BIM-MODEL REPORT

Project Family Home

N. Monsengo

10-01-2022

Student Number: 4844777
Institute: NCOI
Course: Architecture
Module: Superstructure Constructions

FOREWORD

For the Digital Modeling course, I, as a student, started working on a project that is being carried out abroad. This concerns a family holiday home. The assignment was issued by the Monsengo family and will be carried out from next year. For the execution, a 3D BIM model must be created with a report. Based on this report, anyone who reads it will be able to assess whether the BIM model meets the quality requirements

As students at the NCOI, this is a good opportunity for me to work on a house that is actually being built. It is important not only to know the theory, but also the practice. Working on this project, I will learn from both aspects and gain experience and also show the readers that I am able to create a 3D BIM model that meets the quality requirements.

I would like to thank the Monsengo family for their help in providing the necessary information and giving me the opportunity to design a beautiful BIM model.

- Nadia Monsengo
The Hague, October 18, 2022

SUMMARY

BIM Model Report - Familie Monsengo. This report was commissioned to provide information about the family house to be built and to check whether it meets the quality requirements. The following topics are discussed in this report:

The origin of this project. What is the reason for this construction project and what exactly does this project entail? Where is it being built and which program is used for modeling this BIM model? This can be read in the introduction.

In addition to the above questions, the first chapter goes deeper into the conditions set. Specifically, the conditions set with regard to the final design phase. The requirements for the drawings are mentioned. Requirements such as the scale, technical elaboration, information in the form of texts, dimensioning and principle solutions.

This report also contains drawings in the form of floor plans, sections, views and detail drawings. These drawings, which have been modeled in the construction program Revit, have exterior walls, interior walls, floors, a roof, facades (doors and curtain walls) and supporting structure. Certain requirements are also imposed on these drawings. Requirements in the form of text and figures, schedules, material states (for walls, floors and columns) and parameters with the connection to NL SFB codes.

An explanation is also given for the drawings made. This explains which components the BIM model consists of and how it is structured. For example, the ground floor has a garage, the first floor has a terrace and swimming pool, and the second floor has a balcony.

Finally, this report also has a brief description of the added value of BIM in a organization and a conclusion and recommendation. The conclusion and recommendation mainly indicate the points for improvement and what could possibly be approached differently for future construction projects.

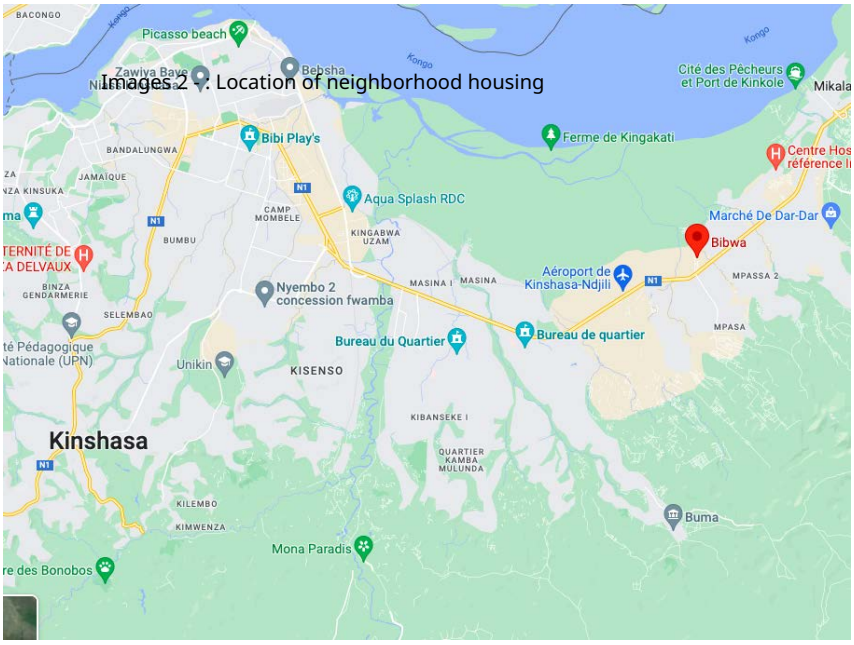
TABLE OF CONTENTS

INTRODUCTION

For this project, the client is the Monsengo family. They own a piece of land in the Democratic Republic of Congo. On that land are a number of old small houses (shed size), which were built in the previous century. The Monsengo family has commissioned a new house design. The old houses will be demolished. Instead, one new modern house will be built, which will function as a family home or holiday home.

This report is not part of an assignment from an organization. It is an assignment as a favor to the Monsengo family. The family is from Kinshasa, the capital of the Democratic Republic of Congo. The plot of land is located in the capital Kinshasa, in the Bibwa à la N'Sele district. The district is located in the east of the capital, near the Kinshasa-Djili airport. As can be seen in the photos below, the current houses are very old and some have been demolished.

Image 1: Location of neighborhood housing + images of current housing.








The subject of this report is a house that is being modeled in 2D/3D with the computer construction program Revit. Although the house is in another country, it is modeled according to Dutch building regulations.

Modeling via Revit is a method that has not been around for long. Revit is a program where multiple parties can work together at the same time without losing or overlooking information. This is also called BIM: Building Information Modeling. More information about this can be found in the chapter “Description Added Value BIM”.

The purpose of the report is to provide primarily digital construction information about the house to be built, so that the person reading this report can test the BIM model against the set quality requirements.

The first chapter names the conditions set. What is needed in the final design phase to make a design meet the requirements? This can be read in the first chapter.

The drawings made can be found in the second chapter and the appendix thereof.

Chapter 3 provides information about the parameters in Revit and how the parameters have been applied to this project and the modeled parts. In addition, this chapter also provides information about the schedules that occur in this project.

The fourth chapter contains information about the material states.

Chapter 5 provides an explanation of the designed BIM model, with an emphasis on the layout of the house.

Finally, chapter 6 provides a brief description of the added value of working with BIM, and finally chapter 7 contains a conclusion and recommendation of the entire project.

ASSIGNMENT

CHAPTER 1: STATED CONDITIONS

Final Design Phase

In the final design phase, a detailed design is made based on the preliminary design. The drawings made for this are used for making

construction drawings and also contain the dimensions and material indication. These are then used to apply for a building permit, tender and pricing. The parts that are involved are:

- Situation drawing, scale 1:1000
- Floor plans, scale 1:100, of:
    - Foundation and sewerage
    - Floors
    - Roof plan
- Vertical section, scale 1:100
- Principle details, scale 1:1, 1:5 and/or 1:10
- Views [1]

Quality requirements

The above drawings must meet the following requirements:

- Technical elaboration, for the purpose of pricing, of:
    - the final architectural layout;
    - the construction;
    - the installations;
    - the fixed furnishings;
    - the site layout.
- Principle solutions, for the purpose of pricing, of the merging and connection of:
    - the architectural elements;
    - the construction elements;
    - the installation elements in relation to the building elements.
- Principle solution, arrangement and attachment of the fixed furnishings in relation to the building parts for the purpose of pricing.
- Principle solution of the arrangement and connection of the site elements for the purpose of the pricing.
- Overview of components to be manufactured outside the construction site for the purpose of the pricing.
- Principle solutions of the merging of components into building parts for the purpose of the pricing.
- Location and dimension indication for the execution:
    - the building (part) and the architectural elements within it;
    - the construction;
    - the installations;
    - the fixed furnishings;
    - the site layout.
- Merging and connection for the purpose of the execution of:
    - the architectural elements;
    - the construction elements;
    - the installation elements in relation to the building elements.

[1] A.H.L.G. Bone, Thieme Meulenhoff BV, Basisboek Bouwkunde, 5th edition third edition 2021, page 101.

- Arrangement and fastening of the fixed equipment in relation to the building components for the purpose of the execution.
- Arrangement and connection of the site elements for the purpose of execution.
- Overview of components to be manufactured outside the construction site.
- Assembly of components into building parts.
- Manufacturing components for assembling building parts. (Foundation Research Rationalization Construction, Quality of Drawing Work in Construction, page 11-12)

Floor plans made in the Final Design phase are provided with certain texts and symbols that provide information about the building. These can be found in the table in Appendix 1: Required information floor plans.

CHAPTER 2: MODELING ACCORDING TO BIM BASIS ILS

The drawings of the house can also be found in the appendix. The following drawings are included in the appendix: Floor plans, sections, elevations and detail drawings. The site plan is not applicable for this assignment. The dimensions and rooms are also added in the drawings and each drawing contains a stamp.

CHAPTER 3: PARAMETERS ACCORDING TO BIM BASIS ILS AND NL-SFB

Link different parameters to the modeled parts (in accordance with BIM Basis ILS and NL-SfB).

Revit has 5 different types of parameters:

1. Built-in parameters: Cannot be edited or deleted. These are used in families and projects.
2. Project Parameters: Are added to elements and are used for sorting, planning and filtering in a project.
3. Family Parameters: Are specifically intended for the variable value of a family, such as dimensions and materials.
4. Shared Parameters: This makes it possible to use parameters in multiple families or projects. These can then be used as a family or project parameter.
5. Global Parameters: Are intended for one project file

For this project, a number of new family parameters have been created:

Columns: NL SFB code: 8.10

Description: Main supporting structures columns and beams general
Parameter: Length

A	0.013	=	
Dimensions			*
Length	0.0	=	☐
b	500.0	=	☑

Stair; NL SFB code: 24.10

Description: Stairs and ramps stairs general Parameter: URL 2

Identity Data			
URL2		=	

Palm tree; NL SFB code: 90.42

Description: Site site finishes plantings Parameter: Material

[2] Foundation Research Rationalistaie Bouw, Quality of Drawing Work in Construction, page 11-12

Materials and Finishes			
Material	<By Category>	=	

Lift; NL SFB code: 66.11

Description: Transport; lifts and lifting platforms, electric lifts
Parameter: Text

Text			
Text		=	

Car; NL SFB code: 90.80

Description: Terrain; site facilities, special, general (collection level) Parameter: Length

Dimensions			
Length	0.00	=	☐

Swimming pool floor; NL SFB code: 90.80

Description: Terrain; site facilities, special, general (collection level) Parameter: Mass Density

Other			
Mass Density	0.000000 kg/m³	=	
Identity Data			

Foundation; NL SFB code: 16.11

Description: Foundation structures; footings and beams, foundation footings
Parameter: Volume

Dimensions			
Foundation Thickness	3' 0"	=	☑
Volume	0.00	=	

Interior door; NL SFB code: 32.30

Description: Interior wall openings; filled with doors, general (collection level) Parameter: Angle

Dimensions			
Angle	0.00°	=	☐

Toilet; NL SFB code: 52.20

Description: Drains; feces, general (collection level) Parameter: Text

Text			
Text		=	
Materials and Finishes			

Bench; NL SFB code: 72.21

Description: Fixed user facilities; special, furnishing for specific function purposes

Parameter: Image

Graphics			
Image	<None>	=	

Kitchen; NL SFB code: 73.10

Description: Fixed kitchen facilities; standard, general (collection level) Parameter: Currency

Other			
Counter Thickness	0' 1 1/2"	=	☑
Currency	0.00	=	

Plant; NL SFB code:90.42

Description: Site site finishes plantings Parameter: Fill pattern

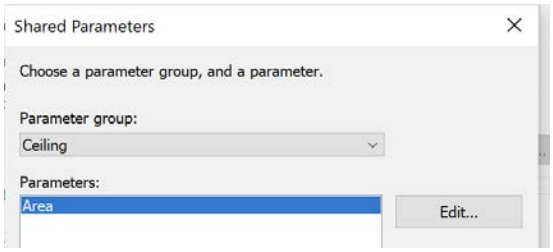
Materials and Finishes		
Fill pattern		=

To make parameters visible in Schedules, new parameters have been created via Shared parameters. The title marked in light blue are the newly created parameters. :

Schedules: Ceiling (ceiling) - Stair (stair) - Door (door) - and Roof (roof) Schedule

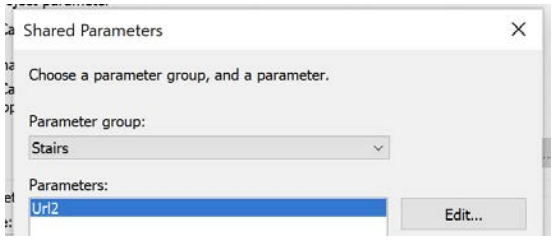
<Ceiling Schedule>

A	B	C	D	E	F	G	H	I
Cost	Description	Level	Manufacturer	Model	Slope	URL	Volume	Area
		Eerste verdieping			0.50°		0.15 m³	
		Eerste verdieping					2.68 m³	
		Eerste verdieping					0.32 m³	
		Eerste verdieping					0.35 m³	
		Eerste verdieping					0.23 m³	
		Eerste verdieping					1.04 m³	
		Eerste verdieping					1.29 m³	
		Tweede Verdieping					0.56 m³	
		Tweede Verdieping					0.18 m³	
		Tweede Verdieping					0.84 m³	
		Tweede Verdieping					0.41 m³	
		Tweede Verdieping					0.40 m³	
		Tweede Verdieping					0.92 m³	
		Tweede Verdieping					0.22 m³	
		Tweede Verdieping					0.68 m³	
		Tweede Verdieping					2.20 m³	



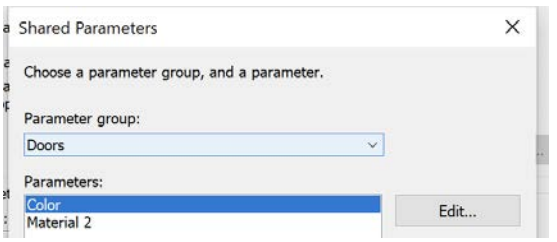
<Stair Schedule>

A	B	C	D	E	F	G	H	I	J	K	L
Url2	Width	Top Level	Model	Left Support Type	Landing Type	Manufacturer	Base Level	Cost	Actual Number of Ri	Actual Riser Height	Actual Tread Depth
		Tussenverdieping tr		<None>	50 mm Thickness		Eerste verdieping		7	214	200
		Tweede Verdieping		<None>	50 mm Thickness		Tussenverdieping tr		7	214	200



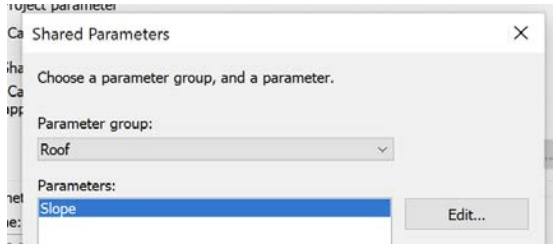
<Door Schedule>

A	B	C	D	E	F	G	H	I	J	K	L
Name	Color	Width	Height	Door Height	Door Width	Material	Manufacturer Websi	Handle Height	Handle Material	Cost	URL
		2134	2032								
		1030	2375								http://www.cadco
		914	2438								
		2029	2320								www.plygem.com
		2029	2320								www.plygem.com
		2029	2320								www.plygem.com
		914	2438								
		2029	2320								www.plygem.com
		2029	2320								www.plygem.com
		864	2032								
		864	2032								
		3029	2589								www.plygem.com
		3029	2589								www.plygem.com
		3029	2589								www.plygem.com
		2029	2320								www.plygem.com
		2029	2320								www.plygem.com
		864	2032								
		864	2032								
		864	2032								
		864	2032								



<Roof Schedule>

A	B	C	D	E	F	G
Slope	Cost	Thickness	Thermal Mass	Thermal Resistance	URL	Type
		341	0.00 kJ/(m²·K)	0.0000 (m²·K)/W		Plat dak _breedplaa
		53				Terras_dak



CHAPTER 4: MATERIAL STATE

Material state Walls - Floors - and (columns)

<Materiaalstaat Walls>

A	B	C
Material: Name	Material: Area	Material: Volume
Buitenwand	39.5 m²	11.82 m³
Buitenwand	39.5 m²	11.82 m³
Buitenwand	17.5 m²	5.25 m³
Buitenwand	39.5 m²	11.82 m³
Buitenwand	12.0 m²	3.53 m³
Pleisterwerk 1	37.0 m²	0.55 m³
kalkzandsteen CS2	39.0 m²	7.91 m³
luchtlaag	39.5 m²	1.56 m³
kalkzandsteen CS1	40.5 m²	3.96 m³
Muurafwerking_ Zw	40.5 m²	1.00 m³
Pleisterwerk 1	17.0 m²	0.34 m³
kalkzandsteen CS2	8.5 m²	1.77 m³
luchtlaag	8.5 m²	0.34 m³
kalkzandsteen CS1	8.5 m²	0.85 m³
Pleisterwerk 1	12.0 m²	0.24 m³
kalkzandsteen CS2	6.0 m²	1.25 m³
luchtlaag	6.0 m²	0.24 m³
kalkzandsteen CS1	6.0 m²	0.59 m³
Pleisterwerk 1	13.0 m²	0.26 m³
kalkzandsteen CS2	6.5 m²	1.35 m³
luchtlaag	6.5 m²	0.26 m³
kalkzandsteen CS1	6.5 m²	0.64 m³
Pleisterwerk 1	10.5 m²	0.21 m³
kalkzandsteen CS2	5.0 m²	1.10 m³
luchtlaag	5.0 m²	0.21 m³
kalkzandsteen CS1	5.0 m²	0.52 m³
Pleisterwerk 1	10.5 m²	0.21 m³
kalkzandsteen CS2	5.5 m²	1.11 m³
luchtlaag	5.5 m²	0.21 m³
kalkzandsteen CS1	5.5 m²	0.53 m³
Pleisterwerk 1	26.0 m²	0.39 m³
kalkzandsteen CS2	13.0 m²	2.75 m³
Pleisterwerk 1	17.5 m²	0.26 m³
kalkzandsteen CS2	17.5 m²	3.67 m³
luchtlaag	17.5 m²	0.70 m³
kalkzandsteen CS1	17.5 m²	1.75 m³
Muurafwerking_ Zw	17.5 m²	0.44 m³
Pleisterwerk 1	26.5 m²	0.40 m³
kalkzandsteen CS2	13.0 m²	2.77 m³
Pleisterwerk 1	35.0 m²	0.52 m³
kalkzandsteen CS2	17.5 m²	3.66 m³
Pleisterwerk 1	0.0 m²	0.00 m³
kalkzandsteen CS2	0.0 m²	0.00 m³
Pleisterwerk 1	38.0 m²	0.76 m³
kalkzandsteen CS2	19.0 m²	3.97 m³
luchtlaag	7.0 m²	0.29 m³
kalkzandsteen CS1	7.5 m²	0.76 m³
Buitenwand	7.0 m²	1.26 m³
Muurafwerking_ Zw	14.0 m²	0.14 m³
Pleisterwerk 1	26.0 m²	0.39 m³
kalkzandsteen CS2	13.0 m²	2.73 m³
Pleisterwerk 1	15.0 m²	0.23 m³
kalkzandsteen CS1	7.5 m²	0.76 m³
Pleisterwerk 1	11.5 m²	0.17 m³
kalkzandsteen CS1	5.5 m²	0.57 m³
Pleisterwerk 1	2.5 m²	0.04 m³
kalkzandsteen CS2	1.0 m²	0.25 m³
Buitenwand	1.5 m²	0.23 m³
Muurafwerking_ Zw	2.5 m²	0.03 m³
Buitenwand	1.0 m²	0.22 m³
Muurafwerking_ Zw	2.5 m²	0.02 m³
Buitenwand	1.0 m²	0.22 m³
Muurafwerking_ Zw	2.5 m²	0.02 m³
Buitenwand	1.0 m²	0.20 m³
Muurafwerking_ Zw	2.0 m²	0.02 m³
Buitenwand	2.0 m²	0.38 m³
Muurafwerking_ Zw	4.0 m²	0.04 m³
Buitenwand	2.0 m²	0.40 m³
Muurafwerking_ Zw	4.5 m²	0.04 m³
Buitenwand	1.0 m²	0.22 m³
Muurafwerking_ Zw	2.5 m²	0.02 m³
Buitenwand	1.0 m²	0.21 m³
Muurafwerking_ Zw	2.5 m²	0.02 m³
Buitenwand	19.5 m²	3.48 m³
Muurafwerking_ Zw	38.5 m²	0.39 m³
Buitenwand	7.0 m²	1.30 m³
Muurafwerking_ Zw	14.5 m²	0.14 m³
Buitenwand	19.5 m²	3.48 m³
Muurafwerking_ Zw	38.5 m²	0.39 m³
Buitenwand	7.0 m²	1.30 m³
Muurafwerking_ Zw	14.5 m²	0.14 m³
Pleisterwerk 1	16.5 m²	0.24 m³
kalkzandsteen CS2	8.0 m²	1.71 m³
Pleisterwerk 1	12.0 m²	0.18 m³
kalkzandsteen CS2	6.0 m²	1.25 m³
Hout - Mahogany	4.5 m²	0.08 m³
Hout - Mahogany	4.5 m²	0.08 m³

<Materiaalstaat Floors>

A	B	C
Material: Name	Material: Area	Material: Volume
vloer_beton	214.0 m²	53.50 m³
vloer_zandcement	214.0 m²	12.84 m³
Betongrind	214.0 m²	10.70 m³
vloer_beton	5.5 m²	1.13 m³
vloer_zandcement	5.5 m²	0.28 m³
vloer_beton	28.0 m²	5.65 m³
vloer_zandcement	28.0 m²	1.41 m³
Hout - Mahogany	28.0 m²	0.56 m³
vloer_beton	153.5 m²	38.34 m³
vloer_zandcement	153.5 m²	9.20 m³
Betongrind	153.5 m²	7.67 m³
vloer_beton	142.0 m²	35.48 m³
vloer_zandcement	142.0 m²	8.51 m³
Betongrind	142.0 m²	7.10 m³
vloer_beton	172.0 m²	17.21 m³
vloer_zandcement	172.0 m²	8.60 m³
isolatie plaat	172.0 m²	17.20 m³
Terrein - Aarde	8.0 m²	0.16 m³
Laminaat 1	140.0 m²	1.40 m³
Vloer - Marmer	18.5 m²	0.19 m³
vloer_beton	165.5 m²	16.54 m³
vloer_zandcement	165.5 m²	8.27 m³
isolatie plaat	165.5 m²	16.54 m³
Marmor	32.0 m²	0.32 m³
Laminaat 1	103.5 m²	1.04 m³
Marmor	20.5 m²	0.21 m³

<Materiaalstaat Columns>

A	B	C
Material: Name	Material: Area	Material: Volume
Muurafwerking_ Zw	2.5 m²	0.16 m³
Muurafwerking_ Zw	2.5 m²	0.16 m³

CHAPTER 5: EXPLANATION BIM MODEL

The structure of the house can be found in Appendix 2: Structure of the house. This contains the parts, the materials used, the thickness, length and width. The entire plot is 400 m2, with a wall on the outside and a gate at the entrance. This can be seen in the 3D model on the right side of the page. The house has 3 floors. The ground floor has a garage for up to 4 cars. The stairs and elevator on the ground floor provide access to the first floor. The stairs are located at the front and left side of the house and the elevator near the garage. The elevator takes you to the first and second floors. Under the ground floor are two rainwater tanks that collect the rainwater. The

rainwater is filtered in the house and used for the household. At the rear, on the first floor, there is a swimming pool, a terrace and a vegetable garden. The second floor is accessible via the elevator on the ground floor and first floor and via the stairs in the house on the first floor. The second floor has a balcony at the front. The drawing rules were applied during modeling and after modeling the drawings were checked for regulations and quality requirements.

CHAPTER 6: DESCRIPTION OF ADDED VALUE OF BIM FOR ORGANIZATION

Modeling via Revit is a method that has not been around for long. Revit is a program that multiple parties can work with at the same time, without losing information. BIM stands for Building Information Model- learning/Building Information Modeling. When a component, such as a floor, changes, that change is implemented throughout the program. We work with aspects such as system families, elements, categories, instances (walls, floors and foundations) and building information (order numbers, maintenance data and suppliers). This method of working is beneficial for every company in the construction world, because everything is stored digitally. Data is not lost and the final model is visible in 3D.

CHAPTER 7: CONCLUSION AND RECOMMENDATION

Next time I would like to obtain more information about the available building materials, soil and building drawings of the location. Preferably go there and do more research. The information I have received now are images from a video and information that has been passed on verbally. I would also have liked to have information on paper.

What still needs to be investigated are the structural calculations, pipe runs, electrical installations, ventilation and air treatment installation and the building physics of the house (BENG, air, light, sound and sound insulation).

LIST OF LITERATURE

Basic Book of Architecture, 5th edition third edition 2021, Thieme Meulenhoff - A.H.L.G
Bone Stichting Research Rationalistaie Bouw, Quality of Drawing Work in Construction,

https://www.joostdevree.nl/shtmls/afschot.shtml
https://www.isolatiemateriaal.nl/pir/pir-afschotisolatie
https://isolatieverkoop.nl/product/meuwissen-miofol-125av-dampdichte-folie/
https://www.isolatiemateriaal.nl/pir/pir-afschotisolatie/pir-2-zijdig-aluminium-20mm-afschot/pir-afschot-2-zijdig-aluminium-1200x1200x3050mm-rd180-144m2
https://www.hornbach.nl/shop/PREMIUMFOL-EPDM-1-20mm-dakbedekking-breedte-420cm-van-de-rol/10469542/artikel.html
https://www.isolatiemateriaal.nl/plaatmateriaal/gipsplaten/gipsplaten-ak/gipsplaten-1200x600x125mm-ak- 072-m2?gclid=Cj0KCQjw94WZBhDtARIsAKxWG-9-CKiFPV0ZNBS33tED4jbZ6RbRGneZ_GadvHGBLyveNBp614FhB8AaApqwEALw_wcB
https://www.houtmarkt.nl/assortiment/plaatmateriaal/betonplex/berken-betonplex-beton-multiplex-120-gr- m2-coating/4013.html?gclid=Cj0KCQjwmouZBhDSARIsALYcouogVp7CZrbIOPjuyOeFCPQqdoJjXqL1nxPNnuvTH8y0200YDzictyAaAvAjEALw_wcB
https://www.systeemplafond.nu/gipsvinyl-plafondplaten-600x600-inleg-kleur-zwart.html?gclid=Cj0KCQjwv
ZCZBhCiARIsAPXbajvsmF6eURtfE1JH9AasuyitYF5XuhzFdkeovMYdyx0NYNblKEgVT74aAg--EALw_wc B
https://www.kunststofbouwmateriaal.nl/vinyplus-boeideel-dakrand-monumentengroen?gclid=Cj0KCQjwvZ
CZBhCiARIsAPXbajswitiLgZPSGErDzU0_BQRWztrbMqzUJOIB9pQGwUO2Lp7xYmaaJZ0aAuN2EALw_ wcB
ttps://www.houtvakman.nl/vuren-balk-zwart-75x75-mm-geschaafd-en-geimpregnee.html?id=221293257

APPENDICES

Appendix 1: Required information floor plans

Category	Information
Scale	*1:200*
	1:100
General	positioning of user functions in relation to each other
	spatial structure and fixed furnishing elements
	location and dimensions of building components
	spatial integration of constructions and installations
	grid lines
	level dimensions floor levels
	main dimensions building
Specific	Reference to sections, fragments and details
	room names and numbering
	direction of door swing
	stairs and ramps (walking lines)
	ducting
	building expansion joints specific installation components: Sanitary, meter boxes, transformer, elevators, escalators, rainwater drainage, sewerage, drainage, grease and oil separators, dry busbar, gas cabinet, central heating hydrophore, sprinkler, LAN (local area network), SER (Satellite Equipment Room), MER (Main Equipment Room), crawl hatches, cooling machines, water meter room, facade cleaning, air treatment
	fillings and elevations, grates, skylights, roof hatches
	elevator machine rooms, window cleaning installation,
	slope, scuppers, drains
	roof edge widths and heights, hoisting hatches, tile paths
For building permit	Distinction between existing and new situation
	Indication and surfaces of destinations
	Intended and current use of construction

	Gross volume in m3 according to NEN2580
	Gross surface area in m2 according to NEN 2580

** Italic text is taken from the document “Quality of Drawing Work In Construction”. [3]

Appendix 2: Structure of the house

Part	Material	Thickness mm	Length mm	Width mm
Outer walls: Cavity wall/ Load-bearing/ Stone wall				
Finishing layer inside	Plaster layer: Mixture of sand, lime and cement	10	n.a.	n.a.
	White plasterwork	5	n.a.	n.a.
Inner leaf (load-bearing)	Sand-lime brick blocks	210	327	240
Cavity	Without insulation	40		
Cavity anchors	Stainless steel		40	
Outer leaf	Sand-lime brick blocks	100	327	240
Finishing layer outside	1. Plaster layer: Mixture of sand, lime and cement	20	n.a.	n.a.
	2. White/black plasterwork	5	n.a.	n.a.
Inner walls: Load-bearing and non-load-bearing walls				
Load-bearing	Sand-lime brick blocks	210	327	240
Non-load-bearing	Sand-lime brick blocks	100	327	240
Finishing layer inside	1. Plaster layer: Mixture of sand, lime and cement	10	n.a.	n.a.
	2. White plasterwork	5	n.a.	n.a.
Floors: Freely supported floor				
First floor + Second floor				
Wide slab floor - bottom plate (pre-tensioned)	Gravel concrete C28/35	50	6000 - 9000	3000, 1200 & 2700
Fitting strips	n.a.	n.a.	6000 - 9000	200

[3] Quality of Drawing Work in Construction

Reinforcement	Steel	n.a.	n.a.	n.a.
Wide slab floor - Pouring	Reinforced concrete	250	6000 - 9000	250
Screed - cast floor	Reinforced concrete	60	n.a.	n.a.
Finishing layer	Cast floor (marble look)	3	n.a.	n.a.
Roof - Flat roof - Structure				
Roof floor: Wide slab floor	Concrete + steel (reinforcement)	300	6000 - 9000	3000
Vapor-retarding layer: Miofol 125 AV	Aluminum with polythene	0,11	2500 - 5000	1500
Insulation - Slope plates	PIR (polyisocyanurate)	40	1200	1200
EPDM Roofing	PUR-bonded rubber granulate	1,2	300.000	4200
Roof on Terrace - Flat roof - Structure				
Ceiling: Plasterboard	Gypsum - black	9,5	600	600
Roof beams	Spruce - Black	75	300	75
Birch concrete plywood panels	Birch	12	2500	1200
Vapor-retarding layer: Miofol 125 AV	PIR (polyisocyanurate)	40	1200	1200
EPDM Roofing	PUR-bonded rubber granulate	1,2	300.000	4200
Roof edge/fascia board black	Plastic	16	6000	296
Ceiling				
Plasterboard	Plasterboard	36	600	600
White plasterwork	Plaster	16	n.a.	n.a.

45678910111213

[4]https://www.joostdevree.nl/shtmls/afschot.shtml
[5]https://www.isolatiemateriaal.nl/pir/pir-afschotisolatie
[6]https://isolatieverkoop.nl/product/meuwissen-miofol-125av-dampdichte-folie/
7

https://www.isolatiemateriaal.nl/pir/pir-afschotisolatie/pir-2-zijdig-aluminium-20mm-afschot/pir-afschot-2-zijdig-aluminium-1200x1200 x3050mm-rd180-144m2
[8]https://www.hornbach.nl/shop/PREMIUMFOL-EPDM-1-20mm-dakbedekking-breedte-420cm-van-de-rol/10469542/artikel.html

9

https://www.isolatiemateriaal.nl/plaatmateriaal/gipsplaten/gipsplaten-ak/gipsplaten-1200x600x125mm-ak-072-m2?gclid=Cj0KCQjw94WZBhDtARIsAKxWG-9-CKiFPV0ZNBS33tED4jbZ6RbRGneZ_GadvHGBLyveNBp614FhB8AaApqwEALw_wcB

10

https://www.houtmarkt.nl/assortiment/plaatmateriaal/betonplex/berken-betonplex-beton-multiplex-120-gr-m2-coating/4013.html?gclid=Cj0KCQjwmouZBhDSARIsALYcouogVp7CZrbIOPjuyOeFCPQqdoJjXqL1nxPNnuvTH8y0200YDzictyAaAvAjEALw_wcB

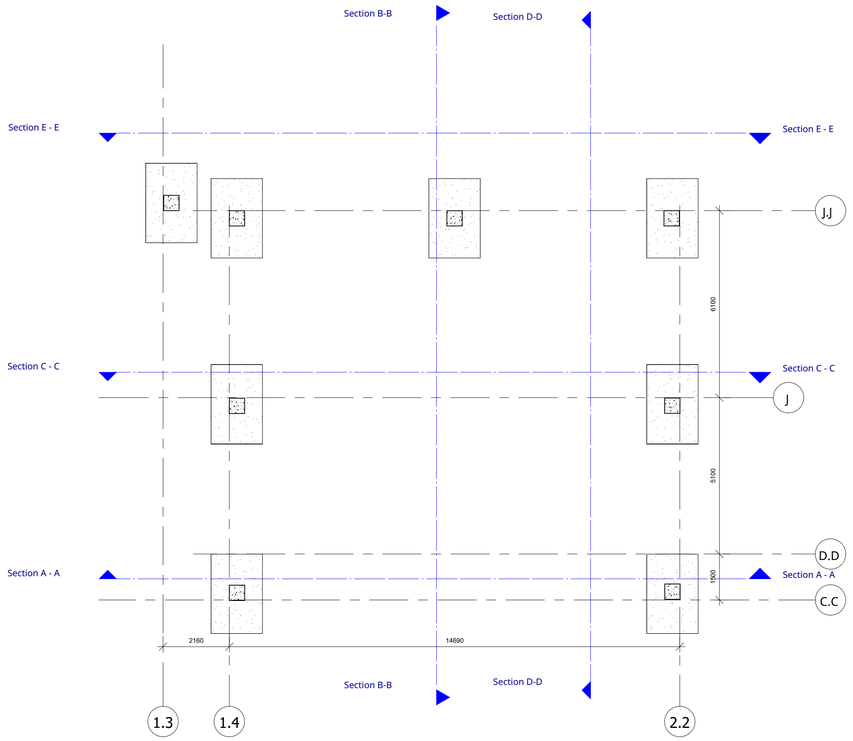
11

https://www.systeemplafond.nu/gipsvinyl-plafondplaten-600x600-inleg-kleur-zwart.html?gclid=Cj0KCQjwvZCZBhCiARIsAPXbajvsmF6eURtfE1JH9AasuyitYF5XuhzFdkeovMYdyx0NYNblKEgVT74aAg--EALw_wcB

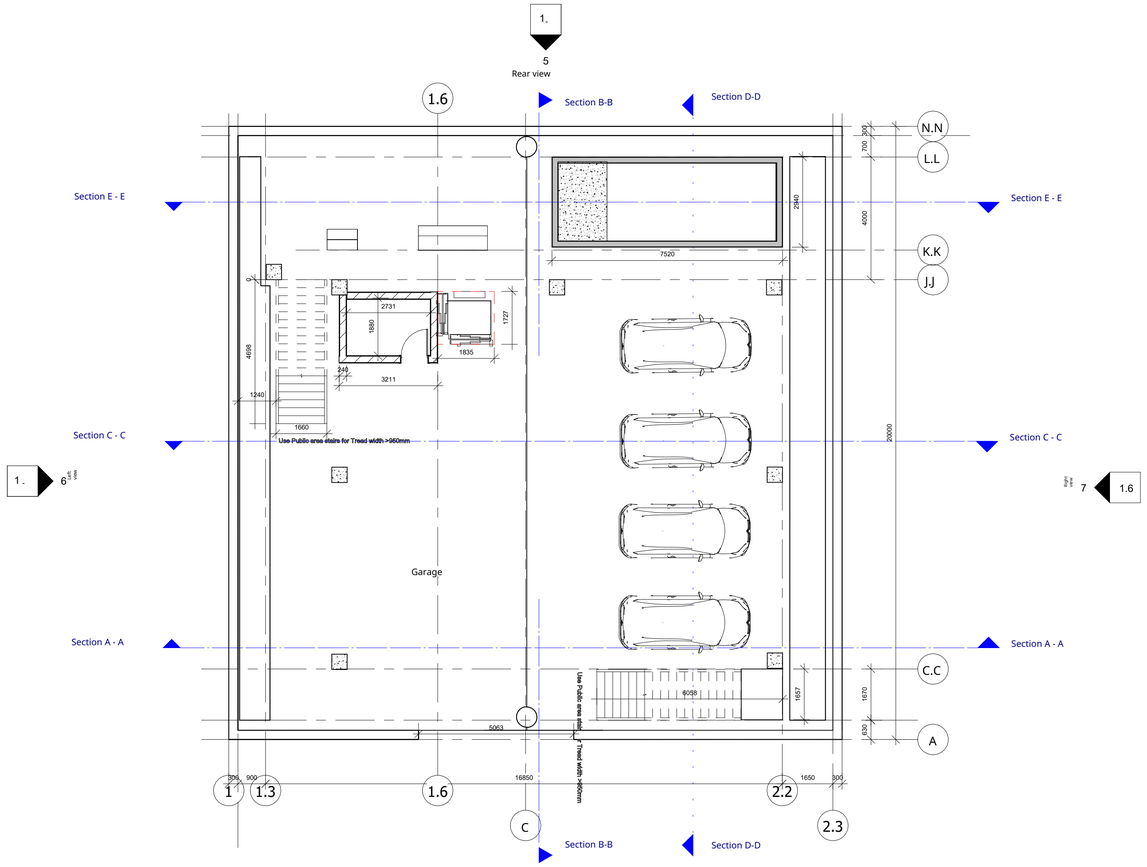
12

https://www.kunststofbouwmateriaal.nl/vinyplus-boeideel-dakrand-monumentengroen?gclid=Cj0KCQjwvZCZBhCiARIsAPXbajswitiLgZPSGErDzU0_BQRWztrbMqzUJOIB9pQGwUO2Lp7xYmaaJZ0aAuN2EALw_wcB

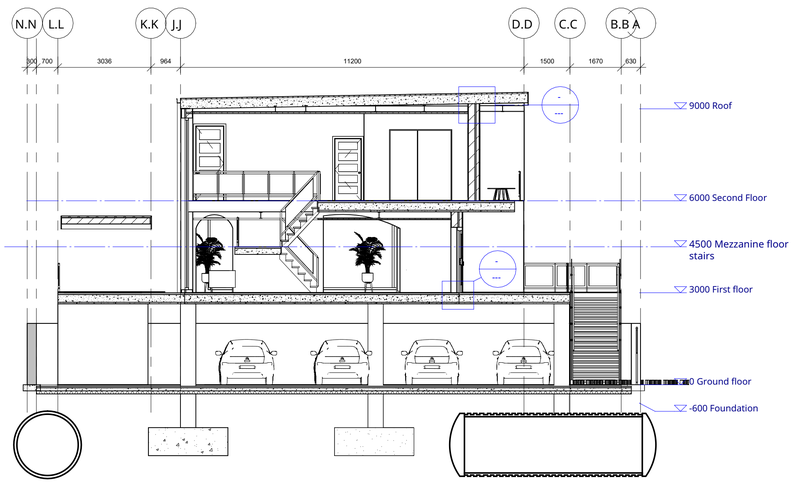
[13]https://www.houtvakman.nl/vuren-balk-zwart-75x75-mm-geschaafd-en-geimpregnee.html?id=221293257



1 Foundation
1 : 100

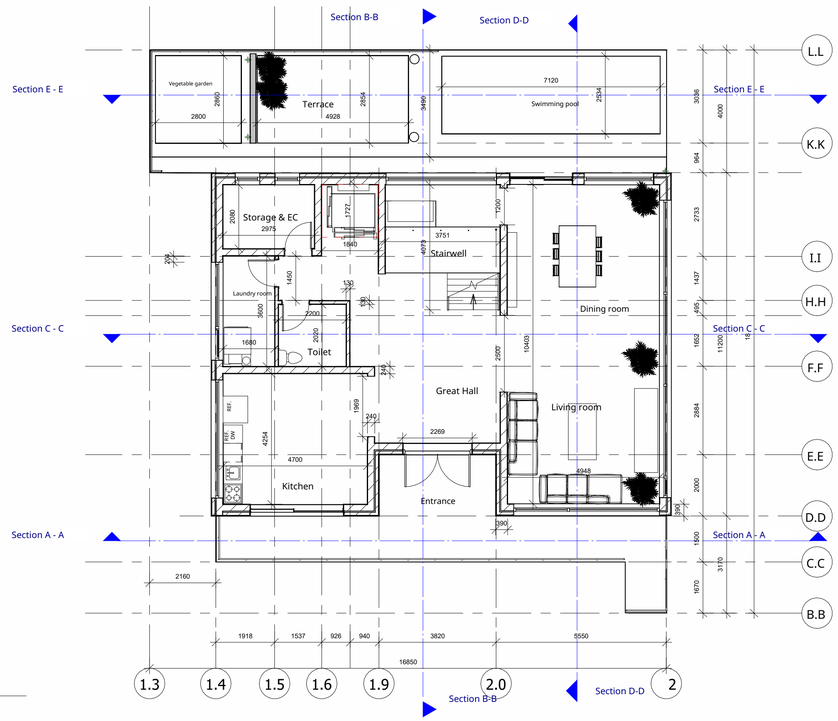


2 Ground floor
1 : 100

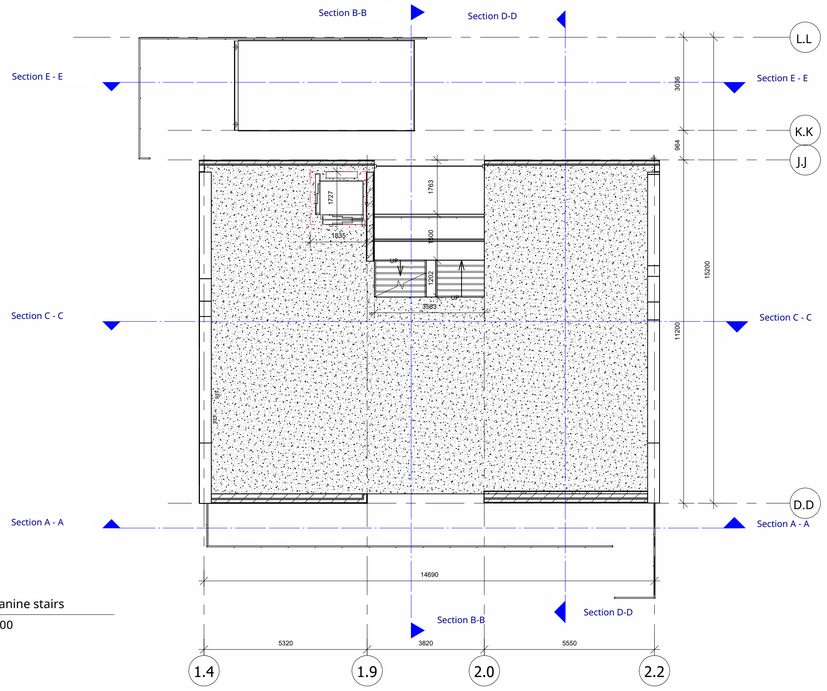


3 Section B-B
1 : 100

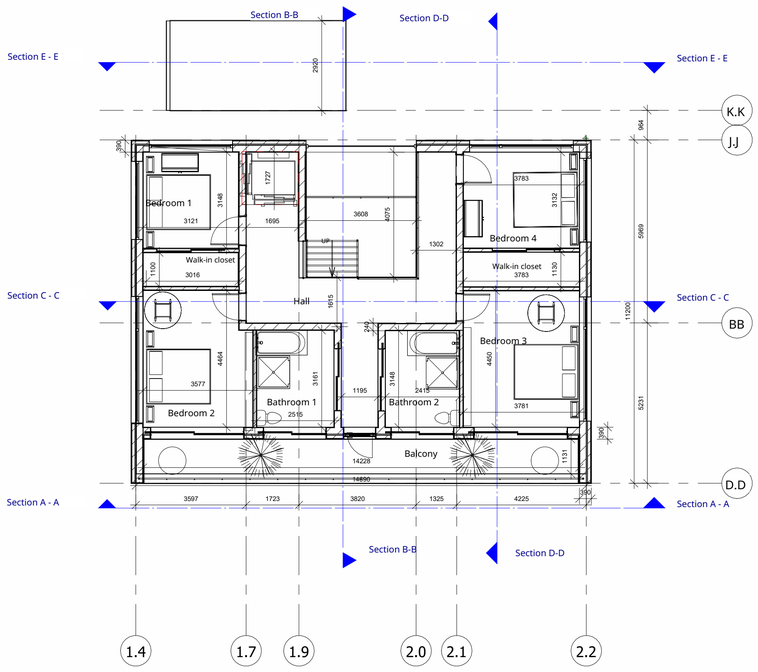
Hogeschool NCOI		phase:	Design phase
		date:	10/18/2022 7:22:58 PM
		format:	A1
client:	Monsengo Family	scale:	1 : 100
project:	Monsengo Family Home	drawn:	Nadia Monsengo
description:	Foundation & ground floor plans + Section B -B	work:	1
		sheet:	1



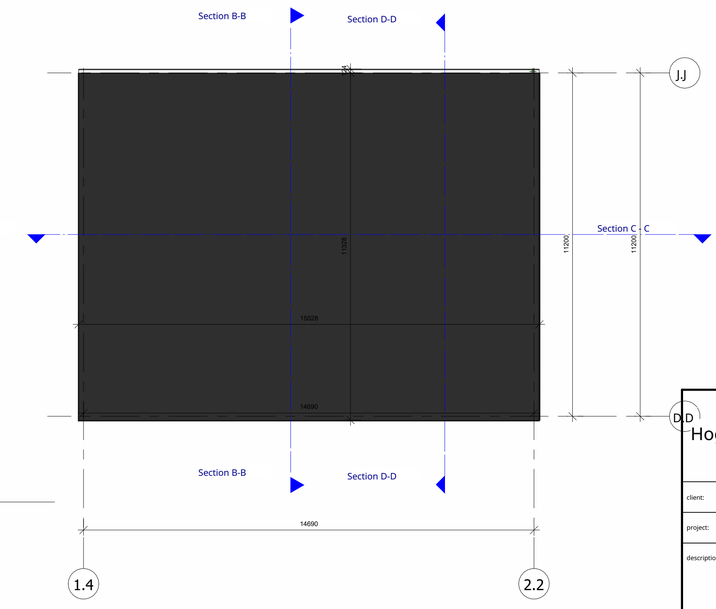
1 First floor
1 : 100



2 Mezzanine stairs
1 : 100

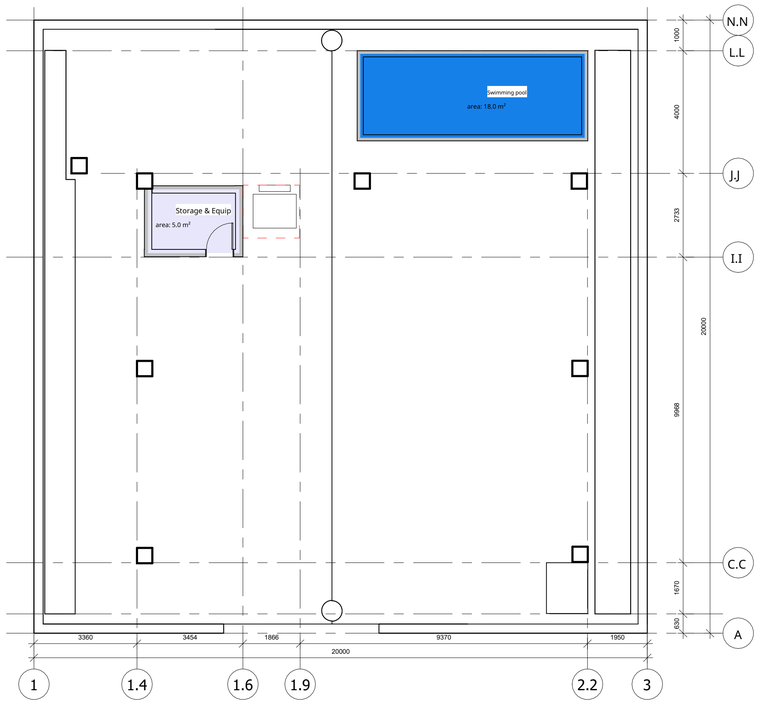


3 Second Floor
1 : 100



4 Roof
1 : 100

Hogeschool NCOI	
phase:	Design phase
date:	10/18/2022 7:23:06 PM
format:	A1
client:	Monsengo Family
scale:	1 : 100
project:	Monsengo Family Home
drawn:	Nadia Monsengo
description:	Floor plans first floor, mezzanine, second floor and roof
work:	1
sheet:	1.1

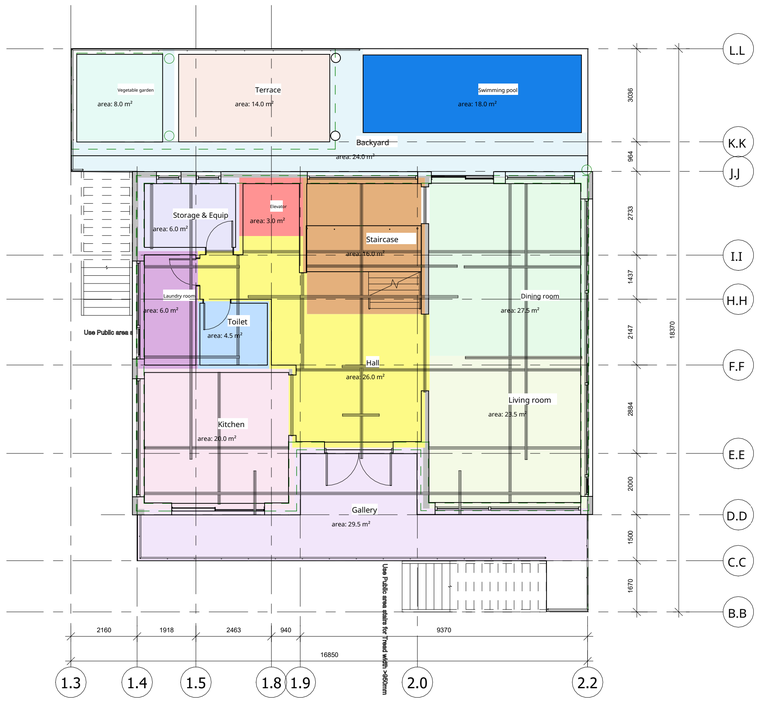


Legend

- Storage & Equip
- Swimming pool

1 Ground floor - Rooms

1 : 100

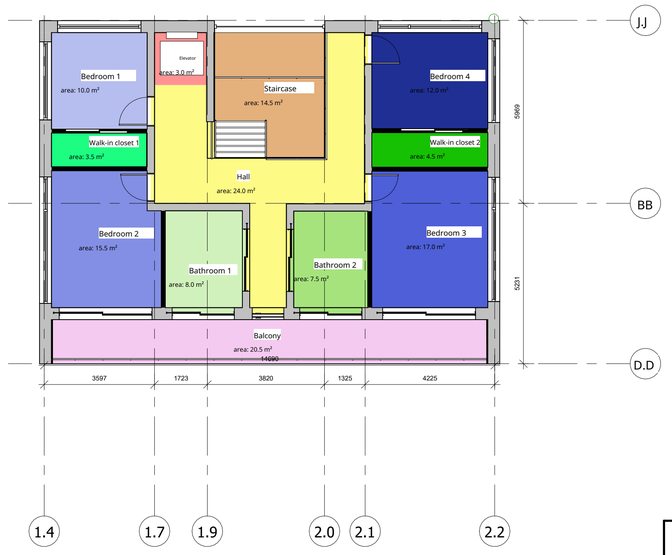


Legend

- Backyard
- Storage & Equip
- Dining room
- Gallery
- Hall
- Kitchen
- Elevator
- Vegetable garden
- Terrace
- Toilet
- Staircase
- Laundry room
- Living room
- Swimming pool

2 First floor - Rooms

1 : 100



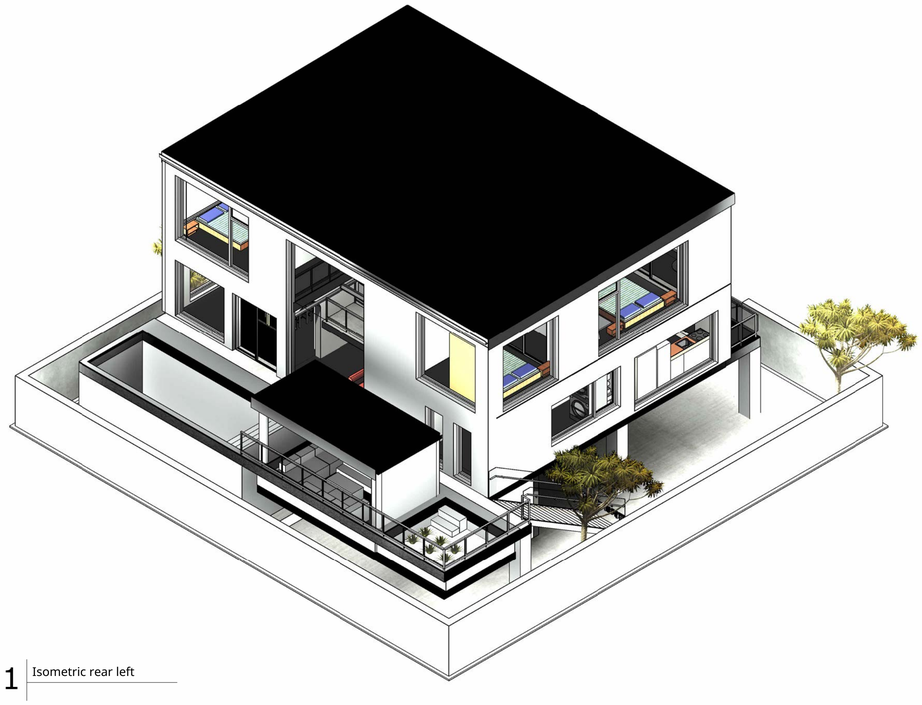
Legend

- Bathroom 1
- Bathroom 2
- Balcony
- Hall
- Walk-in closet 1
- Walk-in closet 2
- Elevator
- Bedroom 1
- Bedroom 2
- Bedroom 3
- Bedroom 4
- Staircase

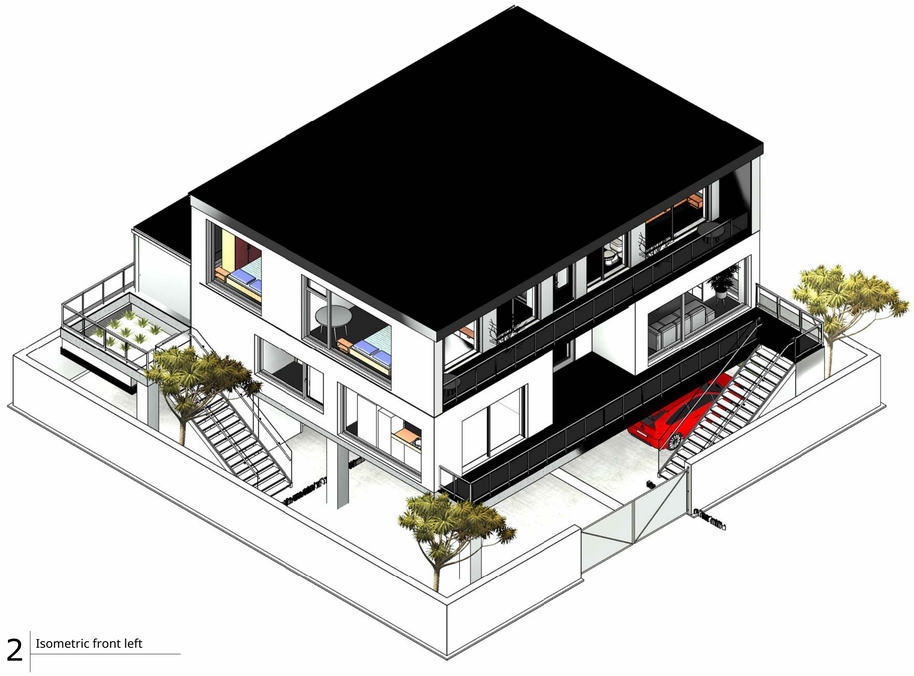
3 Second Floor Rooms

1 : 100

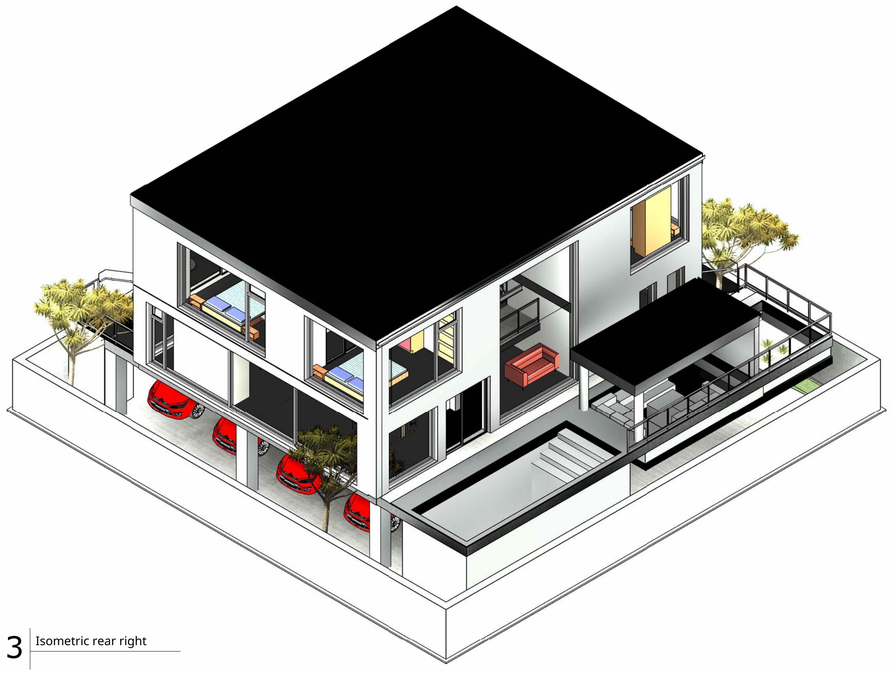
Hogeschool NCOI		phase:	Design phase
		date:	10/18/2022 7:23:08 PM
		format:	A1
client:	Monsengo Family	scale:	1 : 100
project:	Monsengo Family House	drawn:	Nadia Monsengo
description:	Rooms ground floor, first floor and second floor	work:	1
		sheet:	1.2



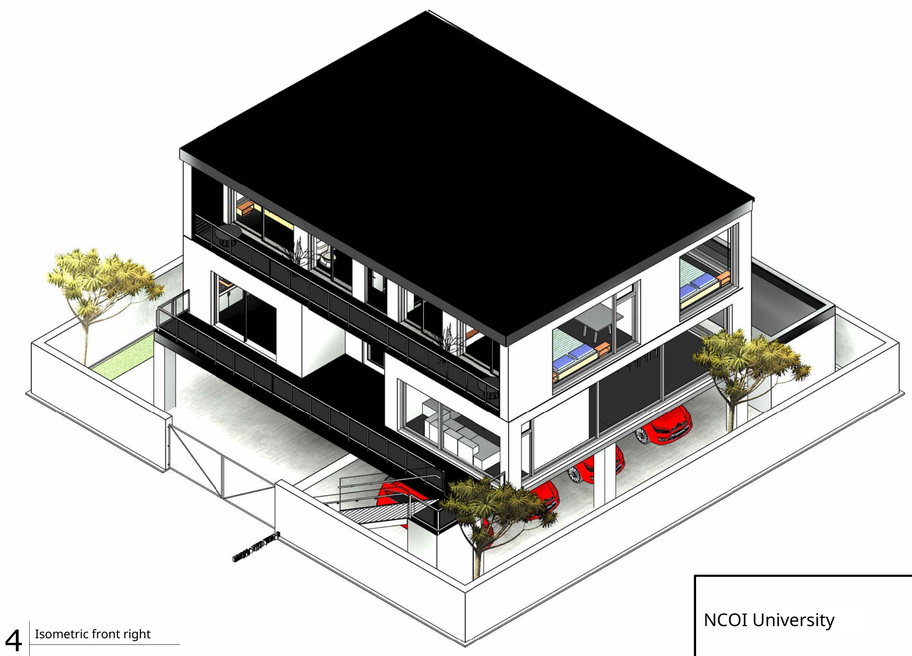
1 Isometric rear left



2 Isometric front left

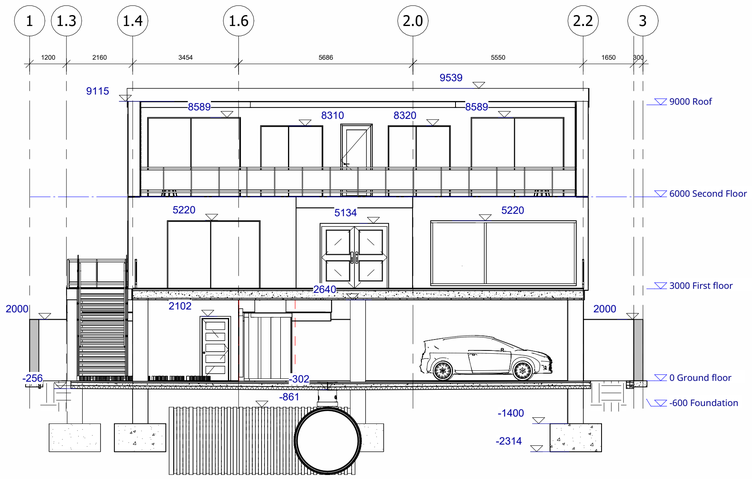


3 Isometric rear right



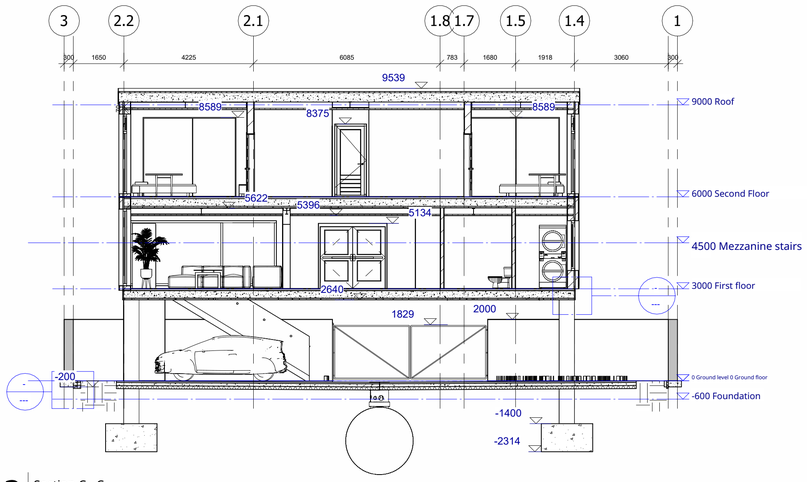
4 Isometric front right

NCOI University		Phase:	Design Phase
		Date:	10/18/2022 7:24:50 PM
		Format:	A1
Client:	Monsengo Family	Scale:	1:60
Project:	Monsengo Family House	Drawn:	Nadia Monsengo
Description:	3D Isometric Views	Work:	1
		Sheet:	1.4



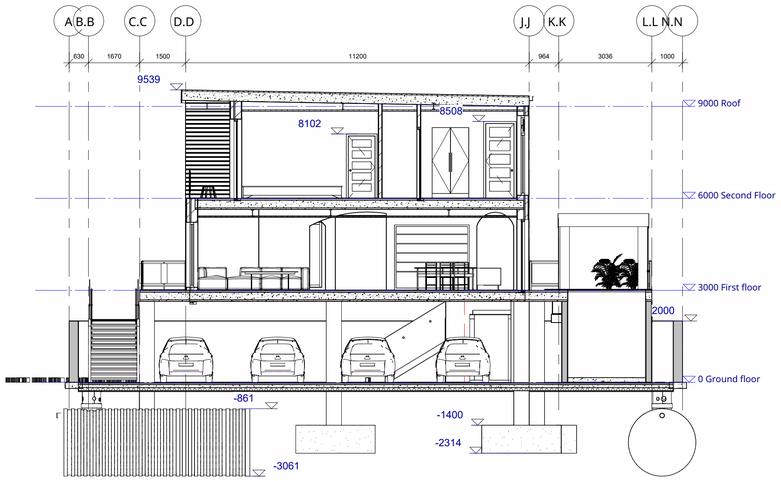
1 Section A - A

1 : 100



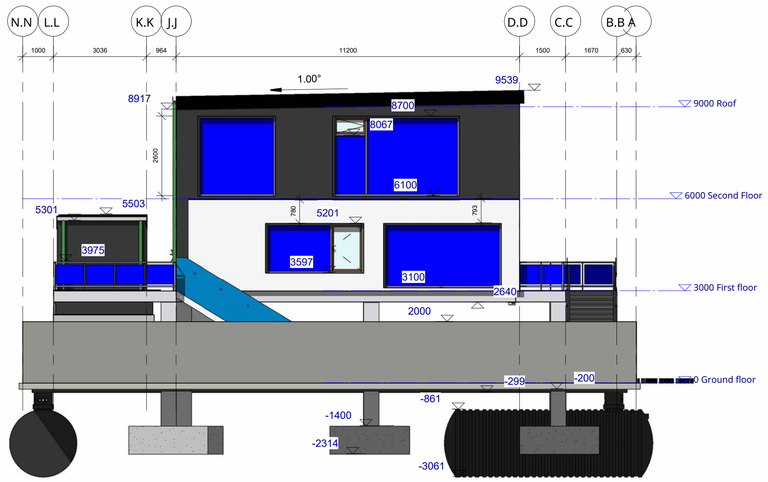
2 Section C - C

1 : 100



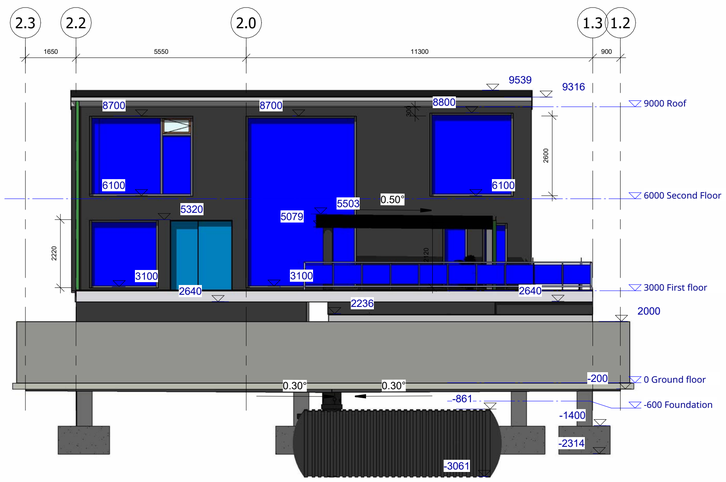
3 Section D-D

1 : 100



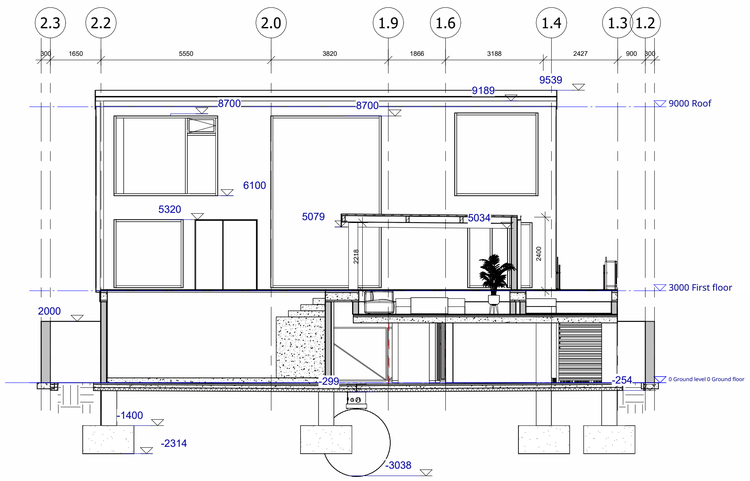
6 Left view

1 : 100



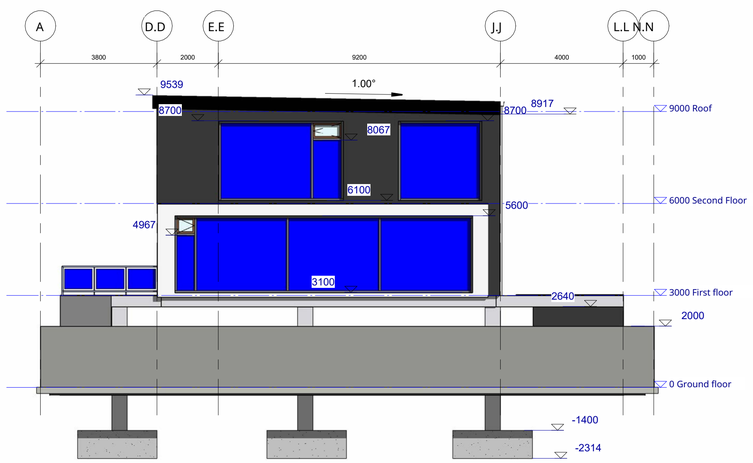
5 Rear view

1 : 100



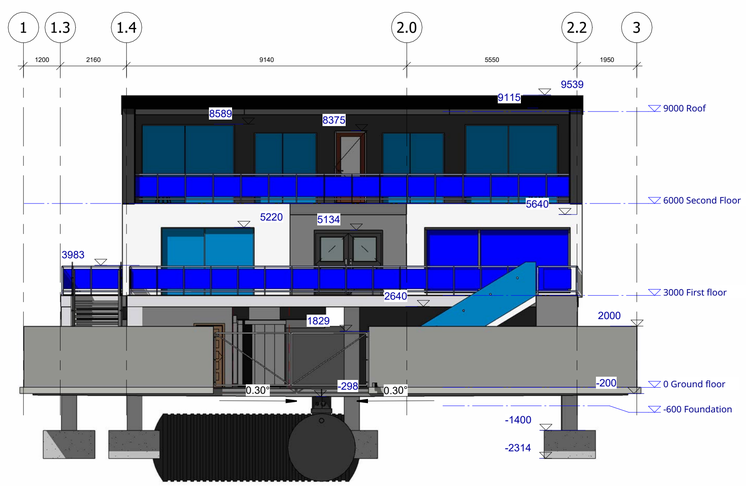
4 Section E - E

1 : 100



7 Right view

1 : 100

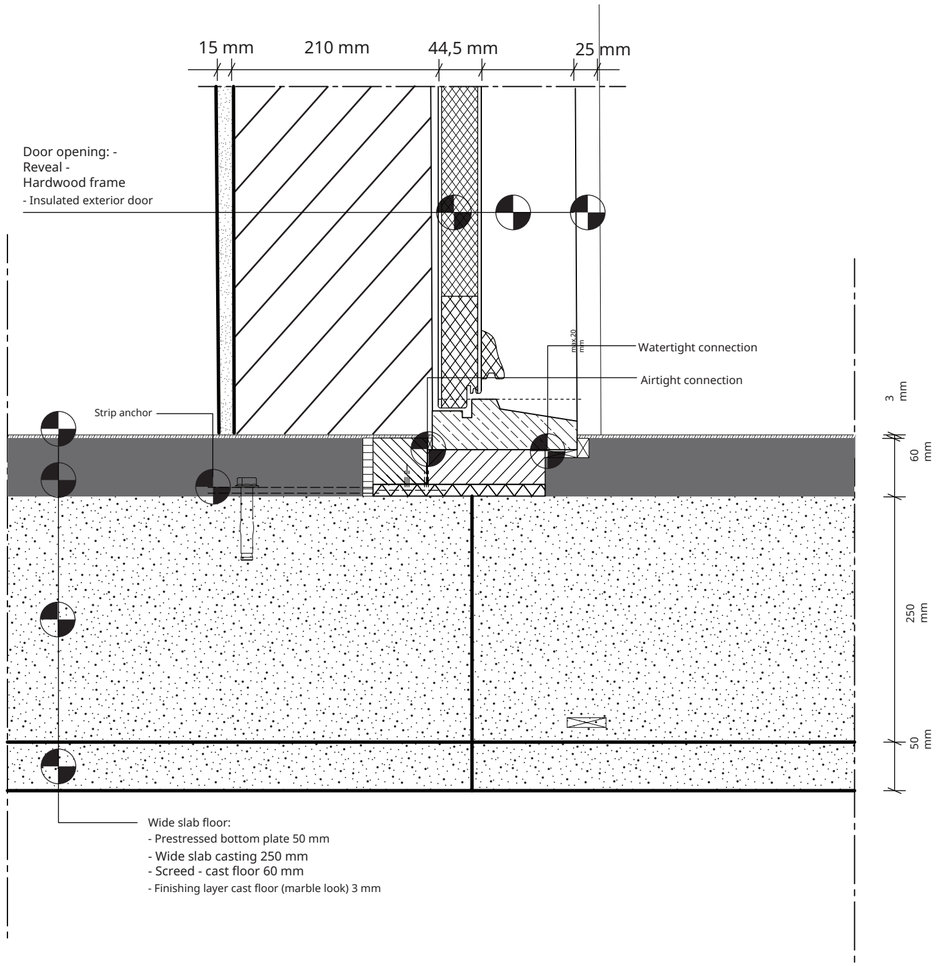


8 Front view

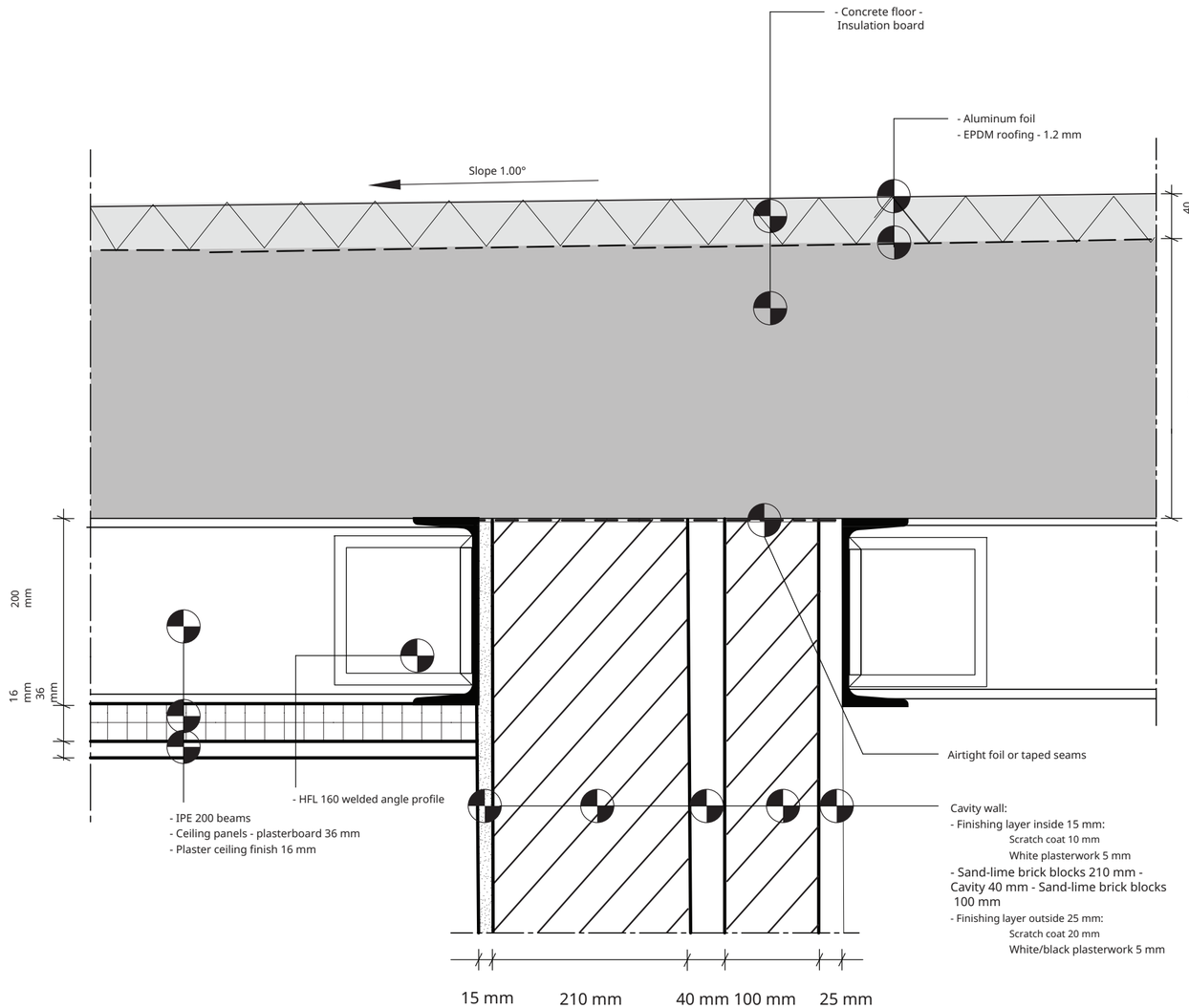
1 : 100

Hogeschool NCOI		phase:	Design phase
		date:	10/18/2022 7:25:26 PM
		format:	A1
client:	Familie Monsengo	scale:	1:100
project:	Familiehuis Monsengo	drawn:	Nadia Monsengo
description:	Sections A-A, B-B, C-C, D-D and E-E+ Views	work:	1
		sheet:	1.6

Detail 02: Facade opening exterior door with floor and balcony/gallery



Detail 01: Flat roof - facade detail



Project: House Family Monsengo
Client: Family Monsengo
Contractor: Nadia Monsengo

Detail Drawings
Scale 1:5
Dimension: 356.28 x 530.75 mm