



LIGHTING PLAN FOR VILLA KALLVIK

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“We find beauty not in the thing itself but in the patterns of shadows, the light and darkness, that one thing against another creates.”

Junichiro Tanizaki - In a praise of shadows 1997, 52

ABSTRACT

Lighting design is defined by light and shadow, and appropriate lighting is extremely important. Light creates an impact to the space: it expands the space, emphasizes, brings safety and creates aesthetically pleasing whole. This thesis focuses on lightingn design and solutions in 60s built Villa in marine and nature-surrounding area, Kallahti.

The topic is approached by knowledge of principles in lighting design, literature and research in the field of architectural lighting design, and analyzing already existing places. In this thesis I have the support from professionals throughout the project, and I combine both them in my work.

My thsesis is about a pre-existing villa house that is having a comprehensive renovation and lighting solutions in the internal and external areas. My aim is to highlight the architecture with innovative lighting solutions, that create the space with light. The theme of the architecture is japanese, and it can be seen in the lighting plan as well. The final plans include lighting calculations, innovative solutions and functionality where light is needed.

Villa Kallvik has 317 m2 with two floors. The renovations are scheduled to be completed in the Autumn 2023. This project is made in cooperation with Helsinki Lighting Design Company and Mer Architects.

KEYWORDS

lighting design, light solution,architectural lighting, light plan, pure lighting pleasure

OPPILAITOS	Metropolia Ammattikorkeakoulu
KOULUTUSOHJELMA TUTKINTO SUUNTAUTUMISVAIHTOEHTO	Muotoilun tutkinto-ohjelma Muotoilija (AMK) Sisustusarkkitehtuuri
TEKIJÄ OTSIKKO SIVUMÄÄRÄ PÄIVÄYS OHJAAJAT	Eea Rajamäki Valaistussuunnitelma Villa Kallvikiin 66 13.3.2023 Merita Soini, Pasi Pänkäläinen

”Emme löydä kauneutta itse asiassa, vaan varjojen kuvioista, valosta ja pimeydestä, joita asia toista vastaan luo.”

Junichiro Tanizaki - In a praise of shadows 1997, 52

TIIVISTELMÄ

Valaistus on enemmän kuin valoa. Se avartaa tilaa, korostaa, tuo turvallisuutta ja luo esteettisesti viihtyisän kokonaisuuden. Valon ja varjon leikki luo tilaan leikkisyyttä ja tunnelmaa, jotka ovat on tärkeä osa valaistussuunnittelua. Tämä opinnäytetyö keskittyy valaistussuunnitteluun ja sen ratkaisuihin 60-luvulla rakennetussa huvilassa merellisessä ja luonnon ympäröimässä miljöössä Helsingin Kallahdessa.

Aihetta lähestytään valaistussuunnittelun periaatteiden keinoin, arkkitehtonisen valaistussuunnittelun kirjallisuuden avulla ja havainnoimalla jo olemassa olevia kohteita, joissa on käytetty Villan japanilaishenkistä tunnelmaa. Tässä opinnäytetyössä olen saanut tukea ammattilaisilta koko projektin ajan ja hyödynnän niitä työssäni.

Opinnäytetyöni on jo olemassa oleva huvila, jossa tehdään kattava saneeraus ja sähkötyö sisä ja ulkotiloihin. Tavoitteeni on korostaa arkkitehtuuria innovatiivisilla valaistusratkaisuilla, jotka luovat tilan valolla. Sisustussuunnittelijan teema on japanilainen, joten se myös näkyy valaistussuunnitelmassani. Lopulliset suunnitelmat sisältävät valaistuslaskentaa, innovatiivisia ratkaisuja ja toimivan kokonaisuuden siellä, missä valoa tarvitaan.

Villa Kallvik on kahdessa kerroksessa, kokonaispinta-alaltaan 317 m². Saneerauksen on määrä valmistua syksyllä 2023. Hanke on tehty yhteistyönä Helsinki Lighting Design Companyn ja Mer Arkkitehtien kanssa.

AVAINSANAT

valaistussuunnittelu, valaistusratkaisut, arkkitehtoninen valaistus, valaistus, esteettinen valaistus

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INTRODUCTION

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Figure 1 view from the dock

1.1 PREFACE

I found the thesis topic in the work of Helsinki Lightning Design Company, since I am focusing in the project in the field in question in collaboration with architects. The topic was ideal for me since it supports my work and opens up my knowledge in lighting. I had few projects that I could have chosen from. Instead of them, I wind ed up with Villa Kallvik. It challenges me in various ways, that I will focus on more briefly later on.

In this thesis I highlight architectural lighting solutions, as I am discovering needs for the customer and architect. I will use existing research to endorse my lighting plans, mostly focusing the feeling and atmosphere in my benchmarking. In the restoration the theme is japanese, aesthetic and minimalist so therefore everything must be hidden, even the lights. In my plans, I propose innovative alternatives using newest technology. I suggest beams, specs of the light and light calculations. I also take care of glares.

The final plans will include inside lighting plans and light, also I want to add some drafts during the design journey. In the first part of the work I will present the theoretical part: framework, limitation and goals. In the second part I introduce the aspects of light, living and needs through possible design problems. The combination of both gives solutions and some rules in lightning. On the third part I present the design and background of the choices. The last three parts focus on analysis, observation, design process and finishing in final result with 3D- models.

"Architecture is the masterly, correct, and magnificent play of masses brought together in light. Our eyes are made to see forms in light: light and shade reveal these forms."

Le Corbusier

1.2 THEORETICAL FRAMEWORK



Figure 2: Theoretical framework

1.4 OBJECTIVES

The purpose of the thesis is to investigate how to create harmonious atmosphere interacting with light and shadow. According to the customer's wishes: as little light as possible. My challenge is to plan safe but well functional space and take into account enabling the performance of visual tasks. Lighting is more than light. It expands space, emphasizes and brings security. In all that in mind I have to also be able to hide the light. I do lighting design with high quality, energy efficiency and economic profitability.

1.3 WORK DELIMITATION

The goal is to create a functional and hidden lighting plan that highlights the architecture. It takes also into observation the worldwide energy crisis. The lighting solutions support the needs, interior and creates an aesthetically pleasing whole. My aim is to find renewable ideas, that fit the architecture and interiors.

Villa Kallvik has 317 m² and outdoor area. I will make plans to the interior and exteriors spaces. More closely I focus on the difficult parts to implement. For me I want to understand more deeply luxes in the space as the windows are only in one facade. I will not take part in the electrical planning, so therefore I will leave space for the needs of power equipment and their alternatives. and I will space the needs of power equipment and alternatives. My aim is to find solutions that I combine with their surroundings to form a harmonious whole.

CONTEXT

2

- 2.1 Lighting design principles
- 2.2 Precept in lighting concept
- 2.3 In praise of shadows
- 2.4 Delta light

2.1 LIGHTING DESIGN PRINCIPLES

Lighting design is a combination of **six visual principles** that I will present in this section of design parameters. These principles have been created for desired spatial experience. I have gathered my knowledge from Hervé Descottes the master of lighting design and founder of principles in light. (Architectural Lighting Design - Designing with Light and Space by Hervé Descottes and Cecilia E. Ramos, 2011)

I utilize this theory in my lighting plans for Villa Kallvik as, layered design is a key in good lighting plan.

"Light ensures visibility, and through the definition of visual limits it can be establish spatial hierarchies and sequences, or spaces of movement and pause".

- Descottes & Ramos
(Architectural lighting design 2011, 8)

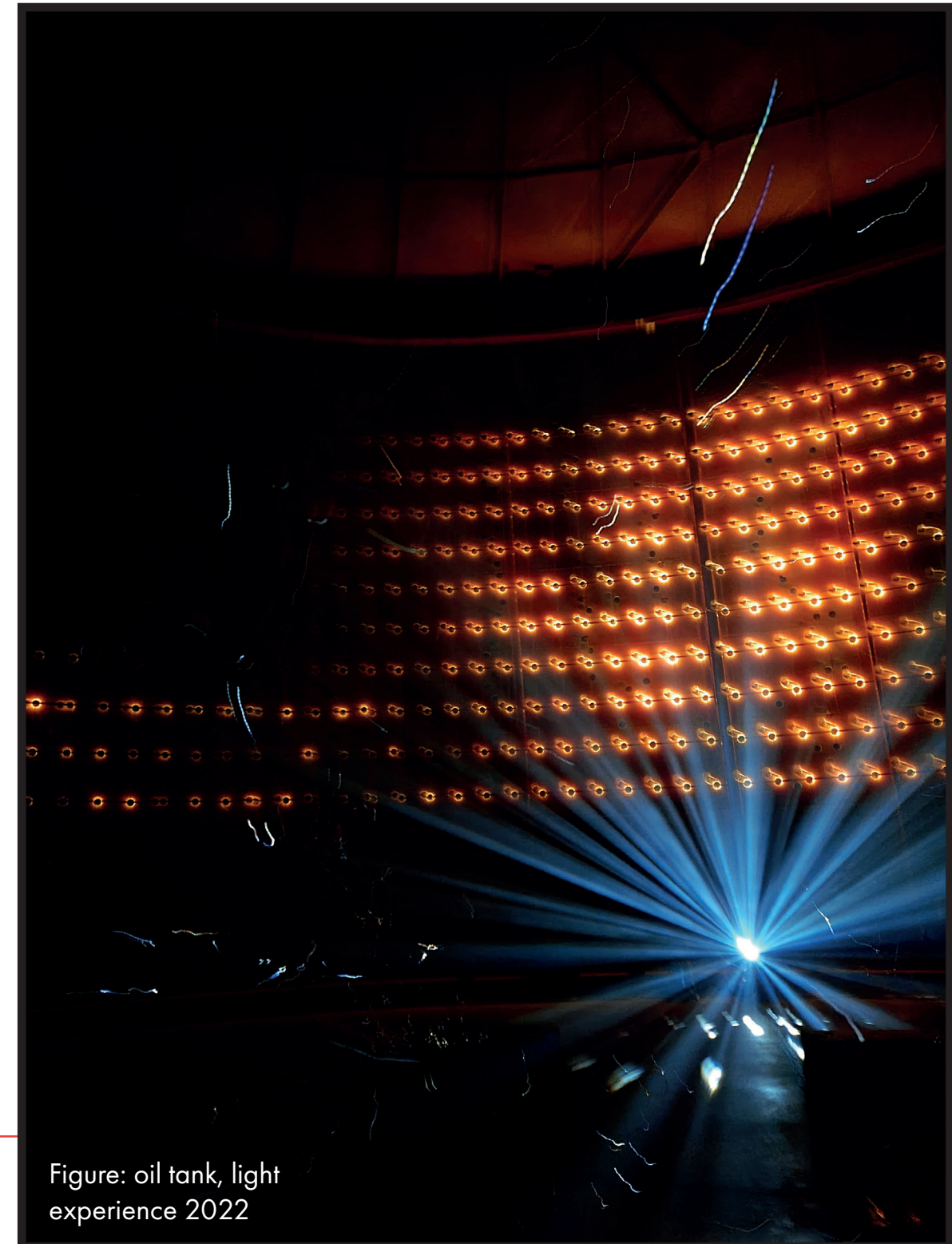


Figure: oil tank, light
experience 2022

1 ILLUMINANCE

Illuminance aka LUX delineate the light source that lands on given surface. The metric system is called lux, the pattern is $1\text{lx} = 1\text{ lumen} : 1\text{m}^2$.

Illuminance brings shapes alive and it allows us to navigate or perform a task in space. Illuminance plays an important role in lighting design as it responds to our emotional space. In space it leads us to visibility, safety and emotional satisfaction. (Descottes & Ramos 2011, 14)

2 LUMINANCE

Luminance describes how bright or clear a surface appears in the specified direction. Luminance is measured in candela per square meter = cd/m^2 . Seeing an object is based on luminance levels and contrast can be used to give hierarchy and direction to space through light. The luminances of the space **affect the making of observations, the speed of observation, glares and the visual ergonomics of the lighting environment.**

(Valo 1, 2018, Markku Versala, 48).

3 COLOR & TEMPERATURE

The color of a light aka Kelvin has insuperable connection in time and space. The light is electromagnetic radiation whence the human eye reacts in spectrum of 380 - 780 nanometric (nm). The kelvin scale is divided in color temperatures as: reds (1500-2000k), yellows (2500-3000k), whites (3000-4000k), pale blues (4000-6500k), sky blues (6500k+). **The color temperature of the light indicates how warm or cold the light appears.** (Valo, 2019, Markku Varsila). Color rendering index plays a role in the quality of a light, a rating system is called the color index -which ranges in value from 1-100. In my work I mainly use CRI 90.

4 HEIGHT

The way how we realize the essential aspect of height is in relation to the space: **how we understand, occupy and explore the limits of our surroundings.** Height is a powerful variable in architectural lighting, capable of provoking a sense of expanded space or visual intimacy. (Descottes & Ramos 2011, 52).

5 DENSITY

The strong contrast to vast experience is to use variable heights in space, density, controls of the movement and rhythm.

6 DIRECTION & DISTRIBUTION

Lighting is one of many elements within a greater architectural composition that can be used repetitively or in sequence in a order to organize a space. (Descottes & Ramos 2011, 67). It is feasible to make visually interesting or playful creation with light. It is possible to play with **beams, angles** and degrees depending the optic of the luminaire. **Direction** of the light can be **direct or indirect**. The form of the light is governed by the principle of direction and distribution, which concerns the aim, shape, and beam characteristics of a light source. (Descottes & Ramos 2011, 70)

2.2 PRECEPT IN LIGHTING CONCEPT

Here I am presenting the methods I am using in Helsinki Lighting Design Company in my works. I have learned them from my menthor, lighting designer Harri Kumpulainen.

Basic rules

The need for light?

The living room has more light than hall, the kitchen has more light than living room, the kitchen worktops has more light than kitchen.

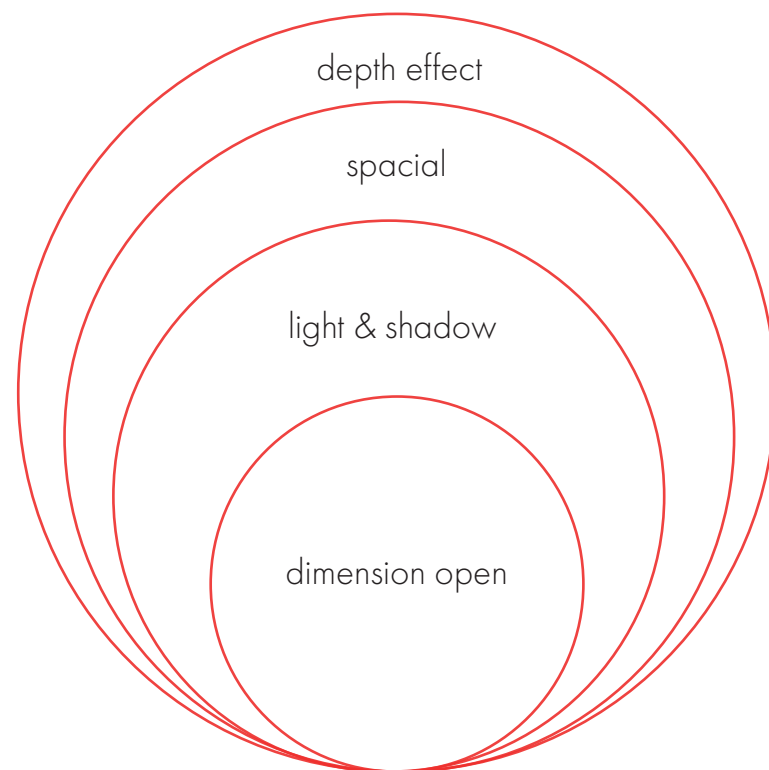
Basic rules

Vertical light distribution

When the light is placed close to the wall surface (5cm), the light distribution starts from high in low space. The space look high.

Basic rules

Depending by age, depending of colors



Harri Kumpulainen
Lighting Desingner

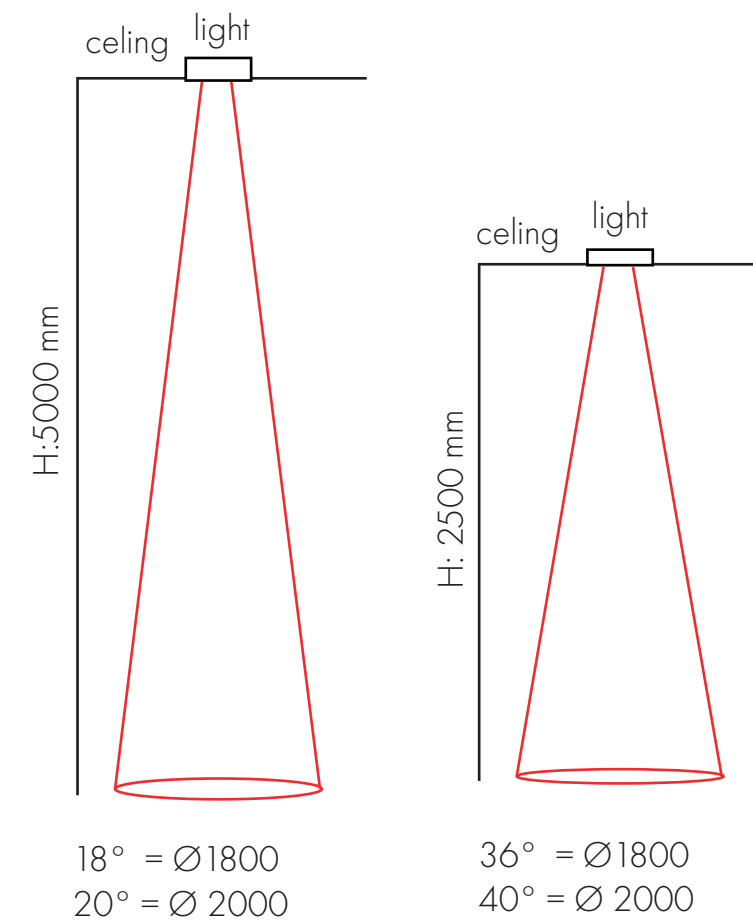


Basic rules (figure x)

The beams?

The most used beam in 2,5m high is 36°. It means that the cloud in the floor is 1800. If bigger cloud needed then by changing the beam to 40°, the cloud is 2000. The lumen output on the floor stays the same.

By changing the beam to narrower: 18° is possible to work with light in high ceiling and still have the same cloud 1800 and same lumen output.



2.3 IN PRAISE OF SHADOWS

"It should be left in a dark, a part here and a part there picked up by a faint of light."
(Tanizaki - In a praise of shadows 1997, 31).

Shadows and light take vast role in lighting design. I am introducing some thoughts of Tanizaki's literary. In praise of shadows is an essay on aesthetics by an eminent Japanese novelist. As my thesis is based on lighting plans to Villa Kallvik - that has theme of Japanese interior and architecture.

In praise of shadows Tanizaki is having various conceptions of light. He example introduces the light phenomenon using lacquerware as instance how is the play with light. "Our light depends upon shadows and is inseparable from darkness." Tanizaki, 1997, 29.

I have collected his light concepts from the book shadows of light, that I keep relevant for my thesis.

I discovered in the gloss of this lacquerware a depth and richness like that of a still, dark pond, a beauty I had not before seen." (Tanizaki - In a praise of shadows 1997, 29).

"If light is scarce then light is scarce; we will immerse ourselves in the darkness and there discover its own particular beauty." (Junichiro Tanizaki - In a praise of shadows 1997, 55).

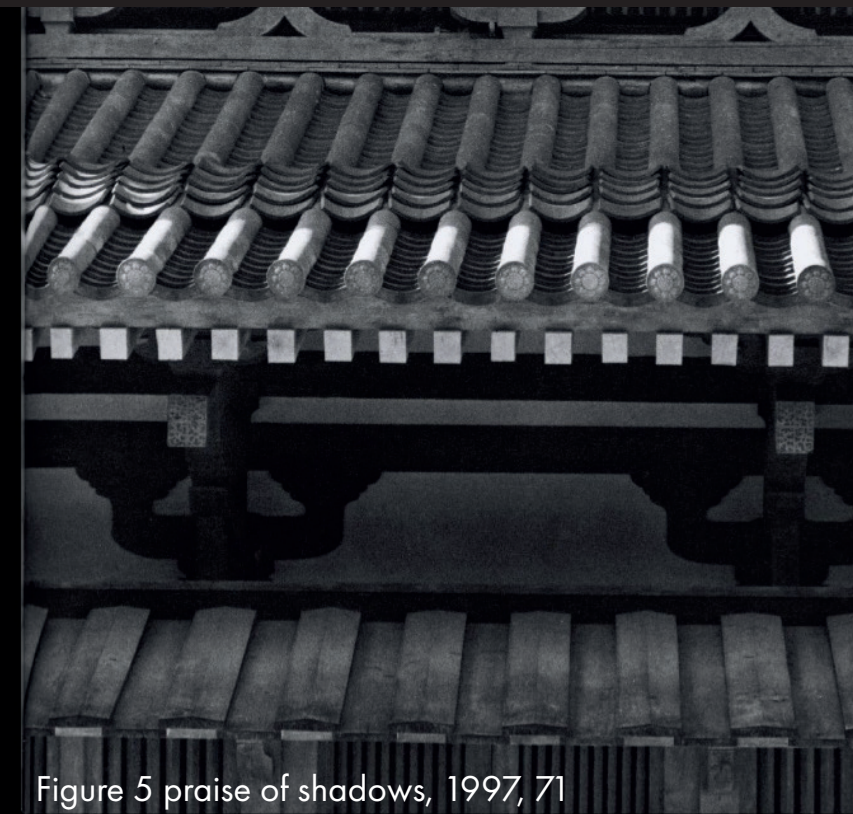


Figure 5 praise of shadows, 1997, 71

"The sun never knew how wonderful it was, until it fell on the wall of a building."
(Tanizaki - In a praise of shadows 1997, 9).

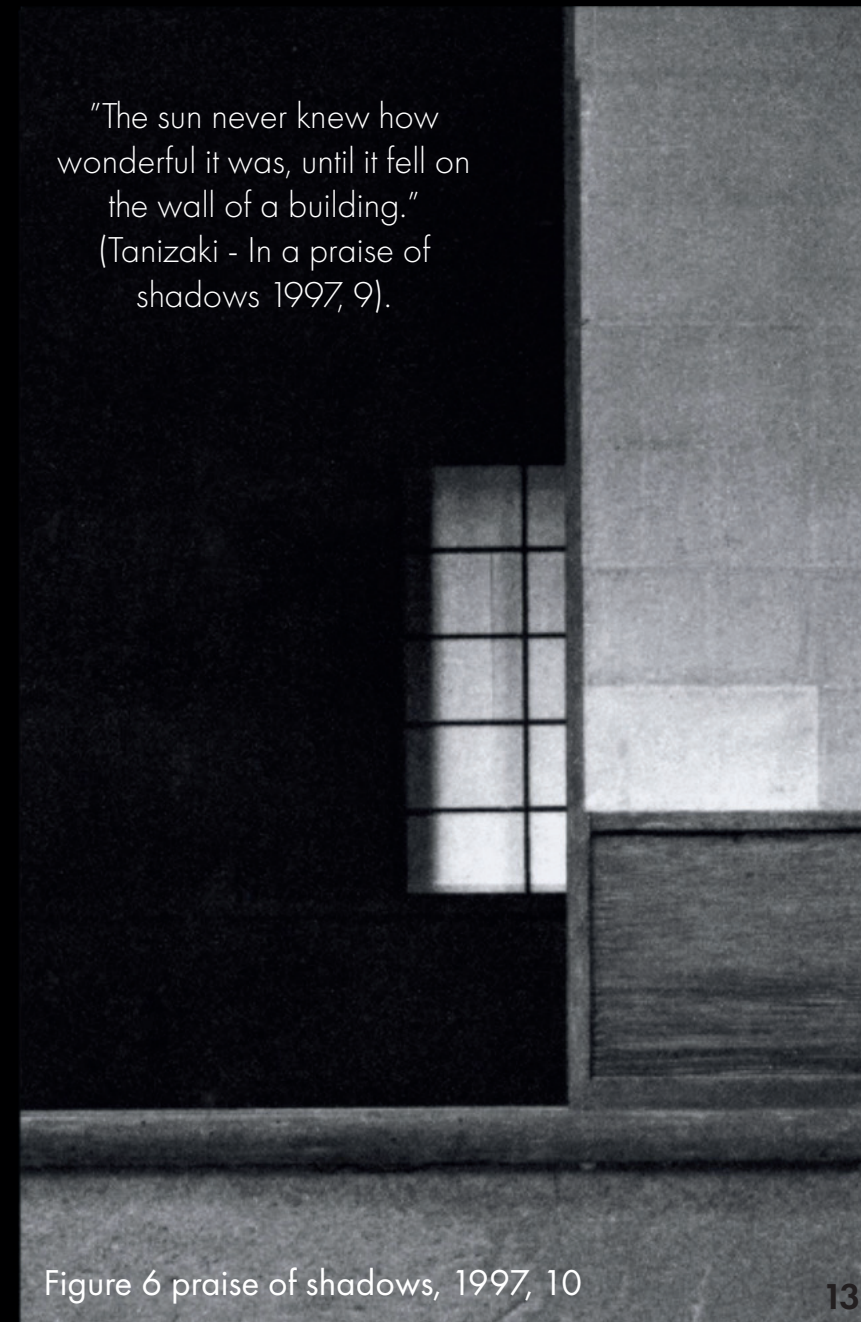
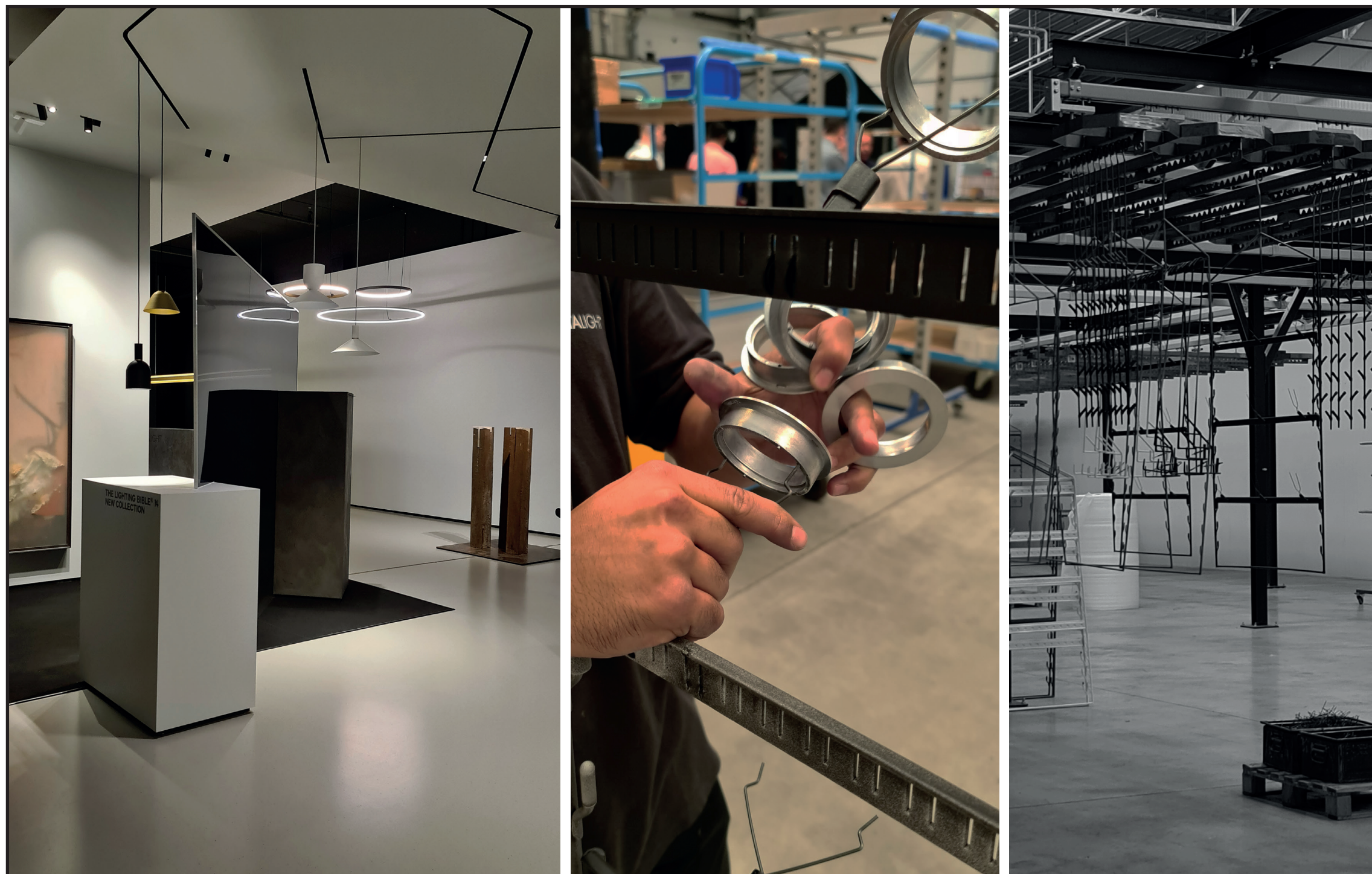


Figure 6 praise of shadows, 1997, 10

2.4 DELTA LIGHT FACTORY VISIT

It was a pleasure to be invited to the Delta light factory. My visit was an intensive introduction to understand technical product training and technological improvements. During my visit I got to see behind the scenes have a conversation engineers the and designers, too. I took part of a workshop about connecting lights in different situations. I saw how lights are made and what the process is like. The visit was also an inspiration for me to understand the newest technology and innovations. My lighting plans are based on architectural lighting solutions and I choose to work with Delta light - as It is a trendsetter in architectural lighting.



Delta light
29-31.8.2022

Founded: 1989

Headquarters:
Muizelstraat 2, 8560
Moorsele, Belgium

Figure 6: photo collage: Showroom, making of deep ringo & fresh from paint

3

COMPARATIVE ANALYSIS

- 3.1 The Prince Akatoki London
- 3.2 Four leaves, Tokyo
- 3.3 Yasuragi, Stockholm

3.1 THE PRINCE AKATOKI LONDON



Figure 7: entrance



Figure 8: bar

Figure 9: lobby

Location: England, London
Design: B3 designers
5 star luxury hotel, 82 rooms

50 Great Cumberland Place,
Marble Arch, London, W1H 7FD

Akatoki is japanese themed luxury hotel. The interiors and the concept is by B3 designers. The B3 designers have followed principles of strong design, attention to details, craftsmanship, natural and sensory elements, and wellbeing, to bring the spaces to life. They wanted to create a rising and setting atmosphere to the lighting. The hotel opened its doors in September 2019.

Akatoki key elements are indirect lighting and peaceful ambiance. It has different beams: near by decorative elements more of a arrow beam, 18° and general is roughly 36°. The light is placed on the floor, middle and ceiling levels. The rooms have maximized natural light. The rooms have lovely play with shadows and light.

3.2 FOUR LEAVES BY KIAS



Figure 10: living room



Figure 11: spa

Location: Karuizawa, Japan
 Design: Kias, 2018
 Japanese house, four leaves
 225 m²

Four leaves, Japanese theme house is designed by Kentaro Ishida (Kias). The house has an atmosphere that will surround itself within a context not just a building. Four Leaves Villa is oriented differently in order to maximize natural light and scenic views. Specially, the living and dining room has a lot of natural light not visible architectural light. One chandelier on the center as a piece of art. The architecture engage me, but the feeling is little bit cold to me, because of the lively shadow - light effects.

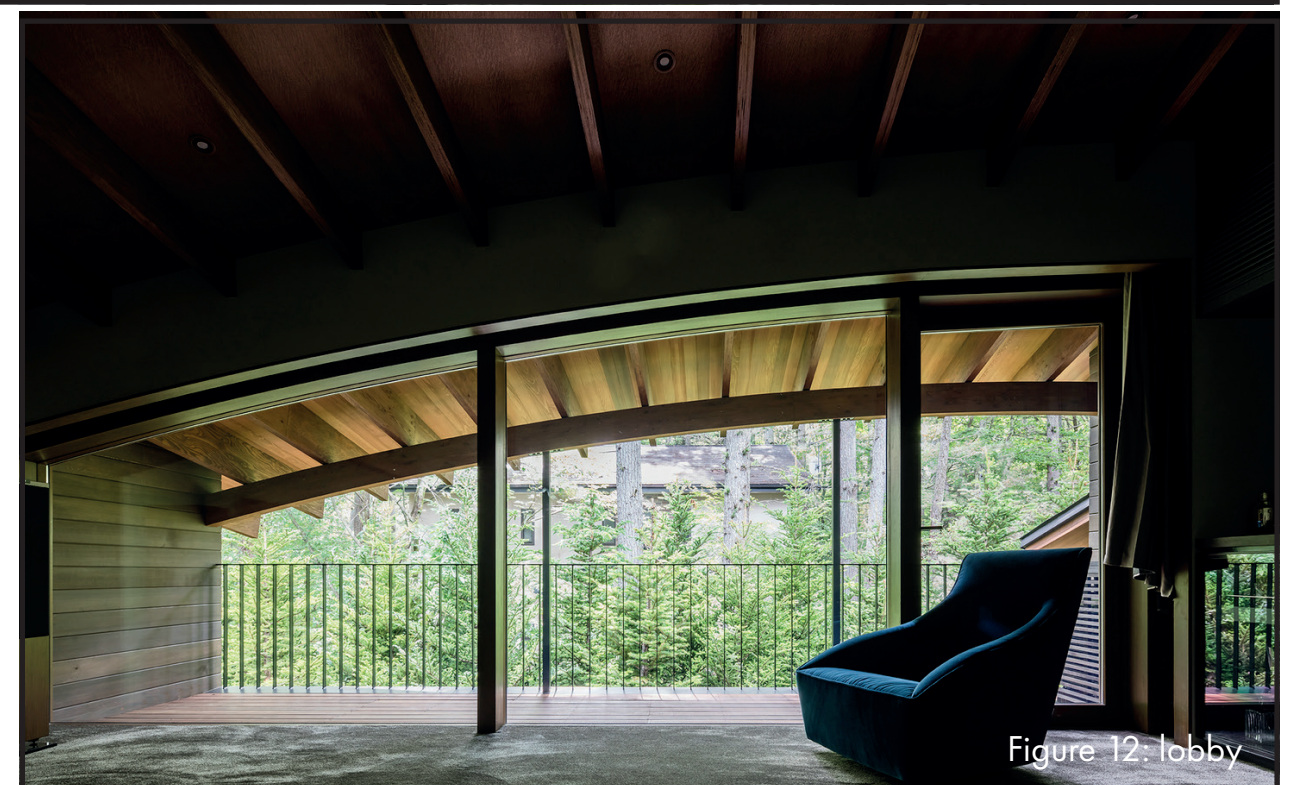


Figure 12: lobby

3.2 YASURAGI, STOCKHOLM



Figure 13: spa



Figure 14: restaurant



Figure 15: ceiling detail



Figure 16: hotel room

Location: Sweden, Stockholm

Design: DAP architects

5 star luxury hotel, 191 rooms, 5500 m2

Hamndalsvägen 8
SE-132 81 Salt lake-Boo
Stockholm

Yasuragi is a wellness and spa hotel in Sweden, 20 minute away from Stockholm. It opened the first time in 1997 and the DAP architects re-designed in 2018. Yasuragi has been nominated as the best luxury wellness hotel in Europe. (World Spa Awards). The original architecture is by the japanese architect Yoji Kasajima. The concept was clear to the DAP architects: traditions, balance, nature, contrast, enjoyment and tranquility have been the keywords the design concept. Light and transparency in the building materials have played an important role in the Yasuragi. The light is playing again with shadows. The swimming area is the heart of the architecture: the light hits beautifully on the wooden details and gives elegance to the space. This place has indirect light on walls. Recessed spots are hidden in the decorative wooden-ceiling. The hotel also has minimalistic table lamps and built in furniture, that have light in it.

4

PLANNING OBJECT

- 4.1 Location
- 4.2 Current situation
- 4.3 Observation and analysis
- 4.4 The limiting factors

4.1 LOCATION



60.1901231, 25.1389492

The Villa was built in around the 1960s. The area has only few value residencies, that are surrounded by nature and marine. These Villas have quite strict planning permissions indoors and outdoors. Kallahti is known in the nature conservation area and recreational area as it has an appealing beach on the end of the road. Mostly the nature around is pine and coniferous forest.

The name Villa Kallvik comes from the agreage name Lill-kallvik. I have marked the Villa on the left with a red spot. Protecting the privacy of customers I am keeping the extact address and location in secrecy. I am allowed to share some images and floorplans.

Kallahti	Helsinki	1960s	2 floors, 317m2
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4.2 CURRENT SITUATION



Figure 17: view to bedroom



Figure 18: terrace and merine view



Figure 19: living room at the moment

4.3 OBSERVATION AND ANALYSIS

Current situation

At the moment everything has been dismantled except the bearing wall structures. Some big changes are made to the floor plans: the location of the stairs will be completely changed the spa area will be expanded and lowered down, rooms will have more space too.

Materials & colors

In my plans I also take keen note in the materials and colors. The theme is following up Japanese style, a very minimalistic and aesthetics habitus. The ceiling will be mainly oak but the spa area will have a slatted ceiling. The colors are naturalistic.

Natural light and lights

This Villa has windows only on the sea-side facade. This makes some of the rooms slightly dark. Also we have to remember our polar light during winter time. As the customers are antique lovers, some of the lights will be vintage that have patina. Architectural lightning that I do for the Villa will also have vintage character and high specifications.

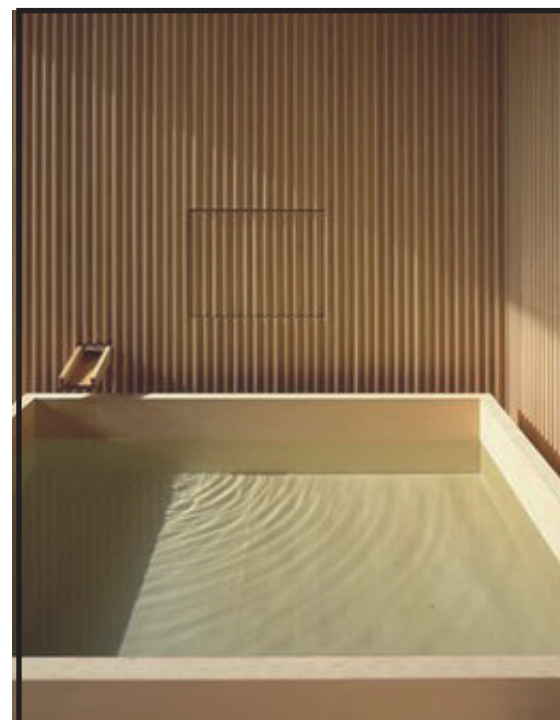


Figure 20: photo collage: Inspiration pictures of the Interior designer
© Agnus Reid Projects.

4.4 THE LIMITING FACTORS

I have a few limiting factors which naturally effect or limit my work. At this concept of lighting design is made for real customers so they need to be listened. In their choices they don't want light that is visible, light should be limited and as small as possible. They are looking for kind of twilight space. The aesthetics look is more important for customers. I need to take care about the volume of lights as only one facade has natural light coming in. The recessed depth has also a limitation: some parts of it are less than 50 mm.

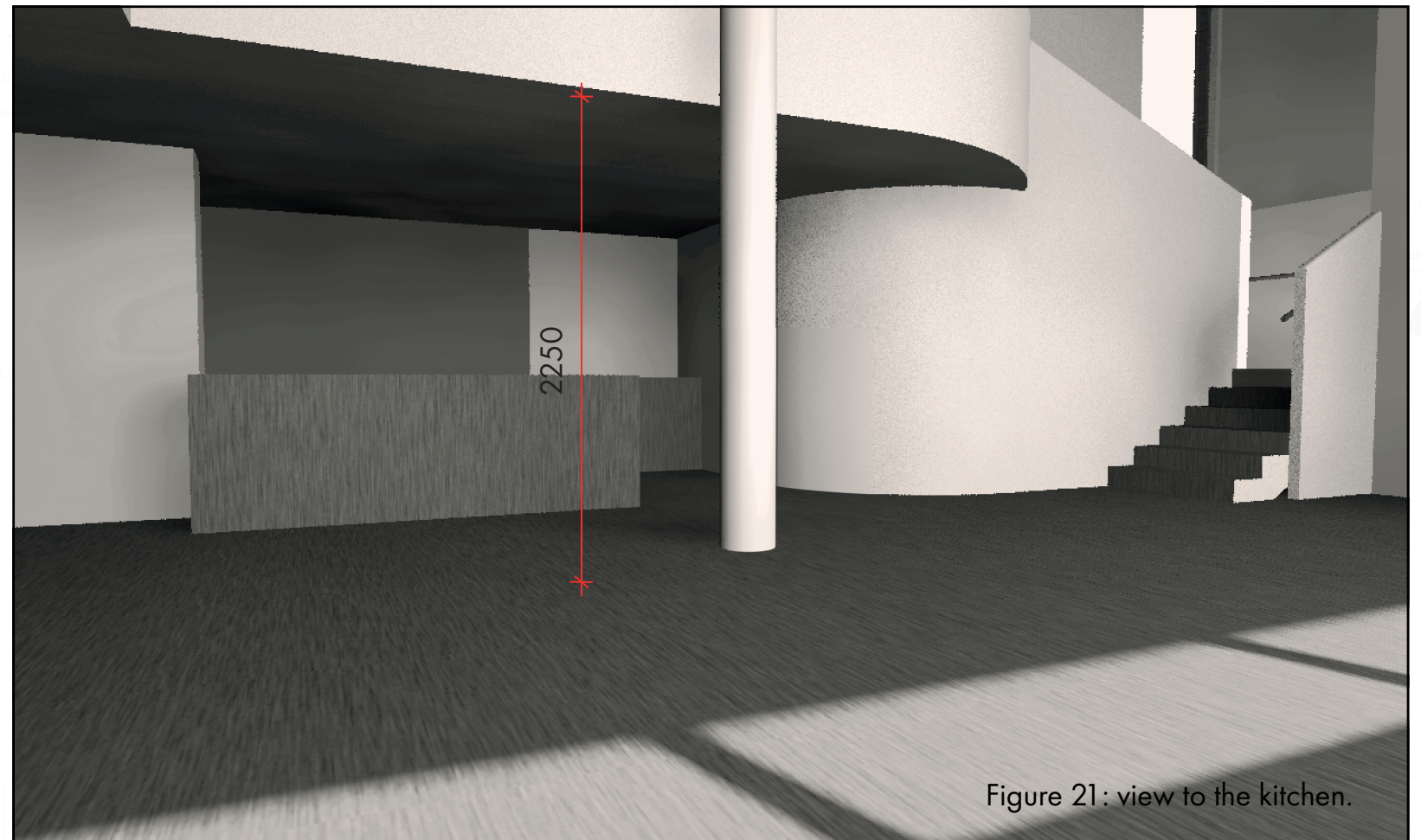


Figure 21 : view to the kitchen.

5

DESIGN PROCESS

- 5.1 Concept
- 5.2 The needs of lighting
- 5.3 Ideation and sketching of solutions

5.1 CONCEPT

This project follow the theme of japanese, since the Villa takes inspiration by japanese interior and architecture. My lighting plans are also "lighting design" as I am working with biodynamic lighting unites as part of a communicative and participatory work of art. My work follow stongly japanese architecture. All the lights are part of architecture and the the goal is to get hidden lighting solutions. The lighting plans will create layers using recessed lights in various heights and to add indirect lighting. Each layer has responsible that the amount and quality of the light is suitable for making tasks of purpose. In my plans I chose to work with Delta Light as it is the leader in architectural light solutions.

Architectural lighting Hidden lighting Japanese theme

How?

Using the methods in precept in lighting design.

DIMENSION OPEN

LIGHT & SHADOW

DEPTH EFFECT

SPACIAL



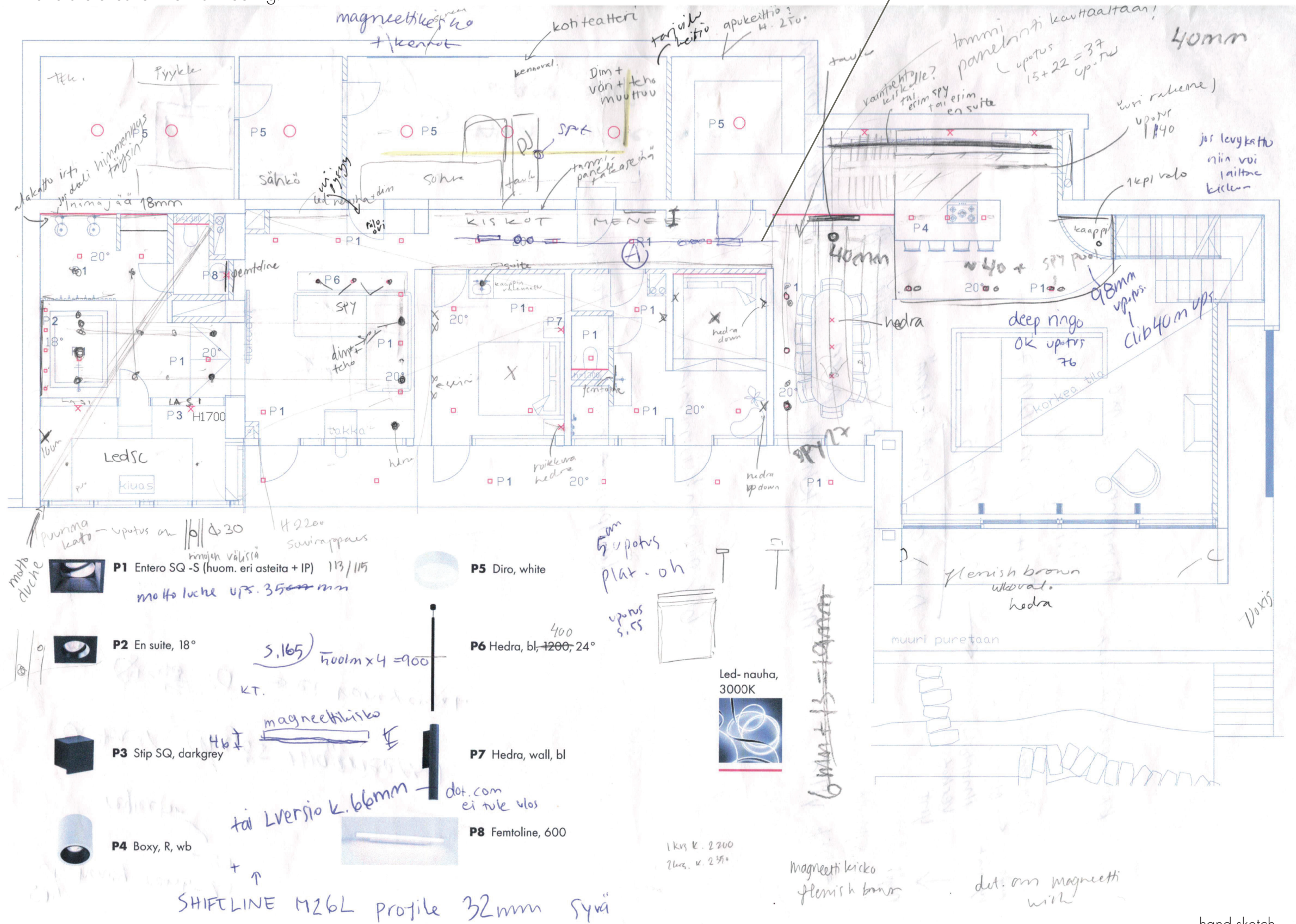
Figure 22: praise of shadows, 1997, 80

5.2 THE NEED OF LIGHTING

HALL	LIVING ROOMS	KITCHEN	HOME THEATER
<p>facade has't windows limited natural light</p> <p>enough light to perform the tasks</p> <p>ceiling: oak wooden</p>	<p>huge windows until the ceiling, h 5m</p> <p>natural light overflowing from the windows</p> <p>high space need narrow beams and enough lux in surfaces</p> <p>ceiling: oak wooden</p>	<p>almost non-natural light</p> <p>low space, need to take care of glares</p> <p>enough light to perform the tasks, specially in surfaces</p>	<p>non -natural light</p> <p>create non glares space with enought ligh if needed, - a sufficiently atmospheric space</p> <p>dark colors</p>
FIREPLACE ROOM	STORAGE	BATHROOMS	SPA
<p>natural light coming, fireplace is a ligh as well</p> <p>lyrical space</p>	<p>enough light to perform the tasks</p> <p>rather too much lumen ouput coming</p>	<p>enough light to perform the tasks - make up ligh too</p> <p>IP 44 rated space</p> <p>need to take care of glares</p>	<p>enough light to perform the tasks - make up ligh too</p> <p>IP 44 rated space</p> <p>need to take care of glares</p> <p>slatted ceiling - how to hide light, feeling: harmonious + dark</p>

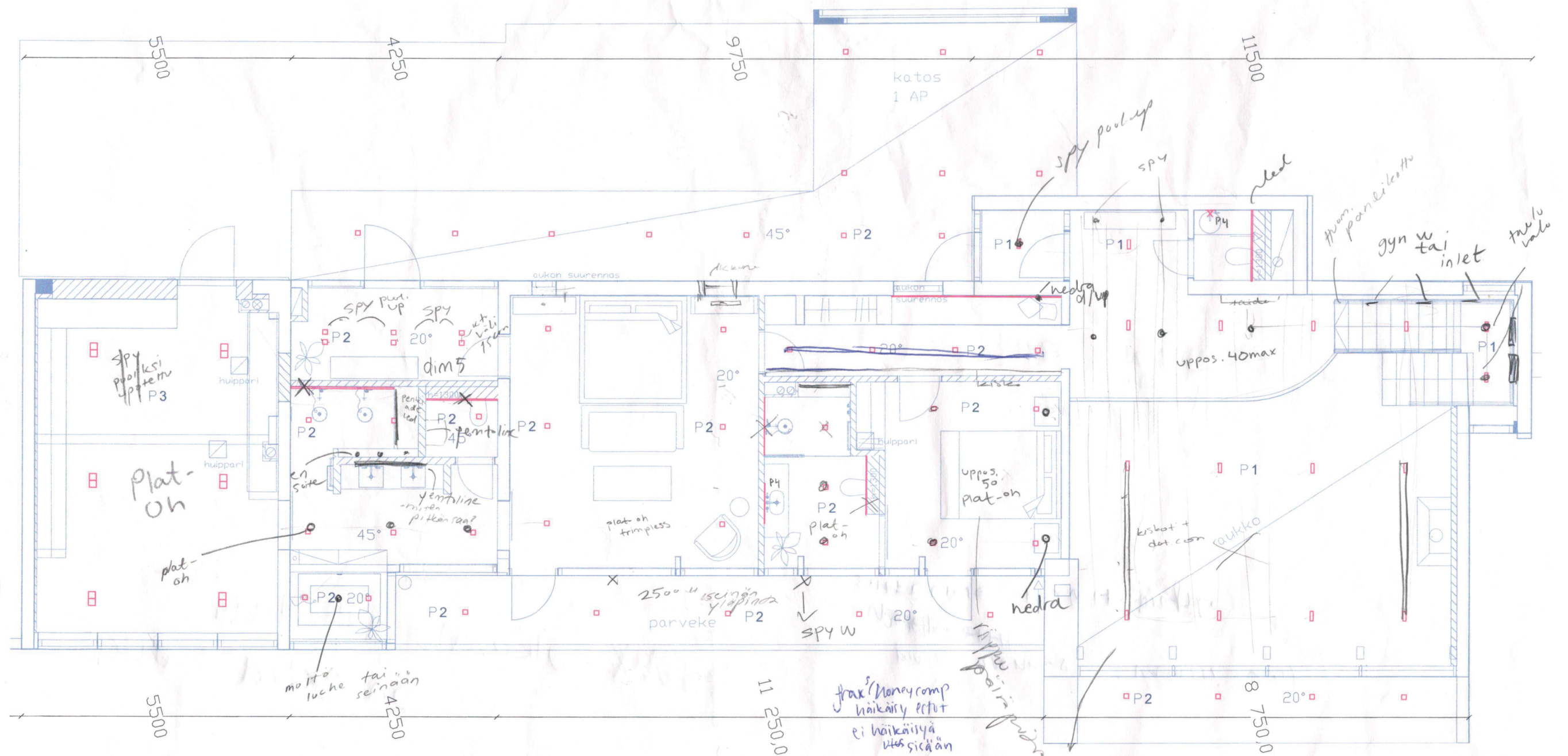
5.3 IDEATION AND SKETCHING OF SOLUTIONS

Hand sketches for the first meeting.



hand sketch
17.6.2022 1st floor
Villa Kallvik

Hand sketches for the first meeting.



P1 Dot.com, M4; trimless



P4 Femtoline, 600



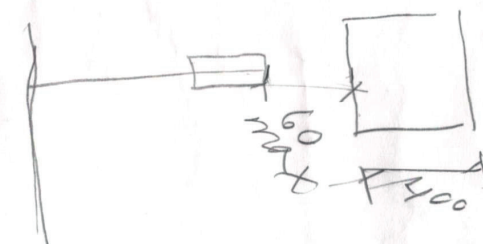
P2 Entero (huom. asteet ja IP)



P3 Boxy, L kaksiosainen



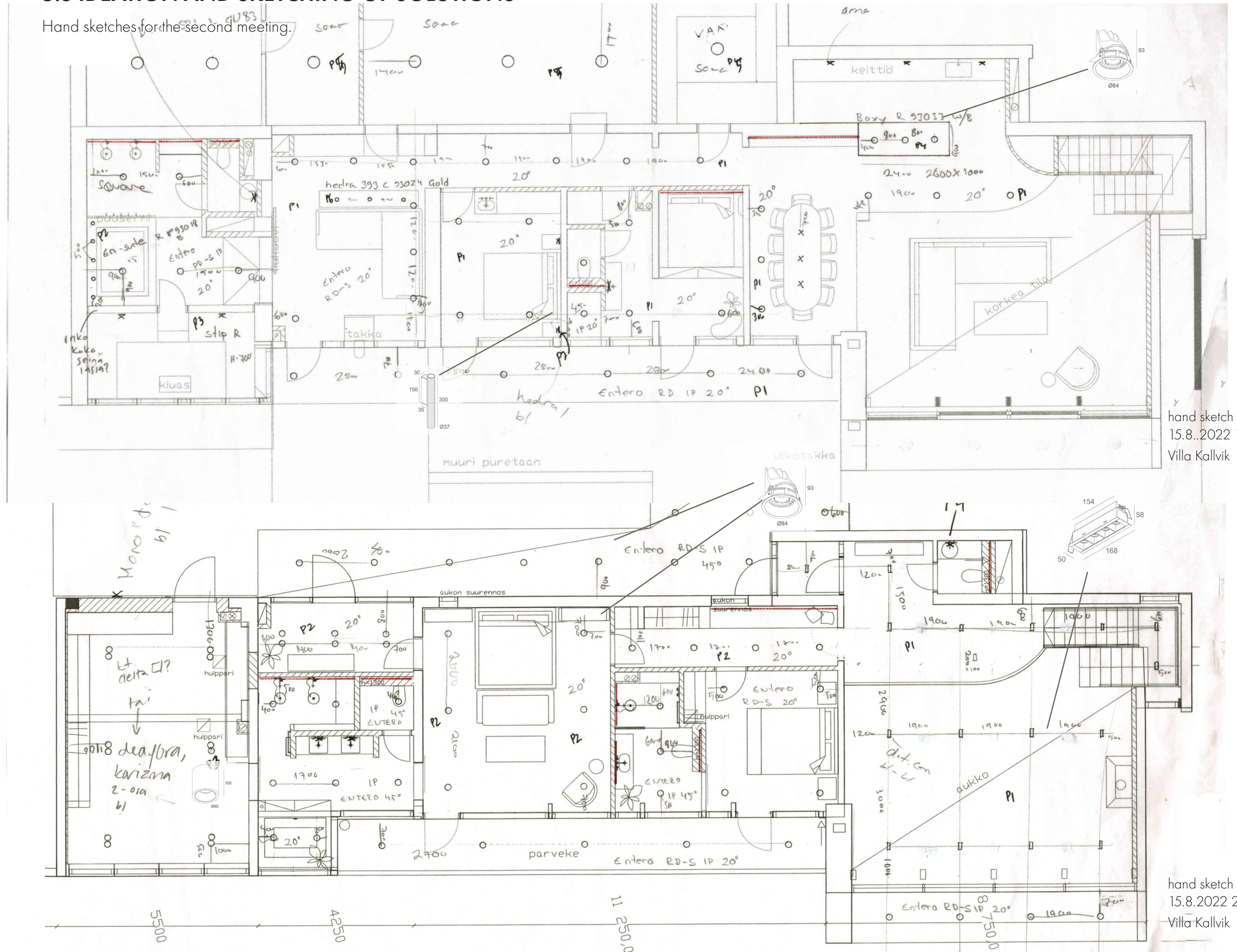
Led nauha, 3000K



hand sketch
17.6.2nd floor
Villa Kallvik

5.3 IDEATION AND SKETCHING OF SOLUTIONS

Hand sketches for the second meeting.



hand sketch
15.8.2022 1st floor
Villa Kallvik

hand sketch
15.8.2022 2nd floor
Villa Kallvik

6

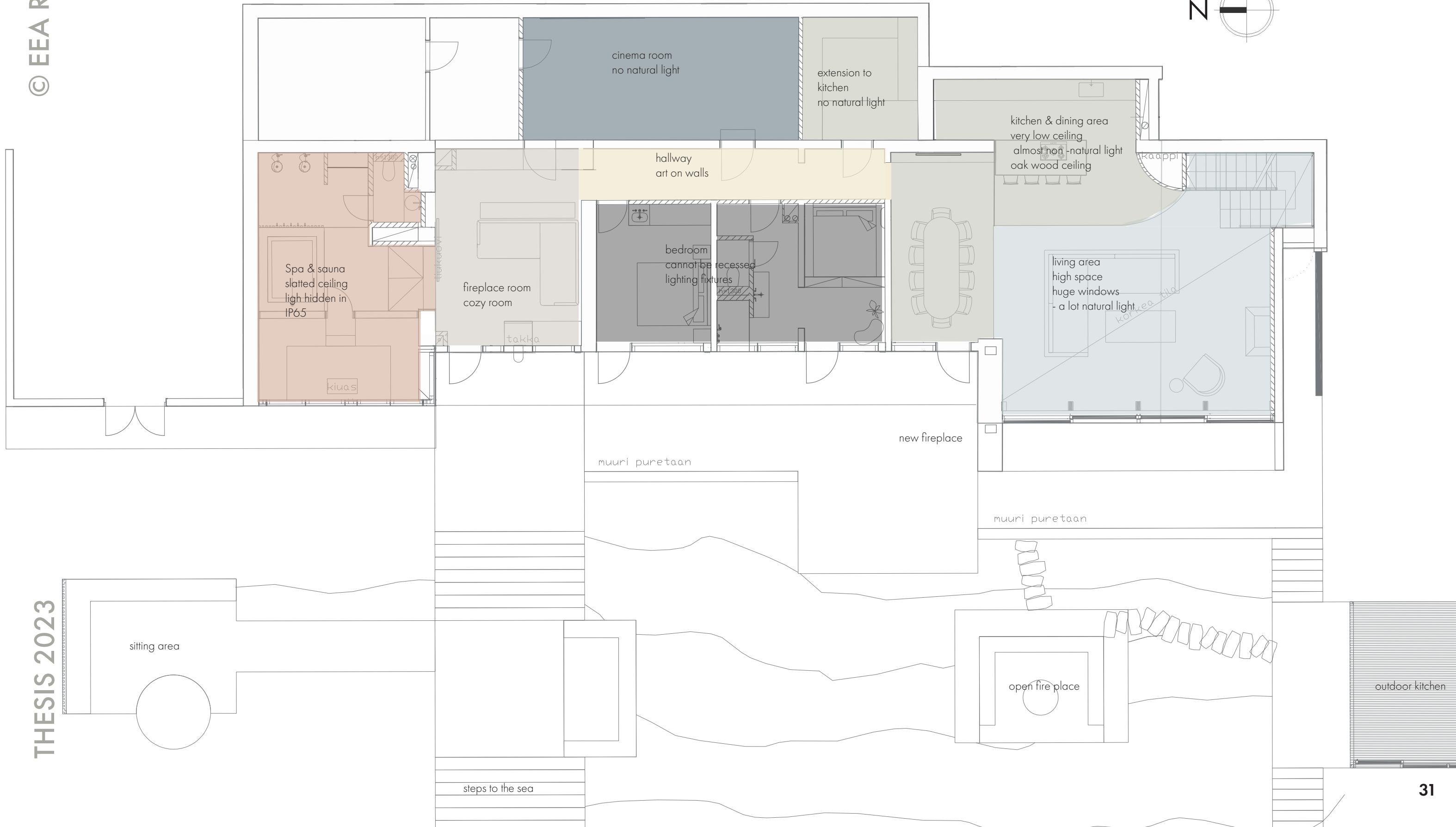
THE PLAN

- 6.1 Breakdown in the floor plan
- 6.2 Section
- 6.3 Light in space
- 6.4 Axonometric drawing
- 6.5 Tunable white
- 6.6 Dot.com
- 6.7 Hidden in slatted ceiling
- 6.8 Lighting plans

6.1 BREAKDOWN IN THE FLOOR PLAN

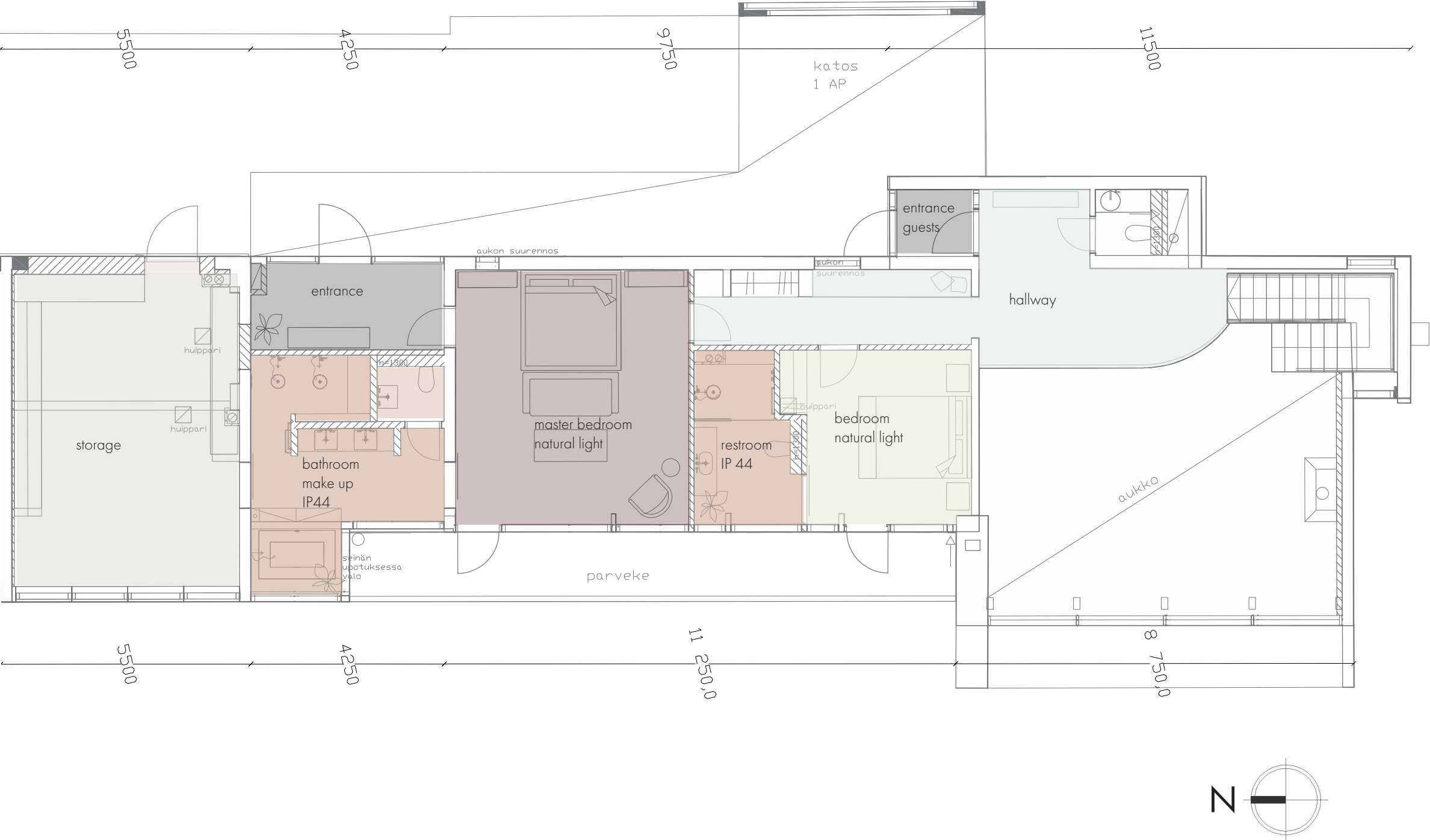
FIRST FLOOR, VILLA KALLVIK

1:100



6.1 BREAKDOWN IN THE FLOOR PLAN

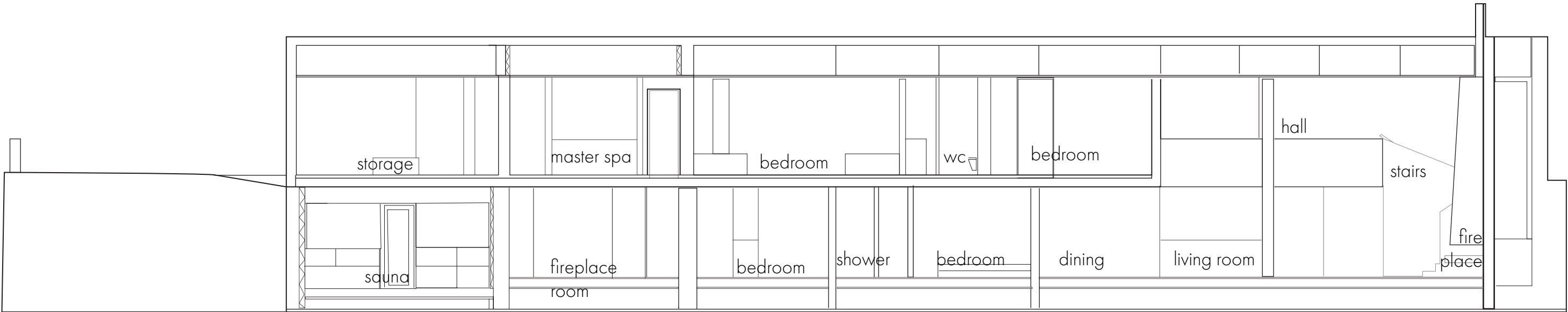
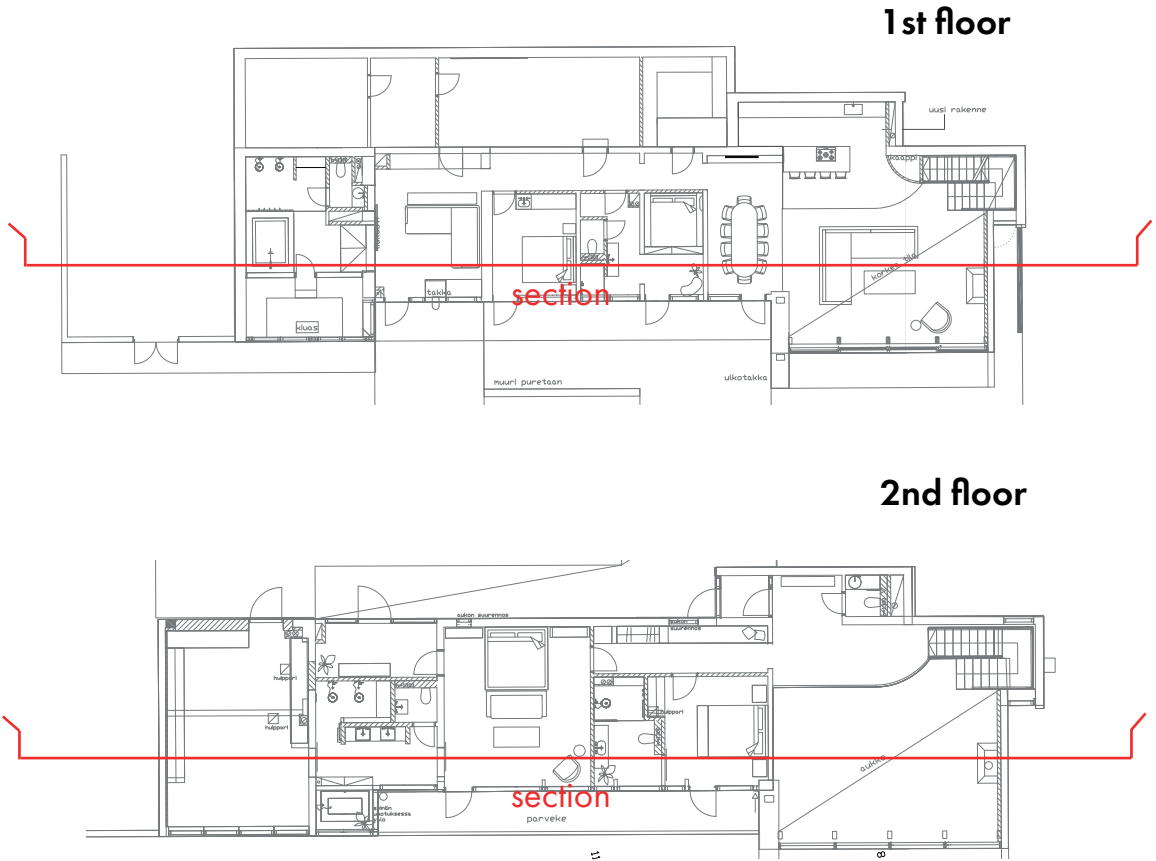
SECOND FLOOR, VILLA KALLVIK
1:100



6.2 SECTION AND LAYERS



Photo collage 23: Delta Light
Light demonstration.

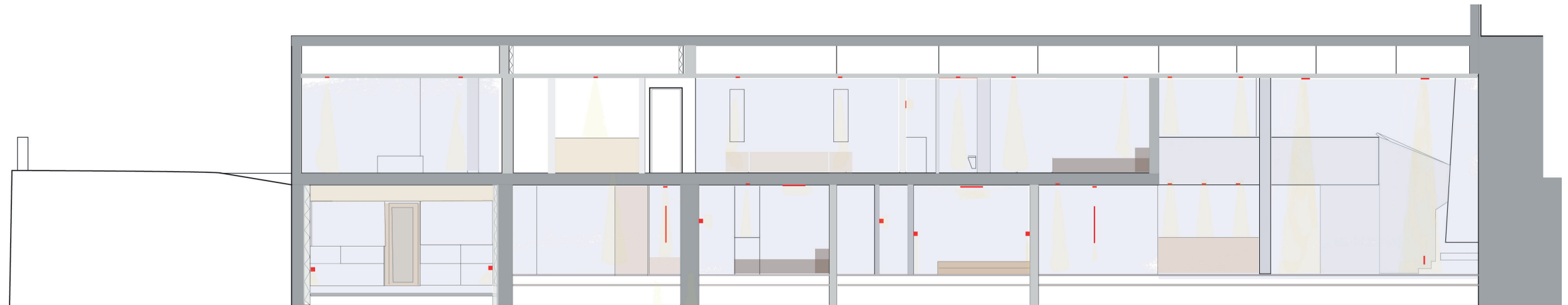


Section from West
1:100
Villa Kallvik

6.3 LIGHT IN SPACE



Morning | 7 AM | June, 21



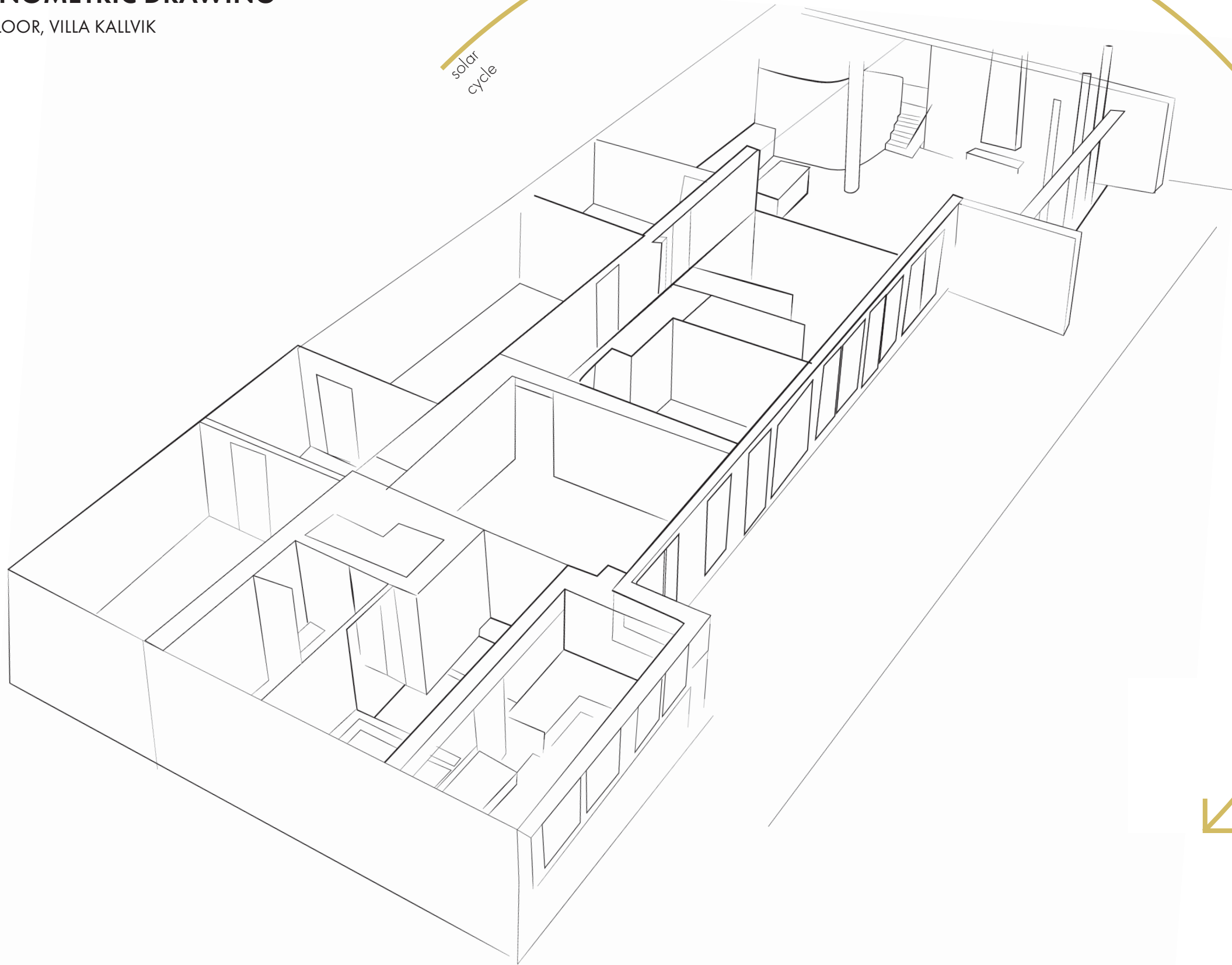
Evening | 19 PM | June, 21



Section from West
Villa Kallvik

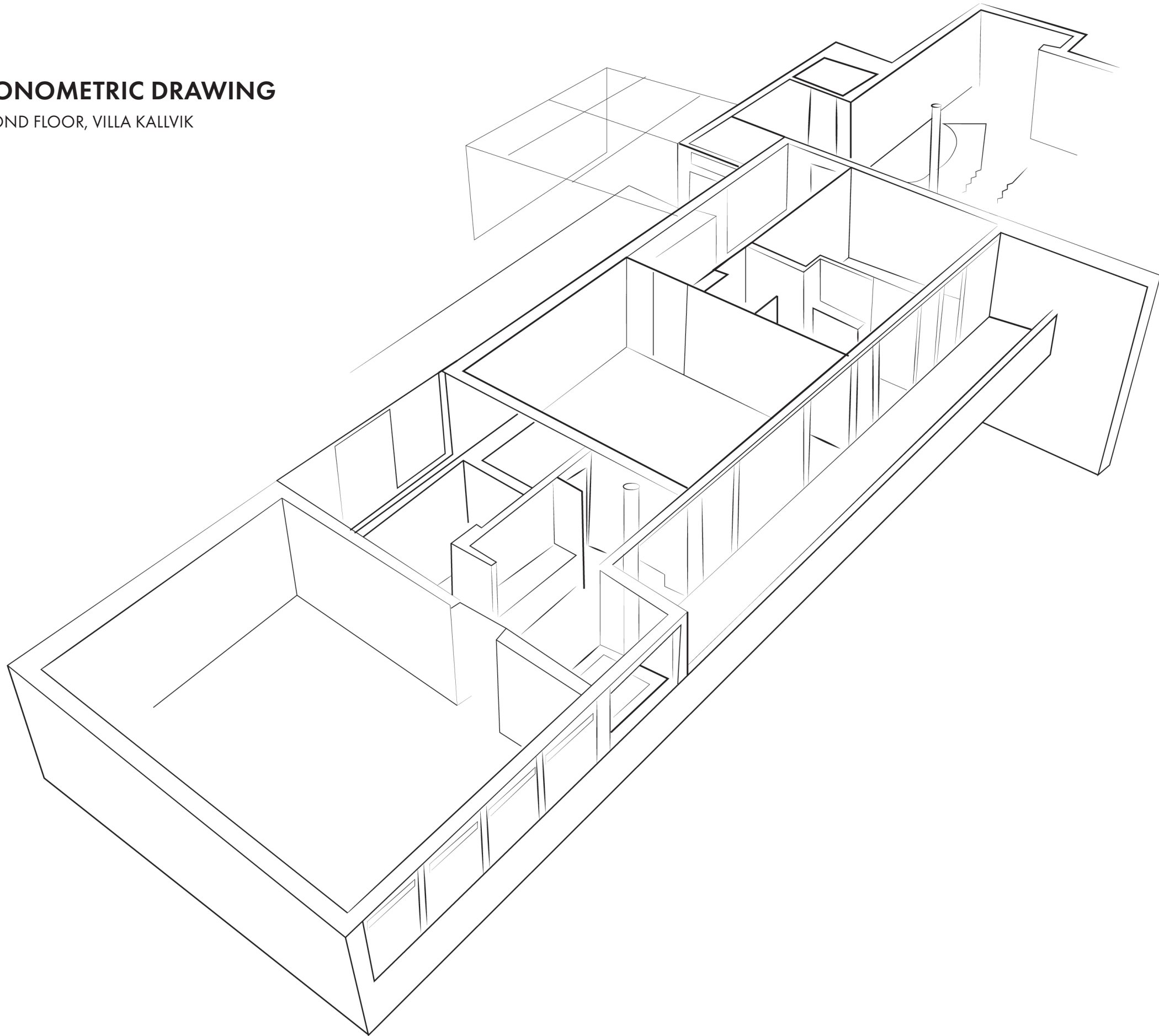
6.4 AXONOMETRIC DRAWING

FIRST FLOOR, VILLA KALLVIK



6.4 AXONOMETRIC DRAWING

SECOND FLOOR, VILLA KALLVIK



6.5 TUNABLE WHITE

An adjustable white light solution. What's the mood?



Create moods by changing the warmth of the light.

Tunable white is an adjustable white light solution. Intelligent drivers for the LED technology confer the changes of the temperature from 1800K to over 6500K. This is called next generations lighting solutions. Different moods can be created with lighting, which can be changed depending on the time of the day. The same space can be atmospheric and relaxing, and in an instant it can be transformed into a bright working space full of energy. In Delta light range the one I am using in this plan is 1800K to 4000K.

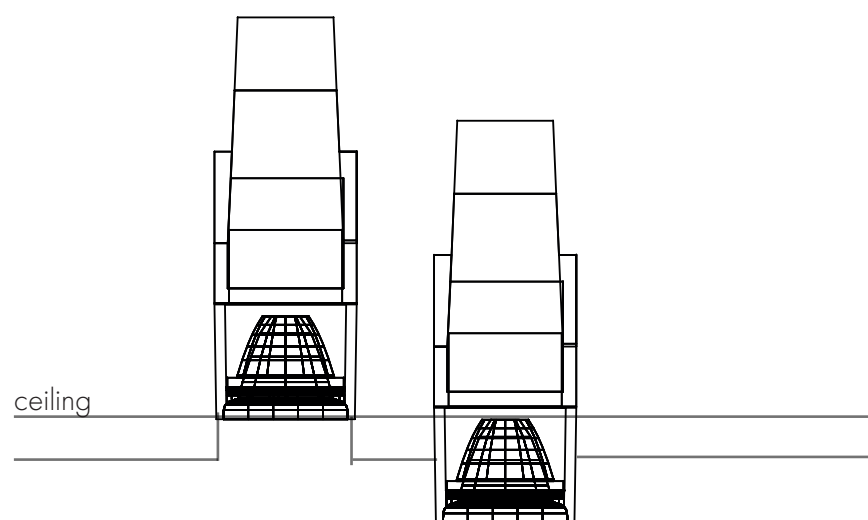
6.6 INNOVATION: DOT.COM

Innovative lighting solution in living areas and hallway.

Dot.com is utterly functional and performant with high light settings. The luminaire itself is untiglare and elegant, almost visible as it is so small. The trimless solution could be placed in two positions: completely into the ceiling or semi-recessed.

As the ceiling is oak wood, trimless is almost impossible to use. In my plans the ceiling will have trimless dot.com that is fixed in the ceiling using semi-recessed fixation. The light is staying in the ceiling as the mounting kit is fixed in ceiling structure before the oak slabs.

Two positions



6.7 INNOVATION: HIDDEN IN SLATTED CEILING

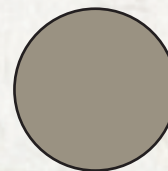
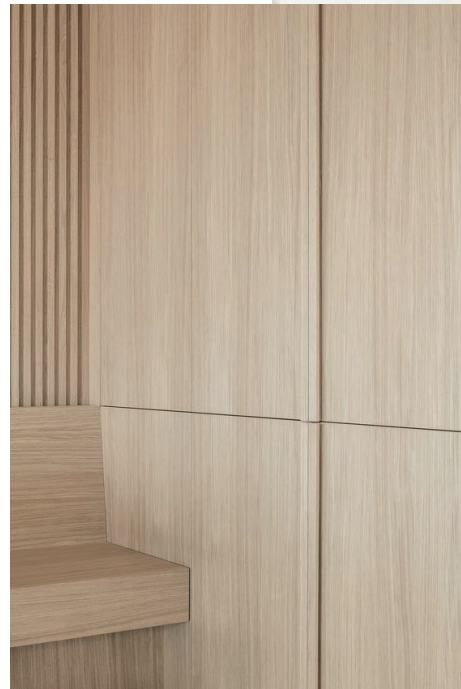
The spa have slatted ceiling. In Japanese architecture the lights are often hidden in the roof structures, in spa I am using that idea and the lights are invisible to the eye but makes the space vivid.



Figure 25: visualization in spa.

6.8 LIGHTING PLANS

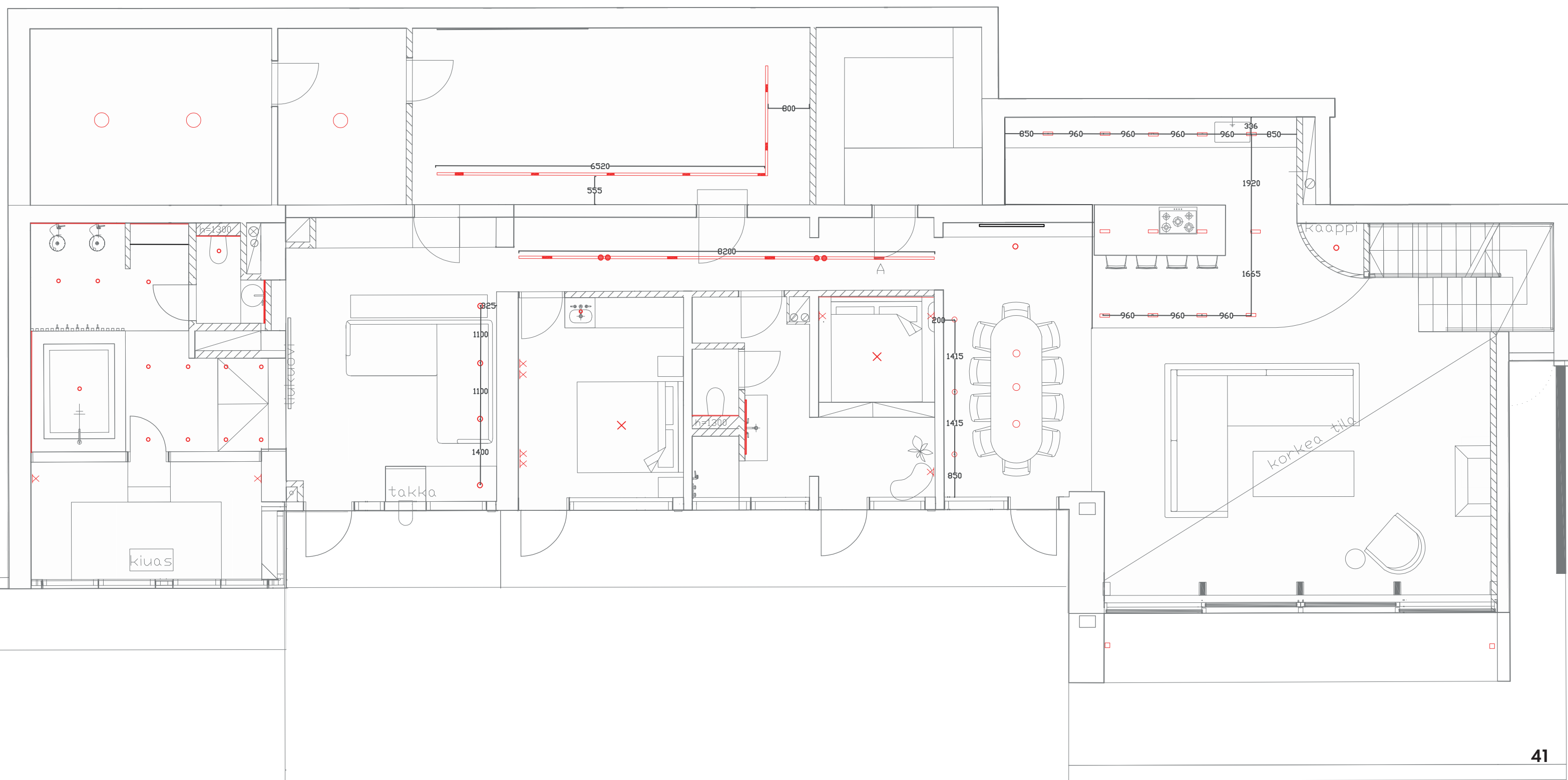
MATERIAL MOODBOARD



6.8 LIGHTING PLANS

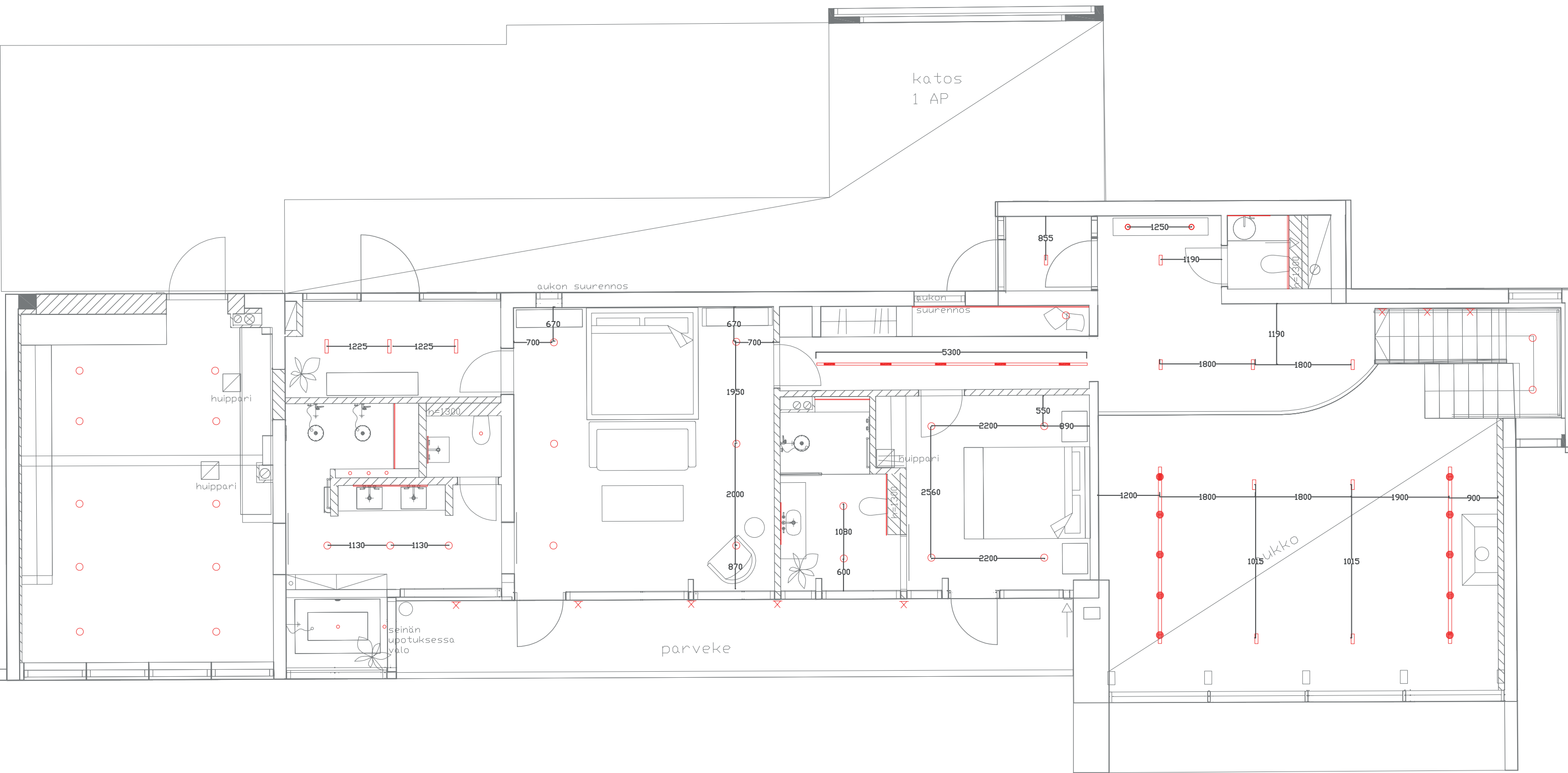
Villa Kallvik | 4.2.2023 | Lighting plans first floor | 1:75 |

Here I introduce the final plans room by room.



6.8 LIGHTING PLANS

Villa Kallvik | 4.2.2023 | Lighting plans second floor | 1:75 |

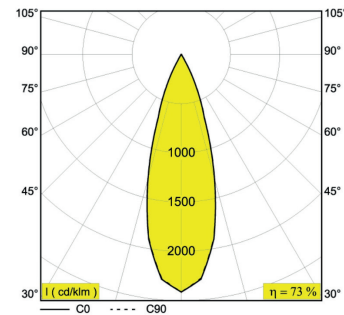




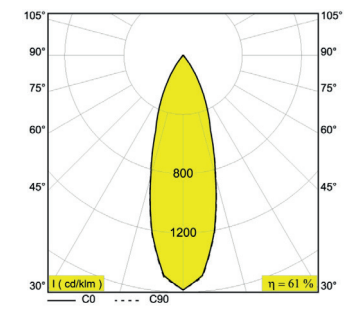
View to the living area.

6.8 LIGHTING PLANS

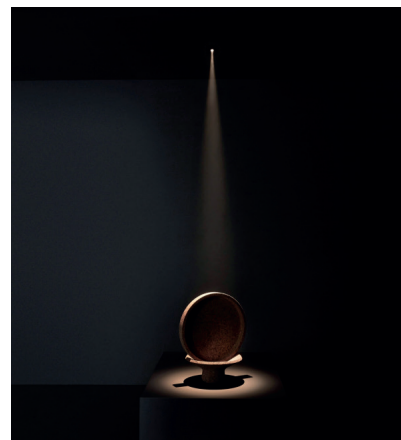
Plans by room, 1st floor
Kitchen / dining



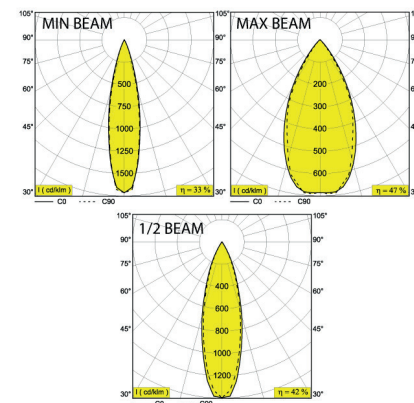
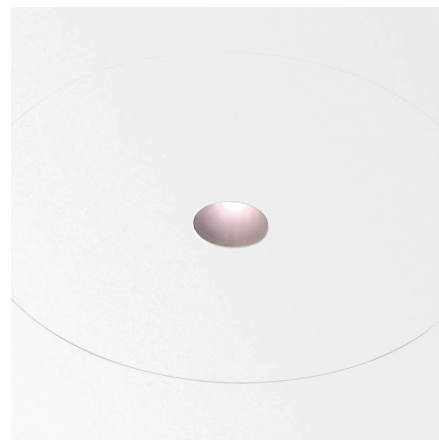
P1 Dot.com trimless,
32°, Black



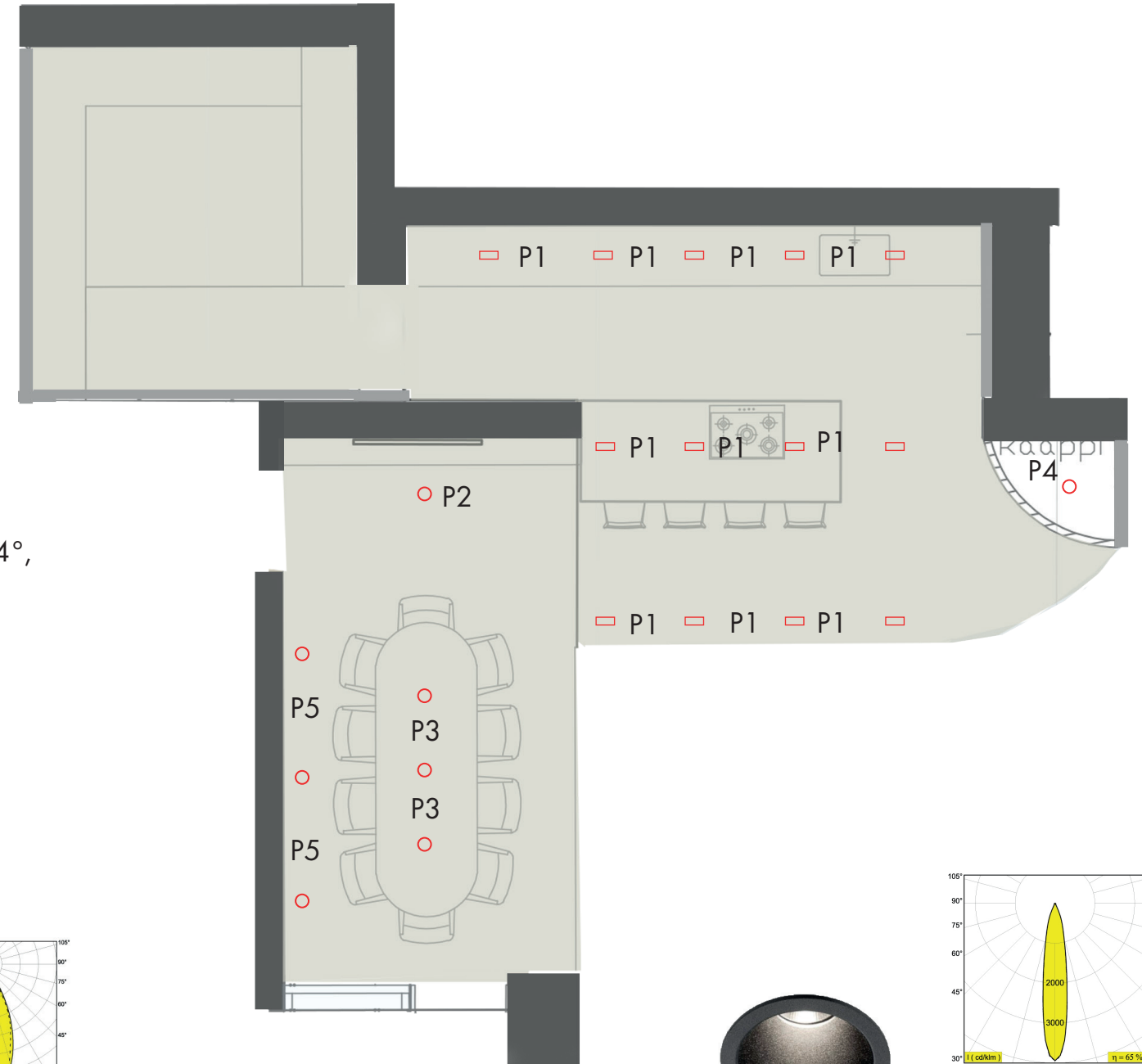
P2 Spy 27, 30°,
flemish brown



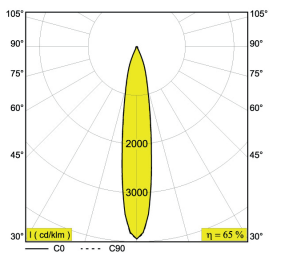
P5 Nime, adjustable beam,
20°-50°



P3 Hedra 400, 24°,
flemish brown



P4 Mini deep ringo, flemish
brown, 18 °

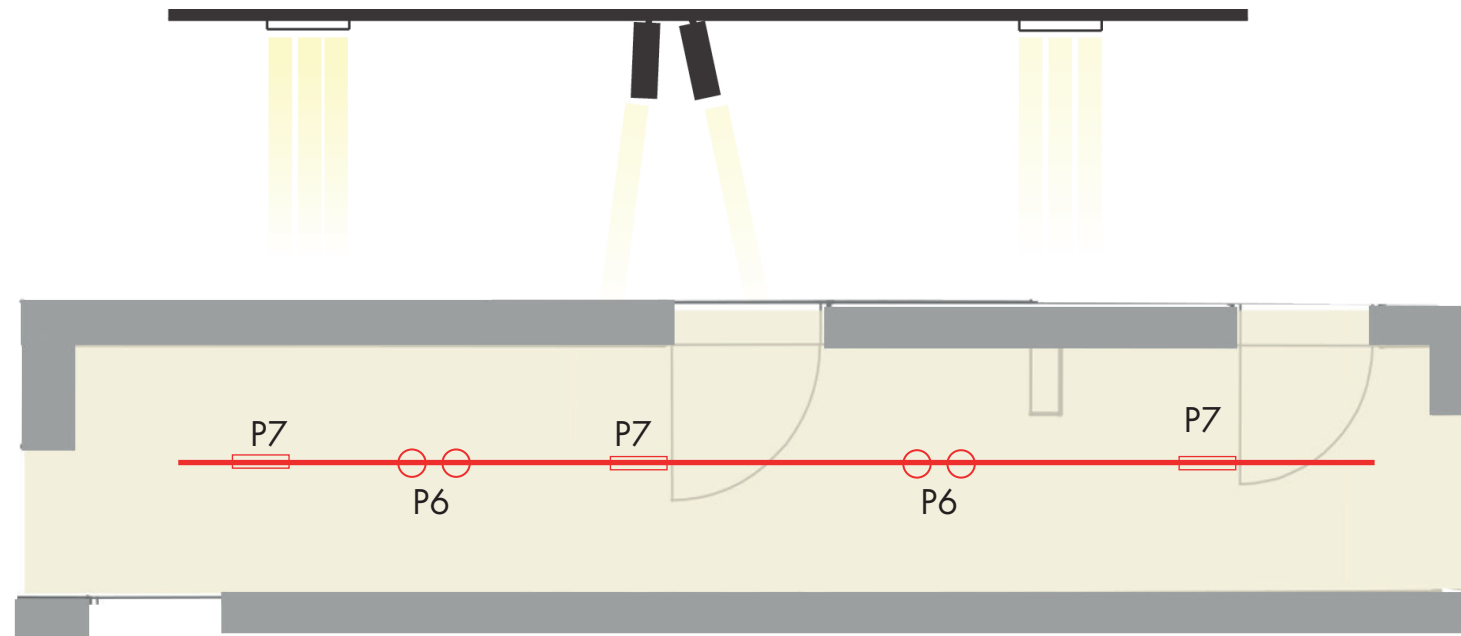




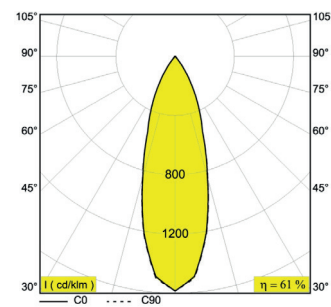
View to the kitchen.

6.8 LIGHTING PLANS

Plans by room, 1st floor
Hallway



In magnetic track 2 times 1.



P6 Spy 27 in magnetic, 30°,
flemish brown



P7 Jum-oh! in magnetic,
32°, black

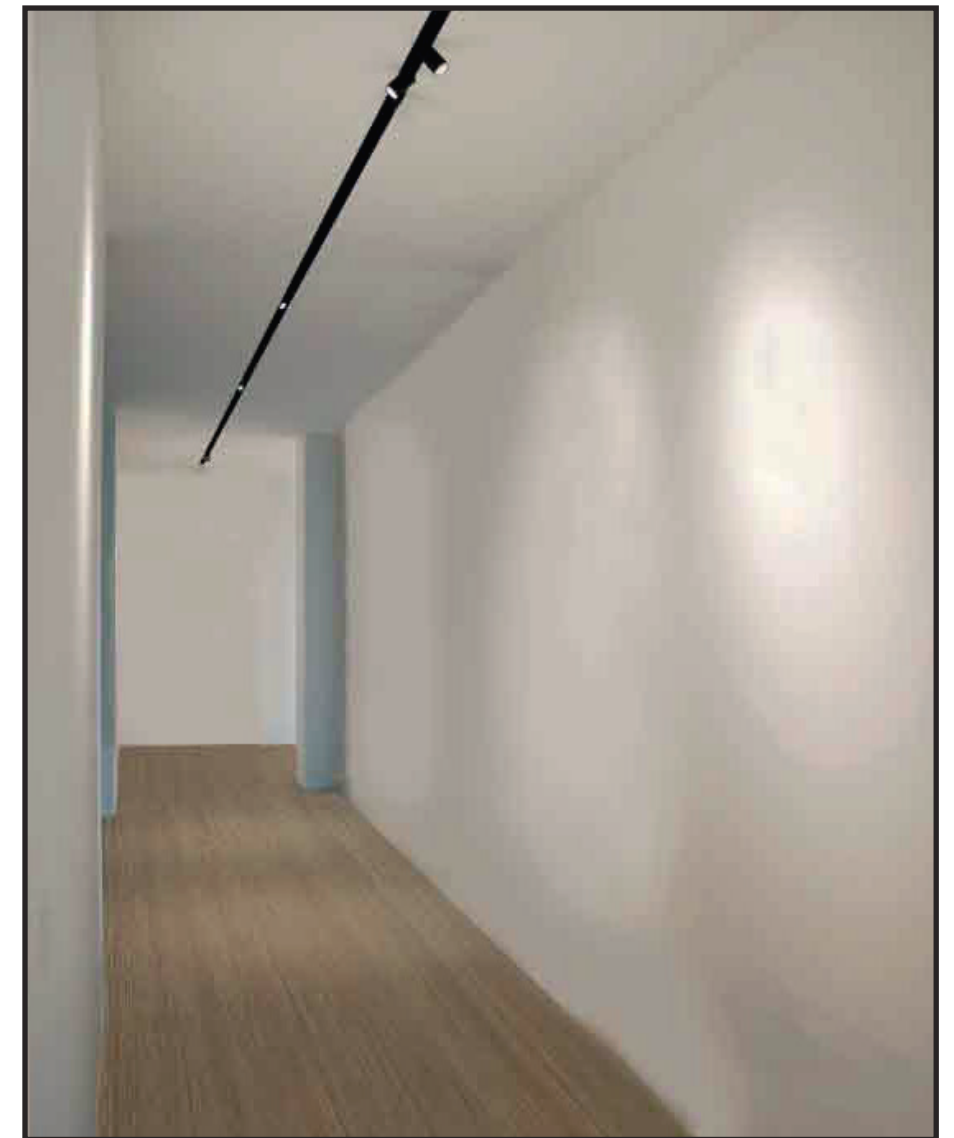
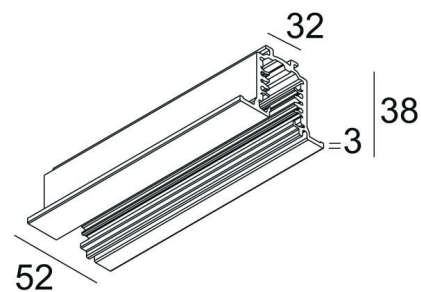
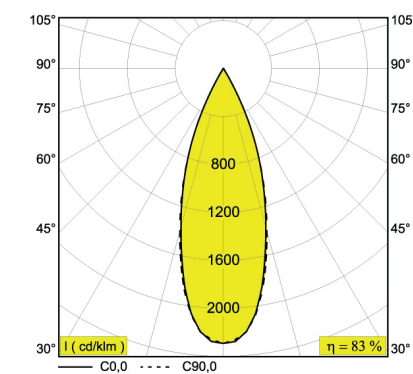


Figure 27: View to hallway

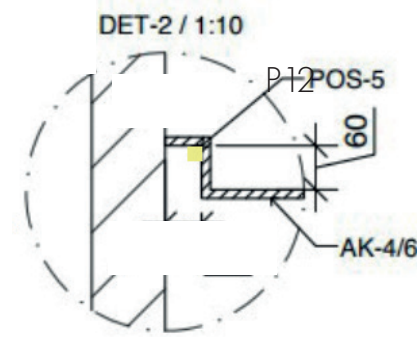
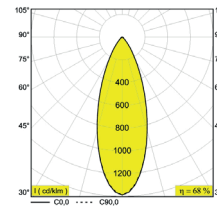


6.8 LIGHTING PLANS

Plans by room, 1st floor
Guest bedrooms



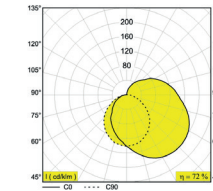
P8 plat oh!,
36°, black



P12 SL7 ledstripe,
3000K



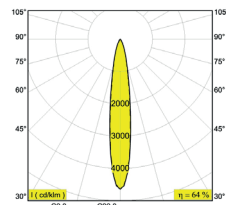
P13 Fentoline TP wall,
3000K



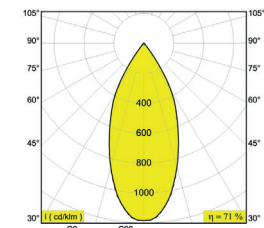
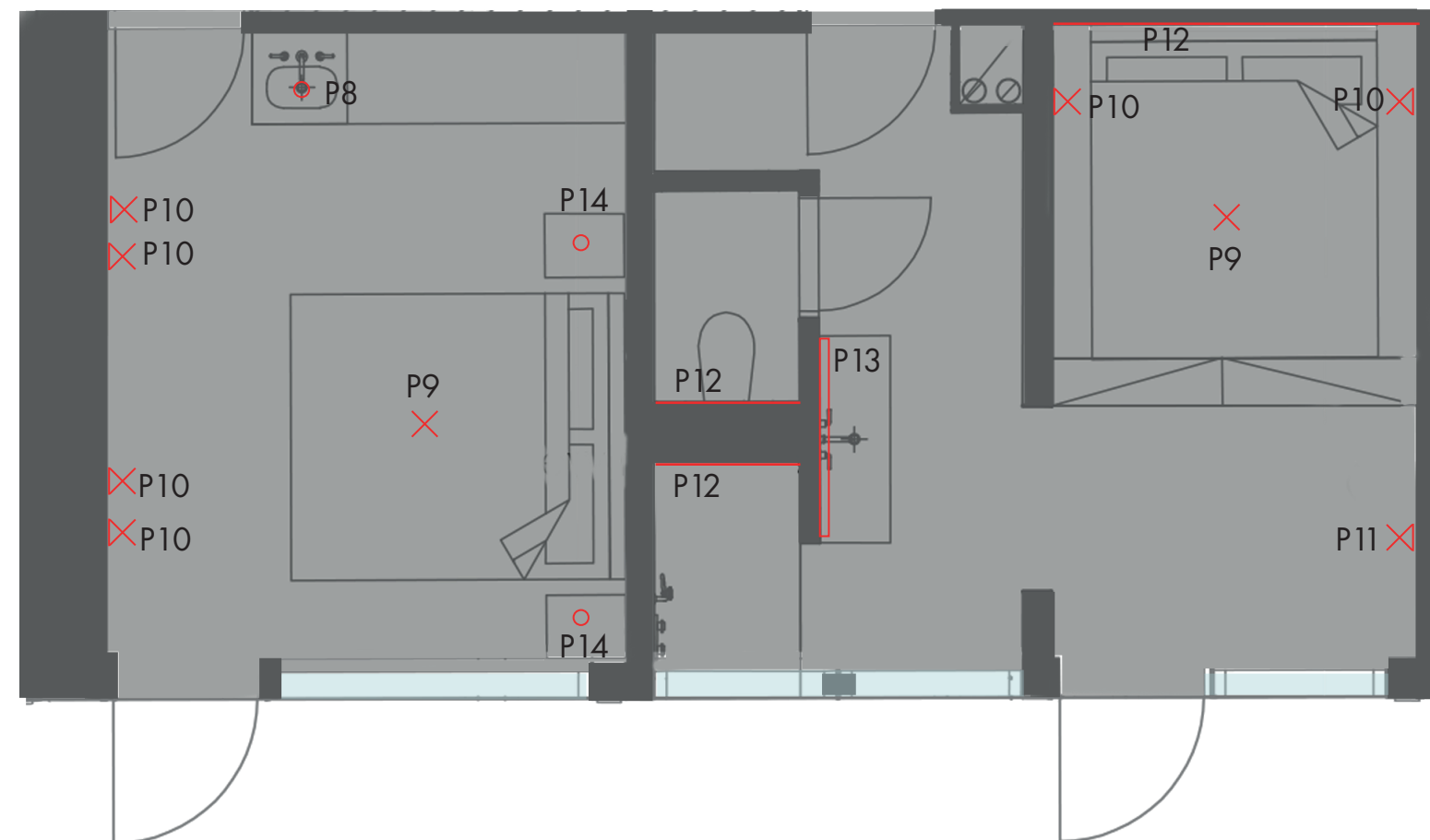
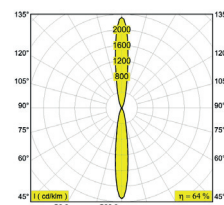
P14 Hedra 400, 45 °
flemish brown



P10 Hedra, down,
flemish brown, 12°

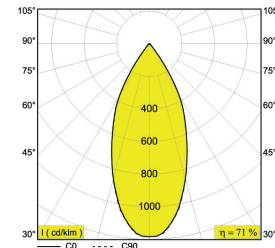
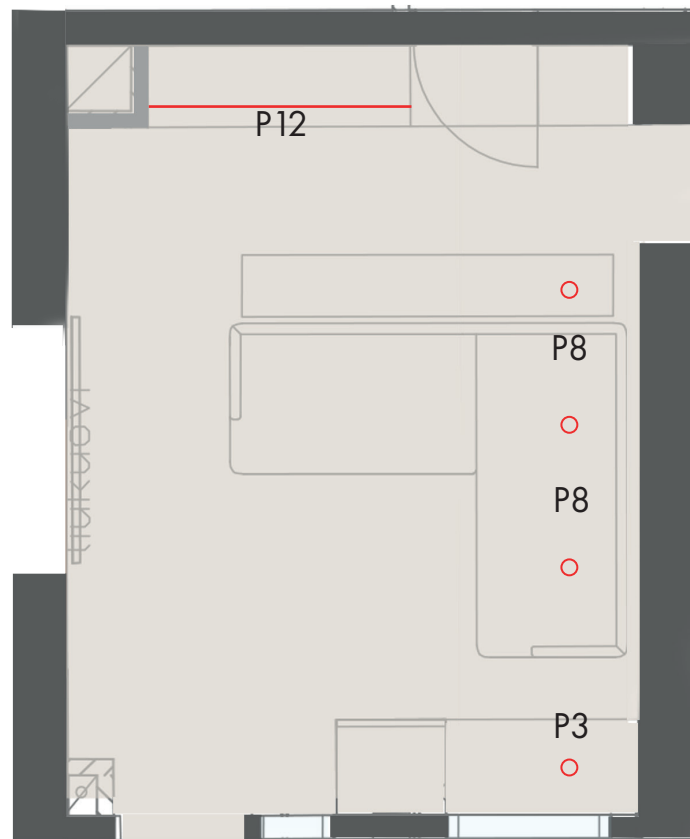


P11 Hedra, down/ up,
flemish brown, 12°

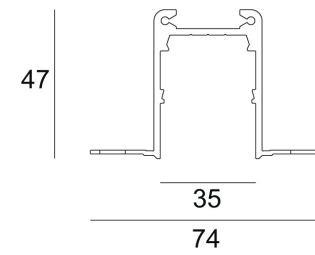
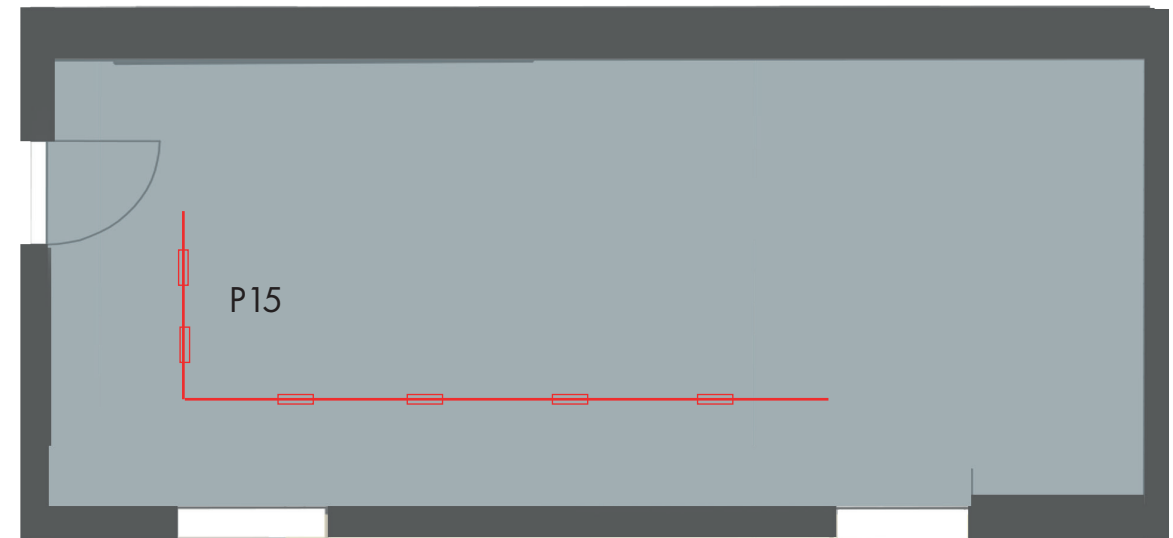


6.8 LIGHTING PLANS

Plans by room, 1st floor
Fireplace room & Cinema room



P3 Hedra 600, 45°,
flemish brown

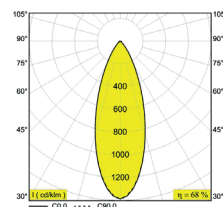


P15 dot.com in
magnetic track
(recessed)

Dot.com, black, 32 °



P8 Plat oh!, black,
36 °

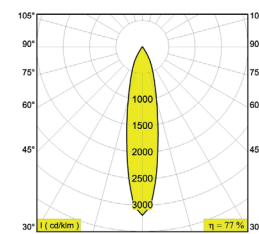
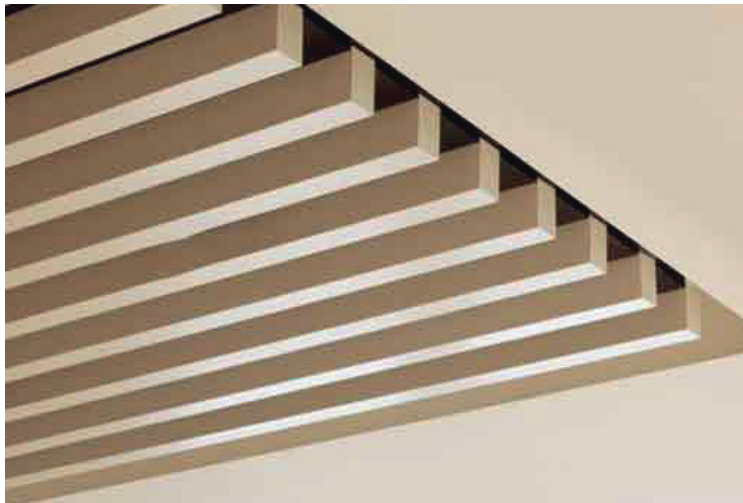


P12 SL7
ledstripe,
3000K

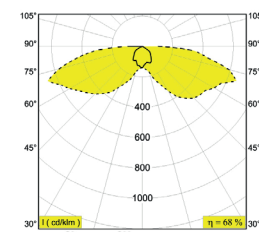


6.8 LIGHTING PLANS

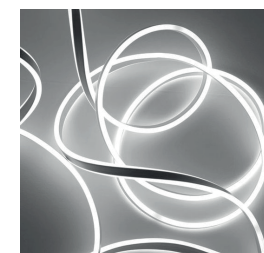
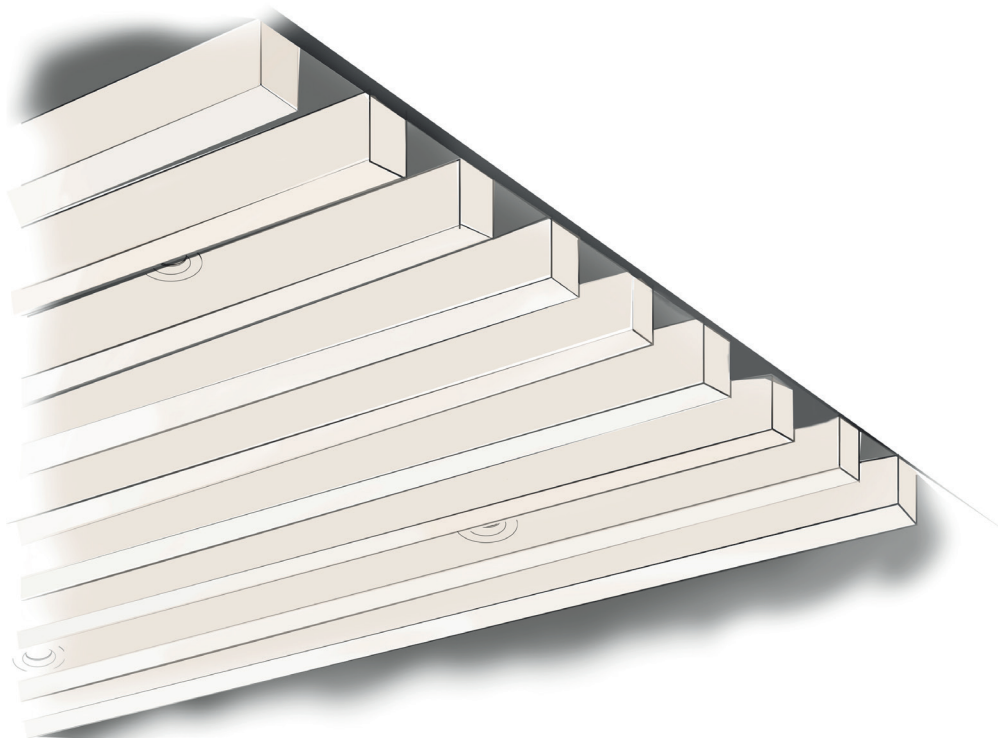
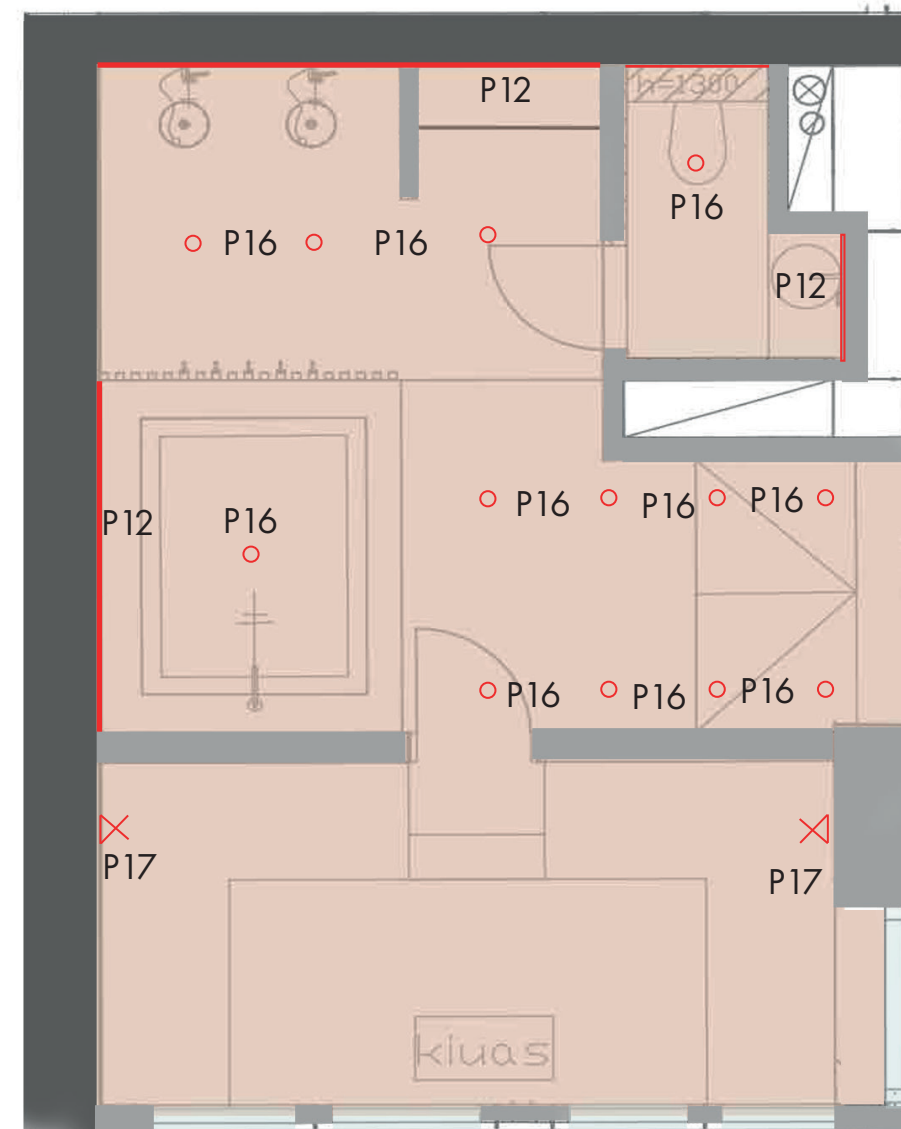
Plans by room, 1st floor
SPA & SAUNA



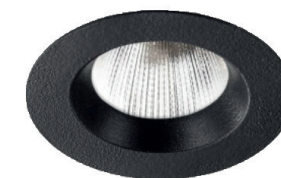
EN SUITE



STIP



P12 SL7 ledstripe,
3000K, IP65



P16 En suite, 18°,
flemish brown, IP44



P17 stip, flemish
brown, IP55

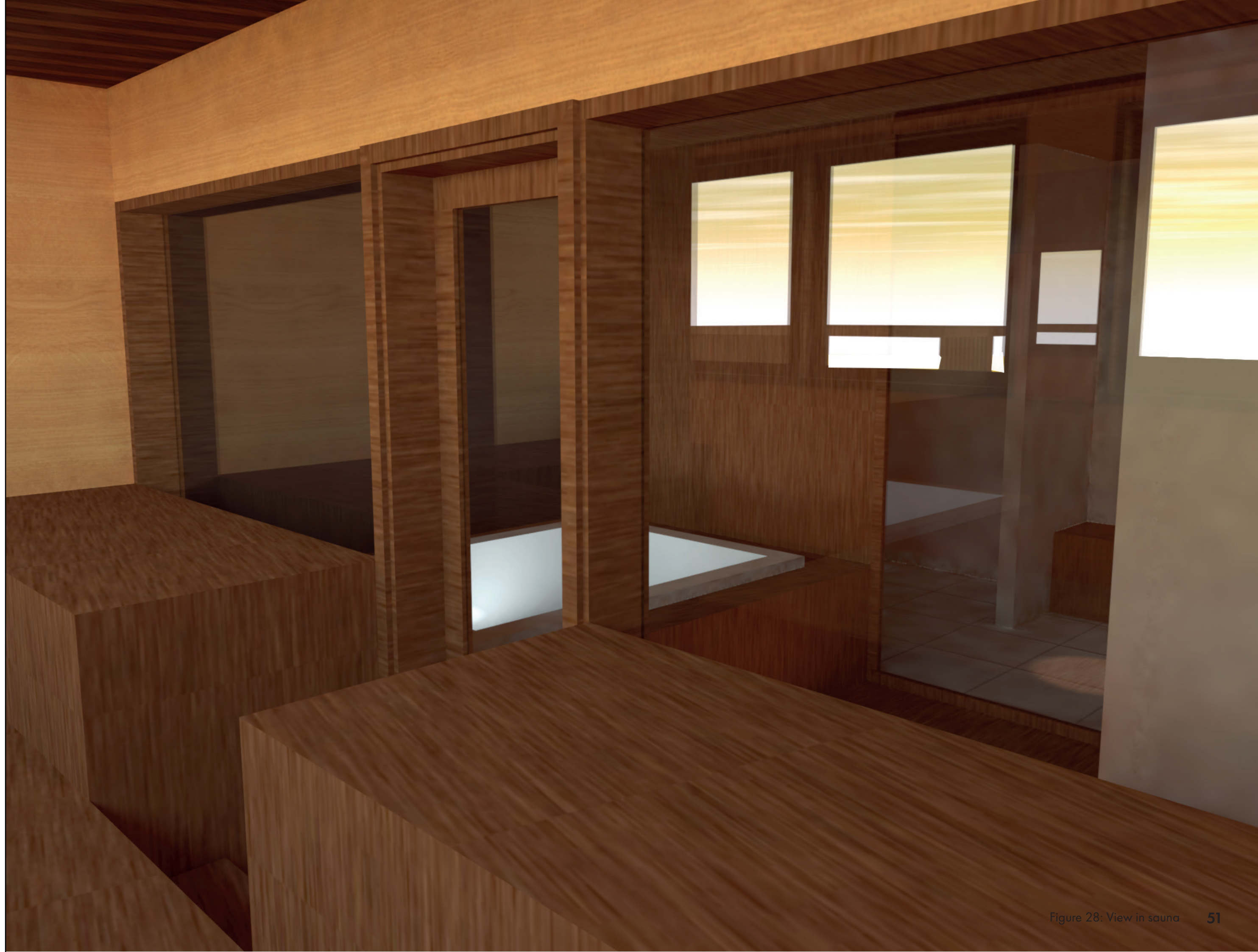
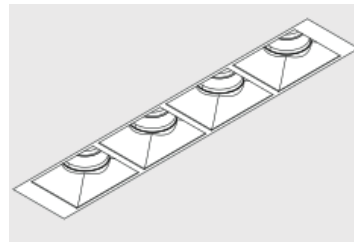


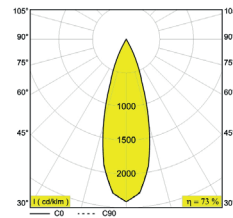
Figure 28: View in sauna

6.8 LIGHTING PLANS

Plans by room, 2 nd floor
Guest entrance& strairs



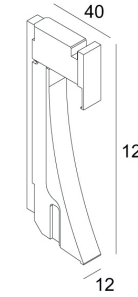
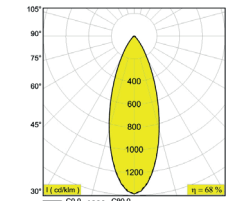
P1 Dot.com trimless,
32°, Black



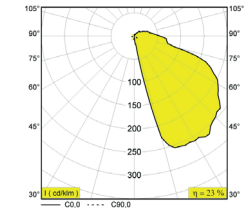
P15 dot.com in
magnetic track
(recessed)



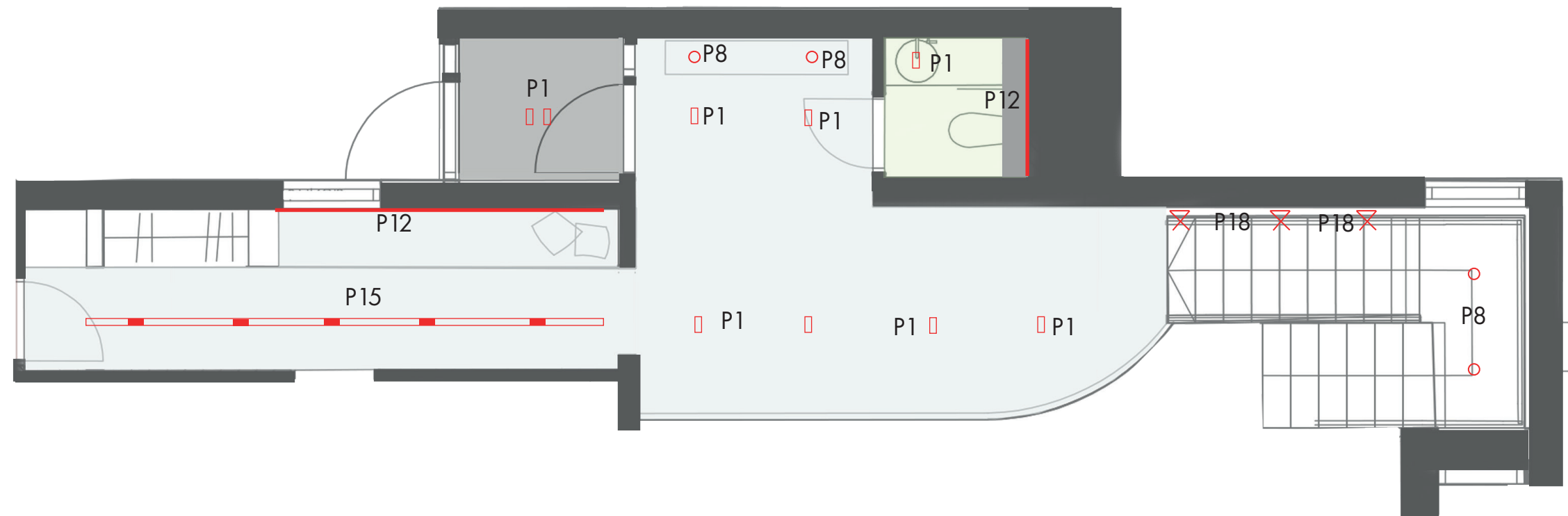
P8 Plat oh!, black,
36 °



P18 Inlet xs, trimless

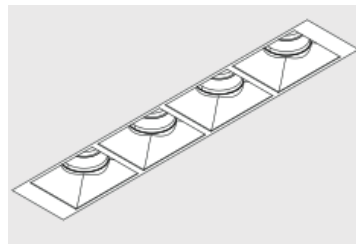


P12 SL7
ledstripe,
3000K

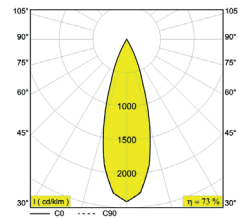


6.8 LIGHTING PLANS

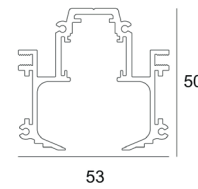
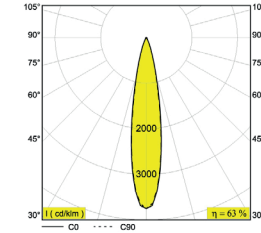
Plans by room, 2 nd floor
Living room



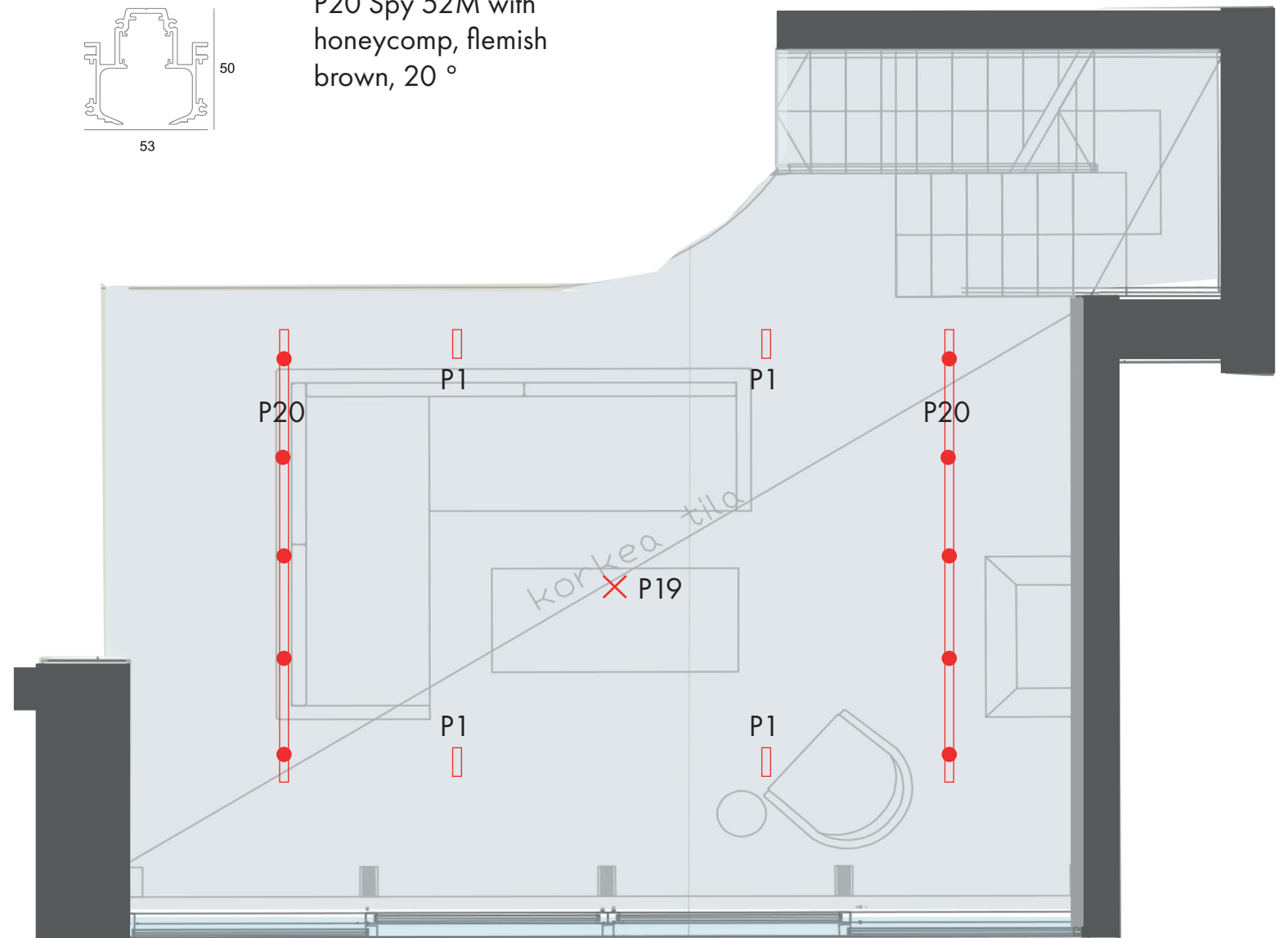
P1 Dot.com trimless,
32°, Black

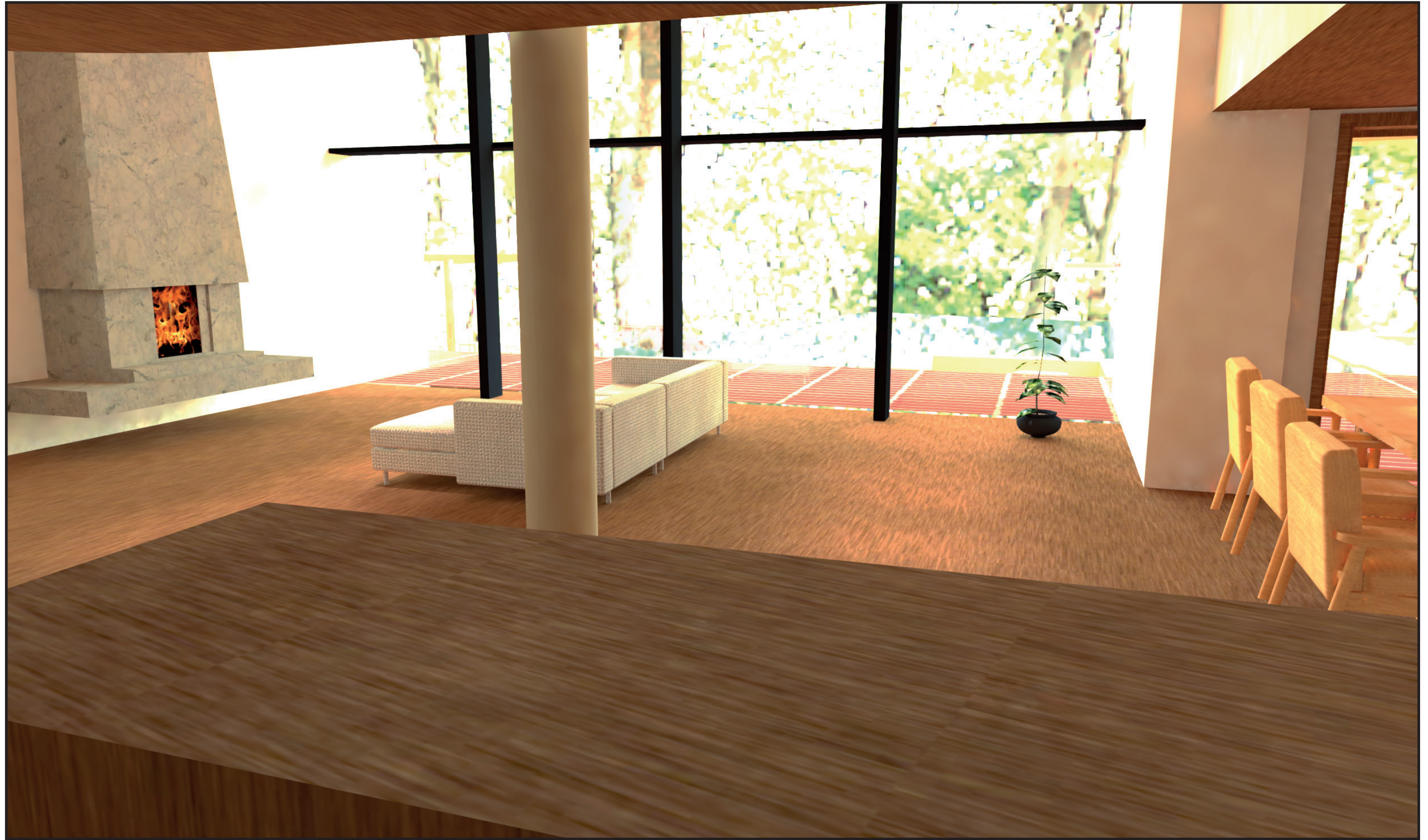


P19 5x Instalation
Reflexx H1, 3000K +
dimm



P20 Spy 52M with
honeycomb, flemish
brown, 20 °

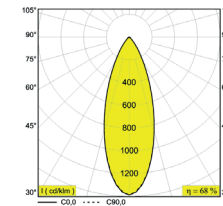




View in the living room.

6.8 LIGHTING PLANS

Plans by room, 2 nd floor
Guest room & restroom



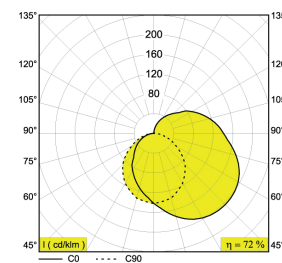
P8 Plat oh!, black,
36 °



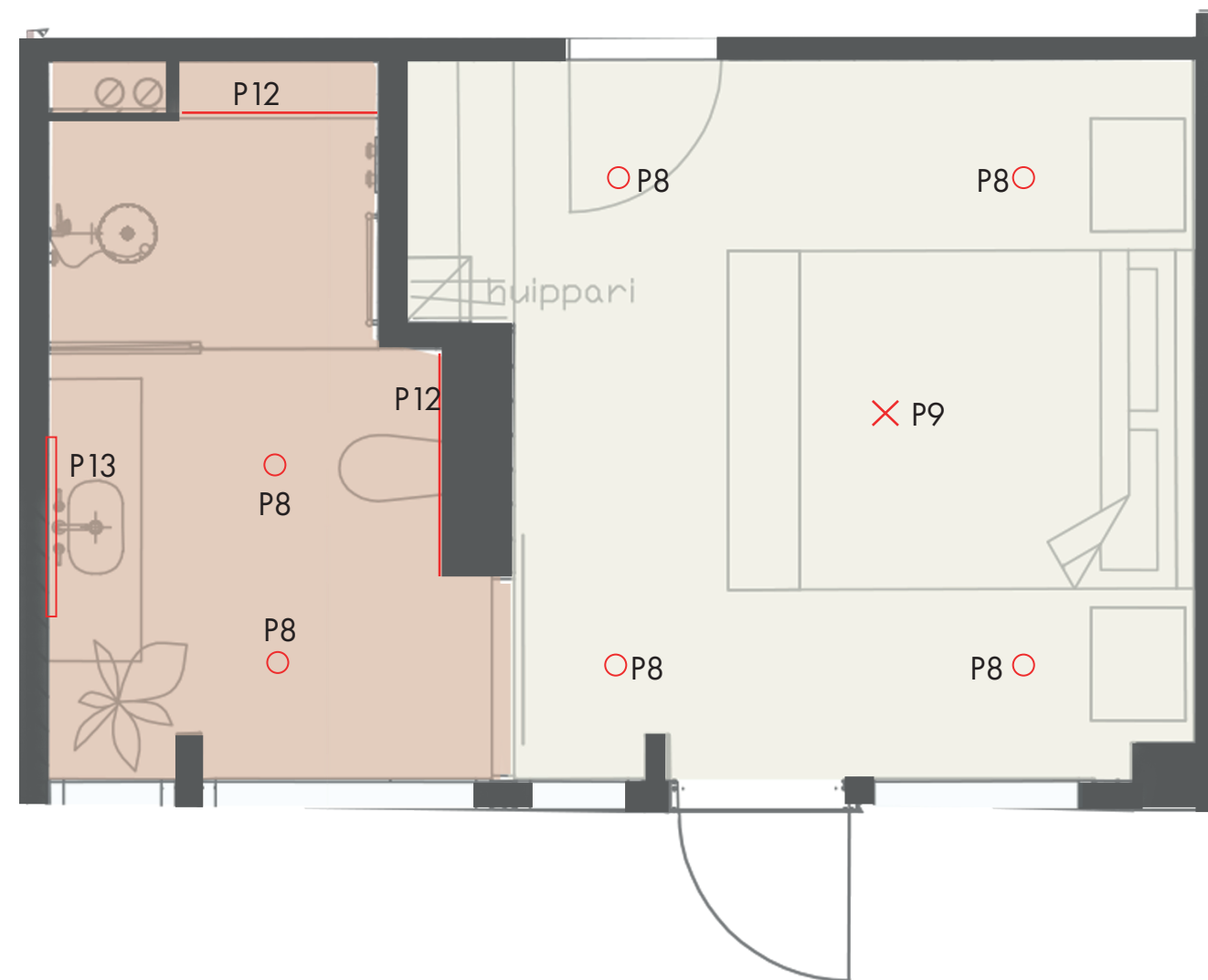
P9 Le klint 26-52



P12 SL7
ledstripe,
3000K

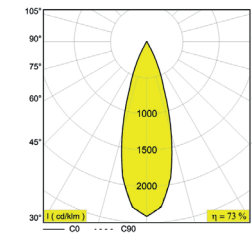
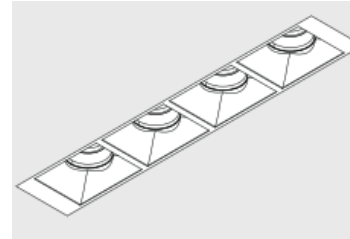
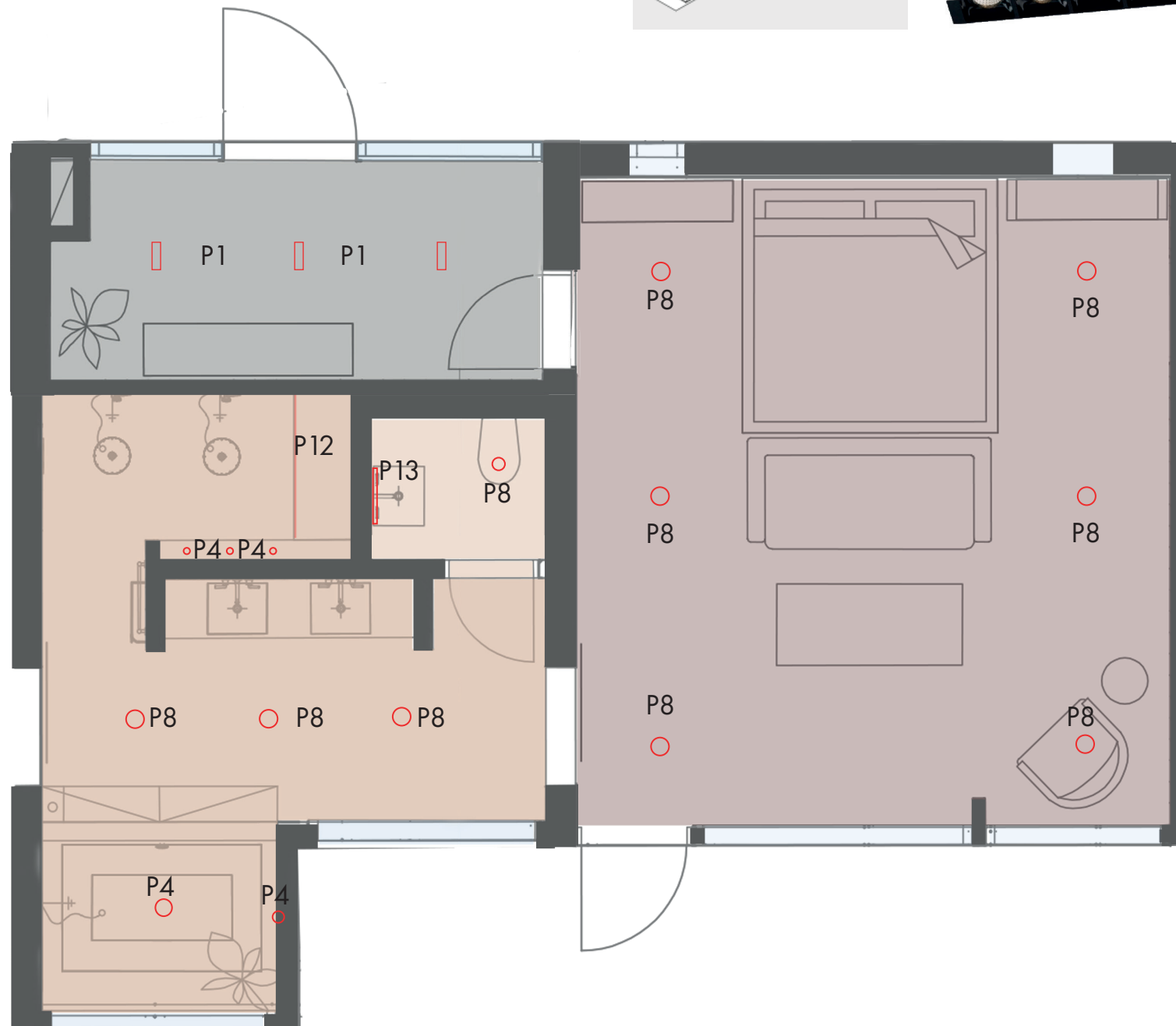


P13 Femtoline TP wall,
3000K

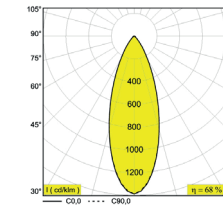


6.8 LIGHTING PLANS

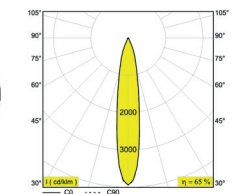
Plans by room, 2 nd floor
Main entrance
master bedroom & restroom



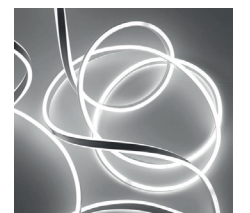
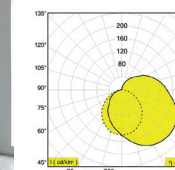
P1 Dot.com trimless,
32°, Black



P8 Plat oh!, black,
36 °



P4 Mini deep ringo, flemish
brown, 18 °

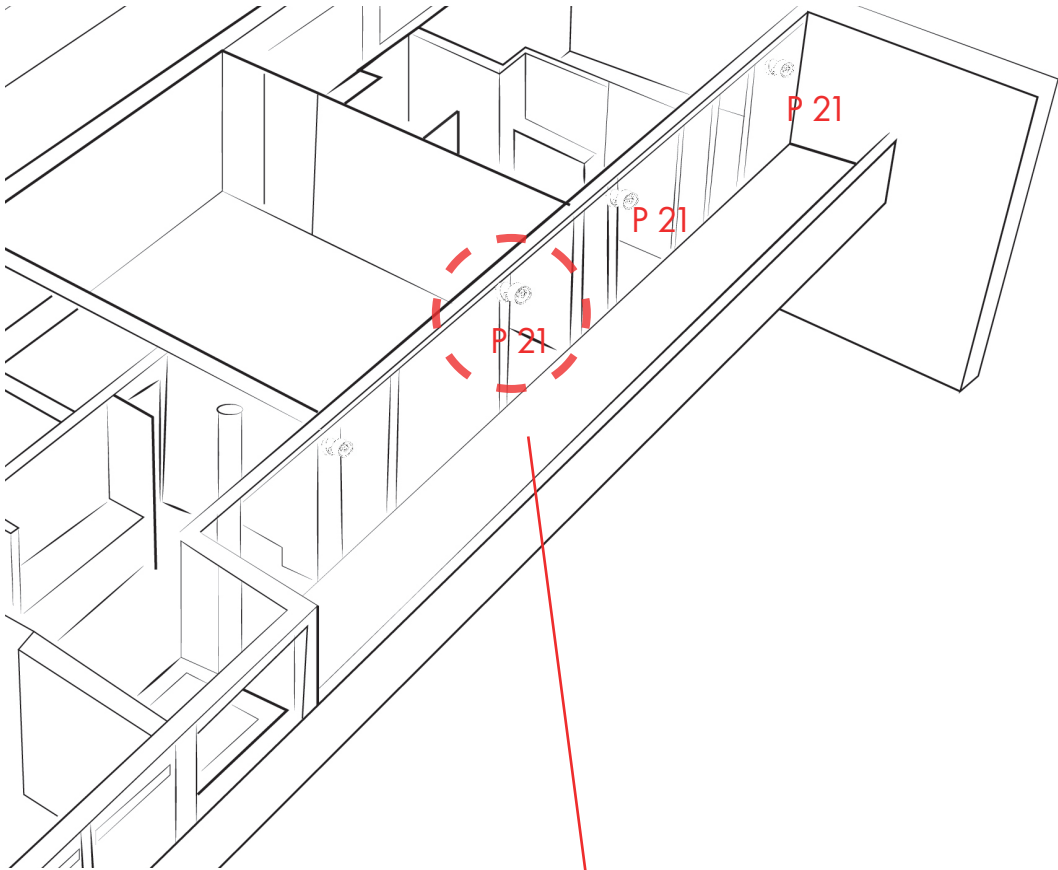
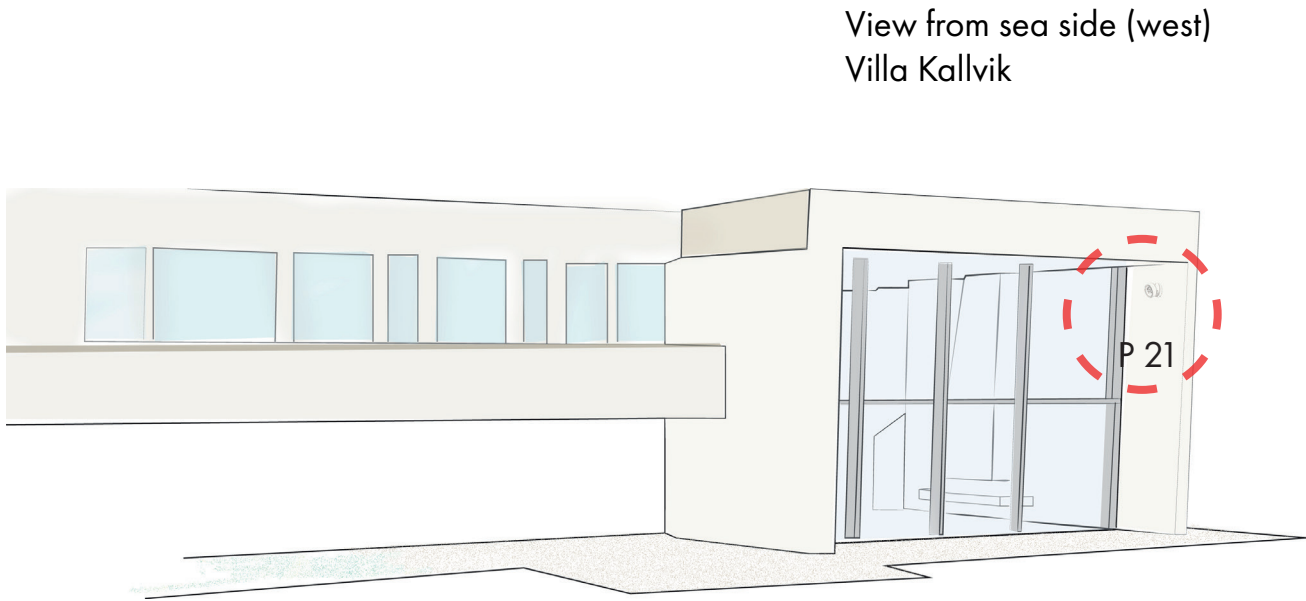


P12 SL7
ledstripe,
3000K

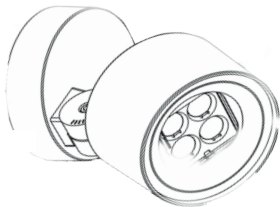
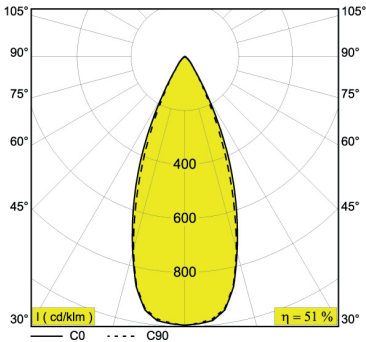
P13 Femtoline TP wall,
3000K

6.8 LIGHTING PLANS

Terrace & outdoor

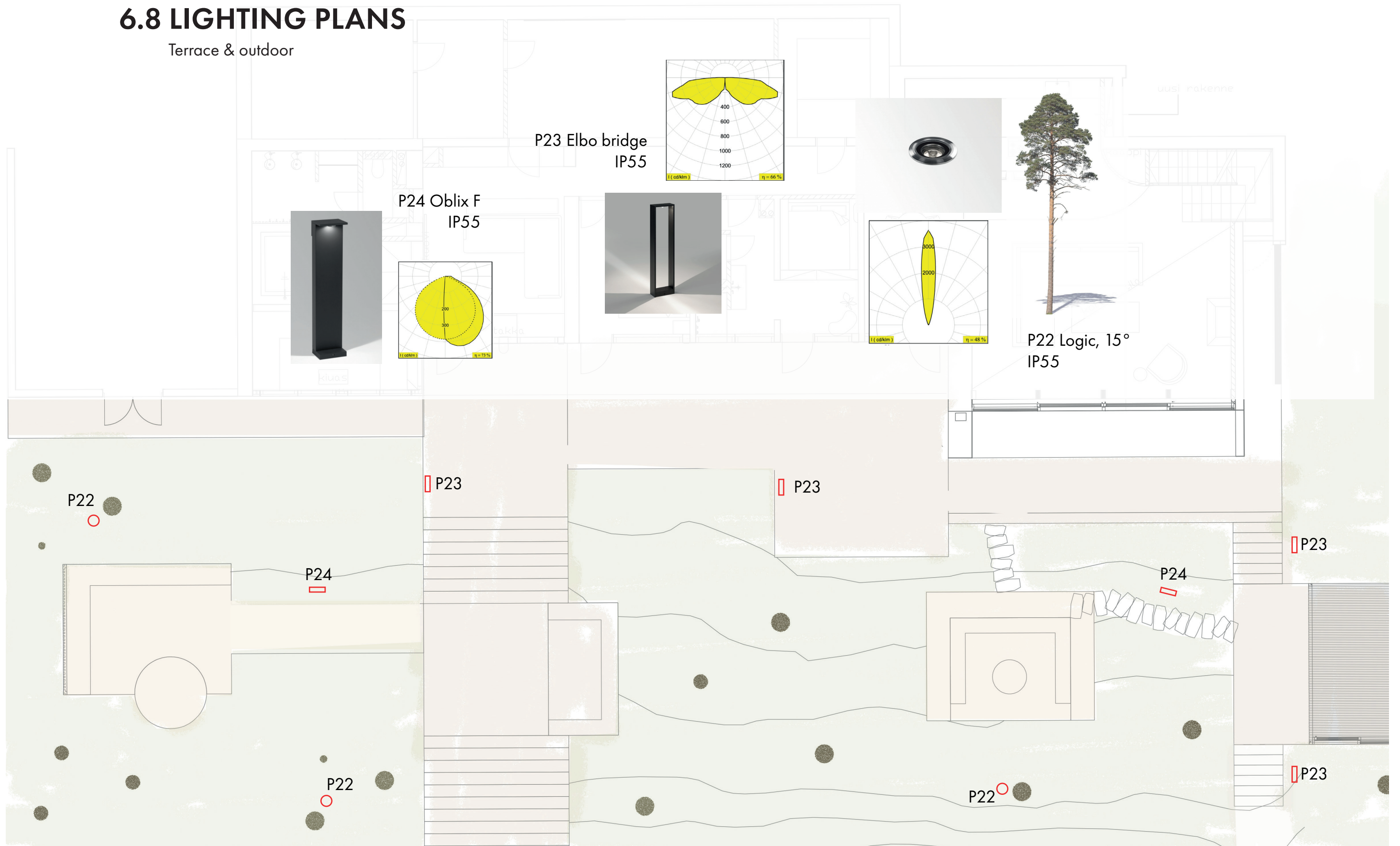


P 21 Frax S honeycomp,
antracite, 3000K + cap



6.8 LIGHTING PLANS

Terrace & outdoor



Outdoor lighting sketch
Villa Kallvik

7

IN SUMMARY

7.1 Forethought

7.2 Further development

Sources

Image sources

Sources II

Attachments

7.1 Forethought

In this thesis my aim was to add value to architecture with lighting solutions. The lighting plans are based on the theme in all spaces. I think that it really is visible in my solutions. It was not easy task to convince the client as they wanted to have as minimalistic ambience as possible: they hoped that there isn't almost any lights. I took into consideration our dark season and the fact that the east side doesn't have windows, it would be impossible to do tasks in space and make the space lively without good lighting. This thesis is only scratching the surface of the trend towards good lighting design. It has been good learning process to me for understanding space in deep level and making plans from different starting points.

7.2 Further development

I thank to Helsinki Lighting Design Company to the trust in this project, as well to MER architects for the lead and the process of the plans. I am proud to present my work as the third thesis on lighting design that has made at the Metropolia University. Lighting has opened my eyes to new world and it prepresent *art* in my opinion. This thesis is based on limited circumstances, which also brought with its challenges, the process have has taught me a lot and brought me to a deeper understanding of design but also the aspect of electrical plans, as I am in connection with them, too.

The thesis's aesthetic goal has been achieved when there is more space interesting and lively with the proposed lighting solution. I think this is just the first sight of finding light and design. The project taught me how important is to observe and study our environment and living styles constantly and the joy of finding great solutions.

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IMAGE SOURCES

Figure 1: Eea Rajamäki

Figure 2: Theoretical framework

Figure 3: Eea Rajamäki, oil tank (Kruunuvuorenranta Dec. 2022)

Figure 4: Junichiro Tanizaki, Praise in shawows, 1997, 7

Figure 5: Junichiro Tanizaki, Praise in shawows, 1997, 10

Figure 6: Photo collage: Eea Rajamäki

Figure 7: Akotaki hotel, Entrance

Figure 8: Akotaki hotel, Bar

Figure 9: Akotaki hotel, Lobby

Figure 10: Four leaves, living room

Figure 11: Four leaves, Spa

Figure 12: Four leaves, Lobby

Figure 13: Yasuragi hotel, Spa

Figure 14: Yasuragi hotel, Restaurant

Figure 15: Yasuragi hotel: Ceiling detail

Figure 16: Yasuragi hotel: Hotel room

Figure 17: Eea Rajamäki, Villa Kallvik, view to the bedroom

Figure 18: Eea Rajamäki, Villa Kallvik, terrace

Figure 19: Eea Rajamäki, Villa Kallvik, Living room

Figure 20: Photo collage, Agnus Reid

Figure 21: Vizualisation kitchen

Figure 22: Junichiro Tanizaki, Praise in shawows, 1997, 80

Figure 23: Photo collage, Delta light

Figure 24: Vizualisation, kitchen

Figure 25: Vizualisation, spa

Figure 26: Vizualisation, living room

Figure 27: Vizualisation: view to the hallway

Figure 28: Vizualisation, Sauna

SOURCES II

HLDC helsinki lighting
design company & *MER*

Interviews:

Julia Hertell (21.10.2022, Helsinki)

Close cooperation: Harri Kumpulainen, Harri Stenholm & Julia Hertell

Thanks to:

Helsinki Lighting Design Company & MER architects

Destinations:

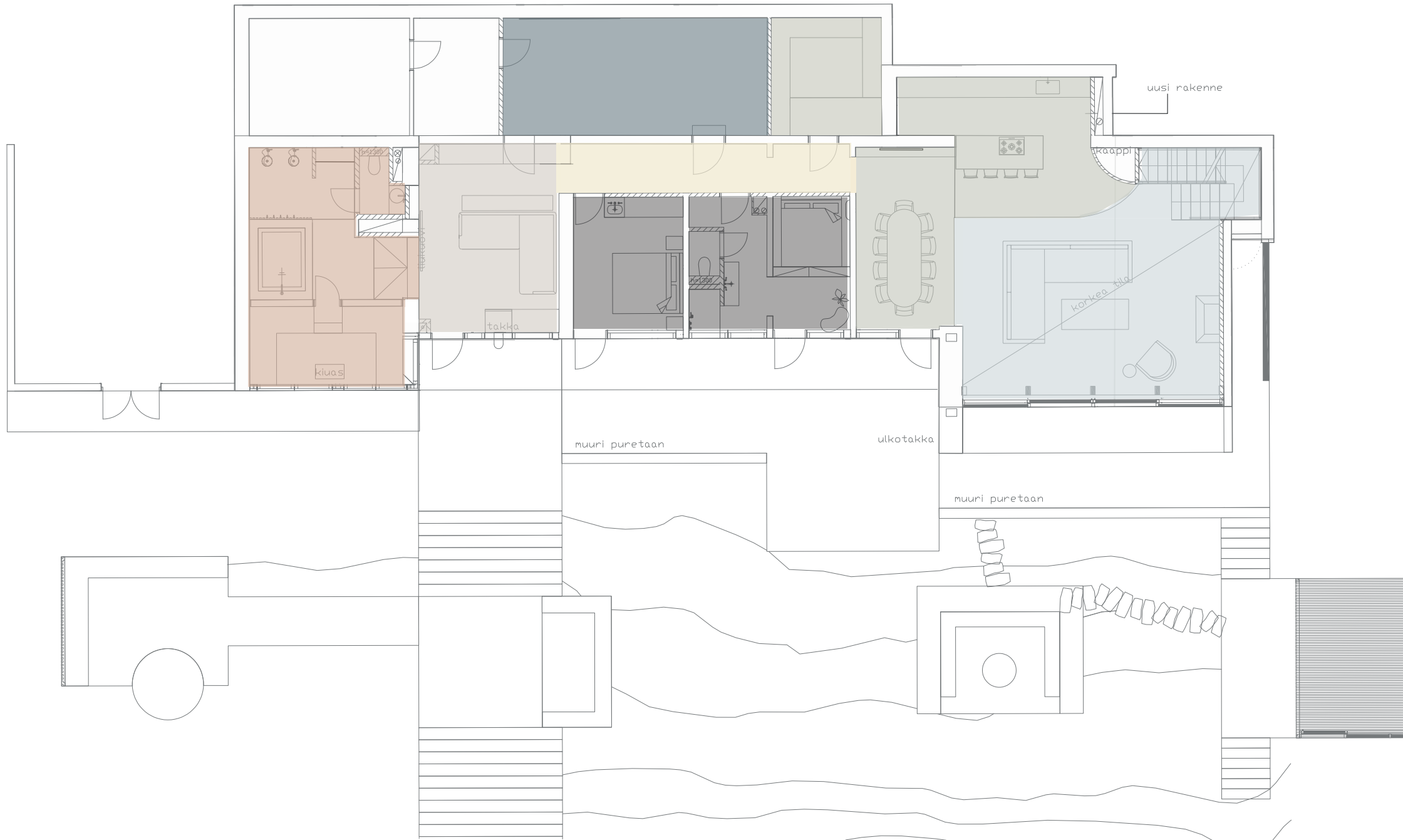
Delta light factory, Belgium, October 2022

Light & Building fair, Germany, Main, November, 2022

London - Delta Light showroom/ Angnus Reid projects, January 2023

ATTACHMENTS

CONSTRUCTION SITE: VILLA KALLVIK
DESIGNER: EEA RAJAMÄKI
THE CONTENTS OF THE DRAWING: LAYOUT ALLOCATION
12.2.2023



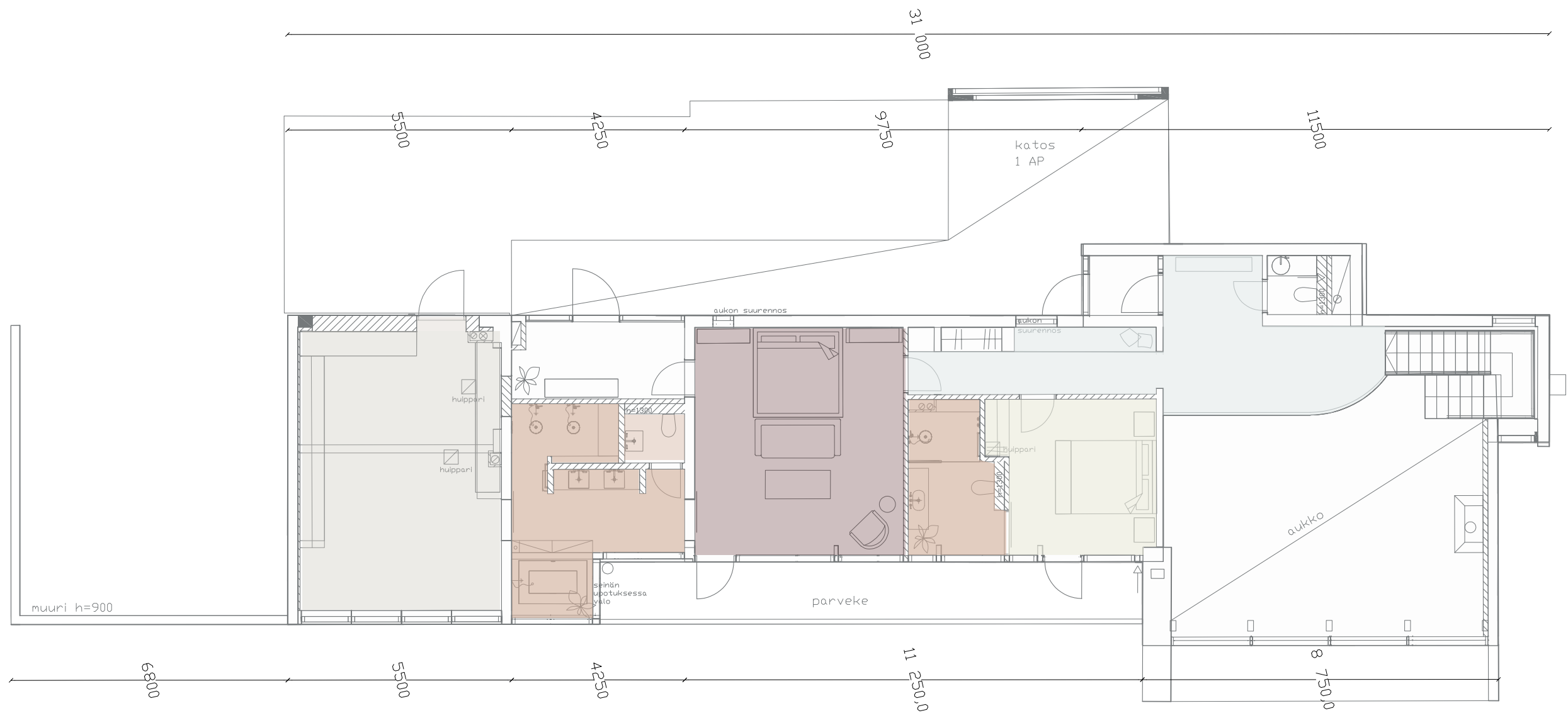
ATTACHMENTS

CONSTRUCTION SITE: VILLA KALLVIK

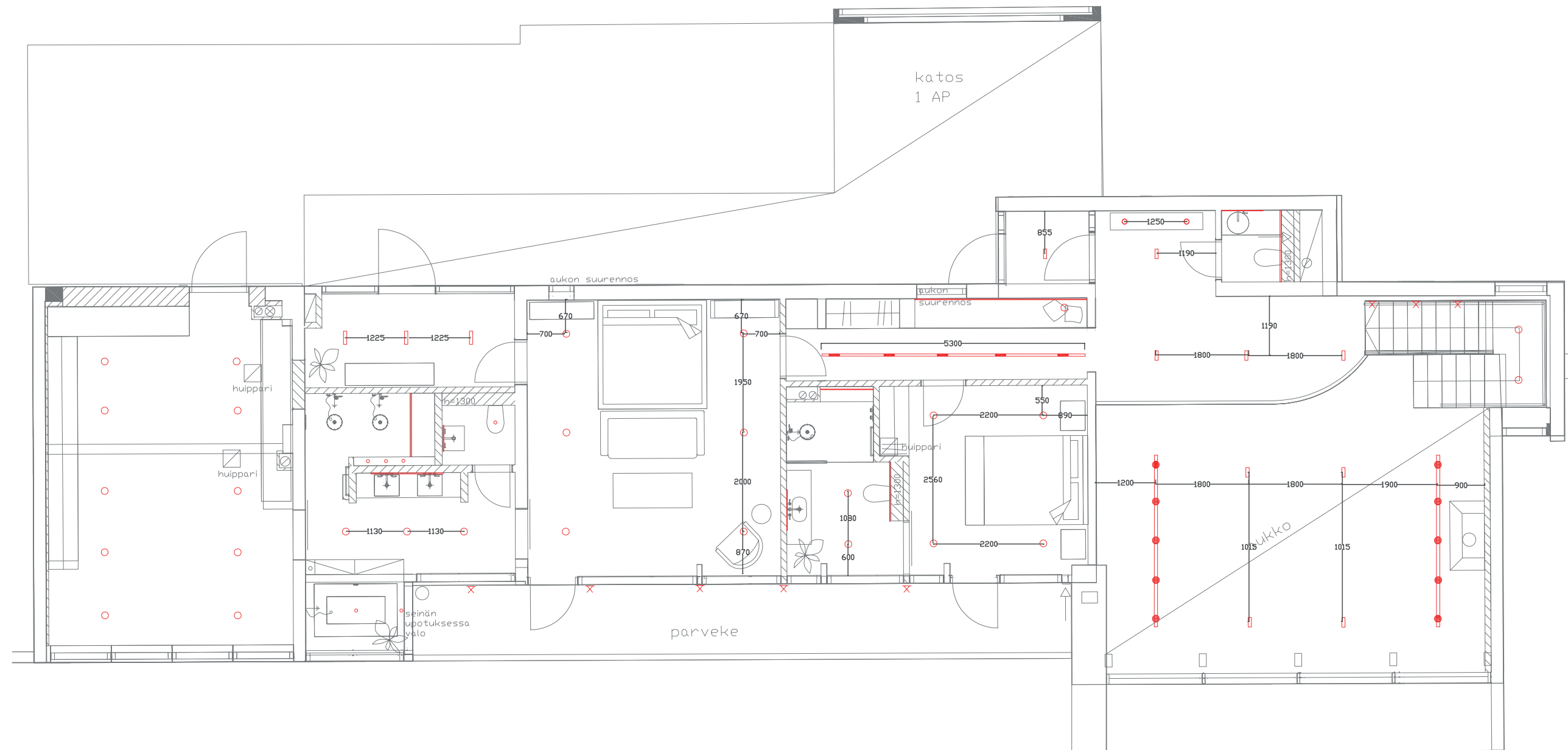
DESIGNER: EEA RAJAMÄKI

THE CONTENTS OF THE DRAWING: LAYOUT ALLOCATION

12.2.2023



18.2.2023



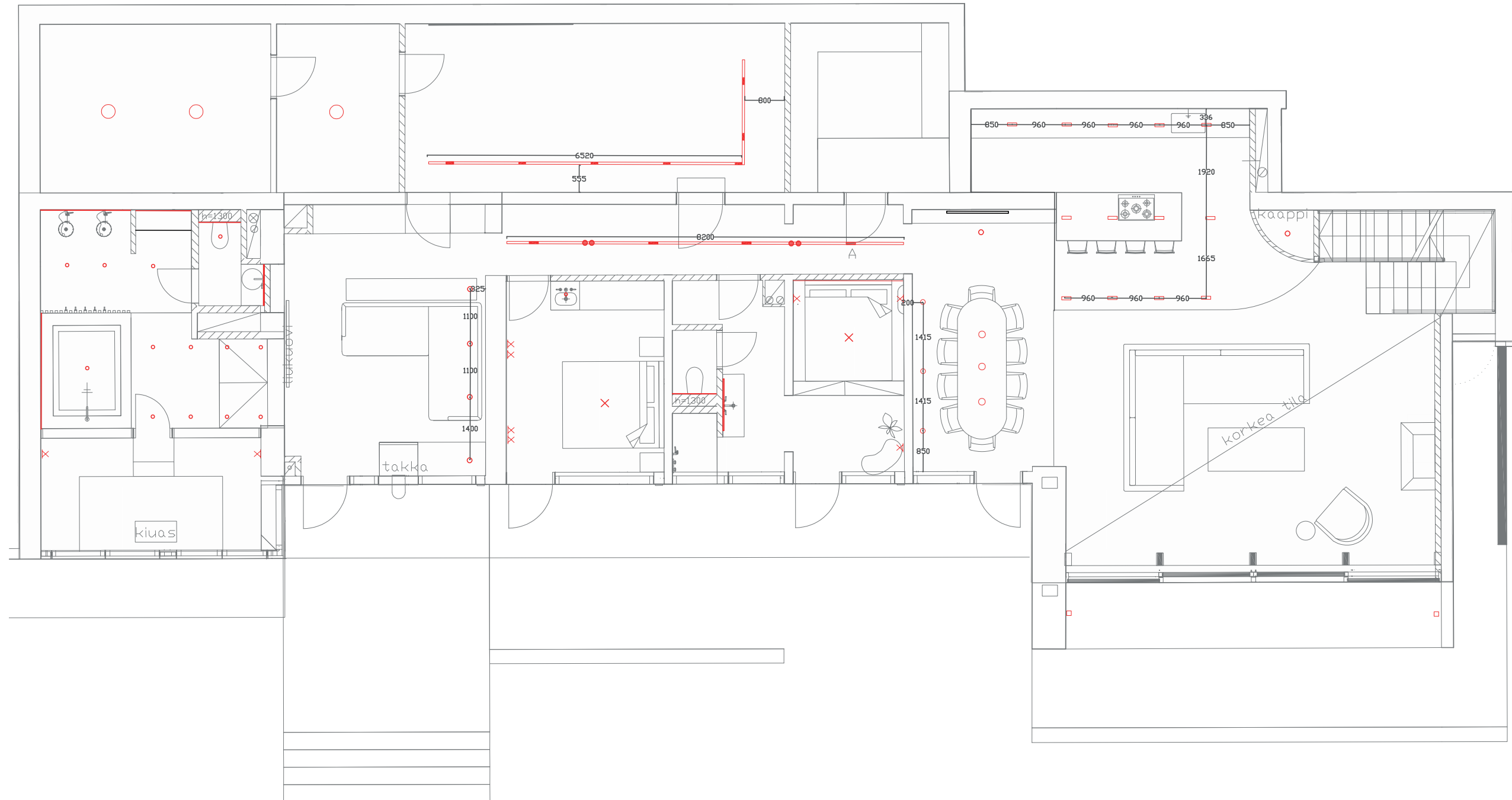
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CONSTRUCTION SITE: VILLA KALLVIK

DESIGNER: EEA RAJAMÄKI

THE CONTENTS OF THE DRAWING: LIGHTING PLANS

18.2.2023



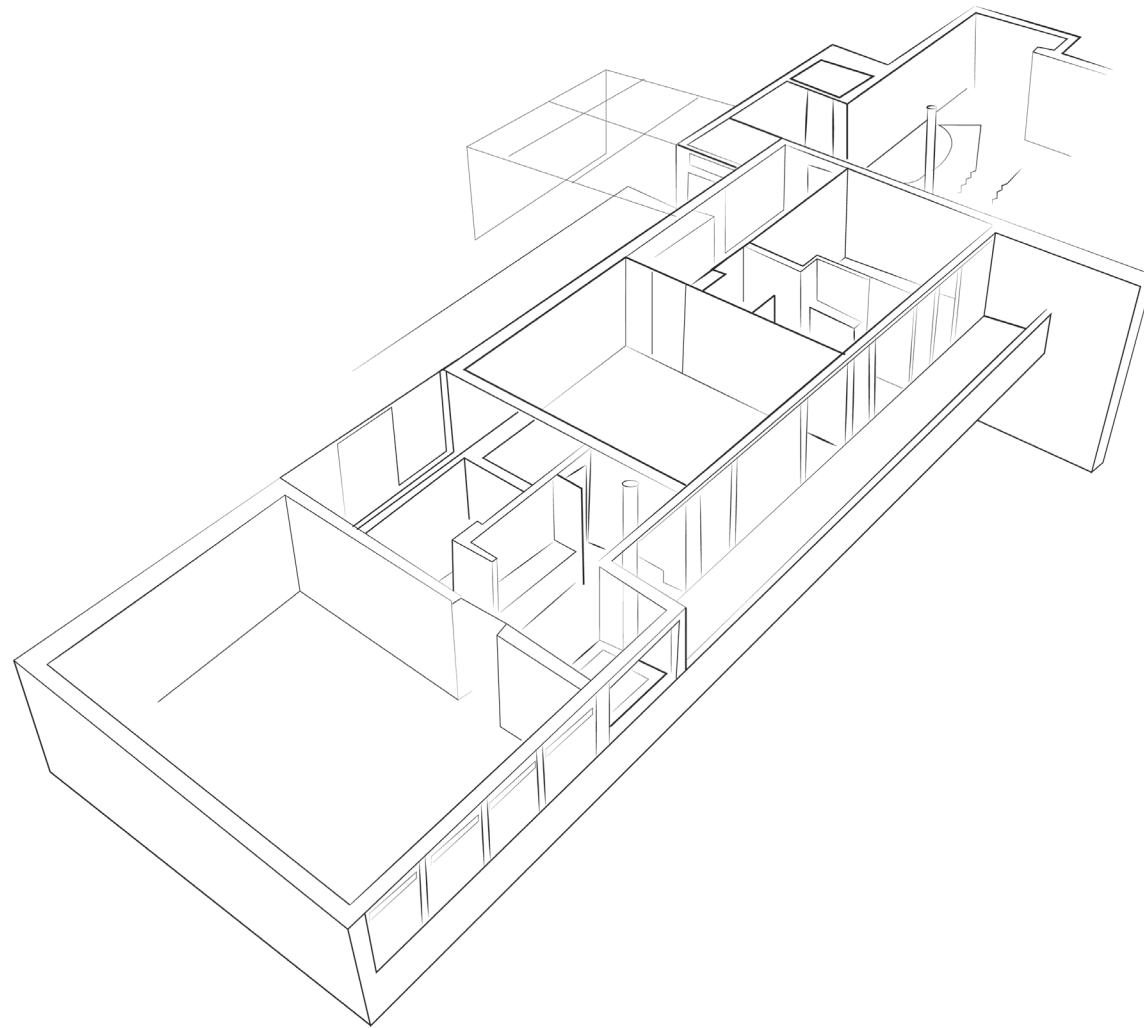
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CONSTRUCTION SITE: VILLA KALLVIK

DESIGNER: EEA RAJAMÄKI

THE CONTENTS OF THE DRAWING: AXONOMETRIC PICTURES

1.2.2023



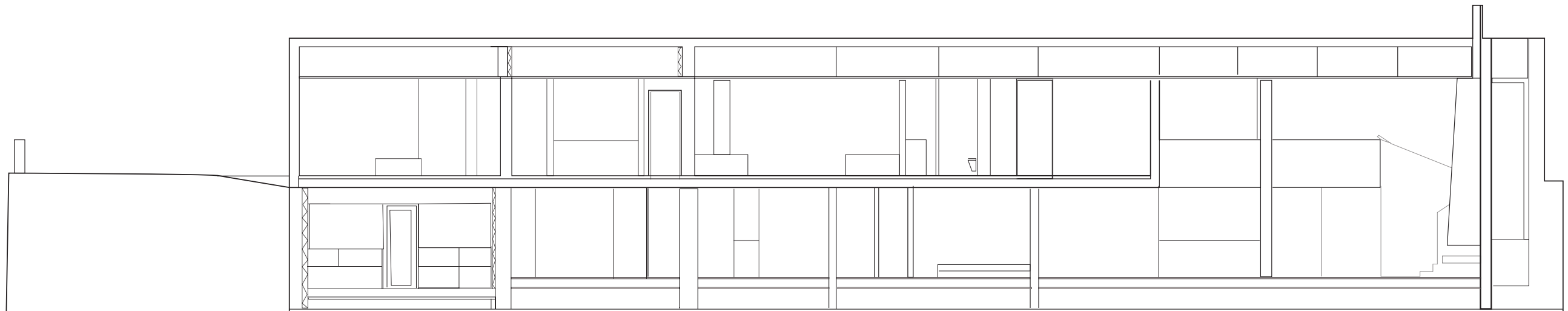
ATTACHMENTS

CONSTRUCTION SITE: VILLA KALLVIK

DESIGNER: EEA RAJAMÄKI

THE CONTENTS OF THE DRAWING: SECTION

5.2.2023



ATTACHMENTS

LIGHTING LIST

	SPACE	PLACED	1. ILLUMINANCE	2. LUMINANCE	TEMPERATURE	HEIGHT	DENSITY	DIRECTION AND DISTRIBUTIO
1	dot.com trimless	receissed spot M	PC, 350-500mA	middle	1800-4000K	3500	formation	down
2	spy 27	half receissed spot	PC, 350-500mA	middle	1800-4000K	3500	formation	down
3	hedra 400	suspended	PC, 350-500mA	middle	1800-4000K	400 from table top	formation 3	down
4	nime	receissed	PC, 350-500mA	middle	1800-4000K	2400	formation 3	down
5	mini deep ringo	receissed	PC, 350-500mA	low	on/off	2400	1	down
6	jum-oh! M	receissed M	PC, 350-500mA	middle	1800-4000K	2400	formation	down
7	Plat oh!	receissed	PC, 350-500mA	middle	1800-4000K	2400	formation	down
8	Le Klint	surface	-	low	2700	2400	1	down
9	Hedra down	surface wall	PC, 350-500mA	middle	1800-4000K	2300-2400	2	down
10	Hedra down + up	surface wall	PC, 350-500mA	middle	1800-4000K	2300-2400	2	down + d/w
11	Femtoline TP	surface wall	PC, 350-500mA	low/middle	3000K	1800	1	down
12	En suite	receissed	PC, 350-500mA	middle	1800-4000K	2400	in the slttaed ceiling	down
13	stip	surface w	On/ off , 350	low	3000K	200 under bench	1	down + side
14	inlet	receissed trimless	PC, 350-500mA	low	3000K	steps	steps formation	steps
15	spy 52 M	In track	PC, 350-500mA	middle/high	1800-4000K	4000	line	adjustable
16	logic	in soil	PC, 350-500mA	low/middle	3000K	on ground	2	up
17	elbo bridge	in ground	PC, 350-500mA	low/middle	3000K	on ground	2	side down
18	frax	under eaves	PC, 350-500mA	low/middle	3000K	2800	formation 5	down