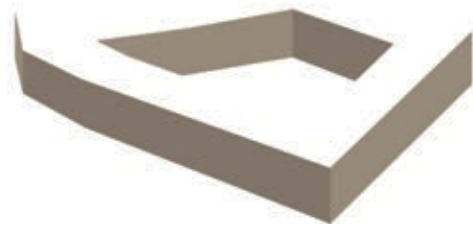


MASTER PLAN CAMPUS

CONSTRUCTING NEW STUDENT RESIDENCES AND REHABILITATING THE EXISTING

■ A T E N A S T U D I O

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**TIRANACAMPUS
UNIVERSITY**



AFFORDING THE SITUATION

Government vision Competition program: scope

1. Improvement of the student social life and dormitory physical conditions in CE Standards
2. Duplication of the student campus capacity (from 5 000 to 10 000)
3. Improvement of the financial performance of the Campus to achieve a less annual Governmental funding and looking at other alternative financing and management systems, for instance stimulating a **mix of public-private investment through a project financing approach**

ANALYSES CURRENT CAMPUS DATA

Total area = 215 230 ha (re-evaluated property boundary)
 Base built area = 23 840 m²
 $Kut = 23\,840\,m^2 / 215\,230\,m^2 = 11\%$ use of the territory
 Total built area = 83 484 m³
 $Ki = 83\,484\,m^2 / 215\,230\,m^2 = 0.38$ built intensity

Existing dormitory total built area = 73 540 m²

Total existing rooms = 2424 rooms

Existing students = 2424 rooms x 2.5 student/room =
 =aprox. 6 000 students

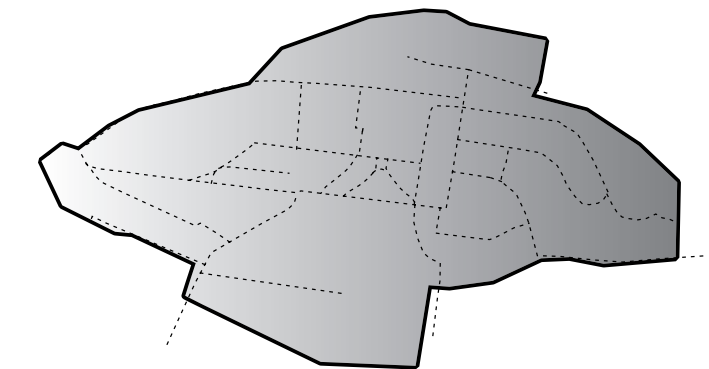
Theoretical students number after revitalization of the existing buildings =
 = 2 424 rooms x 2 stud/room = 4 848 students
 program target to be achieved 10 000 students

HISTORICAL ANALYSIS



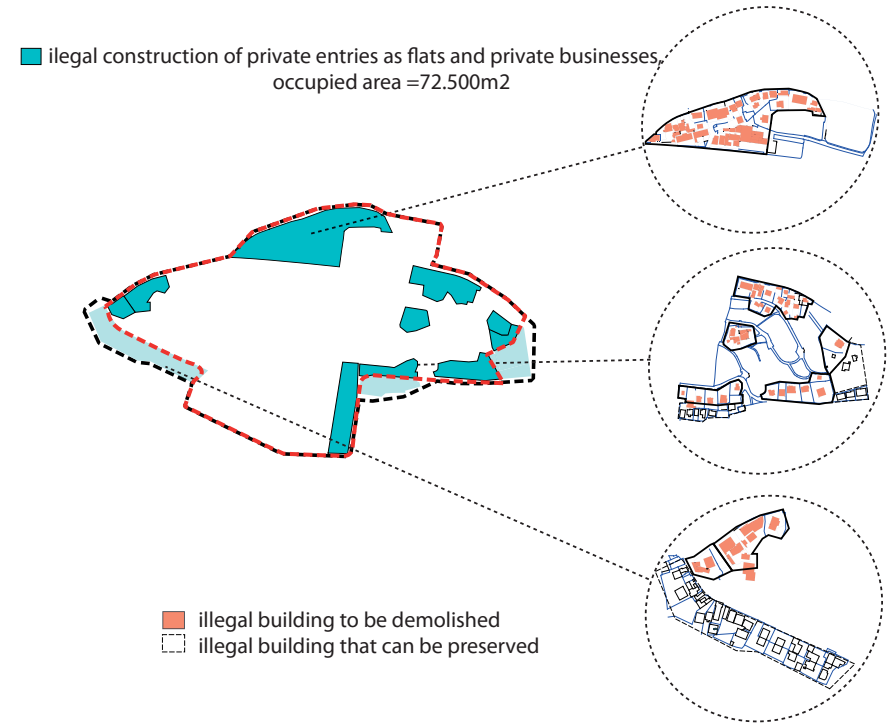
— territory of city student in 1992-1997= 248 435 m²
 — proposed territory of city student area= 215 230 m²

Territory of city student in 1992-1997

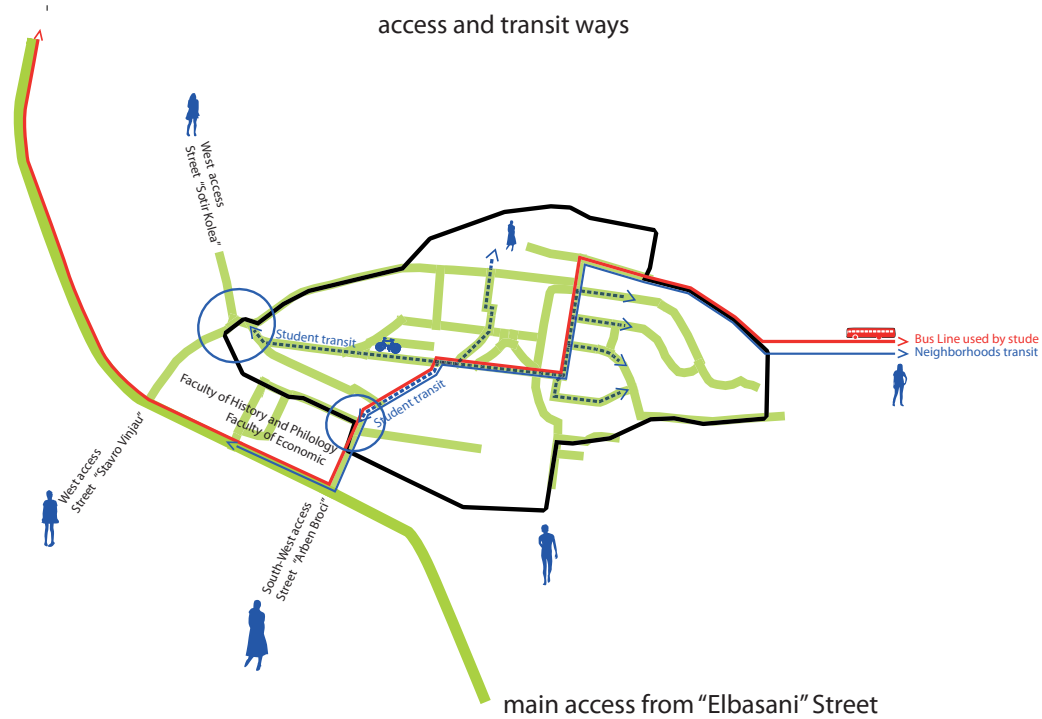


Area= 248435 m²

APPROACH WITH ILLEGAL CONSTRUCTIONS



ACCESS



PLANNING STRATEGIC APPROACH

3 potential alternatives

Increasing the existing built intensity, preserving all the existing dormitory buildings.

Replacing all the existing buildings with new ones, well designed in a perfect master plan.

Thinking in a huge scale, but developing step by step.

1. Increasing the existing built intensity, preserving all the existing dormitory buildings.

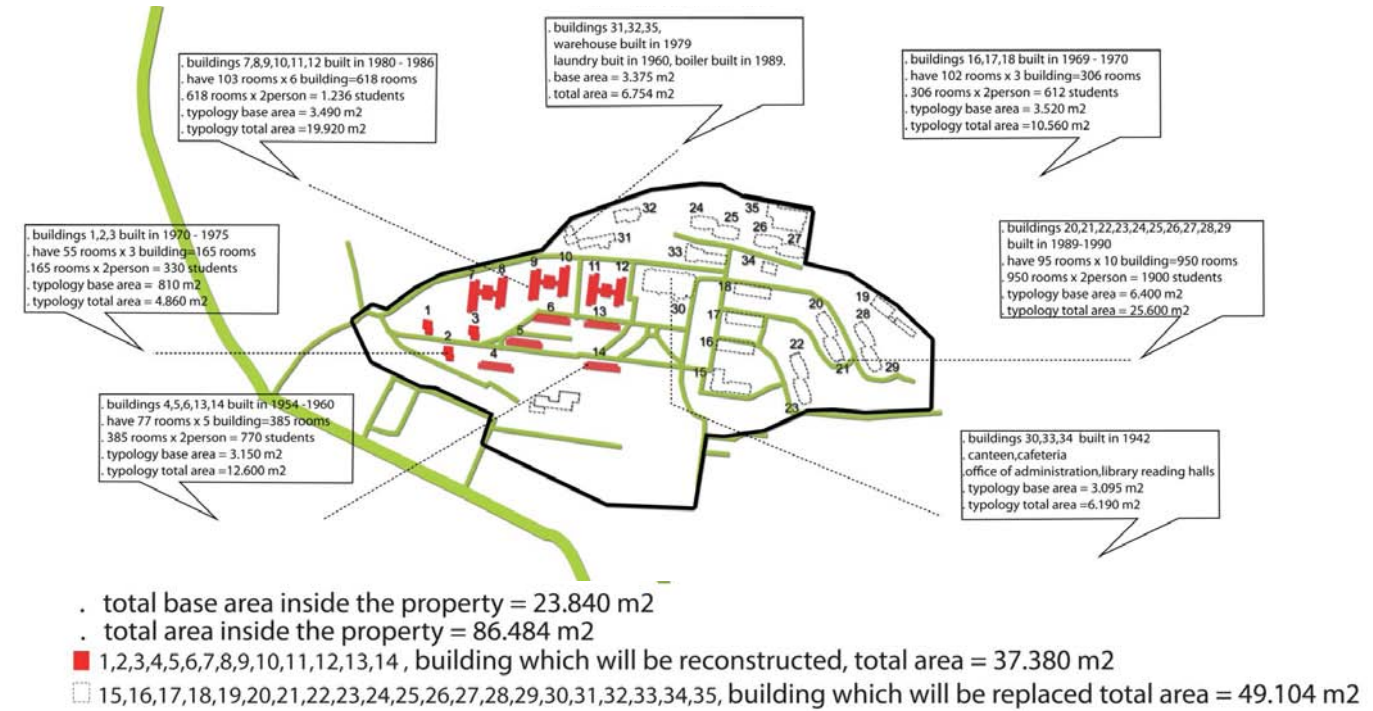
It could be done making use of the existing voids in the between spaces. What we benefit: We do not demolish the existing buildings and we save 60-100 €/m² as difference of reconstructing existing and building new ones. Total difference= 73 540 m² exist. dormitory buildings x 100 €/m² = 7 354 000 € What we loose: We could not have a. quality and fluid space interaction with other campus buildings and common spaces, b. quality public spaces, squares, etc, c. qualitative dormitories performance, d. qualitative public facilities, e. functional services inside each building

2. Replacing all the existing buildings with new ones, well designed in a perfect master plan.

This alternative could strongly amplify the doubts, if it could ever happen or not. The cost of this venture is :
10 000 students to be housed x 24 m² / student = 240 000 m² x 550 €/m² = 132 000 000 €
30 000 m² of public facilities and services x 650 €/m² = 19 500 000 €
Total funding = 151 500 000 € + Existing building demolishing cost
What we benefit: We could potentially have a perfect functional and aesthetical student Campus design. What we loose: Demolishing the existing buildings, we loose 60-100 €/m². Total difference= 73 540 m² exist. dormitory buildings x 100 €/m² = 7 354 000 €

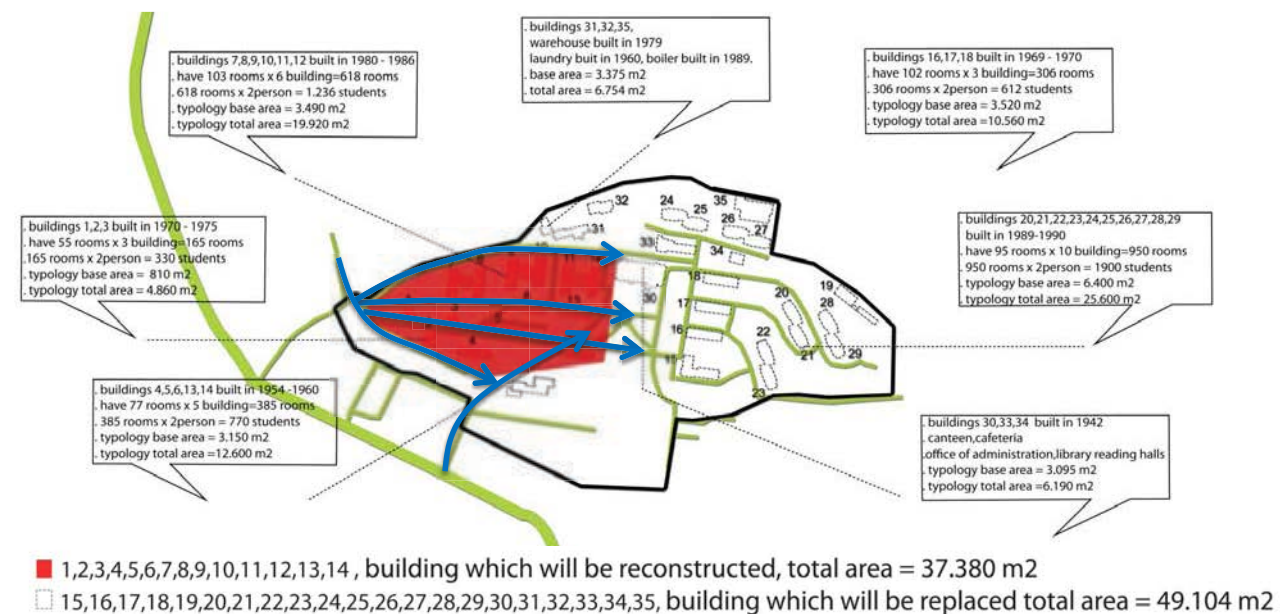
Preserving a part of the existing Student City allow to :

- 1- To maintain even the public managing system within a potential private contribute in management
- 2 -To maintain a functional part of the campus during the building of other part of the Campus
- 3- To preserve the historical memory of the Student City



Why we decide to preserve these buildings in west area?

1. Part of these buildings are already renovated.
2. The existing urban context is of potential organic integration with the new Master plan
3. The H buildings has the higher student capacity and have good orientation East-West for dormitories
4. The entrances of these existing buildings are well integrated with the urban context and West Student City access
5. Has the best potentiality for the adaption with the fire protection CE Standards, etc



PLANNING STRATEGIC APPROACH

3. Thinking in a huge scale, but developing step by step.

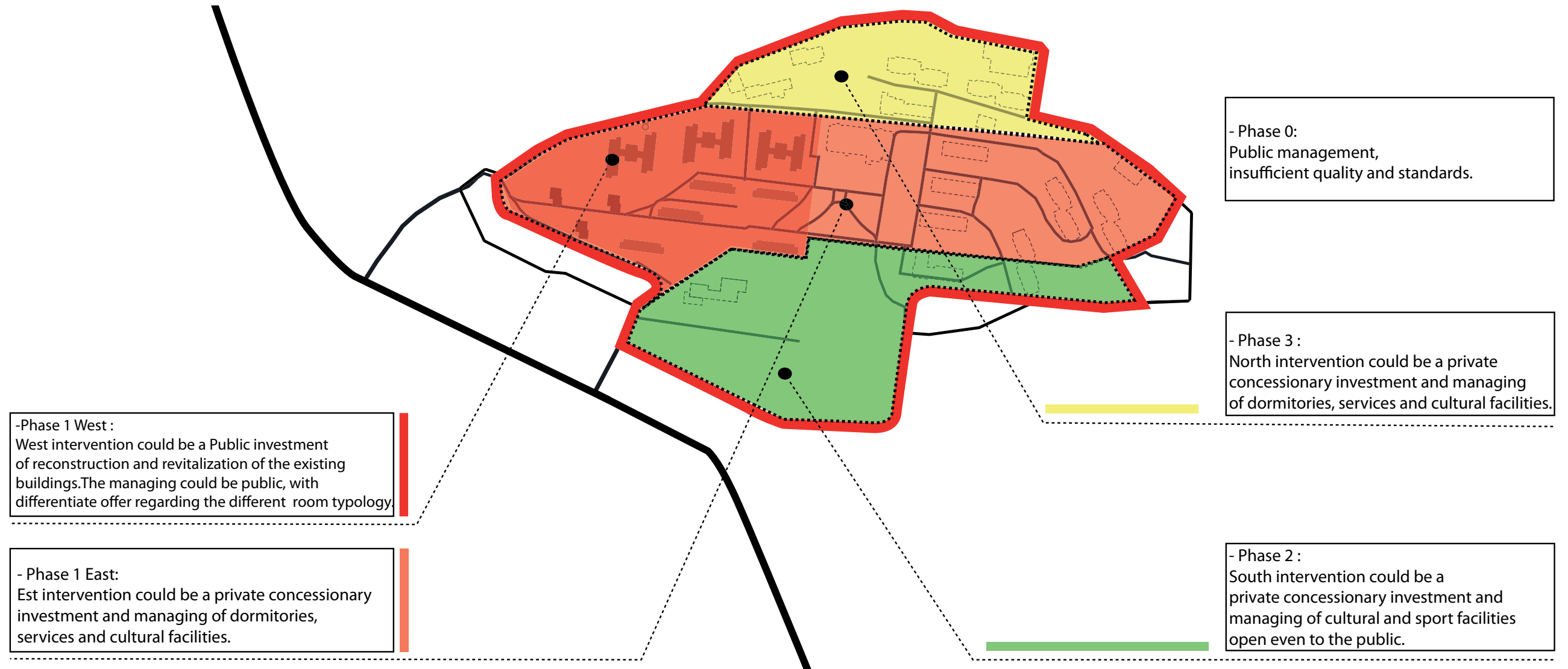
This alternative could be an intermediate approach, that embrace strongly the challenge of change with prudent, but secure steps.

What we benefit: We could potentially have a complex functioning as an organism with a. quality and fluid space interaction between campus buildings and common public spaces, b. quality public spaces, squares, etc, c. qualitative dormitories performance, d. qualitative public facilities, e. functional services inside each building, f. better land-use, etc.

What we loose: Demolishing the existing buildings, we loose 60-100 €/m², as difference of reconstructing existing and building new ones.

Total difference= 49 104m² exist. dormitory buildings which could be demolished x 100 €/m² = 4 910 400 €

Preserving the some buildings, which better fit the existing urban context with the Master plan concept and affording the other part with the change challenge.



DESIGN APPROACH

SYNERGY OPEN TO THE CITY

The aim of the proposal is to define a **synergic territory** for the new University Campus that links and works with the surrounding areas creating relevant **public centre** either for **students** either for surrounded **inhabitants**.

Within the synthesis process of design the proposal wants to find a balance between **economical capacity** of the project and necessity to give into the overall master plan a new **dimension** of public life-style.

The intervention will define the new **road system** around the Campus thus to establish a clear accessibility from and to the city. By using a fluent cycling and pedestrian path that goes through the new Campus.

The New Campus will be connected to the City and Tirana Lake Park through a fluent **pedestrian** and **cycling route** that links mutually all **public activities** along its development.



DESIGN APPROACH



1 Territorial entities_Continuity



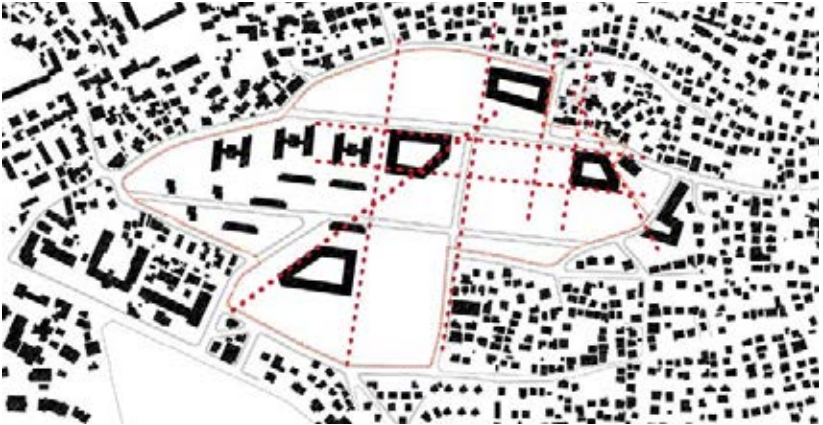
2 Intervention area



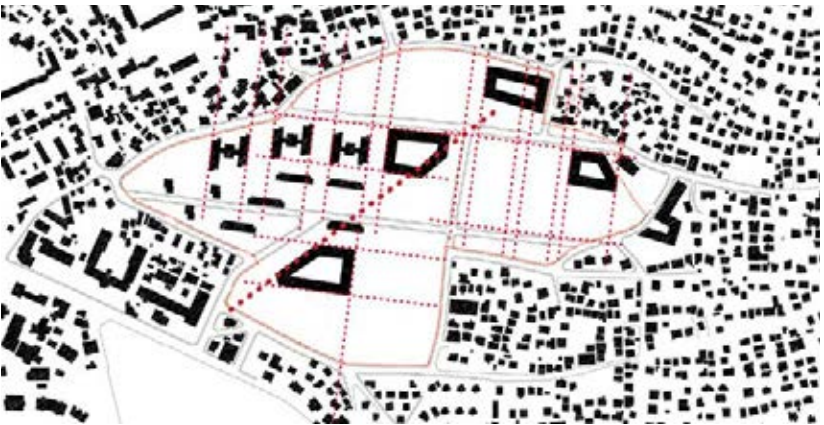
3 Distribution system



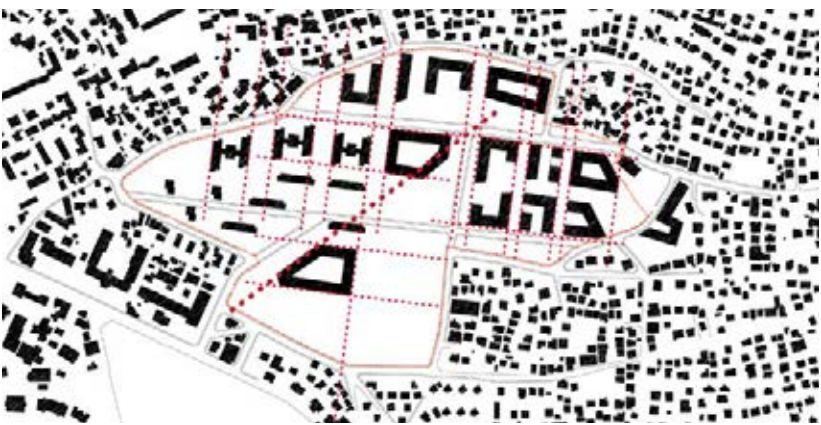
4 Axes



5 Volumes_Catalyst



6 Grid



7 Linear Buildings_Residences



8 Services and facilities



9 Landscape

DESIGN APPROACH

CONCEPT

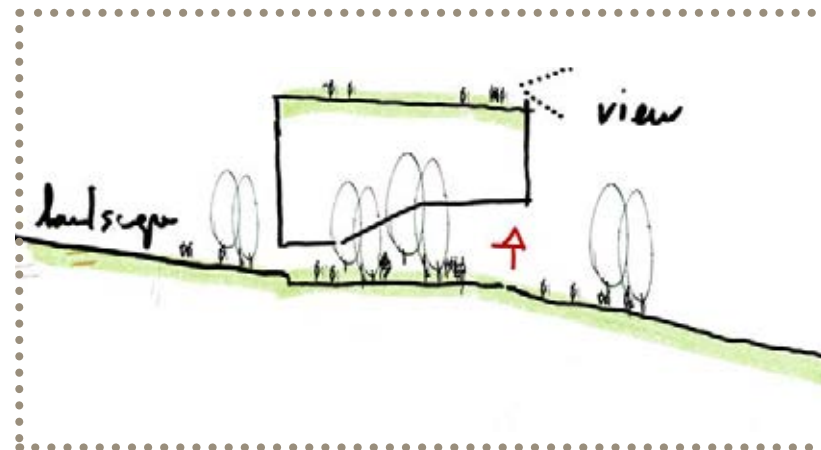
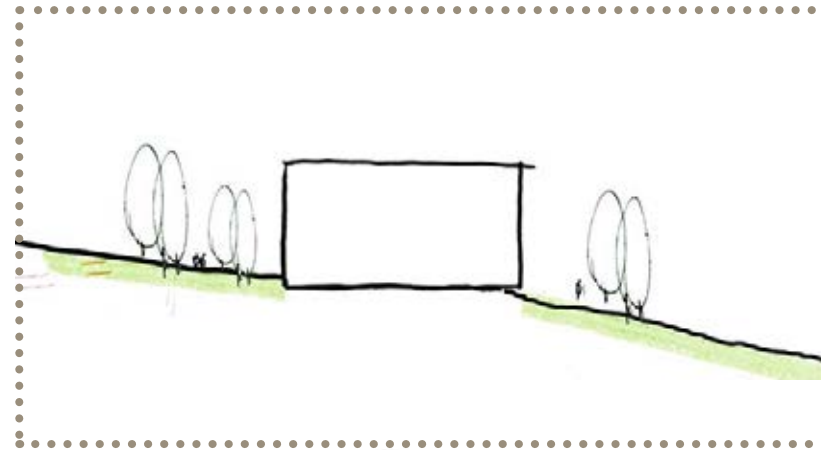
The Master plan use an approach **open, flexible** and made by **sum of single interventions** that along the central North-South axis intersects east-west **landscape** strip directions that generate the program.

The Masterplan works on the general **environmental asset** using the landscape as device and tool for designing. The Landscape **intersects** the building design provoking **mix of programmatic aspects**.

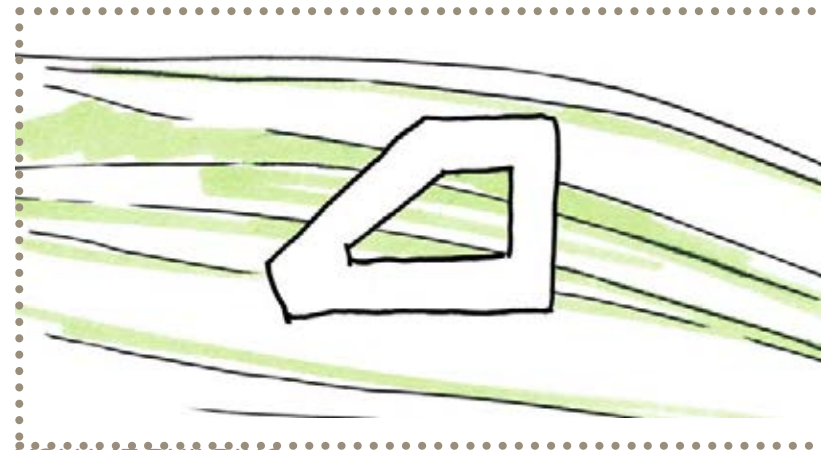
The intervention is placed into the context with **respect of local values** with using a distinguished character in **dialogue between interior and exterior perceptions of spaces**: buildings are oriented in order to get the best **sunlight** orientation and best **visuals qualities** to the surrounded area towards the south.

Landscape is treated with tectonic movements following the natural orography of the existing territory.

WEAVING TOGETHER BUILDING, ACTIVITIES AND LANDSCAPE



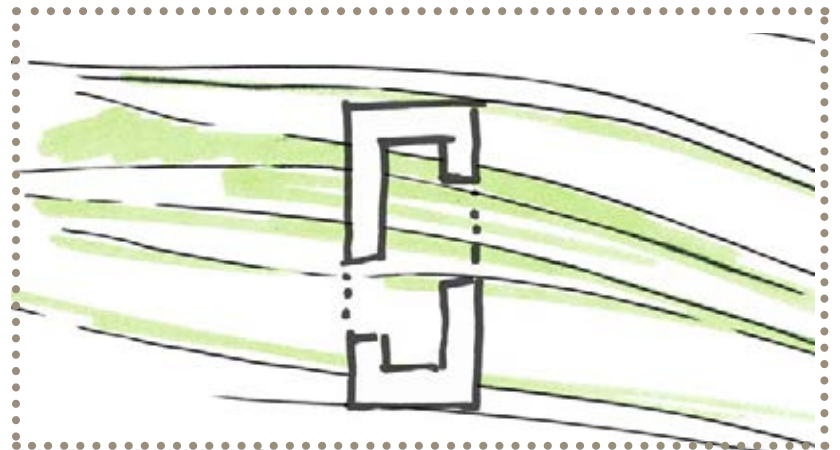
VOLUME WITHIN THE LANDSCAPE



VOLUME BUILDING



SLA DESIGN



LINEAR BUILDING

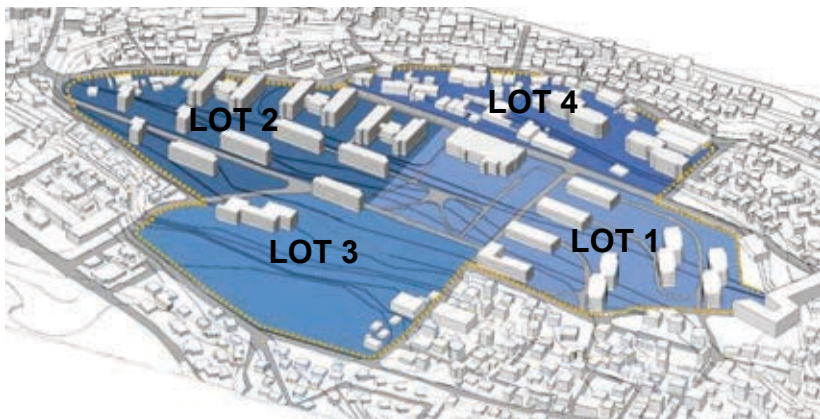
SCENARIOS FOR BUILDING INTERVENTION

PHASE IMPLEMENTATION

The intervention defines **different scenarios** that can be developed in phases and in time, depending on the **economical capacity**.

The proposal within the context, clearly and functionally defines:

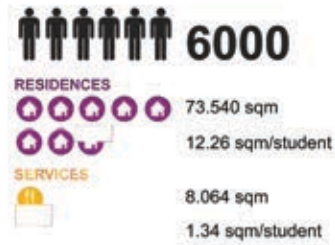
- 1. Building to be demolish** : without building consistency and impossible to be updated to EU regulation for economical reasons, structural and mechanical aspects;
- 2. Building to be reconstructed** according to the EU standards on the energetic efficiency
- 3- Construction of new buildings** according to the EU standards and parameters to be implemented in different phases to allow government management and without interrupt activities of the student campus.



PHASE 0



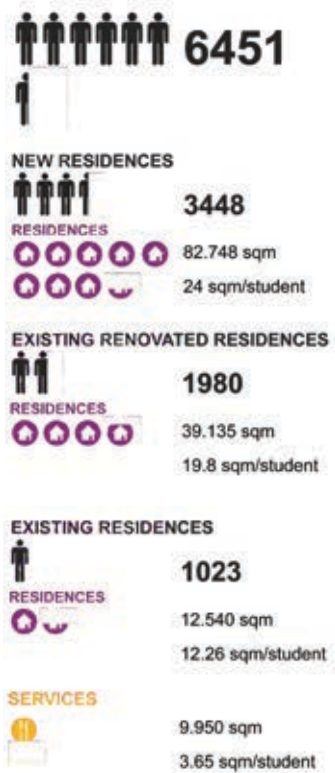
CAMPUS AREA 215.230 sqm
BASE BUILT AREA 23.480 sqm
K ut 11%



PHASE 1



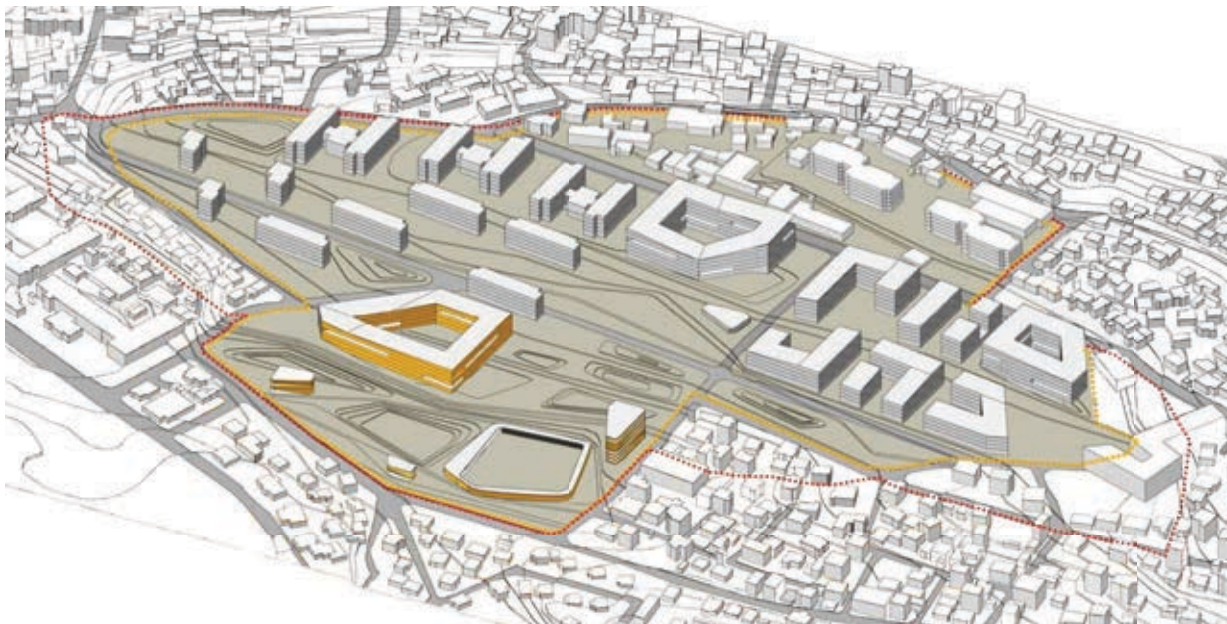
CAMPUS AREA 215.230 sqm
BASE BUILT AREA 29.351 sqm
K ut 13.6 %



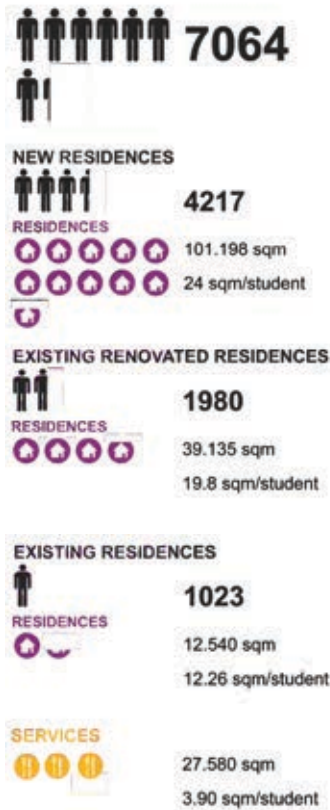
SCENARIOS FOR BUILDING INTERVENTION

PHASE IMPLEMENTATION

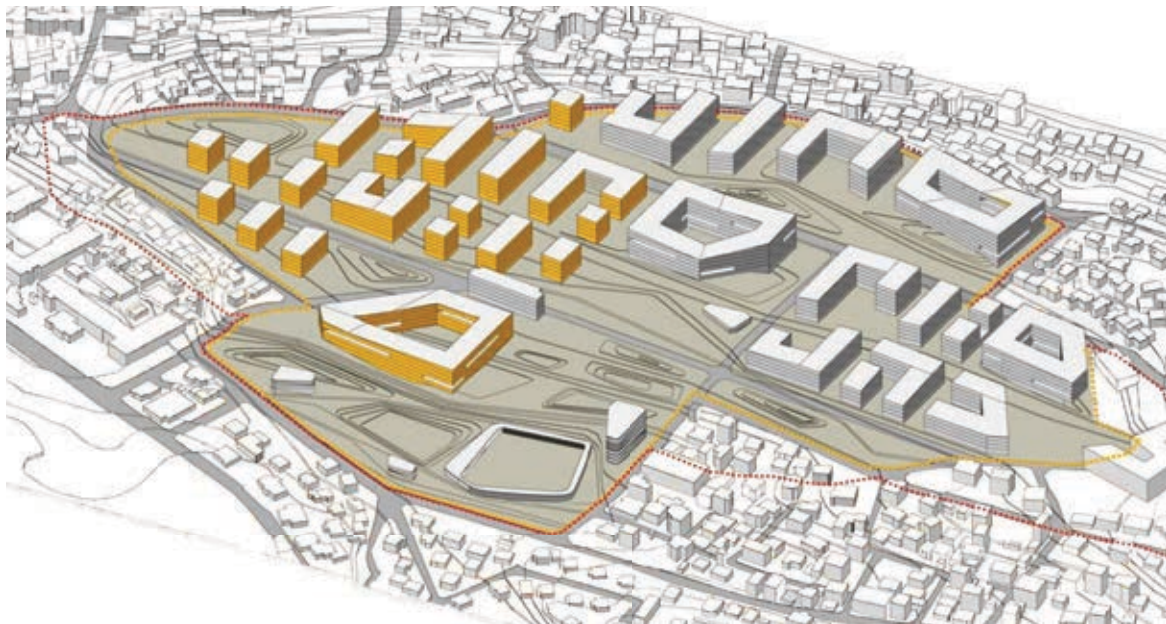
PHASE 2



CAMPUS AREA 215.230 sqm
BASE BUILT AREA 32.527 sqm
K ut 15.1 %

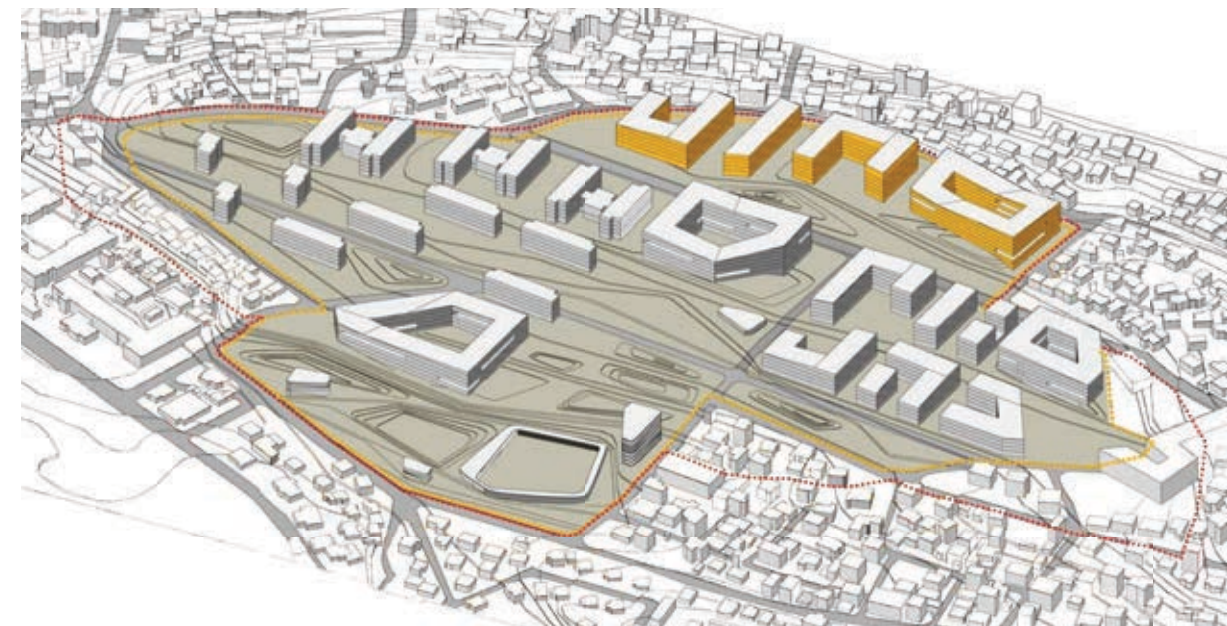


PHASE 4



CAMPUS AREA 215.230 sqm
BASE BUILT AREA 44.695 sqm
K ut 20.7 %

PHASE 3

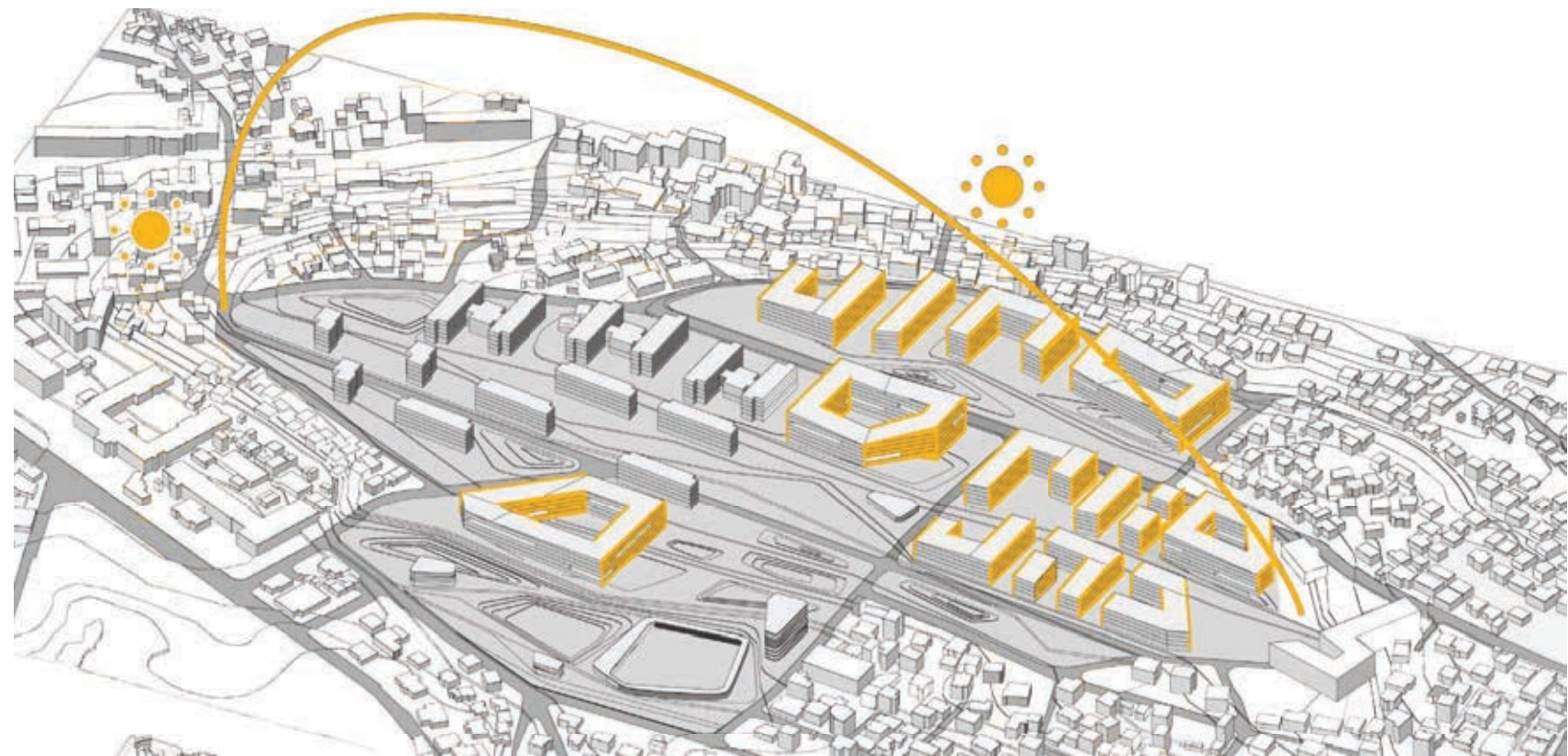


CAMPUS AREA 215.230 sqm
BASE BUILT AREA 39.950 sqm
K ut 18.5 %



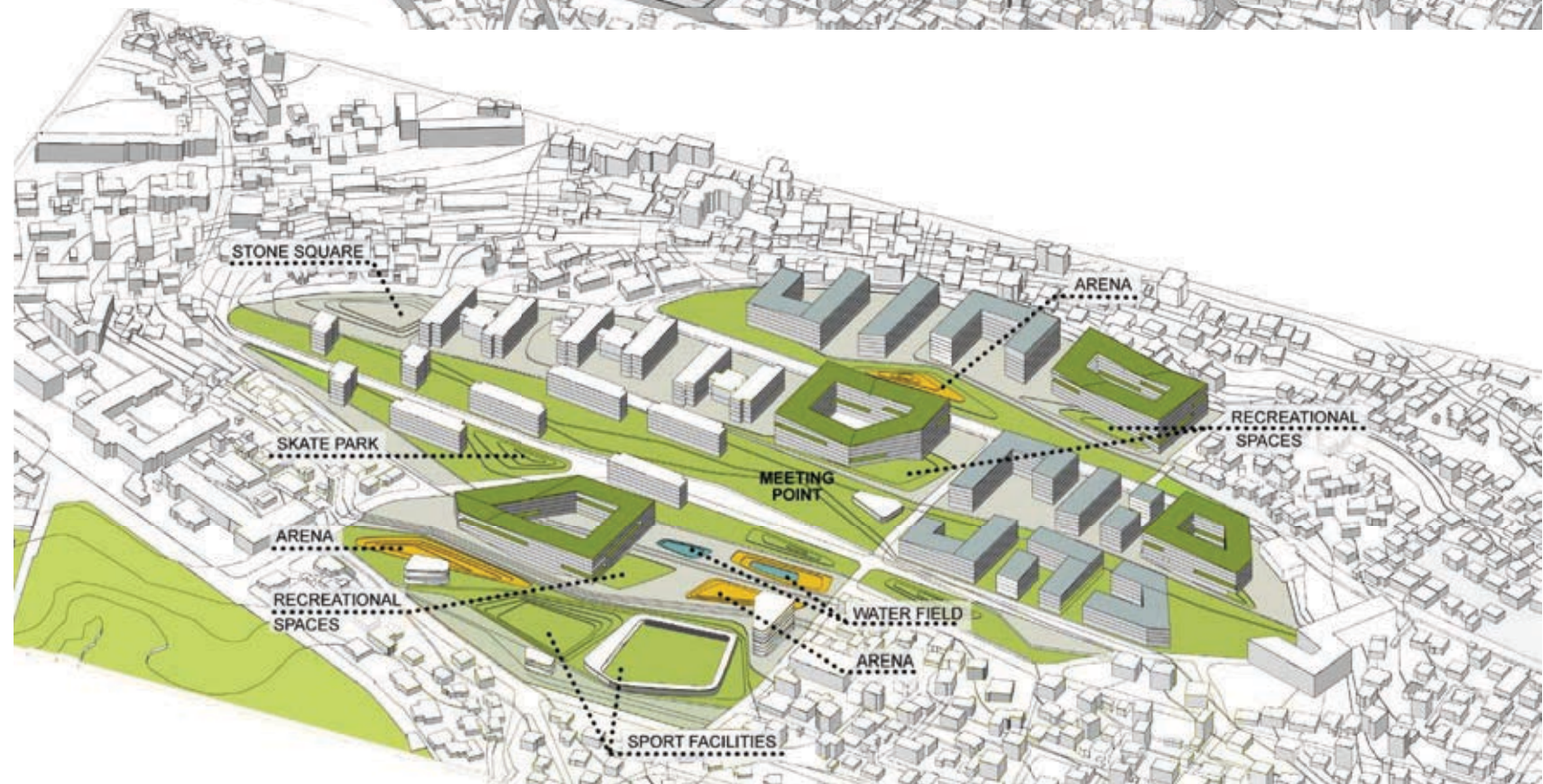
BUILDING ORIENTATION

The Intervention is placed into the **context** along North-South directions, finding deeply a dialogue between interior and exterior perceptions of spaces: buildings are oriented in order to get the **best sunlight orientation**, allowing student residences to face East and West.



LANDSCAPE AND OUTDOOR FACILITIES

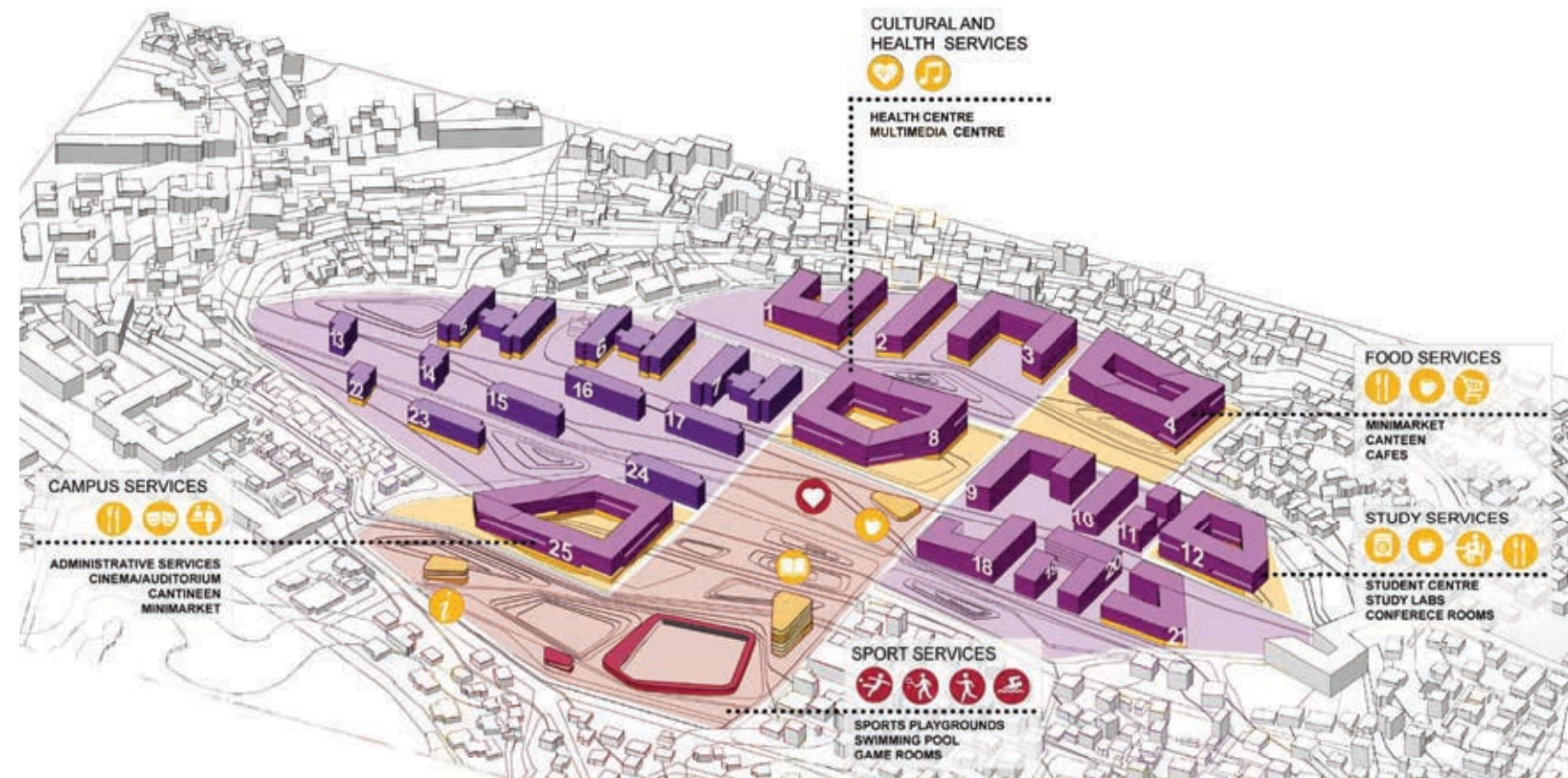
The Master plan develops the idea of creating **inner communication path**, within the **greenery** and pleasant to walk through, allows to generate a space physically and psychologically in common for all users, from students to surrounded inhabitants. This distribution space, fluid and continuous appears embracing many **urban qualities**: landscape, **piazza**, are for meeting, **communication** and **social relationships**.



BUILDING PROGRAM

The proposal develops strategies to integrate and **mix functions**: residence, services, facilities are diffuse on the entire area of the Campus in order to achieve a **sustainable development** of the entire operation from a social, environmental and economic point of view.

The proposal define different **building scale** able to define **mix of programs** with an integrated approach using several typologies and activities that links mutually to each others.

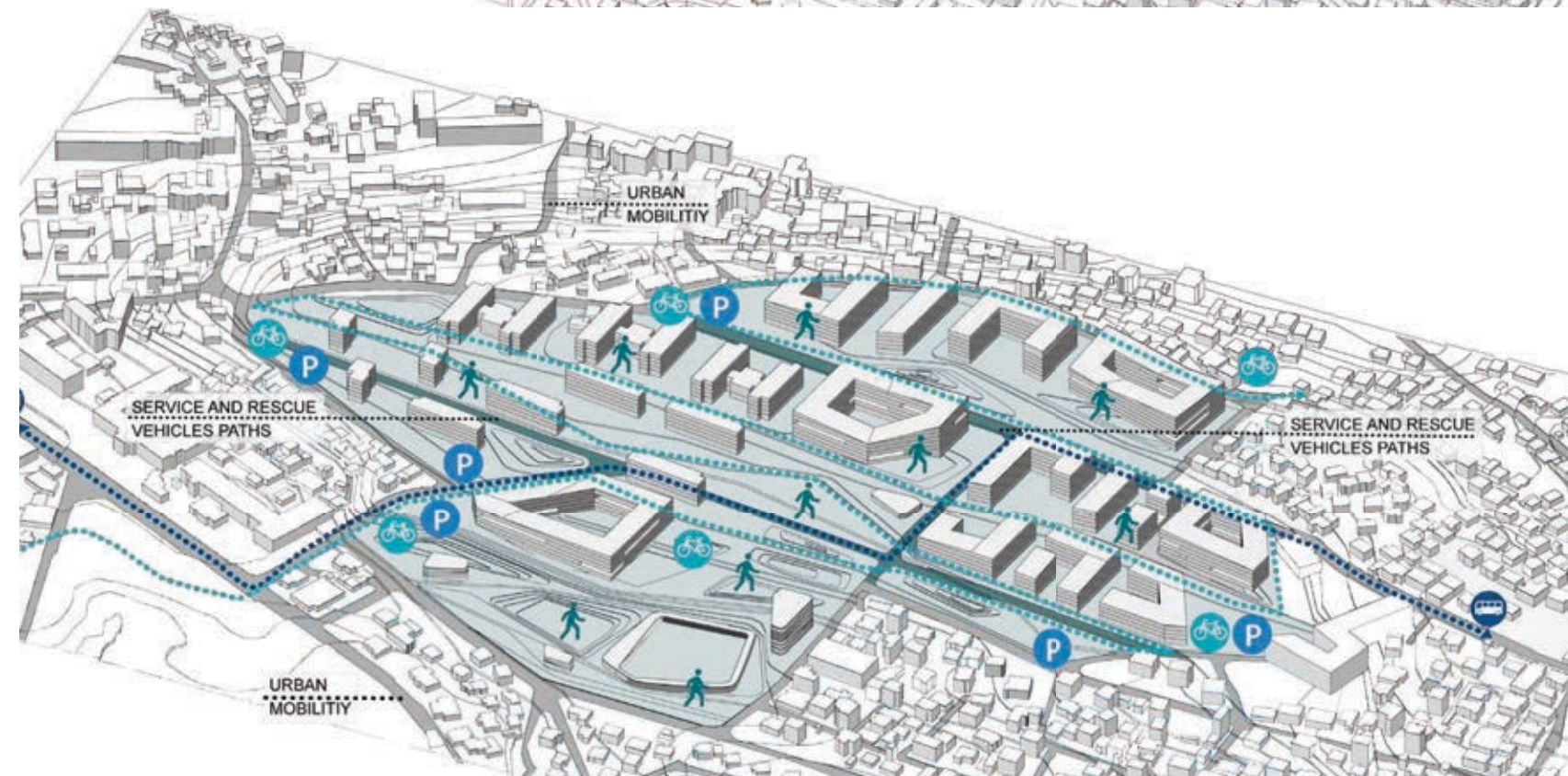


ACCESSIBILITY

The open space is crossed by road for **services** and **cycling route** that goes through all public space thus to connect accommodations to public amenities, arriving to the park.

Access point are clearly visible and **parking** area are located to the end of the main road system when intersect the surround viability.

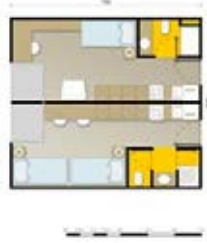
In addition **underground parking** area located under the courtyard volumes according to the program that they have. They are accessible from the main road system that surround the intervention area.



NEW INTERVENTION LINEAR BUILDINGS



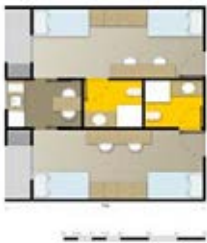
UNIT A - 45 sqm
2 bedrooms - 15.5 sqm each
1 kitchen - 7.5 sqm
1 toilet



UNIT B - 45 sqm
2 bedrooms
2 kitchen
2 toilet



UNIT C 90 sqm
4 bedrooms - 11.6 sqm each
1 kitchen - 26 sqm
2 toilet



UNIT D 50 sqm
2 bedrooms - 18 sqm each
1 kitchen - 5 sqm
2 toilet

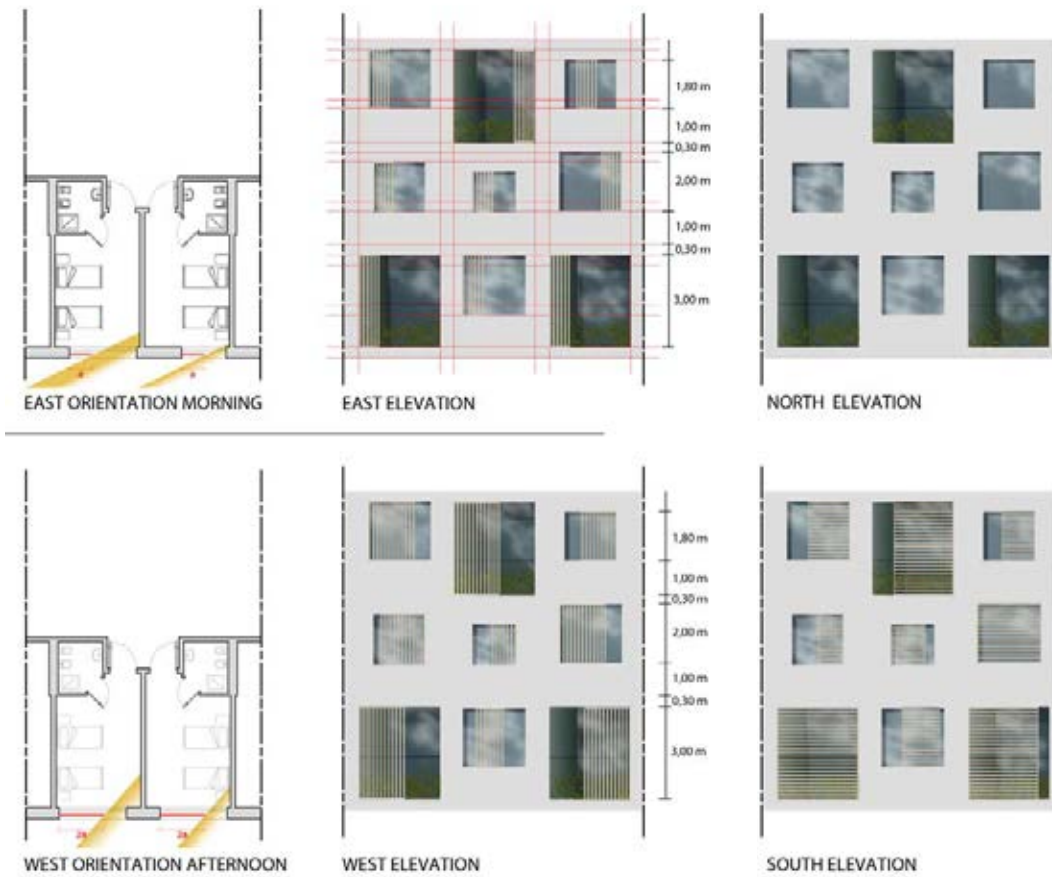


UNIT E 25 sqm
1 bedroom - 13.7 sqm
1 toilet

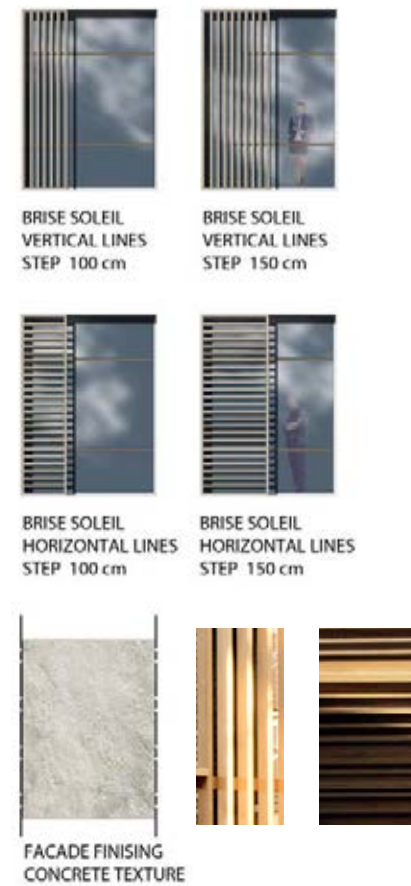


MATERIAL AND TECHNOLOGY

ELEVATION



FACADE COMPONENTS



Use of flexible and modular system for facade

The architectural proposal of the facades's treatment research a simple architecture solution, at the same time balanced with a contemporary language and careful aesthetic appearance, to achieve instances of **energy** and **cost efficiency** and **ease of maintenance**.

The choosen solution consists mainly in thermally insulated facades characterize by a perimeter walls with infill blocks of honeycomb brick, coating with plaster finishing

The facades are characterized by rhythm of openings with large windows in some cases full-length to get the best possible amount of day-lighting

The opening part of the windows is only the central and The control of day-lighting a during the wormest months is guaranteed by a system of brise soleil suitably adapted for any façade orientation .

As material for the brise soleil is chosen a flexible, economical and easy to maintain technology made by wood of ecological materials, long-lasting, made from the combination of re-composed wood fiber and PVC, mounted on a metal frame.



EXISTING INTERVENTION BUILDINGS _RECONSTRUCTION

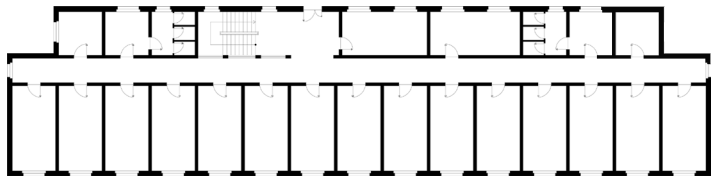
INTERVENTION / NEW LAYOUT

Functional interventions

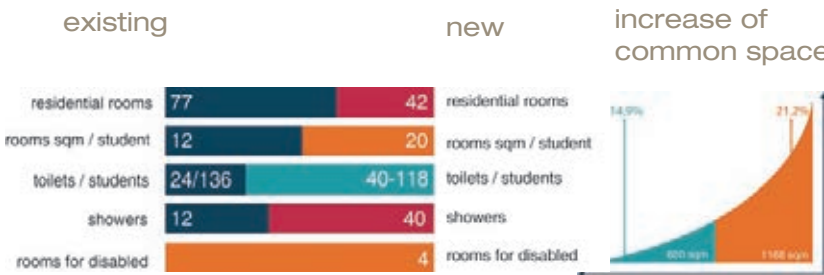
- Adaption of the existing rooms in better functional space, increasing the utility space for student from 12 m2/student to 20 m2/student. Project foresees having mainly (80%) double room students with the internal bathroom and 1 mini-kitchen for 2 rooms (4 persons). One of the existing student rooms for each floor will be transformed in common space for student socializing and relaxing.
- Fire protection measurements as EU standards adding new fire stair blocks, defining escape routes, automatic opening transversal corridor windows, hydraulic measurements, etc.
- Wheelchair disabled people EU standards. Designing dedicated rooms for each floor, elevator for disabled people, etc.



Building 24
Surface floor - 630 sqm
Number of residence floor - 3.5
Total - 2205 sqm



INTERVENTION / PARAMETERS



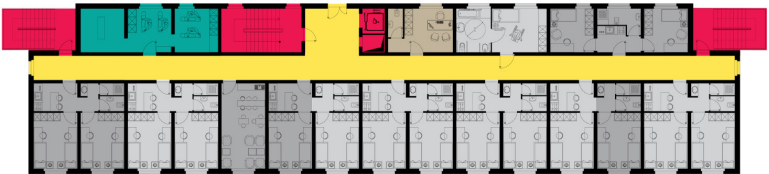
UNIT LAYOUT



UNIT PARAMETERS

EXISTING UNIT
48 sqm / 2 bedroom's - 23 sqm each /
no kitchen / floor toilet / 4 Students
REHABILITATED UNIT
48 sqm / 2 bedroom's / kitchen - 8 sqm /
toilet / 4 Students

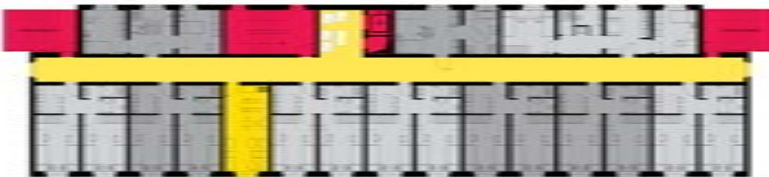
Ground Floor



Room Floor



Upper Room Floor



ACTION ON ADAPTATION OF EXISTING BUILDINGS TO EU STANDARDS

ENERGY REGENERATION

Prefix that is necessary for a careful analysis of the status quo - energy audit and survey thermographic.

Reference standard Italian (European Community)

-Law n.10/91 "Rules for implementing the national energy plan in the field of rational use of energy, energy saving and development of renewable energy "

-D.P.R. n 412/1993, "Regulations for the design, installation, operation and maintenance of heating systems in buildings in order to control energy, in implementation of, article 4, paragraph 4 of Law 9 January 1991, n.10 "

INTERVENTIONS ON THE BUILDING ENVELOPE

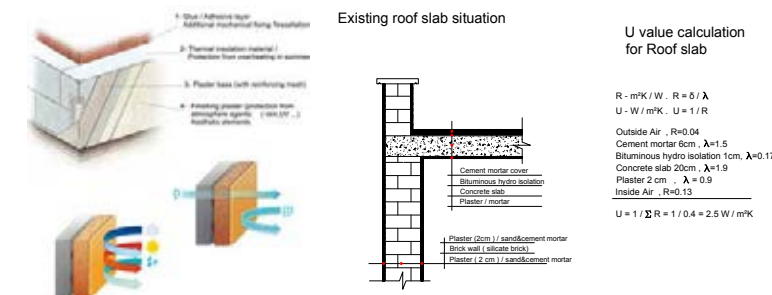
- Coat insulation of the facade
- Roof insulation
- Replacement of windows
- Brise soleil for south facade

INTERVENTION 1

Isolation "coat" external perimeter walls, performed with insulating expanded polystyrene, material with thermal conductivity value $<0.039 \text{ W/mK}$. Such as to achieve a transmittance average of the insulated walls to thermal bridge correctly $U <0.26 \text{ W / m}^2\text{K}$.

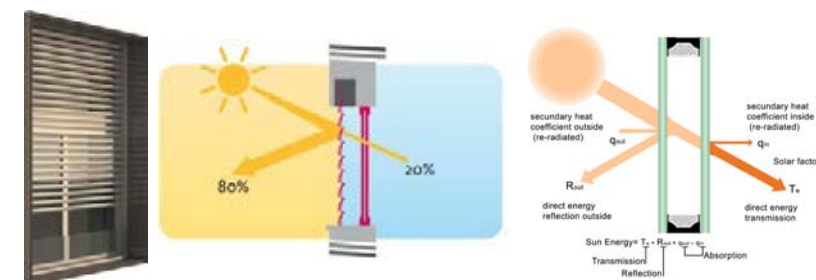
Insulation of the floor towards unheated attic, performed with mineral fiber panels $<0.040 \text{ W / mK}$ coupled panels in extruded polystyrene foam <0.035 . Average transmittance of the insulated floor $U <0.16 \text{ W / m}^2\text{K}$.

Wall insulation to unheated stairwell with mineral fiber insulation plastered.



INTERVENTION 2

Replacement of single-glazed windows with high-performance thermal aluminium/pvc frame and double safety glass filled with argon gas. Transmittance window $U <1.6 \text{ W / m}^2\text{K}$.



-D.Lgs. 192/05 "Implementation of Directive 2002/91 / EC on the energy performance of buildings"

-D.Lgs. 311/2006, "Corrective and supplementary provisions to Legislative Decree 19 August 2005, 192, implementing Directive 2002/91 / EC on the energy performance of buildings "

-D.Lgs. 115/08 "Implementation of Directive 2006/32 / EC on energy end-use efficiency and energy services and repealing Directive 93/76 / EEC "

INTERVENTIONS ON THE PLANTS

- New thermal power plants with condensing boilers and electric pumps with variable flow
- Isolation of all connections of the plants
- Thermostatic valves and heat cost
- Solar thermal collectors for water health
- Solar thermal PV

INTERVENTION 3

Installation of a solar thermal plant for hot water production, centralized type. The plant will consist of synthetically flat solar panels installed in coverage; by an accumulation of domestic hot water, a system of regulation and circulation installed in a special technical room "former thermal power plant" on the ground floor. The plant will be able to cover 50% of primary energy. As a part of this intervention will be made a new distribution of hot and cold domestic arrangement that can make applicable accounting for each apartment.



INTERVENTION 4

Installation of thermostatic valves and heat cost indirect individual terminal emission, so as to modulate the thermal demand based on the real needs of the individual apartments. Simultaneously account for consumption to adjust bills to pay and had not established a quota based on thousandths, which does not reflect the actual consumption.



INTERVENTION 5

Installation of new pumps with variable capacity, equipped with integrated electronic regulation and programming. Electric energy efficient, able to adapt to the changes required by the automatic prime hydraulic circuit, which, through the risers, feeds the terminals with the new thermostatic valves.

-D.M. 11/03/08, "Implementation of Art. 24 paragraph 1 letter a) of Law 02.24.07 / 244 for the definition of the limits of febbisogno annual primary energy and heat transfer for the purposes of paragraphs 344 and 345 art. 1 of Law 27.12.06 / 296 "

-D.M. 26.06.09, "National guidelines for energy certification of buildings "

-D.P.R. 59/09 "Regolamento di attuazione dell'articolo 4, comma 1, lettere a) e b), del decreto legislativo 19 agosto 2005, n. 192, concernente l'attuazione della direttiva 2002/91/CE sul rendimento energetico in edilizia "

INTERVENTIONS ON THE BUILDING

Objectives of energy efficiency: it has been estimated that in the future a variable percentage between 50 and 70% of the emissions reduction will be obtained thanks to a process of energy efficiency of existing buildings. With this action you can also introduce the energy ARCHITECTURAL RENOVATION OF EXTERNAL FACES:

- New design of the facade
- External Frame for windows
- Redevelopment of balconies, terraces and parapets
- New paintwork and exterior finishes
- New descendants, gutters and flashings General



FIRE REGULATION STANDARDS

- A staircase every 30 meters, maximum 15 meters escape, inserting external fire escapes
- Evacuation plan with identification of safe places and widespread distribution of fire extinguishers (sprinklers impossible to do)

STANDARDS FOR DISABLES

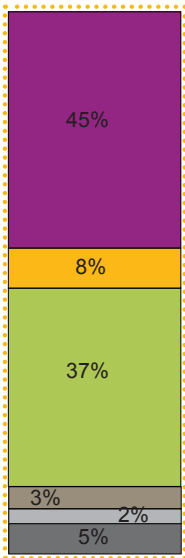
- Ramp access to the property
- Possibility of parking adjacent rooms devoted to ground floor (5%)
- Disabled toilets adjacent every public function
- Corridors and lobbies appropriate, in accordance with lifts, stair lifts

CAMPUS STATISTICS - INVESTMENT COST ESTIMATION

CAMPUS DIMENSIONS

INTERVENTION AREA:	215.230 sqm
RESIDENCE:	187.233 sqm
SERVICES:	32.780 sqm
OPEN SPACES:	153.080 sqm
CAMPUS MOBILITY:	13.200 sqm
OUTDOOR PARKING:	9.000 sqm
UNDERGROUND PARKING:	21.000 sqm

416.292 sqm



SQM RESIDENCES

BUILDING	TOTAL SQM
1	9000
2	5500
3	11550
4	20850
5	6332
6	6332
7	7915
8	22920
9	10532,5
10	4980
11	3720
12	13625
13	1390
14	1390
15	3055
16	3055
17	3055
18	9240
19	2075

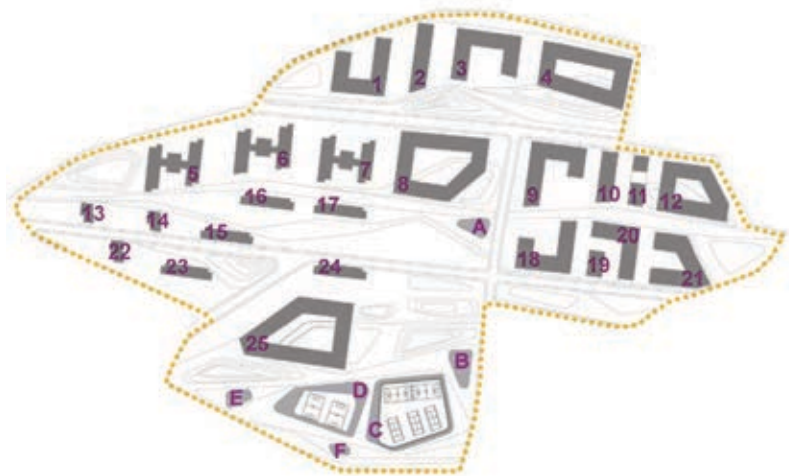
BUILDING	TOTAL SQM
20	7397,5
21	8257,5
22	1112
23	2444
24	3055
25	18450

SQM 146517

SQM SERVICES

BUILDING	TOTAL SQM
A	454
B	4152
C	5464
D	1757
E	730
F	200
1	2000
2	1100
3	2100
5	1583
6	1583
8	1910
12	1362,5
21	1345
22	278
23	611
25	6150

SQM 32780



MASTERPLANPHASE1 COST

Description	Quantity in sqm	Price €/sqm	Cost€
Revitalization of the existing dormitory buildings	39 135	480	18 784 800
Revitalization of the existing services and facilities	4 055	550	2 230 250
Building the new dormitory buildings (including the demolition of the existing buildings and new infrastructural + landscape works)	82 747	580	47 993 260
Building new services and facilities (including the demolition of the existing buildings and new infrastructural + landscape works)	5 071	650	3 296 150
PHASE 1 COST ESTIMATION 72 304 460			

MASTERPLANPHASE2 COST

Description	Quantity in sqm	Price €/sqm	Cost€
Revitalization of the existing dormitory buildings	0	480	0
Revitalization of the existing services and facilities	0	550	0
Building the new dormitory buildings (including the demolition of the existing buildings and new infrastructural + landscape works)	18 450	580	10 701000
Building new services and facilities (including the demolition of the existing buildings and new infrastructural + landscape works)	18453	650	11 994 450
PHASE 2 COST ESTIMATION 22 695 450			

MASTERPLAN PHASE 3 COST

Description	Quantity in sqm	Price €/sqm	Cost€
Revitalization of the existing dormitory buildings	0	480	0
Revitalization of the existing services and facilities	0	550	0
Building the new dormitory buildings (including the demolition of the existing buildings and new infrastructural + landscape works)	46 900	580	27 202 000
Building new services and facilities(including the demolition of the existing buildings and new infrastructural + landscape works)	5 200	650	3 380 000
PHASE 3COST ESTIMATION30 582 000			

MASTERPLAN TOTAL COST

Description	Quantity in sqm	Price €/sqm	Cost€
Revitalization of the existing dormitory buildings	39 135	480	18 784 800
Revitalization of the existing services and facilities	4 055	550	2 230 250
Building the new dormitory buildings (including the demolition of the existing buildings and new infrastructural + landscape works)	148 097	580	85 896 260
Building new services and facilities (including the demolition of the existing buildings and new infrastructural + landscape works)	28724	650	18 670 600
TOTAL COST ESTIMATION 125 581 910			

DESIGN TEAM



Arch. Rossana Atena, ATENASTUDIO Director
Arch. Marco Sardella, ATENASTUDIO Director
Arch. Arianna Marino
Arch. María José Jiménez Borja
Arch. Lorenzo Grussu
Eng.Andrea Atena
Eng. Stefania Rosani

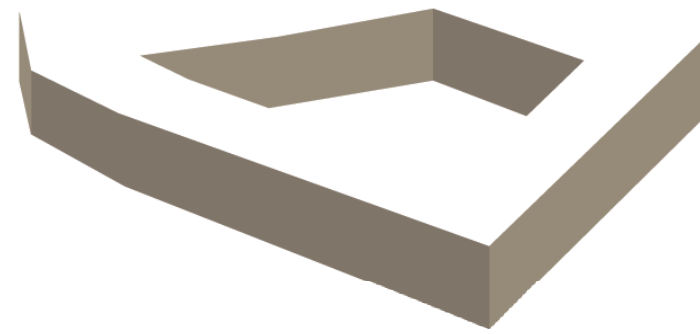
Team leader, Architect and Landscaper
Team leader, Architect, PhD Advanced technology
Architect, PhD Environmental Design
Architect
Architect
Forest Engineer
Civil Engineer

Urb.Arch Ervin Taçi, DEA Studio CEO
Arch. Alket Meslani
Arch. Klodiana Emiri
Arch. Klaudio Onuzi
Arch. Anisa Spahiu
Arch. Elda Kotorri
Arch. Aldo Hamzallari
Arch. Evis Laze

Team leader
Team leader
Architect
Architect
Architect
Architect
Architect
Architect

Eng. Sonila Siço
Eng.Mech. Spiro Drita
Eng.Elec. Deshira Mena
Eng. Gerti Calliku

Structural Engineer
Mechanical Engineer
Electrical Engineer
Structural Engineer



TIRANACAMPUS
UNIVERSITY



SITE PLAN_scale 1:1.000



SECTION A-A_scale 1:500

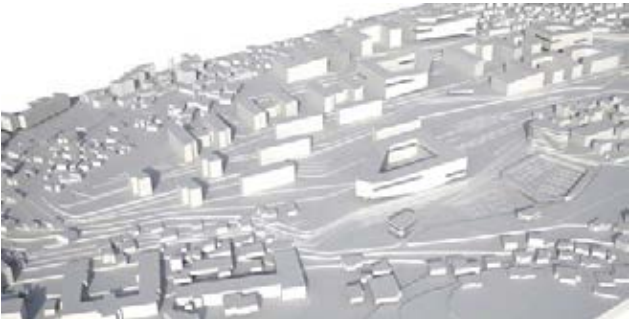


INTERNATIONAL URBAN DESIGN & ARCHITECTURAL DESIGN COMPETITION
Master plan “Campus” _ CONSTRUCTING NEW STUDENT RESIDENCES AND REHABILITATING THE EXISTING ONES _ Tirana, Albania

WELFARE and ENVIROMNTAL COMFORT

Views on the courtyard and on the landscape, together with the roof garden conceived as “hortus conclusus”, lifted from the ground, replace the human being in the center of an integrated architecture within landscape and humanity which based its own experience as subjective measure of buildings.

The Masterplan use an approach open, flexible and made by sum of sinlge interventions that along the central north -south axis intersects east-west landscape strip directions that generate the program.



DESIGN APPROACH

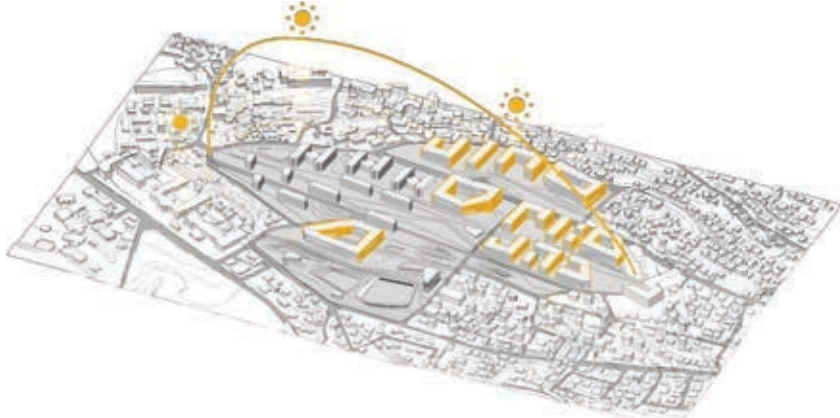
The Master plan use an approach open, flexible and made by sum of single interventions that along the central North-South axis intersects east-west landscape strip directions, generating the program; it works on the general environmental asset using the landscape as device and tool for designing.

The proposal define different building scale able to define mix of programs with an integrated approach using several typologies and activities that links mutually to each others.



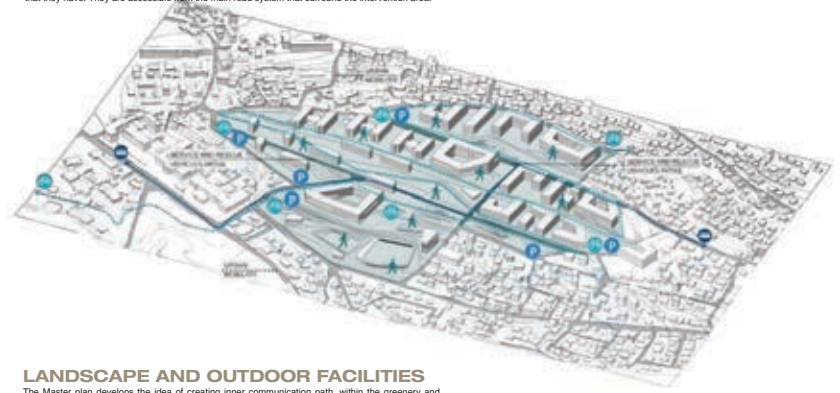
BUILDING ORIENTATION

The Intervention is placed into the context along North-South directions, finding deeply a dialogue between interior and exterior perceptions of spaces; buildings are oriented in order to get the best sunlight orientation, allowing student residences to face East and West.



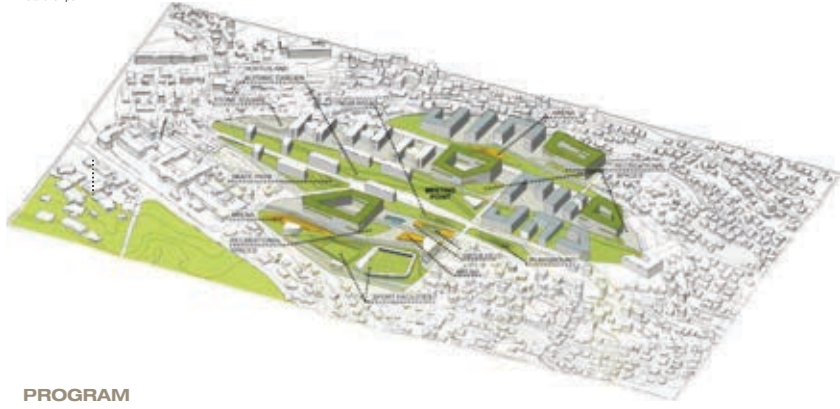
ACCESSIBILITY PEDESTRIAN, CYCLING AND VEHICULAR ROUTE

The open space is crossed by road for services and cycling route that goes through all public scape thus to connect accommodations to public amenities, arriving to the park.
Access point are clearly visible and parking area are located to the end of the main road system when intersect the surround visibility.
In addition underground parking area located under the courtyard volumes according to the program that they have. They are accessible from the main road system that surround the intervention area.



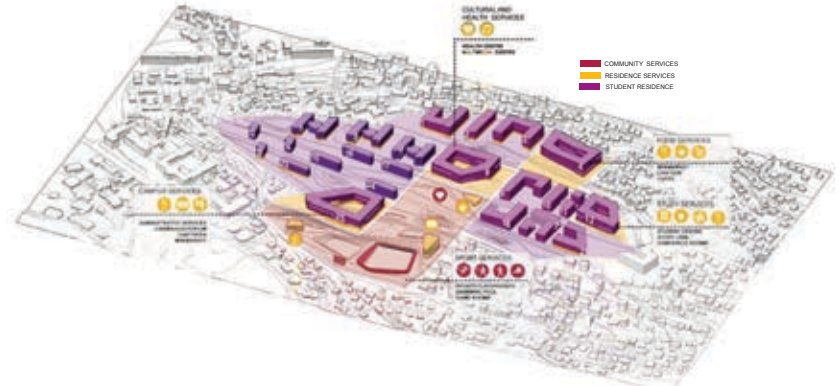
LANDSCAPE AND OUTDOOR FACILITIES

The Master plan develops the idea of creating inner communication path, within the greenery and pleasant to walk through, allows to generate a space physically and psychologically in common for all users, from students to surrounded inhabitants; this distribution space, fluid and continuous appears embracing many urban qualities: landscape, piazza, are for meeting, communication and social relationships.



PROGRAM

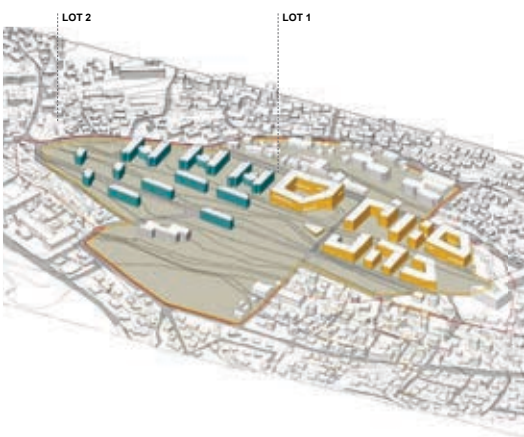
The proposal develops strategies to integrate and mix functions: residence, services, facilities are diffuse on the entire area of the Campus in order to achieve a sustainable development of the entire operation from a social, environmental and economic point of view.



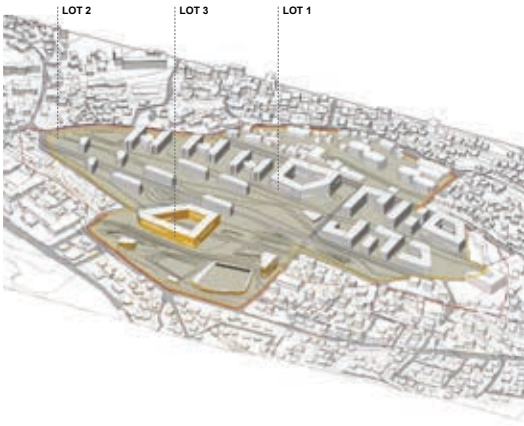
SCENARIOS FOR BUILDING INTERVENTION

PHASE IMPLEMENTATION

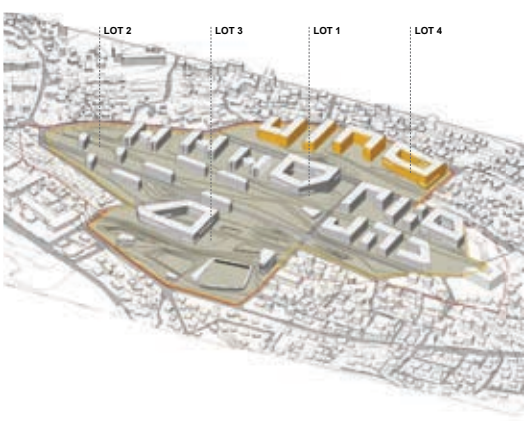
PHASE 1



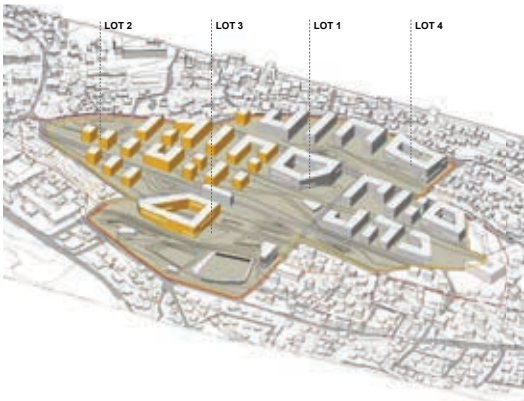
PHASE 2



PHASE 3



PHASE 4



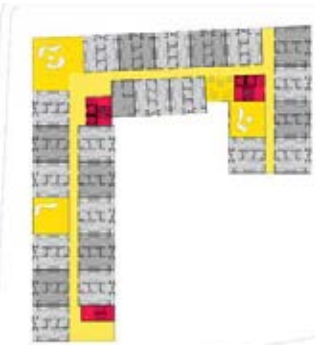






NEW RESIDENTIAL BUILDING LAYOUT

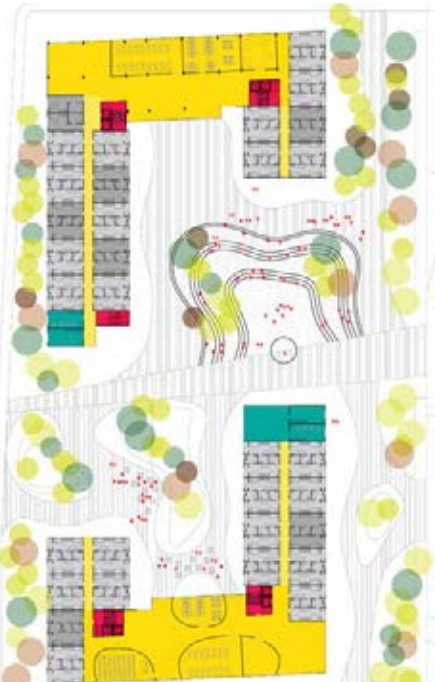
Building 9
Surface floor - 1915 sqm
Number of residence floor - 5.5
Total - 10532 sqm



Building 18
Surface floor - 1680 sqm
Number of residence floor - 5.5
Total - 9240 sqm

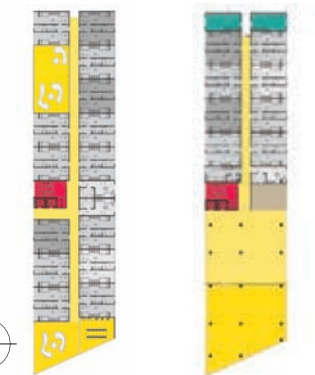


Room Floor 1:500



Ground Floor 1:500

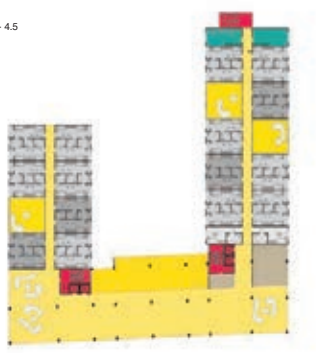
Building 2
Surface floor - 1100 sqm
Number of residence floor - 5
Total - 5500 sqm



Room Floor 1:500

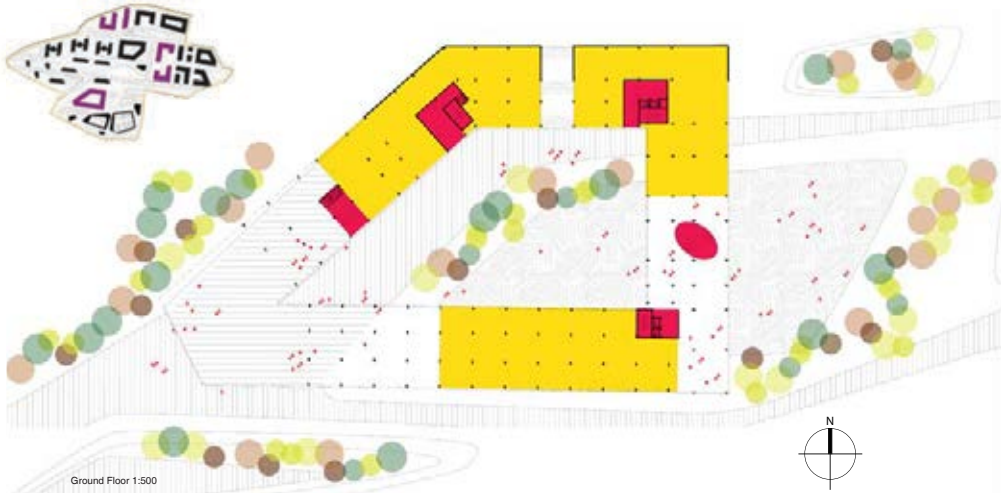
Ground Floor 1:500

Building 1
Surface floor - 2000 sqm
Number of residence floor - 4.5
Total - 9000 sqm



Ground Floor 1:500

NEW PUBLIC BUILDING LAYOUT_courtyard typology



Ground Floor 1:500



NEW UNIT LAYOUT



UNIT A - 45 sqm
2 bedrooms - 15.5 sqm each
1 kitchen - 7.5 sqm
1 toilet
3 people icons

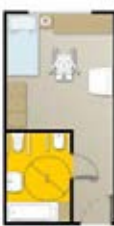
UNIT B - 45 sqm
2 bedrooms
2 kitchen
2 toilet
3 people icons

UNIT C 90 sqm
4 bedrooms - 11.6 sqm each
1 kitchen - 26 sqm
2 toilet
4 people icons



UNIT D 50 sqm
2 bedrooms - 18 sqm each
1 kitchen - 5 sqm
2 toilet
3 people icons

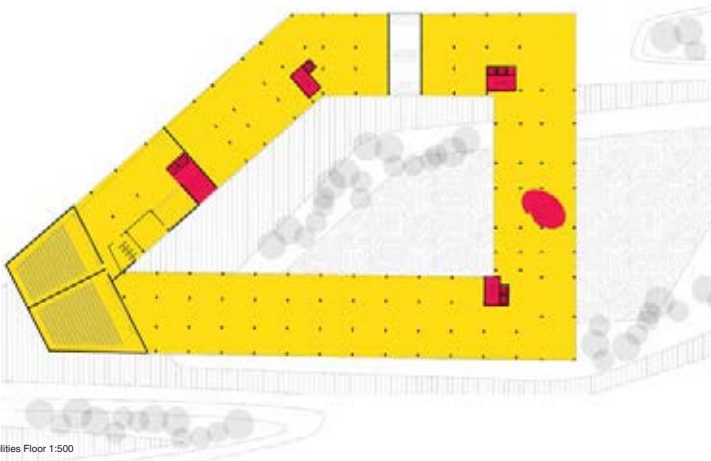
UNIT E 25 sqm
1 bedroom - 13.7 sqm
1 toilet
1 person icon



PUBLIC BUILDING SECTION



Room Floor 1:500



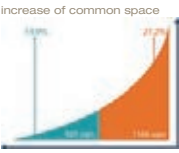
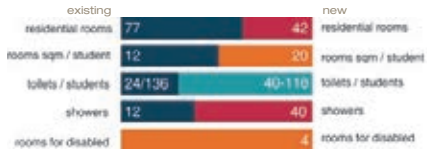
Facilities Floor 1:500

INTERVENTION ON EXISTING BUILDING_Reconstruction according to the EU standards on the Energetic Efficiency

EXISTING BUILDING'S 15/16/17/23/24



INTERVENTION / PARAMETERS



functional interventions

- Adaption of the existing rooms in better functional space, increasing the utility space for student from 12 m2/student to 20 m2/student.
- Project foresees having mainly (80%) double room students with the internal bathroom and 1 mini-kitchen for 2 rooms (4 persons). One of the existing student rooms for each floor will be transformed in common space for student socializing and relaxing.
- Fire protection measurements as EU standards adding new fire stair blocks, defining escape routes, automatic opening transversal corridor windows, hydraulic measurements, etc.
- Wheelchair disabled people EU standards. Designing dedicated rooms for each floor, elevator for disabled people, etc.

INTERVENTION / NEW LAYOUT FLOOR PLANS

Building 24
Surface floor - 630 sqm
Number of residence floor - 3.5
Total - 2205 sqm



Ground Floor 1:500



Room Floor 1:500



Upper Room Floor 1:500

UNIT LAYOUT



UNIT PARAMETERS

EXISTING UNIT
48 sqm / 2 bedroom's - 23 sqm each /
no kitchen / floor toilet / 4 Students
REHABILITATED UNIT
48 sqm / 2 bedroom's / kitchen - 8 sqm /
toilet / 4 Students

ACTION ON ADAPTATION OF EXISTING BUILDINGS TO EU STANDARDS

ENERGY REGENERATION

Prefix that is necessary for a careful analysis of the status quo - energy audit and survey thermographic.
Reference standard Italian (European Community)
-Law n.10/91 "Rules for implementing the national energy plan in the field of rational use of energy, energy saving and development of renewable energy"
-D.P.R. n.412/1993, "Regulations for the design, installation, operation and maintenance of heating systems in buildings in order to control energy, in implementation of, article 4, paragraph 4 of Law 9 January 1991, n.10"

-D.Lgs. 192/05 "Implementation of Directive 2002/91 / EC on the energy performance of buildings"
-D.Lgs. 311/2006, "Corrective and supplementary provisions to Legislative Decree 19 August 2005, 192, implementing Directive 2002/91 / EC on the energy performance of buildings"
-D.Lgs. 115/08 "Implementation of Directive 2006/32 / EC on energy end-use efficiency and energy services and repealing Directive 93/76 / EEC"
-D.M. 11/03/08, "Implementation of Art. 24 paragraph 1 letter a) of Law 02.24.07 / 244 for the

definition of the limits of febbisogno annual primary energy and heat transfer for the purposes of paragraphs 344 and 345 art. 1 of Law 27.12.06 / 296 "
-D.M. 26.06.09, "National guidelines for energy certification of buildings "
-D.P.R. 59/09 "Regolamento di attuazione dell'articolo 4, comma 1, lettere a) e b), del decreto legislativo 19 agosto 2005, n. 192, concernente l'attuazione della direttiva 2002/91/CE sul rendimento energetico in edilizia"

INTERVENTIONS ON THE BUILDING ENVELOPE

-Coat insulation of the facade
-Roof insulation
-Replacement of windows
-Brise soleil for south facade

INTERVENTIONS ON THE PLANTS

-New thermal power plants with condensing boilers and electric pumps with variable flow
-Isolation of all connections of the plants
-Thermostatic valves and heat cost
-Solar thermal collectors for water health
-Solar thermal PV

INTERVENTIONS ON THE BUILDING

Objectives of energy efficiency. It has been estimated that in the future a variable percentage between 50 and 70% of the emissions reduction will be obtained thanks to a process of energy efficiency of existing buildings.
With this action you can also introduce the energy ARCHITECTURAL RENOVATION OF EXTERNAL FACES:

- New design of the facade
- External Frame for windows
- Redevelopment of balconies, terraces and parapets
- New paintwork and exterior finishes
- New descendants, gutters and flashings General



FIRE REGULATION STANDARDS

- A staircase every 30 meters, maximum 15 meters escape, inserting external fire escapes
- Evacuation plan with identification of safe places and widespread distribution of fire extinguishers (sprinklers impossible to do)

STANDARDS FOR DISABLES

- Ramp access to the property
- Possibility of parking adjacent rooms devoted to ground floor (5%)
- Disabled toilets adjacent every public function
- Corridors and lobbies appropriate, in accordance with lifts, stair lifts

INTERVENTION 1

- Isolation "coat" external perimeter walls, performed with insulating expanded polystyrene, material with thermal conductivity value <0.039 W/mK. Such as to achieve a transmittance average of the insulated walls to thermal bridge correctly U <0.26 W / m² K.
- Insulation of the floor towards unheated attic, performed with mineral fiber panels <0.40 W / m² K coupled panels in extruded polystyrene foam <0.35. Average transmittance of the insulated floor U <0.16 W / m² K.
- Wall insulation to unheated stairwell with mineral fiber insulation plastered.

INTERVENTION 2

- Replacement of single-glazed windows with high-performance thermal aluminum/pvc frame and double safety glass filled with argon gas. Transmittance window U <1.6 W / m² K.

INTERVENTION 3

- Installation of a solar thermal plant for hot water production, centralized type. The plant will consist of synthetically flat solar panels installed in coverage, by an accumulation of domestic hot water, a system of regulation and circulation installed in a special technical room "former thermal power plant" on the ground floor. The plant will be able to cover 50% of primary energy. As a part of this intervention will made a new distribution of hot and cold domestic arrangement that can make applicable accounting for each apartment.

INTERVENTION 4

- Installation of thermostatic valves and heat cost indirect individual terminal emission, so as to modulate the thermal demand based on the real needs of the individual apartments. Simultaneously account for consumption to adjust bills to pay and had not established a quota based on thousandths, which does not reflect the actual consumption.

INTERVENTION 5

- Installation of new pumps with variable capacity, equipped with integrated electronic regulation and programming. Electric energy efficient, able to adapt to the changes required by the automatic prime hydraulic circuit, which, through the risers, feeds the terminals with the new thermostatic valves.

