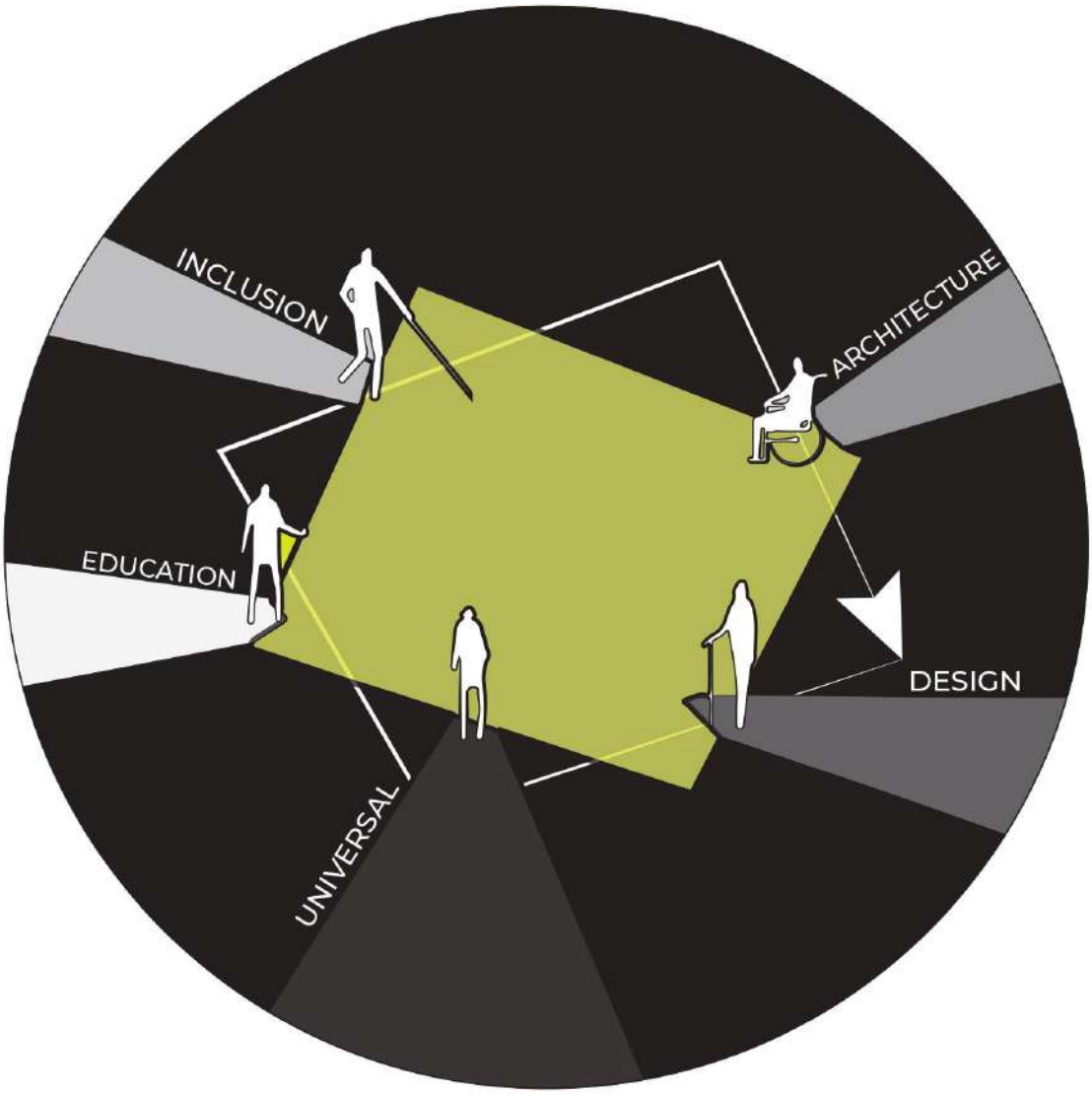

ACCESSIBLE AND INCLUSIVE SPACES FOR STUDY

A contest design for Politecnico di Torino

SPAZI ACCESSIBILI E INCLUSIVI PER LO STUDIO

Un bando per il Politecnico di Torino

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Accessibile and inclusive spaces for study

A contest design for Politecnico di Torino

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Inspiration from article of 7 Inclusive Design Principles and Examples in Architecture

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Abstract

“Look at the opportunity of design to empower everyone” Dan Formosa, Smart Design

The meaning of inclusion has had many changes throughout human history depending on the period and the events that are taking place on it, this word had a different impact in society. Nowadays inclusion is more than a word or a meaning, it is well known as a concept that influences the way people live and interact in many ways. Inclusion can be considered in many aspects of human life in which they are involved with, such as, architecture, technology, education or gender. This concept has permeated the way in which people live, it is no longer a condition for people that have a disability but is a condition that engages every human being just because we are all living in the same space.

With this in mind the following question led to the research of this thesis: Is inclusion the same as integration? The book *"Progettare per tutti" by Maria Cristina Azzolino and Angela Lacirignola*, was a source to solve this query. **Integration** is responsible for proposing a space or place exclusive for disabled people, making sure that this place works and exists. On the other hand, **inclusion** has to guarantee that both people who are disabled and without any disability can integrate and share the same space.

Following this concept, the objective of this thesis is to combine education, inclusion and architecture, by giving the guidelines in order to design and propose future inclusive study spaces.The final result will be the parameters (as if it was a contest) that a designer has to follow in order to participate or propose a study space. For doing this, the chosen population is the Politecnico di Torino students, in which there are architecture, design and engineering students.The first chapter will give a general overview of accessibility and inclusion definition, how these two concepts relate and define the indoor and outdoor study spaces that can be found around the world. Ending this chapter the concept of **universal design** will appear. This concept is involved with inclusion, focusing on the design of physical spaces principally in educational spaces suggesting some aspects to consider in order to continue with some good examples of architecture who practice this concept.

The second chapter is dedicated to exposing some references that serve as inspiration for the final product of this thesis. The cases of study are not necessarily educational buildings but also co-working or office buildings because they present similar conditions as the educational ones.

Successively, the third chapter is focused on the actual condition of the Politecnico di Torino campus and the present student necessities. Here will be presented if the university campus is equipped with the necessary facilities to guarantee every single student an inclusive study space. It will present a photographic record showing the state of art just to expose and compare if the students' necessities are fulfilled with the actual installations regarding endowment, accessibility, visual thermal and acoustic comfort.

Chapter four, will announce the final result of the whole research. Following the previous steps where inclusion was related with architecture, then some study cases that pursue a good solution for inclusive design and ending with what the Politecnico di Torino installations had versus the students' necessities, a guideline of design is the conclusion of this work. This guideline will consider every step above, giving the parameters of how an inclusive study space should be.

The fifth chapter will focus on the project proposal of an inclusive study space designed by the authors as an example of how the parameters exposed on the contest can be applied in a real project on a specific area of PoliTo, giving a response to the existing necessity of having a space designed for multiple users, familiar to the city and the university campus as well as the context surrounding it.

Finally, the sixth chapter will expose the conclusions of all the work developed throughout the thesis. There were three types of conclusions and each type focused on a different product. One for the table of requirements, the second one for the competition announcement and the last one for the testing project itself.

Abstract

"Guarda l'opportunità del design per dare potere a tutti" Dan Formosa, Smart Design

Il significato di inclusione ha avuto molti cambiamenti nel corso della storia umana e, a seconda del periodo, questa parola ha avuto un impatto diverso nella società. Oggi l'inclusione è più di una parola o un significato, è ben noto come un concetto che influenza il modo in cui le persone vivono e interagiscono in diversi modi. L'inclusione può essere considerata in molti aspetti della vita umana, come l'architettura, la tecnologia, l'istruzione o il genere. Questo concetto ha permeato il modo in cui le persone vivono, non è più una condizione per le persone che hanno una disabilità, ma è una condizione che coinvolge ogni essere umano solo perché viviamo tutti nello stesso piano.

L'inclusione è la stessa integrazione? Il libro "Progettare per tutti' di Maria Cristina Azzolino e Angela Lacirignola, è stato una fonte per risolvere questa domanda. L'integrazione si occupa di proporre uno spazio o un luogo specifico per le persone disabili, facendo in modo che questo posto funzione per le loro esigenze. D'altra parte, l'inclusione deve garantire che sia le persone disabili e senza alcuna disabilità possono integrare e condividere lo stesso spazio.

Seguendo questo concetto, l'obiettivo della tesi è integrare educazione, inclusione e architettura, dando le linee guida per progettare e proporre futuri spazi di studio inclusivi. Il risultato finale è un sistema di requisiti strutturati como un bando di concorso di progettazione rivolto a designer e architetti per spazi di studio. Per fare questo,i principali utenti di riferimento sono gli studenti del Politecnico di Torino,in cui ci sono studenti di architettura e ingegneria. Il primo capitolo darà una panoramica generale di accessibilità e definizione di inclusione, come

questi due concetti si riferiscono e definiscono gli spazi di studio interni ed esterni che si possono trovare in tutto il mondo. Si fa riferimento ai principi del design universale, fondamentali per perseguire l'obiettivo delle inclusioni in spazi educativi suggerendo alcuni aspetti da considerare.

Il secondo capitolo è dedicato all'analisi di alcuni riferimenti/progetti che servono da ispirazione per il prodotto finale di questa tesi. I casi di studio non sono necessariamente edifici didattici, ma anche edifici di co-working o uffici perché presentano condizioni simili a quelle educative.

Successivamente, il terzo capitolo è incentrato sulla condizione attuale del campus del Politecnico di Torino e sulle attuali necessità degli studenti.Si analizzano gli spazi studio del campus universitario mettendone in evidenza i punti di forza e di debolezza. Attraverso analisi sul campo si verificano le condizioni di accessibilità, fruibilità e comfort termico acustico e visivo.

Il quarto capitolo, presenta i risultati della ricerca.Seguendo i principi del design universale e gli elementi di interesse emersi nell'analisi delle buona pratiche di si definiscono requisiti di progetto strutturati in modo tale da poter essere direttamente adattati ad un bando di concorso per la progettazione di spazi per lo studio inclusivi outdoor. Si prende in considerazione l'area del Politecnico di Torino sede Centrale situata di fronte all'edificio del Punch Torino. Inoltre, per verificare i requisiti, si propone un progetto sotto forma di prova contenente tutti i requisiti del bando di concorso.

Il quinto capitolo si concentrerà sulla proposta progettuale di uno spazio studio inclusivo ideato dagli autori come esempio di come i parametri esposti sul concorso possano essere applicati in un progetto reale su una specifica area del PoliTo, dando una risposta alla necessità esistente di avere uno spazio pensato per diversi utenti , familiare alla città e al campus universitario oltre che al contesto che lo circonda.

Infine, il sesto capitolo esporrà le conclusioni di tutto il lavoro svolto durante la tesi. C'erano tre tipi di conclusioni e ogni tipo si concentrava su un prodotto diverso. Uno per la tabella dei requisiti, il secondo per il bando di concorso e l'ultimo per il progetto di sperimentazione.

CHAPTER 1

Accessible and inclusive spaces for study

Image. Inspiration from article[13], modified by the authors

Chapter 1 / Capitolo 1

Accessible and inclusive spaces for study
Spazi accessibili e inclusivi per lo studio

This chapter is dedicated to expose a general overview of how accessibility and inclusive design evolved throughout history until the present days. With this first intention later the relation between architecture and inclusion is presented having a special focus in study and workplaces due to the topic of this thesis. Finally, two possible scenarios for studying are defined which are outdoor and indoor spaces to identify general characteristics of both, because it is important to understand the dynamic of studying in both atmospheres.

Questo capitolo è dedicato ad esporre una panoramica generale di come l'accessibilità e il design inclusivo si sono evoluti nel corso della storia fino ai giorni nostri. Con questa prima intenzione in seguito il rapporto tra architettura e inclusione viene presentato con una particolare attenzione nei luoghi di studio e lavoro. Infine, vengono definiti due possibili scenari di studio che sono spazi esterni e interni per identificare le caratteristiche generali di entrambi, perché è importante comprendere la dinamica di studio in entrambe le atmosfere.

1.1 Inclusive design today

During the last years, there has been a notable improvement of both buildings, primarily public ones and outdoor areas in terms of usability by all. The solutions have improved technically and aesthetically, particularly in projects where accessibility has been integrated in the planning program in an early stage. However, there is still a lack of consciousness in terms of including everybody, inclusion is not just facilitating the entrance or access to a building this is just a part of what inclusion should reunite. As the text of *Universal Design Planning and Design for all* arguments *"There seems to be an ambition to achieve a technical accessibility, but less focus is placed on including everybody"* it is true that the accessibility for people with physical disabilities which are disabilities that are easier to see such as wheelchair-users or a blind person have been taken care of more than of other groups. Nowadays there is still a necessity to comprehend and understand that all groups merit equal possibilities where in the same place all can participate.

As Barnes (1991:179) observes *"the physical environment….has been constructed without reference to the needs of disabled people"* [1]. According to this statement the seek of inclusive design must rethink how the cities, products, outdoor and indoor spaces should be designed. The needs of all have to be summed up in order to create an all participating environment. This idea combines a lot of issues that have to be considered in order to guarantee this, such as the economical factor. The economical part has always been an impediment or an excuse to develop inclusive processes, and not just in the construction area but also in the area of product design which is also a field where exclusion of disabled people takes place.

"*Investors and other agents involved in the development process, who tend to dismiss disabled people's access and mobility requirements because of the perceived cost and profit implications"* (Guy, 1998; Imrie, 1996) [2]. People involved in the financial area are afraid of the expenses and cost of this type of process because there is a belief that accessible and inclusive buildings, products, spaces, etc are not needed due to the "low" population that present a disability. Most industries are focused on the massive population which is the ones with "normal abilities" and the extra cost that demands developing anything for a person with a special condition is not a priority. With this in mind a premise can be affirmed, the fact that the industries (construction, products, manufacturing, architecture, design, etc) do not have the concept of inclusion as something that reunited all of us that the point is not to divide the population into who has a disability or not it is about how can both conditions can live in the same space or can enjoy the same opportunities. If this will be taken into consideration, the investment of money for doing inclusive things will be focused on just one population that is all of us, in which certain characteristics must be considered. Disabilities are one of those considerations, but also people who prefer to walk, people who take the car mostly, the ones that like to exercise and infinitives of considerations that must be considered when we talk about inclusive design.

The authors of *Universal Design Planning and Design for all* during their research they did a questionnaire, and a partner of the firm of chartered surveyors respond to them:

I think that it is a waste of the country's resources to spend millions of pounds making every building accessible to wheelchairs, for example, when it is much easier to provide two able-bodied men to lift a wheelchair up the steps on the rare occasions when some buildings need access by the occasional visitor in a wheelchair….. ". [3]

Such a pejorative argument replays in many other people, for not telling most of the world's population. There would not be a change in the way people live, if the same people do not think differently. Inclusion concept is not just a work of the industries or the big companies, it is also an individual job where each of us start changing the way we see disabled people as an obstacle or a problem that can be solved in a mediocre way.

Recently, a new challenge for planners and designers appeared as a guideline in order to guarantee inclusion. In order to mention this challenge first it is important to define What is universal design which is an idea that comes after realizing that something has to change in the way industries are developing the concept of inclusion in different areas. *"Universal design is the design and composition of different products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design"* [4] definition developed by The Center for Universal Design. This concept is based on the fact that people have a variety of abilities, and those abilities should be reflected in both the planning process and in the solutions. In the ideal or utopian scenario for universal design there is a clear ambition that products, buildings and environments, should in a certain time, be developed in a way that they are flexible and usable in equal conditions, with any exclusion. In this point it is relevant to mention the challenge before commented, which are The Principles of Universal Design. These principles are the transition from the theory to the practice. The Center for Universal Design at North Carolina State University developed these seven principles that apply for any activity or situation. Here is a brief description of each one of them:

1. Equitable use
The design is useful and marketable to any group of users.
2. Flexibility in Use
The design accommodates a wide range of individual preferences and abilities.
3. Simple and Intuitive Use
Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.
4. Perceptible Information
The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.
5. Tolerance for Error
The design minimizes hazards and the adverse consequences of accidental or unintended actions.
6. Low Physical Effort
The design can be used efficiently and comfortably and with a minimum of fatigue.

7. Size and Space for Approach and Use
Appropriate size and space is provided for approach, reach, manipulation, and use regardless of the user's body size, posture, or mobility.

These principles involve many professions/disciplines such as panning, land use, architecture, engineering and product design, because they have a direct impact on the environment and how people relate with it. In general, it has to be a closer and clear observation at how universal design is being practiced in the surroundings.

1.2 Architecture and Inclusiveness

Architecture is one of the disciplines that has a high relation with the concepts of inclusion and universal design. Architecture has been defined as "*....organization of technical possibilities and practical needs based on available resources which, at the same time, satisfies the current spiritual needs by Odd Brochmann"* [5]. The relation that has this definition with the concept of universal design is that both deal with finding the best solutions on practical needs and technical and economical possibilities where **all people** are the main target. Architecture also focuses on aesthetics which is a factor that determines decisions in most of the projects, and here is the challenge of the architects and the planners. Aesthetics is a concept that varies depending on the eyes who are seeing the project, for someone a design can be beautiful and meets his expectations, but maybe for another one it is the opposite. To argue the previous statement Davies and Lifchez (1987) note,"*problematic in ignoring the multiplicity of human needs in the built environment, given that the focus is more about the aesthetic, or the building form, not the user or the functioning of the building"* [6]. This is the reason why maintaining the concept of aesthetics and functionality together in one project became a challenge, because the design has to express and evoke specialized solutions that have been given by the users but also the good taste of the architect in terms of aesthetics, in which the context will play an important role.

However, the relation between them has not always been narrow due to many factors throughout the historical development in which the trends of architecture have changed. Architecture evolved according to the tradition, location, position of the center of power and the spirit of the time. The first thinking of how architecture should be or how it should be developed was mentioned by Vitruvius in the early 300 B.C, who talked about the three principles that architects should follow which are: beauty, utility and durability. For a long time these were the pillars for designing, however, the principal guide was the object and not the people. In the 1850's when the **Technical revolution** appeared architecture took a new direction. Where the construction systems were the priority when designing, the discoveries and researches in that time follow the construction techniques. Also developing new materials like steel and glass governed the design and the construction and industrial field developed more. One more time the object or an element took all the recognition instead of the principal aim which is who is going to use it.

After this period comes a new style called **Functionalism** that began in the end of the 1930's. The principal aim of this period would be to develop according to the building's appearance as a suitable product and technically well constructed, but also taking into account users' considerations. Here the construction is simple, logical and coherent with the present situation of the context, also the materiality has to respond to the demands of who is going to use it. Functionalism combines its own ideal with the ideas of technical revolution, which means that for this movement it is important to have a clear idea of aesthetics which removes all unnecessary details and concentrates in pure lines as well the selection of materials will correspond to the use. Having those ideas in mind, laterly functionalism puts functions and organizes the needs of the users by distributing the space. This period focuses more on the function of the building, it has to correspond to the needs of the people who are going to use it. Nevertheless it is not yet conscious that inside of that population might be a percentage of people that will have a condition of disability, which is a condition that has to be taken into consideration as the others. Functionalism is a first step to get close to making architecture and universal design one because its main notion was that the form reflects the practical functions.

"Making the relation between physical and social planning visible is called inclusive planning" (Sandhu 1995) [7]. According to this, architecture must seek the relation between what's going to be constructed and the society, said relation has to be well planned. The planning process of a project has to have a deep analysis of the situation, in order to understand the relation of which the design and products form a part. The notion of planning implies any kind of socially aimed activities, including zoning to economic, political and socio cultural life. This idea is supported with the theory of Amdam and Veggeland in 1991, which said *"In line with current understanding, planning is not only a project, but also a process, which implies as a consequence, that planning becomes a radical activity in society* [8]. Considering this, in this process people must be the center, where every decision surrounds their necessities in an equal way. Equality guarantees that the final product will not be modified after its construction because during the process all the users' considerations were taken into account. The new inclusive perspectives have to become part of the education for everyone who is going or is involved in this field, in order to be capable of recognizing the concrete necessities without leaving some aspects behind.

For considering doing a good planning some factors must be taken into consideration. These factors or principles have varied according to different periods all over history. In the early planning the main topics were defense, fire considerations, hygiene and health, which corresponds to this period. Lately, the past 50-60 years the economy, employment and equality of living conditions took their place. Nowadays, the reality is that the principles have changed in a drastic and favorable way. Environment, women, sustainability, children and youth, elderly people and people with disabilities.

Following the actual principles which are the ones that designers must follow in the planning process, a new concept was generated called Architecture of the everyday. Which Harris and Berke define as *"building that is emphatically unmonumental and anti-heroic, an architecture*

rooted in the commonplace and the routines of life" [9] (Harris and Berke 1997: back cover). To simplify this accurate definition architecture must be emphatic with the place which is inserted but most importantly people's life and routines. Now the building has to be shaped for the people and not the people have to adapt and change because of the building. Architecture of everyday, is a definition which its principal aim is to humanize architecture, and to reach that the architect Aalto said "use methods which always are a combination of technical, physical, and psychological phenomena, never any one of them above the others" (Aalto 1940, quoted in Ventre, 1997:11) [10]. This reasoning has a very interesting logic because it says that in the combination there has to be an equality between the factors related. This is a very complicated goal to reach, but seeing it from a different perspective for design something that humanize it is needed just to observe the the principal agent which are people, how they physically interact with the space, how the space affect them in a psychological way and finally technify this observations and the final product will be a building that empathize which its user.

To sum up, the designing and planning process for architecture ought to be less concerned with the final product and the aesthetics, and more with creating living environments that collect human values and necessities in one place.

1.3 Outdoor and Indoor Spaces

It is very common to relate architecture with indoor spaces or interior areas, however it is also related with the outdoor spaces and how they are connected with the urban context and the indoor areas. Nowadays, both types of spaces are necessary for daily life, certainly it depends on the users which will guide the designer whether they need more interior or outdoor space and in which conditions. The need of these areas will depend strictly on who is going to use it and for what, the needs of each group is different. That is why when designing a building the interior spaces can not be just the spaces in consideration, because most of the time there are people that need fresh air, like to be close to nature or prefer natural light. On the other hand, besides the need and the likes of the population there is a health fact that suggests that people must have indoor spaces as much as outdoor spaces due to the human condition of interacting in different atmospheres.

The conditions of both scenarios are similar but the solutions for these issues are different. The general conditions that a space has to fulfill in order to qualify as a good area in this case for students to stay and study are: temperature (thermal comfort), humidity, sound level and lighting conditions. These principles are suggested in the book *"Building and Environment"* in a study on Indoor Environmental quality of classrooms (IEQ), which are accurate consequently with the basic needs of a user/student. In this case this thesis evaluates the indoor spaces for studying and how inclusive they are. Therefore,it will be pertinent to add some other items that can be considered in the moment of evaluating this type of indoor spaces such as: principally the

accessibility, architectural barriers, the type of entrance, adequate furniture for studying in group or individually.

These aspects have to be considered in the design of the outdoor spaces, perhaps the solutions will be different because of the conditions of the space but it must follow the same dynamic. The conditions of an outdoor space is completely different form an indoor one, however it has to solve the same issue, has to guarantee a good illumination in this case must be natural, a good air quality and others that are already mentioned. Nowadays, it is common to find outdoor spaces for studying because of its health benefits. "*A growing body of literature suggests that natural outdoor environments might help reduce stress, promote physical activity and social relationships and potentially improve human health and well-being* [11]". This section was taken from the book International Journal of Hygiene and Environmental Health. Having open/green spaces for studying has effects in the study environment on well being and also in academic performance. Increasing the quantity of these types of spaces improves the quality of life of the students, for example, better academic performance, less stress, less depression cases or mental health.

Following this idea, in the text *"Exploring pathways linking greenspace to health: theoretical and methodological guidance"* one of the authors *Markevych* talks about the three main pathways that explain how nature in the studying environment helps the students well being and academic performance. The first pathway is that trees and plants have the ability to reduce harm or mitigate, for example, they help to reduce the air pollution and carbon dioxide, absorb solar radiation and help to change the temperature in space and absorb noise. The second one is called restoration, it means that nature has the capacity to benefit humans psychological and physiological changes, which helps to recover from stress or a mental struggle. The last one refers to "instoration", which refers to the fact that natural environments can encourage physical activity and social cohesion. All this helps to comfort in the space, nature is mostly found in the outdoor spaces but it is important to guarantee the presence of nature in the indoor spaces due to the facts previously presented.

Lastly, the natural outdoor environments in urban settings, are associated with a reduction of the levels of air pollution and noise, extreme temperatures in cities which is related with people's health. This involves architects, urban planners and proccur designers which at the end are the responsibles to ingrate nature in any space but in this case in the study areas. Both conditions, indoor and outdoor, most guarantee the basic needs that a study place must have, which are illumination, furniture, air quality, thermal comfort, etc. In addition, regarding the main topic of this thesis the design of these places must guarantee equal importance of all the conditions of the users. In a group of people there will be multiple conditions that have to be considered, such as reduced mobility, lack of concentration, lack of attention, blindness, the need of studying alone or in group and more depending on the users.

To conclude, there would not be a place that fulfills every single aspect or condition that the users demand, however seeking for solutions that reunited most of the requirements of who is going to use it. This idea makes any space inclusive, where it is available to all the public,

comfortable and follows the main use of the building. The goal is to make architecture evoke inclusion just by projecting in a physical space people's needs with an overall view.

1.4 Universal Design for Physical Spaces: Education

The term Universal design was already mentioned before as a definition and its relation with architecture. On this occasion after discussing indoor and outdoor spaces which was an overview of how these two conditions can guarantee a comfortable place for studying and the conditions that have to be considered, the concept is brought again focusing on education. How universal design must be a principal fact when designing an educational space, no matter if it is indoor or outdoor space. Designing with a universal design concept in mind, means that the design will not be concentrated on the average user, but for people with a range of abilities, ages, reading levels, learning styles, cultures, language and more characteristics. The document *"Equal Access: Universal Design of Physical Spaces by Sheryl Burgstahler"* said *"Keep in mind that students, staff, faculty, and visitors may have characteristics that are not defined as disabilities, but may limit their ability to access physical spaces or information"*. All conditions must be considered, there can be short or tall people, poor readers, left handed. The idea is to unify all these characteristics and propose a campus that is accessible to all of them in order to reduce the need for special accommodations. It is important to make sure that everyone feels welcome, can get to facilities and transits freely, and fully benefit from the courses and resources of the building without restrictions.

When an institution decides to apply this type of design it has to keep in mind the diversity of the campus community at all stages of a project. Sheryl Burgstahler in the text previously mentioned, suggests some steps to follow in order to successfully design a UD (universal design) physical space which are the following ones:

1. **Identify the Space:** Select a physical pace and consider location, dimensions, budget.
2. **Define the Universe:** Describe the overall population and then consider the diverse characteristics of potential members of the population who might use the space
3. **Involve consumers:** Include people with diverse characteristics in all the phases. Obtain different perspectives of potential users, through diversity programs such as the campus disability services office.
4. **Adopt guidelines or standards:** Identify the most appropriate practices for the design. Identify universal design strategies to integrate with these best practices in architectural design.
5. **Train and Support:** Train the staff who manage the physical space. Inclusive experiences for everyone using the space. Explain the reasoning behind design decisions so that design integrity is maintained over time
6. **Evaluate:** Include universal design measures in periodic evaluations of the space, evaluate the space with a diverse group of users, and make modifications based on feedback

Universal design applies to physical spaces to ensure that they are welcoming, comfortable, accessible, functional and aesthetic. The conditions that have to be considered are climate, entrances and indoor circulations, furniture and its placement, safety and signage. These considerations are necessary for individuals with and without disabilities to use the same entrances, circulation and spaces. One example of this can be the design of the classroom furniture, it must be adjustable in the sauce and easily arranged for different learning activities and groupings. Also to avoid barriers for the normal circulations of certain users conditions. Another example of universal design are the doors with sensors that automatically open for wheelchairs but also for people who are carrying packages, for elderly people, parents pushing baby strollers or workers with heavy items.

When universal design is well included throughout the planning process, the final product must be a design where everybody feels welcome, easy mobility and maneuver within it, the materiality will help to guide and make easier the use of the spaces and any user can be involved in any event and activity in the design spaces.

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12. Equal Access: Universal Design of Physical Spaces by Sheryl Burgstahler- pg. 1
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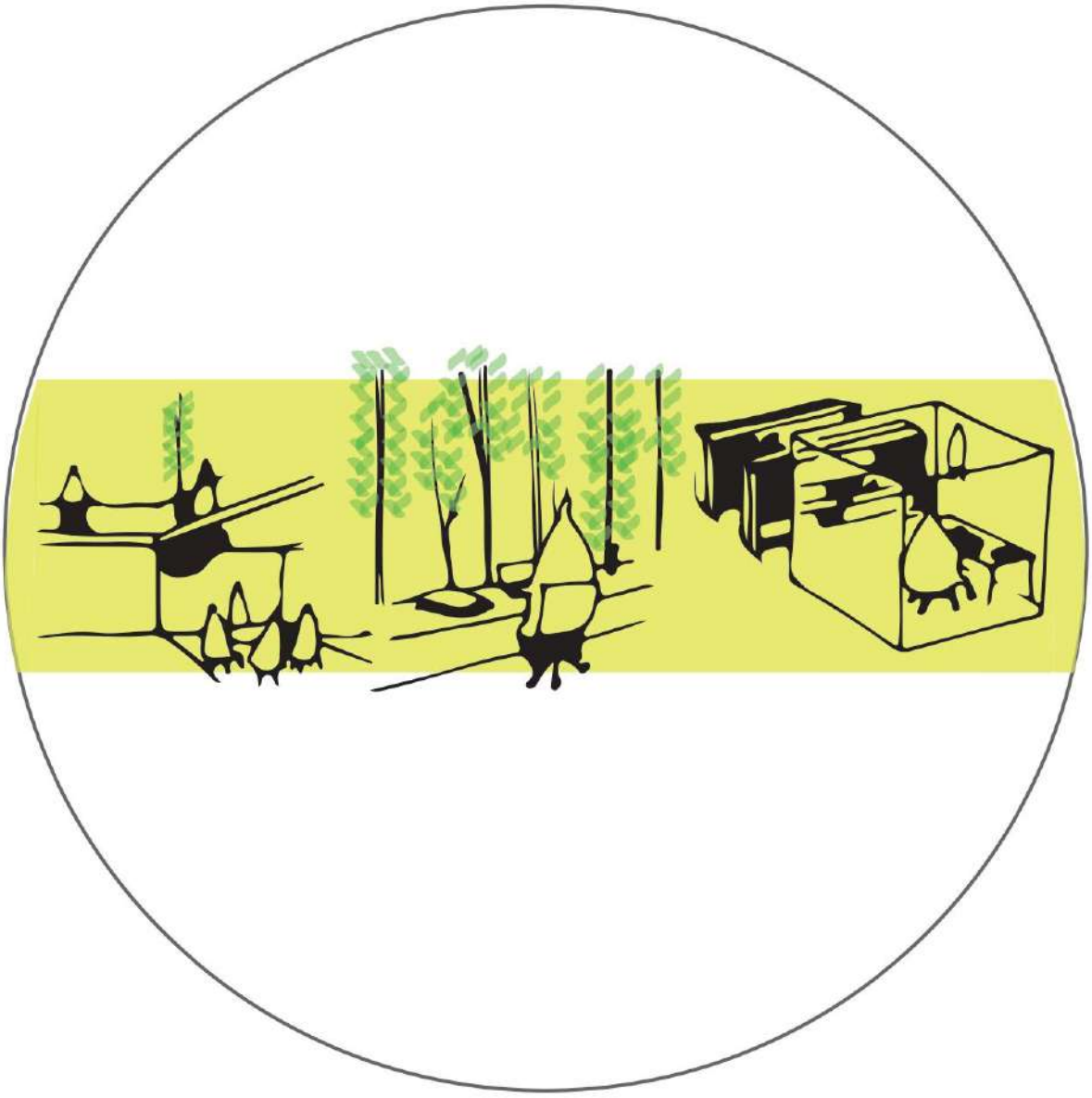


CHAPTER 2

Referents: Outdoor and Indoor study spaces

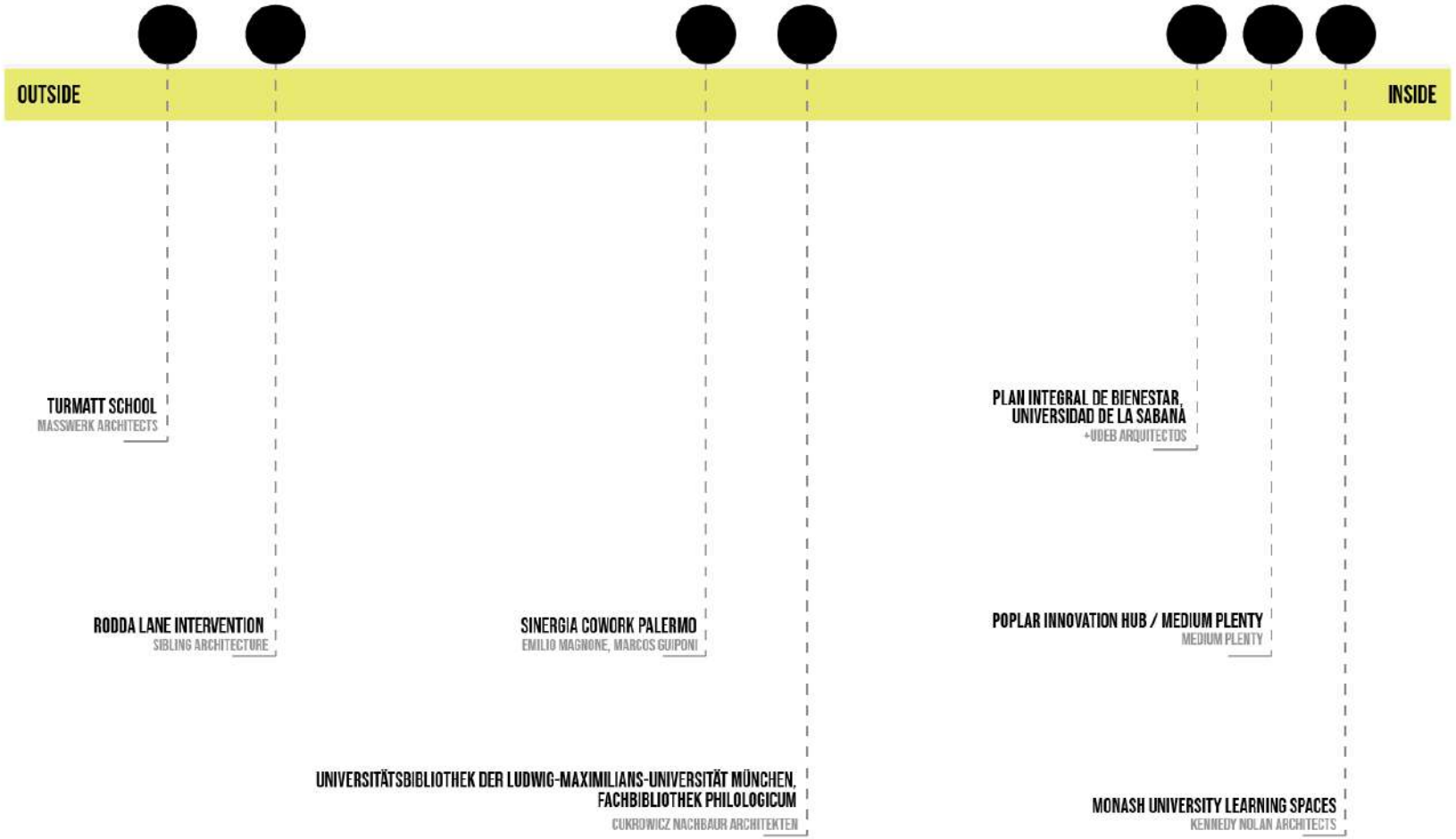
Image. Photo from Universitätsbibliothek der Ludwig[8], modified by the authors

Chapter 2 / Capitolo 2

Referents: Outdoor and indoor for study
Casi Studio: Spazi outdoor and indoor per lo studio

This next chapter is focused on showing different case studies or examples that may not be directly related with the schooling or educational environment, but are interesting in the sense that some specific features of these spaces can be taken in order to apply them on new indoor or outdoor accessible and inclusive spaces for study, features such as the furniture, lighting, flexibility, accessibility, comfort, ventilation and so on. This section will study from study rooms and outdoor spaces from other universities to coworking spaces and public buildings dedicated to host different kinds of activities and different kinds of people simultaneously, with the intention of giving some ideas for the design process for the future participants of the contest that will be addressed in chapter four.

Il capitolo presenta diversi casi di studio o esempi che potrebbero non essere direttamente correlati all'ambiente scolastico o educativo, ma sono interessanti perché alcune caratteristiche specifiche possono essere utili riferimenti per nuovi interni o esterni spazi accessibili e inclusivi per lo studio, caratteristiche come l'arredamento, l'illuminazione, la flessibilità, l'accessibilità, il comfort, la ventilazione. Questa sezione studierà dalle aule studio e dagli spazi esterni di altre università fino agli spazi di coworking e agli edifici pubblici dedicati ad ospitare diversi tipi di attività e diversi tipi di persone contemporaneamente, con l'intento di fornire alcuni spunti per il processo progettuale per i futuri partecipanti al concorso che sarà affrontato nel capitolo quattro.


OUTSIDE
INSIDE
TURMATT SCHOOL
MASSWERK ARCHITECTS
RODDA LANE INTERVENTION
SIBLING ARCHITECTURE
SINERGIA COWORK PALERMO
EMILIO MAGNONE, MARCOS GUIPONI
UNIVERSITÄTSBIBLIOTHEK DER LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN, FACHBIBLIOTHEK PHILOLOGICUM
CUKROWICZ NACHBAUR ARCHITEKTEN
PLAN INTEGRAL DE BIENESTAR, UNIVERSIDAD DE LA SABANA
+UDEB ARQUITECTOS
POPLAR INNOVATION HUB / MEDIUM PLENTY
MEDIUM PLENTY
MONASH UNIVERSITY LEARNING SPACES
KENNEDY NOLAN ARCHITECTS

2.1 Outdoor and Indoor spaces for studying

Monash University Learning Spaces
Architects: Kennedy Nolan Architects
Place: Melbourne, Australia
Year: 2020

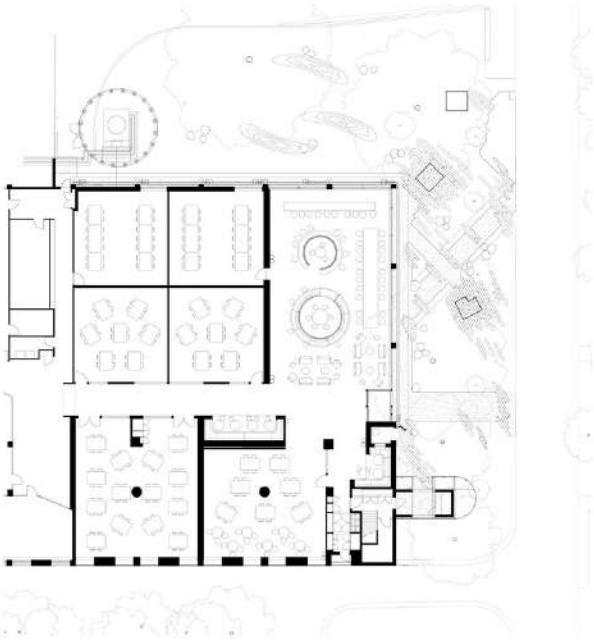
A collection of formal and informal learning spaces are housed at the "Centrally Managed Teaching and Math Learning Center" (CL28) at Monash University. The purpose of the casual spaces was to provide adaptable and social areas for students to engage in study, creativity, collaboration, and involvement with the community and industry.

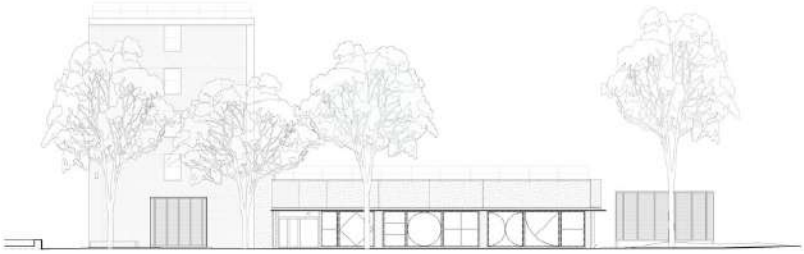
Student lounges that could accommodate a variety of student types, including introverts and extroverts, solo and group workers, as well as those who like to work in a formal or informal setting, were required under the projects' specifications.*"Our approach of the architects was to consider how furniture types and arrangements could support in intimate or convivial formats and to make provision for alcoves with soft acoustics and lower lighting as a refuge from more social spaces"*[1]. Monash is driven to build amenities that will help students feel comfortable and supported on campus, as well as to foster a thriving campus life. These facilities will give students a space to relax between courses and conduct informal study. As a result, their design strives for coziness and, within the bounds of the university's standards for performance and durability, a feeling of domesticity as a break from the institutional. For warmth and texture, they utilized wood, and for comfort and familiarity, they used upholstered furniture. The project has also had a larger impact on the campus, dramatically opening up the formerly blank walls of the university building and introducing a warm and reassuring lightbox at a crucial entrance to the school from the main parking lot.

In this specific case it is evident how the furniture has a fundamental role in the conformation of the space of this place. Different kinds of furniture arranged in determined ways lead to different types of social relationships within the same space and different types of activities as well. The furniture here is the one that guides the type of activity that is going to be carried in the place, from a more informal and relaxed format to a more formal one. Lighting plays a fundamental part as well, as it was said before, in the alcoves for example, it is used a lower lighting as a refuge from the other more social spaces.

Group images 1. Inside view of the project. Images taken from:
https://www.archdaily.com/967321/monash-cl28-kennedy-nolan-architects

Group images 2. Materiality details. Images taken from:
https://www.archdaily.com/967321/monash-cl28-kennedy-nolan-architects





Group images 3. Plan and Facade. Images taken from:
https://www.archdaily.com/967321/monash-cl28-kennedy-nolan-architects

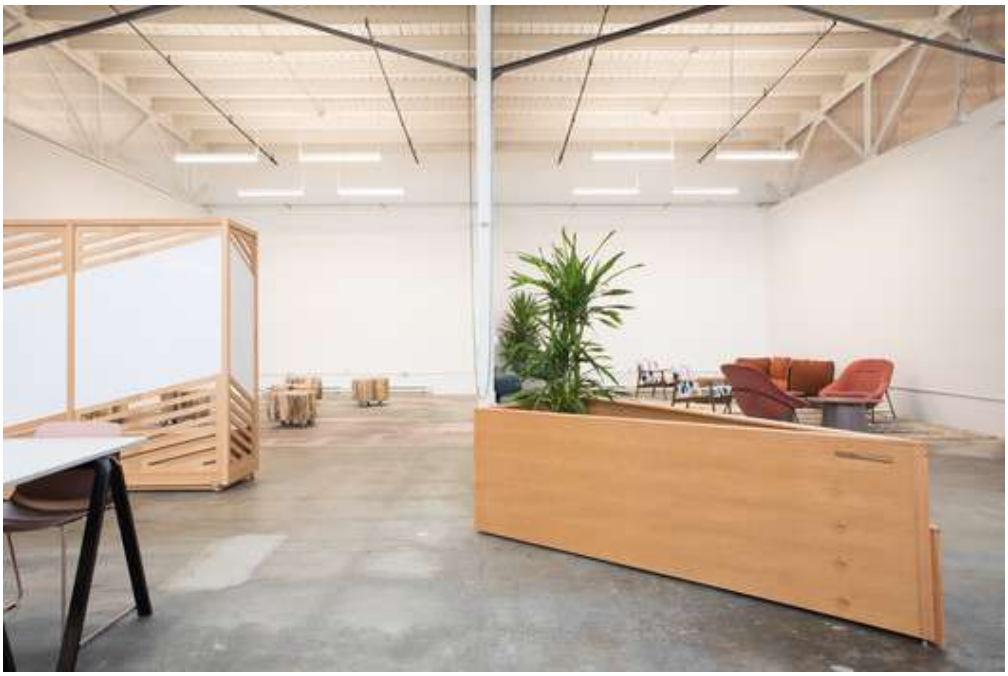
Poplar Innovation Hub / Medium Plenty

Architects: Medium Plenty
Place: Oakland
Year: 2019

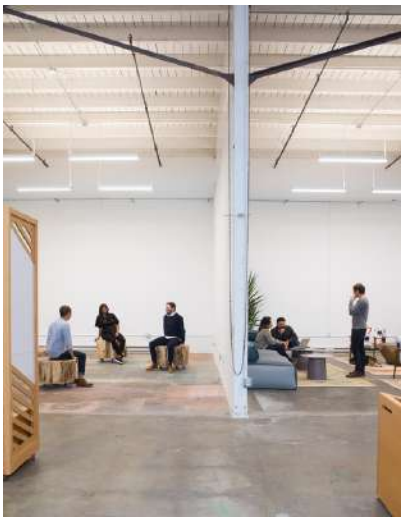
The inclusive start-up innovation hub and multifaceted workspace were created by the Oakland-based company Medium Plenty for the underserved and underrepresented communities of west Oakland. Working with the foundation kapor Capital, which invests in underrepresented entrepreneurs, Medium Plenty transformed a 15,000 square foot industrial warehouse into a welcoming and adaptable space that can be used by youth organizations to house start-up businesses and provide a link to career opportunities in technology. *"The goal was for a dynamic and multifaceted space executed on a budget and on a short timeline. Solutions included the wood-clad communal kitchen and custom furniture elements designed to activate the space and create endless configurations for collaboration"*[2].

"The design moves called for activating the large space by creating maximum flexibility through a variety of multi-functional spaces and furniture and creating open and dedicated offices, large conference areas, a communal kitchen, and lounge area"[3]. The communal nature of the area piqued the interest of the space's current residents and Kapor donors. Through online tools and apps, the start-up wants to assist low-income Black and Brown people in avoiding the criminal justice systems. By creating brainstorming spaces, the adaptable design gives users the option of working alone or in groups.

In the 1901 Poplar Innovation Hub the flexibility of the space is a crucial aspect to ensure the productivity and the good development of the activities carried by the users. This flexibility, as it was in the case before, is achieved mainly thanks to the custom furniture that was designed with the intention to activate the space and make many kinds of combinations for collaboration between users, as it is said above. These different kinds of combinations of furniture can lead to people working individually or by groups and also to diverse activities such as meetings or brainstorming gatherings.



Group images 4. Inside view of the project. Images taken from: www.archdaily.com/955834/1901-poplar-innovation-hub-medium-plenty?ad_source=search&ad_medium=projects_tab



Group images 5. Furniture and floor plan of the project. Images taken from: www.archdaily.com/955834/1901-poplar-innovation-hub-medium-plenty?ad_source=search&ad_medium=projects_tab

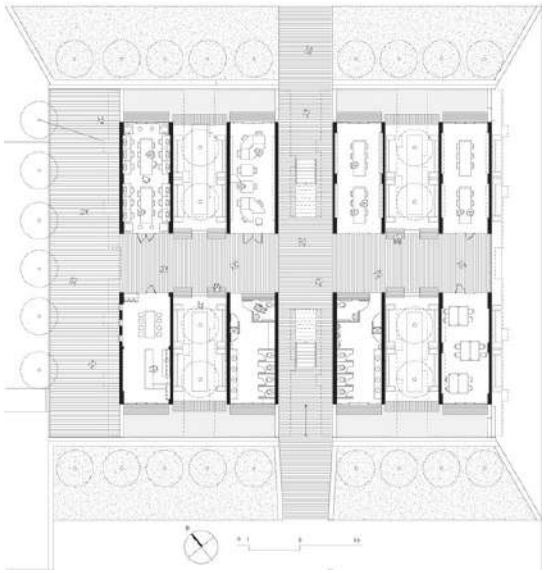
Plan Integral de Bienestar, Universidad de la Sabana
Architects: +UdeB Arquitectos
Place: Chía, Colombia
Year: 2016

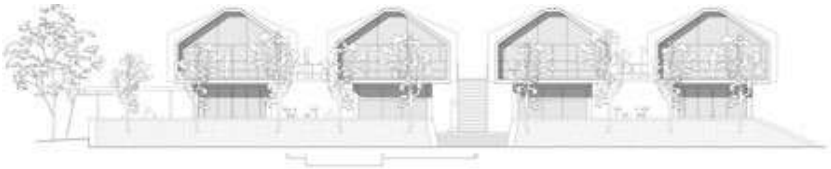
The GDP, or Comprehensive Welfare Plan, emerged in the midst of the construction of the Ad Portas building at Universidad de la Sabana. It was the result of a qualitative anthropological study conducted on the university's campus by Beatriz Turbay, whose findings revealed that the student population needed more outdoor study spaces and that the new Ad Portas building could not fill this need. After realizing this issue, a master plan for civic space was created and a campus was built according to the size and requirements of the students. For this, a network of pergolas was set up to accompany the facades, squares, and walks and to shape the neighborhood's pedestrian network.

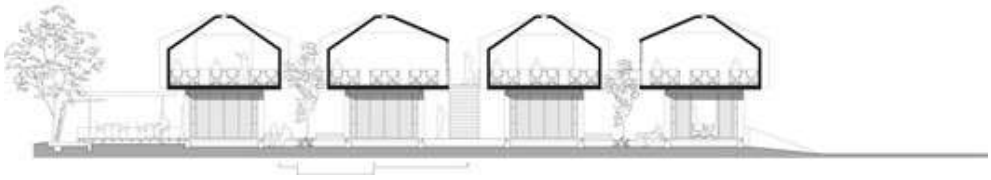
"The furniture was meticulously studied to guarantee maximum comfort. Within this conception, which also balances the landscape values with the infrastructure, are the new classrooms, which have the function of both pedagogical venues and open and spontaneous civic spaces. In the future, the green appearance of the campus will approach that of a botanical garden"[4].

This case study, unlike the previous ones, is more focused on the furniture arrangements of the outside spaces of the campus of this university. The goal, as it is said before,is to provide the students with more outdoor spaces to study, but ultimately, can be used freely by the students and develop different activities besides studying, such as socialization, eating or even as a resting space. This is achieved thanks to the conformation of spaces next to the facades of buildings, squares and pedestrian paths, covered by pergolas, trying to be always next to some kind of vegetation, providing good thermal sensations and sun or rain refuge for the users. It is important to take into account the relationship there is between these external spaces with the internal spaces of the new aulas and that the same architectural language used on the external spaces is also used on the new classrooms, making a cohesive structure, having as a result the perception of having one big project and not two separate ones.

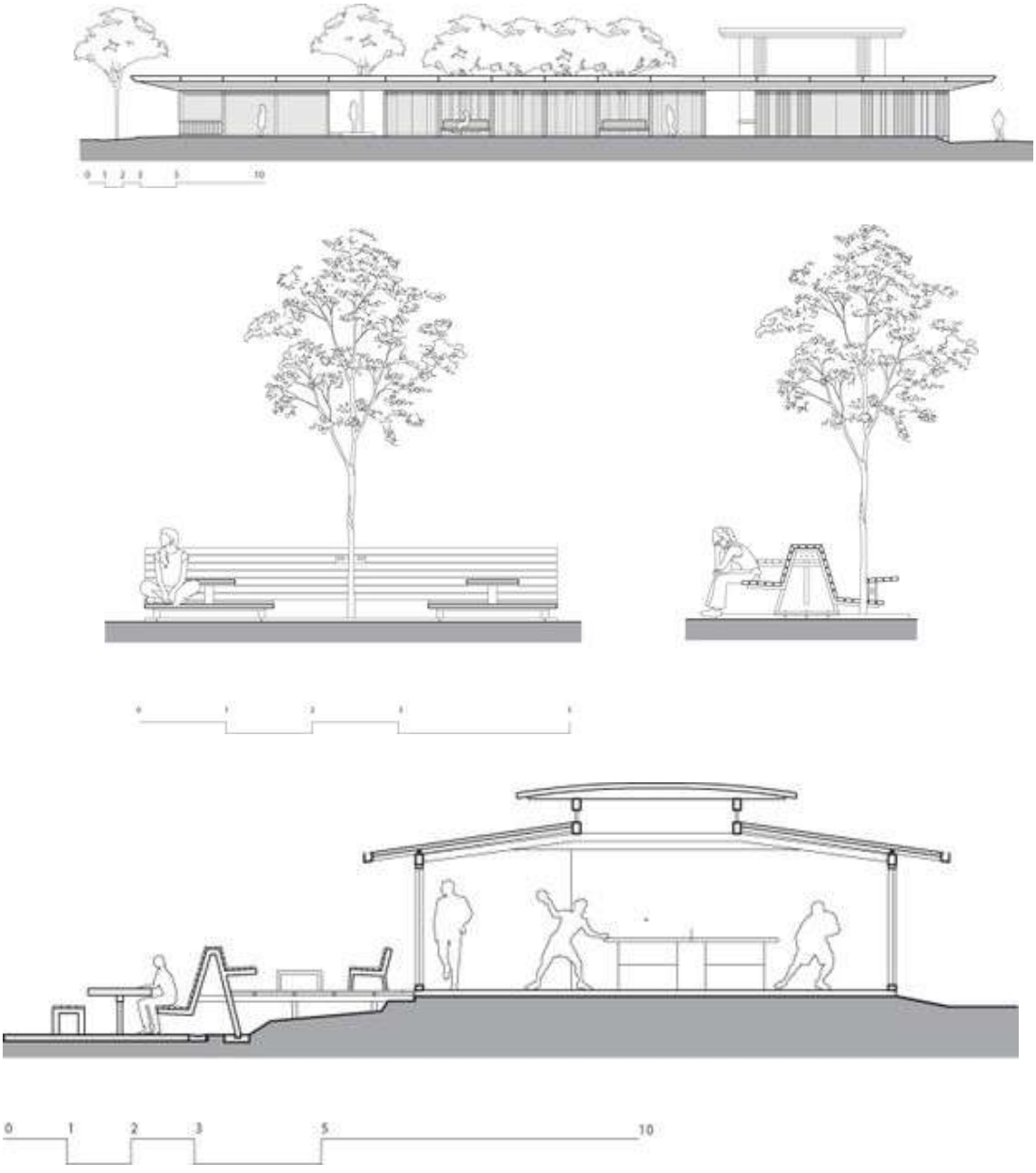
Group images 6. Outside view of study rooms and furniture. Images taken from: https://www.archdaily.cl/cl/921453/plan-integral-de-bienestar-universidad-de-la-sabana-plus-udeb-arquitectos







Group images 7. View of the pergola, floor plan and facade with longitudinal section. Images taken from: https://www.archdaily.cl/cl/921453/plan-integral-de-bienestar-universidad-de-la-sabana-plus-udeb-arquitectos



Group images 8. Different types of furniture in the project. Images taken from: https://www.archdaily.cl/cl/921453/plan-integral-de-bienestar-universidad-de-la-sabana-plus-udeb-arquitectos

Universitätsbibliothek der Ludwig-Maximilians-Universität München, Fachbibliothek Philologicum
Architects: Cukrowicz Nachbaur Architekten
Place: Munich, Germany
Year: 2019

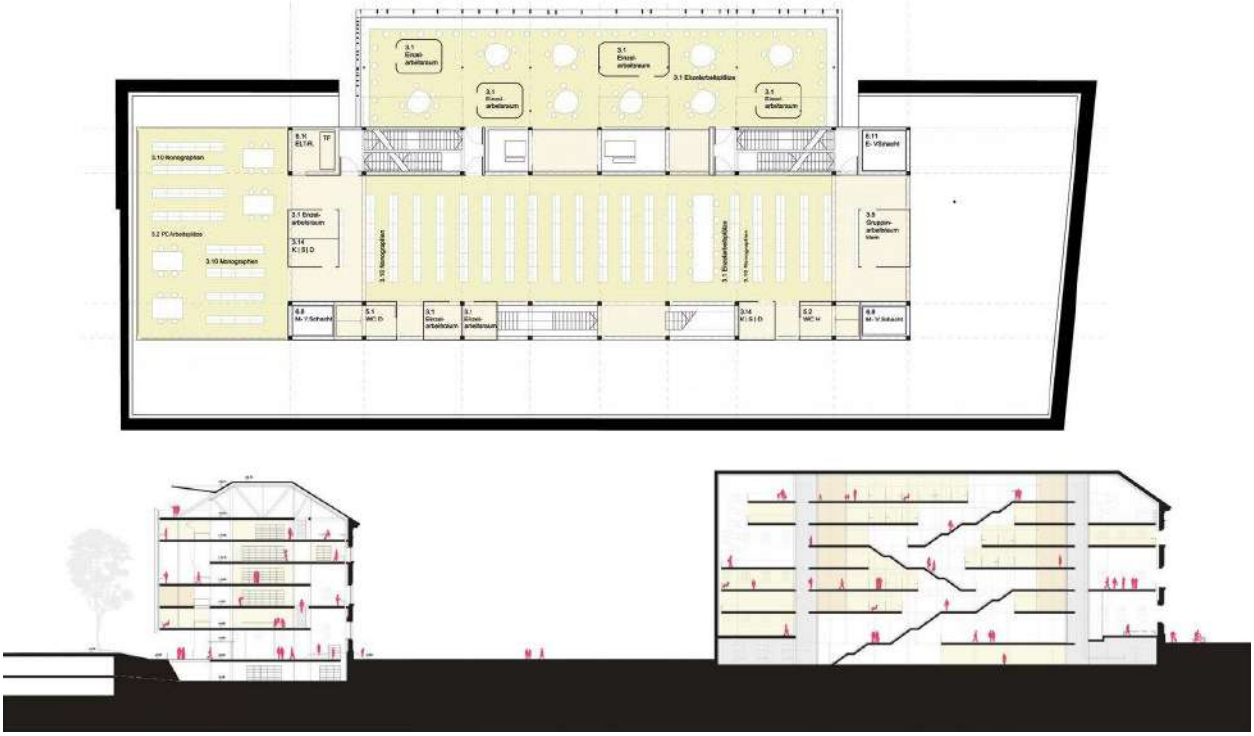
In this project, the architect's major goal was to produce an abstract image of a bookshelf that made a subtle allusion to the function underneath. The new library is arranged horizontally into three areas that provide various working settings. There is complete silence in a zone called Silentium. The reading room is located in the central part. The section opposite the Silentium at the opposite end of the building is designated for group study and has sofas and adaptable furniture to encourage unplanned collaboration and discussion.

The new library has more than 700 workspaces of various types to meet the needs of its patrons, including reading rooms, silent reading rooms (Silentium), group study areas (Forum) and rooms for small groups (4-6 people), carrels, parent-child study rooms, rooms for the visually impaired, function rooms that can hold up to 60 people, and classrooms.

“One of the main requirements of the room concept was to create workspaces for the different needs of student and scientific work with appropriate equipment, to define quiet or rather noisy areas in particular and to provide individual and group work rooms”[5].The new library building's representation of the faculty's identity was a crucial aspect of the development process. A graphic designer came up with the concept to illustrate as many of the alphabets and languages taught at the university as feasible using passages from works of literature from around the world and visually appealing syntax analysis components. All of the phrases are fixed to glass surfaces (walls, doors), and they serve as both run-through defense and design features.

Group images 9. Inside spaces and different furniture in the project. Images taken from: https://www.librarybuildings.eu/library/universitatsbibliothek-der-ludwig-maximilians-universitat-munchen-fachbibliothek-philologicum/

Group images 10. Different types of rooms and spaces. Images taken from: https://www.librarybuildings.eu/library/universitatsbibliothek-der-ludwig-maximilians-universitat-munchen-fachbibliothek-philologicum/



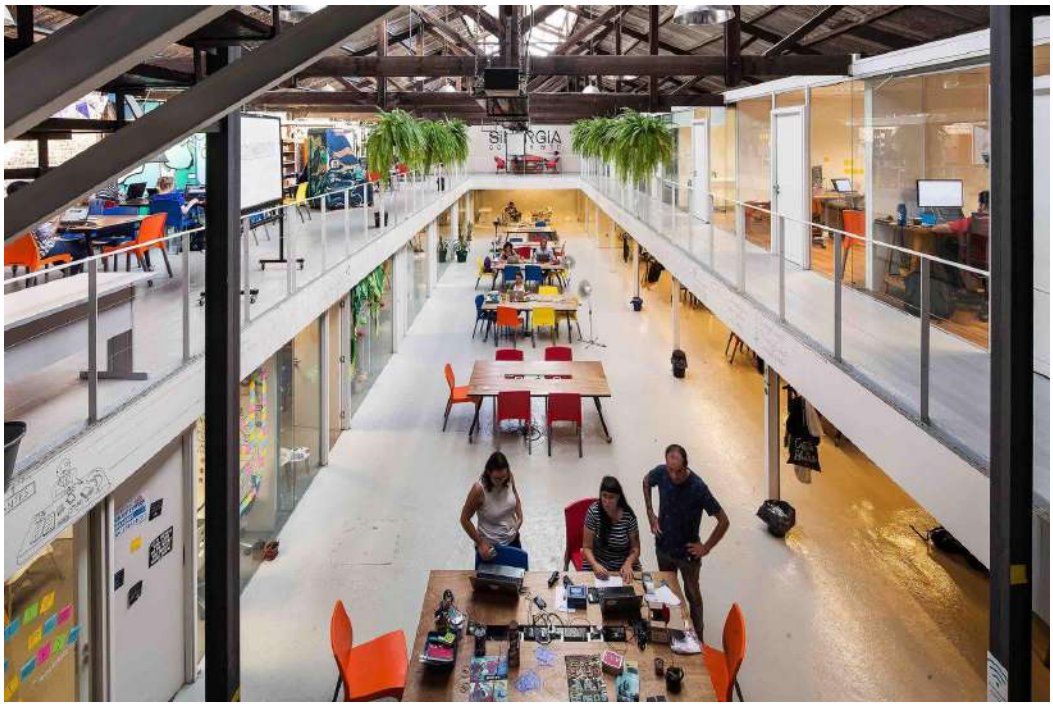
Group images 11. Floor plan, longitudinal and cross section, schemes of the project. Images taken from:
https://www.librarybuildings.eu/library/universitatsbibliothek-der-ludwig-maximilians-universitat-munchen-fachbibliothek-philologicum/
http://stankovicarchitekten.de/en/projekte/philologicum-uni-lmu.html

Sinergia Cowork Palermo
Architects: Emilio Magnone, Marcos Guiponi
Place: Montevideo, Uruguay
Year: 2014

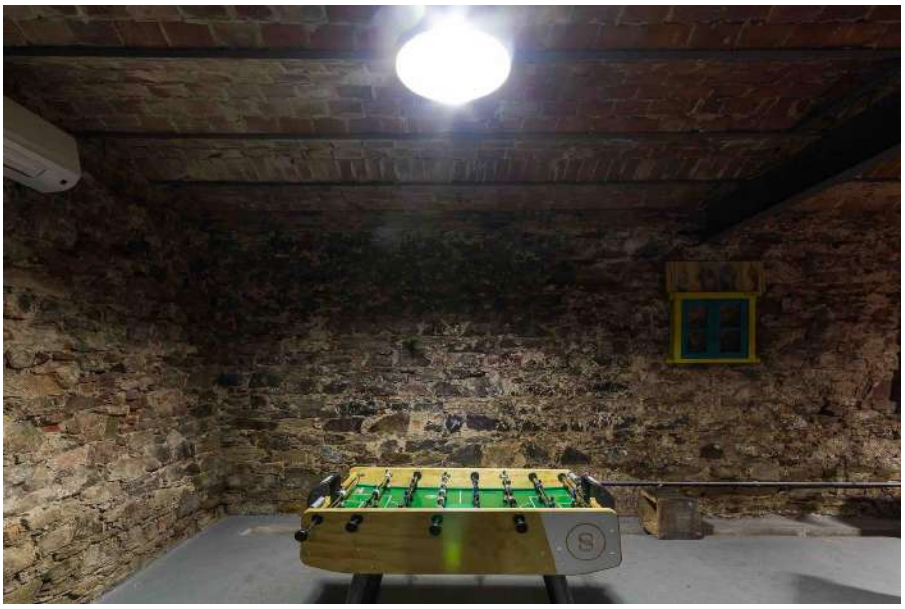
With 32 offices and four rental conference rooms, the facility first started as a real estate development project. Just another activity in a building that was formerly a warehouse, a mechanical shop, a carpentry shop, and a film studio.The offices serve as coworking spaces, a novel idea in contemporary office design that allows users to immerse themselves in a variety of collaborative environments that enhance both their professional and interpersonal skills.

The project seeks to preserve the aesthetics of the pre-existing building by employing completely removable lightweight structures made of metal beams and Structural Insulated Panels walls, as well as a neutral color palette (white and light gray), with coworkers, vegetation, and furniture providing the only color. “The ground floor consists of a central yard that articulates offices with coworking spaces and meeting rooms. Smaller offices are distributed in the upper floor, together with a 3D printing workshop, flexible coworking spaces, living rooms, and a photography studio”[6]. On the roof, you may reach an event space with an outside terrace that is utilized on the weekends as a place for coworkers to mingle and unwind outside of work hours by climbing through the original wooden truss.

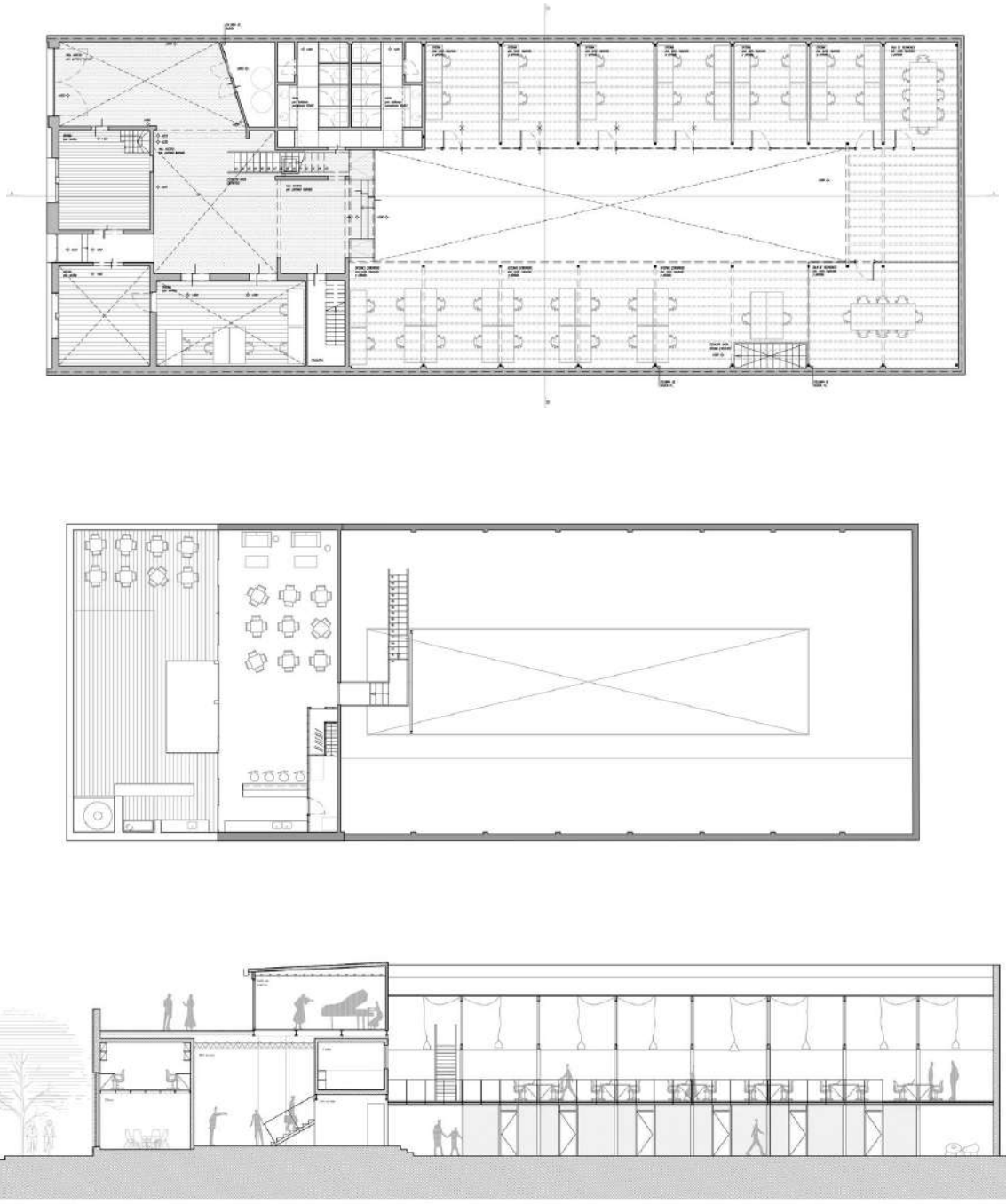
This case study is interesting given that the spaces in this collaborative work environment kind of oblige the user to make social interactions and therefore improve their social skills as was said before. Also, in some of the spaces of Sinergia Cowork, the user is the one who gives the space the function they want, but in some others, is the space the one who dictates the function. It is also interesting to see how the in the bottom floor can be found more “public” or social spaces where is easier for the users to socialize helped by the kind of furniture, and the how in the upper floor can be found more “private” spaces such as smaller offices, giving the users different possibilities. Finally, it is interesting to see how even though it is mainly a working space, there are also spaces open on the weekends so the users can relax and interact outside their working hours, giving them the opportunity to meet new people and establish new connections.



Group images 12.Inside view of the lower and upper floor. Images taken from: https://www.archdaily.com/806166/sinergia-cowork-palermo-emilio-magnone-plus-marcos-guiponi



Group images 13.Personalization of the spaces given by the users and play room. Images taken from: https://www.archdaily.com/806166/sinergia-cowork-palermo-emilio-magnone-plus-marcos-guiponi



Group images 14. Floor plans and longitudinal section of the project. Images taken from: https://www.archdaily.com/806166/sinergia-cowork-palermo-emilio-magnone-plus-marcos-guiponi

Rodda Lane Intervention
Architects: Sibling Architecture
Place: Melbourne Australia
Year: 2021

This project contributes to the revitalization of RMIT University's public realm by bringing life and vibrancy to underutilized areas. At Rodda Lane, this is accomplished by connecting the maze of back-of-house laneways to create a new focal point for the city campus and by incorporating outdoor flexible areas to enhance student amenity. The project's brief called for bringing together a number of unused, unrelated, and fragmented spaces (between Bowen, La Trobe, and Swanston Streets) in order to enhance the amenity of the laneway precinct within the RMIT city campus while reflecting RMIT's culture and taking into account the site's rich history.

Two courtyards that serve as hubs for social interaction inside the precinct are at the focus of the design response. *"New custom seating and pergola-like shade structures are set among planters along with increased lighting to improve the outdoor student experience. These courtyards are joined by tight narrow laneways with impressive vertical volumes: new seating and lighting in these corridors seek to accentuate the existing spaces while providing new places to dwell"*[7]. The various urban infrastructures provide a variety of locations and uses (in order that not one space is dominated by a particular user). Each of these design techniques helps to improve campus safety.

The project extends the fabric of the city into the campus. A powerful, unifying palette was used to unify these spaces and give them a sense of place. The present color scheme is contrasted with shades of blue, light gray, and white. User's ties to the place are strengthened by this. The project offers an exploration of how in-between spaces become spaces of celebration through their joyous occupation.The client will benefit long-term from the project's utilitarian, long-lasting, protective, and low-maintenance materiality. Through clear and dedicated wayfinding, it increases campus safety and enhances the outdoor student experience while helping to connect the university in a meaningful way to the city.

Group images 15.Upper view and kinds of furniture in the project . Images taken from: https://www.archdaily.com/968590/rodda-lane-sibling-architecture

Image 16. Furniture and activities carried out in the project. Images taken from: https://www.archdaily.com/968590/rodda-lane-sibling-architecture

Group images 17 .Floor plan and elevation view . Images taken from: https://www.archdaily.com/968590/rodda-lane-sibling-architecture

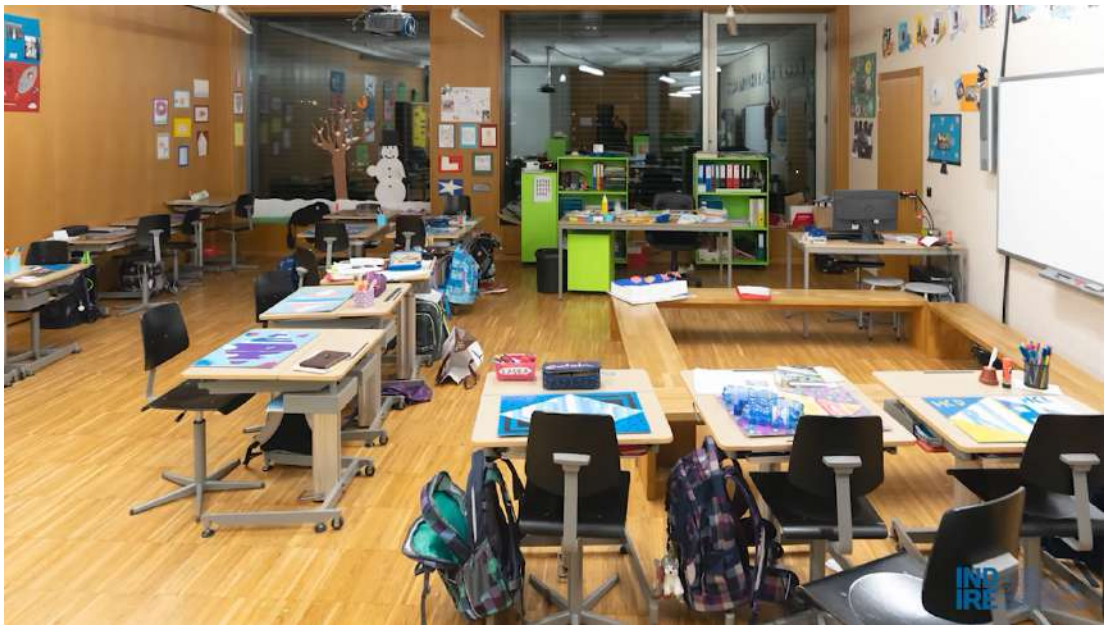
Turmatt School
Architects: MassWerk Architects
Place: Stans, Switzerland
Year: 2007

The "Turmatt" primary school is located in Stans, a town in the Nidvaldo Canton with little over 8,000 residents. There are roughly 300 kids, ages 4 to 12, who can stay there. The structure has two floors and four spaces on each floor. The places for children ages 4 and 5 are designated in yellow, the first and second primary school classes are in red, the ages 6 and 7, the ages 8 and 9, and the ages 10 and 11 are designated in blue. Each section is designated by a color. Children in the same floor's groups collaborate: Along with communal workspaces, there are classrooms. ”*At the base of architectural design is a precise idea of a school that is linked to the value of being together, teachers and children, even of different ages. In this way, full inclusion can be achieved and the entire school community can grow socially*”[8]**.**

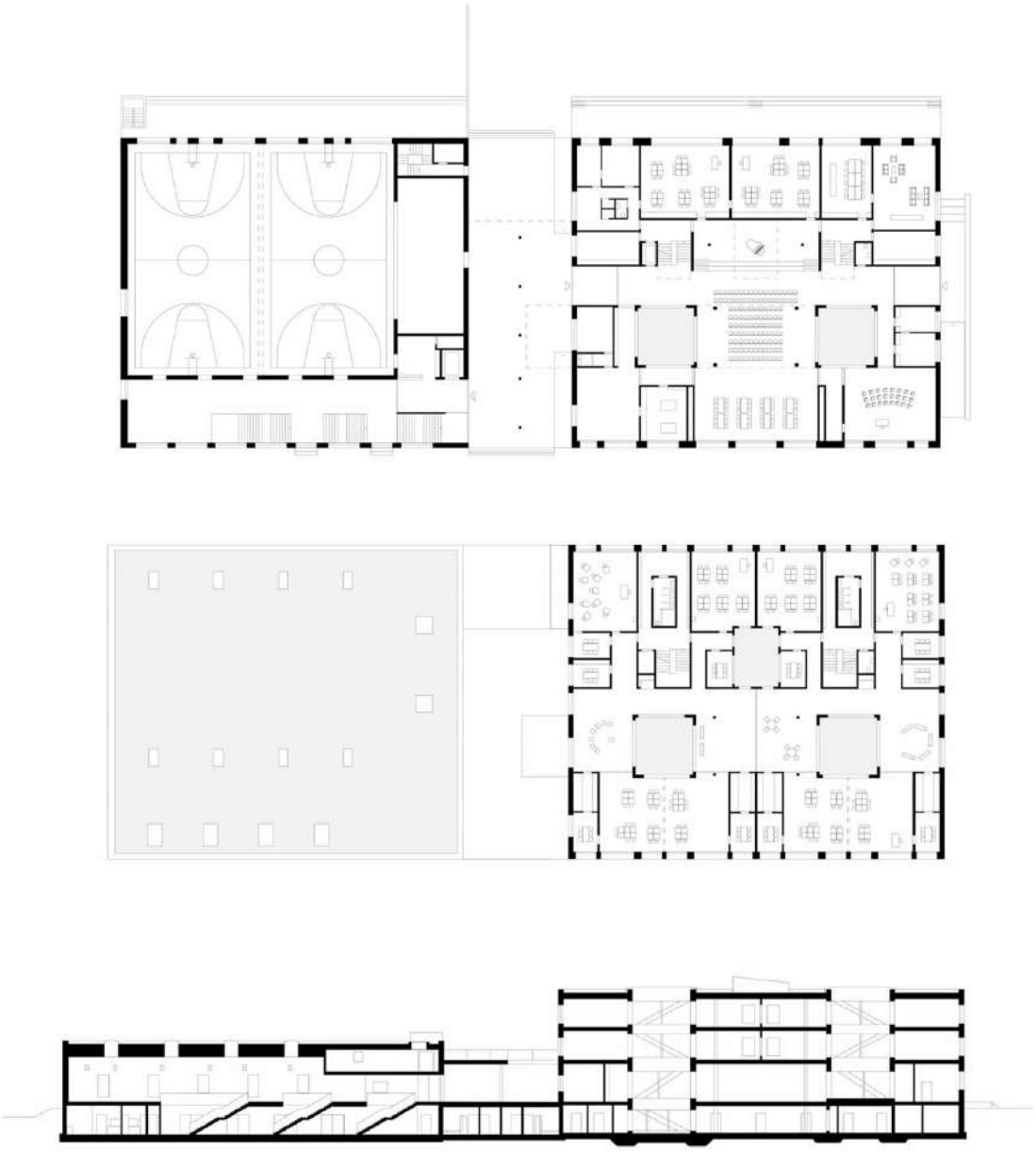
This building is a bit different from other school environments in the sense that the spaces were thought around the exigencies of the kids. There are small rooms for kids that given their sensibility can suffer excessive stimuli from a bigger group of students. It is very often used the double room, which consists of a movable wall that can be opened and closed and the teachers can unify their classes and obtain different types of spaces. This brings advantages in terms of favoring friendship and social relationships, especially for the more introverted students because the idea of these spaces is that no one would feel alone. There are classrooms where students don’t have a fixed place, they choose where to move their seats according to the activity they are developing. Here the kids learn to express their needs and together come to a mutual solution. *“For us this is a didactic aspect very important and very attached to the theme of inclusion. Every child must feel comfortable”*[8]***.***

From the architectural point of view, from the idea of taking away obstacles to participate in society, the school removes or opens walls in designated spaces which need a flexible room depending on the activity that is going to be carried out in there. All of the furniture used in the different rooms have wheels so they can be moved in a free way. This allows the teachers to modify the space very quickly and adapt it in the best way possible for the following activity. It is possible that the bigger spaces could be more noisy and this could lead to difficulties when it comes to concentration of the students, that is why the roof and the walls are phono absorbents. This allows the students to talk normally without the necessity of whispering.

Group images 18 . Inside view of classrooms . Images taken from: https://architetturescolastiche.indire.it/progetti/spazi-inclusivi-una-scuola-progettata-perche-nessuno-resti-indietro/



Group images 19 . Inside view of classrooms . Images taken from: https://architetturescolastiche.indire.it/progetti/spazi-inclusivi-una-scuola-progettata-perche-nessuno-resti-indietro/



Group images 20 . Floor plan, second floor and longitudinal section . Images taken from: https://architetturescolastiche.indire.it/progetti/spazi-inclusivi-una-scuola-progettata-perche-nessuno-resti-indietro/

Chapter Note

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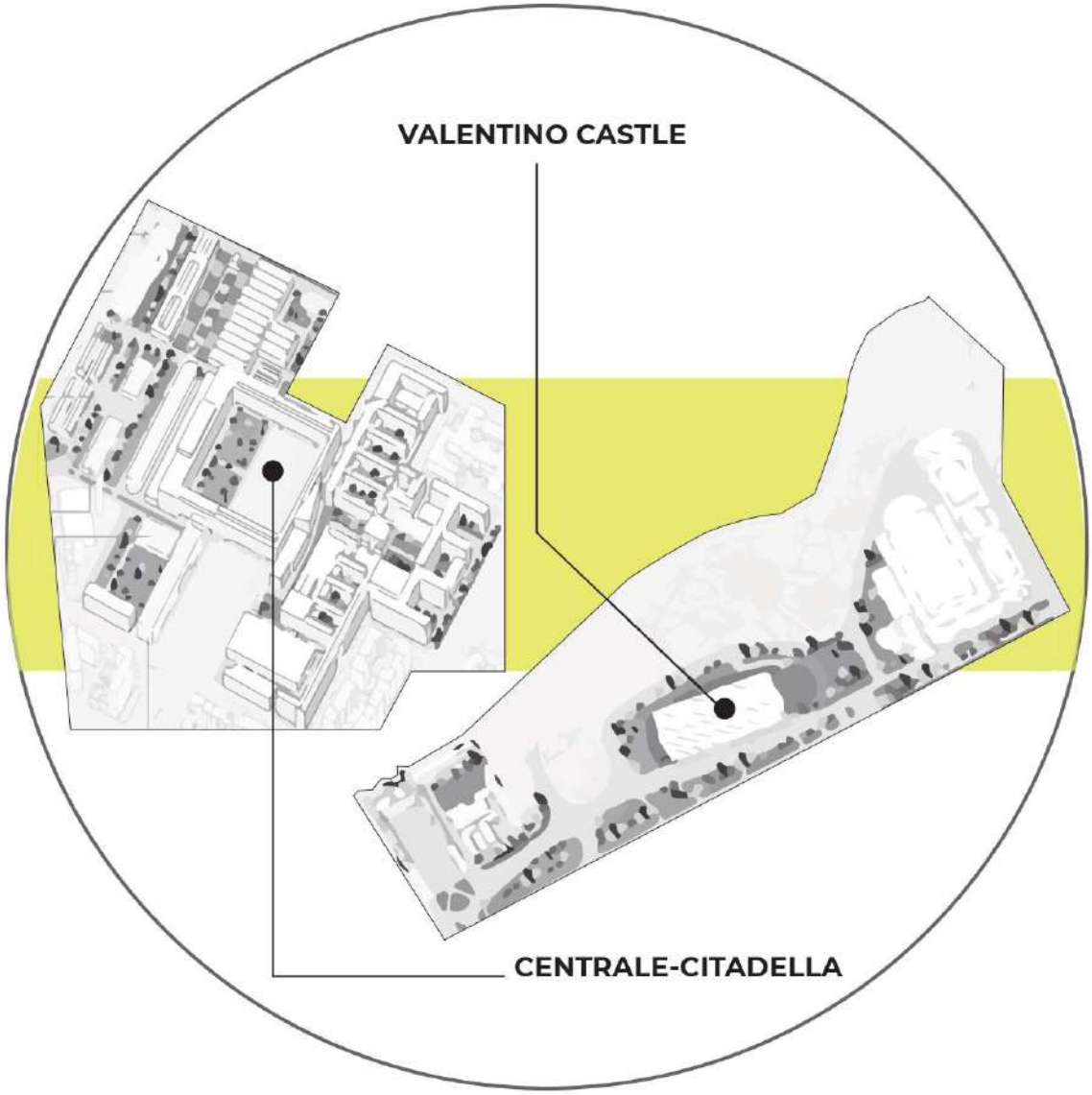


CHAPTER 3

State of Art: Politecnico di Torino

Image. Axonometry made by the Master Plan Office, scheme modify by authors

Chapter 3 / Capitolo 3

Study areas at Politecnico di Torino - Gli spazi di studio al Politecnico di Torino

This chapter is dedicated to explain and expose the actual state of Politecnico di Torino. Beginning to understand the population, mention the different headquarters of the whole campus, later concentrated in the specific uses/activities that take place in each building. Consequently, research about the study rooms in the venues will be exposed using some graphic tables that demonstrate the actual state of these rooms. The investigation was done by observation, the authors visited the areas and registered the information in tables. These tables will be crucial for the development of this chapter and the following more because they help to understand the necessities of the user and furthermore the strategies to fulfill them, which will guide to the final proposal. This research is explained in a detailed way, in order to recognize the topics that were taken into consideration for grading each study room. This chapter is the description of “What we have?”.

Questo capitolo è dedicato all'analisi degli spazi studio del Politecnico di Torino. A partire dagli utenti che costituiscono la comunità accademica, si analizzano gli spazi e le prospettive future di espansione e riorganizzazione del Masterplan di Ateneo. Successivamente ci si focalizza sugli spazi per lo studio, analizzati attraverso una campagna di sopralluoghi che hanno permesso di rilevare le principali caratteristiche. Questa attività ha permesso di studiare le esigenze degli utenti (studenti) e i punti di forza e debolezza delle strutture ad oggi esistenti.

3.1 Community of Politecnico di Torino

In the last two years 2020-2021 the whole population at Politecnico di Torino has been approximately 38.000 which includes students, teachers and administrative staff. In this case the population in which this thesis is focused, is in the students which includes first year, foreign and students residing outside Piemonte (Municipality of Italy). The courses or careers issued in this university are from the areas of engineering, architecture, urban planning and industrial design each one has their own specialities and characteristics. Politecnico has always been a poli-cultural university, 14 % of the students are foreign according to the statistics of the last years[1]. This percentage is crucial because it helps to understand that having an abundant population of foreign students means that for this community **inclusion** is important. There are students from all around the world, also students with special needs, who maybe moving around in a room is difficult. Additionally, there are students who prefer studying alone or others who prefer in groups, and the requirements of an engineering student are not the same as one from architecture. Having a variety of different kinds of students is the starting point for knowing their necessities, putting them all together and furthermore propose solutions to fulfill them. Inclusion must be one of the pillars that govern the design of any space for a community, the community should be the one who decides how the space is going to be configured. *"Design is a way of putting together components with the intention of achieving the best solution to a given problem"*[2]. This definition was made by Charles Eames an american designer who has an important impact in the development of modern architecture and furniture. With this definition can be concluded that it is very important to gather all Politecnico student's requirements with the intention of solving them in an inclusive way, no requirement is more important than the other.

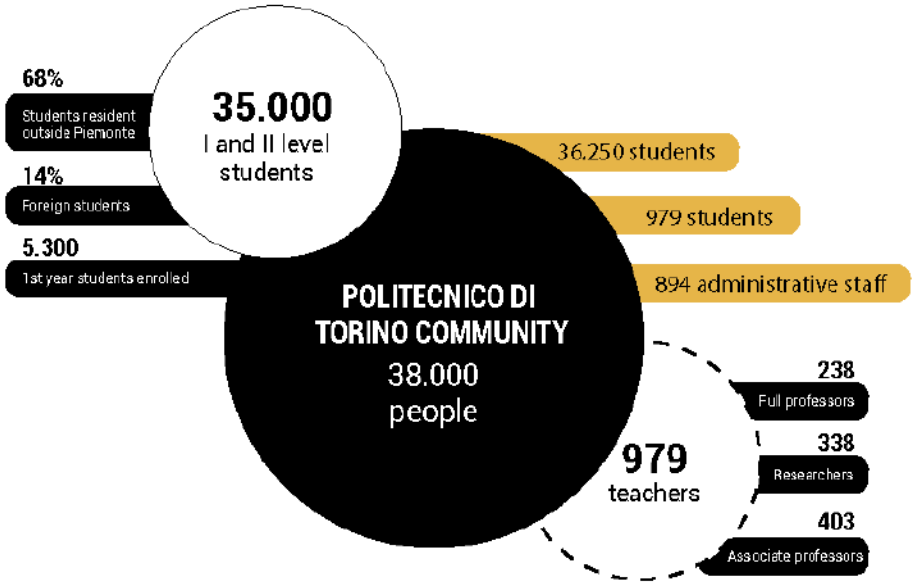


Image 1[1]. PoliTo's community diagram made by the authors. The information was taken from the principal webpage of Politecnico.

3.2 Structure of Politecnico di Torino

Following the idea that the community should be the basis of any project proposal, the second topic to take into consideration is to understand how the building, space or work area is structured. In this case, the structure of the Politecnico di Torino is the case of study. Politecnico was conceived as an institution in 1906, beginning with one headquarter and then it was expanded. Nowadays this university has 4 headquarters which are the following: [3].

1. Citadella: Central headquarter, must use by engineering students
2. Castello del Valentino: For architecture, UNESCO World Heritage Site
3. Lingotto: Architecture, engineering, urban planning
4. Mirafiori: Industrial and automobile

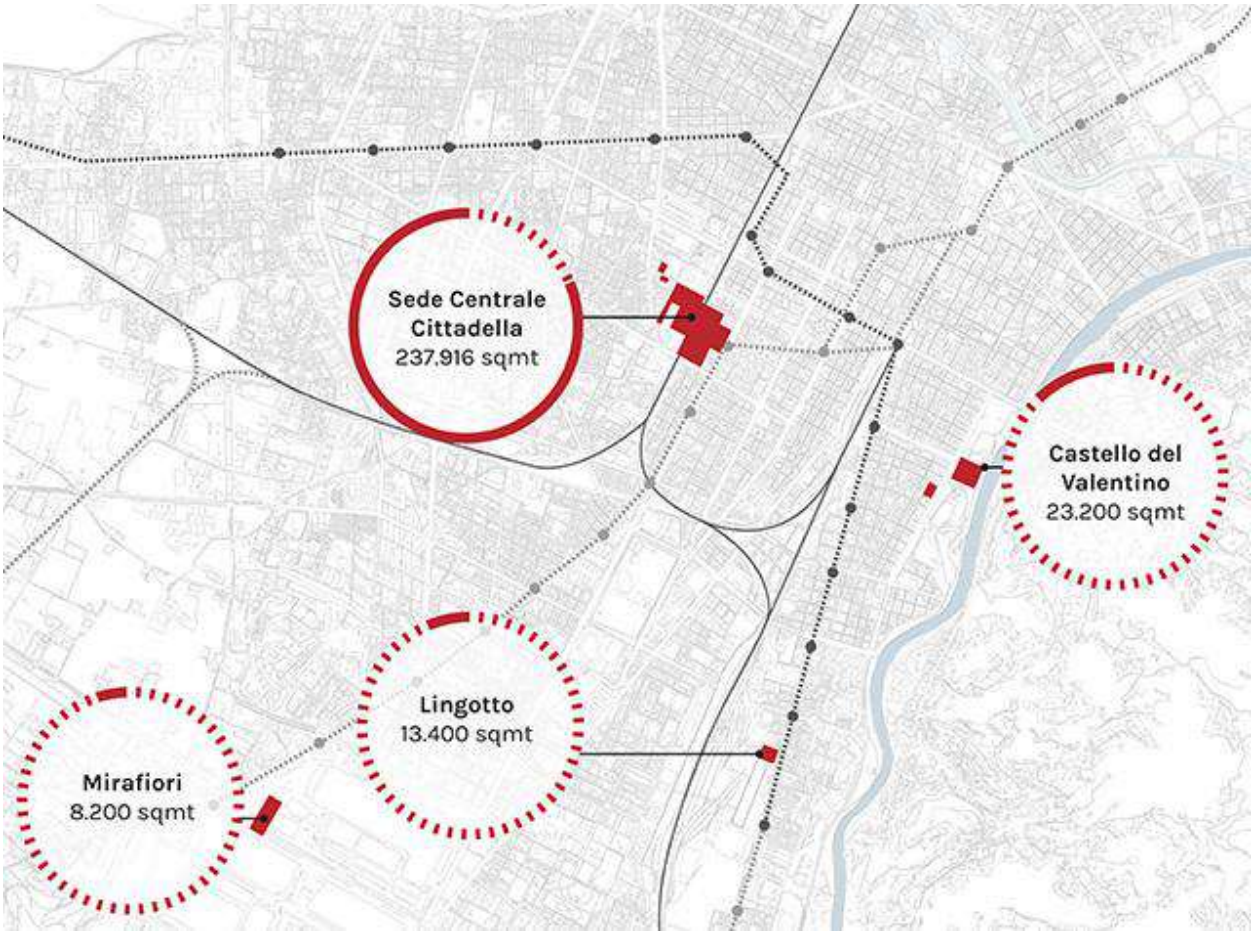


Image 2. Actual situation of Politecnico's master plan
Taken from: http://ustat.miur.it/dati/didattica/italia/atenei-statali/torino-politecnico

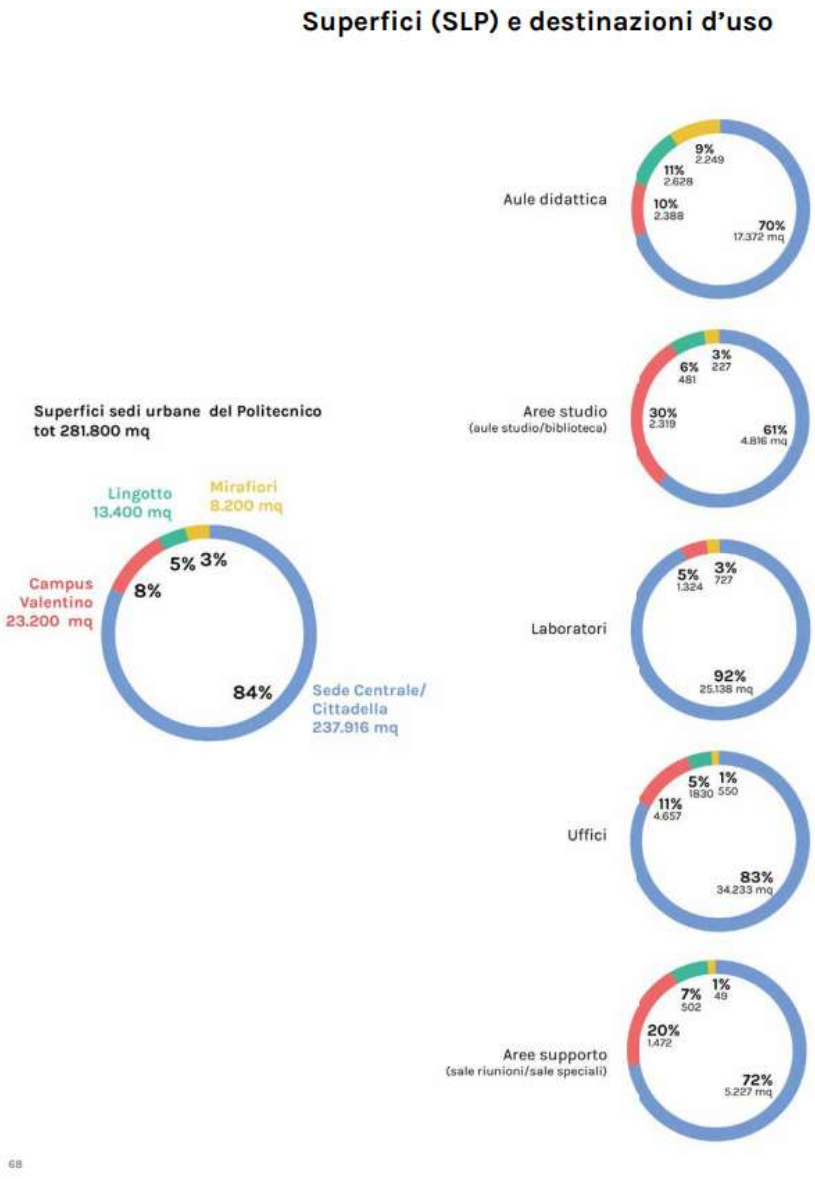


Image 3. Percentages of Politecnico di torino areas around the urban territory
Takenfrom:https://www.masterplan.polito.it/scenari/i_rapporti_tra_sedi_e_strutture_interne

Politecnico di Torino campus plays a very important role in the urban configuration of the city because it is an area that is spread all over the territory. For this reason, it is crucial to understand what is happening currently in this area, how it is being used, who used it and also how this has an impact in the urban relation between the building and the city. In order to do

this, with the help of Politecnico's Master Plan office it was possible to overview the actual situation of the campus by looking into graphics that explain its distribution in a general way.

3.2.1 Citadella venue

Beginning with the Central headquarter name Citadella. It is located in Turin, in a very important street which is Duca degli Abruzzi, because it is well connected with the rest of the city. Is the largest part of the entire university complex. It has a variety of uses, which are shown in the following graphics:

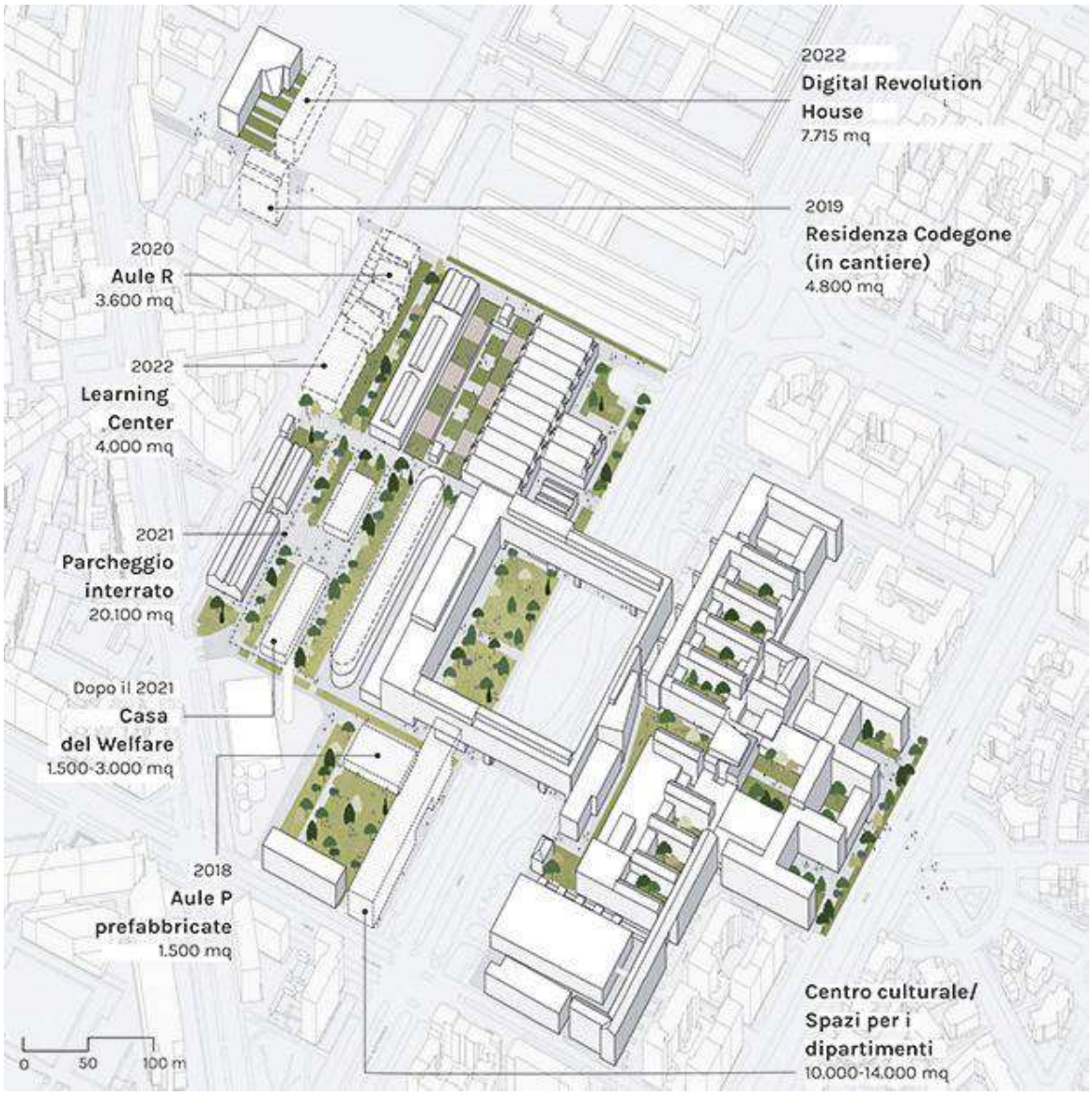
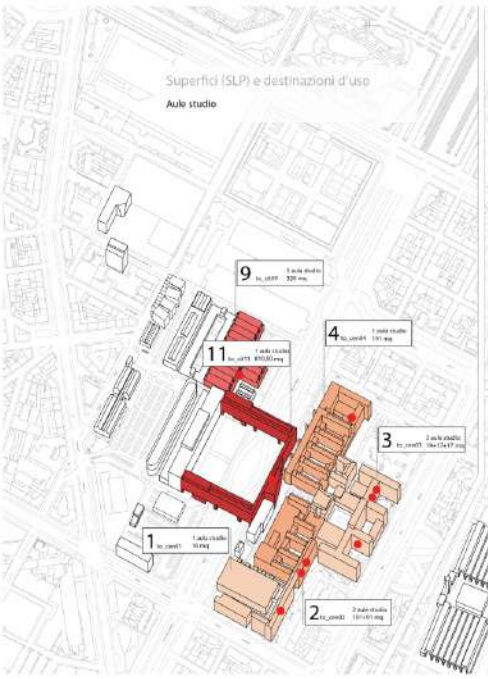
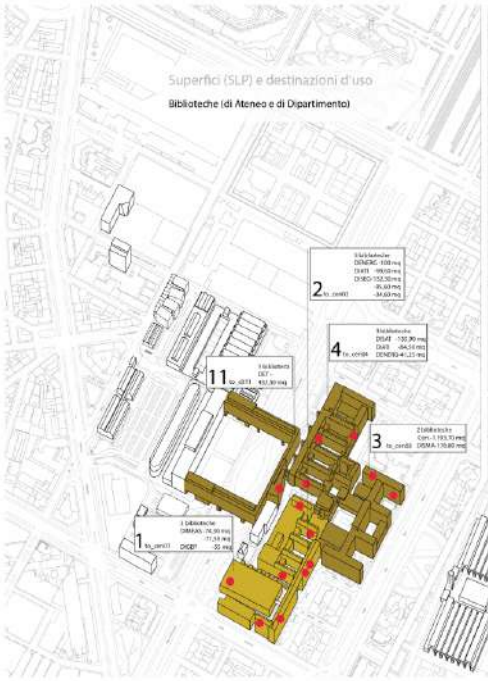
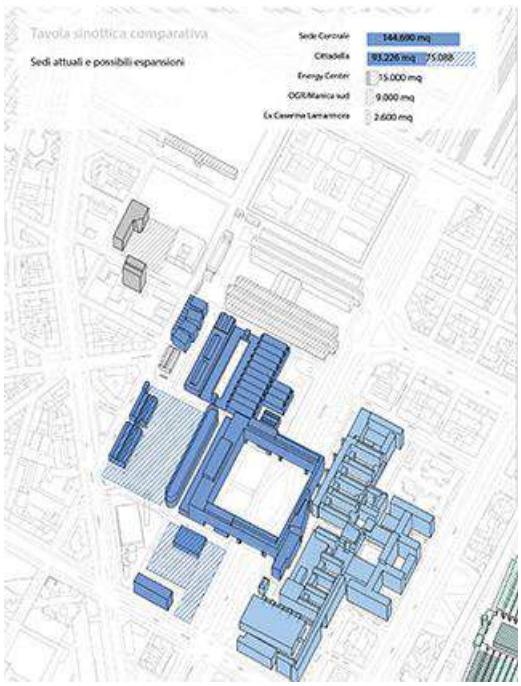


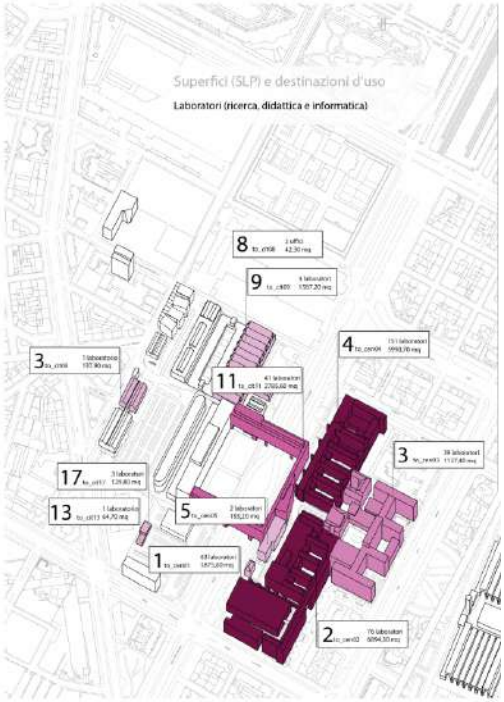
Image 4. Engineering Campus General Distribution
Taken from: https://www.masterplan.polito.it/scenari/il_cronoprogramma_degli_interventi

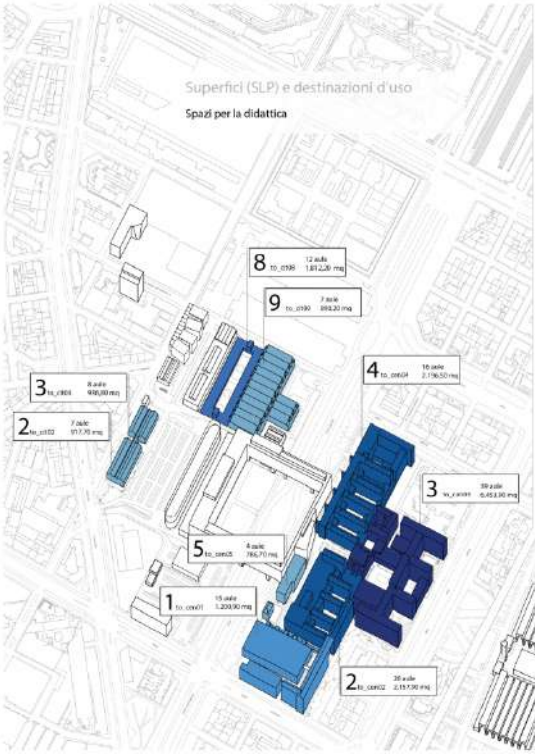
After looking at this part of the campus in a general way, it was necessary to distinguish certain aspects in a closer view. Politecnico has a masterplan proposal that was developed in order to improve the structure of the campus, thanks to this it was possible to have the information needed. The analysis of the distribution of each part of the campus was made by the Masterplan office which guides this thesis to understand the organization of the university. The following images [4] show in a detailed way the configuration of the area:

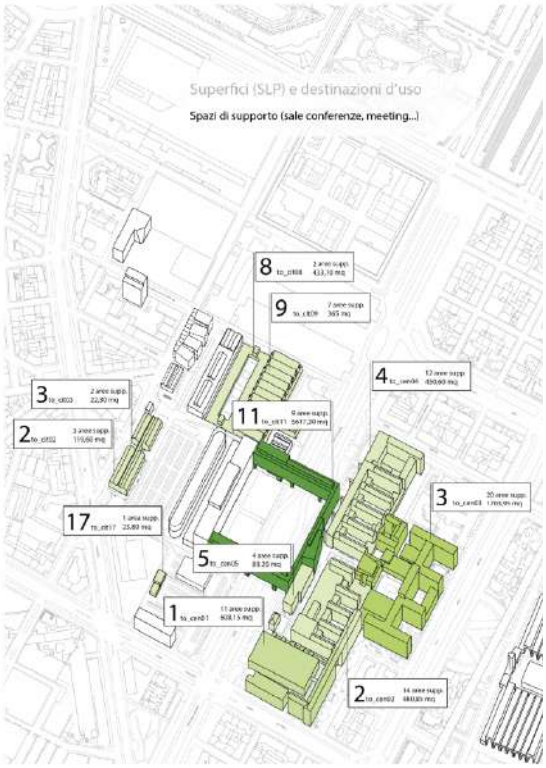


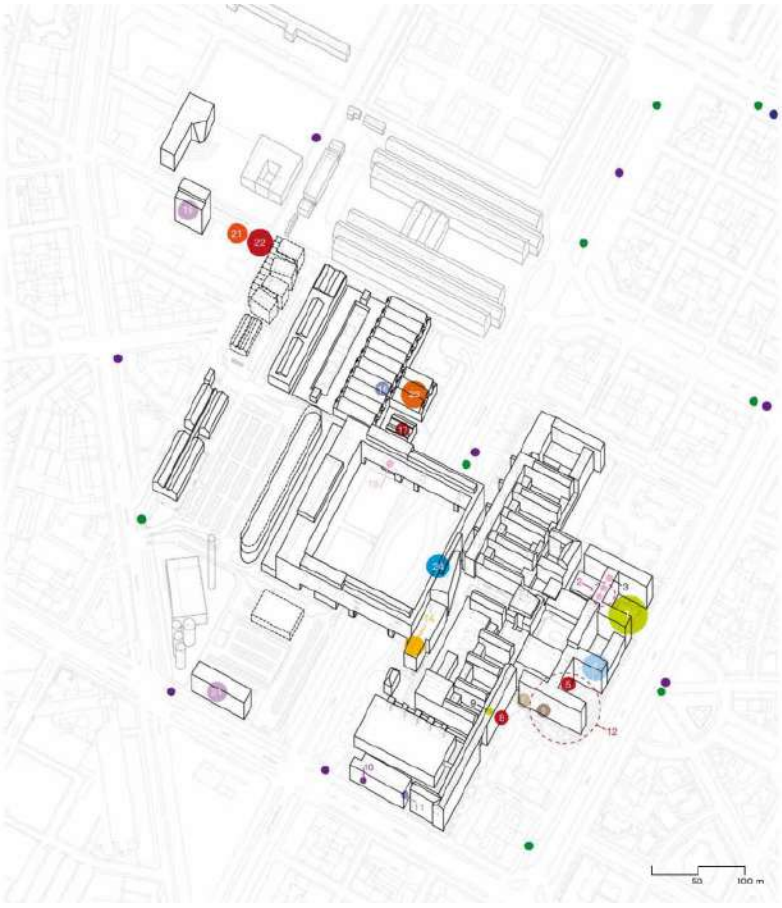












SERVICES

ENTI INTERNI

- SEGRETERIA
- CONSULENZA
- INFERMERIA
- SERVIZI MINIMO RISTORO
- SUPPORTO TECNICO - SCIENTIFICO
- RESIDENZE UNI

ENTI ESTERNI

- BANCA
- POSTA
- NEGOZI
- CENTRO STAMPA
- RISTORO (MENSA - BAR)
- RESIDENZE UNI
- BABY PARKING
- ASSOCIAZIONI

CONTESTO

- Bike sharing
- CAR SHARING
- METRO
- BUS

Group Images 5. Actual situation of Politecnico's interior distribution. Identifying activities and Uses
Taken from: https://www.masterplan.polito.it/scenari/i_rapporti_tra_sedi_e_strutture_interne
Presentation of the analysis of the university spaces

Citadella has a variety of services and uses for the community. It is the largest venue of all Politecnico di Torino, which makes it a very important landmark for the city and also a place that is very frequented by the students who are the focus of this thesis. Additionally, it is a good opportunity to analyze the possibility of making a project that is guided by the concept of inclusion. This part of the university is one of the places that should be chosen for making an inclusive design guided by the principles of this thinking. Giving this plus to this venue would benefit the students because it will be designed for the actual necessities of the population. The requirements of nowadays are not the same as the ones that were when this campus was primarily designed. As it was mentioned in chapter one architecture was focused on other priorities more than in who was going to use the space. That is why, is important to look at this place as a potential to develop an inclusive intervention.

3.2.2 Valentino Castle Venue

As it was mentioned before Politecnico has more than one headquarter around the city. The next venue that was analyzed was the Architecture Campus which is the Castello Valentino. This campus belongs to UNESCO World Heritage Site, it is the site for the architecture students. Here the general distribution of this campus and an overview of the masterplan proposal. This master plan proposes an expansion for new spaces and activities.

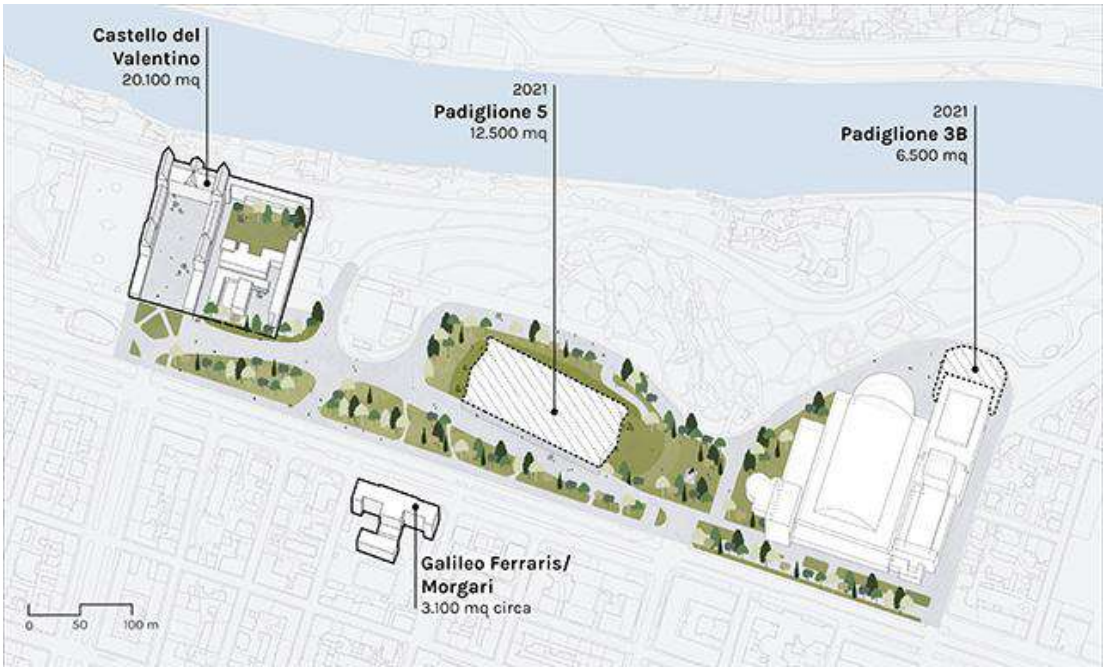
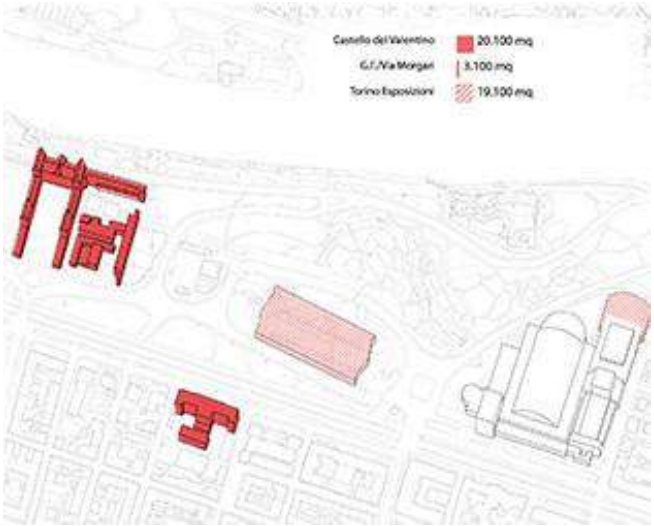
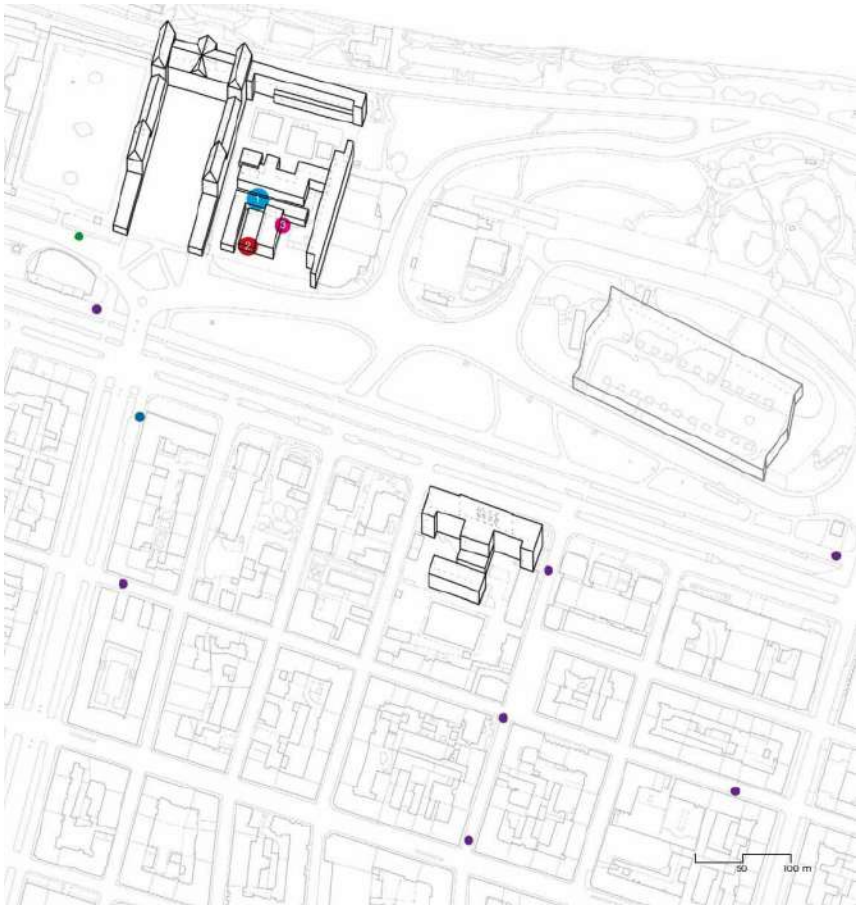


Image 6. Architecture Campus General Distribution
Taken from: https://www.masterplan.polito.it/scenari/il_cronoprogramma_degli_interventi

In a more detailed way the following graphics[5] explain the specific uses of the entire building. Which helps to understand the actual status of the Castello and what is needed in the area.





SERVICES

ENTI INTERNI

- SEGRETERIA
- CONSULENZA
- INFERMERIA
- SERVIZI MINIMO RISTORO
- SUPPORTO TECNICO - SCIENTIFICO
- RESIDENZE UNI

ENTI ESTERNI

- BANCA
- POSTA
- NEGOZI
- CENTRO STAMPA
- RISTORO (MENSA - BAR)
- RESIDENZE UNI
- BABY PARKING
- ASSOCIAZIONI

CONTESTO

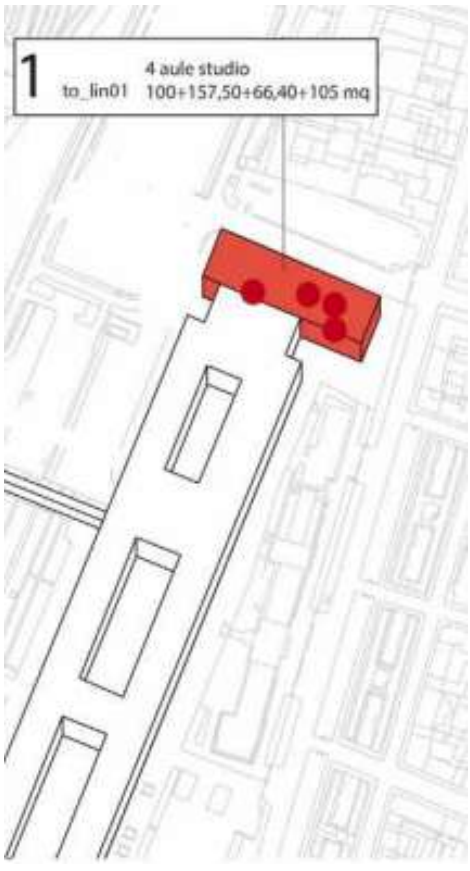
- Bike sharing
- CAR SHARING
- METRO
- BUS

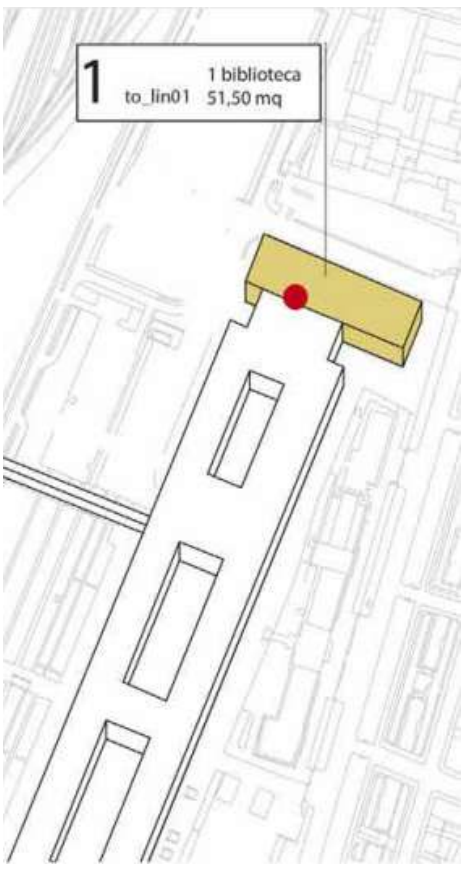
Group Images 7. Actual situation of Politecnico's interior distribution. Identifying activities and Uses
Taken from: https://www.masterplan.polito.it/scenari/i_rapporti_tra_sedi_e_strutture_interne

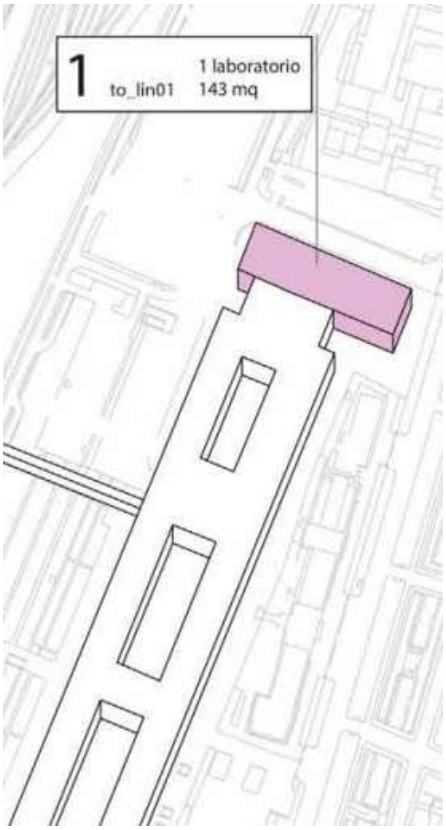
After analyzing these graphics that gave a lot of information, it can be concluded that Castello is a venue that does not have a lot of services and uses. Nevertheless, it has a potential for expansion which is interesting because this proposal can be guided by an inclusive design. This venue is the heart of the city, principally because it is part of UNESCO. Additionally, because it is a landmark for tourists and is a heritage that should be highlighted. These types of buildings should be protected and conserve their appearance. However as it was taken from a residential use to an institutional one, now it can be intervened by an inclusive project. Relating this with the thesis, an inclusive space for studying will be a good opportunity for implementing in this venue. This type of project will keep the actual use, but as it is inclusive will give the students a new way of relating, it will be more frequented because more students will like to come and study there. Valentino Castle will always be a reference point for those who study as PoliTo [6], for those who live at Torin and tourists. Which is very important because this means that is a point where many people converge which somehow is related with inclusion.

3.2.3 Lingotto venue

The third headquarters that is taken into consideration in this thesis is the Lingotto venue. Which is the place for all the careers of PoliTo. It is not a large building, which limits the diversity of uses or activities inside. However, in terms of classrooms and spaces for studying it is well conceived. Meanwhile, these two uses practically are the whole building and it is not a place for other kinds of activities. Its location is not very central, but it has the metroline which facilitates the mobility of the PoliTo's community. For understanding better how this building works the following images[7] will explain its distribution:



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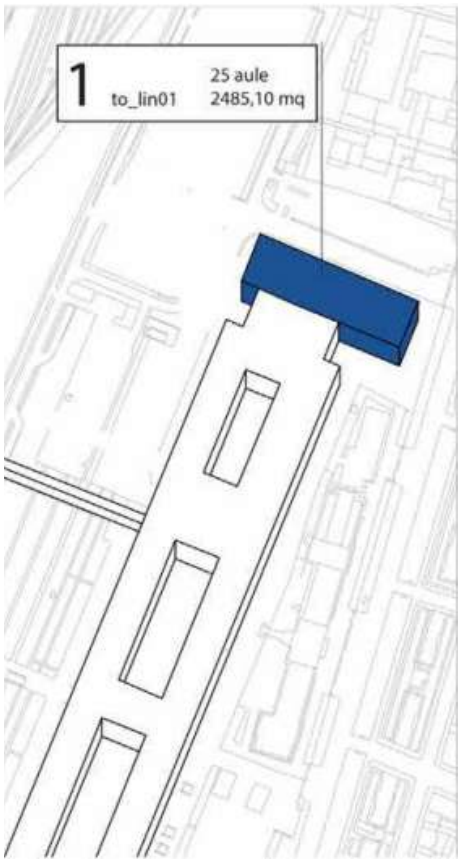
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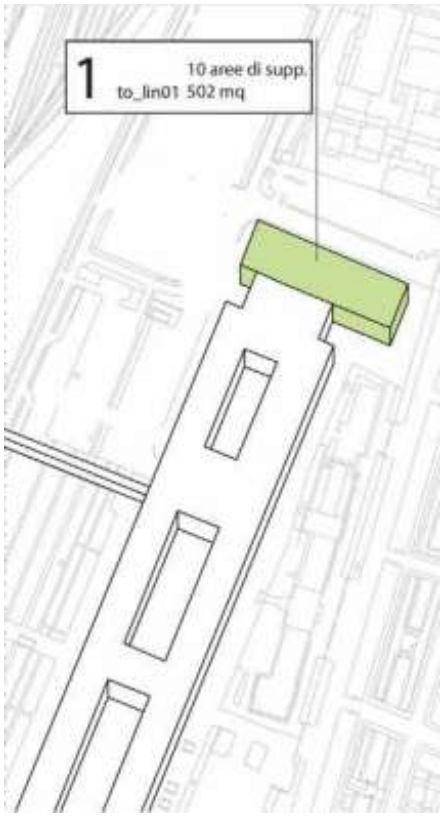
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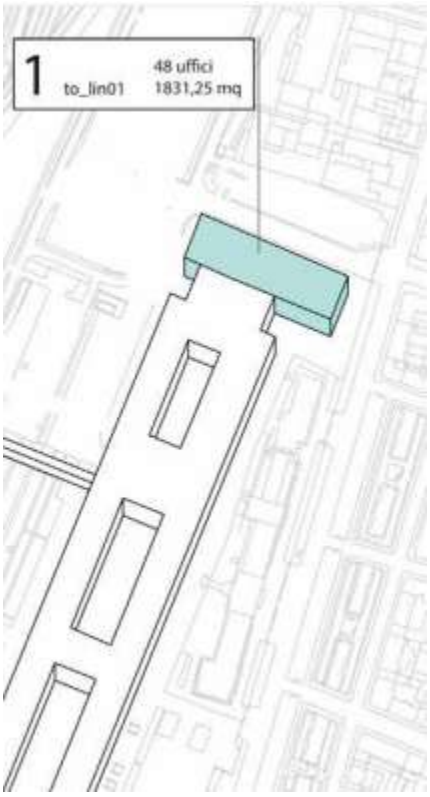
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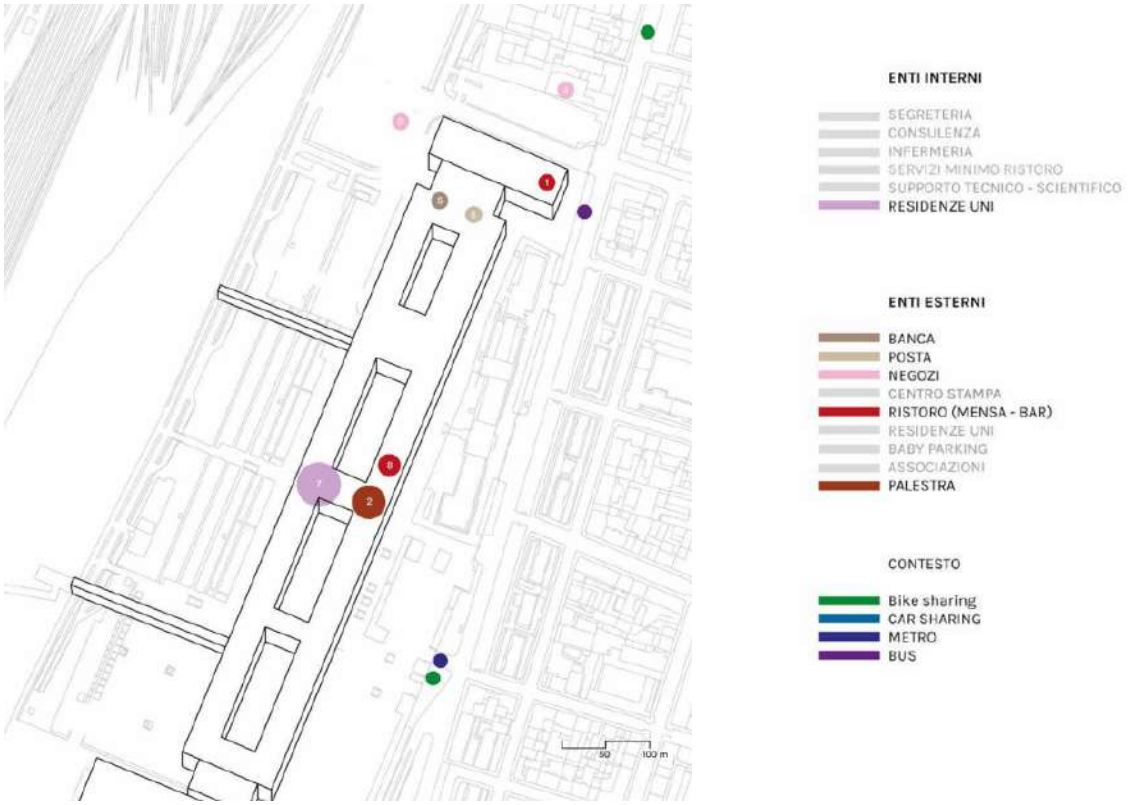


Group Images 8. Actual situation of Politecnico's interior distribution. Identifying activities and Uses
Taken from: https://www.masterplan.polito.it/scenari/i_rapporti_tra_sedi_e_strutture_interne

To conclude, Lingotto is a very simple building where all the uses are in the same place. Its distribution is the same in all floors. It has what is necessary for attending class and for studying, however it lacks other types of activities such as eating places, administrative offices and any type of commerce in general. It could be a potential place for making an inclusive project in order to dynamize the place, to give another type of use, and attract the students to go to this venue because it is forgotten.

For this thesis, these are the four headquarters that are taken into consideration for the analysis of the studio rooms. The three of them have interesting spaces that can be potential candidates for making a proposal of inclusive design. In addition, a new "headquarter" is analyzed which is the outdoor areas of the campus. Nowadays, students and campus staff are using the outdoor areas for a variety of activities like studying, that is why they are considered as a potential project.

3.3 Analysis of existent study spaces

According to the previews analysis the scenarios that are taken into consideration are the following headquarters: Citadella, Centrale, Lingotto and Castello. Which are the venues that have more mobility, more presence of students and have abundant study spaces which are the focus of this investigation. For this research it was taken as a basis, the research that was made by the Department of Architecture and Design. This basis consists in a variety of tables which include different topics that study variables that help to conclude the status of each study room.
In addition, these tables were taken and then modified by the authors of the thesis in order to guide the research focusing more in terms of mobility, comfort and natural conditions. There were 20 study rooms tested, in which some of them are outdoor spaces that are being used as a study place. The reason why these places were considered is because they have a very good potential that can be transformed as a responsible study place and also because they are frequently visited by the students. Which means that the community claims for different spaces with different conditions for studying. Additionally, the aim of this thesis is also to propose that a study area has to have certain conditions and one of those conditions is that the user can have a direct or indirect relation with nature. This means that within the proposal of a study space it has to be considered an open space or at least if it is a closed space, nature has to be involved.

After the investigation of the number of rooms selected, 20 tables were the result. However, for making a more synthetic analysis it was decided to resume in just one table for each venue every characteristic of the study rooms. This means that the principal structure of the table was taken, with the same topics but summarizing all the information of each venue. For example in Citadella there were five study rooms tested, and at the end in one table the same information is exposed but resuming all five. This was the logic that was followed so the information is exposed but in a more optimal way and that the reader can identify in a fast but comprehensive way the actual status of these rooms.

This analysis is very important because with this information it is possible to understand the actual status of Politecnico's structure. These conclusions are the arguments for deciding if the actual status is fulfilling students needs or on the other hand there are some arrangements or improvements that can be made. These tables are the basis for proposing an inclusive design that reunites all the community necessities. With inclusive design it is possible to improve people's lives, and architecture must guarantee a unique experience in the space.

The five following tables describe in a synthetic way what was found in the actual study rooms. It was decided to divide the table in the aspects that are related with the theme of the thesis which is inclusion. Every venue has particular characteristics in the study spaces, which is more interesting because every scenario has different things to offer. These differences help to reach a more complete concept of what/how will be an inclusive study room for a Politecnico student.

Citadella

CITADELLA

Location: Central Site, Politecnico di Torino
Ground Floor and First Floor

Image taken from: https://www.masterplan.polito.it/scenari/il_cronoprogramma_degli_interventi2

Photographic Record

SALA 1

SALA 2

SALA 3

SALA 4

SALA 5

Acess and Mobility	
Architectural barriers	In most of the cases there are not architectural barrieres. However in Sala 2 the second level of the room is not reachable for people with reduce mobility
Elevator or ramp	Presence of ramp or elevator. In most scenarios the rooms are in the ground floor, but in presence of upper floors elevator is the solution. However, in Sala 2 second level has not elevatoror ramp
Type of access/door	Variety of ways of access. Hallways doesnot present any kind of access, manual swing in general ,but in Sala 3 the sliding door is the access. Sliding doors permits an easier and more flexible mobility
Direction signs	Presence of directions signs, is easy to realize their existence
Access sign	Access sign for all
Guide for blind population	No special floor or any sign for this type of population
Furniture	
Tables	Difference of furniture in every room. The observation will be that furniture should be flexible and movable so it can be comfortable for people with wheelchair, or if there is the necessity of studying in group an unify the tables or chairs. Sala's 3 - 5 are well equipped of furniture and this furniture fullfil most of the necessities earlier mention.
Chairs	Difference of furniture in every room. The observation will be that furniture should be flexible and movable so it can be comfortable for people with wheelchair, or if there is the necessity of studying in group an unify the tables or chairs. Sala's 3 - 5 are well equipped of furniture and this furniture fullfil most of the necessities earlier mention.
Other type	Hangers and trashcans
Equipment	
Power points	Power points in furniture
Wi-Fi	Accesible
Artificial Illumination	In both rooms there is artificial illumination
Natural Illumination	Good natural illumination in most of the cases, except for Sala 4
Ventilation	Artificial ventilation, windows are fixed in some rooms
Services	
Bathrooms	In all scenarios there is presence of bathrooms
Bar	No presence of bar in both cases
Water spots	No water spots in none of the cases
Food machines	Food machines in Sala 1-5

To Summarize	
Advantages: - In most of the scenarios there are not architectural barriers, which permits an easy access and mobility - Rooms well equipped with furniture for different ways of studying - Visible accesd, easy to recognize their existence	Disadvantages: - Not access for wheel chair in second floor in Sala 1 - Some rumor and noise in the outside of the sala's - No special guide for people with vision conditions

Table 1 [7]*. Analysis PoliTo structure, made by the authors*

This is the synthesis table of Citadella which shows the different rooms that are on this part of the campus. To conclude this analysis, it can be said that the rooms have an easy access that permits a free mobility. The furniture is abundant and most of them electrified which facilitates the charge of devices and comfort of the students. Most of the furniture is movable, which means that the space can be re-configure depending on the necessities of the moment. However it is easy to access, some pathways are very small enabling the free mobility inside the space. In most of the rooms, furniture is adjusted for groups but not for individual work. Which excludes people who want to study alone or be by themselves.

Centrale

CENTRALE	
Location: Central Site, Politecnico di Torino Ground Floor and First Floor Image taken from: https://www.masterplan.polito.it/scenari/il_cronoprogramma_degli_interventi2	

Photographic Record	
	
SALA 1	
	
SALA 2	

Acess and Mobility	
Architectural barriers	Sala 1 does not present any barrier it is reachable frim any point. However, sala 2 has a big barrier frome the public space. It is very difficult for a person with reduce mobility to reach this point.
Elevator or ramp	In both cases the elevator from te inside of the building
Type of access/door	Entrance with manual swing
Direction signs	In scenario 1 the entrance is visible and they are signs. Meanwhile, in scenario 2 the entrance is not visible, people doesn't that it exists and no direction signs
Access sign	Access sign for sala 1 but not for sala 2
Guide for blind population	No special floor or any sign for this type of population
Furniture	
Tables	In both case the furniture (chairs and tables) are movable. They have the possibility for working in group and Iso individual. Which is a great adavantage. Also are comfortable for wheechair
Chairs	In both case the furniture (chairs and tables) are movable. They have the possibility for working in group and Iso individual. Which is a great adavantage. Also are comfortable for wheechair
Other type	Hangers are present in both cases
Equipment	
Power points	Power points in Sala 1 are in the wall and in Sala 2 in the furniture and in the wall
Wi-Fi	Accesible
Artificial Illumination	In both rooms there is artificial illumination.
Natural Illumination	Good natural illumination in both cases
Ventilation	Both artficial and natural ventilation
Services	
Bathrooms	In both scenarios there is presence of bathrooms
Bar	No presence of bar in both cases
Water spots	No water spots in none of the cases
Food machines	Food machines just in sala 2
To Summarize	
Advantages: - Good illumination - Good furniture staffing, they can work in group and individually - Good natural ventilation and illumination - Sala 2 has a big outdoor space that can be used in future interventions	Disadvantages: - Not access for wheel chair in second floor. Not accessible to upper levels - Entrance is not visible in sala 2, it is difficult to find from the outside - No special guide for people with vision conditions

Table 2. Analysis PoliTo structure, made by the authors

The resume table of Centrale concludes that this part of the campus features good illumination and good furniture which permits individual and group working. Also offers natural ventilation and illumination. Room 2 has potential for an inclusive project because it features really good conditions for studying but also doing other activities. It has an inside space for studying but also an outdoor space that can be used for eating, talking or just resting from studying. Some

disadvantages are that some points are not accessible for everybody, difficult to locate and there is no special texture treatment for people who have vision difficulty.

Castello

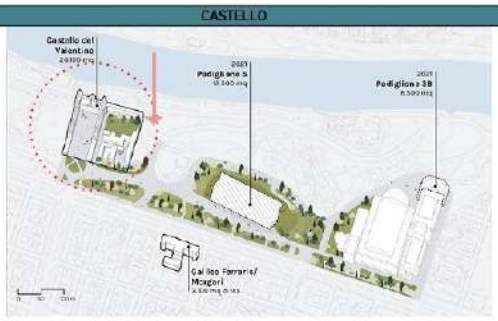
CASTELLO	
Location: Castello del Valentino Torino,Italy Underground and Ground Floor	
Image taken from: https://www.masterplan.polito.it/scenari/il_cronoprogramma_degli_interventi2	
Photographic Record	
 SALA 1	 SALA 2
Acess and Mobility	
Architectural barriers	Both scenarios present an architectural barrier which interrupts the easy mobility inside the space. The second level is not reachable for a person in a wheelchair, or with mobility problems.
Elevator or ramp	In both cases the elevator/ramp arrives just to the first level of the sala
Type of access/door	Entrance with manual swing
Direction signs	Have sign directions in order to reach the room
Access sign	Have visible sign for accesing
Guide for blind population	No special floor or any sign for this type of population
Furniture	
Tables	Fixed in library and movable in underground room, but in both cases are for group working and electrified. Not individual workig and not very comfortable for wheelchair user.
Chairs	In both cases are movable.
Other type	Hangers are present in undergroud room and lockers in the library.
Equipment	
Power points	Power points in Sala 1 are in the wall and in Sala 2 in the furniture
Wi-Fi	Accesible
Artificial Illumination	In both rooms there is artificial illumination, however in Sala 2 each tabla has puntual illumination (individual lamp)
Natural Illumination	Good natural illumination in both cases
Ventiltaion	Both artficial illumination. In sala 1 the windows are fixed meanwhile in sala 2 windows can be open.
Services	
Bathrooms	In the scenario of sala 1 there are bathrooms but in library there is not presence of bathrooms
Bar	Presence of bar in both cases
Water spots	No water spots in none of the cases
Food machines	No food machines in none of the cases
To Summarize	
Advantages: - Good illumination - Good furniture staffing - Easy access for users with reduce mobility in ground floor	Disadvantages: - Not access for wheel chair in second floor. Not accessible to upper levels - Not different types of studying because of the furniture - In Sala 1 windows are fixed, this doesn't let natural ventilation get inside - No special guide for people with vision conditions

Table 3. Analysis PoliTo's structure, made by the authors

Castello venue is a very interesting scenario because of its heritage from the city and now is the house of Architecture and Design program. It was not initially designed for this use, however the space has been modified for the actual activities. From this research some advantages that can be concluded are: it features good illumination, good furniture staffing and it has easy access from the ground floor. However, there are not enough areas for studying all around this part of the campus. The authors of this thesis, who are architectural students, notice that there is no space for discussion design with professors or colleagues. Architecture work has always been a group work and there is just one space which is room 1 (sala 1) that almost meets the requirements for a good place for studying architecture. This is the reason why students frequent other spaces for studying because the ones that are established are not enough or do not meet their requirements. Another disadvantage in both scenarios for reaching the second level for a person with reduced mobility is not possible because the only way to get up is by the stairs.

Lingotto

LINGOTTO

Location: Lingotto Site, Politecnico di Torino
All floors

Image taken from: https://www.masterplan.polito.it/scenari/_cronoprogramma_degli_interventi2

Photographic Record

SALA 1 SALA 2 SALA 3 SALA 4 SALA 5 SALA 6 SALA 7

Access and Mobility

Architectural barriers	No architectural barriers in any of the cases. They are reachable, because there is access due to the principal elevator. Also enough space for mobility, furniture is not an obstacle. Big areas
Elevator or ramp	Yes, elevator with correct dimensions
Type of access/door	Most of the study spaces are hallways, so they don't need a specific access. However, the cases that are not hallways they have manual swing doors.
Direction signs	Presence of directions signs, is easy to realize their existence
Access sign	Access sign for some scenarios
Guide for blind population	No special floor or any sign for this type of population

Furniture

Tables	All of the furniture is movable, comfortable for wheelchair and for group. Just sala 5 has for single and groupstudying.
Chairs	All of the furniture is movable, comfortable for wheelchair and for group. Just sala 5 has for single and groupstudying.
Other type	Hangers,shelves and trashcans

Equipment

Power points	Power points in the floor, abundant
Wi- Fi	Accesible
Artificial Illumination	In all spaces there is artificial illumination.
Natural Illumination	Poor natural illumination in most of the cases, except for Sala 2
Ventilation	Artificial ventilation in some cases and windows are fixed in some rooms

Services

Bathrooms	Just room's 4,5,6 have a bathroom near
Bar	No presence of bar in both cases
Water spots	No water spots in none of the cases
Food machines	No food machines

To Summarize

Advantages	Disadvantages
- Good access to any space. Big and empty areas for mobility - Good furniture, flexible and comfortable. - Abundant power points - People now that the study rooms exist because there are well sign posted - A variety of spaces for studying in the same building	- Most of the areas are hallways, this means that it will be rumor and distraction because of the personal traffic -No natural ventilation -No interaction with green areas -No natural lighting in most fo the areas -No food machines or bar

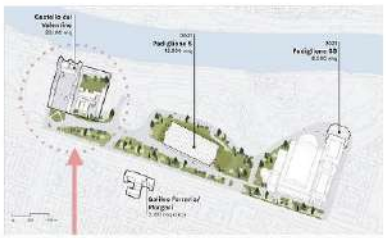
Table 4. Analysis PoliTo's structure, made by the authors

Lingotto is a particular case, because the study areas are all over the building. This is an advantage because there is enough space for the students to accommodate and study in the area that best meets their requirements. Each space is accessible, flexible and comfortable with furniture and abundant power points. However, there are some disadvantages, most of these areas are located in a hallway which prevents privacy, and concentrate if there is someone that has concentration problems. The natural conditions are not very well resolved, there is no natural illumination or ventilation. Also, there are no green areas or any interaction with nature, which according to the previous research in chapter one this is fundamental for students cognitive development. Finally, the last disadvantage is that inside the building there are no other kinds of activities, there is not a bar or maybe a food machine, and there is a lack of space diversity.

Outdoor Spaces

OUTDOOR SPACES

Location: Castello del Valentino Torino and Citadella Politecnico di Torino, Itay



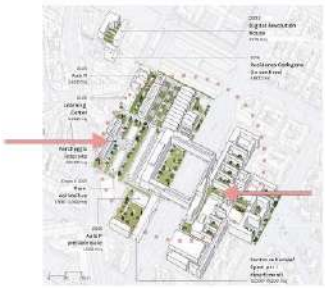


Image taken from: https://www.masterplan.polito.it/scenari/I_cronoprogramma_degli_interventi2

Photographic Record

Outdoor Space 1

Oudoor Space 2

Outdoor Space 3

Outdoor Space 4

Acess and Mobility	
Architectural barriers	No architectural barrier for musto to the scenarios. The only scenario that has architectural barriers is space 2 because there is no access for wheelchair or reduce mobility
Elevator or ramp	Most of the spaces are in ground floor so there is not need for an specific access. However, space 2 is in an upper level needs stairs and ramp, now there are just stairs. In this condition it is difficulto for people with reduce mobility to access
Type of access/door	No doors needed
Direction signs	No sign directions but there are very visible. It is easy to recognize their existance
Access sign	No access directions but there are very visible. It is easy to recognize their existance
Guide for blind population	No special floor or any sign for this type of population
Furniture	
Tables	Tables and chairs are fixed, except the outdoor space 3 which it is posible to configurate different organizations. No electrified
Chairs	Tables and chairs are fixed, except the outdoor space 3 which it is posible to configurate different organizations. No electrified
Other type	Nothing
Equipment	
Power points	No power points
Wi-Fi	Accesible
Artificial Illumination	No artificial light needeed
Natural Illumination	Very good natural illumination and shadowing
Ventilitaion	Natural ventilation
Services	
Bathrooms	Scenario 3 - 4 have bathrooms near. The others the bathroom is far
Bar	Presence of bar in spaces 1 - 3
Water spots	No water spots in none of the cases
Food machines	Food machines near space 2
To Summarize	
Advantages: - Really good natural conditions. Natural ventiliation and illumination - Students can change he space where they normally study - Access in must of the cases is very easy and comfortable - Less monet expend in the expenses (services)	Disadvantages: - No electrified chairs or tables. No power points - Most of the chairs are benches, this can be uncomfortable for studying - There are not elements that help to protect people form the sun when it is needed. However, most of the spaxes are shadowed by buildings or nature

Table 5. Analysis PoliTo's structure, made by the authors

The last scenarios that were tested for the analysis were the outdoor spaces that nowadays are used by the students for different reasons. The reason to investigate this area was because it was noticed that many students and even teachers were using this space for working, studying, eating, talking, meeting, etc. Therefore, it was necessary to understand which conditions make these places desirable for users to frequent it. The advantages of outdoor spaces are the following, according to the study: natural illumination and ventilation are always present which make most of the spaces thermally comfortable. The relation between nature and humans is direct, which permits a more calm and fresh atmosphere and this helps to concentrate and enjoy the activities. A change of air for a human and more under stress is convenient for health, being outside the normal place where student study is beneficial. The access in most of the scenarios is very easy because they are on the ground floor and open, without architectural barriers. Economy is always benefits, because there is no need for air conditioning, elevators and other necessities that an indoor space requires. However, there are also some disadvantages such as: there are no power points, which are crucial for studying and the permanence of people in space. Also the furniture is not very comfortable, most of them are benches which are not very healthy for the back. Finally, natural conditions dependending on the season are going to affect these places. It is necessary to protect them from the sun with shadowing elements and from the wind in winter time.

Conclusions

To conclude this chapter, it is important to first know how the actual situation of a place is, analyze this information and finally make a proposal for any project that is on mind. In this precise situation, where the thesis is focused on inclusive design the step of analyzing the structure of Politecnico is crucial because inclusion may gather the "old and the new" together. Without the original basis it would not be an inclusive project, because inclusion does not mean making everything all over again. It means to gather the existing part and combine it with a new vision where everybody can still use the space and feel that it is an environment where their needs were taken into consideration. This study was focused on the areas of Politecnico's campus that were considered an output for making a proposal. Each venue has different characteristics which are going to be considered for the final project. The idea is to understand what is working well from the actual situation, keep it and attach the new ideas to this.

Fortunately, there are many spaces for studying on this campus. Each room offers different things and activities. However, it was observed that in most of the cases specifically seen from an inclusive perspective there are some modifications that can be done. Not all areas are reachable for people with reduced mobility, people with visual difficulties are not guided, furniture is not always arranged for group or individual work and natural conditions are not always guaranteed. Additionally, in almost all cases there is no relation with natural features, neither direct or indirect contact. Which is important for humans and moreover for this type of activities, where nature can help for concentration, peace and is beneficial for health. Each part of these tables are taken into consideration for designing a proposal of an inclusive place for studying.

Chapter Note:

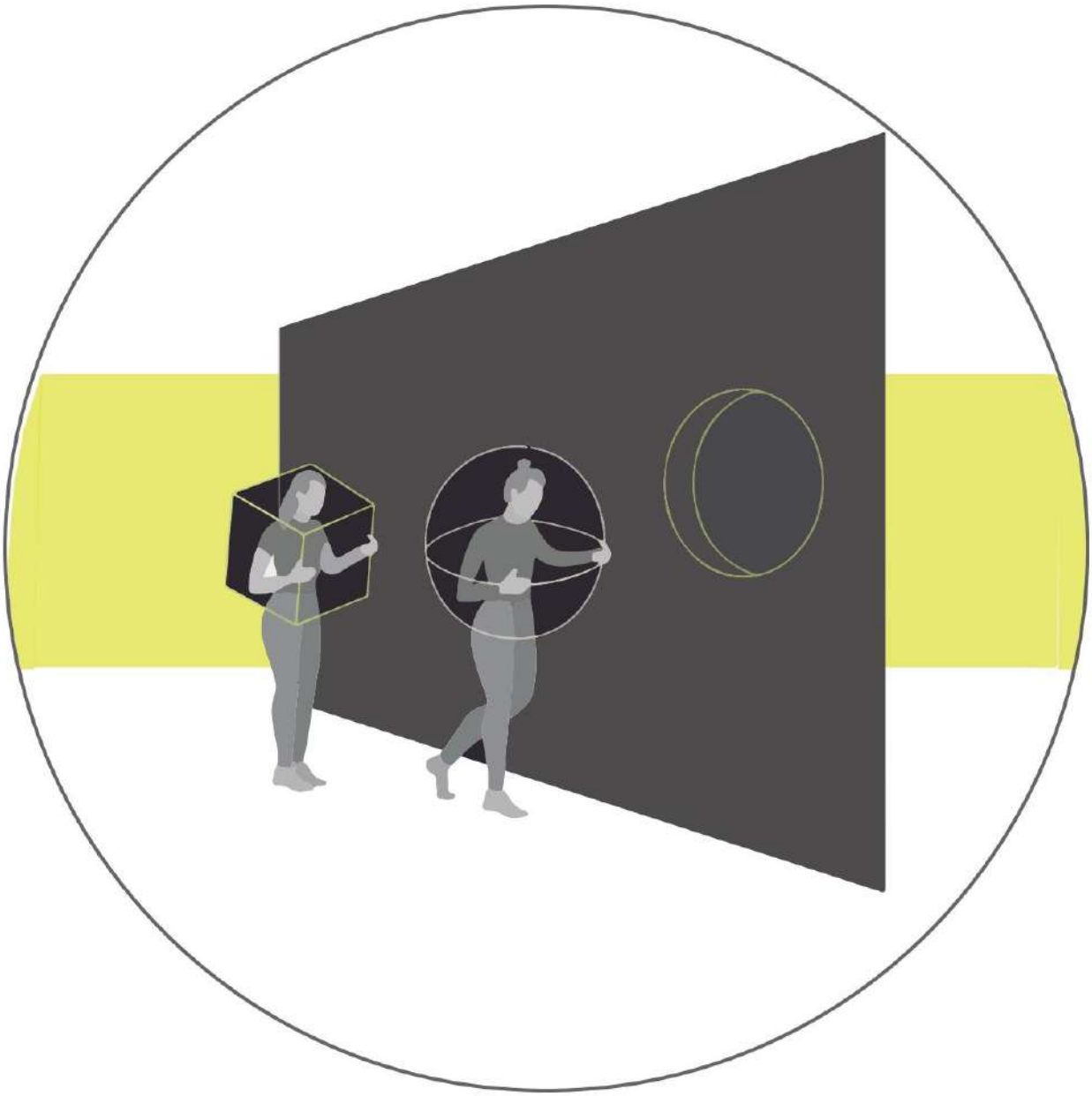
1. Image 1. PoliTo's community made by the authors. The information was taken from principal webpage of Politecnico https://www.dropbox.com/sh/370ctv8mgra2c9l/AADJUmOCk9JhNB_G2q9L0Zrka/MASTERPLAN%20DEREGIBUS?dl=0&preview=210311_lezione+corso+inclusive+design_Pagina_02.jpg&subfolder_nav_tracking=1
2. Presentation of: Territorio Comparados, San Martini-Torino. Il Masterplan del Politecnico di Torino (28/05/2021) https://www.dropbox.com/sh/370ctv8mgra2c9l/AACCItr6VjPOy1j4U9YL5t4Ba?dl=0&preview=TERRITORIOS+COMPARADOS+SAN+MARTIN-TORINO2.pdf

3. Universal Design: Planning and Design or All by Finn Aslaksen, Steinar Bergh, Olav Rand Bringa, Edel Kristin Heggem-pg. 23
4. Politecnico di Torino story, principal webpage, La Storia del Ateneo https://www.polito.it/ateneo/storia/

5. Actual situation of Politecnico's interior distribution. Identifying activities and Uses Taken from: https://www.masterplan.polito.it/scenari/i_rapporti_tra_sedi_e_strutture_interne Presentation of the analysis of the university spaces

6. Actual situation of Politecnico's interior distribution. Identifying activities and Uses Taken from: https://www.masterplan.polito.it/scenari/i_rapporti_tra_sedi_e_strutture_interne

7. PoliTo: Politecnico di Torino
8. Tables for analysis of Politecnico di Torino study rooms by the authors. https://drive.google.com/drive/u/0/folders/1txOJ2xvTfoykahMil-djRn-nhn7nQk_X



CHAPTER 4

Proposal Project-Competition

Image. Inspiration from article[6], modify by the authors

Chapter 4 / Capitolo 4

Study project proposal-Progetto di studio

This chapter is dedicated to the final result of the previous investigation and analysis. After understanding the meaning of inclusive design, its characteristics, its relation with architecture , how it can be implemented in outdoor and indoor spaces and finally analyzing PoliTo's building distribution focusing on the study rooms, it was decided to create requirements that would guide a possible architecture competition. In this particular case the requirements that are going to be developed are based on the definition of inclusive design and Politecnico's student necessities. These requirements are a handbook for a possible future contest, in which its principal aim should be to develop a study room that guarantees inclusiveness, located in one of PoliTo's headquarters that were previously exposed. Finally, in order to demonstrate how these parameters become a project, the authors decided to make their own exercise where a part of Politecnico's campus is transformed into a good practice of architecture and inclusion. The objective of this exercise is to propose a general and simple idea of how this place can possibly be designed, without getting into many details, it would be a simple configuration of the space. With this basic outline, the requirements would not be just a list to check, they would also be an opportunity to demonstrate that inclusion must be always in relation with architecture.

Questo capitolo è dedicato al risultato finale dell'indagine e dell'analisi precedenti. Dopo aver compreso il significato del design inclusivo, le sue caratteristiche, il suo rapporto con l'architettura , come può essere implementato in spazi esterni e interni e infine analizzando la distribuzione degli edifici di Polito concentrandosi sulle sale studio, si è deciso di creare requisiti che avrebbero guidato un possibile concorso di architettura. In questo caso particolare i requisiti che verranno sviluppati si basano sulla definizione di design inclusivo e sulle necessità degli studenti del Politecnico. Questi requisiti sono un manuale per un possibile concorso futuro, in cui il suo obiettivo principale dovrebbe essere sviluppare una sala studio che garantisca l'inclusività, situata in una delle sedi di Polito precedentemente esposte. Infine, per dimostrare come questi parametri diventino un progetto, gli autori hanno deciso di fare il proprio esercizio in cui una parte del campus del Politecnico si trasforma in una buona pratica di architettura e inclusione. L'obiettivo di questo esercizio è quello di proporre un'idea generale e semplice di come questo luogo può essere progettato, senza entrare in molti dettagli, sarebbe una semplice configurazione dello spazio. Con questo schema di base, i requisiti non sarebbero solo un elenco da controllare, sarebbero anche un'opportunità per dimostrare che l'inclusione deve essere sempre in relazione con l'architettura.

4.1 Competition announcement

"Architectural competitions are a quality-based and solution-oriented selection procedure for architectural services, the best way to achieve quality in the built environment"[1].

The investigation of this thesis led to the idea of making a simulation of a competition announcement, in which the task would be to design an inclusive study room. A competition is the best way to propose innovative projects which are guided by a specific path and would produce a variety of designs which may be possible projects to build . According to the tables that were exposed in the previous chapter, Politecnico has a wide range of study rooms all over the campus. However, these rooms do not gather all the necessities that a student demands and additionally they are not designed with an inclusive thought. This is why it is important to identify the necessities of the users considering that any kind of person can be a user, no exclusion but inclusion. The purpose in this final chapter is to give the guidelines or requirements that should be considered in order to realize the final project.

In the direction of the idea of a possible architecture competition, it is necessary first to define what is an architecture competition, competition types, competition stages and how its guideline should be. This understanding helps to guide in a good way the requirements that are going to be propose for this competition.It was possible to understand this with the help of the International Union of Architects (UIA) and International Competitions Commision (ICC), who design a guideline for design competitions in architecture and related fields. In August 2014 in Durban, South Africa, the UIA Assembly passed a resolution in which they said " *A competition provides the best solution for a concrete task, selected from among several entries by the jury, with a majority of professionals. Therefore it guarantees high value and the optimal concept for the client and the users*[2]*. The UNESCO-UIA rules on architectural competitions are characterized by the principle of anonymity, transparency, equal treatment, and non-discrimination.* It is very important to define this concept because it is the basis of what is going to be proposed. Knowing its meaning helps to establish a good criteria for this competition and at the end obtain a precise solution for the specific task. The definition of architecture competition is very connected with the aim of this thesis which is inclusive design. It says that a competition should be equal and non-discrimination. These are concepts that characterized inclusion, this means that proposing a competition as a result of a research about inclusion is an idea that follows this concept. This competition would follow in a simple way the structure proposed by the UIA criteria, in order to guarantee optimal results that would solve the 3 factors in this special case, which are: 1) Inclusion, 2) Student necessities and 3) Politecnico's campus gathering in a study room. Any possible competition should be guided or designed with this criteria, because it is the correct way to successfully develop a project.

An architectural design competition considered aesthetic, technical, functional, economic, ecological and sustainability requirements. Which are words that describe in a good way the intentions of the result that the authors want for this thesis. Each design competition are suitable

for all design tasks , every task has its own competition requirements and this would depend on how deep and detailed the competition wanted to be.

These competitions have two basic **types of competitions** that are classified by the UIA and regulated by UNESCO[3]. These types exist because each project has a different focus. When a competition is announced it has to define the type of competition it would be, so the contestants would know the level of the contest. The first type of competition is **ideas competition,** in which the task is to demonstrate numerous conceptual approaches and proposals. It is not necessary to realize a detailed design/project. The second type is **project competition,** which demonstrates numerous solutions for the intended realization of the project. Therefore, each task or project should be guided by one of these two types of competition and this led to the **competition stages** [4] depending on the type of competition selected. The competition stages are **single stage**, **two stage** and in random cases **multiple stage competitions**.

The single stage according to the UIA generally are the ideas competitions which are the first type of competition, where competitors show the general idea or intentions of the proposal. In some cases ideas competitions are the first stage of a two-stage competition which refers to a project that is more developed and detailed. Two stage competitions are organized in two-stages, beginning with a first stage in which the concept is overall explained by schematic drawing and sketches to demonstrate the intentions of the contestant. After this, the jury selects from those ideas the ones that will continue for the second stage, where the project matures and levels up. The second stage is developed by the competitors in no more than two months. Finally the jury grades the projects, they make their own remarks and comments and finally award. The multiple stage competition is when a third party is involved by the client, but this decision has to be taken before the competition launch in order to know from the beginning the terms of the competitions.

In conclusion this information is important in order to guide the competition in a good way. Knowing the basis of what is going to be proposed would facilitate raising the horizon of the competition. After knowing the definition of an architectural competition, its types and stages, now is more clear how it should be developed. The idea of this thesis is to give the lecturers a wide information of concepts, terms and analysis made by the authors, but beyond that is to take all the theory and translate it into practice. Finally, it is possible to announce the terms of the competition which are:

- **General task:** Design/project an inclusive study space, following the parameters that would be later exposed. This space should be in Politecnico's campus
- **Type of competition:** Idea competition. Where the competitor has to explain in a general, simple but clear way their intentions.
- **Stage competition:** Single stage. It is a very conceptual exercise, its objective is to evaluate multiple ideas of configuration and design of the space. This single stage can be led by a second stage if it's decided by all parties.

4.2 Competition's description

After understanding the definition and its types the following step is to describe the competition. The reason for making a simulated competition is because it is the most complete way to gather many ideas of design and proposals for a necessity. All the background information and analysis in the previous chapter focus on **inclusion and inclusive design.** Therefore, the general task is to design an inclusive study space for Politecnico's community located in its campus. The place where the project will take place is in Citadella, in front of Corso Castelfidardo.

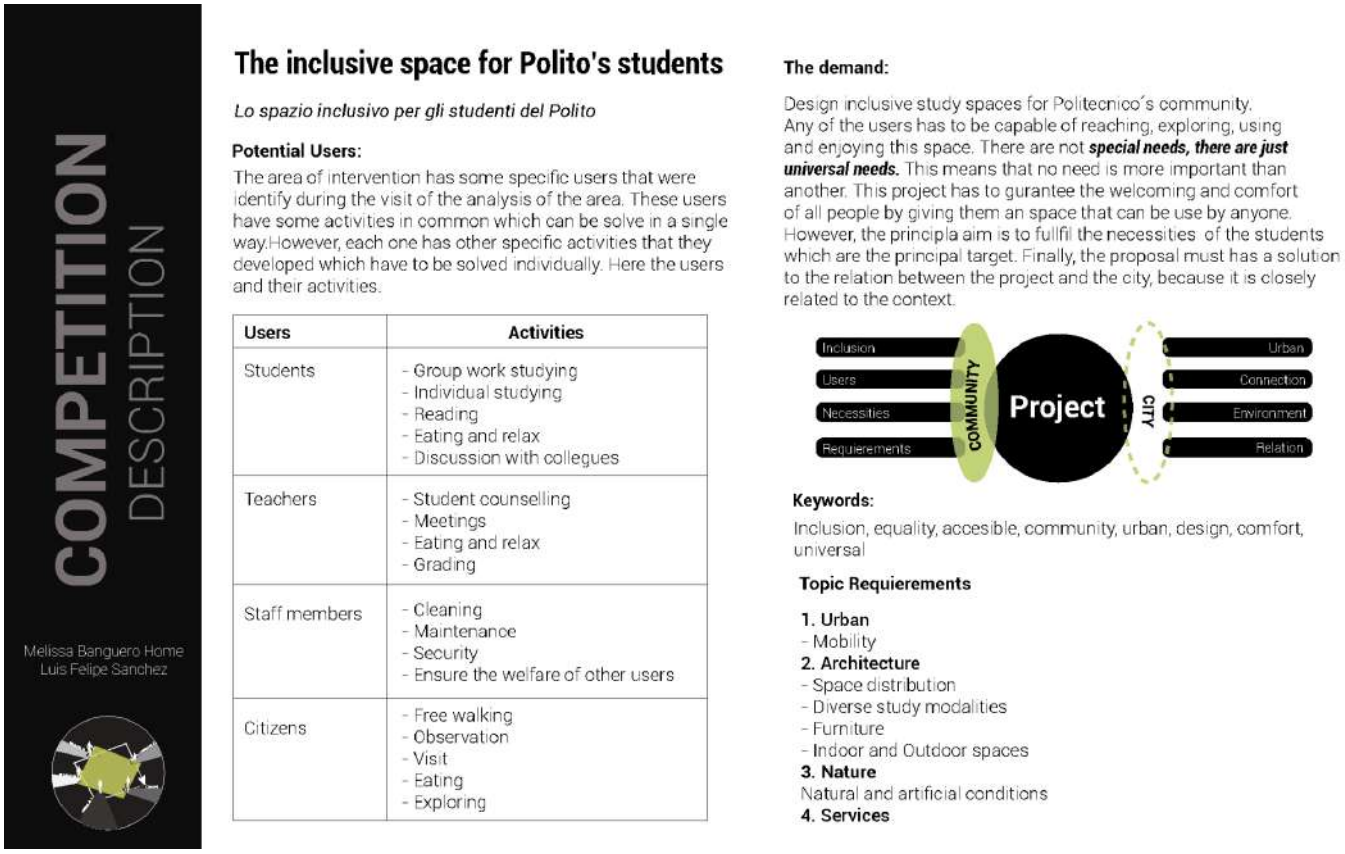


Image 1. Panel explaining the competition in a graphic way

This panel shows in a more brief way the intention of this competition. Defining the users, the activities they do and finally the demand of the project. This panel is part of the package of information that will be annexed for the competitors. This panel is the key for the projects development of each competitor because it describes the necessity and who is searching for it.

Each potential user has specific activities they do which are followed by a certain necessity. In this specific scenario there are four potential users **beginning with the students** which are the principal target. We are students of architecture who live the situation daily which helps us to understand better what students need and how to solve them. In summary, students have

different ways of studying depending on what they have to do or how they prefer to study. Students have to work in groups which is very common in architecture students or maybe they prefer to study alone because they have to concentrate while they are reading, which is more a profile of an engineering student. Also for students it is crucial to have spaces for relaxing, eating and heating their food. This means that there have to be areas where they can hangout with friends, disconnect for studying, a place where they can get their food because not everybody buys food at the bar. Then the **second potential user are teachers**, which use this type of space not precisely for studying but for working, grading, student counseling or having meetings. In common with students they have to release work stress and relax so they need a space for that, it can be a common space for students and teachers. After, the staff members who maintain and work in the area, for them it is crucial to have an area that they can use for storing their thighs but also save the cleaning and maintenance equipment. Finally, the citizens that maybe want to explore and know the place, for this exterior circulation, access and clear signs must be guaranteed in order to notice the area.

The next image will show the location of the lot in which the project will take place. Knowing the context and the surroundings of the area is important for making a project that relates in a good way with the exterior. This area was suggested by the office of Master plan of the university, because it is an area that is “abandoned” and without a specific use. Is a big green area which suits perfectly with the type of project that has to be developed. In this space outdoors areas can be guaranteed, it is well connected to the context, is a place that students frequented everyday whether to go to class, go to the study rooms or go to eat at La Mensa. In summary, it is a place that needs a character and provides any kind of benefit to Polito’s community and to the city.

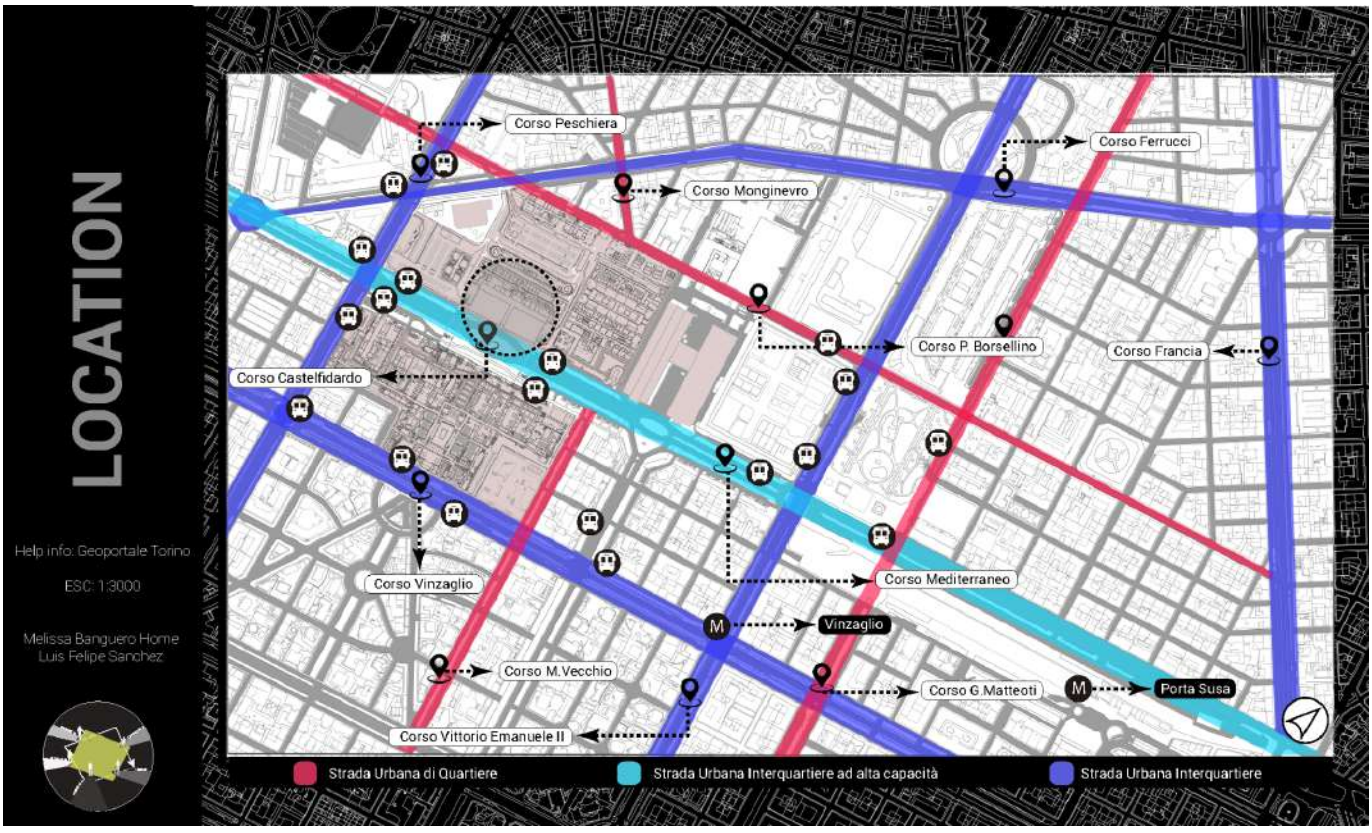


Image 2. Analysis of the area done by the authors

The design must follow some parameters and requirements displayed by the authors. These parameters will be lately exposed in a table where each one is described in a very detailed way. For this competition the idea is to define a **concept** which means describe why the space is configured in that way, make an analysis of the context evaluating the systems and features that are relevant with the design. After, make visible the process, how the competitor got to that design, make an urban plan where the project is visible and also part of the context to see their relation. It is necessary to develop the interior distribution of the space, noticing the furniture, circulation and green areas. Explain the facade strategy, architectural sections are required in order to see how the space works inside and its relation with the exterior. This competition is a single stage, which means that it is very conceptual, where the principal thing to do is explain how the space configuration works, make sure it fulfills the user necessities and the requirements, not need to show all the solutions in a very detailed way but in a conceptual way.

In order to let the competitors know the place, see an overview of the context and the reality of the place, the authors prepare a package of plans which would contribute to the competitors' understanding. This information will be available in the original format in a link at the end of this thesis in the annexes. However, the authors considered that for the knowledge and understanding of the readers it was decided to show a photo record of the reality of the area and a final plan that summarizes all the previous analysis of the area in order to realize any project.

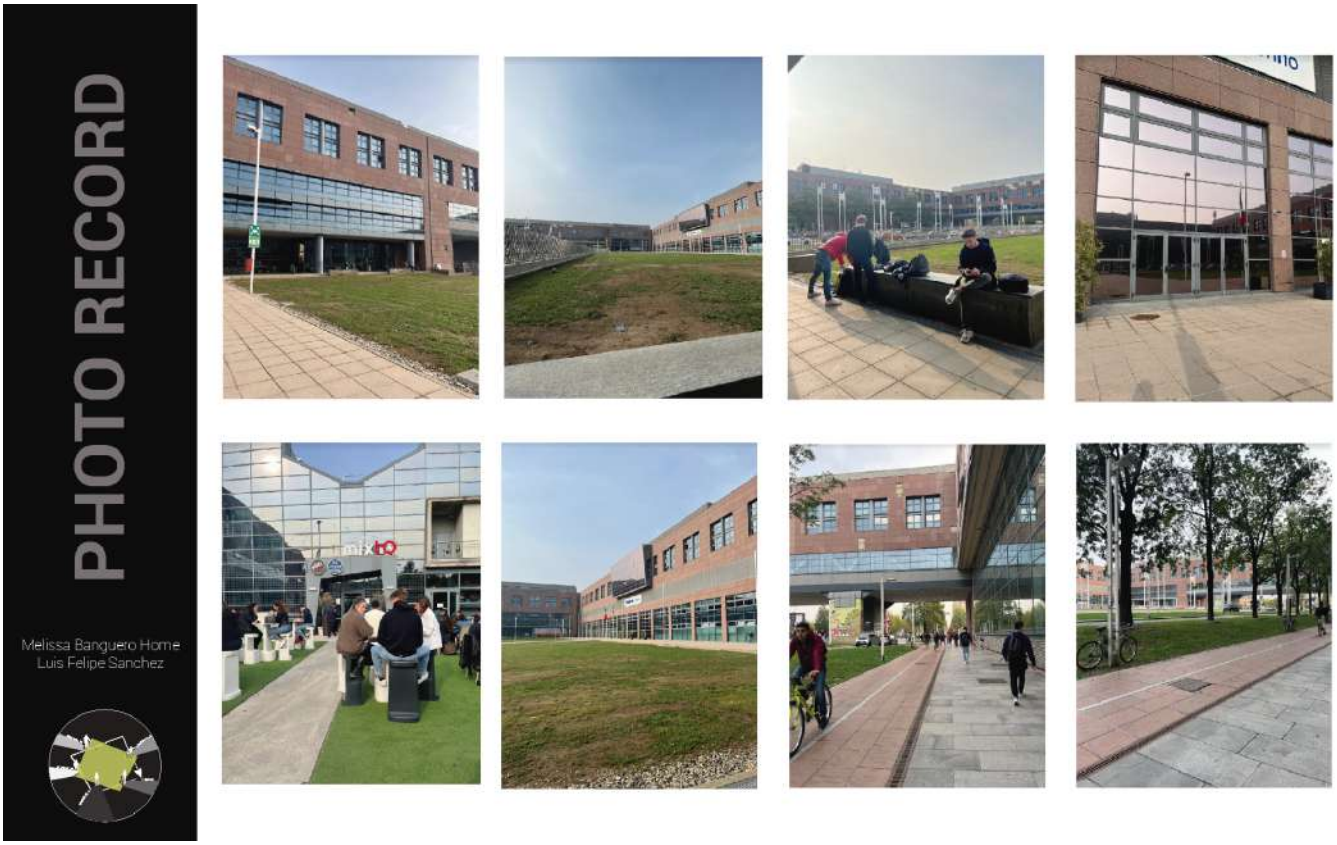


Image 3. Photos taken by the authors in the Politecnico campus

Image 4. Photos taken by the authors in the Politecnico campus

The photo record is a tool that is very important to see specific details of the areas such as, materiality, natural elements, furniture, sunlight and shadows. Images complement the plans and the analysis done in a more architectural way. These photos were recorded for the competitors but also for the authors in order to realize themselves the exercise of designing for the competition. For us, it was important to let the competitors know from where the photos were taken. Because in a hypothetical scenario some competitors can be participating from another part of the world and their visit to the place is impossible.

After locating the area of intervention, it is necessary to analyze the systems or layers that are involved. The systems that were considered according to the principal task and the project are: **mobility, green areas, uses and activities and morphology**. Mobility, for understanding how the area is connected with the city, if there were enough bus and tram stops, identify the nearest metro station and the street's character. All this to conclude if the area is reachable from different parts of the city. Green area system was crucial because during the analysis the authors realized that the area of intervention was one of the biggest green areas of the zone. Which means that this area must maintain its green character and that any project that would be constructed must respect this. Uses and activities are always necessary to identify which use is

more present and which is missing. The project must contribute to these uses or enhance them. Finally, morphology to understand the block's configuration and building's height to propose a project according to the actual configuration. The idea is not to make a project that appears without context but one that talks with reality.

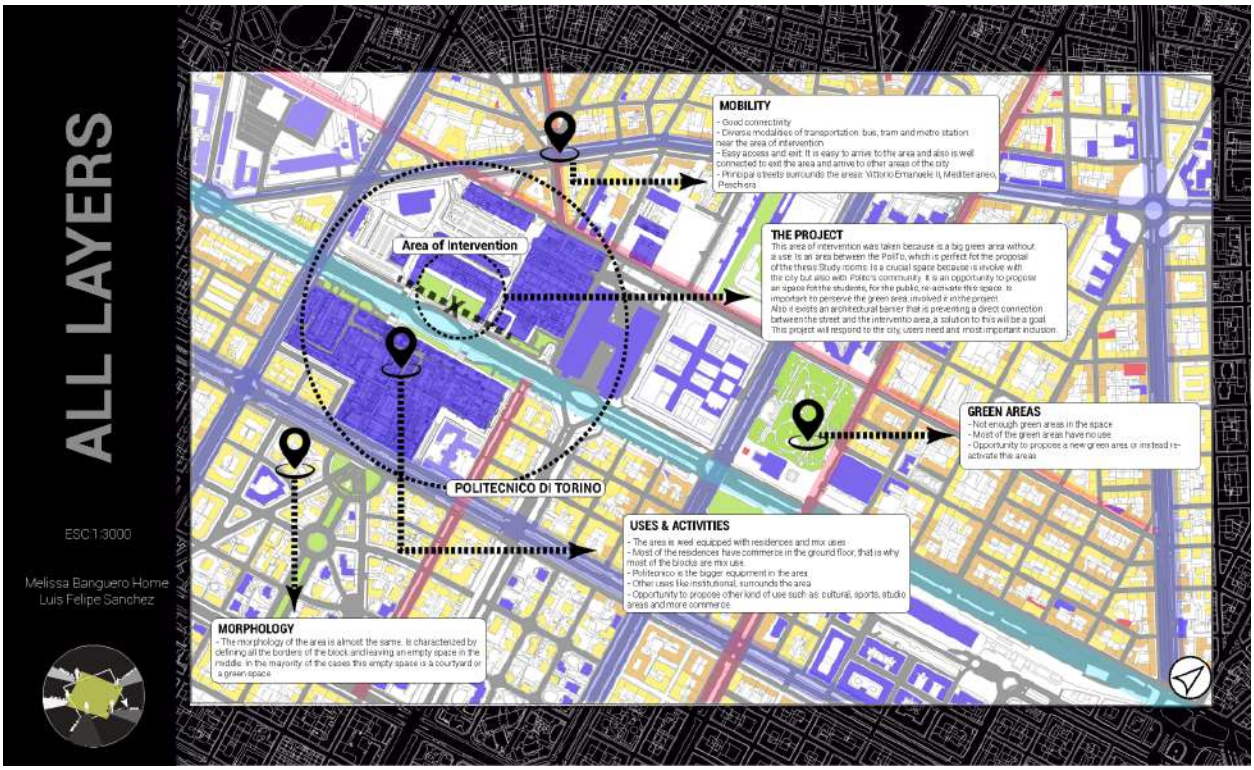


Image 5. Layout of all layers mixup that summarize the conclusions of each system

Finally,this was the description of the competition and an overview of the area in which the project must be settled. This is very important for the development of the project of each competitor because it is the guideline to follow in order to make a project that satisfies the necessities exposed by the users.

All the panels here and others mentioned will be annexed in a link for the competitors. The following section will expose the requirements and parameters in order to design an inclusive space.

4.3 Parameters/Requirements for designing inclusive study spaces

In order to design any project first it is necessary to understand and know the area of intervention and its users and subsequently recognize that there are some requirements and parameters that follow the necessities of the scenario. In this case the parameters are focused on inclusion primarily which means that each topic will be related with inclusive design. This part of the thesis is the main aspect because it is the result of all the previous investigation. These factors are the result of the research of the meaning of inclusion, its relation with architecture, how an educational space can be inclusive, after analyzing the user which is Politecnico's students and their necessities. These two chapters permitted the development of this table of parameters, the idea of this thesis was to develop these requirements in order to make a guideline for future architects. That is why it was decided to simulate a competition that follows the following table. This table contemplates first the users that are involved according to the topic, then the general topic, subtopics and finally the requirements explanation.

Firstly, the first topic that was considered was the urban part because it is very important to analyze the context and its actual condition and later intervene. Mostly for an inclusive project which has to be inclusive also outside the intervention area. This urban part considered the connection of the city with the project, the access, mobility and circulation of all users.

PARAMETERS/ REQUIREMENTS FOR DESIGNING INCLUSIVE STUDY SPACES

USERS UTENTI	GENERAL TOPICS ARGOMENTI GENERALI	SUBTOPICS SOTTOARGOMENTI	DEMANDS ESIGENZE	REQUIEREMENTS REQUISITI
For all users, mostly for users that have reduce mobility, visual conditions	**Urban**	1) Mobility 2)Context	1) Connection with the city 2) Accessibility 3)Definition of the spaces vs circulation 4) Outdoor and Indoor Mobility 5) Acess signs 6) Relevant with the context 7)Maintain the essence 8) Respect green areas 9)Terrain	**Mobility** 1) **Connection with the city:** The project must have a direct connection with the exterior. This means it has to be notable the existance of the project. Connection with the exterior pathways (pedestriand and bicycle) allow the people enter freely to the space. Avoid architectnonical barriers, for example the entering gate facing Cordo Castelfildardo. This type of barriers must be avoided and not permited. Take into account the use of the building beside, respect the access of this building and maintain a distance between the project and the building. 2) **Accessibility :** It is mandatory to guarantee the all access to every user. Users are all in the same level of necessities, all people need to move and transit in the area without obstacles. Access must be signposted in order to guide people. The use of different floor materiality can be a tool to evidence the entrance. Texture in walls or floor in order to guide people who has vision problems. Appropiate circulation measurement for high flow are crucial for the comfort of the users, it assures the good mobility for pedestrians, people arriving in bike or scooter. Bycicle and car parking must be contemplated and also other types of transportation such as a wheelchair. Architectonical barriers such as furniture in the middle of the circulation, a ramp that ends in a stair, no ramp when there is a slope are not allowed. 3) **Definition of the spaces vs circulation:** Define somehow which space is a permanence and circulation. This strategy serves for avoiding obstacles, respect of the activity inside the permanence and to determine where people can gather and where they transit. 4) **Outdoor and Indoor Mobility** Free and comfortabe moving in the space (wheelchair radio is important). The distribution of the activities has to be well determined so people transit does not interrupt the other actvities. 5) **Access Signs** It is not mandatory to design the signs but to guarantee that they exist . This is necessary in order to inform that the room, emergency evacuation and the entrance room **Context** 6) **Relevant with the context:** Take into cosideration the heights of the neighbord buildings. The project must be design together with the nerby area, so the project will look as part of context. The use of this project will be institutional, however some other activities can take place in regarding the actvities of the area. Add an activity of which the area lacks or doesn't exist is important fot the dinamism of the zone. 7) **Maintain the essence:** Preserve the areas essence, which means all have in mind that is a university area therefore the transit of students in different hours will take place in there. 8) **Respect green areas:** Maintain the green space is crucial, for students health, for the environment and also because is an aim of this competiton. Any study room/space must be related some how with any green area or nature. Also because this area is a big green space that belongs to the city. 9) **Terrain:** The topography is very important because it will guide the design which type of circulation/access is needed and where. It is important to maintan the slope and work with it, no matter how small it is.

Image 7. First part of the table explaining the urban topic, done by the authors

After the urban section, the architecture part is considered contemplating the space distribution by modules, the different ways of studying which correspond to the research of students' necessities, furniture design and finally the indoor and outdoor areas. This part is crucial because it helps to guarantee the comfort and permanence of the user inside and outside the space.

Students, teachers and citizens	**Architecture**	Space distribution	1) Modules 2)Empty and full space	1) **Modules:** For the distribution of the space, it is necessary to create a module that can be replicated all over the place. This module must be designed in a way that any activity can be realized inside. The measurements are free, every participant can decide them taking into consideration the comfort of the user. The shape of the module is decided by the contestant, it can be circular, square or rectangular any shape that fits in the area that permits all the other parameters. 2) **Empty and full Space:** The modules distribution must guarantee that there will be free space, this means that just a percentage of the area can be occupied. The full space should be where the modules will be placed and the empty space should be green areas or areas partially roofed.
		Diverse study modalities	1) Individual 2) Groups 3) Mix 4) Leisure	**For all modalites** Guarantee that students have different ways of studying depending on their preference. Any design or space configuration must count with the 4 modalities and have to be equiped with the correct furniture.
		Furniture	1)Tables 2)Chairs	1) **Ergonomics** Students spend a lot of time in this rooms that is why it its important that all furniture complies ergonomically. It is very important becaluse this will help students to have a better performance meanwhile they are studying. Also protects their body and health. All furniture must assure that a wheel chair must be capable to fit in, people with this condition must also feel in an ergonomic position. 2) **Adaptable and flexible** Furniture must be malleable for any kind of activity, this topic is crucial because is the way how the space is going to be filled. Assure that furniture permits to have different atmospheres. 3) **Their transportation** Furniture must me movable in order to gurantee informality and flexibiliy in the space. They have to be able to move easily and comfortably 4) **Chairs with backrest** Chairs must be comfortable, the backrest is a tool that permits a good posture and a long permanence in the place 5) **Electrified furniture** Tables must have a plug-in, for educational users it is crucial tu have electricity in the place where they are. This is very comfortable because they dont have to move and keep the concentration. 6)**Materiality** The materility has to be lightweight in order to be movable, durable and sustainable in the future. They have to be strong so they can to support computers, people and other stuff.
		Indoor and Outdoor spaces	1) Connection 2)Green areas 3) Leisure areas	1) **Connection** The project must guarantee a visual or direct connection between indoor and outdoor. The enclusures must be permeable, this means that it is easy to see through it in case the space is close. When the connection is direct it has to be evident, marked the circulation in order to distinguished the pathway. 2) **Green areas** Guarantee the inclusion of green areas or natural elements in the study areas. If the design is more introveted the way of having contact with nature can be adding plants, design furniture that include plants. The total area can not be completely built., it has to have a balance between the constructed and the green or free area. Also it must be incided because nature helps to have a better academic performance 3) **Leisure areas** It is indispensible to have this type of area because is the way students relax, talk, eat and have a break from stress. This places are good for mental health. However, they must be separated from areas of extreme concentration such us individual working or conference rooms because they cause a lot of rumor. It is important to decide where it is more convenient to put them.

Image 8. Second part of the table explaining the architecture topic, done by the authors

The last part of the table contemplates nature and the services. Nature means the natural conditions of the space regardless if it is indoor or outdoor. The topics involved in this part are illumination, rumor, shadow and ventilation which are crucial for the thermal comfort of the space. If some of his topics can not be guaranteed the artificial conditions must appear which are artificial lighting and ventilation to assure acceptable conditions for the space. Artificial factors will be used the most in interior spaces. Regarding the service section it is focused on the spaces that fulfill specific necessities of the users. These necessities are bathrooms, storage for saving bags or personal items, food facilities, heating areas and electrical points. They are very important because they are very specific but students look for this type of thing while they are working or studying, it guarantees the permanence of the user.

Students an teachers	**Nature**	Natural and Artificial conditions	1) Light 2) Rumor 3) Ventilation	1) **Light** Good natural illumination is crucial for concentration, health and comfort. Windows must have a height that can be reacheabe for all. Everybody has to see outside the window and guarantee that the facade permits that light go inside the space. For indoor spaces artificial illumination must be guaranteed. It has to be an illumination that does not bother the user, preferible not direct and assure that there are not dark corners or spaces in the area. 2) **Rumor** Combine activities depending on the noise that they generate. This will help to assure concentration and good atmosphere in the area depending on the activity 3) **Ventilation** Natural ventilation is a factor that has to be guaranteed in any scenario or design. Cross ventilation is a strategy that helps air to flow in the space. Consists having two openings in opposite sides, where ventilation comes in and has a way out. The position of the openings or windows have to be studied. - In summer air condition and in winter heating for indoor. It has to have thermal comfort, which means that the indoor temperature is in equilibrium. 4) **Shadow** Guarantee protection elements for indoor and outdoor spaces. Pergolas, eaves, wall with openings are strategys thta can be included as elements tha produce shadow.
Students,teachers, citizens and staff	**Services**	Services	1) WC 2) Food facilities 3) Heating food areas 4) Storage 5) Electrical points	1) **W.C.** Make inclusive bathrooms. They have to be close to the rooms and accesible to all. All bathrooms must have measurements that permit everybody access, without the necessity to have additional bathroom with specific conditions. 2) **Food Facilities** It is a service that benefits the users but also the commercial industry. It is perfect for students to have where to eat in the same place they are studying. The food facility must be in a short distance form where users are working or studying. Also having food spots attracted more people to visit the project and guarantee the permanence in the space. 3) **Heating areas** For people that brings their own food needs to heat it. - This service must be located in the leisure areas to avoid rumor 4) **Storage** This type of service must be inside the study rooms so it will be easier to storage and take out the things. However, it can be also possible to contemplate an specific place where people know that it works as an storage "room" or area . It will be use for bags, jackets, sweaters and other stuff that students bring. This helps to have empty space in the tables and chairs and also for security and comfort

Image 9. Third part of the table explaining nature and services topics, done by the authors

This section of the chapter was reserved for the product result of the whole investigation of this thesis. This resumes all the previous aspects of this thesis, which is principal aim was to question how education spaces can be inclusive. The design of an inclusive study space for the population of the Politecnico di Torino community was the task due to the necessity of inclusion that the community was noticing. This table is focused first in the investigation of inclusion where the conclusion was that inclusion does not mean just take care of the “special needs”, but that is a concept that concerns every single necessity that has to be unified. There are no special needs, there are just needs, everybody has a special need that has to be solved, a community has a special need and its solution will engage everybody. That is why the general topics appear, which are urban, architecture, nature and services because these topics are the overview of all that has to be part of the project. The general topics include the subtopics that are the details of all the necessities that were concluded after doing the analysis of the Politecnico’s structure. All the descriptions of topics are focused on the population, later the demands of those subtopics are listed and described in a very detailed way as a design guide.

The design of the study space was the principal subject of the thesis but the authors decided to make a twist of the focus of the subject. Which means that the final result will be the space but guided by this table that was designed by them.This table turned out to be the conclusion of the investigation, but it was done with the purpose of simulating a competition where the competitors must follow this table. The authors will be “part of the competitors” to show the others how to follow this guide for designing the inclusive study space and give an example of how the space will look.

In the next chapter the author's proposal of the project will be exposed for the knowledge of the competitors and the verification that the parameters can be reachable.

Chapter Note:

1. Esa Mohamed, Malaysia, UIA President 2014-2017. Guidelines UIA Competition Guide for design competitions in architecture and related fields pg.3
2. Guidelines UIA Competition Guide for design competitions in architecture and related fields pg.3

https://www.uia-architectes.org/wp-content/uploads/2022/02/2_UIA_competition_guide_2020.pdf

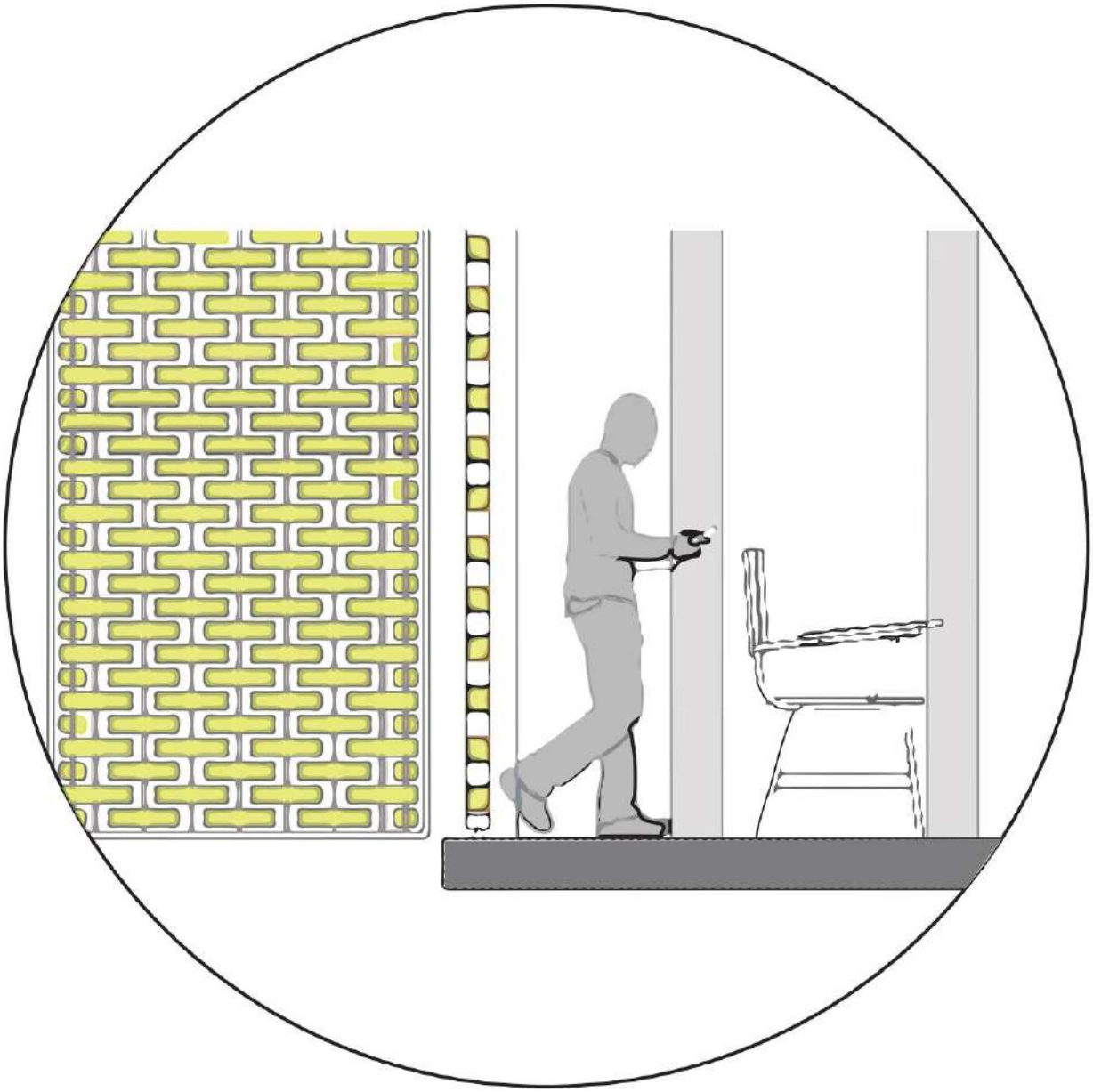
3. UNESCO Regulations Art. 2.Guidelines UIA Competition Guide for design competitions in architecture and related fields pg.8

https://www.uia-architectes.org/wp-content/uploads/2022/02/2_UIA_competition_guide_2020.pdf

4. UNESCO Regulation Art.3. Guidelines UIA Competition Guide for design competitions in architecture and related fields pg.8

https://www.uia-architectes.org/wp-content/uploads/2022/02/2_UIA_competition_guide_2020.pdf

5. Image 1: Layout explaining the competition, users and activities, it was done by the thesis authors
6. Image 2: Location of the intervention area and mobility, done by the thesis authors
7. Image 3: *Photos taken by the authors in the Politecnico campus*
8. Image 4 : Photos taken by the authors in the Politecnico campus
9. Image 5: *Layout of all layers mixup that summarize the conclusions of each system*
10. *Image 6: Article inspiration for chapter cover* https://whereisthenorth.com/7-ways-to-incorporate-inclusive-design-principles-in-your-design-project/
11. Image 7: Urban part of the table of requirements and parameters https://docs.google.com/spreadsheets/d/1ydJeVe397_g6vVBlOsndIVEyNBhFXifL7EBnlS17_EY/edit#gid=0
12. Image 8: Architecture part of the table of requirements and parameters https://docs.google.com/spreadsheets/d/1ydJeVe397_g6vVBlOsndIVEyNBhFXifL7EBnlS17_EY/edit#gid=0
13. Image 9:Nature and services part of the table of requirements and parameters https://docs.google.com/spreadsheets/d/1ydJeVe397_g6vVBlOsndIVEyNBhFXifL7EBnlS17_EY/edit#gid=0



CHAPTER 5

Study project Proposal

Image done by the authors

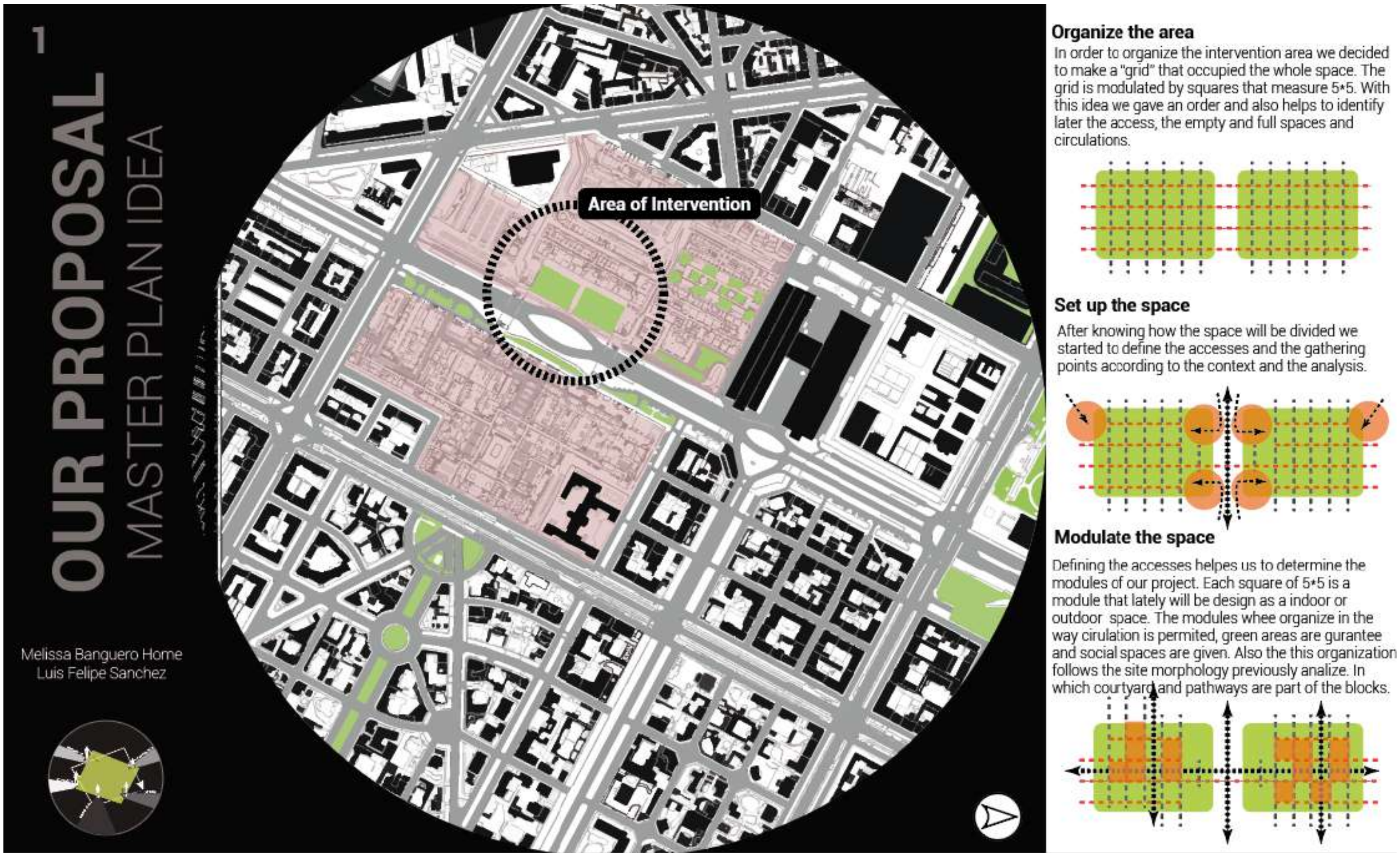
Chapter 5 / Capitolo 5

Exercise of possible configuration/design by the authors
Esercizio della possibile configurazione/progettazione da parte degli autori

This chapter is about the author's proposal of an inclusive study space for Politecnico di Torino university. This proposal is an example for confirming and demonstrating that the parameters that were exposed by the authors can be realized as a project. Is a project that responds to the necessity of having a space that can be used by multiple users, relates with the city and with the context conditions. In this chapter, the idea of the project is exposed, followed by the plans and sections that explain in a more architectonic way and finally some facade and furniture details. In every layout there is the table of parameters with a new column which identifies the solutions that were given by the designers to each requirement.

Questo capitolo presenta il progetto di uno spazio di studio inclusivo per il Politecnico di Torino. Questa proposta è un esempio per confermare e dimostrare che i parametri esposti dagli autori possono essere realizzati come un progetto. È un progetto che risponde alla necessità di avere uno spazio utilizzabile da più utenti, relazionato con la città e con le condizioni del contesto. In questo capitolo, l'idea del progetto è esposta, seguita da piani e sezioni che spiegano in modo più architettonico e, infine, alcuni dettagli di facciata e mobili. In ogni layout è presente la tabella dei parametri con una nuova colonna che identifica le soluzioni che i progettisti hanno dato ad ogni esigenza.

Urban solutions



Contraste with the parameter table

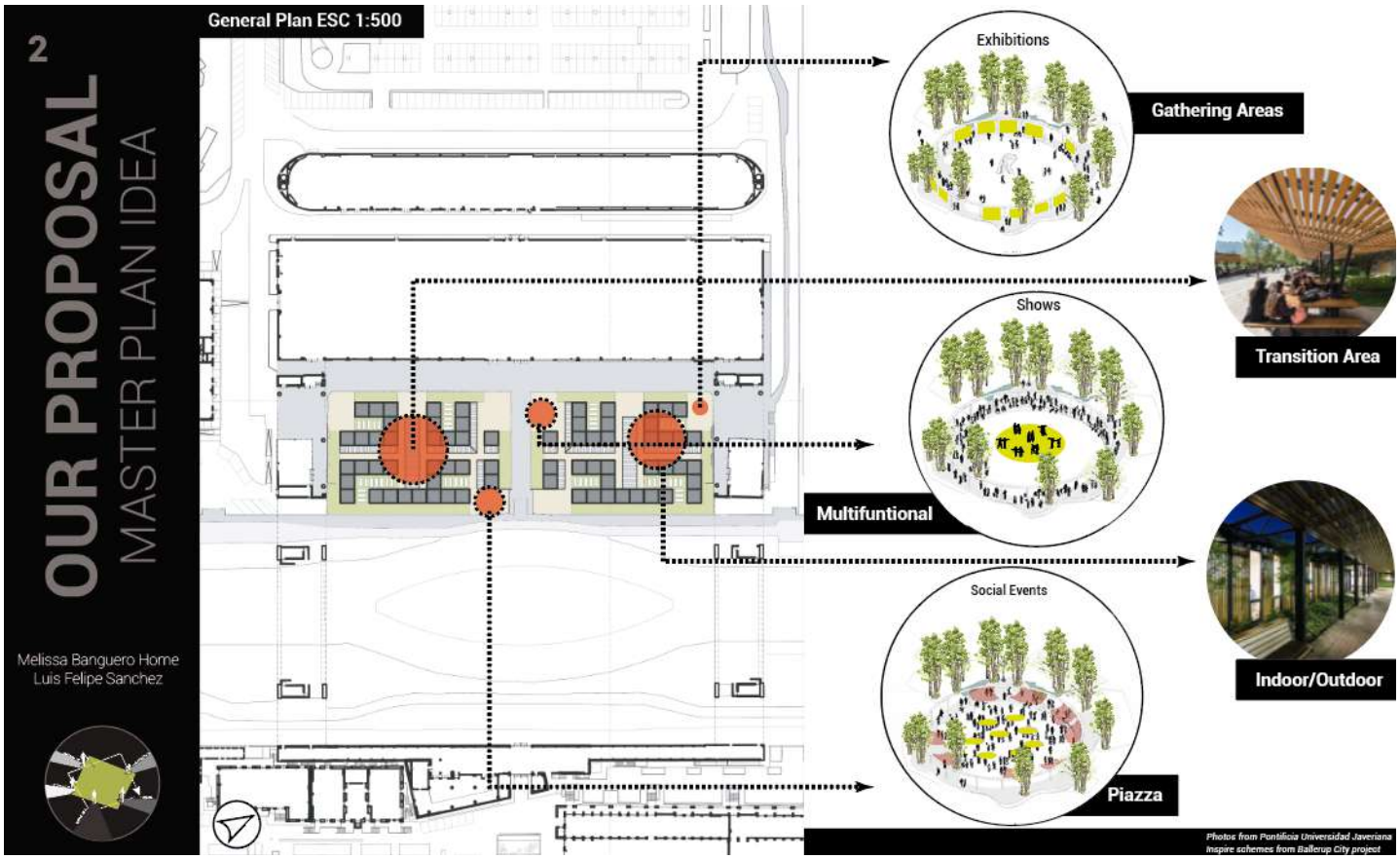
We decide to contrast the project design vs the table of parameters to fulfill. Each item in this table was answered with a strategy that was taken by us as a solution for the requirement.

PARAMETERS/ REQUIREMENTS FOR DESIGNING INCLUSIVE STUDY SPACES					
USERS UTENTI	GENERAL TOPICS ARGOMENTI GENERALI	SUBTOPICS SOTTOARGOMENTI	NEEDS ESIGENZE	REQUIEREMENTS REQUISITI	DESIGN SOLUTION SOLUZIONE PROGETTUALE
For all users, mostly for users that have reduce mobility, visual conditions	**Urban**	1) Mobility 2)Context	1) **Connection with the city:** Allow people enter freely to the space without barriers. 2) **Accessibility :** Entances and circulations must be for all people. 3 **Definition of the spaces vs circulation:** Determine circulation from other uses 4) **Outdoor and indoor Mobility:** Moving from inside to outside should be comfortable for everybody 5) **Acess signs :** The signals for entrances to any activity must be remarkable for everyone 6) **Relevant with the context:** Any construction must contemplate the context 7)**Maintain the essence:** Observe the atmosphere and the common users of the space and maintain them 8) **Respect green areas:** Green areas must be preserved. Do not constructed in all the lot 9)**Terrain:** Take into consideration the terrain levels and adapt the project to the terrain	**Mobility** 1) **Connection with the city:** The project must have a direct connection with the exterior. This means it has to be notable the existance of the project. Connection with the exterior pathways (pedestrian and and bicycle) allow the people enter freely to the space. Avoid architectonical barriers, for example the entering gate facing Corso Castelfidardo. This type of barriers must be avoided and not permited. Take into account the use of the building beside, respect the access of this building and maintain a distance between the project and the building. 2) **Accessibility:** It is mandatory to guarantee the all access to every user. Users are all in the same level of necessities, all people need to move and transit in the area without obstacles. Access must be signposted in order to guide people. The use of different floor materiality can be a tool to evidence the entrance. Texture in walls or floor in order to guide people who has vision problems. Appropiate circulation measurement for high flow are crucial for the comfort of the users, it assures the good mobility for pedestrians, people arriving in bike or scooter. Bycicle and car parking must be contemplated and also other types of transportation such as a wheelchair. Architectonical barriers such as furniture in the middle of the circulation, a ramp that ends in a stair, no ramp when there is a slope are not allowed. 3) **Definition of the spaces vs circulation:** Define somehow which space is a permanence and circulation. This strategy serves for avoiding obstacles, respect of the activity inside the permanence and to determine where people can gather and where they transit. 4) **Outdoor and Indoor Mobility** Free and comfortabe moving in the space (wheelchair radio is important). The distribution of the activities has to be well determined so people transit doesnot interupt the other activities. 5) **Access Signs** It is not mandatory to design the signs but to guarantee that they exist. This is necessary in order to inform that the room, emergency evacuation and the entrance room **Context** 6) **Relevant with the context:** Take into cosideration the heights of the neighbord buildings. The project must be design together with the nerby area, so the project will look as part of context. The use of this project will be institutional, however some other activities can take place in regarding the activities of the area. Add an activity of which the area lacks or doesn't exist is important fot the dinamism of the zone. 7) **Maintain the essence:** Preserve the areas essence, which means have in mind that it is a university area therefore the transit of students in different hours will take place in there. 8) **Respect green areas:** Maintain the green space is crucial, for students health, for the environment and also because is an aim of this competition. Any study room/space must be related some how with any green area or nature. Also because this area is a big green space that belongs to the city. 9) **Terrain:** The topography is very important because it will guide the design which type of circulation/access is needed and where. It is important to maintain the slope and work with it, no matter how small it is.	**Mobility** 1) **Connection with the city:** Four squares (plazze) were design for the welcoming of the users from different points of entrance. 2) **Accessibility:** Numerous entances in differents points of the area. Texture pathway all around the area guiding users with visual diffuculties. Circulation is well define this permit no obstacles for a free and comfortable mobility. 3) **Definition of the spaces vs circulation:** Change of texture between circulation and permanence. The measure of the circulation is proportional to the size of the interior space. 4) **Outdoor and Indoor Mobility:** Modules are distributed in a way that the mobility between spaces is comfortable. The measurment of the modules and the outdoor circulations and permanences permit the good mobility between both spaces. 5) **Access Signs:** In the plans the places were the access sign should be placed are pointed. **Context** 6) **Relevant with the context:** The height of all the project does not clug the context, it blends in it. The materiity of the facade is releated with the one in the area. 7) **Maintain the essence:** The focus activity of the project is studying which is consistent with the actual use of the building. 8) **Respect green areas:** Green areas are well design and placed in the accurate places for te interaction of the users with them. 9) **Terrain:** Only one level is define for all the project, to permit the easy mobility for all conditions.

The project begins with the context analysis which is the first topic to consider in the table of parameters in the previous chapter. The first step was to organize the area. We decided to make a “grid” in equal multiples that cover the whole area. The grid is modulated by squares that measure 5*5, this grid helped us later to identify the accesses, green areas, full spaces and circulations. After the organization the next step was to set up the space which means to decide where the activities are going to take place. The first factor to consider was to define the accesses which would be related with the context. Mobility was the system that helped us to know from where the people will arrive and there we define where the accesses would be appropriate and also the access signs.

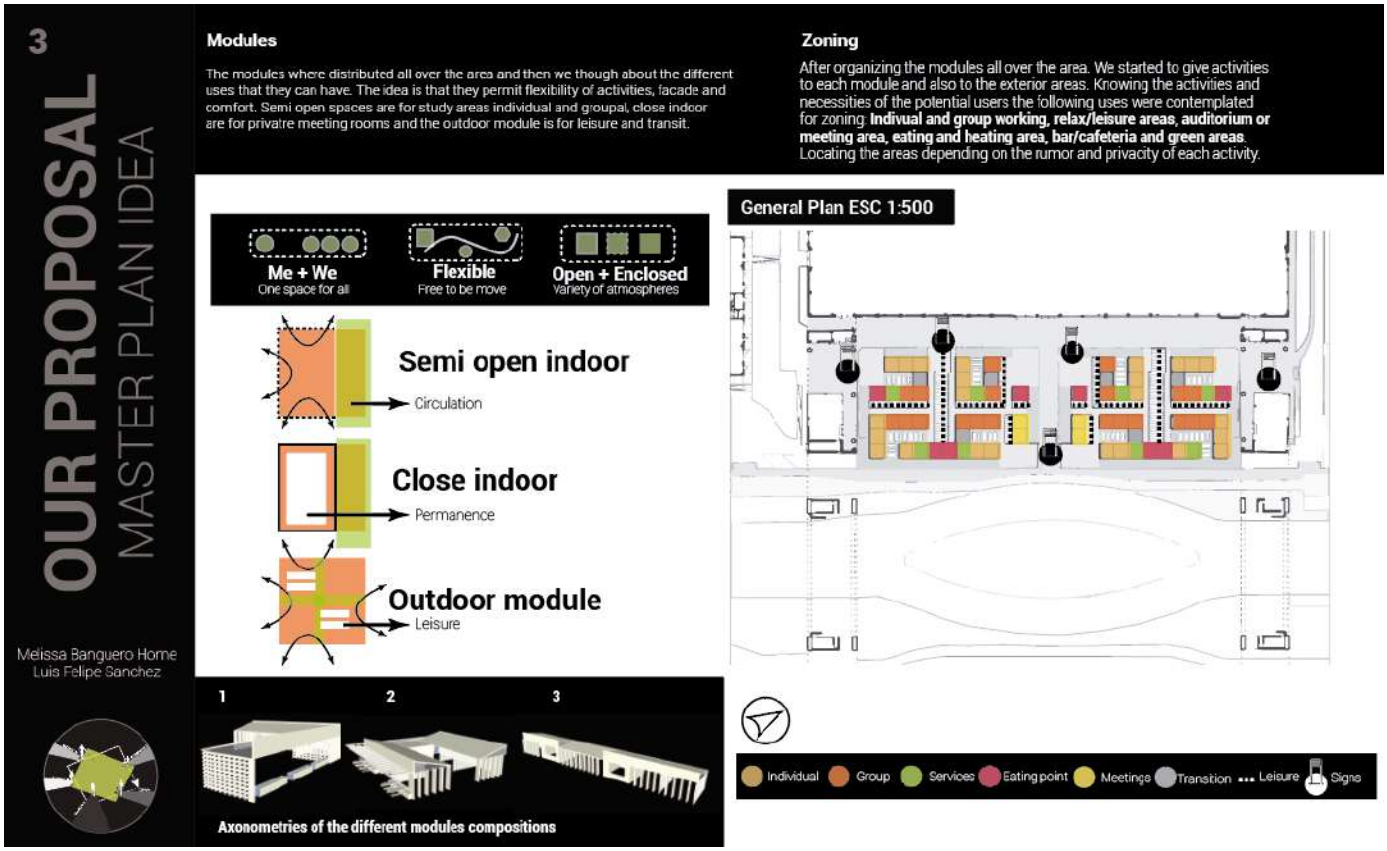
Each square or module of the grid permits circulation, green areas, social spaces or individual spaces. The idea was to fulfill the parameters of the table, however the idea was to maintain the essence of making an architectural project which will contribute to the lifestyle of the students. The master plan idea was conceived by modulating the space which permits to understand how and where to place “x” activity. Then, define where the circulation should be, the green or empty spaces and the stays.

Modules Solutions



Space distribution	1) **Modules :** The design of the project must be by modules. The shape and measures of the module is free. 2) **Empty and full space:** Empty space should be green areas and full for the modules.	1) **Modules:** For the distribution of the space, it is necessary to create a module that can be replicated all over the place. This module must be designed in a way that any activity can be realized inside. The measurements are free, every participant can decide them taking into consideration the comfort of the user. The shape of the module is decided by the contestant, it can be circular, square or rectangular any shape that fits in the area that permits all the other parameters. 2) **Empty and full Space:** The modules distribution must guarantee that there will be free space, this means that just a percentage of the area can be occupied. The full space should be where the modules will be placed and the empty space should be green areas or areas partially roofed.	1) **Module:** In order to organize the intervention area we decided to make a "grid" that occupied the whole space. The grid is modulated by squares that measure 5*5. With this idea we gave an order and also helps to identify later the access, the empty and full spaces and circulations. 2)**Empty and full spaces:** The configuration of the space leave empty spaces that correspond to the green spaces. The full spaces are individual study areas, groupal study areas or leisure areas.

In this case the shape of the modules that we choose were square, which let us distribute the space optimally. The modules were distributed all over the area thinking that these modules have different uses, however they would be open, semi-open and for outdoor use. This means that open are modules that are covered (roof) but without walls or windows. The semi-open would be covered, with walls or windows that permit the interaction with outside. Finally, the outdoor modules are the ones that can be of any use such as, circulation, plaza, gathering point, etc. The design respects the parameter of having empty and full space with the strategy of giving green areas for each full space. This means that every group of modules will be related to a green space. Each full or occupied space has a specific activity, we distribute the modules by individual, group or leisure use. Locating the individual rooms in an area that has low noise, isolated from circulations with vegetation. The group rooms and leisure areas are located in areas that cause more noise and rumor. The idea was to have all the required spaces but guaranteeing the functionality of them, without disturbing one activity from the other.



Diverse study modalities	**For all modalites :** Any project must count with different kinds of studying and interacting to guarantee an inclusive design - Individual - Groups - Leisure	**For all modalites** Guarantee that students have different ways of studying depending on their preference. Most of architecture students have and like to work in group because the type of work they have to deliver is on groups. Ingeenering students study mostly individually, because their exams are invividual and more theoretical. It is necessary to have a leisure areas where people can eat, talk, rest and relax from the routine . Any design or space configuration must count with the different modalities and have to be equiped with the correct furniture.	After organizing the modules all over the area. We started to give activities to each module and also to the exterior areas. Knowing the activities and necessities of the potential users the following uses were contemplated for zoning: Indiual and group working, relax/leisure areas, auditorium or meeting area, eating and heating area, bar/cafeteria and green areas. Locating the areas depending on the rumor and privacty of each activity.

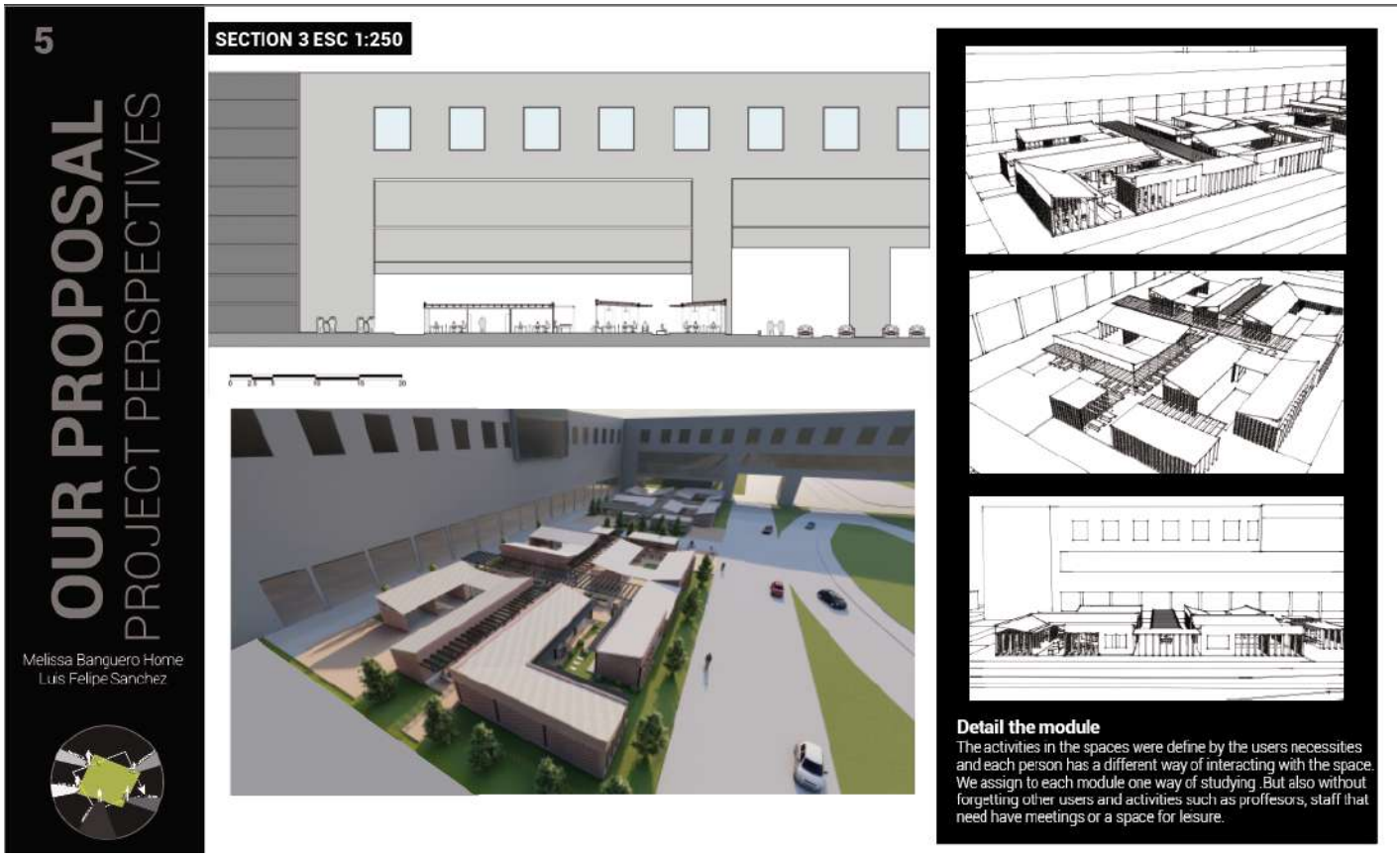
With the zoning of the modules we guarantee all the activities suggested by the parameters which are study rooms: individual and group, services (bar and cleaning areas), bathrooms, leisure area, cafeteria or bar and heating area.

Architecture Solutions

Indoor and Outdoor spaces	1) **Connections:** Visual or direct connect. between indoor and outdoor areas 2)**Green areas :** Nature or green elements must be present in all cases. 3) **Leisure areas :** For eating, relaxing, talking and resting. Students and other users enjoy this type of activities	1) **Connection** The project must guarantee a visual or direct connection between indoor and outdoor. The enclosures must be permeable, this means that it is easy to see through it in case the space is close. When the connection is direct it has to be evident, marked the circulation in order to distinguished the pathway. 2) **Green areas** Guarantee the inclusion of green areas or natural elements in the study areas. If the design is more interested the way of having contact with nature can be adding plants, design furniture that include plants. The total area can not be completely built., it has to have a balance between the constructed and the green or free area. Also it must be included because nature helps to have a better academic performance 3) **Leisure areas** It is indispensible to have this type of area because is the way students relax, talk, eat and have a break from stress. This places are good for mental health. However, they must be separated from areas of extreme concentration such us individual working or conference rooms because they cause a lot of rumor. It is important to decide where it is more convenient to put them.	1) **Connection:** The strategy for the facade permits this. Smash walls and separate brick pillars permits the visual connection with the exterior. Also there is direct connection between the circulation and the outside spaces. 2) **Green areas:** The idea was to surround the project by green areas in a consctuos way. The project is isolated from the street by a big green area giving the possibility to open the facades to these areas. The rest of the green areas are the entrances of the modules and also surrounde some public spaces. 3) **Leisure areas:** The leisure areas are in the center of the project. One per each big square (there are two), also there are others that surround some modules. The plazas are considered a transit and circulation area, however the bar's give them a commercial essence where people can hang out also.

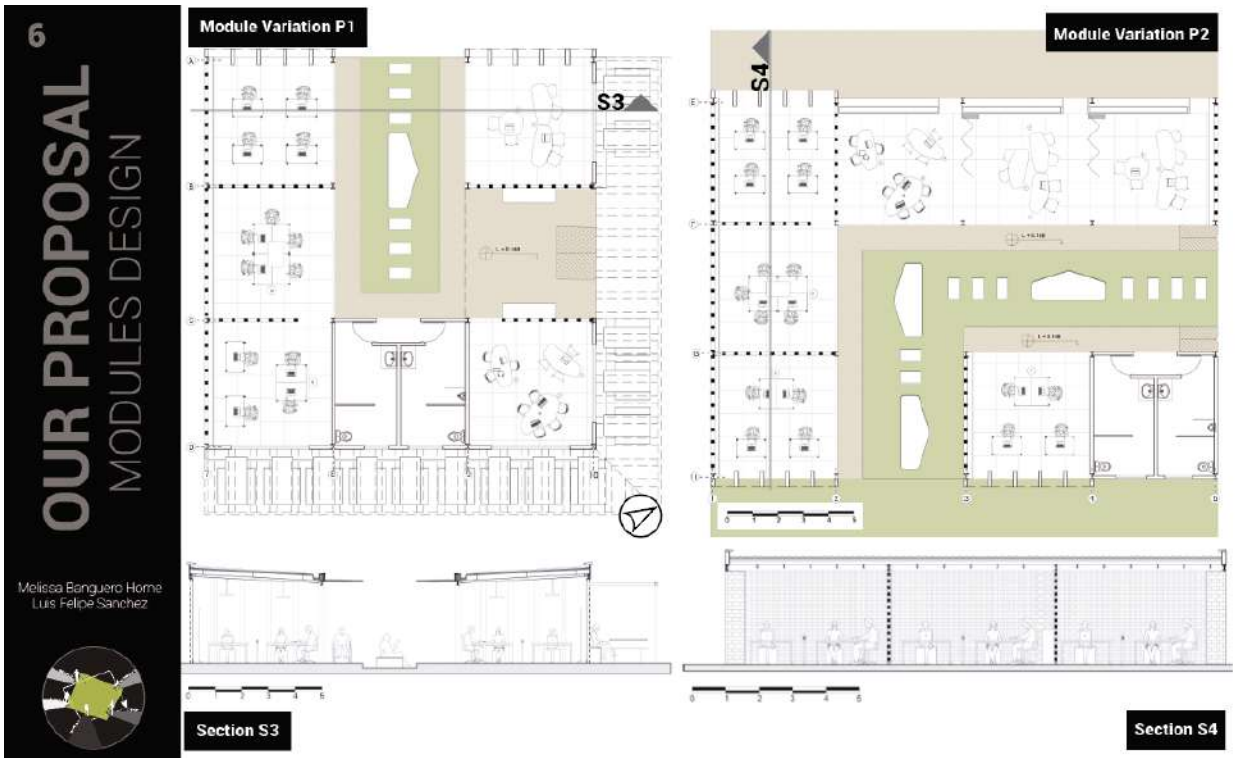
For guaranteeing the connection between indoor and outdoor the strategy for the facade is the tool that permits this. Smash walls and separate brick pillars permits the visual connection with the exterior. Also there is a direct connection between the circulation and the outside spaces. Later for green areas The idea was to surround the project by green areas in a conscious way. The project is isolated from the street by a big green area giving the possibility to open the facades to these areas. The rest of the green areas are the entrances of the modules and also surround some public spaces. Finally, for the leisure areas we decided to locate them in the center of the project. One per each big square (there are two), also there are others that surround some modules. The plaza's are considered a transit and circulation area, however the bar's give them a commercial essence where people can hangout also.

Facade Solutions



For this part of the project we decided to adopt certain strategies for developing our facade. These strategies are smashed walls and pillars that permit sun radiation and ventilation pass through the space. Also shadow is solved with these elements, depending on the facade the shadow will appear. The facades that have more solar radiation will be the east and the west facade so the best solution is the smashed wall that has openings in order to control more the sun. This smashed wall will be individual panels of 1m*3m that later are joined to form a big

smash wall. It will be held by metallic elements between them and then join to the general structure. The other two facades will present the pillars with the same rhythm in every module. This rhythm permits more sun and wind entering than the previous strategy. These pillars are supported by the whole module's structure.



Comfort	Natural and Artificial conditions	1) **Light:** Natural and artificial illumination must be guarantee in all spaces. Depending on the area one type of illumination will predominate. 2) **Rumor:** The design must contemplate the different rumors that generate each activity. Select the activities that will be near depending on how much noise they generate. 3) **Ventilation :** Natural ventilation must predominate, however artificial ventilation in indoor areas are aceptable. 4) **Shadow:** Use elements that generate indoor and outdoor shadowing.	1) **Light** Good natural illumination is crucial for concentration, health and comfort. Windows must have a height that can be reacheabe for all, everybody has to see outside the window and guarantee that the facade permits that light go inside the space. For indoor spaces artificial illumination must be guaranteed. It has to be an illumination that does not bother the user, preferible not direct and assure that there are not dark corners or spaces in the area. 2) **Rumor** Combine activities depending on the noise that they generate. This will help to assure concentration and good atmosphere in the area depending on the activity 3) **Ventilation** Natural ventilation is a factor that has to be guaranteed in any scenario or design. Cross ventilation is a strategy that helps air to flow in the space. Consists having two openings in opposite sides, where ventilation comes in and has a way out. The position of the openings or windows have to be studied.-In summer air condition and in winter heating for indoor. It has to have thermal comfort, which means that the indoor temperature is in equilibrium. 4) **Shadow** Guarantee protection elements for indoor and outdoor spaces. Pergolas, eaves, wall with openings are strategys that can be included as elements tha produce shadow. This will facilitated the studying and permanence of any user in an outdoor area. For an indoor space is necesary to have shadow in order to reduce the radiation and heat in the inside.	1) **Light:** Natural light entrance is permited by the facade with the strategy of smash walls. This strategy permits the air and the light go inside the room in a control way. 2) **Rumor:** The individual modules are separate from the group modules and also from the leisure areas. The individual activities are the ones that requiere more silence, for isolating them from the circulations we generate a green area that works as a barrier. 3) **Ventilation:** With the same strategy for lighting we fulfil the necessity of good ventilation in indoor sapces. 4) **Shadow:** The elements of the facade generate shadow in the interior spaces. For the outdoor spaces we propose a pergola that cover the leisure areas and this element generates shadow.

7

OUR PROPOSAL
FURNITURE

Melissa Banguero Home
Luis Felipe Sanchez

Ideas taken from Mela co street furniture
www.mela.co.il

Steel case furniture solutions
https://www.steelcase.com/

Furniture Ideas

The choice of the furniture for this type of project is crucial because it depends on the use of the space. In this scenario, we decided to select the furniture according to the modules. **Furniture for individual working, for group, leisure, eating and meetings.** Always serching for prototypes that are ergonomic and comfortable, for each type we search for a style that us as students know thta will be functional.

8. Possible Furniture Materiality

For the materility of the furniture it will depend on the use and the place where they are.


For pergola


For circulations


For indoor furniture

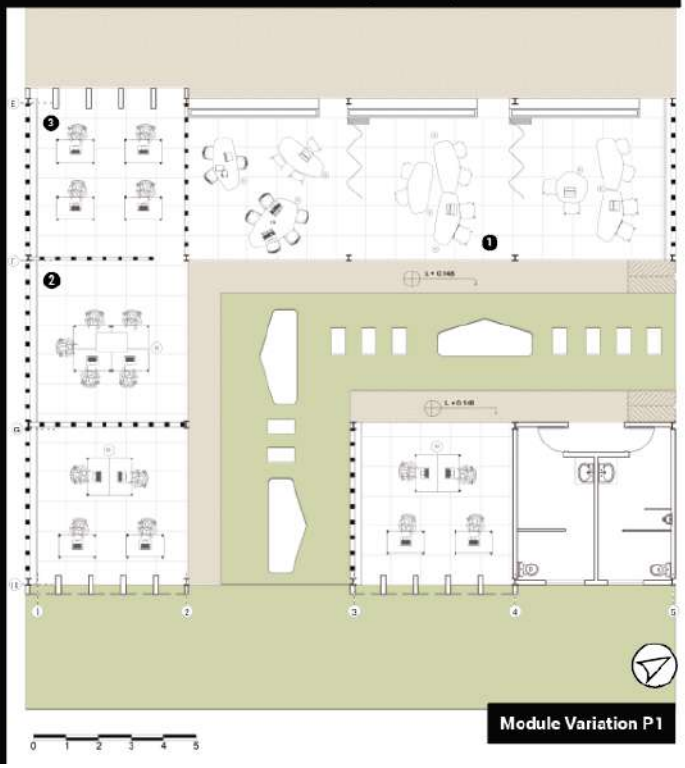

For outdoor furniture

8

OUR PROPOSAL
PROJECT PERSPECTIVES

Melissa Banguero Home
Luis Felipe Sanchez

Indoor Furniture: Movable and flexible to configurate the space




1


2


3

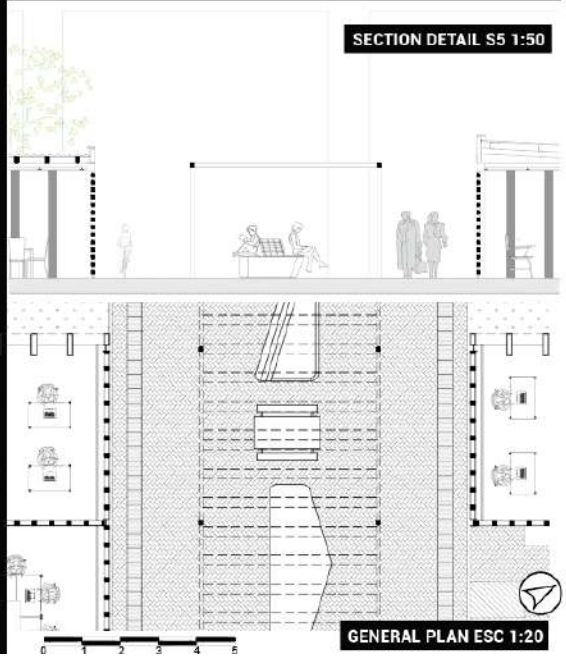
9

OUR PROPOSAL
OUTDOOR FURNITURE

Melissa Banguero Home
Luis Felipe Sanchez

Detail Furniture

The furniture of this project is simple, comfortable and suitabe for any user. In this panel two examples of furniture are shown, one for indoor and other for indoor activities. Each one of them has their own characterisitics that help to develop the activities specify by the users.



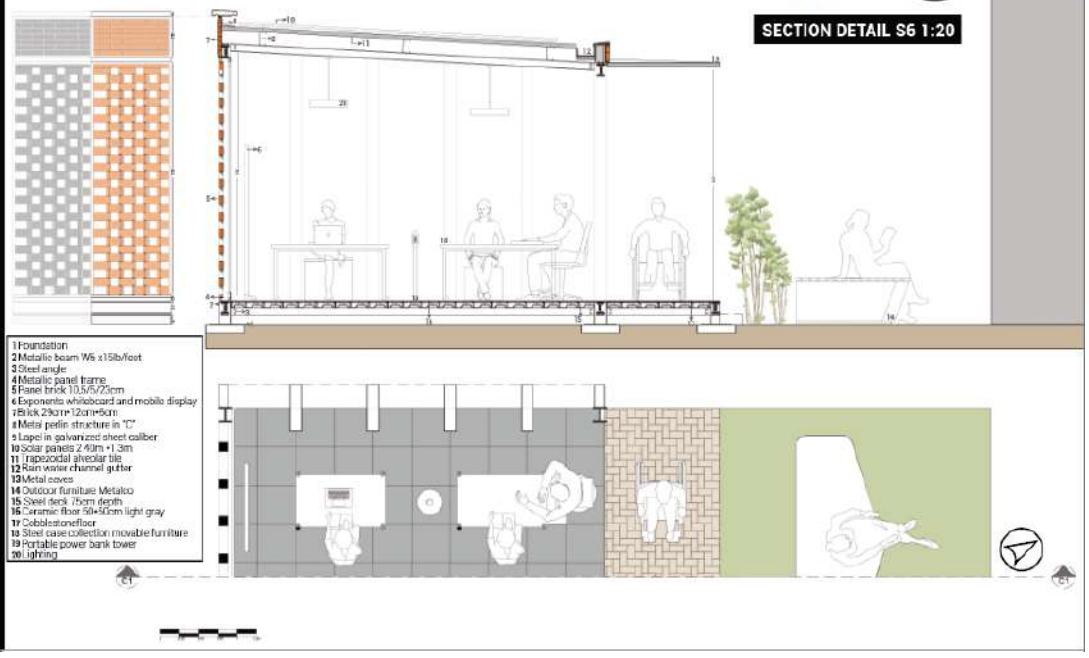
10

OUR PROPOSAL
DETAILS

Melissa Banguero Home
Luis Felipe Sanchez

Explaining facade and atmosphere relations

This facade strategy was decided in order to create comfort inside the space. Openwork walls are use for letting the user to have privacity but also have contact with the exterior. The light entering in the space comes in a control way without disturing the activities inside.



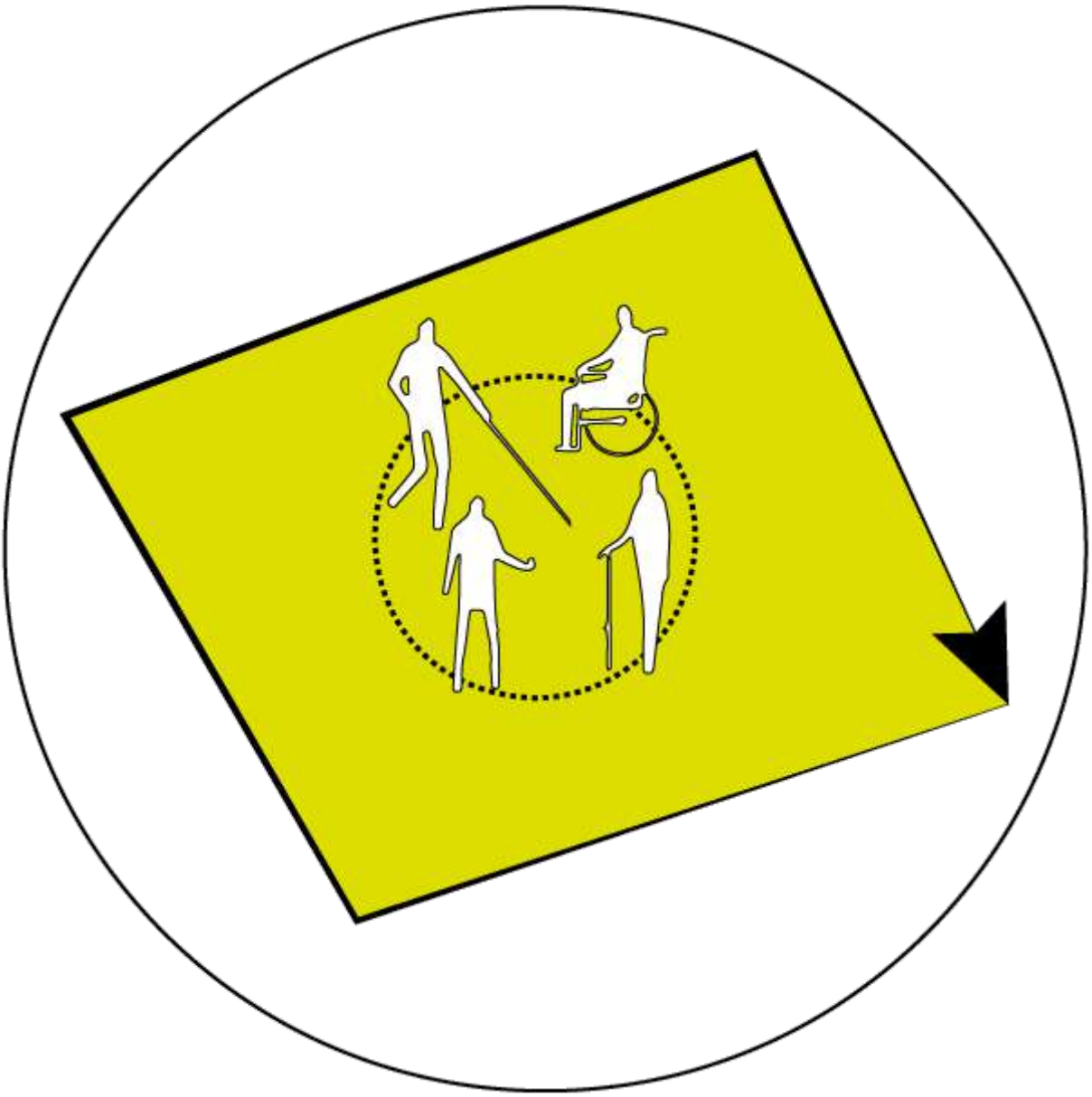
Furniture	1) **Ergonomics:** Furniture must fit the people who use them 2) **Adaptable and flexible:** Assure the furniture can be placed in the space in different ways 3) **Thei transportation:** Tables and chairs have to able to move in a comfort way 4) **Electrifies Furniture:** is a must that furniture has where to plug any electronical device and especially in a university campus 5) **Materiality:** Light and durable materiity. Easy to clean and maintain.	**1) Ergonomics** Students spend a lot of time in this rooms that is why it its important that all furniture complies ergonomically. It is very important because this will help students to have a better performance meanwhile they are studying. Also protects their body and health. All furniture must assure that a wheel chair must be capable to fit in, people with this condition must also feel in an ergonomic position. **2) Adaptable and flexible** Furniture must be malleable for any kind of activity, this topic is crucial because is the way how the space is going to be filled. Assure that furniture permits to have different atmospheres **3) Thoir transportation** Furniture must me movable in order to gurantee informality and flexibily in the space. They have to be able to move easily and comfortably **4) Chairs with backrest** Chairs must be comfortable, the backrest is a tool that permits a good posture and a long permanence in the place **5) Electrified furniture** Tables must have a plug-in for educational users it is crucial tu have electricity in the place where they are. This is very comfortable because they dont have to move and keep the concentration. **6)Materiality** The materiality has to be lightweight in order to be movable, dumble and sustainable in the future. They have to be strong so they can to support computers, people and other stuff. Also it has to be a material that can be easy to clean and maintain.	**1) Ergonomics:** Chairs with back rest and individual tables with wheels that permit them to be movable and comfotable for users with wheelchairs. The heigh of the chairs and tables are suitable for wheelchair users. **2) Adaptable and flexible:** The furniture can be move and configure depending on the necesity. Tables can be smilly and form a bit table or be individual and chairs can be meve depending on the table position. **3) Thoir transportation:** Wheels that can be block for stability in chairs and table **4) Chairs with backrest:** Yes for any scenario **5) Electrified furniture:** Electrified tables **6) Materility:** For outdoor furniture the materility is Powder coated steel and Hardwood or Larch For indoor furniture the materility is coach for th sofa, stainless steel and wheels

For the furniture we as students analyze that it is very important that a study room principally has to have chairs with a backrest for ergonomy and comfortability. Also that the furniture can not be very heavy for its transportation, sometimes students want to move or configure the space differently. Its materiality has to be light and easy to clean that is why we decided to have for outdoor areas hardwood with pigmented impregnation which is a material used by Metalco [1] for outdoor elements. For indoor furniture the materiality is polypropylene which is a thermoplastic polymer that can be presented in different presentations. This material is not heavy and the maintenance is not difficult. The electric points will be placed in the tables for comfort of the users.

This exercise helped us to analyze if the parameter/requirements table was accurate and achievable. It was very interesting to develop a project whose base is a table of parameters that was done by us too. Also how words can be traduced as a project with plans, axonometric views, facades and sections. With this chapter we wanted to tell the process of how the project was done and with which strategies. The idea was to recount in steps how the design was gradually benign detail.

Chapter Note:

1. Hardwood with pigmented impregnation: Metalco Stile the feature.pg 809
http://www.metalco.it/site2016/wp-content/uploads/2021/02/Metalco-Stile-the-features-EN-ESP%20L.pdf



CHAPTER 6

Conclusions - Conclusioni

Image done by the authors

Conclusions- Conclusioni

Inclusion is a theme that involves any discipline and in this case is architecture. The objective of this thesis was to relate architecture with education and inclusion. Contemplating inclusion from a point of view that is more than dealing with disabilities and making solutions for that. Is also about thinking and analyzing the potential users and their lifestyle. There is not a special condition, everybody has a condition, it can be a learning issue, lack of concentration, people who work better alone without noise or others who prefer to discuss and have meetings for studying. With the research we figure out that for many years it was a concept that was taken into consideration just in some scenarios, however nowadays it is becoming part of our lifestyle and we can not ignore it. This is the reason why the final product of this thesis is a guideline (parameters) to design an inclusive study space for the community of Politecnico di Torino which was the study case that we chose. Furthermore, it was decided to create a contest to transform that guideline into a project. To end this process, the authors play a role as “contest participants” and design an example of how it will be a project guided by those parameters. It was a very interesting exercise because the thesis began with deep research and gradually it was gaining more strength to reach the point of a project.

According to the objective, the thesis will be resumed in 3 products that will be developed depending on the thesis point. This means that during the process of the thesis each point gives the following results:

1) After the analysis of the study rooms at Politecnico di Torino we create a **table of parameters/requirements** that are the guideline for the next result of this thesis. With this table we can conclude that this university does not count with study spaces that have indoor and outdoor atmospheres. Politecnico has study areas but just with indoor spaces and outdoor spaces are crucial for students' performance and mental health. Another conclusion is that the concepts in the table are related between them. This means that when one topic is being solved that solution will be directly involved with another topic. Which is interesting because this means that every solution will be coherent with the whole project. Finally, it can be concluded that this type of exercise of making a list or table of parameters analyzed should be done before making a design. In order to assure a project that solves the correct premises.

2) Furthermore, for making this table a tangible proposal we decided that it will be interesting to create a simulated **competition**. This competition consists in making an inclusive study room based on the previous table. In conclusion, this competition is a good tool for generating different points of views from various designers with the same objective. With a competition many proposals or projects will appear giving a variety of possible solutions that can be the potential project, which permits to see the authenticity of the designers. Finally, it was possible to create a competition without losing the principal topic which was inclusion.

3) Finally, the authors of the thesis decided to realize an exercise for testing if it was possible to make a project with those parameters. The project that was designed by the authors is the verification of how words become reality. In conclusion, it is possible to connect the project with the context in terms of accessibility, materiality and uses. The area has a lot of potential because it is well located, close to PoliTo where the principal users (students) are and is abandoned. This proposal demonstrates that it is possible to make an inclusive project not just focus on disabilities but also in the activities of the users. The idea was to integrate mobility, ways of studying, nature, commerce, and transit users. Lastly, the project should not be visible for its height, it must be notable because of its space quality and what it offers to the city and users. The principle idea is to focus on solving the parameters by making a project that includes all demands.

To resume all the work that was done during this interesting thesis we can conclude that Politecnico di Torino features a good amount of study rooms in all venues. However, there's a need to make these types of spaces that can be used in different ways. Flexibility is a factor that is not being taken into account, this permits a variety of scenarios inside the same space. One strategy that can solve this issue is furniture and free-empty spaces. This allows people to manage the area as they need, the key is to select the appropriate furniture that guarantees no barriers. Another fact that is missing in the actual rooms is the relation with the exterior and its surroundings. It was confirmed in the first chapter that mental health and good performance in students is related with nature and exterior experience. There is a need for having outdoor spaces that connect with the indoor areas, which are the place where students spend the most. We can say as Politecnico students that it is very comfortable to have this duality in the study spaces. Being able to study and have an outdoor space just a few steps away, for relaxing and distracting the mind is a benefit that humans must have. The relation of the indoor and outdoor can be direct or indirect. This means that in some cases maybe it won't be possible to have an outdoor area but the relation can be visual. The conclusion is that there are multiple options and valid strategies that can be used in order to guarantee having a way people can have contact with the exterior. This helps people to release stress and anxiety, develop better ideas, share with colleagues and step out of their ordinary routine.

Architecture must guarantee spaces that can be used by one or more people, with flexibility to modify it and finally guarantee a good atmosphere for the user. It is fundamental to design areas in which people can work together but also individually. Having freedom in the space to move in it as people prefer, this helps the creativity flow as they feel free to adjust to their own way. Finally, the comfort and well-being of the user is very important for the development of any activity they are realizing.That is why guaranteeing a variety of atmospheres for the users helps them to experiment multiple scenarios that will depend on their needs and preferences.

Inclusive study spaces can be a tool for education to become a more dynamic and flexible theme. Giving this type of opportunities to people can turn a daily and routine task into an experience that involves more aspects that makes it enjoyable.

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Engineering Campus General Distribution
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Actual situation of Politecnico's interior distribution. Identifying activities and Uses
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Furniture materiality. Hardwood with pigmented impregnation: Metalco Stile the feature.pg 809
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