. On the other hand, the dimensioning used not with construction lines in harmony on x-y coordinates. The architect expressed just critical points independently from exterior. The dimensioning method used as harmony just for interior but this harmony followed with single line at Figure-29. The main aim of this dimensioning method by architect is prevent complexity on floor plan to become understandable. The architects take responsibility on site and control dimensions.

The stairs drawn by architect with different layer standards to determine in floor plan. The drawing of the stairs illustrated level symbol principle and number of steps. The Drawing technique staying connected with layer system under the scheme. Also, material definitions defined in text such as product details and flooring materials. The landscaping generally illustrated with hatches or different layers on site plans. The architects can be present with drawing technique the proposed or existing landscape in architectural graphic standards. Two different elements used at Figure-29. The first, circles drawn to define existing trees around floor plan. The second hatches used as dot style in order to define the grass and plant area. On the other hand, the entries of the garden and building defined with text and arrow. The floor

plan completed to define view and border with garden wall in different layer to describe the site boundary.

Table 9: The discussion and evaluation the site plans between North Cyprus and South Cyprus (Today).

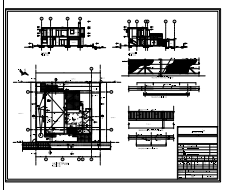
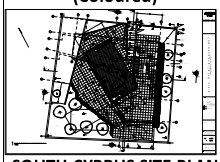
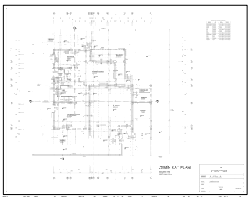
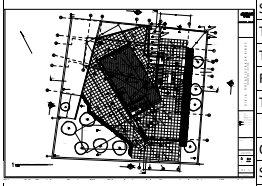
	CODES		OVERALL EVALUATION	OVERALL DISCUSSION
 **NORTH CYPRUS SITE PLAN** (Mimarlar Odası, 2017)	Scale /Units	●	1. Metric units and scale used in 1/100	1.The landscape not illustrated with hatch 2.Existing trees not illustrated with line weight 3.The layers not presented in colour
	North sign /symbol illustration	●	2.The North direction illustrated with symbol	
	Site boundaries with line weight	●	3.Site boundaries defined with lineweight	
	Site boundaries garden wall	●	4.The garden wall defined with line weights	
	Dimensioning from building to site border	●	5.Dimensioning from site border around building	
	Building/car park entry sign	●	6.Building and carpark entry signs with symbols	
	Construction lines illustration with layer	●	7.Construction lines with linetype/lineweight	
	Levels illustration on site	●	8.Levels illustrated with symbol on site	
	Levels illustration on designed building	●	9.Levels illustrated with symbol on building	
	Section lines with linetype/lineweight	●	10.Secrion lines defined with lineweights	
	Scematic sections from designed building	●	11.Scematic sections with harmony of plan	
	The rainwater drainage system on building	●	12.Rainwater drawinage symbols with arrows	
	Dimensioning on designed building	●	13.Dimensioning building between constr.lines	
	Flooring materials illustration with hatch	●	14.Flooring materials with hatch	
	The landscaping illustration with hatch		15.Legend illustration of project informations	
	Existing trees illustrating			
	The presentation technique in colour			
	The legend& Informations about project	●		
 **SOUTH CYPRUS SITE PLAN (Coloured)**  **SOUTH CYPRUS SITE PLAN (Black&white)** (Bozatlı)	Scale /Units	●	1. Metric units and scale used in 1/100-200	1.Scematic sections from designed building not illustrated 2.The rainwater drainage system not illustrated 3.Dimensioning not illustrated from exterior of the building
	North sign /symbol illustration	●	2.The North direction illustrated with symbol	
	Site boundaries with line weight	●	3.Site boundaries defined with lineweight	
	Site boundaries garden wall	●	4.The garden wall defined with line weights	
	Dimensioning from building to site border	●	5.Dimensioning from site border around building	
	Building/car park entry sign	●	6.Building and carpark entry signs with symbols	
	Construction lines illustration with layer	●	7.Construction lines with linetype/lineweight	
	Levels illustration on site	●	8.Levels illustrated with symbol on site	
	Levels illustration on designed building	●	9.Levels illustrated with symbol on building	
	Section lines with linetype/lineweight	●	10.Secrion lines defined with lineweights	
	Scematic sections from designed building		11.Scematic sections with harmony of plan	
	The rainwater drainage system on building		12.Rainwater drawinage symbols with arrows	
	Dimensioning on designed building	●	13.Dimensioning building between constr.lines	
	Flooring materials illustration with hatch	●	14.Flooring materials with hatch	
	The landscaping illustration with hatch	●	15.The landscape illustrated with hatch	
	Existing trees illustrating	●	16.Existing trees illustrated with line weight	
	The presentation technique in colour	●	17.The layers presented in colour	
	The legend& Informations about project	●	18.Flooring materials with hatch	

Table 10: The discussion and evaluation the floor plans between North Cyprus and South Cyprus (Today).

	CODES		OVERALL EVALUATION	OVERALL DISCUSSION
 **NORTH CYPRUS FLOOR PLAN** (Mimarlar Odası, 2017)	Scale /Units	•	1. Metric units and dimensioning used in 1/50 2.Construction lines defined with linetype and lineweigts 3.Construction lines supported with code circles 4.Dimensioning ofthe interior defined with two lines 5.Dimensioning of the exterior defined with four lines with definition of the measure between construction lines. 6.The window/door defined with codes 7.The spaces defined in text with area 8.The stairs defined numerical and levels and dims 9.The spaces defined with space table 10.Flooring materials illustrated with hatch 11.The upper floor lines defined with the dash-dot line type with linetype 12.The structural columns defined with hatch 13.The section lines illustrated with linetype and lineweight 14.The furnitures defined with lineweight 15.The level differences illustrated with level symnbol in numeric text style 16.Building entrance defined in text with symbol	1.The existing trees not illustrated 2.The landscaping not defined and illustrated
	Construction lines illustration with layer	•		
	Construction lines circle and text codes	•		
	Dimensioning interior	•		
	Dimensioning exterior	•		
	The coding definitions door/window	•		
	Space definitions in text with area	•		
	The stairs definitions with numerical	•		
	The space table	•		
	Flooring materials illustration with hatch	•		
	The upper floor definition/dash-dot line	•		
	Structural syst.definition with lineweight	•		
	Columns definition with hatch	•		
	Section lines with linetype/lineweight	•		
	The furniture definitions with lineweight	•		
	Level symbol definition/interior&exterior	•		
	Building entry sign and definition	•		
	The identifying existing trees in layer			
	The landscape illustration with hatch			
 **SOUTH CYPRUS FLOOR PLAN** (Bozatlı)	Scale /Units	•	1. Metric units and dimensioning used in 1/50 2.Construction lines defined with linetype and lineweigts 3.Construction lines supported with code circles 4.Dimensioning of the interior defined single lines 5.The window/door defined with codes 9.The spaces defined with text in interior 10.Flooring materials illustrated with hatch 11.The upper floor lines defined with the dash-dot line type with linetype 12.The structural columns defined with hatch 13.The section lines illustrated with linetype and lineweight 14.The furnitures defined with lineweight 15.The level differences illustrated with level symnbol in numeric text style 16.Building entrance defined in text with symbol 17.The existing trees illustrated with line weight 18.The landscaping illustrated with hatch	1. The exterior dimensioning not illustrated 2. The stairs definitions not defined in text or coding 3. The space table not illustrated
	Construction lines illustration with layer	•		
	Construction lines circle and text codes	•		
	Dimensioning interior	•		
	Dimensioning exterior			
	The coding definitions door/window	•		
	Space definitions in text with area	•		
	The stairs definitions with numerical			
	The space table			
	Flooring materials illustration with hatch	•		
	The upper floor definition /dash-dot line	•		
	Structural syst.definition at lineweight	•		
	Columns definition with hatch	•		
	Section lines with linetype/lineweight	•		
	The furniture definitions with lineweight	•		
	Level definition/interior&exterior	•		
	Building entry sign and definition	•		
	The identifying existing trees in layer	•		
	The landscape illustration with hatch	•		

3.4.2 Section drawings

The general principles of section drawing followed as method in this part of architectural drawing at South Cyprus. The architectural drawing techniques, layers, text styles, hatches, tables and definitions depend on the architects disciplinary. The architect working on this project with two different and opposite side from floor plans as illustrated at Figure-29.

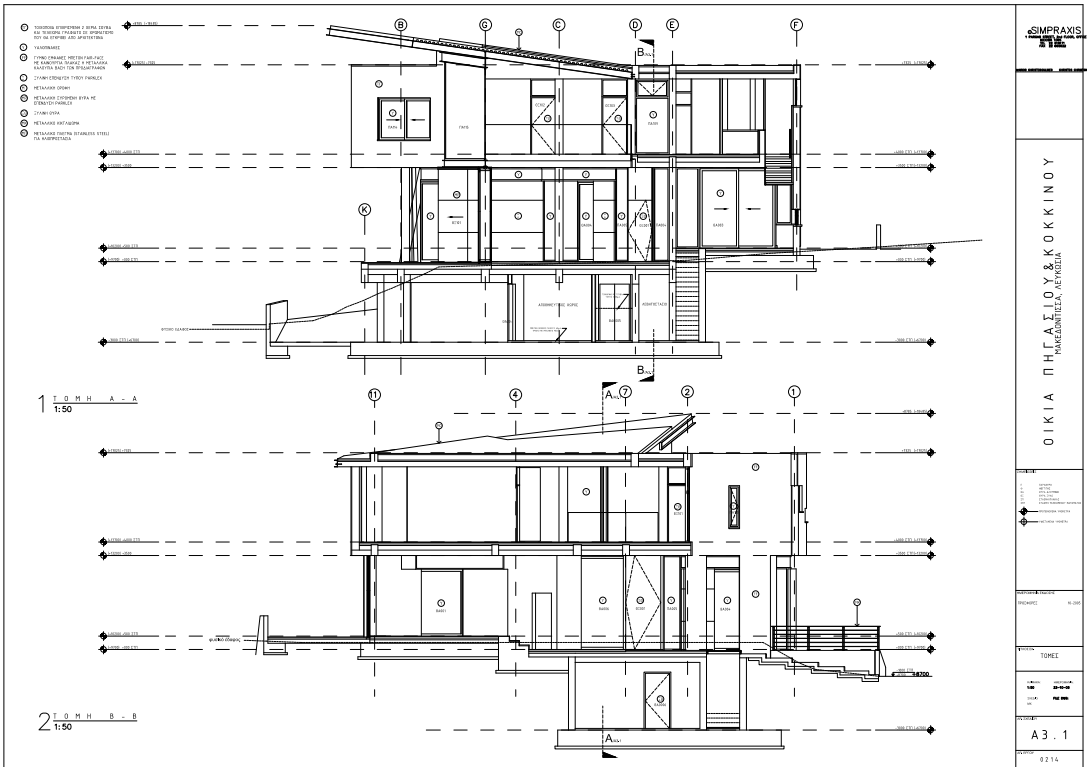


Figure 29: Residence Project Section by Sympraxis Architects (Bozatlı)

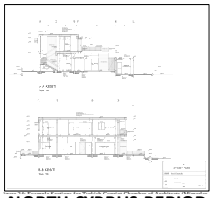
The Architect Emre Bozatlı explained that, the town planning department and local authorities are preferring to evaluate minimum two section with set of architectural projects. First of all, the harmonize of sections between floor plans highly recommended. The structural system description with drawing technique is compulsory with continuity of the layer, line types and floor levels in sections. The first impression of the sections, the scale unit 1/50 used as drawing technique. The section drawing technique depends on the structural system and the architect's graphic standard illustrated at Figure-30. The column and beams systems are not hatched and drawn with different layer and classified with different lines. The main aim is determining the stages of every floor in detail. The stages must be in front for understandable and the hatching don't illustrate by architect. On the other hand, this was not compulsory and depends on the architect's graphic standards. It's also differentiated and highlighted with the different line weight to become in front. The

construction lines under the principles of the symmetry with floor plans illustrated and defined with alphabetic and numeric definitions under the different layer and line types.

The construction materials and definitions for every floor defined with coding system. The construction materials and operation techniques defined with alphabetic categorizations. The application techniques of materials, production techniques, quantity, and dimensions defined under the alphabetic categorization in text at the left corner of the sheet and inside the legend. The operation methods of the doors and windows drawn with lines in different layers and the coding from floor plans reflected as illustrated at Figure-30.

The level illustrating with level symbol continued with section under the standards of the architect. The technique continued on the continues line with different layer and both sections. However, the dimensioning technique not followed by architect and not compulsory. The responsibility is belonging to architect because of the site control compulsory by architect. The sheet names and legends illustrated with text style under the separate layer. The architecture office name, project data and identification defined under the graphic standards of the architecture office graphic standards.

Table 11: The discussion and evaluation the sections between the North Cyprus and South Cyprus (Today).

	CODES		OVERALL EVALUATION	OVERALL DISCUSSION
 **NORTH CYPRUS PERIOD SECTIONS** (Mimarlar Odası, 2017)	Scale /Units	•	1. Metric units and dimensioning used in 1/50	1.Space names not identified coding as numeric
	Structural system linetype	•	2. Structural system idetified with different layer	
	Structural system hatch	•	3.Structural system identified with hatch	
	Sub-structure hatch	•	4.Substurcture defined with hatch	
	Level symbols	•	5.Levels illustrated as symbol in text	
	Contruction lines illustration	•	6.Construction lines defined with linetype/weight	
	Construction line circle/codes	•	7.Construction line circle/codes defined	
	Interior Dimensions	•	8.Interior dimensions defined in two lines	
	Space names in coding		9.Materails defined in text style	
	Material definitions in text	•	10. Interior functions defined with linetype	
	Interior elements view	•		
 **SOUTH CYPRUS PERIOD SECTIONS** (Bozatlı)	Scale /Units	•	1. Metric units and dimensioning used in 1/50	1.Structural system not identified with hatch 2.Sub-strucute not identified with hatch 3.Interior space dimensions not illustrated
	Structural system linetype	•	2. Structural system idetified with different layer	
	Structural system hatch		5.Levels illustrated as symbol in text	
	Sub-structure hatch		6.Construction lines defined with line type/weight	
	Level symbols	•	7.Construction line circle/codes defined	
	Contruction lines illustration	•	8.Space names identified with coding as numeric	
	Construction line circle/codes	•	9.Materails defined in text style	
	Interior Dimensions		10. Interior functions defined with linetype	
	Space names in coding	•		
	Material definitions in text	•		
	Interior elements view	•		

3.4.3 Elevation drawings

The architects are representing for elevations with set of architectural projects under the regulations of the South Cyprus according to Architect Emre Bozatlı experiences. The elevation drawings scale must similar with floor plans and sections. The set of drawings related to each other as data and technical details. The layers, line weights and line types must understandable for expression the depth and functions according to the view or side of the elevations. The line weights and line types followed steps as illustrated at Figure-31 to reflect composition. The details of the windows, doors, handrails of the balcony, covering materials at façade, drawn in detail with hatches and composed disciplinary in graphic standards.

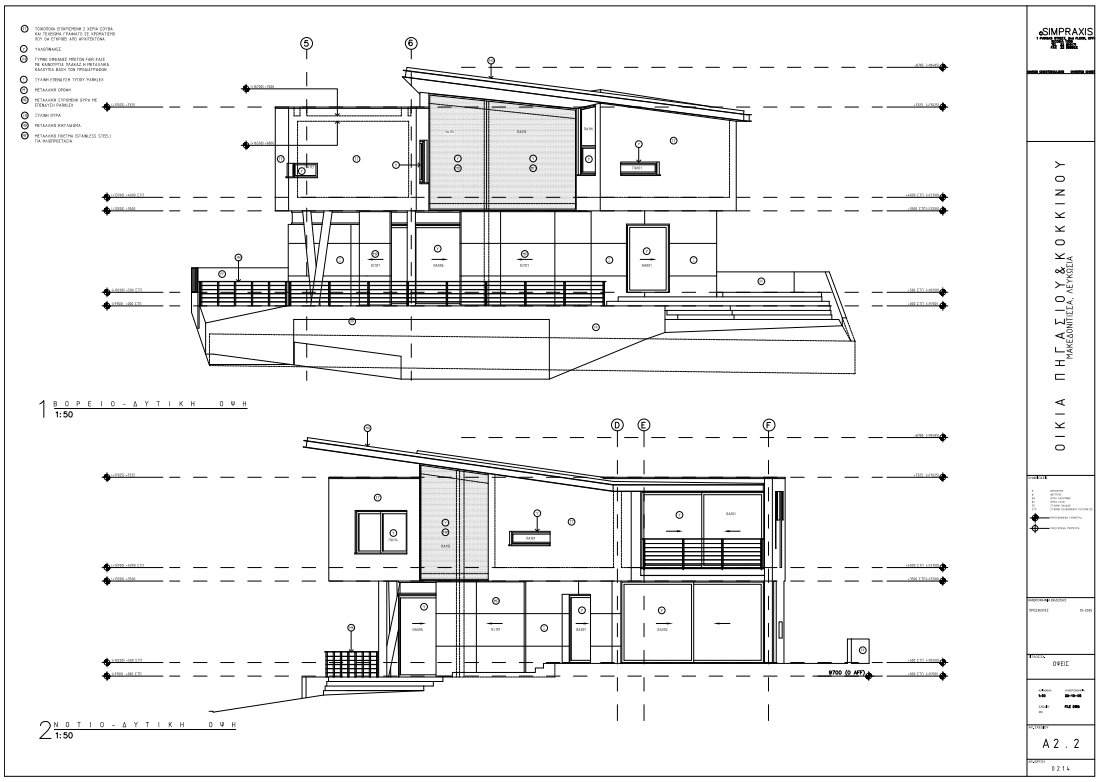
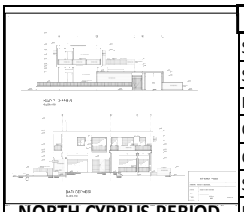


Figure 30: Residence Project Elevation by Simpraxis Architects (Bozatlı)

The information about operation of doors and Windows drawn with line as opening direction. These products illustrated in text separately in coding method as mentioned at Figure-31. The coding's of doors, windows, and construction materials, described separately with text, at the top corner of the drawing sheet. On the other hand, doors and windows definition codes defined in numeric/alphabetic coding depends on the floor plans illustrating technique in elevations. The alphabetic/numeric coding with construction lines drawn with different layer, line type and line weight. The construction lines composed the structural system according to floor plans and sections. The floor levels symbolized with level illustration method and dimensions illustrated in numeric text styles under the architectural graphic standards of the architect as illustrated at Figure-31. The material definitions continued to define in sheet legend. The sheet legend composed

standard style and definitions illustrated about identity of project architect, project data and sheet number at Figure-31.

Table 12: The discussion and evaluation the elevations between the North Cyprus and South Cyprus.

	CODES		OVERALL EVALUATION	OVERALL DISCUSSION
 **NORTH CYPRUS PERIOD SECTIONS** (Mimarlar Odası, 2017)	Scale /Units	•	1. Metric units and dimensioning used in 1/50	1.Space names not identified coding as numeric
	Structural system linetype	•	2. Structural system idetified with different layer	
	Level symbols	•	5.Levels illustrated as symbol in text	
	Contruction lines illustration	•	6.Construction lines defined with linetype/weight	
	Construction line circle/codes	•	7.Construction line circle/codes defined	
	Space names in coding		9.Materails defined in text style	
	Material definitions in text	•	10. Interior functions defined with linetype	
 **SOUTH CYPRUS PERIOD SECTIONS** (Bozatlı)	Scale /Units	•	1. Metric units and dimensioning used in 1/50	
	Structural system linetype	•	2. Structural system idetified with different layer	
	Level symbols	•	5.Levels illustrated as symbol in text	
	Contruction lines illustration	•	6.Construction lines defined with line type/weight	
	Construction line circle/codes	•	7.Construction line circle/codes defined	
	Space names in coding	•	8.Space names identified with coding as numeric	
	Material definitions in text	•	9.Materails defined in text style	

3.4.4 The System detail drawings

The system detail drawings are the part of the composed architectural project and the architectural graphical standards. The aim and purpose of the detail is defining product detail and material details in scale 1/20 with definitions in plan and section. The system detail of the stair with system plan and section compulsory at South Cyprus. The architect is draw and organize with standards at Figure-32 and Figure - 33. The stair details drawn by architect with system plan, system section and point details from stairs and slab.

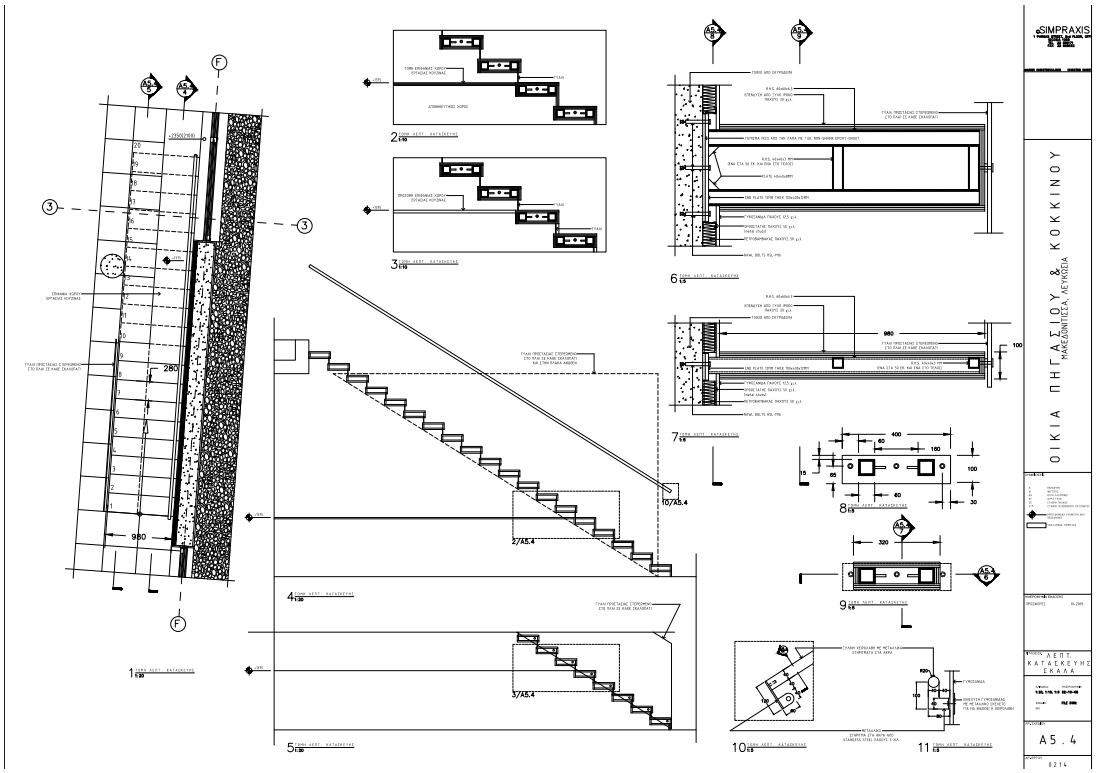


Figure 31: Residence Project System Details from staircase by Simpraxis Architects (Bozatlı)

The system plan referenced from the floor plan however, the line types, line weights, hatch style, text styles and definition texts organized according to the scale of 1/20. The architect focused on construction application methods in detail and material definitions followed the harmony according to the layer standards. The main starting point is drawing the partial detail of the stair at system plan as illustrated at Figure-32. The structural system defined with the separated layers according to the x-y coordinate system. The frame is the similar and connected with floor plan. However, the layer system based on the scale at system detail drawing techniques. On the other hand, the partial details from system section and system plan drawn separately at scale 1/10 and 1/5 for detail at Figure-32. The architect, defined the structural system with construction lines with different line weight and line type. This methodology not reflected to the system sections. Another drawing technique applied on

reinforced concrete illustration with hatch. The hatch classified the materials and define for understandable in system details. The level differences illustrated with symbols and texts at system detail and system section. The material definitions of flooring and handrails illustrated with same text style and height in graphical standards of system details. The main aim to drawing in scale of 1/5 and 1/10 is to determining the construction materials understandable with definitions at Figure-33. The organizing the sheet for system detail drawings reflected with disciplinary of layer, line type and line thickness standards. The hatch used as determine differentiation between materials effectively to describe in architectural graphic standards. Totally eight partial details drawn by architect at system details of the stair as illustrated at Figure-32.

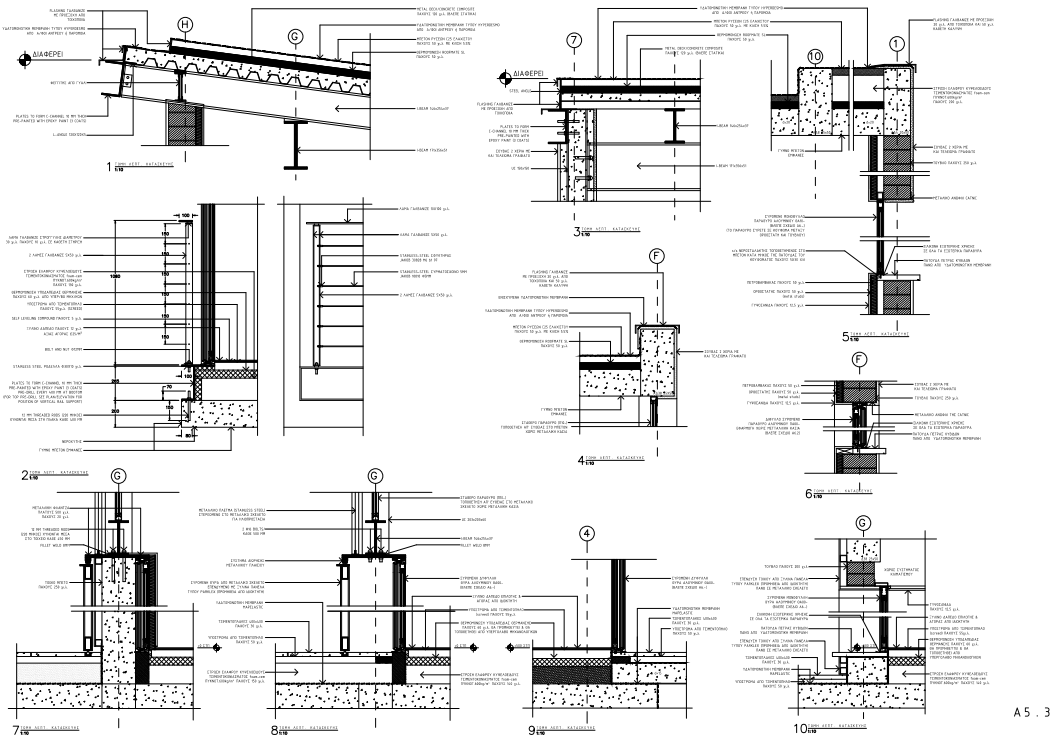
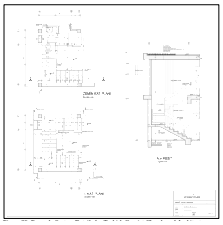
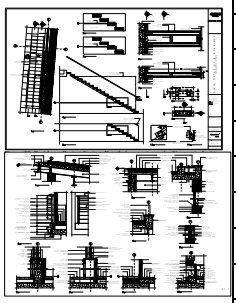


Figure 32: Residence Project System Details from Roof and Window by Simpraxis Architects (Bozatlı)

The system detail drawings continued with other part of the architectural project. However, these partial details drawn by scale 1/10 as illustrated at Figure-33. The architect drawn three part of detail from project. The first, is the system section of the roof. The second, is the system plan and section of the window. The third is a system section of the door. The same methodology preferred by architect as defining the structure. The construction lines continued to illustrate. The hatch used effectively to reflect classification and differentiation. The line thicknesses and line weights taken to the account. The level symbols with text illustrated to determine exact level to discussing with floor plans, sections and elevations. The details explained with text from top level of the construction material to the low level according to classification and application as illustrated at Figure-32 and Figure-33.

Table 13: The discussion and evaluation the System Details between the North Cyprus and South Cyprus (Today).

	CODES		OVERALL EVALUATION	OVERALL DISCUSSION
 **NORTH CYPRUS PERIOD SYSTEM DETAILS** (Mimarlar Odası, 2017)	Scale /Units (scale:1/20)	•	1. Metric units and dimensioning used in 1/20	1.The system details not illustrated at scale 1/10 2.The system details not illustrated at scale 1/5 3.The material definitions not illustrated in coding 4.The material definitions not defined with table
	Scale /Units (scale:1/10)		2. Structural system idetified with layer	
	Scale /Units (scale:1/5)		3.Structural system identified with hatch	
	Structural system linetype	•	4.Substurcture defined with hatch	
	Structural system hatch	•	5.Levels illustrated as symbol in text	
	Sub-structure hatch	•	6.Construction lines defined with linetype/weight	
	Level symbols	•	7.Construction line circle/codes defined	
	Contruction lines illustration	•	8.Interior dimensions defined in two lines	
	Construction line circle/codes	•	9.Materails defined in text style	
	Interior Dimensions	•	10. Interior functions defined with linetype	
	Material definitions in coding			
	Material definitions in table			
	Space names in coding			
	Material definitions in text	•		
	Interior elements view	•		
 **SOUTH CYPRUS PERIOD SYSTEM DETAILS** (Bozatlı)	Scale /Units (scale:1/20)	•	1. Metric units and dimensioning used in 1/20	1.The system details illustrated at scale 1/10 as door/window/roof detail 2.The system details not supported with 1/5 partial details at stair details 3.The material definitions illustrated with numeric codes 4.The material definitions supported with table
	Scale /Units (scale:1/10)	•	2. Metric units and dimensioning used in 1/10	
	Scale /Units (scale:1/5)	•	3. Metric units and dimensioning used in 1/5	
	Structural system linetype	•	4. Structural system idetified with layer	
	Structural system hatch	•	5.Levels illustrated as symbol in text	
	Sub-structure hatch	•	6.Construction lines defined with line type/weight	
	Level symbols	•	7.Construction line circle/codes defined	
	Contruction lines illustration	•	8.Space names identified with coding as numeric	
	Material definitions in coding	•	9.Materials defined in coding	
	Material definitions in table	•	10.Materails defined in table with coding	
	Construction line circle/codes	•	11.Materails defined in text style	
	Interior Dimensions	•	12. Interior functions defined with linetype	
	Space names in coding	•	13.Space names defined in numeric codes	
	Material definitions in text	•	14.Materials defined in text	
	Interior elements view	•	15. Interior functions defined with linetype	

3.5 European Union Architectural Drawing Graphic Standards

European Union Architectural Graphic Standards created various membered countries standards and replaced the many of differing national standards in member countries (Rensberger, Zande, & Deloney, 1997). The European Standards Organization (CEN) is similar with International Standards Institute (ISO 13567) and British Standards Institute (BSI 192) in framework and guidelines rather than a single unified standard (Littlefield, 2008).

The adopting of existing international standards by CEN is carried out under two agreements for technical cooperation between European Standards Organizations and ISO and IEC. Under the Vienna Agreement of 1991, CEN and ISO agreed on the general exchange of information, cooperation on standards drafting between the two organizations and adoption of existing international standards as EU standards (Rensberger, Zande, & Deloney, 1997).

The most known and used architectural graphic in the European Union standandards are:

- ISO (International Organization for Standardization)
- BSI (British Standards Institution)

On the other hand; The European Union Commission describe the policies and methods to be comply by European Union Commission about the Buildings in Brussels and Luxemburg. These rules and procedures identified composed an information on buildings implementations (European Commission, 2009).

The Architectural Policy of the European Union, related to the architectural quality as concept and quality of each of the buildings. The main aim of this part of study focused on adopting the architectural graphic standards the European Union policies. The ten reference elements published by European Commission and the study will further with the evaluation under the reference of the ten reference elements (European Commission, 2009).

The ten reference functions published by European Union Commission are Urban Integration, accessibility and mobility, energy efficiency and respect for the environment, quality of the construction and well-being, innovation, clarity of

purpose and complexity of buildings, aesthetic aspect and image, functionality, modularity, and flexibility, costs, and cohesion: a common thread (European Commission, 2009).

3.5.1 Urban Integration

In the case of the Urban integration approach according to the European Union Commission concerned the buildings must be combined into the urban environment based on the compatibility method. The specific concern must be taken to provision a convenient urban mix between residential, office and commercial buildings, not to suggestion the possibility of a public area which simplify cultural and social unification (European Commission, 2009).

3.5.2 Accessibility and mobility

The main aim the adaptation with the European Union Commission's mobility policy which is support and organize environmentally friendly processes of transportation (cycle, walk and communal transportation), the buildings must be easy in accessibility by communal transportation and they must be utilizable by public under the "design for all" understanding. The proposed buildings must be designed near the Commission's central buildings as location and the other institutions and social substructure under to accessibility principles (European Commission, 2009).

3.5.3 Energy efficiency and respect for the environment

The primary elements consisted with the energy efficiency and respect for the environment and reducing the energy consumption.

In this approach the Commission exertions consist of specifications and extending the EMAS (Eco-Management and Audit Scheme) by stages to the whole buildings in Brussels and Luxembourg (European Commission, 2009).

In stages, the whole buildings of the European Union Commission must follow the energy efficiency factors, as an example:

- The buildings must be design in a frame with the global energy idea as conceptual.
- The renewable energy sources utilization must be supported.
- The emissions of polluting must be in a limitation.

The following environmentally friendly concepts promoting by the European Union Commission:

- The Commission promoted the using of low environmental impact materials during the production and application period under the recycling process.
- The Commission promoted environmentally friendly and sustainable building design concepts under the waste management and water saving, etc.

The orientation and the location of the proposed buildings in urban context needs to specific care in order to reduce energy expenditure. The European Union Commission should follow the most general processes for discuss and evaluate the performance of the buildings in order to provide the application and evaluation these concepts (European Commission, 2009).

3.5.4 Quality of the construction and well-being

In this approach, the quality of the construction of the proposed designed buildings significantly important by the European Union Commission. The designed proposed buildings must be following the policies and standards under the directive of the Eurocodes and construction product materials.

The using of the construction materials and choosing, the technical details and applications (especially facades) are highly significant issue because they effect the sustainability of the building, maintenance of the building and the increasing-decreasing the speed of age buildings under the sustainability approach.

The architectural concept must conduce the air quality, the building acoustics etc. to provide well-being and the health of the building users.

In addition, the building design must focus in particular on providing user-friendliness and a "feeling of belonging" to present an image and identity of the designed building (European Commission, 2009).

3.5.5 Innovation

The European Union Commission will be performed to provide innovation, in particular to achieve significant energy savings and provide environmental respect with the relation to the different perspectives connected to architecture (technology, materials, functionality, layout) and urban integration (European Commission, 2009).

3.5.6 Clarity of purpose and complexity of buildings

The proposed buildings must be in a balanced building environment and the volumes distribution must be basic in order to provide understandable and usable by visitors and users (European Commission, 2009).

3.5.7 Aesthetic aspect and image

In this approach, the European Union Commission regarded in the situation, the proposed designed buildings should view in order to display its significant function and its act at the urban environment. It should respect as values.

According to the Commission, certain interest should provide that the communicate to get in touch by Commission buildings is coherent with the regulations and values of European corporations.

On the other hand, safety limitations, Commission will provide that the image transferred by the façades and mass of its buildings express, partly by combining, the boldness, slender curved lines, dynamics and transparency of the projects, which have an impact on different perspective including the type of material used (European Commission, 2009).

3.5.8 Functionality, modularity and flexibility

In this approach, the designed projects must be modular, flexible and functional. The designed projects must be adaptable as feasible.

– Functionality

In this case, the designed projects should simplify communication through powerful operation of internal flows and of incoming/outgoing flows. The building performance percentage will authorize ideal use of the spaces of the existing project.

– Modularity and flexibility

In this approach, according to the European Union Commission, the project must possible to be modular. The spaces and functions can be practically and easily re-organized.

According to the Commission, the project must be simple to application the methods in which they are used. The flexibility makes it feasible to present innovative working environments under the defining of partition space, care of the requirements for efficiency. So that, these features considering will determine the necessary flexibility when renovates are applied to the buildings in the long duration (European Commission, 2009).

3.5.9 Costs

In this case, the main aim for an architectural approach which will conclude in decrease in cost, managing and renovating costs and a limitation of present and future consumptions.

According to the European Union Commission, the architectural quality of a building must be coherent with medium and long- term capital which is sustainable and defendable since it is coming out of the European Union Community estimates (European Commission, 2009).

3.5.10 Cohesion: a common thread

In this approach, the establishment of a symbolic common thread connecting all the buildings and building groups related by the Commission. This will make the Commission more distinguished and definable in the city. The symbol should be practicable to all future proposed projects and, for existing projects in which the Commission has a medium or long-term concern (European Commission, 2009).

Chapter 4

CONCLUSION AND RECOMMENDATIONS

4.2 An Evaluation of Interview Survey

In this research for interview survey participants from North Cyprus and South Cyprus registered architects. The given answers from five interview questions and the results will evaluate in literature for every interview question. The aim of this survey, analyzing architects working disciplinary and their design methodology under the rules and regulations and architectural graphic standards. This survey can give a results in differences between North and South Cyprus architect's disciplinary profession in their life. In same time this survey gives a result about their common approach in working drawings, architectural graphic standards and disciplinary in life. Totally five questions answered from participants from North Cyprus (Appendix A) and participants from South Cyprus (Appendix B). The registered architects experiences mostly 5-45 years from North Cyprus and South Cyprus. The North Cyprus and South Cyprus registered office owner architects answered following interview questions:

1- How long have you been member of chamber of architects?

2- Which architectural software is the base for your working drawings in your projects?

3- Which authorization is the base for getting approval for architectural projects under the architectural graphic standards?

4- How many durations passed to getting approval architectural project after submitting one/two floor residential project from legal authorities?
5- How many system details (in scale 1/20) prepared in set or architectural projects to by your office for getting approval from legal authorities?

According to the interview question-1, participant architects registered to the chamber of architects, 10 between 30 years in North Cyprus (Appendix A). On the other hand, the second question answered from North Cyprus Architects %100 used AutoCAD as a tool for their architectural projects. The Chamber of Architects is the primary authority for getting approval and %100 answered as a primary authority for getting approval under the architectural graphical standards in North Cyprus at question-3. The architectural project approval durations answered from North Cyprus Architects at question-4. Architectural project approval duration for standard one/two floor residence projects percentages %50 are 2 months, %25 are 1 month, %12,5 are 5 month and %12,5 are 3 months answered by North Cyprus architects. According to question-5, the detail project in the scale of 1/20 prepared %62 as 1-2 detail, %25 as 5 detail and %13 as 3 system detail prepared by north Cyprus Architects.

The South part of Cyprus as a case the participant architects (Appendix B) registered to the chamber of architects, 10 between 45 years. On the other hand, the second question answered from South Cyprus Architects %80 used AutoCAD and %20 used other softwares as a tool for their architectural projects. The Town Planning Department is the primary authority for getting approval under the architectural graphical standards and %100 percent answered in South Cyprus. According to the question-4, %50 architects answered as 4 months needs for Town planning department and 5 months need for building permit for local authorities. On the other

hand, %50 architects answered 3 months for Town Planning and 6 months for local authorities. According to the question-5, %70 architects just for restoration projects and special projects they prepared 1/20 system detail in their set of architectural projects. The 1/20 system details prepared just for renovation projects answered by %30 architects in case of South Cyprus (Appendix B).

4.2 Results of Findings

In Chapter 3, the evaluation of architectural graphical standards in Cyprus discussed in detail. The British Colonial Period architectural standards and architectural organization was the base for present. The architectural graphical standards developed from United Kingdom graphical standards and regulations. The Street and Buildings Regulations Law and Policy published from British Colonial Government and updated until today. The republic period present professional architectural organization and continued to professionality with private architectural offices. Cypriot architects organized regulations and organizations in their communities under the law of the Republic of Cyprus period. However, after 1974 division period the organizations divided and the governments further their architectural graphic standards and regulations according to social, cultural and educational approaches. The technological revolution and the digital era, effect architect's profession, design and graphical standards. First of all, the Cypriot architects developed their skills and increase their graphical standards in the historical process.

Republic of Cyprus was being a member of European Union at May 2004 (Nugent, 2010). However, the European Union Acquis not applied at North Cyprus.

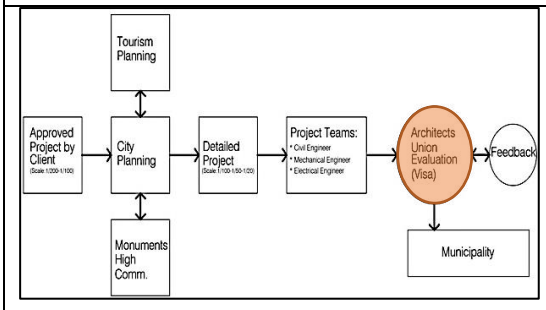
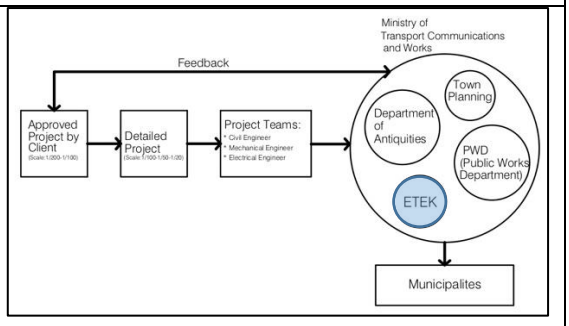
As mentioned previous chapter, the North Cyprus and South Cyprus architectural project approval procedures analyzed with Figure-21 and Figure-27.

The approval procedures carried outs the with the architectural graphic standards and disciplinary of the architects of North and South Cyprus. As mentioned previous chapter, following residential project architectural drawings evaluated according to the North and South Cyprus:

- The Site Plan (1/100-1/200)
- Floor Plan (Scale:1/50)
- Sections (Scale: 1/50)
- Elevations (Scale:1/50)
- System Details (Scale: 1/20-1/10-1/5)

The previous chapter, the authorities approved the similar set of architectural drawings under the graphic standards and the regulations.

Table 14: The discussion of the architectural project approval procedures in Cyprus

North Cyprus	South Cyprus
	

Based on the analysis of the North Cyprus and South Cyprus architectural project approval process, the main differences are generated from the architectural organization's missions and general organization of the authorities.

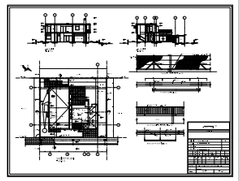
The South Cyprus authorities organized in a single Authority as Ministry Department. However, the North Cyprus Authorities divided and the Turkish Cypriot Chamber of Architects Visa department is an authority for supervision and criticizing under the published architectural graphical standards. On the other hand, ETEK (Technical Chambers of Cyprus) mission continued as an advisory committee under the Ministry of Transport, Communication and Works at South Cyprus as illustrated at Table-14. The main differences as a result, the Architects is in a frame of the architectural graphic standards with a single digital graphic tool as a cad software in North Cyprus. The main reason was generated from the membership criteria and the governmental organization in North Cyprus.

The graphical standards evaluated in a different stages of the architectural set of project between North and South Cyprus as illustrated at Table-15. The architectural graphical standards more detailed at North Cyprus then South Cyprus. However, the limitations in a frame with site plans and system detailing then South Cyprus as illustrated at Table-15. The main differences in the case of drawing site plans according to the overall discussion at previous chapter and Table-15, the site plans drawings are compulsory to submission for evaluation to authorities only in monochrome or black/white at North Cyprus. The second differences analyzed from previous chapter and overall discussed at Table-15, the landscaping and the existing trees are not reflected in architectural graphical standards in North Cyprus.

Table 15: Overall Discussion Architectural Projects between North and South Cyprus

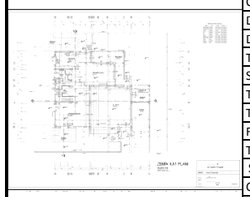
OVERALL DISCUSSION ARCHITECTURAL PROJECTS BETWEEN NORTH CYPRUS AND SOUTH CYPRUS

NORTH CYPRUS



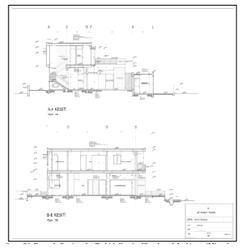
NORTH CYPRUS SITE PLAN
(Mimarlar Odası, 2017)

CODES		OVERALL DISCUSSION
Scale /Units	●	1.The landscape not illustrated
North sign /symbol illustration	●	with hatch
Site boundaries with line weight	●	2.Existing trees not illustrated
Site boundaries garden wall	●	with line weight
Dimensioning from building to site border	●	3.The layers not presented in colour
Building/car park entry sign	●	
Construction lines illustration with layer	●	
Levels illustration on site	●	
Levels illustration on designed building	●	
Section lines with linetype/lineweight	●	
Scematic sections from designed building	●	
The rainwater drainage system on building	●	
Dimensioning on designed building	●	
Flooring materials illustration with hatch	●	
The landscaping illustration with hatch		
Existing trees illustrating		
The presentation technique in colour		
The legend& Informations about project	●	



NORTH CYPRUS FLOOR PLAN
(Mimarlar Odası, 2017)

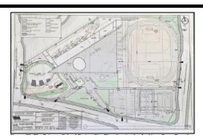
CODES		OVERALL DISCUSSION
Scale /Units	●	1.The existing trees not illustrated
Construction lines illustration with layer	●	2.The landscaping not defined and
Construction lines circle and text codes	●	illustrated
Dimensioning interior	●	
Dimensioning exterior	●	
The coding definitions door/window	●	
Space definitions in text with area	●	
The stairs definitions with numerical	●	
The space table	●	
Flooring materials illustration with hatch	●	
The upper floor definition/dash-dot line	●	
Structural syst.definition with lineweight	●	
Columns definition with hatch	●	
Section lines with linetype/lineweight	●	
The furniture definitions with lineweight	●	
Level symbol definition/interior&exterior	●	
Building entry sign and definition	●	
The identifying existing trees in layer		
The landscape illustration with hatch		



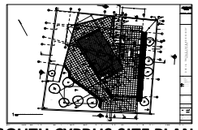
NORTH CYPRUS PERIOD SECTIONS
(Mimarlar Odası, 2017)

CODES		OVERALL DISCUSSION
Scale /Units	●	1.Space names not
Structural system linetype	●	identified coding as numeric
Structural system hatch	●	
Sub-structure hatch	●	
Level symbols	●	
Contruction lines illustration	●	
Construction line circle/codes	●	
Interior Dimensions	●	
Space names in coding		
Material definitions in text	●	
Interior elements view	●	

SOUTH CYPRUS

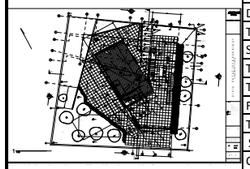


SOUTH CYPRUS SITE PLAN
(Coloured)



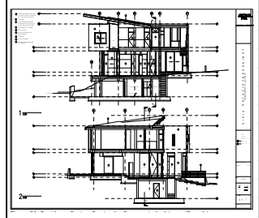
SOUTH CYPRUS SITE PLAN
(Black&white)
(Bozatlı)

CODES		OVERALL DISCUSSION
Scale /Units	●	1.Scematic sections from designed
North sign /symbol illustration	●	building not illustrated
Site boundaries with line weight	●	2.The rainwater drainage system
Site boundaries garden wall	●	not illustrated
Dimensioning from building to site border	●	3.Dimensioning not illustrated
Building/car park entry sign	●	from exterior of the building
Construction lines illustration with layer	●	
Levels illustration on site	●	
Levels illustration on designed building	●	
Section lines with linetype/lineweight	●	
Scematic sections from designed building		
The rainwater drainage system on building		
Dimensioning on designed building	●	
Flooring materials illustration with hatch	●	
The landscaping illustration with hatch	●	
Existing trees illustrating	●	
The presentation technique in colour	●	
The legend& Informations about project	●	



SOUTH CYPRUS FLOOR PLAN
(Bozatlı)

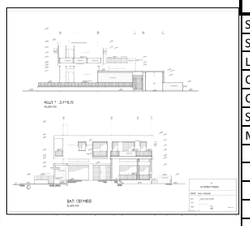
CODES		OVERALL DISCUSSION
Scale /Units	●	1. The exterior dimensioning not
Construction lines illustration with layer	●	illustrated
Construction lines circle and text codes	●	2. The stairs definitions not
Dimensioning interior	●	defined in text or coding
Dimensioning exterior		3. The space table not illustrated
The coding definitions door/window	●	
Space definitions in text with area	●	
The stairs definitions with numerical		
The space table		
Flooring materials illustration with hatch	●	
The upper floor definition /dash-dot line	●	
Structural syst.definition at lineweight	●	
Columns definition with hatch	●	
Section lines with linetype/lineweight	●	
The furniture definitions with lineweight	●	
Level definition/interior&exterior	●	
Building entry sign and definition	●	
The identifying existing trees in layer	●	
The landscape illustration with hatch	●	



SOUTH CYPRUS PERIOD SECTIONS
(Bozatlı)

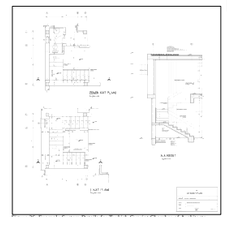
CODES		OVERALL DISCUSSION
Scale /Units	●	1.Structural system not
Structural system linetype	●	identified with hatch
Structural system hatch		2.Sub-strucute not
Sub-structure hatch		identified with hatch
Level symbols	●	3.Interior space dimensions
Contruction lines illustration	●	not illustrated
Construction line circle/codes	●	
Interior Dimensions		
Space names in coding	●	
Material definitions in text	●	
Interior elements view	●	

NORTH CYPRUS



NORTH CYPRUS PERIOD SECTIONS
(Mimarlar Odası, 2017)

CODES		OVERALL DISCUSSION
Scale /Units	●	1.Space names not
Structural system linetype	●	identified coding as numeric
Level symbols	●	
Contruction lines illustration	●	
Construction line circle/codes	●	
Space names in coding		
Material definitions in text	●	



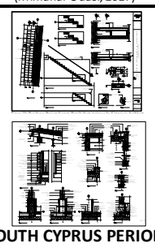
NORTH CYPRUS PERIOD SYSTEM DETAILS
(Mimarlar Odası, 2017)

CODES		OVERALL DISCUSSION
Scale /Units (scale:1/20)	●	1.The system details not
Scale /Units (scale:1/10)		illustrated at scale 1/10
Scale /Units (scale:1/5)		2.The system details not
Structural system linetype	●	illustrated at scale 1/5
Structural system hatch	●	3.The material definitions
Sub-structure hatch	●	not illustrated in coding
Level symbols	●	4.The material definitions
Contruction lines illustration	●	not defined with table
Construction line circle/codes	●	
Interior Dimensions	●	
Material definitions in coding		
Material definitions in table		
Space names in coding		
Material definitions in text	●	
Interior elements view	●	

SOUTH CYPRUS

SOUTH CYPRUS PERIOD SECTIONS
(Bozatlı)

CODES		OVERALL DISCUSSION
Scale /Units	●	
Structural system linetype	●	
Level symbols	●	
Contruction lines illustration	●	
Construction line circle/codes	●	
Space names in coding	●	
Material definitions in text	●	



SOUTH CYPRUS PERIOD SYSTEM DETAILS
(Bozatlı)

CODES		OVERALL DISCUSSION
Scale /Units (scale:1/20)	●	1.The system details
Scale /Units (scale:1/10)	●	illustrated at scale 1/10
Scale /Units (scale:1/5)	●	as door/window/roof detail
Structural system linetype	●	2.The system details not
Structural system hatch	●	supported with 1/5
Sub-structure hatch	●	partial details at stair
Level symbols	●	details
Contruction lines illustration	●	3.The material definitions
Material definitions in coding	●	illustrated with numeric
Material definitions in table	●	codes
Construction line circle/codes	●	4.The material definitions
Interior Dimensions	●	supported with table
Space names in coding	●	
Material definitions in text	●	
Interior elements view	●	

The Cyprus is an island and the architects must take responsibility and the awareness of the protecting environment must be considered with reflecting the existing defendable values in site plans with landscaping. This issue is explained at the previous chapter containing of the ten reference elements under the European Union Commission Architectural policy as Urban integration and respect for the environment. The adopting the architectural graphic standards must renovate according to the Urban integration and respect for the environment elements in North Cyprus for the sustainability of architecture.

The floor plans, sections and elevations are more detailed than South Cyprus in North Cyprus as illustrated at Table-15. However, in system details, the similar functions as stairs reflected in detail. On the other hand, the system details supported with additional 1/5-point details in 1/20 system sections at South Cyprus as overall discussion between North part and South part at Table-15. In addition, the window, door and roof details drawn in scale 1/10 at South Cyprus. In discussion the system details in a frame with drawing stair system plan and section at North Cyprus.

The system details are describing methods and solutions as technical at architectural drawings. The additional system details will be a solution and reference for buildings. The damp problem as an example, effects negatively the energy efficiency, quality of construction, aesthetic and cost under the renovation of the future. The solutions in details from foundation until roof can be an alternative. These solutions under the frame as the mentioned at previous chapter of the European union Commission' ten reference elements under the architectural policy.

The technological changings effects positively of the architectural graphical standards in a historical duration. The new architectural tools as computer programs for architectural drawings started to use effectively. Architect Emre Bozatlı said that, many computer programs as a tool for architectural drawings started to use at South Cyprus. However, the architects in limitations in North Cyprus with using a single tool "Auto cad". The disciplinary of design and working drawings is a primary process to further of the design. Based on the analysis of the approval process of the North Cyprus and South Cyprus, the steps of the process at North Cyprus is longer than South Cyprus. The decreasing the duration and increasing the duration of the benefits in process depends of the alternative tools to better design and better detailing at architectural graphical standards.

The BIM (Building Information Modelling) is an example software for architects and its preferring started to increase especially at European Union membered countries. The "BIM" as a tool, present extra alternatives and innovative solutions than using "Auto cad" as a tool (Comiskey, Tzortzopoulos, & Winnington, 2014).

4.3 Final Remarks for Further Researches

In conclusion, before solution Cyprus problem the rules and regulations should be renovate according to the new regulations and policies of European Union and South Cyprus. The Turkish Cypriot architects should be free for their own standards in their projects with new technology. Architects must not be in a limitations only single architectural software and the rules must renovate for new architectural programs to managing times. Gaining time with new technology will effect architectural disciplinary positively. The durations of getting permissions of architectural projects is the primary negative factors of Turkish Cypriot architects with client and working

disciplinary. The major problem in this research, Turkish Cypriot Architects in a frame with single Architecture software and its negatively affect duration to reflect design period. The drawings must understandable in technically for application but in clarity for understandable. The system detail drawings need to add with alternative point details to support clarity and sustainable design process. The existing landscaping not support drawings this can be cause negative problems for protecting environment. Before solution Cyprus problem, Cypriot architects can raise awareness for protecting Cypriot culture, environment and nature, architects will discuss, re-think and better design for future of the island. This study can be used by both local and governmental authorities for the improvement the qualities of rules and regulations for the architectural profession; as well as the researcher in similar subject. In further studies, existing visa procedures need to support with alternative architecture software to support visa system for eliminate and getting advantage and decreasing approval duration. Increasing architect's responsibility and power of authority with renovating or adding new policies will give much more advantage for sustainable architecting in Cyprus.

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APPENDICES

Appendix A: Interview Survey for Participants from North Cyprus

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