UNIVERSITY HALL

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A2 Product Design
(3D Design)
2009/10

UNI HALL

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UNI HALL

Project Plan - Gantt Chart

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This section has helped me… plan my time in the making of this project to make sure I can finish before the deadline (April 30th). Throughout my project I found that sometimes the predicted timing was unrealistic. While I thought I would have more time during Christmas holidays to work on my project, it turned out I spent most of the time studying for exams, shifting the workload to February where I did more work than I had initially planned. The manufacture took less time than I had initially planned and I finished it over a weekend. Also, some pages kept changing throughout the project such as the specification, development and the evaluation.

UNI HALL
Explanation & Brief

Explanation

Valencia, Spain, is a city centered on tourism and education. Its university is growing in many aspects including students from various parts of Spain and Europe.

However, even in this advanced city, university halls and facilities for over-seas students as well as local youth seeking to become independent are missing.

Becoming independent and co-existing with others is an experience of educational growth that should not be denied to anyone.

Antonino Cardillo is a young Italian architect with a bright future. The way he manipulates light and shapes is inspiring. I believe his work would enrich the university area of Valencia with architectural wonder.

I will begin to address this problem by designing a university hall for students going to university in Valencia.

This section has helped me… explain the purpose of this coursework and outlining the problem and how I will attempt to solve it. The brief will help me in the shaping out of the research plan and the specification.

Brief

+ Model a residential hall for university students in Valencia, Spain.

+ The architectural style should reflect Antonino Cardillo's

+ The building should be inspiring to residents and become an icon of the University of Valencia.

+ I am going to create a model of the hall.

The antique University of Valencia

UNI HALL
Problem Analysis

Function
+ To provide a residential service to university students in Valencia
+ To foment cultural diversity
+ To create an monumental icon of the University and Valencia
+ Other specific requirements will be specified through the questionnaire

Antonino Cardillo
+ The building will be a reflecton of his style
+ Research into his work will have to be conducted

Safety and Inclusive Design
+ The hall should have emergency exits, sprinklers and fire extinguishers
+ It should provide elevator as well as stairs and ramps for people on wheel-chairs

Aesthetics
+ The style of the building should fit with Antonino Cardillo's projects
+ It has to attract youth and be appealing to the Mediterranean lifestyle

The Building

Sustainable Design
+ Being environmentally friendly is a forward thinking mentality that needs to be set as an example in the buiilding
+ The carbon footprint of the building should be reduced
+ Green facilities should be offered at the hall

Materials
+ Have to be wear resistant since the expected life-cycle is long
+ Need to be hard, tough and resist loads and big forces

Demographics
+ Has to be near the universities
+ It has to be in an area that is well communicated with the rest of the city
+ Needs to be around other student facilities

Cost and Finance
+ The capital will be received through the government investment
+ The costs of materials and the building costs should be kept at a healthy minimum however not too low as to discourage innovation

Target Market
+ On a close encounter: University students of Valencia.
+ Research into their lifestyle needs to be conducted
+ On a more distant encounter: Residents of Valencia

This section has helped me…
brainstorm the problem and identify design constraints.

UNI HALL
Problem Analysis

Function
+ To provide a visual 3D image of my project

Antonino Cardillo
+ By observing his models, lessons about model-making can be learnt

Safety and Inclusive Design
+ The model should be made of non-toxic materials
+ It should not have any dangerously protruding parts or sharp, cutting edges
+ It has to be made easy to see

Aesthetics
+ The model should look as realistic as possible in a smaller scale

The Model

Sustainable Design
+ As to not create waste, the model could be made out of recycled materials
+ Materials used need to be non-toxic to the environment

Materials
+ Need to be cheap and easy to work with
+ They should reflect the properties and aesthetics of the original material

Size and Scale
+ The model has to be comfortable to carry around
+ The scale should be small enough so it wont be uncomfortable to carry and big enough to see important details

Cost and Finance
+ The model should not cost more than 50€ to make
+ Money for production cost will be from my own budjet

Target Market
+ Government authorities and investors will be financially interested in the model
+ Designers and architects will be otherwise interested

This section has helped me…
identify the performance requirements of the model and how I am going to go about them.

UNI HALL
Research Plan

QUESTION	RESEARCH METHOD	ANSWERS ON P.
FUNCTION		
What would a university student expect in his/her residence?	+ Hand out questionnaires to current and aspiring university students	15
How do current university halls work and where are they situated?	+ Research information on university website + Check out locations on maps + Do field research	11, 12
AESTHETICS		
What styles are students inspired by?	+ Hand out questionnaires to current and aspiring university students	15
What style would suit the surroundings?	+ Do field research	19
MATERIALS		
What would be the most appropriate materials?	+ Research information on the internet + Research information in books + Interview an architect	16, 17, 20,21,22
TARGET MARKET		
Under what circumstances do students currently live and what is their lifestyle?	+ Hand out questionnaires to current university students	15
Is there any sort of preference for model making in people interested in my project?	+ Interview architect	16, 17
COST AND FINANCE		
How much is the government and investors willing to pay for a project?	+ Investigate project documents + Interview an architect	16, 17, 25
DEMOGRAPHICS		
What would be the most practical place to situate the hall?	+ Hand out questionnaires + View possible locations on a map + Do field research	15, 19

UNI HALL
Research Plan

QUESTION	RESEARCH METHOD	ANSWERS ON P.
SIZE AND SCALE		
What would be the most appropriate scale?	+ Interview architect + Look at anthropometrics	16, 17, 24
SUSTAINABLE DESIGN		
In what ways can I make the building sustainable?	+ Research existing buildings + Research new technologies	11, 12, 21, 22
SAFETY AND INCLUSIVE DESIGN		
What are the legal safety measures set by law?	+ Research documents + Interview architect	16,17, 24
ANTONINO CARDILLO		
What is Antonino Cardillo's underlying style? What forms and shapes does he use?	+ Investigate photographs and artist commentaries on his website	9, 10
What is his inspiration?	+ Investigate his project commentaries + Interview Antonino Cardillo + Research existing interviews	9, 10
What is the main emphasis on his work?	+ Investigate photographs and artist commentaries on his website + Interview Antonino Cardillo	9, 10

This section has helped me… have a clear picture of what I have to research into and ideas of where I could find the information. Later on, this page will help me structure my specification as well as make sure I've researched into all fields to make my project complete.

UNI HALL
Antonino Cardillo

Analysis of Past Interviews

Admires
º Frank Lloyd Wright
º Ludwig Mies van der Rohe
º Frank Ghery

Inspiration
º History
º Ancient roman architecture
º Sunlight
º Nature

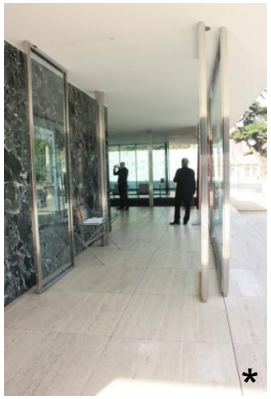
"Interactions with environmental events such as sun, rain, wind and sounds are more important than objects or furniture." - Antonino Cardillo


Photography by Simone Greggi

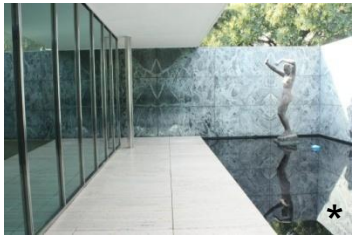
Antonino Cardillo attempts to have no particular style but to let the "personal experience of the protagonist" play in the shaping of his architecture. He believes spaces should be made adapted to change and to cultural diversity. The inhabitants should make the building adapt to their lifestyle not let the building shape theirs. For that reason he concentrates on natural elements such as light, rain, wind, sound, etc. All the materials he uses are opaque in colour since these play with light the most effectively. He builds for people who like to contemplate their surroundings and grab inspiration from them.
Critics however have said that his buildings are too Spartan and serve as an observatory rather than a place to live in.

"Architecture always expresses its true nature with the fewest of means. It is not made of gold, precious stones or fine fabrics; neither is it made of steel, cement or brickwork; nor, even, are cantilevers, shells, tiles, skins or great arches, architecture. The essence of architecture resides in its narrative." - Antonino Cardillo

"This isn't a space to be lived in. Rather, it's a place to be seen in." - Matt Hussey



Inspiration: Ludwig Mies van der Rohe

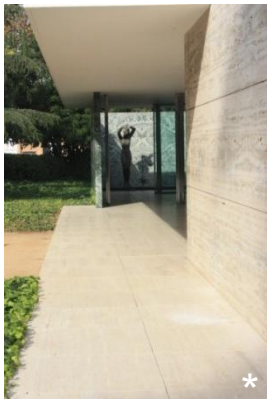


I went to the Barcelona Pavillon to view one of Antonino Cardillo's inspiration: Ludwig Mies van der Rohe. The minimalist style present in both is evident. Both use wide, contemplative spaces with simple shapes to create a delicate environment. I find however that while Rohe uses straight lines, Antonino mixes these with curves and circles.

It might not have been an emphasis done by later critics and architects, but I find that the Pavillon plays a lot with light. The protruding roof and ___ floor had a creamy look that made the contrast between shadow and light apparent. The statue found at the pool mocks light as it hits it in the early morning. The woman holding up her hands against the dawn as if she had just awoken is an interesting touch.

The use of tainted glass doors and windows makes the building seem spacious and open. Antonino Cardillo also makes his spaces seem open however I find at times, he mixes it with closed in areas like a cave.

Another major difference would be that the Barcelona Pavillon seems cold at times through its use of stone and cold colours in the interior. Antonino Cardillo's buildings tend to be warmer.



Biography

Antonino Cardillo is an Italian architect, born in Sicily, with practices in urban, interior design and landscape architecture. He is considered one of the thirty best young architects selected by the Wallpaper Architects Directory 2009.

UNI HALL
Antonino Cardillo

Analysis of his Work


Fig. 1

Entertainment Centre for Trapani (Fig. 1) is situated by the sea. Its curves and shapes play with the flow of the wind while keeping the structure simple. The colours are a contrast of the hot and cold of the chilly sea with the radiant sun. By using white, Cardillo has made the structure seem pure, rich and full of life.

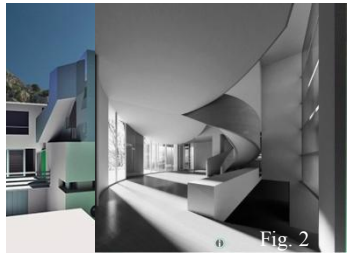


Fig. 2

Dualistic Space House (Fig. 2) is a space of abstract. A mixture of straight lines with the odd curve make a playful imitation of cubism. Cardillo uses pure colours and lets natural light, shining through façades of glass play the main role.


Fig. 3

Public Spaces for Rosa Starhotels (Fig. 3) consists of a single floor made of white concrete and façades of soft toned wood. The structure is simple yet welcoming and provides plenty of space to play with furniture.


Fig. 4

Cardillo compares his **White House** (Fig. 4) to the overture of an opera. “It gives some glimpses but at the same time it doesn't reveal the most important content.” The house contains many open spaces with views onto a green landscape. The entrance is wide and natural light plays a main role once again.


Fig. 5

Vaulted House (Fig. 5) has a unique circular nave made of composite lightweight concrete (lunetta), making it look like recycled paper. One can imagine clearly the play with sounds in such a space. The thin windows, facing South, let the sun shine deeply in winter while in summer, the concrete blocks it out, keeping the building cool. Cardillo yet still leaves the structure simple to leave the inhabitants to make their own story.

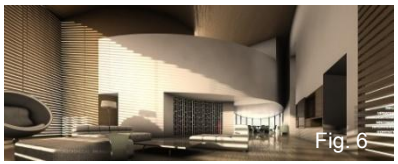


Fig. 6

House of Convexities (Fig. 6) represents moving architecture. The way light shines through beams of wood onto curved walls makes the room seem like its shifting throughout the course of the day.


Fig. 7

Max's House in a Small Lake (Fig. 7) is like a glass boat on a lake. The structure is simplistic with wide windows that let the beautiful landscape do the decorating. The building seems delicate and natural. Again in this one, Cardillo uses composite concrete, making it look recycled. Shade is achieved through bars and lines of cloth, giving the building a natural luminescence.


Photograph by Simone Greggi

Philosophy

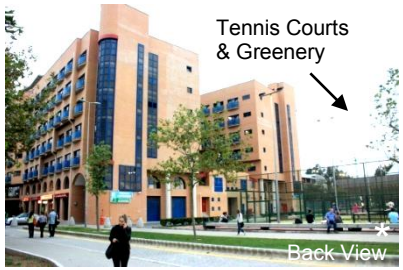
Antonino Cardillo believes architecture can unite people and that history plays the biggest factor when designing. Without memory, it is impossible to build for the future.

This section has helped me… understand Antonino Cardillo's style. I now see how he tends to play with nature (light, sound, wind, water, ect.) using simple shapes to create a relaxing space with hidden poetic meanings.

UNI HALL
Existing Buildings

Colegio Mayor Galileo Galilei

Architecture: RESA
Dormitories & Facilities: 408 rooms, canteen, pharmacy, fitness centre, audition hall, ICT room, music room, lounge, library, study room, parking, photographic laboratory, art room,
Analysis: Upon visiting the campus of Galileo Galilei, the first thing I noticed was that the first floor had private services such as a cashier, a driving school, private cafés and others. This came as a surprise considering most British Halls do not have this facility. It is however very practical for residents and businesses and can be incorporated into my design.
The green grounds are shared between the other university buildings and it was full with students. Spain, having a warm climate, is perfect for outdoor activities, which, as I observed, Valencian university students enjoy. My design will therefore have lots of green and open space.



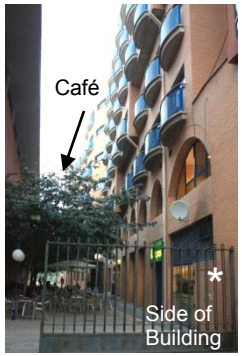
The architecture of the building is typical of that of Spain in the 70s and it stuck out rather negatively around the white architecture of modern Valencia. The cubic shape makes it look too closed in, the lack of sustainable design, shapes to create shade and the red brick give the feeling it is the type to get very hot in summer and very cold in winter. These are things that were not of much concern in the 70s in Spain however nowadays, the eco-mentality is growing in Spain and I wish to represent and motivate these new concerns into my design.

Distribution of space: Individual rooms are 23 m² and double rooms are 25 m². An individual room contains one 200x90cm bed, two desks (one for work and one for leisure), a lounge area with a coffee table and a small sofa, a closet and a bathroom. All rooms are stretched lengthwise with a small corridor at the entrance in between the closet and the bathroom. The window is wide and spacious and the desks are placed just underneath it to use up as much natural light as possible. Meanwhile the bathroom has no windows.
I find the corridor at the entrance makes the room seem smaller than it really is and the closet is bigger and bulkier than necessary. The shelf takes away most of the light coming in through the window and the spaces used up in the room could have been taken advantage of more.
There are no bedrooms in the ground floor. This is practical since they tend to be the darkest, most inefficient rooms if surrounded by other tall buildings. The building is also divided into two long blocks, making use of long corridors in which to place the rooms. It assures all rooms of natural light and ventilation. This particular shape is also practical for building uniform rooms. There are two exits. One is at the front which leads into a small patio in the middle of the "mall". People going in and out of that were people using the cashier machine. Most people went through the side entrance as it was closest to the campus and lead directly to the dormitories.
Lounge, library, ICT room and others were found on the ground floor since it is the most public place.

CAD drawing of one of the dormitories done by UPV

The side entrance have automatic sliding doors and in it, the reception can be found along with two stairs leading to the corridors. Head on, you can find the other public rooms. The sliding doors were constantly opening and closing.

The back of the building, with its greenery and tennis courts was full of students doing leisure activities or practicing in their field of study. An observation was that many had bicycles. A place to park will be necessary.

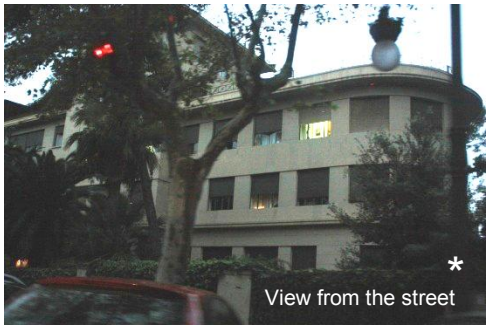


The side of the building had a café in which many liked to chill out.

These are some pictures I took when I went to visit the university hall. They show the side entrance, the back of the building and the opposite side of the building against the indoor swimming pool.

UNI HALL
Existing Buildings

Colegio Mayor Lluis Vives


View from the street

Architecture: Javier Goerlich (1935)
Dormitories & Facilities: 192 rooms, audition hall, library, theater, video room, music room, study room, ICT room, fitness centre,
Analysis: Lluis Vives is an enclosed university hall. It wasn't open for visitors unlike Galileo Galilei campus and I will have to search for open days.
On the outside, the architecture seems similar to Antonino Cardillos. It uses simplistic shapes and curves and cream-coloured concrete. I especially liked the way it used trees and greenery to shade the building from the harsh sun instead of man-made materials, making the building seem eco-friendly.
On the other hand, the entrance seemed very dark and closed in as if the building didn't have enough space. This doesn't reflect the Valencian lifestyle of openness. My building will therefore have a more open, entrance.


Entrance

Buildings at Universitat Politécnica de Valencia

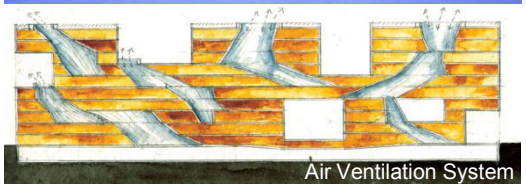
<< This is going to be the new building of medicine. It has a façade of squares similar to the one in Simmons Hall which blocks out the sun in summer and lets it shine in deeply in winter. However the use of alternative squares makes it look more open and playful, making it seem less like a cage.

The building for architecture is fairly square however the use of colourful, polymer plaques makes it seem bright and >> playful.

From looking at the buildings at one of the Universities, (all designed by Valencian architecture students) I have noticed the playful and open nature of Valencia and how it is reflected in the architecture. My building will therefore reflect this lifestyle and seem as open and welcoming as possible.

Simmons Hall MIT, Cambridge, USA


Front View


Air Ventilation System

Architecture: Steven Holl
Dimensions: 116m length, 10 stories high
Dormitories & Facilities: 350 rooms, 125 seat theatre, night café, canteen, lounges, self-catering, some in-suite bathrooms and public bathrooms, fitness centre, ICT room
Analysis: What is unusual about this building is the way it uses natural-shaped holes (called lungs) throughout the building to ventilate. These holes are equipped with fans powered through solar cells on the roof of the building. The windows are also inset, keeping out the sun in summer and letting it shine deeply in winter, reducing the need for air conditioning.
Problems with the building however are that the lungs make moving around difficult. Halls and floors are not well joined and more than often, students have to take a long walk to get from one point to another. The steel structure also creates a faraday cage, reducing wireless communication.


Inside one of the lungs

This section has helped me… find ideas for my project and information on the lifestyle of university students in Valencia. I now know to make my building open and welcoming and have noticed the importance of the sun in Spanish buildings. I've also found out about how the spaces are distributed in a university hall and so have a better idea of how big each room has to be.

UNI HALL
Existing Models


Model of Lime and Limpid Green

Project: Lime and Limpid Green (House for 2009 wallpaper architects directory)
Architect: Antonino Cardillo
Scale: 1:100
Materials: Man-made woods (MDF and plywood)

Analysis: Antonino Cardillo usually uses CAD drawings of his buildings instead of modelling. One of his few models, the Lime and Limpid Green project, is very simplistic and doesn't seek to be realistic. Cardillo concentrates on conveying the shapes of the building. The building process would have been quick due to the use of only one material and the softness of the wood. In terms of green design, this model is very ecological due to the use of man-made woods, made of recycled pieces which can be recycled again once the model is no longer needed. It also uses no varnishes, making it completely toxic free.

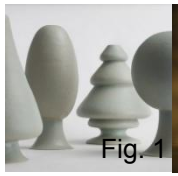
My model will use only one colour spectrum and I will try to use as little variety of materials as possible.

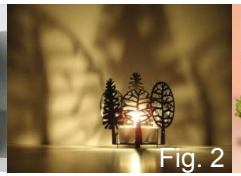

Separate pieces for the MapaPoetic

Project: MapaPoetic (Cloud 9)
Architect: Enric Ruiz-Geli
Scale: 1:500
Materials: Plastic

Analysis: Like Cardillo's model, this one is made of only one material, one colour and uses no adhesives. The trees have no intent of looking realistic and actually resemble a cloud, the trademark of the organisation, making it look abstract. The manufacturing process requires machinery and processing.

My model will also have greenery however I find these should not be made to look fake. I like however the way the building is only white as it makes it look pure and clean.






Mediátic with internal lights

Project: Mediátic
Architect: Enric Ruiz-Geli
Scale: 1:100
Materials: Aluminium, Plastics

Analysis: Ruiz-Geli uses one spectrum of colour and two materials to represent his project, keeping everything apparently simplistic however much more detail has been added to this model than Antonino Cardillo's. He pays a lot of attention to the structure of the building and how it works. A detail I find helps a lot to the onlooker is the addition of mannequins. This helps a person visualise the space in terms of size and anthropometrics much better, making it seem more like a building and less like a sculpture.

My model will therefore include a reference object such as mannequins or trees to help people visualise my building.

Project: Terrarium Typeface
Artist: Luminatii
Materials: Wood, Soil, Sand, Moss, PMMA

Analysis: This artist was inspired by architecture and philosophy to create this font. I find the style she uses for this represents the aesthetics I would like to achieve. It combines the simplicity and pureness of modern architecture with the green mentality in a harmonious way.

Luminatii uses moss for the greenery. Even though it's a material found in abundance in northern climates, it does not exist in Valencia. I will therefore look for a similar alternative.

These are alternatives for model trees found in architecture. Fig. 1 & 2 are examples of abstract looking models. The first is very playful while the second plays with light. Both do not seem very natural. Fig. 3 uses a plastic tree. These would have to be bought in components which are very expensive and the quality feeling given by it is not appealing. Fig. 4 uses pieces of real plants. I find this one the best alternative since it makes the model seem of higher quality and environmentally friendly.

This section has helped me… explore ways in which I can make my model. I now know what materials to explore as well as what scale would be the most appropriate. The aesthetics of my model are also clear to me now. I will make the building white and use greenery for the rest.

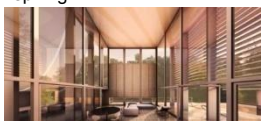
UNI HALL
Questionnaire

University Hall Questionnaire

A residence for university students in Valencia is being developed. Please answer the questions by ticking the box where required. All information will be kept confidential.

1. In what type of residence do you currently live?
□ At home with parents or tutor
□ In an apartment (independently or with a flat mate)
□ In a university hall
□ Other (please specify): _____

2. What facilities would you expect in a residence? (Please choose one or more)
□ Library □ Relaxation Room
□ Multimedia Room □ Internet Access
□ Band Practice Rooms □ Clubs
□ Canteen □ Cafeteria
□ Sports facilities □ Social Room
□ Other (please specify): _____

3. What room do you find most inspiring?
□ 
□ 
□ 

4. In what area of Valencia do you usually go out? (Please choose one or more)
□ El Carmen
□ Cánovas
□ Blasco Ibañez
□ Other (please specify): _____

5. What transportation material do you usually take?
□ Personal Car/Motorcycle □ Metro
□ Bicycle □ Bus
□ None (walking) □ Taxi
□ Other (please specify): _____

6. Do you work?
□ Yes □ No

7. What is your source of finance for university?
□ Parents □ Personal
□ Bank loan □ Scholarship

Thank you for your time.

Function of Questions

Q1 will show me the current state of university students in Valencia.
Q2 will help me decide on the function of the building due to target market choice.
Q3 will determine trends and show me which one of Antonino Cardilo's style's would be more appreciated.
Q4 will help me on the demographics of the building.
Q5 will also help me on the demographics as well as to decide weather or not a parking would be needed.
Q6 will help me find out more about the lifestyle of university students and what relationship they will have to the residence.
Q7 will show me their source of finance to therefore determine their budget.

Distribution

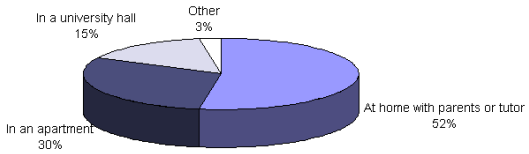
I will translate this questionnaire into Spanish and go to the canteen of the Medicine, Philosophy and Economics buildings and hand out the questionnaires to university students. My goal is to get 30-50 responses.

I will also hand a slightly edited version to the sixth form of my school, considering most will also go onto being students at this university.

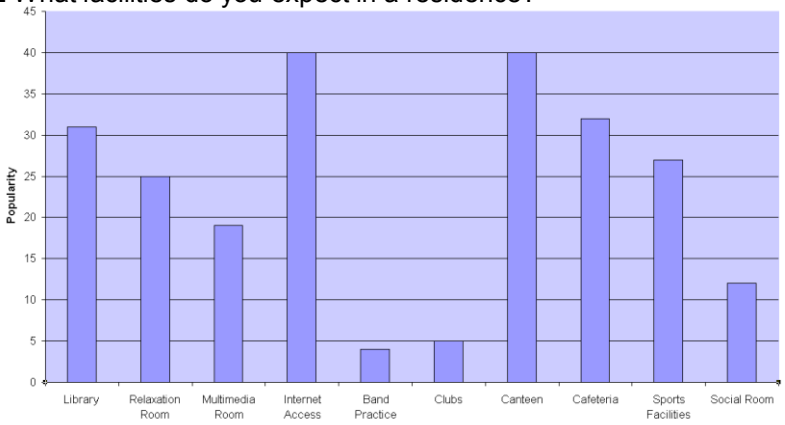
This section has helped me… shape a questionnaire to find the information I need. I also have a clear idea now of how I will distribute my questionnaire.

UNI HALL
Analysis of Questionnaire

Q1 In what type of residence do you currently live?

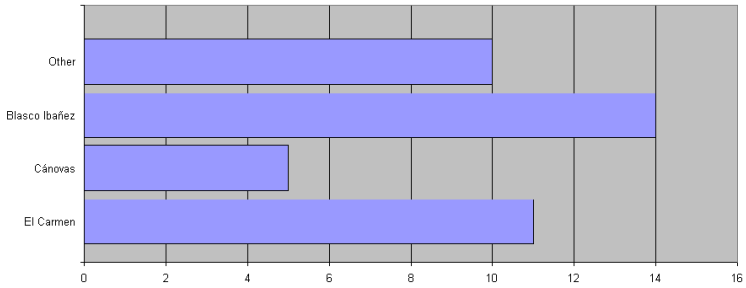


Q2 What facilities do you expect in a residence?



Q3 What room do you find most inspiring?

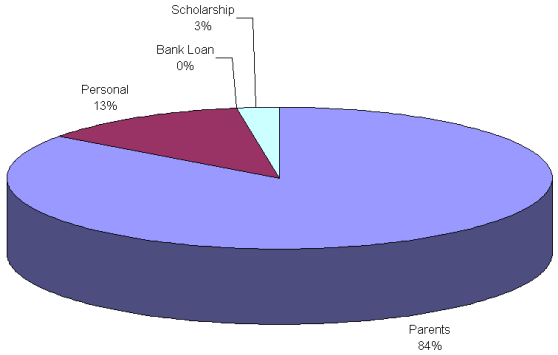
Q4 In what area of Valencia do you usually go out?



Q5 What transportation material do you usually take?
None
Metro
Bycicle
Personal car/motorcycle
Bus
Taxi
Other

Q6 Do you work?
Yes- 40% No – 60%

Q7 What is your source of finance for university?



I collected 40 questionnaires. 10 of which were of 6th form students and the other 30 of current university students, most in their 3rd year of study.

Analysis

Q1 shows that most students live at home or in an apartment. The low rate of university hall residents shows that either: 1. There are not enough university halls or room for students. 2. The idea of uni halls are not promoted by the university. 3. It is not in the Valencian tradition to go to a university hall.

Q2 has helped me get an idea of what facilities must be present in my building in respect to the demand of the students. There were 6 that suggested a parking area.

Q3 wasn't very successful as the answers were very diverse. This is maybe mainly because Cardillo's style doesn't alter much from one to the other

Q4 has helped me find an other area I had not considered before. This is "El Puerto", Valencia's coastline.

Q5 helped me find that students often enjoy walking to places or take the metro. There was a tight match between bicycles and personal transport. I should consider adding a parking area.

Q6 shows that it is not common for university students to work.

Q7 shows that it is common in Valencia for parents to pay university expenses. When combined with Q6 it shows that a fair part of students also have extra money for themselves.

This section has helped me… visualise the results of my questionnaire and draw conclusions from them. Now I have a better idea as to what students wish for.

UNI HALL
Interview

Interview with Architect, K. de Canha

1. What stages must an architect go through to put a project in action?
Architects will work through different processes to implement a project depending on the requirements. However, the following processes outline the framework within an architect would work to take a project from inception to completion:
º Client contact to determine the situation, requirement brief and budget.
º Analysis of the brief and research into the specific requirements of the client, site restrictions and building bylaws.
º The production of initial scheme design for presentation to client. Development and adjustments of the design to meet with client approval.
º Consultation with engineers and quantity surveyors to begin to develop structural information and schedules of materials and finishes.
º Coordination of professionals to develop working drawings and statutory documents required for planning permission.
º Submission of statutory documents for approval.
º Preparation of tender documents and administration of tender process.
º Collaboration with contractors and subcontractors on site and the coordination and chairing of site meetings with consulting professionals.
º Site inspection and quality control.
º Project hand-over to client and development of maintenance schedules.

2. In your opinion, what is the hardest stage of a project?
3. What stage do find the most enjoyable?
Often the most challenging and yet the most exciting and enjoyable part of the process is to try to capture the essence of what the client has in their minds and then to create this, in a built form.

4. In general, what is the importance of law in the making and designing of a building?
In a society, where people strive to coexist in harmony, laws are essential, as they promote equity and justice, safety and sustainability. In the designing and making of a building, laws are of primary importance. They ensure that buildings are positioned according to an urban masterplan and that the building is attractive, safe, accessible, useful and ecological. Building plans are subjected to rigorous scrutiny before they are approved to ensure that building bylaws are being respected.

5. What materials have you found are the most successful in architecture/model making?
The purpose of an architectural model is to give the designers, clients and consumers a realistic image of the building so that they can visualise the final design more clearly and quite possibly detect areas that could be improved upon, that were not immediately decernable on plan. Thus the nature of a model is temporary and often functional. For this reason, materials that are easy to work with and economical, are probably the most effective. Materials such as foam board, cardboard, card, paper and acetate are commonly used in model making. Other materials such as wire, plastic sheeting aluminium sheeting and perspex can also be used to accentuate specific areas or to create details such as windows or trees. The secret is to be innovative with materials and to experiment. (I have seen an architectural model made out of cake!)

6. Is there any preferred size/scale in model making?
Yes, a practical size. A model need to be functional and fit through doors into cars and be able to be carried around by a person without too much difficulty. Size would also be determined by the standard fiberboard sizes, for example. Often, urban planning models are to a scale of 1:1000 or 1:500, and architectural models are usually to 1: 200 or 1:100. But this is by no means definitive and depends on what needs to be shown.

7. How much detail should a model show?
Again this depends on the purpose of the model. There are some models that are very detailed and even have furniture and functioning lights in them and others that merely give an indication of the form of the building.

8. What is the role of sustainable design in architecture?
Sustainability is essential in space and building design because of the long term nature of buildings. Buildings must have an extended lifecycle to make them commercially and environmentally viable, therefore, not only must the design of the building be sustainable and able to move through trends and architectural fashions without seeming to date, but the materials used in buildings must be able to weather efficiently so that the building remains useful.

UNI HALL
Interview

9. Are there any projects that have especially captured your attention? Why?
Urban reconstruction and revitalisation projects always catch my attention because they serve such a positive cultural and community purpose in keeping cities alive. The urban reconstruction designed for the Olympics in Barcelona, in Berlin after the demolition of the Berlin wall, in Cardiff to develop the docklands and in Paris as a continuation of the grand La Defence development, have all been remarkably successful in curbing the urban sprawl that threatens many new world cities. These developments and many others are our childrens' heritage and our gift to future generations.

10. How much do you think the government will be offering to invest in a university hall?
Often, the funding for university buildings and residences comes from corporate sponsorships or private grants. So, it may be, for example, that Porcelanosa Ceramics provides the funding for a hall of residence for the Engineering and Architecture departments that will then carry the company name. This would benefit Porcelanosa as costs would be offset from tax payments, it would be great publicity as they would be able to display many of their latest products and they are investing in the future generation of engineers and architects that are likely to specify their products in construction work over the next few decades. Building costs are generally calculated per built and finished square metre. A building of this nature would cost between 1250 and 1500 per square. metre.

11. In terms of architecture what strikes you the most about Valencia?
Architecturally, Valencia is a city of contrasts. There are thousands of buildings in Valencia that have no architectural value at all. Faceless and non descript buildings that merely serve the function that they have been constructed for. Many of these buildings provide a very poor quality of life for the people living or working in them. On the other hand, there are certain zones of the city that explode with innovation and beauty, where one of the primary functions of the buildings is to be impressive architecture. This contrast strikes me as being primarily concerned with image and lacking balance. If the spaces we, as architects and urban designers created for society were beautiful and uplifted the quality of life of the population, the whole city would eminate a sense of serenity and equilibrium and there would be no requirement to create pockets of "Sunday best" type architecture.

12. What do you think is the future of architecture?
Innovation. At all scales, innovation is key to the development of the profession. From city planning to material development, innovation will lead to further sustainability of the built environment, less impact on the resources of the earth and a more positive experience for the users of the buildings. Architecture is all about people and the creation of an environment in which people can thrive and be productive and content. There is still plenty innovating to be done before this objective is met for all.

This section has helped me… understand the importance of my project in a professional point of view. The interview helped me find out information on stages of production and things I must consider, possible materials, scale and Valencia in terms of architecture. I've found out that I need to find out more information on bylaws.

UNI HALL
Market Profile

Consumer Profile

Who is my consumer?

University students and a few visitors.

What are they interested in?

º Future prospects
º University life

Education

Each university student has a different and flexible timetable. There are only a few classes a week and most of the time is spent doing extracurricular activities or studying.

Work

Some students decide to take up a job however this is not too common.

Leisure

University Students enjoy extracurricular activities and hobbies and are often found practicing these on campus grounds during week days. On weekends, they enjoy going out at night to clubs and bars.

Finance

Most students are financed through their parents.

How my building will respond to this?

My building will have rooms that satisfy all of a university students lifestyle so that transportation will be required the least possible. All rooms will therefore have a good working area and I'll include a library and ICT room to facilitate studying. A theatre room for seminars and events will also be featured.

Spaces for leisure activities such as a gym, music rooms, photography lab, ect. will be included as well as a relaxation room and social room for party events.

The cost of living in the university hall will be at an average and made affordable to students that are self financed.

Trend Forecast

Natural designs with emphasis on ecology and minimalism.

Customer Profile

Who is my customer?

La Generalitat Valenciana (the Valencian Government) and/or a private company like RESA.

What are they interested in?

º Profit and money
º Boosting the economy of Valencia

What is their relationship to my project?

My customer will be interested in my model in terms of:

º The functionality of my project
º The cost of my project
º The aesthetics and style
º The incorporation of sustainable design

How will my building respond to this?

My building will have a developed and practical functionality that would bring a positive effect on the city.

The cost of my building will be kept at a healthy minimum however with its functionality, it will be made as a source of finance.

Its aesthetics and sustainable design will be advanced as to attract intellectuals that will boost the economy.

The sustainability of my building will also make the running of the university hall cheap, increasing the profit.

How will my project respond to this?

My model will be at an appropriate scale to be able to observe all these features.

This section has helped me… have a clear idea of who my consumer and who my customer is and what their interests are. This will help me shape my building and model and make it as practical as possible.

UNI HALL
Demographics

1 – Universitat Politécnica de Valéncia
2 – Universitat de Valencia
3 – El Carmen
4 – Cánovas
5 – Blasco Ibañez
6 – Nearby Metro Station
7 – Old Mestalla
8 – Empty Site
9 – El Puerto

Air view of the mestalla

Site 1 (7) – Old Mestalla

Dimensions: 150 x 130 m (19500 m²) not including parking lot
History: Upon the decision to build a new football pitch, the old one is going to be demolished. What it shall be replaced with is still being discussed.
Advantages: It is within a short walking distance or bicycle ride from both universities; It is in the centre of Valencia meaning its close to all "going-out" areas; It has a metro station next door, making it easy to move around; The site is very big meaning there will be more than enough room for all facilities and extra green-space; It has an incorporated parking lot; The main road is nearby making transporation of materials will be easy and not affect the lifestyle of citisens.
Disadvantages: Increased competition for site therefore land might be more expensive.

Site 2 (8) – Empty Site

Dimensions: 120 x 100 m (12000 m²)
History: This site and its surroundings used to be orange fields until they decided to expand the university.
Advantages: It is within a short walking distance from one university; It has a street-car station nearby, connecting it with the upper side of Valencia; The site is fairly big meaning there will be more than enough room for all facilities and extra green-space.
Disadvantages: It is not close enough to all universities; It is at a far distance from all "going-out" areas; It is not well connected to the centre of Valencia; It has no incorporated parking lot or parking space nearby.

This section has helped me… locate free land and evaluate the best spot for my building. I have come to the conclusion that the location of the old football pitch (Mestalla) is the best place.

UNI HALL
Material Research

Building

Concrete


Physical properties
º Great compression strength
º Brittle
º Tough
º Durable
º Easy to work with
Aesthetics
º Can be coloured
º Slightly textured
Suitable Replacements: Cardboard, Plywood, Sandpaper

Glulam
Physical properties
º Strong
º Durable
º Easy to work with
º Great insulator
Aesthetics
º Textured
º Luxurious look
Suitable Replacements: Plywood, Flexwood

Ceramics
Physical properties
º Tough
º Great insulator
º Resistant to chemicals
º Durable
Aesthetics
º Can be any colour
º Can be any texture
Suitable Replacements: Cardboard, Sandpaper

Glass
Physical properties
º Brittle
º Hard
Aesthetics
º Transparent
Suitable Replacements: Polyetheline, Perspex

Model

Cardboard


Physical properties
º Malleable
º Recyclable
º Easy to work with
º Cheap
Aesthetics
º Can be coloured
º Smooth surface

Plywood
Physical properties
º Tough
º Recyclable
º Easy to work with
Aesthetics
º Can be coloured
º Textured

Sandpaper
Physical properties
º Malleable
º Recyclable
º Hard
º Easy to work with
Aesthetics
º Textured
º Can be coloured

PMMA
Physical properties
º Stiff
º Tough
º Recyclable
Aesthetics
º Transparent

Foam Paper
Physical properties
º Light
º Easy to work with
º Recyclable
Aesthetics
º Can be coloured
º Cheap

Flexwood
Physical properties
º Flexible
º Recyclable
º Easy to work with
Aesthetics
º Textured

Polystyrene
Physical properties
º Light
º Easy to work with
º Recyclable
Aesthetics
º Textured
º Can be coloured
º Cheap

Polyethylene
Physical properties
º Tough
º Malleable
º Recyclable
º Resistant to moisture
Aesthetics
º Professional look
º Can be transparent

This section has helped me… analyse the best materials suitable in the making of my model in terms of physical properties, cost and the similarity in aesthetics. I have found that cardboard and foamboard are the most suitable for walls and polyethylene for windows and glass structures.

UNI HALL
Sustainable Design

Building

Energy Efficiency

My building needs to waste as little amount of energy as possible. Ways of doing this are:

º Insulating the building (walls and windows)

º Facing constantly inhabited rooms (bedrooms, relaxation rooms, library) towards the south due to the path of the sun rays and using protruding wings. This will reduce the amount of energy used in heating and cooling since the sun will shine deeply and heat up the rooms in winter and stay away in summer.

º Make sure there are no still air pockets in the building to facilitate natural ventilation, there being air currents for hot hair to escape in summer and cold air to reduce in winter.

º Valencia suffers from heat waves from the south and west in summer and cold air from the north in winter however, due to its proximity to the sea, fresh wind blows from the east in summer. Therefore I will place deciduous trees near the south and leave the east open for currents.

º Because Valencia is situated in a hotter climate, the main energy loss is produced by cool air conditioning. A way to reduce the amount of hot air is to make the building the least stories tall possible to increase the surface area from which heat can escape.

º By planting greenery on the roof of the building, I could effectively insulate the hot air in winter and keep the building cool in summer due to the moistness of the earth and the shade produced by the leaves.

Energy Production

The energy used in my building needs to be as self sufficient and green as possible. Ways of doing this are:

º Due to Valencia having a sunny climate all year round, it would be perfect for using the alternative energy source of light. Solar panels can be installed in my building.

º The water heating and cooling system for my building can be geothermal since Valencia is a non-temperate climate and underground is where temperature is kept most constant. The land in which I'm planning to construct also already has underground veins. Installing this would be cheap and reduce energy consumption effectively.

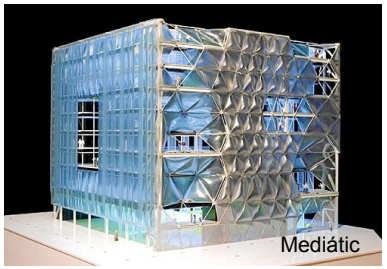
This building, situated near the university, is a perfect example of the use of greenery in the regulation of energy efficiency. It doesn't only have an appealing aesthetics but also insulates it in winter and cools it in summer.


Vaulted House

Antonino Cardillo uses protruding wings to guard off the sun. Cloth is used for some, making it aesthetically appealing as well as movable. >>

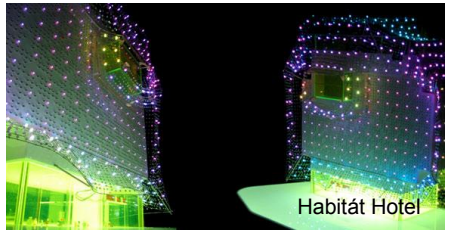
<< In his Vaulted House, instead of using wings, he uses two window strips at either end facing south. Manipulating the light. In order to not make the building completely dark, he used translucent glass, which lets light shine but not heat.


Marx's House


Mediátic

This is a model of a block of offices being built in Barcelona, Spain. It saves 75% of energy and the system it uses Is light-sensitive cushions that work like a skin. They cover the building when the sun is shining strongly and open to let in more light when its cloudy. This digital system is efficient in a public building where no one really knows who should control the shades. I could implement this system in my own building.

The Hotel, Habitát Hotel de l'Hospitalét, in Barcelona uses light to produce energy. Depending on how much energy is absorbed during the day, at night, LED's will give off a different colour at night. More than it being energy efficient, it is a way to attract attention from citizens and customers and making them environmentally aware.


Habitát Hotel

UNI HALL
Sustainable Design

Building

Materials & Manufacture

The materials used in the making of the building need to contaminate as little as possible throughout the manufacture. Possible materials used could be:

º Recycled materials could be used as an alternative such as reusing concrete, steel and polymers found in the football pitch that currently inhabits the land.

º Roman Self-Healing Concrete – this material was used as far back as by the Romans and its manufacture produces significantly less CO_2 than other concrete.

º Ceramics from Porcelanosa could be used for the building. Porcelanosa is a company found nearby who specialises in tile. Its manufacturing process is eco-friendly as I observed on my trip to their factory. They have recycled tile (Ston-ker® Ecologic) and the transportation would be cheap and produce no carbon footprint due to the proximity of the factory.

º Tile is also one of the most environmentally friendly materials in the construction market and can also be made to look like any other material (wood, paper, stone, ect) This opens doors to many design abilities while still keeping it green.

º Insulating materials should be of low VOS (like recycled denim or cellulose insulation) as high concentrations are bad for the environment and health.

Workers and Society

The making of my building as well as the functionality of it should have a positive impact on its surroundings. Ways of doing this are:

º Employing local workers in the making of this project will improve the life of these and help the economy flow.

º The completed building will also provide job opportunities for citizens of Valencia as well as act as an opening door for cultural diversity, helping the community grow.

Dotted Walls *

Flooring imitating wood *

These are photographs of tile I found at the Porcelanosa factory. Due to the flexible aesthetics of ceramics, many different styles could be achieved. The parts could be made to imitate many materials and parts could be cut to satisfy any shape. I was a bit worried about the insulating capacity of ceramics but upon walking on the tiled floor, I found it was quite a good insulator and through the use of different colours could also give a feeling of warmth.

Ceramic walls *

Wall imitating bamboo *

My class and I at Porcelanosa *

On our guided trip through the factory, I observed how the company used techniques to keep the process as environmentally friendly as possible such as cleaning and reusing water, recycling all waste materials and having many quality control checks.

This section has helped me… explore ways in which I can improve my building in terms of sustainable architecture. I now know exactly what materials to use and how my design has to be planned out to make it as environmentally friendly as possible.

Model

Materials

The raw materials used for my product need to be extracted in an ecological way or have been recycled. Possible ways of acquiring these materials would be:

º Cardboard is a waste material in many grocery stores and transportation. Recently I have moved houses and have many empty cardboard boxes. I could use these or ask grocery stores for them should I run out. Not only would this be environmentally friendly but I'd also be getting material for free.

º Plywood is already a recycled material. It can be found in any creative shop at cheap prices however the size of these might be too big for a small model, making it uncomfortable to work with therefore I will go to woodworking factories in the outskirts of Valencia and ask for waste pieces.

º In terms of adhesives I will look out for Green-Guard Certified glue.

º Polymers used in my model such as polyethylene or PMMA can be made of recycled plastics however the availability of recycled plastic in my area is rare meaning I will have to search shops in Valencia that have this material available.

Manufacture

The manufacturing of my product needs to contaminate the least possible Ways of doing this would be:

º When using machinery, reduce the manufacturing process to one step only. Otherwise try to keep steer away from using contaminating processes.

º For the varnishing and painting of my model, I will use green certified paints such as Colores de la Tierra by the company Burguer. I used these paints before and I have found they're easy to work with, of high quality, cost as much as any other paint and contaminates significantly less in terms of chemicals used.

º I will also steer away from spray paint since these are contaminating.

Use

My finished model needs to have the least negative impact on its environment as possible. Ways of doing this would be:

º Use materials, paints and varnishes that do not emit any toxic chemicals.

Disposal

My model needs to follow a cradle-to-cradle cycle. In order to follow this, it should:

º Be made of materials that can be recycled such as cardboard, wood and thermoplastic polymers.

º Different materials should be made easy to take apart. For this, I will use joining methods instead of adhesives where possible.

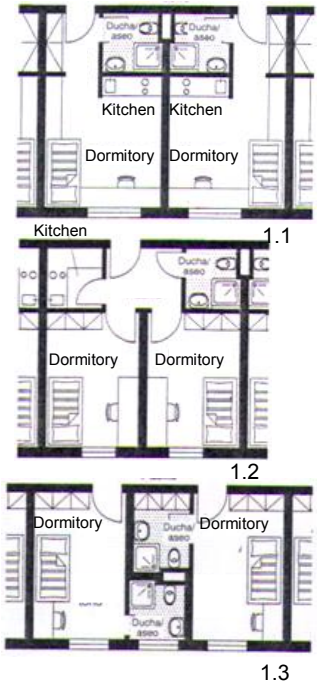
A green roof, project by Enric Ruiz-Geli

This section has helped me… find ways in which I can make my model environmentally friendly. I now know exactly what materials to use and where to get them.

UNI HALL

Anthropometrics/Ergonomics

Dormitories

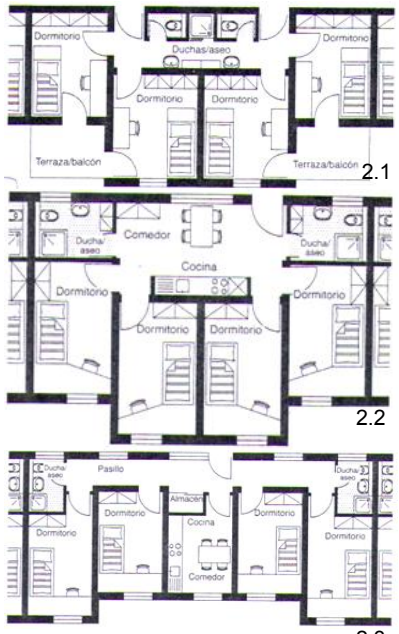


<< Here are various possibilities for single en-suit bedrooms.

1.1 is very private since it has an incorporated kitchen and bathroom. This might make the entrance seem a bit crowded however I will not close preferences for people and include this one in my design.

1.2 I find is the most efficient. Two people share a kitchen and a bathroom. The spaces are evened out and practical. I would however place the table under the window and the bed adjacent to it.

1.3 is the standard, most common found dormitory. Spaces are practical and rooms are private.

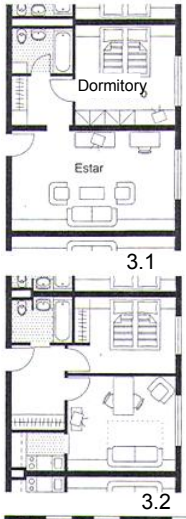


<< Here are different possibilities for four room dormitories with incorporated bathrooms and kitchens.

In 2.1, each room has a shared terrace. I find however, this arrange is rather crowded and most tables do not have sufficient light.

2.2 is arranged in a better way. The dormitories get enough light if faced south however the kitchen does not. A translucent pane could be added in this spot.

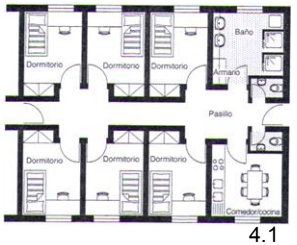
2.3 doesn't have a good rearrangement of space. The kitchen might get more light but the extra hall is a waste of space.



<< Here are two different possible suits for teachers or students willing to pay more.

3.1 has an incorporated bathroom. The study and living-room are joined together. It might be better to separate the two to avoid distractions. A drawback of this design is that it has no kitchen.

3.2 has a kitchen however again, study and leisure should be separated into two different rooms.



<< 4.1 shows a more practical way of combining four dormitories with a shared bathroom and kitchen. This gives more of a feeling of togetherness and spaces are more easily distributed.

Greenery and Solar Panels

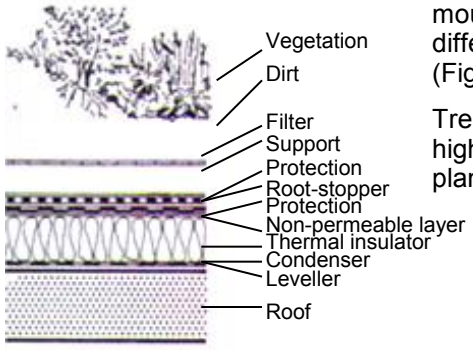


Fig. 1

Green roofing is mounted on layers of different materials. (Fig. 1)

Trees need to be on a higher level than other plants. (Fig. 2)

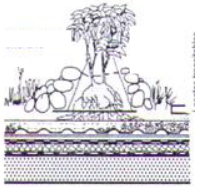


Fig. 2

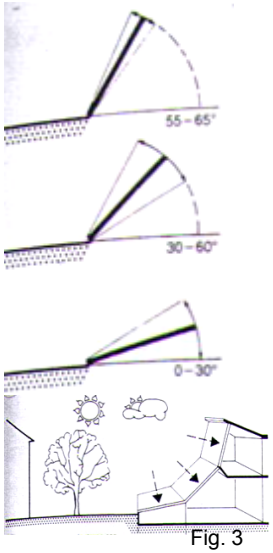


Fig. 3

To optimise the efficiency of solar panels, they need to be facing south, at 55-65º from the horizontal in winter, 30-60º in autumn and spring and 0-30º in summer as shown on Fig. 3.

Other Considerations

Stairs need to be a width of 1.25m for two people to pass through.

Elevators need to be 1.40m deep and 1.10m wide for a wheelchair to fit well.

This section has helped me… explore possible options for sizes and combinations of bedrooms as well as laws and dimensions to include the 95th percentile. These are some examples found in Neufert Architect's Data: Third Edition.

UNI HALL
By-Laws

Residences

Dormitories must…
…have a minimum usable area of 8m²
…be at least 2m wide with a height of at least 2.4m
…have windows at least 1/10th the area of the wall.

The building…
…cannot have dangerous areas or disturb others.
- º Balconies must have fences of at least 70m.
- º All materials used need to have been considered safe by European legislations.
- º The building itself cannot contaminate.
- º Music rooms bust be sound insulated.
- º The building cannot block the view of nearing buildings.

…must have safety measures.
- º Each floor needs to have at least 2 exits to be used in emergency.
- º Each floor needs to have a fire extinguisher.
- º The building must have an infirmary.

…has to consider the 50th percentile.
- º Each room has to be accessible by people in wheelchairs.

…has to be sustainable.
- º Rooms have to be thermally insulated.
- º Energy consumption must be efficient.
- º It must promote the use of green energy.

Manufacturing…
…must be made with the appropriate safety measures.
- º Workplace must be hygienic.
- º Nets have to be placed to protect from falling objects.
- º All materials need to be labeled.
- º Workers need to be informed and properly trained.

…must be done by paid workers.

How does this affect the design of my building?

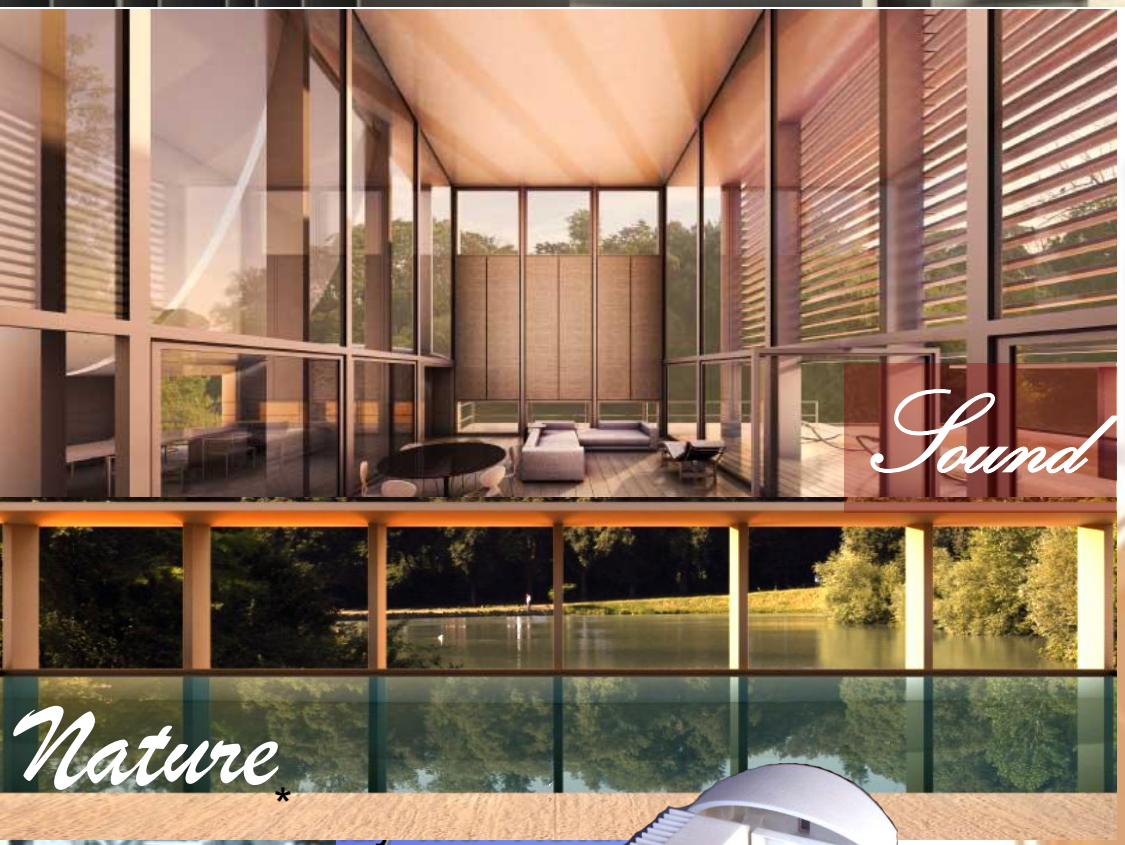
My building must meet all these requirements in order to be safe, sustainable and legal. Therefore when I develop my final design I must mark it against these points.

GENERALITAT VALENCIANA

This section has helped me… explore European, Spanish and Valencian laws and safety legislations on architecture that affect the design of my building. This will be very useful for my design development.

UNI HALL

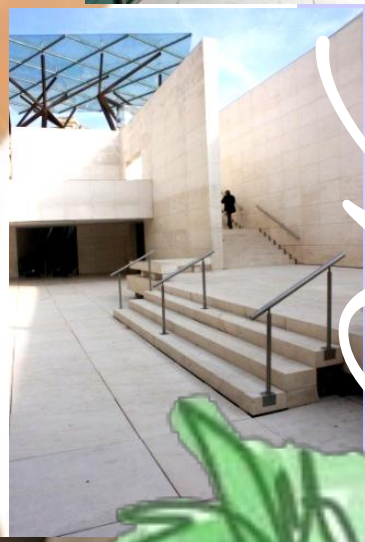
Mood Board



Sound

Nature*

MINIMALISM



Water

Light

UNI HALL
Research Analysis

THEME	WHAT I WANTED TO FIND OUT	HAVE I FOUND IT?	SUMMARY OF INFORMATION	EVALUATION
ANTONINO CARDILLO	What is Antonino Cardillo's underlying style? What forms and shapes does he use?	YES	Minimalist straight lines and curves.	The visual analysis of his work was helpful to determine aesthetics and materials. It was also very motivational.
	What is his inspiration?	YES	Nature, ancient roman architecture, Ludwig Mies van der Rohe	This helped me understand Cardillo as an architect and to develop a mood board more originally, without repeating his old styles.
	What is the main emphasis on his work?	YES	Play with nature	I included this question when researching the first as it is similar.
EXISTING PRODUCTS	How do current university halls work and where are they situated?	YES	Valencian halls have all the services needed to be independent.	This was the most useful of all research. It helped me understand Valencian lifestyle and gain ideas for my building.
	What would be the most appropriate materials?	YES	Card, Perspex (Model); Concrete, Glass (Building)	This helped me gain creative ideas for ways in which I could make my model.
QUESTIONNAIRE	What would a university student expect in his/her residence?	YES	Mainly: Internet Access, Canteen, Cafeteria, Library	This gave me an idea of what students would expect in their residence. The results were as I had expected.
	What styles are students inspired by?	YES	Too varied.	The results to this question were vary varied. A more open ended question would have been more appropriate.
	Under what circumstances do students currently live and what is their lifestyle?	YES	Most live and are dependant on their parents.	This helped me find what would be needed in the building.
	What would be the most practical place to situate the hall?	YES	At the old Mestalla.	This question was very successful and well answered. I now know exactly were to situate the hall.
INTERVIEW	What would be the most appropriate materials?	YES	Lightweight materials but be innovative.	Helped motivate me into being creative however could have made more use of this resource to ask technicalities.
	Is there any sort of preference for model making in people interested in my project?	YES	1:100 to 1:400 depending on size	This professional information helped me decide on sizes for my project.
	How much is the government and investors willing to pay for a project?	YES	About 1500 per square metre.	This was useful to visualise the cost but not relevant.
	What are the legal safety measures set by law?	YES	(See p. 25)	This pushed me to look further into law and check the legality of my design.

UNI HALL
Research Analysis

THEME	WHAT I WANTED TO FIND OUT	HAVE I FOUND IT?	SUMMARY OF INFORMATION	EVALUATION
MARKET PROFILE	What are my consumer and customer like from the information that I've found?	YES	Consumers enjoy recreational activities. Customers are profit-based.	I did more research into this than I had initially intended because I found the project needed more emphasis on the consumer.
DEMOGRAPHICS	What would be the most practical place to situate the hall?	YES	Avenida de Aragon (old Mestalla)	This research is curtail to the design of my project and the field research will be very useful to visualise my final idea.
MATERIAL RESEARCH	What would be the most appropriate materials?	YES	Card, foamboard and PMMA	This was useful to explore ideas and possible materials however I find they would have to be tested to find a definitive decision.
SUSTAINABLE DESIGN	In what ways can I make the building sustainable?	YES	Renewable energy and energy efficiency, demographics, sustainable materials, ect.	I found lots of information on sustainability of which many gave me ideas. I had to summarise the detail and portray the most relevant to my building.
ANTHROPOMETRICS	What sizes are necessary for my building?	YES	(see p. 24)	The book I used for researching this was very useful. It had direct, precise information which made it easy to analyse.
MOOD BOARD	How can I express the style I am trying to achieve in an inspirational way?	YES	(see p. 26)	The images compiled are successful in giving a visual image of what I want to achieve.

Final Evaluation

I have successfully found all the information I wanted to achieve.

I added more sections than those in the research plan since I found more information and more opportunities in certain areas to investigate such as my trip to Barcelona, where I got to see one of Antonino Cardillo's inspirations: Ludwig Mies van der Rohe. Also, my trip to the tile factory, Porcelanosa, was very valuable as I got to check the sustainability of materials and how suitable tile is for my project.

Another section that I found I needed to add was a Market Profile as well as By-Laws. In the market profile I summarised all the information I had found about my consumer and my customer so I could have a clearer overview for the specification and making sure that my project meets my consumer needs and stays realistic. The page on by-laws I found was necessary since buildings are seriously affected by law and in order to make sure that my building is sustainable and legal is by researching by-laws.

Sections like Sustainable Design I have turned out to find more valuable information I had not expected. Modern architecture is thriving with ways to make buildings and sceneries sustainable and I found many of these were relevant to my project. Eventually though, I had to cut down on the information to put in my project because it covered too much space.

This section has helped me… make sure I've found all the information I needed. I've also included an evaluation which explains in detail what I expected, how certain things came out differently and why this happened.

UNI HALL
Specification

Building

1.0 FUNCTION

1.1 A hosting space for 300-400 students.

1.2 10 luxus rooms (single or double for couples), 170 individual rooms, 50 double rooms, 10 quadruple rooms.

1.3 It will have a theatre, gym (two basketball/football courts, two tennis courts, one indoor swimming-pool), a library, ICT room, a relaxation room, empty rooms for clubs such as music, infirmary, laundry.

2.0 AESTHETICS

2.1 The building will use creamy colours and have lots of wide windows.

2.2 It will have a minimalist style with a play with curves and lines.

2.3 Materials will have a recycled look.

2.4 The building will look open and welcoming.

2.5 The design will not discriminate against cultures.

3.0 MATERIALS

3.1 The building will use Roman Self-Healing Concrete for bases.

3.2 Tile from Procelanosa will be used for flooring.

3.4 Glass will be used for windows, some tinted.

4.0 TARGET MARKET/VALENCIAN COMMUNITY

4.1 The building will be beneficial for my consumers and customers.

4.2 It must have a positive impact on the surrounding citizens.

5.0 COST AND FINANCE

5.1 It will be financed through the Generalitat Valenciana (the government of Valencia)

5.2 The cost of running must be less than other university halls in Valencia.

6.0 DEMOGRAPHICS

6.1 It will be located in the old Mestalla (Avenida de Aragón)

7.0 SUSTAINABLE DESIGN

7.1 The building must have green roofs and solar panels.

7.2 Bedrooms, social rooms and the library will be facing south, congress/theatre and the commercial area will be facing north.

7.3 The building will be the least stories tall possible.

7.4 Walls and windows will use double insulation.

7.5 It will use protruding wings to shade from the sun.

8.0 SAFETY

8.1 During manufacture it will have nets to protect people from falling objects and it will be fenced off for the security of civilians.

8.2 It will have fire extinguishers and fire exits on every floor.

8.3 It will have first aid kits.

9.0 INCLUSIVE DESIGN

9.1 There will be elevators big enough to hold one person in a wheel-chair.

9.2 The whole building will be accessible by people in wheel-chairs.

Model

1.0 FUNCTION

1.1 The model will be a an abstract, miniature representation of the building, viewed from the outside.

2.0 AESTHETICS

2.1 The building will be made of white and soft colours.

2.2 It will use vegetation.

3.0 MATERIALS

3.1 I will use foamboard, paint, and vegetation.

4.0 TARGET MARKET/VALENCIAN COMMUNITY

4.1 The model must show general aesthetics and the incorporation of sustainable design.

5.0 COST AND FINANCE

5.1 The financial budget will come from me.

5.2 It must not cost more than €50.

6.0 SIZE AND SCALE

6.1 The model must be between a scale of 1:200 to 1:500.

7.0 SUSTAINABLE DESIGN

7.1 I will use environmentally friendly certified paints.

7.2 I will use recycled foamboard.

7.3 I will use joining methods instead of using adhesives wherever possible.

8.0 SAFETY

8.1 The model will have a safety margin.

8.2 There will be no sharp edges.

9.0 INCLUSIVE DESIGN

9.1 The model must have enough size as to not cause eye-strain.

9.2 It will be placed at a height that will be easily visualised by people in wheel-chairs.

This section has helped me… state clearly what is required in my project. I will evaluate and develop my ideas according to this specification and will later on test my finished project against these points. All points of the specification have been determined by my previous research.

UNI HALL

Idea 1

The buildings look too separate and unconnected with each other and therefore impractical for accessing different parts of campus in extreme weather. There needs to be some sort of connecting factor between the buildings.

Compared with the other ideas this one is the most alike to Antonino Cardillos style. Especially because of the cream coloured concrete and the use of glass. It creates the closed in – open contrast found in his work. The shapes are basic and easy to reproduce and work with.

At first I thought about making the edge of the towers point towards the circle but upon experimenting, I found having them point outward used up the spaces more efficiently.

The shape of the towers play nicely with light and I like the idea of using glass with white balconies and greenery. However I find the spaces inside will be hard to use. Maybe adding an inside patio would improve it.

Inspiration: SD Hotel by VT Architects and Ellipse 1501 House by Cardillo

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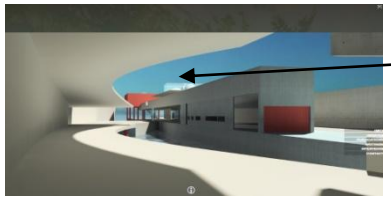
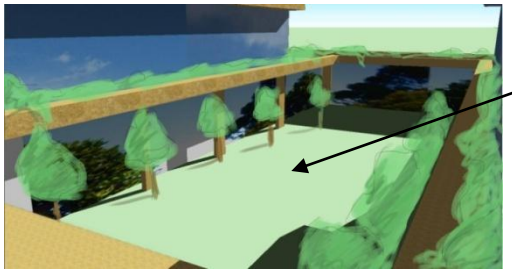
Idea 2

Inspiration:



Too straight. It should have more curves to it to make it more like Cardillo's style. Like for example, the conference building.

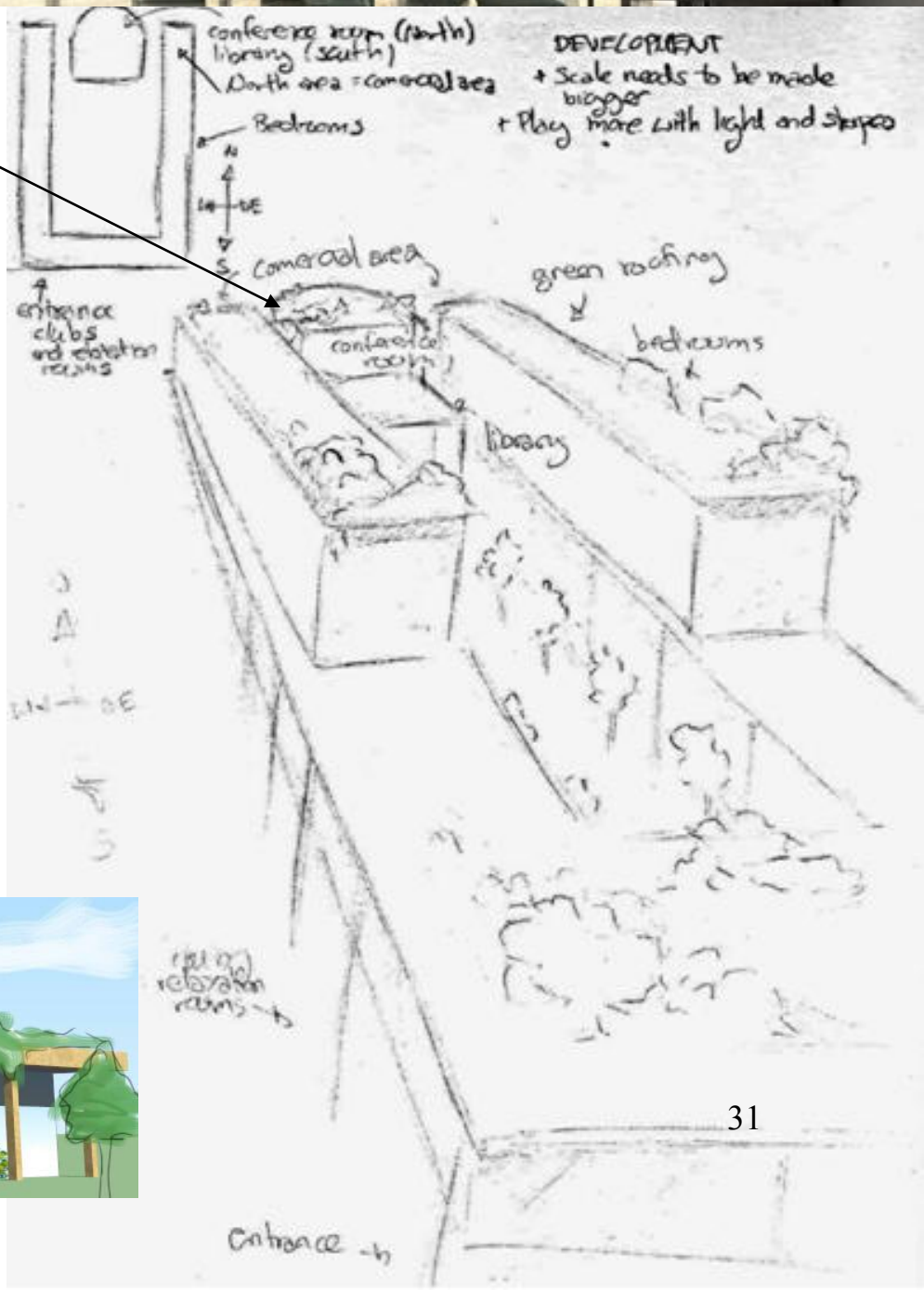
This is a more classical look of a residence. It has a patio similar to ancient Valencian culture.



Very warm, closed in feeling with private area to relax. It reminds me of British university halls.

This design is overall very classy. It matches with the ancient buildings found in el Carmen (the old part of Valencia). However Valencia is turning into a modernist city with preference for futuristic looking buildings.

The idea of the patio is a good one as well as the pillars. It reflects Antonino Cardillo's inspiration of ancient Roman architecture. I think that a few curves are missing though to transfer it from being a traditional building to a modernist one.



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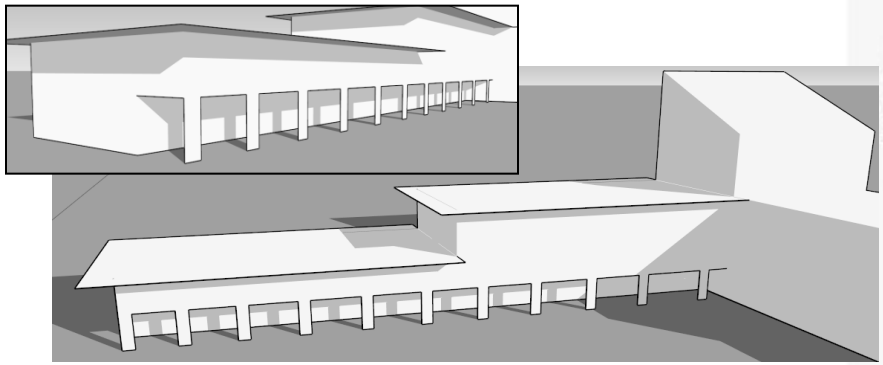
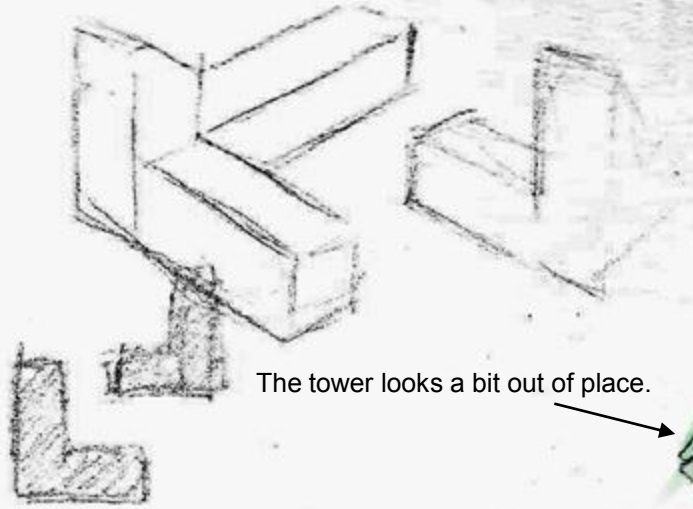
Idea 3

Here I tried combining the two first ideas to make a mix of glass towers and concrete blocks. However I found that this combination made the building look too straight and block-like. It also doesn't use up the spaces efficiently.

I do however like the idea of using cream coloured concrete on stilts with the main glass being set into the building. It creates the closed – open look of Antonino Cardillo.





The tower looks a bit out of place.

Further on, I tried developing this design by extending the shape to make it more alternative and to use up spaces more efficiently.

Inspiration: van der Rohe's Barcelona Pavillon

Ludwig Mies van der Rohe's style can be clearly seen in this new design. While he was one of Cardillo's inspirations and fits better with his style, it's still missing a bit of Cardillo's typical curves.

The efficiency of light has improved drastically by adding the in-set wall, stilts and extended roof. I believe it is something I should use for my final design.

I like the idea of the stilts and the alternative windows into the concrete.

UNI HALL
Idea 4

Inspiraton: Marx's House & Valencian Building

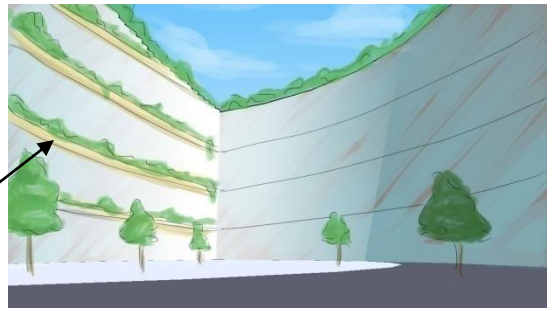
From the first idea, I developed a design that would use up the interior spaces more efficiently. I decided to alter the form of the building to make it more dynamic and to add an interior patio so spaces would be made use of better and all rooms could take up light.

I used the core idea of using glass and concrete balconies to enhance the aesthetics and ecological awareness. Glass also plays well with light. To shade from the harsh summer sun and prevent the glass from creating a greenhouse effect inside the building, I placed greenery in the balconies that will shade and provide coolness in summer.

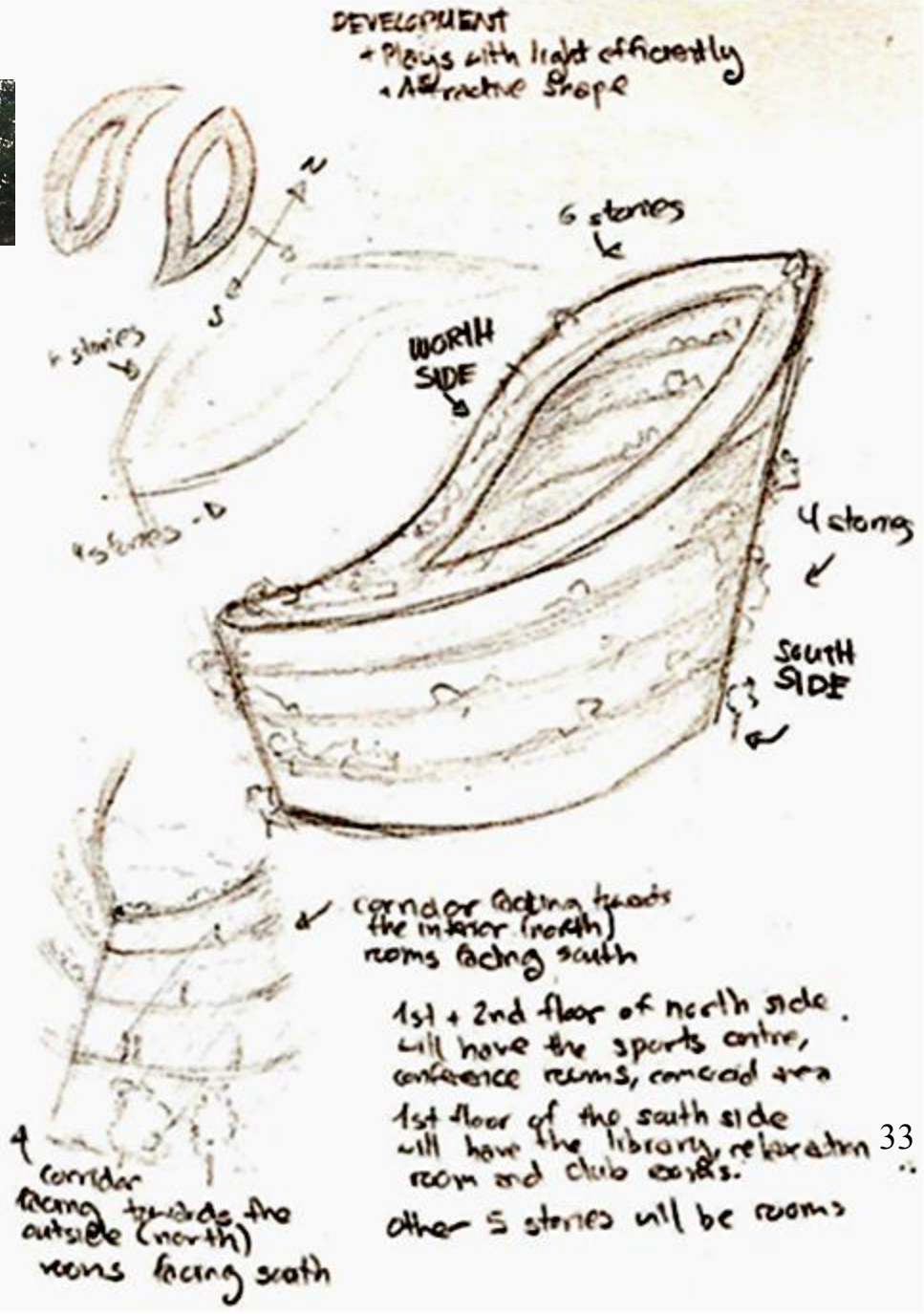
To use up light more effectively, I made all the bedrooms face south and placed the halls on the north side. Maybe I could consider using water to also cool down the building like for example in the Alhambra in Granada. It would add a nice aesthetic touch and play more with light.

Aesthetically, I think it's missing a bit of Antonino Cardillo's style. I should consider adding areas of concrete to create that closed – open effect present in his work.

Note the balconies and bedrooms only face south. Corridors do not have balconies and face north, where less light is reachable.

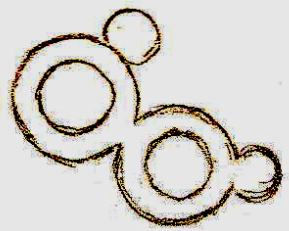


Rendered CAD drawing. Shows a possibility of how the indoor patio could look like.

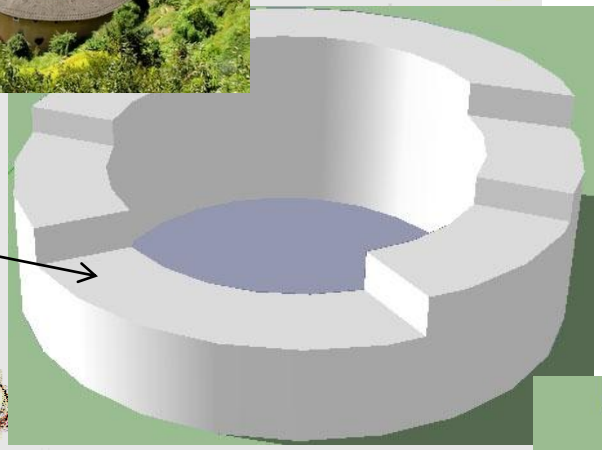


UNI HALL

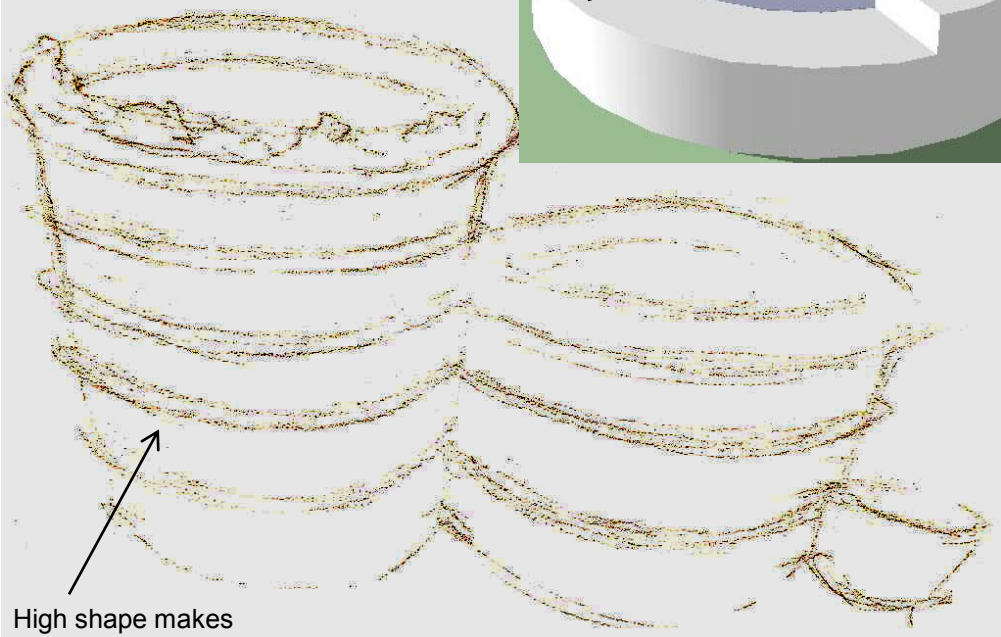
Idea 5



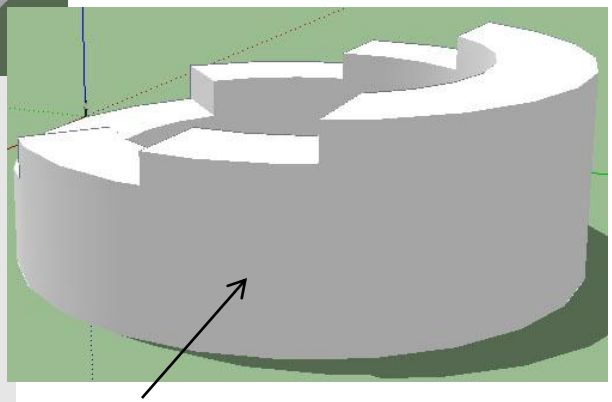
Inspiraton: Traditional Tulou Housing



Slanted roof facing south to make use of all the sun.



High shape makes it look like a bucket.



I could add balconies and greenery here to enhance aesthetics.

Moving on from idea 4, I attempted doing a simple shape and combining it with other circular buildings of different heights to create an abstract image, similar to the traditional housing of Tulou.

In my first sketch, I made the buildings too high and slim. The aesthetics where not greatly appealing and the height caused some problems with sustainability and quality.

I then tried to improve on this by making the roof slanted and making each circle wider. The opening would be facing south so light can shine into the inside patio and onto dormitories. By cutting the roof this way, more rooms can face south and less surface area is facing directly north.

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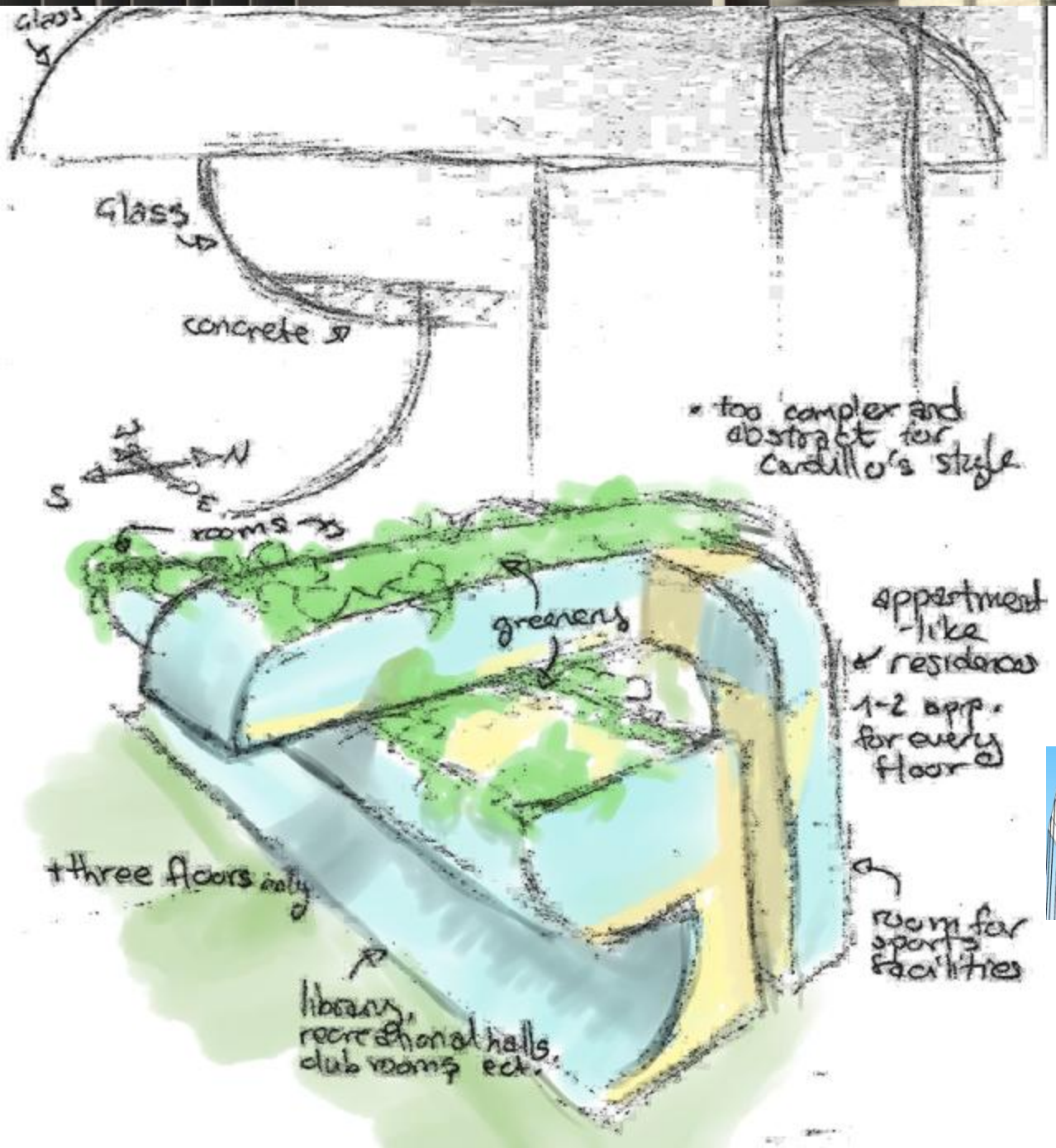
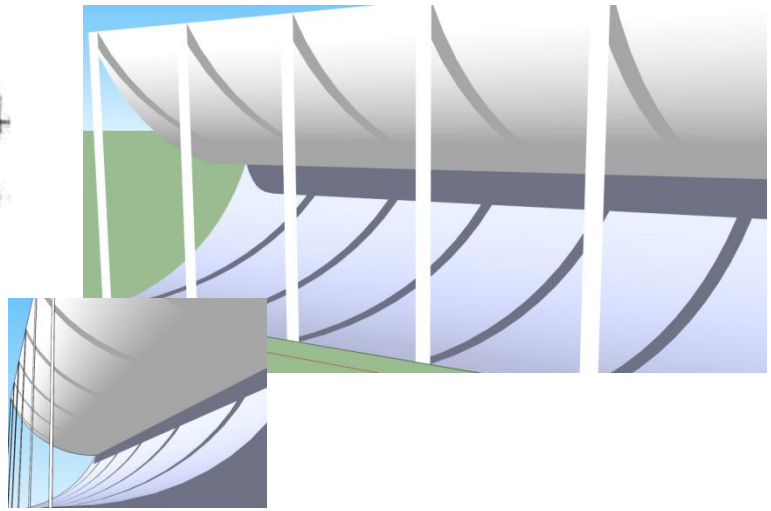
Idea 6



Here I tried doing something different and abstract, using circles and straight lines to create a complex shape. The aesthetics are interesting however not like Antonino Cardillo's work. He uses simpler shapes.

The functionality of this building is lacking. Rooms would be awkwardly spaced and not all would be in a comfortable and efficient place. First I thought of making the building three stories high but that wouldn't effectively use the spaces so I increased the scale to nine stories tall.

What is, however, a lot like Cardillo's style is the use of concrete to patch up certain places. To improve aesthetics and function, I thought about adding stilts to the building. With the curve of the building and the straight stilts, it creates an interesting effect that matches Cardillo's play with nature.



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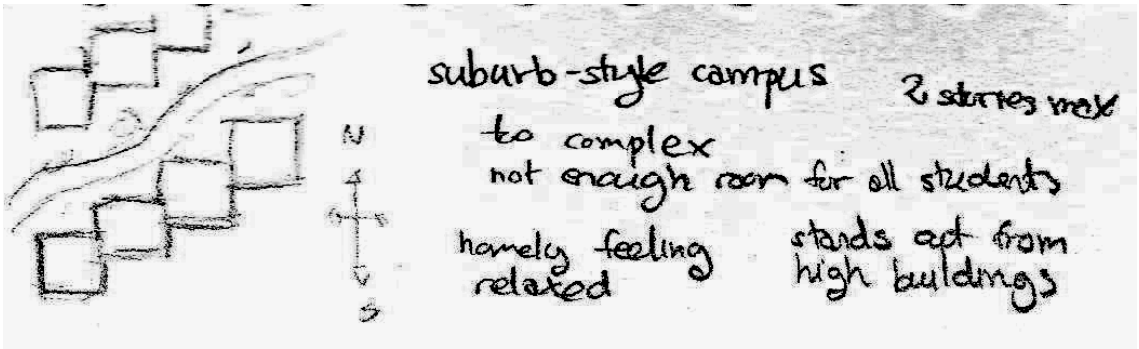
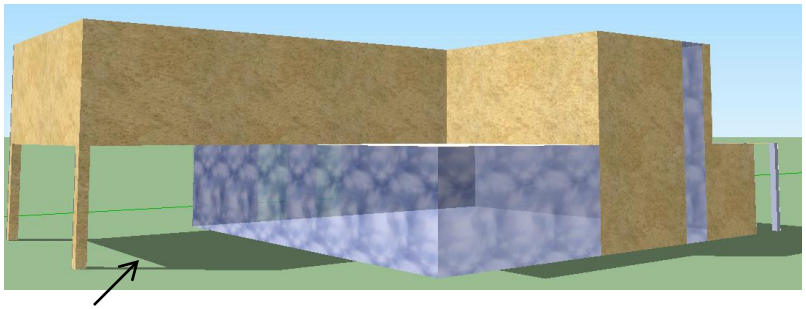
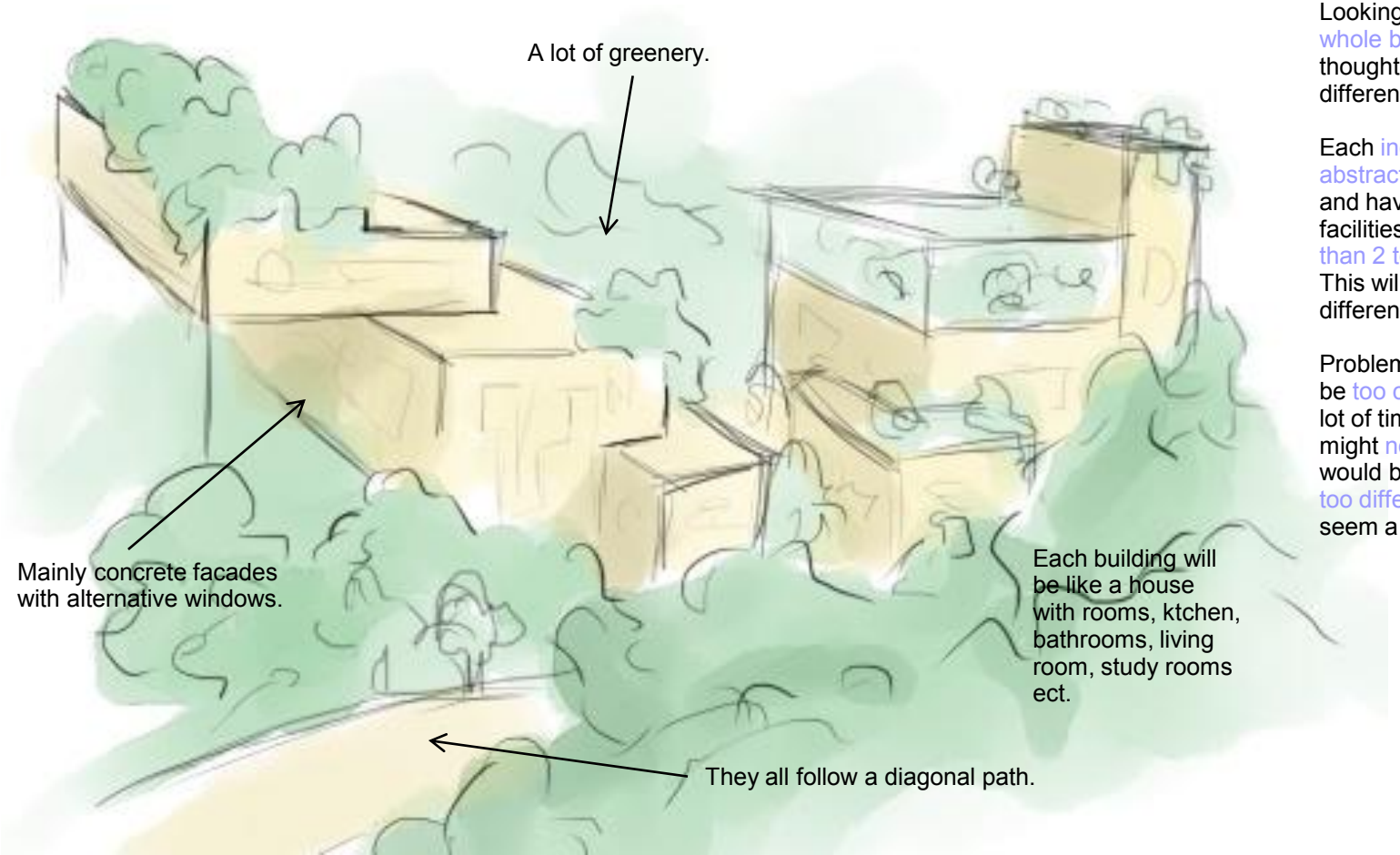
Idea 7





An example of what one of the buildings could look like.

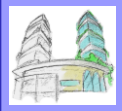
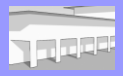
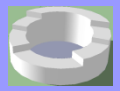


Looking at all my ideas, I noticed that most were whole buildings. With all the space available, I thought I could create a suburb style campus with different houses hosting a number of students.

Each individual house would be different in abstract ways. They would follow diagonal paths and have a centre building where all the main facilities are found. The houses would be no taller than 2 to 3 stories high and have a lot of greenery. This will make the area look very relaxed and different to the hectic city around.

Problems with this design would be that it would be too complicated to make as it would require a lot of time to design each building. Also, there might not be enough room for students as there would be a lot of free space. The design might be too different to be of the likes of everyone and seem a bit closed in and private.

UNI HALL
Evaluation of Ideas

	IDEA 1	IDEA 2	IDEA 3	IDEA 4	IDEA 5	IDEA 6	IDEA 7
							
Function Does it have enough room for all the requirements? Would it be a practical place to live in?	2	3	1	4	3	2	3
Aesthetics Is the building open and appealing? Does it fit with the environment? Does it go with Cardillo's style?	5	3	2	4	2	1	5
Manufacture Is it easy to manufacture? Is the cost within my budget?	2	5	5	3	2	2	2
Ergonomics Does the design use up the spaces efficiently? Would it be possible to make at a reasonable scale?	3	4	2	5	4	2	4
Sustainability Is the building sustainable? Does it make use of natural resources? Is it energy efficient?	3	3	2	4	2	2	2
TOTAL	15	18	12	20	13	9	17

Specialist Choice

I sent my ideas to Katia de Canha since I already had contact with her and was aware of my ideas and specification.

Idea 4
+ It fits better with the environment.
+ Has a more dynamic shape.
+ Its modern and new.
+ Has room and opportunities for further development.

Runner Ups

Idea 2
+ It uses up the spaces efficiently.
+ Would be easy to manufacture.
+ Too traditional.

Idea 7
+ Very appealing aesthetics.
+ Too detailed to manufacture.
+ Might be confusing for new residents.

This section has helped me… find what idea was the most successful and why. I found out that Idea 4 was also the specialist choice and got a deeper insight as to why and how I could improve it.

UNI HALL
Development

Development Plan

POINT OF IMPROVMENT	HOW IT WILL BE IMPROVED	COMPLETED
FUNCTION		
Include space for outdoor sports facilities.	+ Search size of courts + Create a sketch to scale of where things could go.	YES
AESTHETICS		
Make it more like Antonino Cardillo's style. (Add arcs, concrete, ect.)	+ Explore textures and forms on sketch and CAD.	YES
MANUFACTURE		
Fin a way the model could be made effectively and cheaply.	+ Make it like layering a cake. + Test out materials. + Search local areas where I could get the materials.	YES
ERGONOMICS		
Find the appropriate sizes of the building relative to the ground and scale.	+ Create a plasticine mock-up.	YES
SUSTAINABLE DESIGN		
Find natural ways to cool down the building.	+ Research ways of using water and plants.	YES
Explore how light could be used to make the building effective.	+ Create a model on CAD.	YES

This section has helped me… point out what areas I need to develop, the key problems and how I plan on getting around them.

UNI HALL
Development & Mock-Ups

Here I looked at the size of the average bedrooms to scale in order to find the exact width of the building.

Most trees concentrated on the north to block cold winds in winter.

Key:
Yellow – Dirt Paths
Green Dots – Trees
Blue - Water

Water to cool down building in summer.

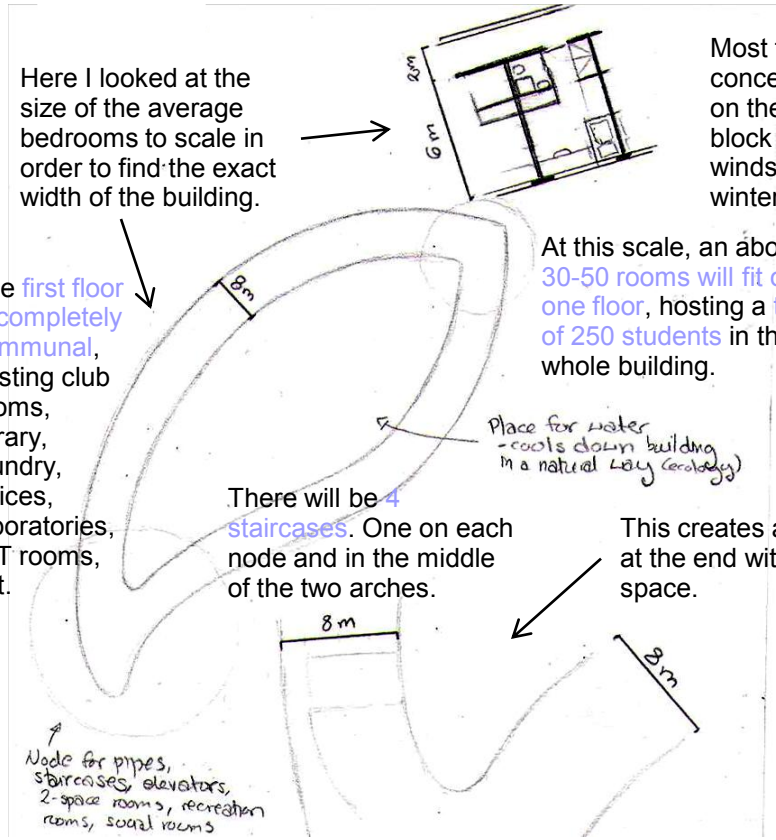
Paddle tennis courts 7x15 m.

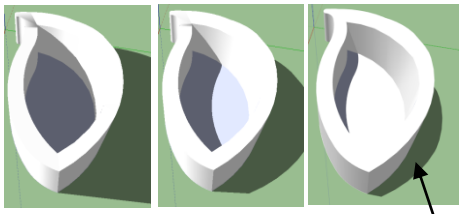
Football pitches 10x20 m.

This is a plasticine mock-up of my building. Scale 1:700.

The first floor is completely communal, hosting club rooms, library, laundry, offices, laboratories, ICT rooms, ect.

At this scale, an about of 30-50 rooms will fit on one floor, hosting a total of 250 students in the whole building.





These CAD sketches of my building together with the shadow settings helped me visualise what it would be like in each of the seasons. Left to right: Winter, Spring/Fall, Summer.

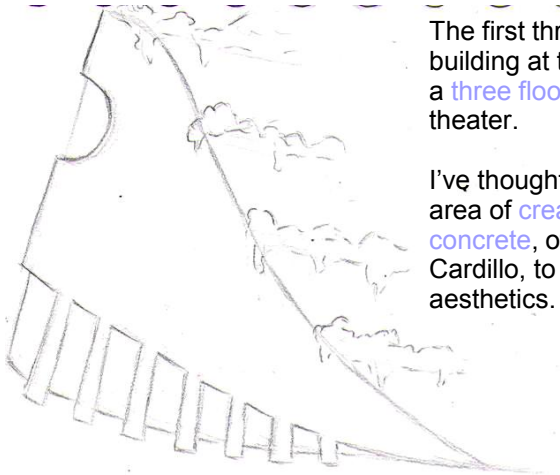
In the areas where there is constant shade, I could add cream concrete to make it more like Antonino's style. While areas of high light could have protruding wings.

This model was initially done to visualise the building. It helped me find out certain things:

º It turns out I had imagined the building to be taller.

º Initially I thought of making two buildings like this in a ying yang fashion but I found this urbanised the area too much and settled for only one building.

º I played around with it on the board to check what position would be the most suitable. I finally settled for the one shown on the top left.



The first three floors of the building at this node can be a three floor space for the theater.

I've thought about adding an area of cream-coloured concrete, often used by Cardillo, to enhance the aesthetics.

This set in shows how the building will look in terms of its surroundings. It proves to look very green and alternative. Most of the streets around here are tight. The open space will feel refreshing.

Cutout from Idea 1.

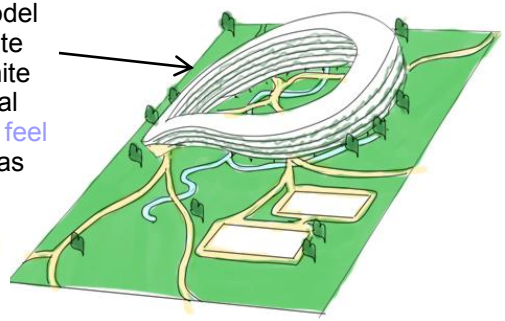
However in terms of economy, this layout does not make enough revenue for the terrain bought. Therefore, the area should be a communal park that can be used by everyone in the community.

This section has helped me… improve and decide on details of the building.

UNI HALL

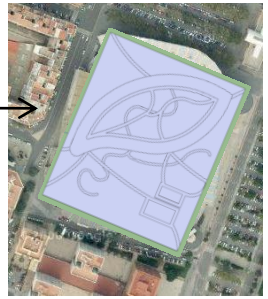
Development & Material Testing

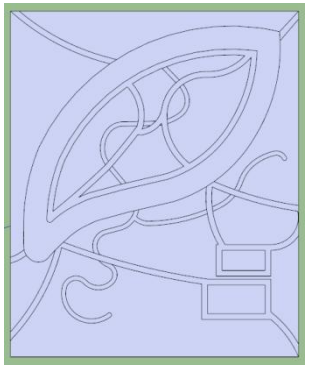
I tried different renderings for my model on the computer, including a complete whitewash one, a only green and white combination, etc. I settled for this final one as I find it has more of a natural feel to it. The colour combination will be as shown.



When observing the paths against the map, I found most of them didn't match to the paths a person would take to travel from one place to the other. So here I developed a second design.

I found that the shapes for the cutouts of the grass would be too complex to make out of sandpaper. I should look for an alternative material such as paint or grain.





To build the model, I first thought of cutting PMA and bending it to shape. This would prove too difficult as it would require expensive machinery.

Later on, I thought of building a "cage" out of aluminum rods and then wrapping polymer around it. This however would require a lot of different materials and skill which would be costly and non-ecological.

Finally, I settled for using foamboard to stack up the building using layers. This would be easy to work with and process and also more economical.

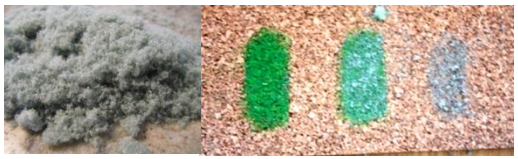
For the base I first thought of using fiberboard and then painting on the details of the grass.

Later on, when visiting a DIY shop, I thought of cutting out sandpaper and pasting it onto fiberboard as it had the desired texture and colour.

Finally, because cutting sandpaper proved as too much of a hard process, I decided to use corkboard as my base as it has the desired texture and would just need to be painted.

When I went to investigate possible boards at the DIY shop, I found that corkboard was the most suitable option. It was:
+ Cut to the right size
+ Light
+ Inexpensive
+ Recyclable
+ Textured

While sandpaper with wood were expensive materials, had to be cut to the right size and would have needed more processes to finish.



Cutting the dry foam creates a lot of dust. Here I tested using it as grass. I found the best texture is given by using the paint and the dust.

Left to right: Paint, Paint and Dust, Dust.

Because I am using corkboard, I can use the ends of the toothpicks to stick them into the cork, not having to use any sort of adhesive. I can use the toothpicks to create the stilts on the base.

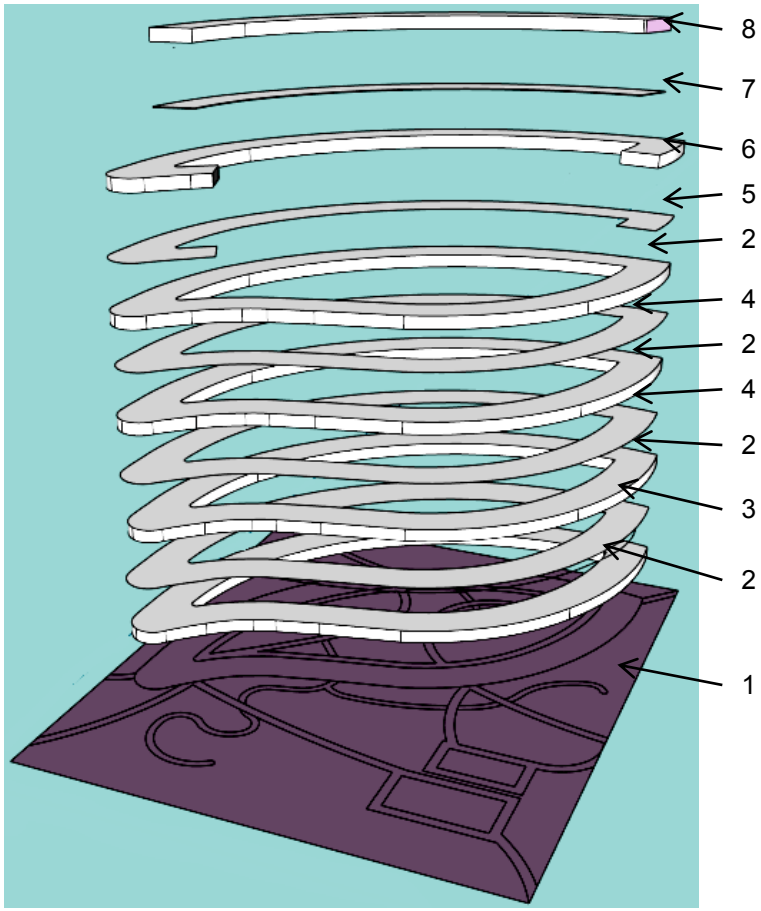
I can also stick plants into the cork by sharpening the tips using a blade. Here I tried using three different types of plants to create the idea of a tree. The middle one works best in an aesthetic and practical way. The end is thin so it's easy to sharp unlike the one to the right and it is also stable unlike the one on the left.

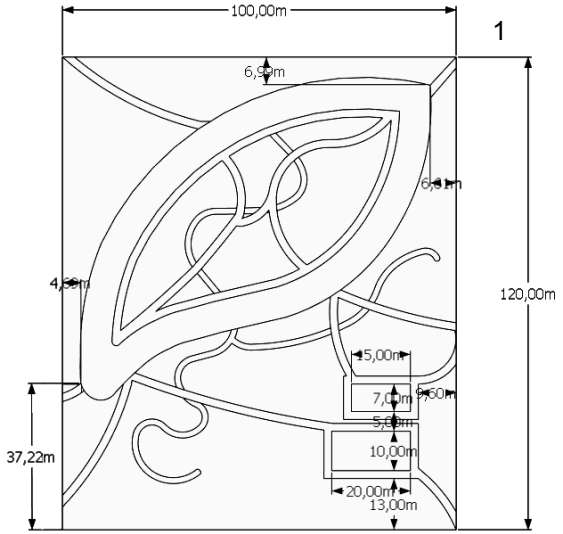
I found dry foam at a local shop for a cheap price. This proved to be a better alternative than foam board as I can cut it in slices to my desired height easily. It is:
+ Easy to work with
+ Cheap
+ Recyclable

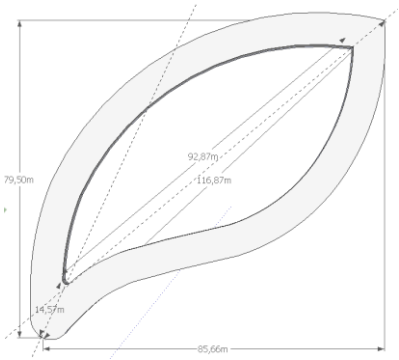
This section has helped me… explore ways in which I can enhance and improve my final product as a whole. I've made many changes which I believe have made it better. Due to the size of the materials, I am going to make it at a scale of 1:300.

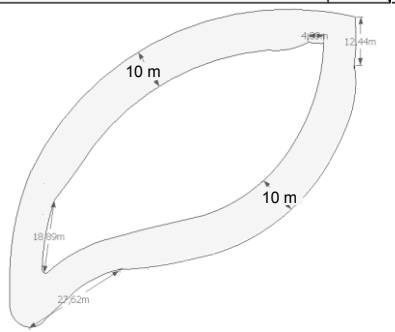
UNI HALL

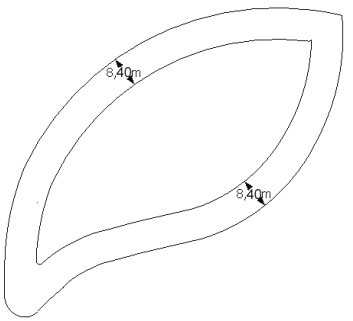
Exploded & Component Drawings

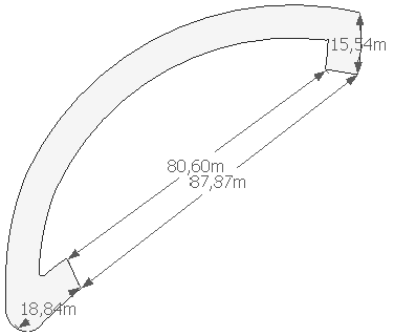


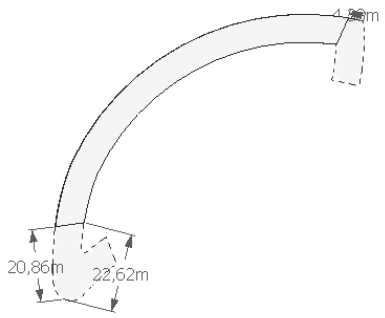












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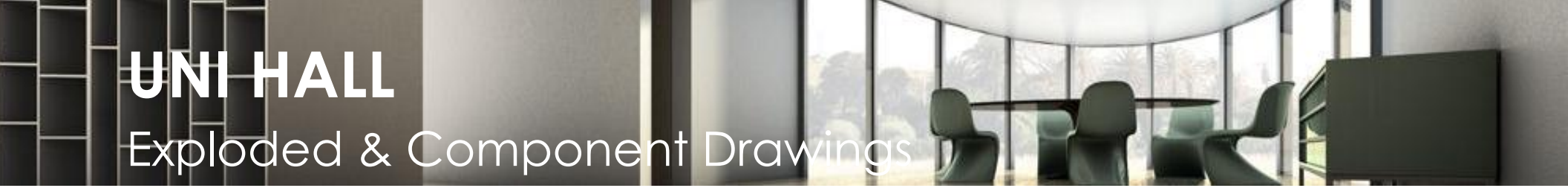


UNI HALL

Exploded & Component Drawings

COMPONENT NUMBER	MATERIAL	MANUFACTURING PROCESS	FINISH	EQUIPMENT
1	Corkboard	Cut the board	Paint green	Green Paint, Brush, Cuttex, Ruler
2	Foamboard	Cut the foam	Paint white	White Paint, Brush, Cuttex, Ruler, Compass
3	Card	Cut the card	Paint white	White Paint, Brush, Cuttex, Ruler, Compass
4	Card	Cut the card	Paint white	White Paint, Brush, Cuttex, Ruler, Compass
5	Card	Cut the card	Paint white	White Paint, Brush, Cuttex, Ruler, Compass
6	Foamboard	Cut the foam	Paint white	White Paint, Brush, Cuttex, Ruler, Compass
7	Foampaper	Cut the foam	Paint white	White Paint, Brush, Cuttex, Ruler, Compass
8	Foamboard	Cut the foam	Paint white	White Paint, Brush, Cuttex, Ruler, Compass

This section has helped me… find the exact dimensions of each piece and show how they come together. This page will be vital in the manufacturing of my model. I found it very useful that this model was made mainly on CAD so I can always refer back to it to take dimensions of smaller details and check proportions and do quality checks. The table of components also helped me decide on how much of each material I'll need.

UNI HALL
Manufacturing Plan

JOB NUMBER	JOB DESCRIPTION	MATERIALS	EQUIPMENT	ESTIMATED TIME (min)	HEALTH AND SAFETY	QUALITY CONTROLL	COMPLETE TO START
1	Mark the cork board	Fibreboard	Pencil, Ruler	20	Turn the board to not overstretch arm and strain muscles.	Re-measure all the markings to check they are accurate.	2
2	Mark the foam	Foamboard	Pencil, Ruler, Compass	40	Turn the foam to not overstretch arm and strain muscles.	Re-measure all the markings to check they are accurate.	4
3	Cut the cork board	Fibreboard	Cuttex, Ruler	5	Wear goggles and gloves. Have a skilled supervisor.	Use a stopper to make sure the cutting comes out straight. Cut slowly so the board won't chip.	8
4	Cut the foam	Foamboard	Cuttex, Ruler	60	Do not put hands in the way of the cuttex. Always put away the blade when its not being used.	Use a dummy to make sure the curves come out accurately. Re-measure to check the sizes are accurate.	5
5	Paint the foam	Paint, Water, Foamboard	Paintbrush	60	Careful with inhaling or spraying paint.	Use a clean brush to remove impurities. Brush in one direction.	7
6	Paint the toothpicks	Paint, Water, Toothpicks	Paintbrush	30	Careful with inhaling or spraying paint.	Clean the toothpicks to remove impurities. Brush in one direction.	7
7	Join the stilts to the corckboard	Corckboard, toothpicks	Glue	30	Careful with inhaling or spraying glue.	Use a bit of glue to ensure the silts stay in their position. Use a flat surface to ensure all stilts are the same height.	9
8	Paint the cork board	Paint, Water, Sandpaper, Fibreboard	Paintbrush	60	Careful with inhaling or spraying paint.	Use a clean brush to remove impurities. Brush in one direction.	9
9	Stack up the building	Foamboard	Glue	40	Careful with inhaling or spraying glue.	Use a flat surface to ensure all layers are at the right position.	10
10	Add the greenery	Plants	Glue	40	Careful with inhaling or spraying glue.	Use a bit of glue to ensure the plants stay in their positions.	FINISHED

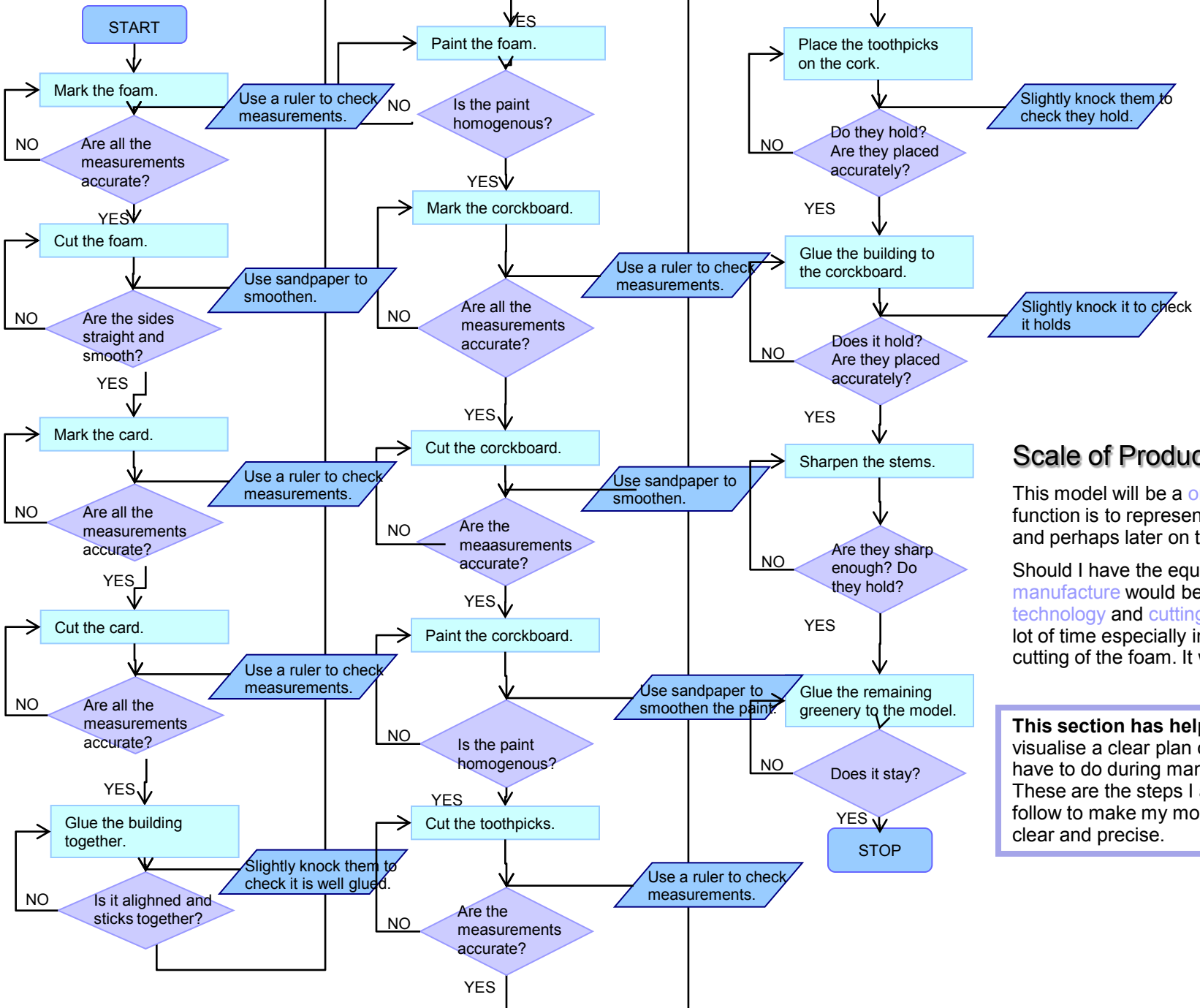
Budget Control

Corkboard……..3.00
Foamboard… 2x0.50
Card…..1.00
Total: 5.00€

Free:
Pencil, Ruler, Compass, Cuttex, Paint, Paintbrush, Toothpics, Sandpaper, Glue

This section has helped me… explore the steps I need to take to manufacture my model, what materials I'll need, equipment and possible safety risks and ways to ensure quality. It was also very helpful to lay out all the materials and tools I'd need to buy to then calculate my budget control.

UNI HALL
Flow Chart



Key

- Terminal Activities
- Activity
- Decision Point
- Input
- Progression

Scale of Product

This model will be a one off product as its only function is to represent the building to my customer and perhaps later on to specialists and intellectuals.

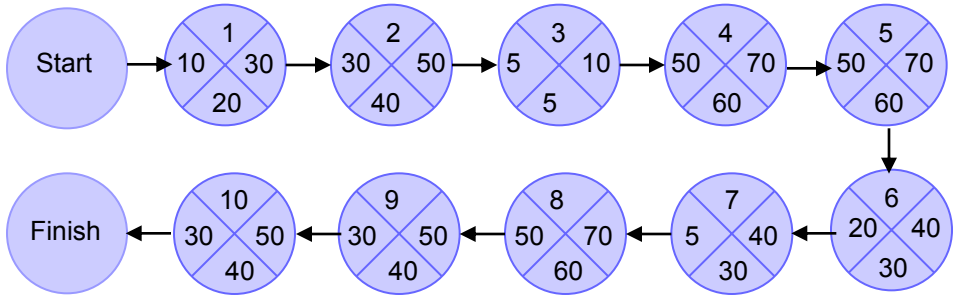
Should I have the equipment, ways of improving the manufacture would be by using computer controlled technology and cutting machines. This would save a lot of time especially in the marking of the grass and cutting of the foam. It would also ensure quality.

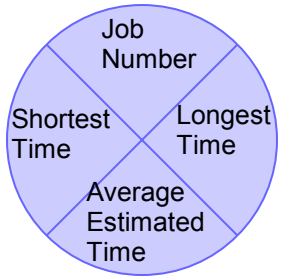
This section has helped me…
visualise a clear plan of what I have to do during manufacture. These are the steps I am going to follow to make my model. They are clear and precise.

UNI HALL

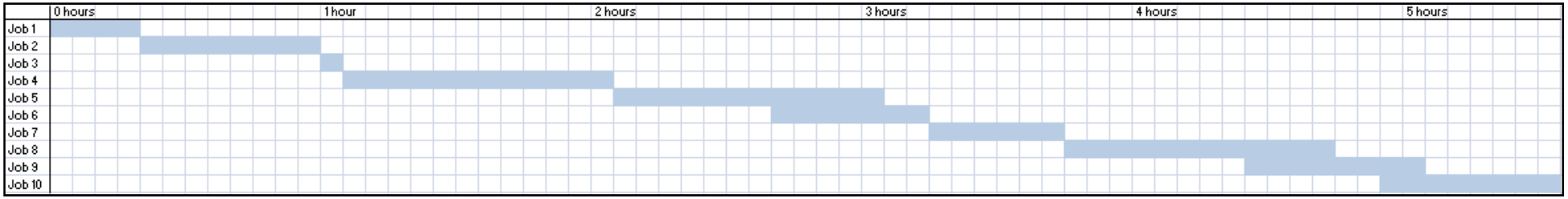
Pert Chart & Gantt Chart

Pert Chart



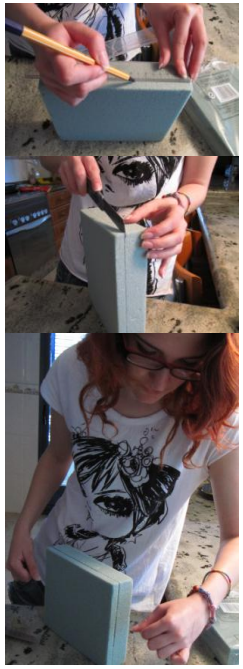


Gantt Chart

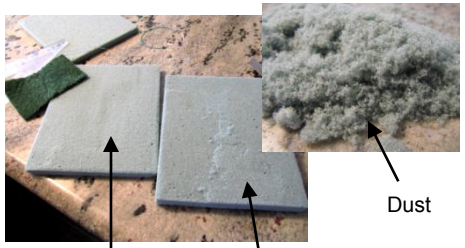


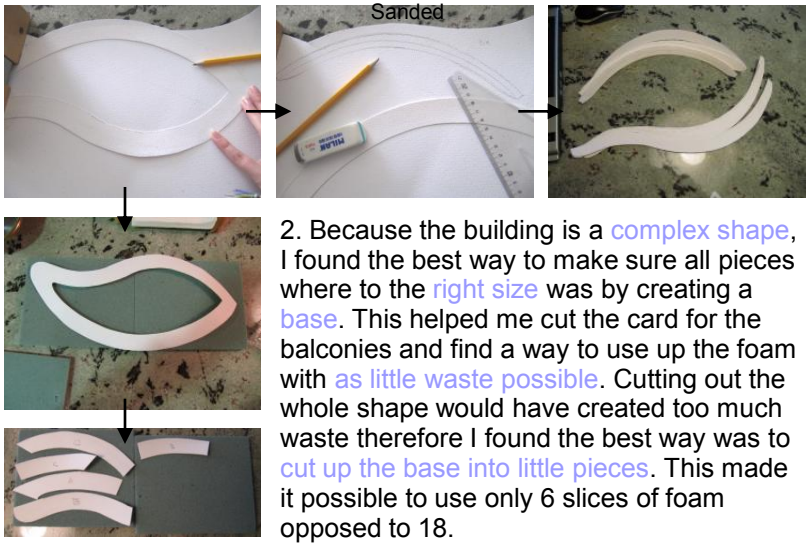
This section has helped me… find ways to save up time. I have found that I could do some tasks at the same time such as when waiting for the glue or paint to dry. On average, this model should take me 5 hours and 35 minutes to complete with a float of 2 hours should I encounter problems.

UNI HALL
Manufacture



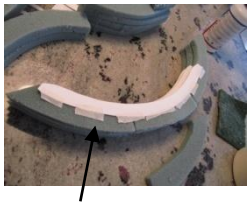
1. I started off by cutting the foam according to the height of the building so I'd have pieces of the right height to mount it. Marking the foam was hard when the block became really thin and cutting it (first with a cuttex then with a wire) was easy but created an uneven surface. To ensure quality, I had to sand it. This created a lot of green dust that would be wasteful. However, I found this had the texture of grass and could be used to enhance the model.





2. Because the building is a complex shape, I found the best way to make sure all pieces where to the right size was by creating a base. This helped me cut the card for the balconies and find a way to use up the foam with as little waste possible. Cutting out the whole shape would have created too much waste therefore I found the best way was to cut up the base into little pieces. This made it possible to use only 6 slices of foam opposed to 18.

3. Putting the balconies on was tricky as they would tip over so I had to secure them with cello tape in order to have free hands to put on the glue and then mount the next layer.
Mounting it was fairly easy however I encountered problems with size differences. To make sure everything fit perfectly, after every layer, I sanded the top carefully to make sure that it was all flat and then sanded the sides to make sure they were all straight.



Cello tape to secure balcony while I add the glue.

Placing the second layer. No longer need to worry about the balcony and concentrate on getting it aligned.

I need to put a weight on certain places to ensure it sticks well.

Some shapes where not cut out right. The non-balconised side is easy to sand but getting into this side might be harder. I could try using a cuttex however I should have placed all the same pieces ontop of each other and sanded off odd bits before putting it together.

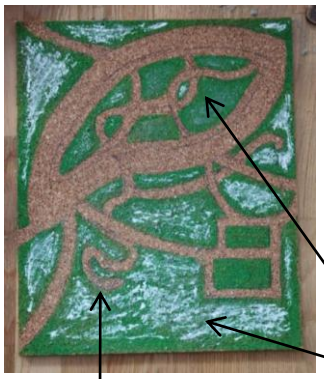
Even though I find that each slice of foam was made of use quite fairly, there are still small bits and pieces that would go to waste. I am going to grind these pieces as well and use them for texturing the grass.

4. The glue took longer to dry than an I had expected due to the material and high moisture in the air. I went on to paint one side when it was still wet and shifted a few of the foam blocks which I had to re-glue on again. Had I tested this before, I would have not wasted as much time re-gluing. After a few hours the glue dried and the building is stable and light.

5. I started working with the foam before I bought the corkboard so I couldn't spend time working on the board while I was waiting for the building to dry.

6. The paint came out right however due to the texture of the foam, I had to go over some places twice to make sure there weren't any green dots left.

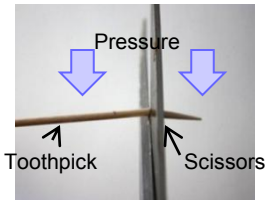
UNI HALL
Manufacture



Getting lines accurate was hard. I ended up drawing natural lines like the river free hand.

7. Cutting the corkboard was an easy process however marking it was harder as the design had complex shapes and therefore the pathways are not exactly to scale. It would have been easier to use computer aided manufacture to ensure quality.

8. The paint dried quicker on this material which was an advantage as I could go straight onto adding the foam dust which takes longer to dry. The process was tricky as not all the foam dust was small enough and I had to grind some junks before sprinkling them on.



9. It was hard to cut all toothpicks to the accurate height as the scissors I used were thick. I tried using a cuttex but it was hard to keep the toothpick still and the cut off piece would fly off causing a health hazard. With scissors, I could safely clamp the toothpick between the blades and press down with one hand on either side of the toothpick. Both sides would fall into my hand safely.

10. The toothpicks were easy to place on the base of the model as they would just pierce the cork and stay there. I then had to glue the building onto the model which was an easy process and just required visual checking that everything was aligned.

I held the model on top of the toothpicks to ensure they were well aligned. They later helped me make sure I was gluing the model in place.

11. I proceeded onto cutting out the concrete facade. Marking the accurate measurements was again a hard process that would have been made easier by using computer aided manufacture. I marked vital measurements then shaped the curve by hand and made readjustments according to my digital exploded drawing.

12. Sharpening the tip was easy however my thumb ended up feeling slightly sore as I did not use gloves. This is a health and safety measure I had not taken into consideration and should have.

13. When collecting plants, I found one with a certain flower that worked especially well to create the image of a bush or collection of plants and flowers. These where however, way too thick and big to place on the balconies so instead, I used small leaves and twigs to give a feeling of greenery. Initially, I had planned on adding a lot of greenery on every balcony and at the roof of the building which would be a realistic representation of what the final building would look like once the plants on the green roofing and balconies caught on. However, I decided against that since the plants covered too much of the building which I wish to represent and make reference to and because getting to the lower balconies proved too difficult now that everything was mounted.

This section has helped me… represent how I have manufactured the model along with difficulties, ways of improvements and development of the final product.

UNI HALL

Final Product

UNI HALL
Testing

Protective bag to shade the model from strong winds and rain.

I could hold the model with one hand so I didn't need help to open doors.

Some trees fell during transportation.

Flowers and trees began to whither after a few days.

Alternative made of wire.

Transport

Due to the small size, my model was easy to carry around and fit easily through doors and in the car. I could hold it with one hand so I didn't need assistance to open doors and in the car, I could either place it on my lap or on the front without it disturbing the driver.

Problems I encountered with my model when transporting was the fact that the cork was not stable. It would bend slightly so I had to make sure to hold it from the sides or place my hand under the heavier side of the model when I wanted to carry it with one hand. This could be solved by sticking the cork onto a wooden frame or surface.

Arrival

When I got to school and took the model out of my bag, I found two trees had fallen off. These two trees where the ones with thicker stems, the other, thinner trees held on nicely. Fixing this is easy as I can either just pierce the trees back on if I don't need to do any further transportation or sharpen the tips a bit more.

Durability

After a day and a half, the flowers began to wither and the trees followed after three days later. The technique of using real vegetation in my model is one that is only suitable for a short term display, not a long one. I could therefore replace these by making trees and bushes out of wire. This takes away the natural feel and replaces it with a high-tech image. Though manmade, this alternative can also give an air of sustainability.

Does not disturb the driver.

Model fit well in the car. I could either hold it or leave it on the front.

UNI HALL
Consumer Opinion

Marta Pinto and **Jose Aguilar**, 22, are studying biochemistry at the Universidad Politécnica de Valencia. Out of traditional purposes, both have stayed to live with their parents. Marta in Valencia city and Jose in el Puig, a village 30 minutes away by train.

Roseta Quilleta, 21, is studying publicity at the Universidad Politécnica de Valencia. She lives in a rented flat with her sister in the city.

Aesthetically, does the building appeal to you. Why?
Marta: Yes, I find the design pretty cool and relaxing. I really like the way you used many plants. It makes the place feel like a park. I can see myself going there to relax and study even not being a resident and ending up loving it.
Jose: Yes, mainly because it calls out it's environmentally friendly by not being tall and having lots of green space.
Roseta: It is modern, has style and the shape of the eye has personality. I like it. It can become a real icon of Valencia.

Do you think the hall covers all your needs, should you live there?
Marta: And more than that. The fact it has so much green will even help me in lessons like botany where I have to go all the way to the riverbed or to the outskirts of Valencia. I could just open the window and grab a few samples. And the fact it has so many clubrooms and activities would spare me having to seek out and pay for clubs somewhere else.
Jose: It does cover all of my living needs however I would be worried about there being too many facilities that living there would be expensive and not having enough privacy.
Roseta: Yes. I'd find it especially comfortable as I'd have everything I need in one building including food and social while living independently, I have to buy my own ingredients and cook. Once, my sister and I had an accident in which we burned close to the whole kitchen.

Would you find the location practical?
Marta: Of course. It's right next to the university, has a metro station next to it and it is really close to my parents house so they wouldn't have to worry about me.
Jose: Yes. It would take off the burden of having to catch the train or grab the car to go to university or work.
Roseta: Yes it is a practical and well publicised location.

Is the layout practical?
Marta: Yes, I'd find it easy to get around.
Jose: Yes.
Roseta: No, it would get tiring to have to go up and down stairs to go to different places. It would be easier if each floor had its own rooms and facilities.

How would living in this residence change your lifestyle?
Marta: It would change it by quite a lot but mostly for good. Especially because right now I'm bound to family life. Studying at home is hard and I spend most of my time at the local library or at my boyfriend's house just not at home. And many days I can't go out late out of respect for my parents and younger sister. Being at this residence would give me more independence and I would really love that.
Jose: I would probably have more time than I had before since I wouldn't have to rely on transport to go to university or work.
Roseta: The biggest change would be the chores that take away a lot of my time so I could work on projects. Even though this isn't much of a big problem to me, I can imagine other people going to this residence over renting an apartment to save themselves from arguments with flat mates.

If you had the option to go to this university hall, would you? Why?
Marta: Yes, all the way. It would give me a lot of independency and all that comes with it. Plus, the building looks beautiful. I'd feel proud to say I live there.
Jose: It would depend on the price and I'd have to try it out first. If the hall turns out to have a quiet environment, I would.
Roseta: Although it would be practical and feel social, I like living with my sister as she is someone I've been with all my life and have confidence in. To be honest, I'm too used to living in an apartment to want much of a change but I can imagine many new university students opting to go to this residence since it's a good way to help them settle in.

UNI HALL
Evaluation

Specification - Building

POINT	COMPLETED	COMMENT
1.1 A hosting space for 300-400 students. 1.2 10 luxus rooms (single or double for couples), 170 individual rooms, 50 double rooms, 10 quadruple rooms. 1.3 It will have a theatre, gym (two basketball/football courts, two tennis courts, one indoor swimming-pool), a library, ICT room, a relaxation room, empty rooms for clubs such as music, infirmary, laundry.	YES	The building has enough space for all of these facilities. Even though I considered all of these spaces in the development of my model, I should have included plans and elevations of the interior to represent this information more clearly.
2.1 The building will use creamy colours and have lots of wide windows. 2.2 It will have a minimalist style with a play with curves and lines. 2.3 Materials will have a recycled look. 2.4 The building will look open and welcoming. 2.5 The design will not discriminate against cultures	YES	The style of the building is similar to Antonino Cardillo's work. It is a simple minimalist shape. I find however that I used more open windows and gave it more of an airy feel than most of Cardillo's work. This is because I found that too much concrete made it look too closed in which would go against point 2.4 and 2.5.
3.1 The building will use Roman Self-Healing Concrete for bases. 3.2 Tile from Procelanosa will be used for flooring. 3.4 Glass will be used for windows, some tinted.	YES	My design can be manufactured with the specified materials.
4.1 The building will be beneficial for my consumers and customers. 4.2 It must have a positive impact on the surrounding citizens.	YES	The project in itself already has a positive impact on workers and the economy of Valencia. By including a centre, I have provided stable work for citizens, enriching the flow of cash.
7.1 The building must have green roofs and solar panels. 7.2 Bedrooms, social rooms and the library will be facing south, congress/theatre and the commercial area will be facing north. 7.3 The building will be the least stories tall possible. 7.4 Walls and windows will use double insulation. 7.5 It will use protruding wings to shade from the sun.	YES	The design fully covers all of these aspects. Points like 7.1, 7.2 and 7.4 are not represented in the model as it is an abstract representation. It is however mentioned in the development. Point 7.2 could have been represented more accurately through the use of a plan view.
8.2 It will have fire extinguishers and fire exits on every floor. 8.3 It will have first aid kits.	YES	There are 4 available pathways on every floor in the case of a fire.
9.1 There will be elevators big enough to hold one person in a wheel-chair. 9.2 The whole building will be accessible by people in wheel-chairs.	YES	The building has enough space at the nodes for elevators of the right size and proportions of the room s, doors and halls are wide enough for a person in a wheel-chair to go through.

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Evaluation

Specification - Model

POINT	COMPLETED	COMMENT
1.1 The model will be a an abstract, miniature representation of the building, viewed from the outside.	YES	It is abstract like Antonino Cardillo's style which concentrates on the shapes the building makes however I felt this made it hard to show the practical and technical aspect of the building.
2.1 The building will be made of white and soft colours. 2.2 It will use vegetation.	YES	Initially, I had considered making it out of creamier colours however the whitewash looks more like Antonino Cardillo's style and creates more of a contrast with the vegetation. The colour of the base wasn't exactly soft however emphasised the building.
3.1 I will use foam board, paint, and vegetation.	YES	During development, I found other materials I could use such as corkboard.
4.1 The model must show general aesthetics and the incorporation of sustainable design.	YES	It showed how the design played well with light.
5.1 The financial budget will come from me. 5.2 It must not cost more than €50.	YES	The material ended up costing much less than I had expected. Mainly because I already had some tools and paints at home.
6.1 The model must be between a scale of 1:200 to 1:500.	YES	The model is 1:300 which is between the range I had planed. This is a good visible scale for my design.
7.1 I will use environmentally friendly certified paints. 7.2 I will use recycled foamboard. 7.3 I will use joining methods instead of using adhesives wherever possible.	NO	As I already had paints, buying a second bottle of paint would have been wasteful and more damaging in the long run. Therefore, I stuck with the standard acrylic paint I had. The foamboard had nothing to certify it was recycled and there was none other available however it is recyclable and therefore sustainable. I did have to use adhesives in most parts as it was the most practical. Things like toothpicks and trees could be easily pierced into the cork and didn't need adhesives.
8.1 The model will have a safety margin. 8.2 There will be no sharp edges	YES	The model has no sharp edges or harmful substances that could hurt people interacting with it.
9.1 The model must have enough size as to not cause eye-strain. 9.2 It will be placed at a height that will be easily visualised by people in wheel-chairs.	YES	The location in which my model will be placed is not one that can be decided by me at the moment. Things like size and scale are big enough and appropriate to not cause eye-strain.

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Evaluation

What do you think of the planning of the building?
The building in itself is very thin. This made it appropriate for setting out bedrooms and making sure all had enough light and living conditions. However it made adding facilities like an indoor gym and swimming pool virtually impossible. Like Roseta said in the interview, some students would find it tiring to have to travel around the building to get to club rooms.

What changes to the planning would I have made?
I would have included space for clubrooms in every floor as well as a laundry room so students wouldn't have to go far for their needs. Also, I would include a wider, underground space for things like the gym and a swimming pool.

Are the aesthetics adequate with those for Antonino Cardillo?
It was hard to evaluate if this would be Cardillo's style since he hasn't done anything of such a big scale before. However I believe it's close as it plays with light, nature and shapes but I think he would have added more alternative shapes by adding vaulted roofs and the like.

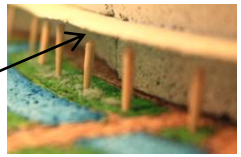
The model does use the minimalism and abstract found in Cardillo's style. The use of white to represent the building was successful. One difference though is that I added more detail to my model than Cardillo.

What could I do to make it more like Cardillo's style?
I would incorporate vaults and more concrete to the design for example, I could cover the northern side of the building with concrete and leave a few strips with glass, similar to that of Cardillo's "Vaulted House".

Were the materials I used suitable?
Overall, I found the materials were easy to work with, light and inexpensive. Therefore I will say that they were suitable. Some though, like the paint and adhesives however were not sustainable or certified to be sustainable. This did not prove to be a problem in terms of manufacture but could have effects in the disposal of the model.

What changes would I have done regarding the manufacture of the model?
In terms of materials, I would buy a supply of paints and adhesives that are certified to being sustainable by an organization and using these supplies over a range of time and on different projects.

One of the main aspects of the model I found that needed improvement were the holes between pieces of foam. These made the model feel like it was of less quality, I could cover them up using white plasticine. For future models, I will use CC cutting to make sure the pieces fit well or get pieces of foam with a more practical shape or.



Another aspect were the sizes of the toothpicks. They were not all the same length by a few millimeters and this small inaccuracy was obvious when placing it on the model. Even though it can only be observed when looking at the model from a near horizontal angle, it is still an aspect that would need correction. A way of avoiding this in the future could be done by using CC cutting or doing many visual checks on the markings and pieces.

How would this affect the cost of the manufacture?
Buying certified paints will be of a high cost and waste if they were to be used for only one model but because I am going to practice model making and painting in the future, I should consider buying these paints. Had I bought paints for this model, they would have cost about a total of 15€.

CC machines are expensive and usually only available for industrial or professional practice. Buying one of these would be really costly and unpractical. However renting it and using it could come for free or cost around 5€ per hour.

Did I manage to overcome problems during the project?
The main problems I faced during the project were those of finding the appropriate materials in shops and how to make the best of what I had available. I overcame these problems by talking to specialists in model making and doing research in shops as to what materials were available and testing how I could use them. Some materials were under different names. For example I found the foam in a local shop as a material meant for plant decoration but found it could be equally used for my model.

Were the exploded and component drawings useful?
Yes, they were really useful in the manufacture of my model as they helped me calculate exactly how much material I needed to reduce waste. Some pieces, later on in the manufacture, had to be cut up to reduce waste further like for example the foam and card. The exploded drawing helped me identify which pieces went where and how it would have to come together.

Some parts of my drawings were incomplete like the location of the stilts and trees which I had to locate by eye on the model. The trees where not a problem. Especially since I could rearrange them to find what position looked best but things like the stilts needed accurate measuring to make sure they were all at the same distance from each other. I overcame this my measuring each stilt as I put it on the model.

Did the project take too long to make?
Through using a Gantt chart in which I planned my time and set myself goals every week, I did not encounter major time problems throughout the project. There were some miscalculations in the Gantt chart such as thinking I would have more time during the Christmas holidays to work on my coursework but finding myself with a lot to do for exams. I caught up with it easily during February and March

Was the manufacture too expensive?
No, I successfully found way of reducing costs by using tools that were already available and finding cheap alternatives in shops.

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