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HOUSE OF FEELINGS

Diplomarbeit • Master's Thesis

HOUSE OF FEELINGS
RETREAT CENTRE
in Kanica, Croatia

TECHNISCHE UNIVERSITÄT WIEN
Vienna University of Technology

Ausgeführt zum Zwecke der Erlangung des
akademischen Grades einer Diplom-Ingenieurin
unter der Leitung von

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Eingereicht an der Technischen Universität Wien
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Wien, April 2023

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Completed for the purpose of obtaining the
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e253 Institute of Architecture and Design
Field of Research Spatial Design

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Gender-sensitive Notation

For the purpose of easier readability, only one gender form is used in this thesis. The use of the masculine or feminine form applies to all, irespective the gender.

Geschlechtergerechte Schreibweise

Im Sinne einer leichteren Lesbarkeit wird in dieser Diplomarbeit nur eine Geschlechterform angeführt. Die ausschließliche Verwendung der männlichen oder weiblichen Form soll geschlechtsunabhängig und gleichberechtigt für alle verstanden werden.

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Abstract

Architecture influences human activity and plays a role in shaping people's lifestyles. Different building typologies are designed to provoke certain moods and actions. The term atmosphere is used to describe the feeling a space evokes. It is the medium that gives rise to certain emotions and moods in architecture.

Atmosphere and human perception in relation to art and architecture have in recent times been an important topic in the philosophy of aesthetics and also, a research field in psychology and neuroscience. Philosopher Gernot Böhme has proposed a theory of a new aesthetics, which focuses on the atmosphere that an aesthetic work emanates, and perceived through bodily presence.

This Master's Thesis consists of two main parts: the first being a theoretical one which examines the influence of architecture on the human state, the body-mind. The second being a practical one through the design of a retreat centre for meditation located on the Croatian coast in the small settlement of Kanica. The idea for the retreat centre came to me as I drew parallels between a meditation practice that can be described as embodied training of the mind by focusing on the senses and Gernot Bohme's definition of atmosphere as a felt space through bodily presence.

For the design of the project, I drew inspiration from the vernacular architecture in Dalmatia. The main characteristics of the design are monolithic stone walls and design in accordance with the warm Mediterranean climatic conditions. The House of Feelings is a space designed for a transformative experience, awakening the senses and coming in touch with one's own mind and body.

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Kurzfassung

Architektur beeinflusst das menschlichen Handeln und prägt den Lebensstil der Menschen mit. Unterschiedliche Gebäudetypologien sind so konzipiert, um bestimmte Stimmungen und Handlungen hervorzurufen. Der Begriff Atmosphäre wird verwendet, um das Gefühl, das ein Raum vermittelt, zu beschreiben.

Die Atmosphäre und die menschliche Wahrnehmung in Bezug auf Kunst und Architektur sind in jüngster Zeit ein wichtiges Thema in der Philosophie der Ästhetik und ein Forschungsfeld in der Psychologie und den Neurowissenschaften. Der Philosoph Gernot Böhme stellt eine neue Ästhetik vor, deren Fokus auf der Atmosphäre liegt, die ein ästhetisches Werk ausstrahlt und die über die körperliche Präsenz durch die Sinne wahrgenommen wird.

Diese Diplomarbeit besteht aus zwei Hauptteilen: der erste ist ein theoretischer Teil, in dem der Einfluss der Architektur auf den menschlichen Zustand, den Körper und den Geist, untersucht wird. Der zweite Teil ist ein praktischer: der Entwurf eines Meditationszentrums an der kroatischen Küste in dem kleinen Ferienort Kanica. Die Idee für das Meditationszentrum kam mir, als ich Parallelen zwischen einer Meditationspraxis, die als verkörpertes Training des Geistes durch Konzentration auf die Sinne beschrieben werden kann, und Gernot Böhmes Definition von Atmosphäre als gefühlter Raum durch körperliche Präsenz zog.

Die Inspiration für das Projekt fand ich in der traditionellen Architektur in Dalmatien. Die Hauptmerkmale des Entwurfs sind monolithische Steinwände und eine Gestaltung, die den warmen mediterranen Klimabedingungen entspricht. Das Haus der Gefühle ist ein Ort, der für eine transformative Erfahrung konzipiert wurde, in dem die Sinne geweckt werden und in dem man in Kontakt mit seinem Geist und Körper tritt.

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Atmosphere, Aesthetics & Perception of Space

In architecture there is a part that is the result of logical reasoning and a part which is created through senses. There is always a point where they clash. I don't think architecture can be created without that collision. Yet practically every work of architecture is nowadays created from just one or the other. You don't sense a will behind the architecture. If architecture is just a matter of logic, the ability to solve the program should suffice, but the result is likely to be insipid and without a feeling.

- Tadao Ando

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Introduction

Architecture influences human activity and participates in shaping people's lifestyles. Different building typologies are designed to provoke certain moods and actions. For example, Museums are designed for contemplation, shopping malls to prompt buying, and libraries and office buildings to foster concentrated and productive work.

The term atmosphere is used to describe the feeling a space conveys. It is the medium that gives rise to certain emotions in architecture. The main topic of this chapter is atmosphere, the role it plays in architecture and human existence. The aim is to explore the potential of architecture to influence the state of the human mind and body.

Atmosphere and human perception in relation to art and architecture has in recent times been an important topic in the philosophy of aesthetics and also, a research field in psychology and neuroscience. Philosopher Gernot Böhme proposed the theory of "a new aesthetics", which focuses on the atmosphere that an aesthetic work emanates, and how this is perceived by the senses through bodily presence. Bohme opposes the new aesthetics to the classical aesthetics whose basic role has been an intellectual critique of the work.[1]

Atmosphere in architecture has been discussed in relation to spatial perception. Contemporary discourse on this can be understood as a continuation of the theory about seeing in cultural history.[2]

[1] See Gernot Böhme, "Atmosphere, a Basic Concept of a New Aesthetic," in *Atmospheric Architectures: The Aesthetics of Felt Spaces*, trans. A.-Chr. Engels-Schwarzpaul (London: Bloomsbury Academic, 2017), 29-30.
[2] Doris Agotai, *Architekturen in Zelluloid: Der Filmische Blick in dem Raum* (Bielefeld: Transcript Verlag, 2007), 59.

[3] Juhani Pallasmaa, *Die Augen der Haut: Architektur und die Sinne*, trans. Andreas Wutz (Los Angeles: Altara Press, 2013), 37.

The architect Juhani Pallasmaa argued that quality architectural design can only be achieved through the use of rational thought and intuitive feeling in concert. This is comparable to that of an artist who, through the combination of conscious and unconscious thought gives matter to ideas.

> Moreover, great architecture is characterized by the unity of opposing or even contradictory intentions and allusions. This tension between conscious intentions and unconscious motives is necessary to evoke emotions in the perceiver. [...] Verbal explanations by artists and architects should not be taken for granted either. Often enough they are only moderately rationally argued - or they serve as a defenceand then sometimes contradict the deeper and uncoscious intentions that give the work its actual vitality.
>
> Außerdem zeichnet sich große Architektur gerade dadurch aus, dass es ihr gelingt, gegensätzliche oder gar sich wieder sprechende Absichten und Anspielungen in sich vereinigen. Gerade dieses Spannungsverhältnis zwischen bewusster Intention und eher unbewussten Beweggründen ist notwendig, um den Betrachter eine emotionale Beteiligung zu ermöglichen. [...] Doch verbale Erklärungen von Künstler und Architekten sollten auch nicht immer für bare Münze genommen werden. Oft genug sind sie nur mäßig rational begründet - oder sie dienen Verteidigung wiedersprechendann unter den tieferen und unbewussten Absichten, die dem Werk seine eigentliche Lebenskraft verleihen.[3]

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Body
Atmosphere and perception of space

Atmosphere is a complex phenomenon, it has a vague meaning and is often described through metaphor. Nevertheless, atmosphere is crucial for architectural quality and the people's well-being in a certain room. Atmosphere can be defined as a state of resonance and identification between an individual and its surrounding.[4] It is not limited to architecture and art only, but can be found in nature and urban settings. A part of what constitutes the atmosphere of a place is one's own mood in communication with other people. The architect Peter Zumthor defines in his book Atmospheres (Atmosphären) that which touches him in a building to be architectural quality:

> Architectural quality, for me that can only be about being touched by a building. What the hell touches me about these buildings? And how can I design that?
>
> Architektonische Qualität, das kann sich bei mir nur drum handeln dass ich von einem Bauwerk berührt bin. Was zum Teufel berührt mich denn an diesen Bauwerken? Und wie kann ich das entwerfen?[5]

In architecture atmosphere emerges between a physical space and a conscious individual who perceives it, and responds to it in an emotive, cognitive and sensorimotor way.[6] Therefore, the right way of describing a space has to be is in relation to a conscious subject.

[4] Elisabetta Canepa, Valter Scelsi, Anna Fassio, Laura Avanzino, Giovanna Lagravinese and Carlo Chiorri, *Atmospheres: Feeling Architecture by Emotions*, Ambiances [Online], 5 | 2019, (December 2019): 23. URL: http://journals.openedition.org/ambiances/2907

[5] Peter Zumthor, *Atmosphären. Architektonische Umgebungen. Die Dinge um mich Herum* (Basel [u.a.]: Birkhäuser 2006), 17.

[8] Peter Zumthor, *Atmosphären. Architektonische Umgebungen*, 17.

Evaluating the quality of architectural space without including the conscious perceiving individual is a construct, that may or may not correspond to reality of the matter.[7] The perception of space has a multisensorial nature, one perceives atmosphere with all of their senses . As such, it is more accurate to say that we feel the space rather than just see it, although seeing, of course influences feeling. Zumthor described the complex atmospheric phenomenon and the perception of space in a simple manner:

> Well, what touched me there? Everything. All the things, the people, the air, sounds, tone, colours, material presence, textures, also shapes. [...] And what else touched me there? My mood, my feelings, subtle expectations I had back then, when I was sitting there.
>
> Nun, was hat mich da berührt? Alles. Alles, die Dinge, die Menschen, die Luft, Geräusche, Ton, Farben, materielle Präsenz, Texturen, auch Formen. [...] Und was hat mich da noch berührt? Meine Stimmung, meine Gefühle, feine Erwartungen damals, als ich da saß. [8]

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Atmosphere from a psychological and neuroscientific perspective

When talking about atmosphere and perception of space, it is important to look into the fields of psychology and neuroscience. Psychology studies human mind, the way people think, feel and act. Within the context of atmosphere is can help explain the influence of spatial characteristics on the state of the human mind and body. Neuroscience is an inquiry into the biological basis of the different processes of the mind. It is a study of memory, learning, perception, behaviour and consciousness in a strictly scientific way and can contribute to understanding the neural mechanisms of space perception.

In the study done by a team from Psychology Departments of four different universities including the University of Vienna, and Austrian Institute of Technology, the aim was to capture the aesthetic experience with Installation Art. The study was done in collaboration with Belvedere Museum in Vienna at the exhibition "Baroqe, Baroqe!" by the artist Olafur Eliasson. At the exhibition there were two rooms each with a different artwork. The aim of the study was to explore the ability of art to create reflective, insightful and emotional responses.[9]

It was found that the artworks did produce emotional responses in the viewers. One artwork produced happy, positive and pleasant emotions, but a less meaningful experience. The other artwork produced a sad, but more meaningful, potent and intimate experience. The viewers who wanted to see the artwork with a sad meaning choose so because it provoked thoughts and not emotions. Another interesting finding was that the viewers without previous education in art were able to understand and appreciate the ambiguous meaning of the artworks, which corresponded to the contemporary discourse about installation art.[10]

An interdisciplinary neuroscientific study carried out Canepa et.al. published in the paper *Atmospheres: Felling Architecture by Emotion. Preliminary Neuroscientific Insights on Atmospheric Perception in Architecture* explored the empathic reaction to architectural settings. It was hypothesised that people respond empathically to space around them, and internalize their surrounding in a sensorimotor, emotive and cognitive way. The study found, a direct correlation between the participant's B-IRI index scores, which describes person's ability to empathize with another person's emotions and their attunement to a certain configuration of a room. This indicated, that more empathic people can sense their surroundings with higher intensity. The findings were based on a self-reported test and the results were not surprising. Participants found rooms with the differing wall and floor materials more pleasant. Furthermore, rooms with variation of light and shade produced highest arousal in all participants, showing how lighting strongly influences people's state. [11]

[9] See Matthew Pelowski, Helmut Leder, Vanessa Mitschke, Eva Spacker, Gernot Gerger, Pablo P.L. Tinio, Elena Vaporova, Till Bieg and Agnes Husslein-Acro, "*Capturing Aesthetic Experiences with Installation Art: An Empirical Assessment of Emotion, Evaluations and Mobile Eye Tracking in Olafur Eliasson's Baroque, Baroque!*" Frontiers in Psychology Volume 9, Article 1255 (August 2018): 1. https://www.frontiersin.org/articles/10.3389/fpsyg.2018.01255/full.

[10] See Ibid., 19-20.
[11] Elisabetta Canepa, "*Atmospheres: Felling Architecture by Emotion*", 22-23.

Aesthetics in contemporary architecture

Modernism proclaimed rationality as a basis for society, putting an emphasis on functionality, rejected ornaments and brought various new formal rules of the style. Some of the rules like the most famous one 'form follows function' is still broadly applied to this day. Without disregarding the social and historical background of modernism and within the context of atmosphere one of the critiques of modernist architecture and modernist cities is that it has an alienating character. The cause of it could be found in the reduction, and simplicity of forms that is primarily concerned with functionality.

The rise of conceptual art since Marcel Duchamp's *Fountain* dismissed expression of beauty which had until that point, been one of the central themes in art. Subsequently, there is a well-established approach to architectural design that is based on conceptual ideas and rationality, which in a way disregards aesthetics. The question of what place does aesthetics hold in contemporary architecture is rather unclear. Böhme offers some answers in his book Atmospheric Architectures: The Aesthetics of Felt Spaces, which will be discussed in the following chapter.

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A Concept of a new aesthetics by Gernot Böhme

[12] Gernot Böhme, *Atmospheric Architectures*, 23.
[13] Ibid. , 23.

To lay grounds for the concept of new aesthetic Böhme discusses the definition of art:

> ... it is not self-evident that an artist wants to communicate something to a potential recipient or viewer through his work. [...] Not every work of art has a meaning-on the contrary, one must insist that a work of art is in the first instance itself something and that it possesses its own reality. [12]

By opposing the claim that art necessarily has a meaning he develops the concept of a new aesthetics which is based on atmosphere. He defines aesthetic work as "endowing things, environments or people themselves with properties that make something emanate from them. That is, it is about making atmospheres through work on the object."[13] By accepting Herman Schmitz's concept of atmosphere in which, feelings are defined as "spatial but placelessly diffused atmospheres, which visit the body they embed..." Böhme leaves behind the intellectualism of classical aesthetic because atmospheres are "what is experienced in the bodily presence of humans and things, or in spaces". He makes reference to Walter Benjamin's aura of an artwork, which is being perceived through bodily presence and absorbed into one's own bodily disposition.[14] Böhme opposes the new aesthetic with the classical aesthetic whose basic role according to him was an intellectual critique of the work. Classical aesthetics gave means for criticism and defining what art is and is not. It was meant to separate "true art"

from “Kitch” and rejects aestheticization of everyday life: “..., its critique is a judgement of taste that looks down on all of design, arts and crafts, as well as the culture industries, as something neither true nor authentic and therefore below standard.” The main theme of the new aesthetics is the production of atmospheres and it is not only limited to ‘so called real art’, but encompasses full range of aesthetic work from advertising, cosmetics to interior architecture, stage design, and art more narrowly defined. The new aesthetics recognizes aesthetics as a human need and claims that “to show oneself, or to step out of oneself and appear, is an essential feature of nature” and therefore, “demands equal recognition of all products of aesthetic work.” [15]

[14] Ibid., 18-20.
[15] Ibid., 29-30.

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Atmosphere - the feeling of space through bodily presence

[16] Gernot Böhme, “The Presence of Living Bodies in Space,” in *Atmospheric Architectures: The Aesthetics of Felt Spaces*, trans. A.-Chr. Engels-Schwarzpaul (London: Bloomsbury Academic, 2017), 92-93.

Böhme defines atmosphere in architecture as bodily sensed space. It influences the individual’s disposition in space and does not only describe the characteristics of the surrounding space but also sensations that arise from a person’s mind and body. Böhme specifies generators of atmosphere in architecture, some are objective and others like light and sound are non-objective. The first main characteristic of atmosphere is movement impression in a broader sense. This does not only describe the experience of movement, or movement suggestions, but also corporeal constellations, volume, load, and the extension and tightness of space. The other factor in atmosphere is synaesthesia. The term defines the feeling of space that comes from multiple-sensory experiences like a cold blue or a warm light. The last is the social characteristics of the space. Cosiness for example, contains synaesthetic elements but is also socially defined and may vary from one culture to another.[16]

By taking Böhme’s definition of atmosphere as a felt space through bodily presence it becomes clear that every space can have an atmosphere, even if the architect did not intend to create a specific one, it inevitably emerges when a conscious perceiver finds themself in a certain space. The question is then is what are the qualities of that atmosphere? Does it produce a specific feeling? Does it amaze us, invite us to engage with the space and explore it, or is it insipid, uncomfortable and make us want to leave as soon as possible? What influences how one feels in a certain space?

Firstly, everything we see, architectural elements with their materiality, colour, form and patterns; the surfaces of the objects that surround us and their aesthetic qualities. We also see the distance to the next wall, a barrier, or to the next opening that suggest movement and orient our attention and focus. The sight of light and shade can produce intense feelings and also suggest our movement as one usually moves towards the light and away from the darkness. Artificial lighting, as well has a great potential in creating atmospheres and settings for different activities.

Dim warm light in a restaurant creates a completely different mood compared to the bright strong light found in a fitness studio. Light alone can also define space or divide it into different zones. It is important to mention, that what we see is never just a picture generated in our head, but also interpretations of the visible and suggestions for movement and engagement with the body. This is why interaction through a screen with headphones does not come close to experiencing reality. There is no possibility for engaging with the body and mind to its fullest capacity, and therefore the atmosphere of the moment is only partial and lacking.

Sound and acoustics of space have a great influence on a person's disposition in space. Bad acoustics of the space can either make conversations harder, or in general the experience of the space in time uncomfortable. Music in a bar or a club is often one of the main factors for setting the mood or sometimes we just get caught in listening to the rhythm of our own footsteps when walking through a hallway.

Scent is usually perceived in a subtle way, and often we become aware of it when it is particularly disturbing or very pleasant. Nevertheless, it is crucial to feel bodily present. A pleasant scent in a shop, can for example make people stay longer and increases the likelihood of buying.

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Touch and felt sensations in one's body such as breathing, sitting, walking, laying or talking is the essence of bodily presence. Here, I would include the feeling of warmth, cold and movement in one's own body, the tension of muscles, the touch and pressure we feel through movement and interaction with the surrounding. Without bodily engagement with our surroundings, we feel the distance, there is a barrier that stops us from activity and therefore feeling alive.

Finally, the mood of an individual and sensation coming from one's body-mind in relation to the mood of other people is also a factor in constituting an atmosphere of a space. Atmosphere in an architecture university studio can become tense with a group of students anticipating the feedback that they are about to receive. Hospitals bring a sense of unease and fear to many people because of the association with illness and mortality. For this reason, a psychotherapy practice is designed with great attention. Art pieces are often hanging on the wall, furniture is carefully picked, the lighting adjusted to make surrounding appealing and comfortable and to counterweight the heavy emotions and difficult conversations.

Conclusion

Atmosphere in architecture describes all the characteristics of space that are being perceived together with the emotional, cognitive and sensorimotor response of the perceiver in time and space. One could say that it is subjective as people differ in personality, preferences and temperament, or to use a phrase 'everyone sees the world in a different way'. However, the same spatial characteristics cause similar responses in most people. In fact, it is through intellectualising the matter, and because of the current norms and trends that we decide what to value more and what less.

By taking Gernot Böhme's definition of atmosphere as feeling the space through bodily presence, it becomes clear that a conscious perceiver who is bodily present is necessary for the atmosphere to emerge. What does it mean to be present with one's own body? It means to feel one's own body and the space in which one finds themself. It means that there is a conscious individual who perceives the space and engages with it through his body with all of his senses. The need to feel bodily present is the need to feel alive, as Böhme puts it to "feel one's bodily presence is at once to feel one's own liveliness, to feel vitality". [17]

Technological advancements suggest that in the future, people will increasingly spend more time online. Some argue that we might altogether shift our existence into the digital world. The company meta (originally Facebook) released an unsettling video which presented a new project called metaverse, a digital platform designed for people

[17] Gernot Böhme, "The Presence of Living Bodies in Space," in *Atmospheric Architectures*, 95.

to create their living space, workspace, the space for socialization, and entertainment in the new digital universe, the metaverse. As advanced as these digital platforms are, they fail in simulating people's bodily presence, movement and perception in space, with all its complexities and subtleties, which are necessary to make it feel real. As such, it is likely that digital platforms for the time being, will be insufficient to replace physical reality.

We live in times in which atmosphere and the quality of space are often being neglected under the imperative of profit maximization. By insisting on the atmospheric qualities in architecture we do not only improve the state of people and society, but also contribute to the conservation of nature and heritage. Atmosphere and architectural quality emerge in moderation and balance between rational thinking and feeling, between built space and the in-between space, between architecture and nature, and by respecting the environment, cultural heritage of the place, and people and their needs.

To conclude, architecture as a work of art should exceed the mere provision of space for human activity and should convey a certain atmosphere through which people resonate with the space that surrounds them. Atmosphere in architecture can vary in its character, it can be uplifting, exciting, calming, melancholic but it any case it should evoke a sense of wonder, and transcend one's state from the heaviness of their existence.

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We identify ourselves with this space, this place and this one moment, and all these dimensions become part of our own existence. Architecture is the art of reconciling ourselves with the world, a kind of meditation that occurs through our senses. We identify ourselves with this space, this place and this one moment, and all these dimensions become part of our own existence. Architecture is the art of reconciling ourselves with the world, a kind of meditation that occurs through our senses.

Wir identifizieren uns mit diesem Raum, diesem Ort und diesem einen Moment und alle diese Dimensionen werden zu Bestandteilen unserer eigenen Existenz. Architektur ist die Kunst, um mit der Welt zu versöhnen, eine Art von Meditation die durch unsere Sinne stadtfindet. [18]

18 Juhani Pallasmaa, *Die Augen der Haut*, 91.

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02

Programme

When you realize nothing is lacking,
the whole world belongs to you.

- Lao Tzu

Zen Buddhism and Meditation

Zen Buddhism originated in China during the time of the Tang Dynasty and spread to Vietnam, Japan and Korea. ‘Zen’ is the Japanese translation of Chinese ‘Chan’, which means meditation. Zen is a practice that aims at reduction of suffering and fulfilling one’s highest potential. It teaches wisdom and compassion in dealing with one’s self, other people, and nature to overcome anxious, stressful states and ego-driven impulses that are seen as sources of suffering. It gives precedence to practice over theory and teaches the embodied experience of here and now as the way to act freely and in alignment with one’s highest potential. Buddhist position is that everything is impermanent, and therefore any form of attachment to things, thoughts, or ideas is a cause of suffering and results in states of trance and disconnection from reality. Through meditation, the practitioner experiences embodied non-discriminatory wisdom, which comes from seeing all things and events as equal. Thus, one can accept life’s conditions and therefore feel a sense of ease.

The practice of meditation is usually carried out in a sitting position, traditionally it is the lotus or the half-lotus position, but it can also be practiced while sitting on a chair. The position of the body is important because it affects one’s focus. The upright sitting position fosters focused attention, whereas in a laid-back position it is harder to focus. The first stage of meditation involves observing the breath, the inflow, and the outflow of the air. While observing and counting the breath the meditator will have different thoughts and emotions come

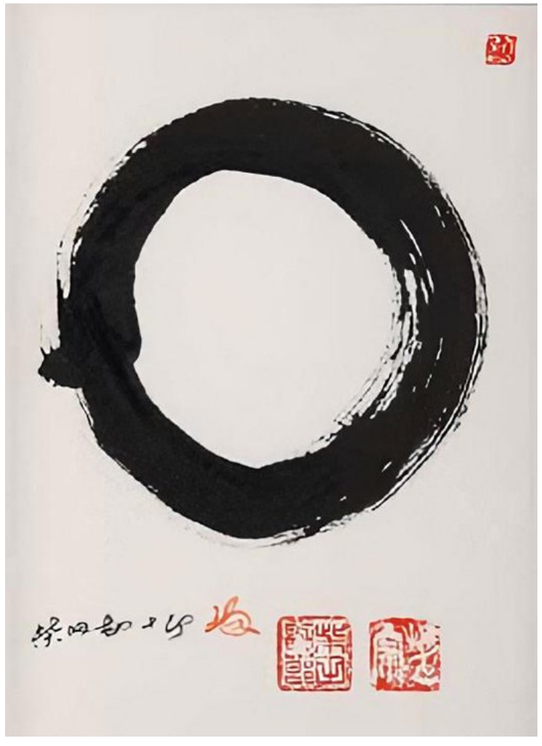

Fig. 1: Zen Symbol

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up and distract them. The task is to observe the thoughts as one observes the breath and disidentify one's self from them. A psychological shift occurs because one no longer identifies themself with different thoughts and feelings, but with 'what is noticing those thoughts and emotions', with consciousness itself. Through meditation, a free state of mind is being achieved, in which there are no psychological projections or superposition of ideas. This free and open state of mind presents a transcendent state from the everyday ego-driven state without disengaging from the everyday world.

Research has provided strong evidence, that meditation has a beneficial psychological effect and that improves overall well-being. People who meditate report having higher awareness, being more focused, feeling calmer, less stressed, and in general happier. By breaking negative thought patterns, and adopting an open, accepting and compassionate state of mind, meditation can help alleviate anxiety and depression, and overcome compulsive or addictive behaviour. Neuroscientists have found that meditation practice changes activity in the prefrontal cortex and leads to the creation of new neural pathways. Due to the strong evidence of its efficacy, meditation has been employed as a useful modality in treating many mental health states.[19]

Böhme's definition of atmosphere as a felt space through bodily presence has parallels to the teaching of Japanese Zen Buddhism of the embodied experience as a way of living. Both emphasize the relevance of presence with the body in experiencing reality.

[19] See Kwak S, Lee TY, Jung WH, Hur J-W, Bae D, Hwang WJ, Cho KIK, Lim K-O, Kim S-Y, Park HY and Kwon JS, "The Immediate and Sustained Positive Effects of Meditation on Resilience Are Mediated by Changes in the Resting Brain," Frontiers in Human Neuroscience 13:101 (2019), doi: 10.3389/fnhum.2019.00101.

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Retreat Centre

[20] Xiaoxiao Fu, Maneenuch Tanyatanaboon, Xinran Y. Lehto: Conceptualizing transformative guest experience at retreat centers, International Journal of Hospitality Management 49 (2015): 83–92.

A retreat center is a type of lodging where all amenities during the guest's stay are provided. It normally includes accommodation, meditation and yoga classes, therapy sessions, dietary programs, and access to recreational and leisure spaces. In some cases, the offer is extended to a spa and wellness area with a holistic approach. The visitors come to learn techniques that improve the body-mind state and to find time and space for reflection and contemplation. Retreat centres are usually planned in connection to nature in secluded areas close to the sea, or a mountain to convey a sense of refuge and peace.

A retreat is becoming a form of touristic attraction for modern citizens, who are willing to travel overseas and usually stay for an extended period. In a study on the guest's transformative experiences in four popular retreat centres in Thailand, it was found that the average length of stay was 11-14 days. 40% of the guests came from Europe, 15% from Asia, 14% from North America, and 52% of all guests travelled alone. Most of them wished to make some changes in their lives, learn to better cope with some sort of difficulties or were looking to overcome an existential crisis. The guests of the retreat centres in contrast to the traditional passive holiday together with leisure and relaxation time seeked to find a transformative experience.[20]

Water Temple | Tadao Ando
Atmosphere

The Water Temple was planned by the Japanese architect Tadao Ando and built on the hill at Awaji Island with a view over Osaka Bay. The temple hall is placed below a large oval lotus pond with a width of 30 m and a length of 40 m. At the entrance, the visitor encounters the pond, the sky and the vast view over Osaka Bay. The descending concrete staircase divides the surface of the pond in the middle and leads to the temple hall. [21] It appears as if the staircase is leading the visitor underwater evoking a sense of mystery and wonder. The temple hall in the souterrian consists of a square room within a circular room. The square on the ground floor is defined by a grid of 8 meters high timber pillars with a distance of one ken (the traditional Japanese module), which is approximately 1.8 meters. There is one source of light in the temple, which is on the west side behind the altar. [22] In the afternoon, direct light shines through a vermillion wooden latticework. This creates dim, reddish light in the temple, which contributes to the spiritual and warm atmosphere.

The ground floor with the oval pond and the concrete curved wall behind the temple is abstract and modern. During a visit to the temple, one experiences a set of unusual and surprising settings and dramatic spatial shifts. Firstly, the temple can be approached from the upper side of the hill, and it is hidden behind a curved concrete wall, which the visitor needs to bypass to reach the pond. Then, one encounters the water surface, the lotus pond, the sky and the vast view, down

[21] Masao Furuyama, *Tadao Ando* (Hong Kong: Taschen, 2006).
[22] Tadao Ando, *Light and Water* (Basel: *Birkhäuser 2003).*

the hill, over Osaka Bay. This scenery awakes a feeling of boundlessness, serenity and freedom. In reaching the descending staircase one is again curious, and even a bit fearful due to the ambiguity of what is to follow. The temple hall with its vermillion colour and dim warm light evokes intense feelings of warmth and spirituality. The intimate, introverted character of the temple hall is in contrast to the open and light atmosphere of the outdoor pond area.

Conclusion

The Water Temple, designed by Tadao Ando, is an example of modern architecture that offers visitors a unique and spiritual experience. Specific spatial characteristics, the openness and tranquillity of the pond area, the descending staircase, and the intimacy and warmth of the temple hall create dramatic shifts in the visitor and adds to the overall feeling of wonder and serenity. The Water Temple is an example of the power of architecture in creating intense and emotional experiences.

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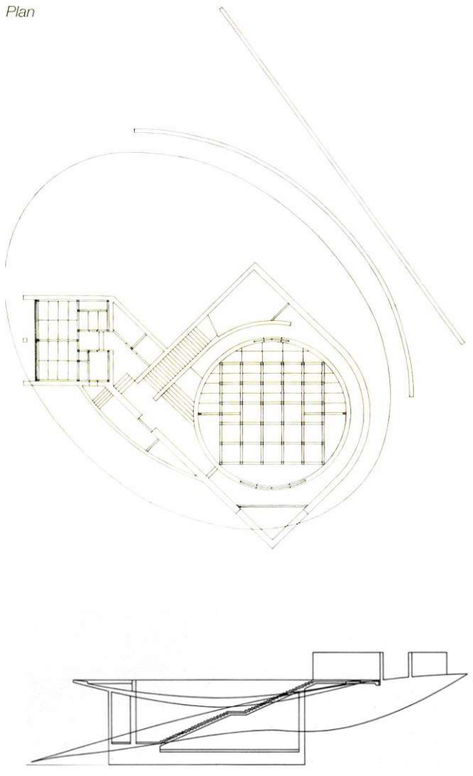

Fig. 2: Water Temple plan
Fig. 3: Water Temple section

Fig. 4: Water Temple situated on the hill
Fig. 5: Water Temple, the descending staircase

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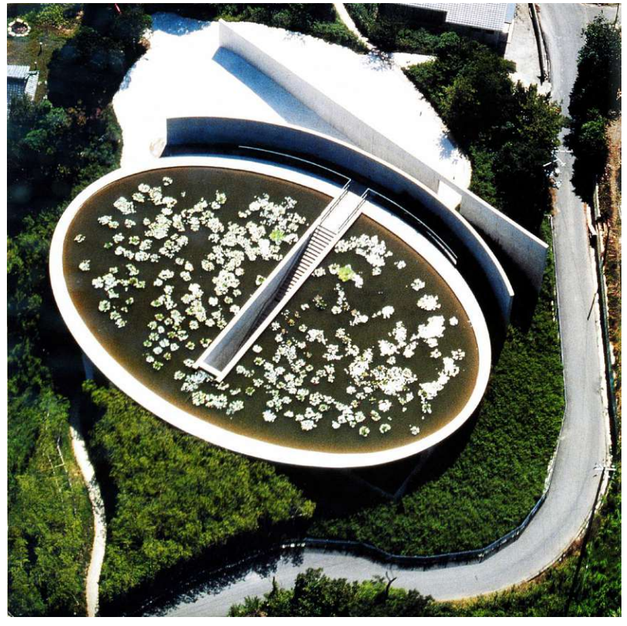

Fig. 6: Temple Hall
Fig. 7: Water Temple, view from above

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Vigna Maggiore | Orma Architettura
Monolithic architecture

Vigna Maggiore is a unique wellness area for the camp guests in Olmeto, southern Corsica, placed on a hillside with a view of the Mediterranean Sea. It is surrounded by centenarian olive and pine trees, pervading the place with their scent.

The architecture encloses the outdoor space, the patio creating a vast open space with a pool looking downhill onto the sea. It consists of different small intimate rooms organized linearly with a hallway between the rooms. The spa consists of a reception, changing rooms, a multipurpose hall, Hamam, a jacuzzi and a massage cabin. In the outdoor space, there is a pool, a tufa patio and a passageway which encompasses the whole outdoor area. The passageway is defined by a row of columns with a concrete slab on top, which frames the view of the sea.

The walls are concrete, made on-site and composed of the earth of the terrain with granitic tuff. Prior to using the materials, tests were run on the excavated tuff to ensure its quality. Instead of using a drum for the concrete, cement was carried to the site and a special truck was used to analyze the aggregate in real time, removing any large or small particles and checking the density. The concrete was then mixed in the same truck and poured into wall forms, which were rammed layer by layer, except for areas reserved for reinforcement. The construction process was meticulous and challenging due to the level of detail required. The walls are 40 cm thick and provide comfortable interior temperature through thermal inertia. The ochre colour of the walls reflects the granule texture and the warm red-brown colour of the earth. The frames of the windows, doors and the main gate are made of burnished brass, which matches the walls' colour spectrum. Slabs were constructed with reinforced concrete.[23]

[23] Orma Architettura, "Vigna Maggiore. Orma Arcitettura," Archdaily, accessed February 4th 2023, https://www.archdaily.com/956386/vigna-maggiore-orma-architettura.

The Vigna Maggiore Spa reflects the authenticity and spirit of the place by using local materials. The patio gives the building its Mediterranean character and fosters communication, spontaneous use and allows for outdoor events. The texture of the walls and the stone have a pleasant, warm appearance, and the pool on the patio serves as a refreshment during the hot summer days. The beautiful simplicity of the architecture, combined with nature's attributes, conveys feelings of warmth, openness, comfort, connection to nature and peacefulness.

Conclusion

Vigna Maggiore Spa is a remarkable architectural project that blends perfectly into the landscape of southern Corsica. The use of local materials, such as on-site-made concrete, reinforced concrete, and burnished brass, gives the building a unique character and an authentic feel. The carefully planned design of the building, with its different intimate rooms connected to the outdoor space through large glass openings, creates a harmonious blend between indoor and outdoor environments. The ochre colour of the walls and the warm appearance of the stone texture reflect the granitic tuff of the terrain. The Vigna Maggiore Spa is an excellent example of how thoughtful architecture can enhance the natural surroundings and provide a relaxing and peaceful atmosphere for guests.

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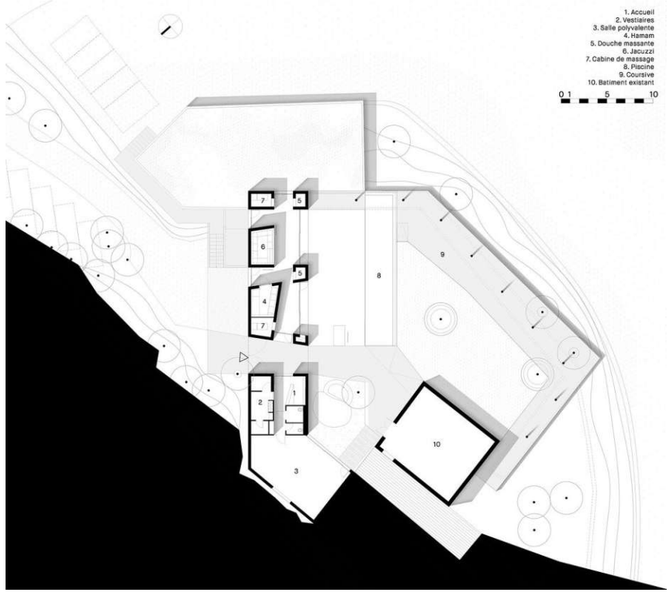

Fig. 8 : Vigna Maggiore, ground floor

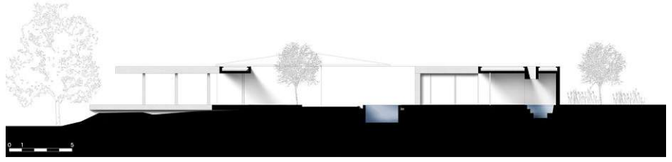

Fig. 9: Vigna Maggiore, Section A
Fig. 10: Vigna Maggiore, Section B
Fig. 11: Vigna Maggiore, outdoor perspective 1

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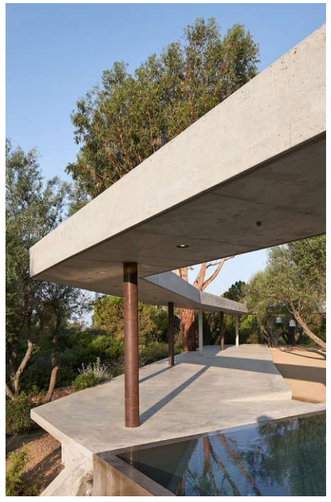

Fig. 12: Vigna Maggiore, interior
Fig. 13: Vigna Maggiore, passage-way
Fig. 14: Vigna Maggiore, outdoor perspective 2

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Casona Sforza | Alberto Kalach
Building material

A boutique hotel located in Puerto Escondido, Oaxaca, Mexico, is situated on the coast of the Pacific Ocean, was designed and developed by the architect Alberto Kalach from Tax Architects and the owner. It took years of gathering inspiration, creating and sketching to make the final design, with the construction being completed in 2020. The main idea for the hotel was to create a space for contemplation with the awareness of the beauty of the environment in balance.

Casona Sforza consists of 10 valued volumes varied in height organized in three groups asymmetrically. In this building, the ancient technique for constructing vaults in brick and modern architecture meet, resulting in a harmonious and serene space. The building is constructed with brick walls and brick vaults which make the building unique and aesthetically pleasing. Concrete and wooden beams are added to make the structure earthquake-proof. The bricks were produced locally, are light in colour, and integrate with the sand landscape. The thick brick construction of the walls and vaults also provides a comfortable interior temperature without air conditioning and good air circulation. The vaulted volumes have custom wooden doors with small blinds that reduce the amount of light, provide privacy, and allow airflow.

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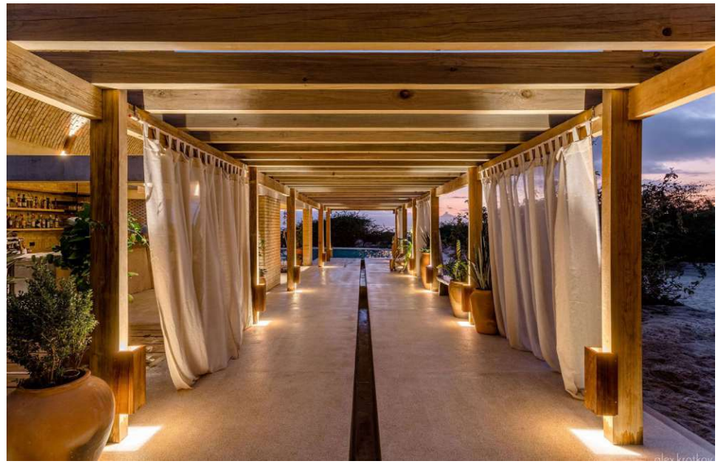

Fig. 15: Casona Sforza
Fig. 16: Casona Sforza, pergola

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An interesting feature of the hotel is the passageway with a pergola. It connects the suites with the common area and leads to the oval pool. In the middle of the passageway is a narrow water pool accentuating the movement and direction towards the big oval pool with four circular steps. This composition of different water volumes has an aesthetic quality and creates a sense of tranquillity.

The project stands for environmental care and social values by fostering local production and culture and using regional building materials. The hotel offers 11 guest suites, a bar, and a restaurant. Five guest units are on the ground floor, each with a terrace and a private pool, and six on the upper floor with balconies and an indoor tub.

The interior was designed by MOB Studio in bohemian style, using earthly colours and local natural materials like tropical wood, regional cotton textiles, and raw linen details. Many furniture pieces and décor were made in Mexico in regions well-known for their traditional craft. Rugs were woven in the small village of Teotitlán del Valle, and palm-leaf lamps came from the port city of Veracruz. Curtains, chairs and hammocks were fabricated in the Yucatán Peninsula. Many cushions and glassware for the hotel were produced by the community Pablo del Sol, which focuses on indigenous culture and sustainability. Casona Sforza supports and finances the community by using their products and organizing trips for the hotel guests to Pablo del Sol to learn about the community and their work. [24]

[24] Mónica Arellano, “Sforza House. Taller de Architectura X. Alberto Kalach,” Archdaily, accessed February 4th 2023, https://www.archdaily.com/960772/sforza-house-taller-de-arquitectura-x-alberto-kalach.

Conclusion

Casona Sforza showcases a harmonious blend of traditional and modern architectural styles. The use of locally sourced materials, such as brick and wood, reflects the project’s commitment to environmental sustainability and promoting local culture. The passageway with a pergola and the oval pool with circular steps creates a sense of tranquillity and peacefulness. The interior design, featuring earthly colours and local natural materials, creates a bohemian atmosphere and fosters community engagement by supporting local craft and sustainable initiatives. Casona Sforza is a testament to how architecture can integrate into its environment while preserving its beauty and cultural heritage.

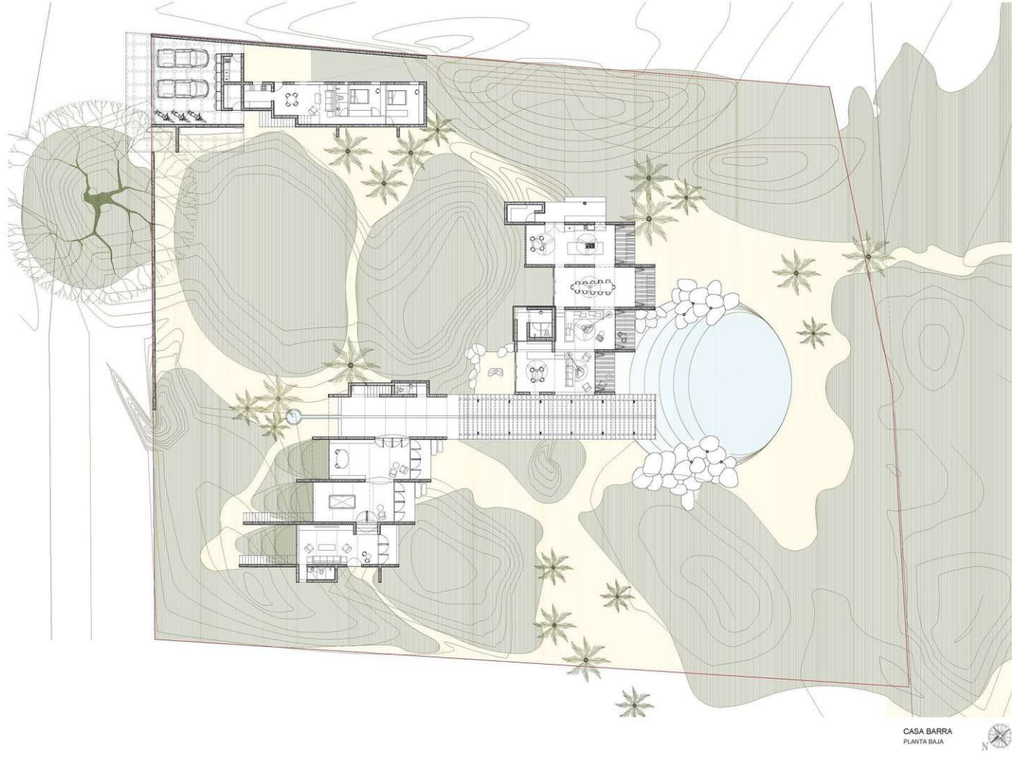

Fig. 17: Casona Sforza, ground floor

Fig. 18: Casona Sforza, details

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Fig. 18: Casona Sforza,
hotel room
Fig. 19: Casona Sforza, interior

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Monolith House | Desypri & Misaris Architecture
Building Material

Desypri and Misaris architects drew inspiration from residential houses in Mani, which were known as 'Ksemonia' or 'the one who has been left alone'. The traditional houses were solitary towers or small residential complexes situated in the rough terrain of Mani functioning as shelters of observation points. The solitary towers in stone appeared as outbursts from the soil, while also blending into the landscape.

Monolithoi House consists of two main houses, and two towers, that are organized to define outdoor space and provide a flexible layout of entrances. The towers are the strongest element of the complex, nevertheless, they are not independent but combined with the outdoor spaces, they form a unified whole. The house is designed for both dynamic indoor and outdoor living, with the courtyard divided into several spaces with unique characteristics and visual frames, such as pergolas, private corners for contemplation, living areas, and an infinity pool. The materials used are entirely natural, displaying the signs of time, origin, and processing. They function as a canvas for the interplay of light and shadow throughout the day. The use of stone, concrete, and wood complements the natural setting and is in harmony with it.

The walls are constructed with natural stone, and reflect the region's character, echoing the austerity, strict lines, and geometric volumes of traditional Mani architecture. The ceilings are constructed with reinforced concrete whose smooth surface is brought into play wi th the roughness of the stone wall. Wooden lattice shutters are completing the volume and give the houses a warm note. These materials alternate inside and outside, evoking an experience through all the senses and creating a carefully crafted statement in the region's landscape.[25]

[25] Desypri & Misiaris Architecture, "Monolith House. Desypri & Misaris Architecture," Archdaily, accessed February 4th 2023, https://www.archdaily.com/977436/monolith-house-desypri-and-misiaris-architecture.

Conclusion

Monolithoi House is a remarkable example of architecture that draws inspiration from the tradition and the landscape of the place. By using natural local materials, a unique and context-specific place was created that simultaneously complements the landscape and blends into it. The combinations of different materials like stone, wood and concrete with carefully planned details: the wooden shutters and monolithic walls have an aesthetic quality and create a pleasant atmosphere.

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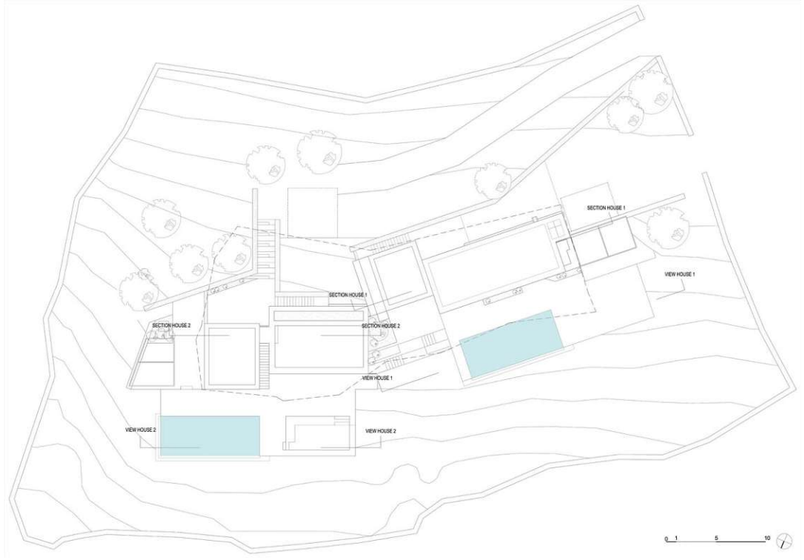

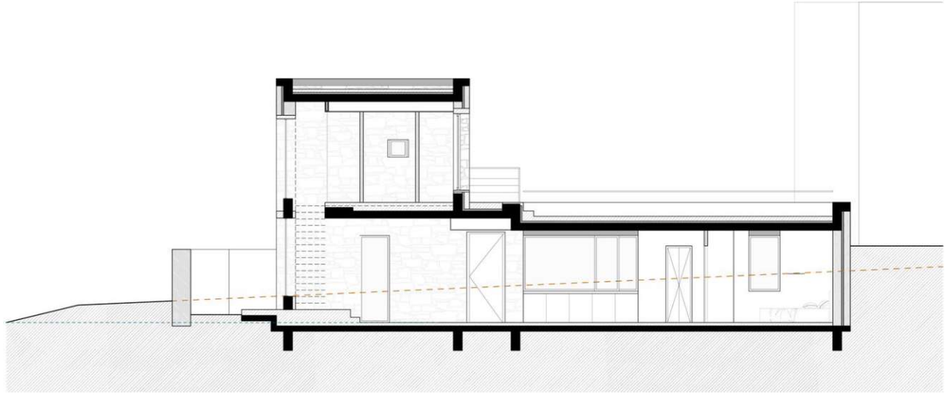

Fig. 20: Monolith House, plan
Fig. 21: Monolith House, section

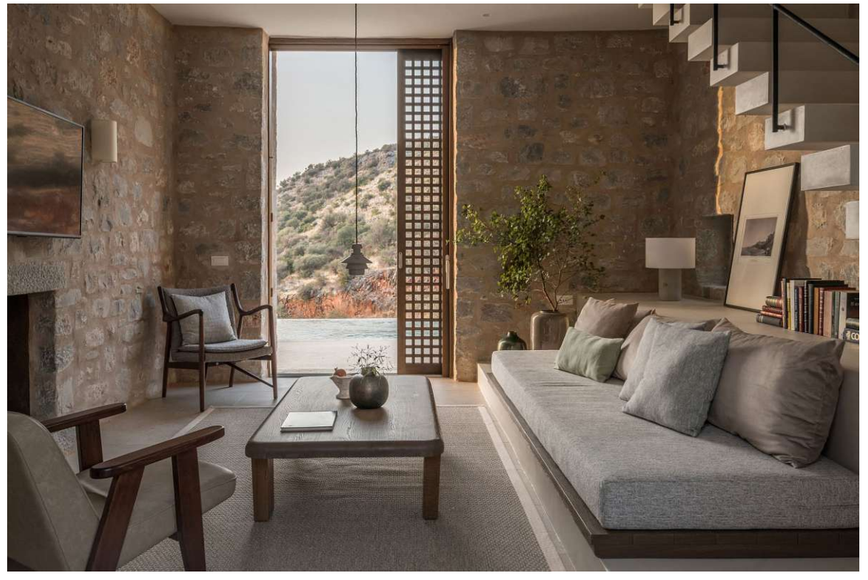

Fig. 22: Monolith House outdoor view
Fig. 23: Monolith House interior

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Mulini Beach | 3LHD
Open Space

The beach is the prolongation of the pedestrian zone in the City of Rovinj in Croatia and is located in front of three hotels: Monte Mulini, Hotel Lone and Hotel Eden. It is a part of a public protective green area and connects Rovinj Marina with the Punta Corente park. The design of the beach was conditioned by the maritime influence, the waves and tidal flows, and the landscape type, so two parts with different characters were planned.

The first part is closer to the marina and under stronger influence of the sea, and the second is the small bay with a natural pebble beach. The first area is constructed with concrete and natural stone. Plateaus and steps were made in different sizes and shapes following the topography. Here, the entrance into the sea occurs through the steps that were planned exactly for this purpose. The bay is a pebble beach with a smooth entrance into the sea and rich greenery behind it.

In between the two areas is the Mulini beach bar with sanitary facilities, showers and a large plateau in front, which can be used for sunbathing. Small concerts and events can occur here because the plateau has the necessary technical equipment. A pergola over the bar provides the shade. It is a steel construction made of steel sheets, 8mm and 20mm in width and 20 cm in height, supported on six points. The steel structure's form and the sheets' angle were planned in line with the positions of the sun during the three warmest summer months. The bar can be closed with a sliding wall hanging from the steel construction. The sliding wall is kept in the storage during the opening hours. [25]

[25] 3LHD, "Mulini Beach. Studio 3LHD," Archdaily, accessed February 4th 2023, https://www.archdaily.com/557300/mulini-beach-studio-3lhd.

Conclusion

Mulini beach has urbanistic importance as it is a continuation of a pedestrian zone connecting the centre of Rovinj and the park Punta Corente. With simple interventions, the project turns the beautiful natural landscape into a lively and attractive public space for gathering, swimming, sunbathing and enjoying the serene coastal atmosphere. In the first area concrete and stone plateaus were made to create a continuation of the pedestrian zone and enable the entrance to the sea. The second area the pebble beach is made in connection to the green area behind it and offers a peaceful and smooth entrance into the sea. The Mulini beach bar, with its pergola, and sliding wall turns the place into a good venue for small concerts and events. Overall, the project's simple interventions and attention to detail transform the beach into a vibrant and attractive public space.

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Fig. 24: Mulini Beach

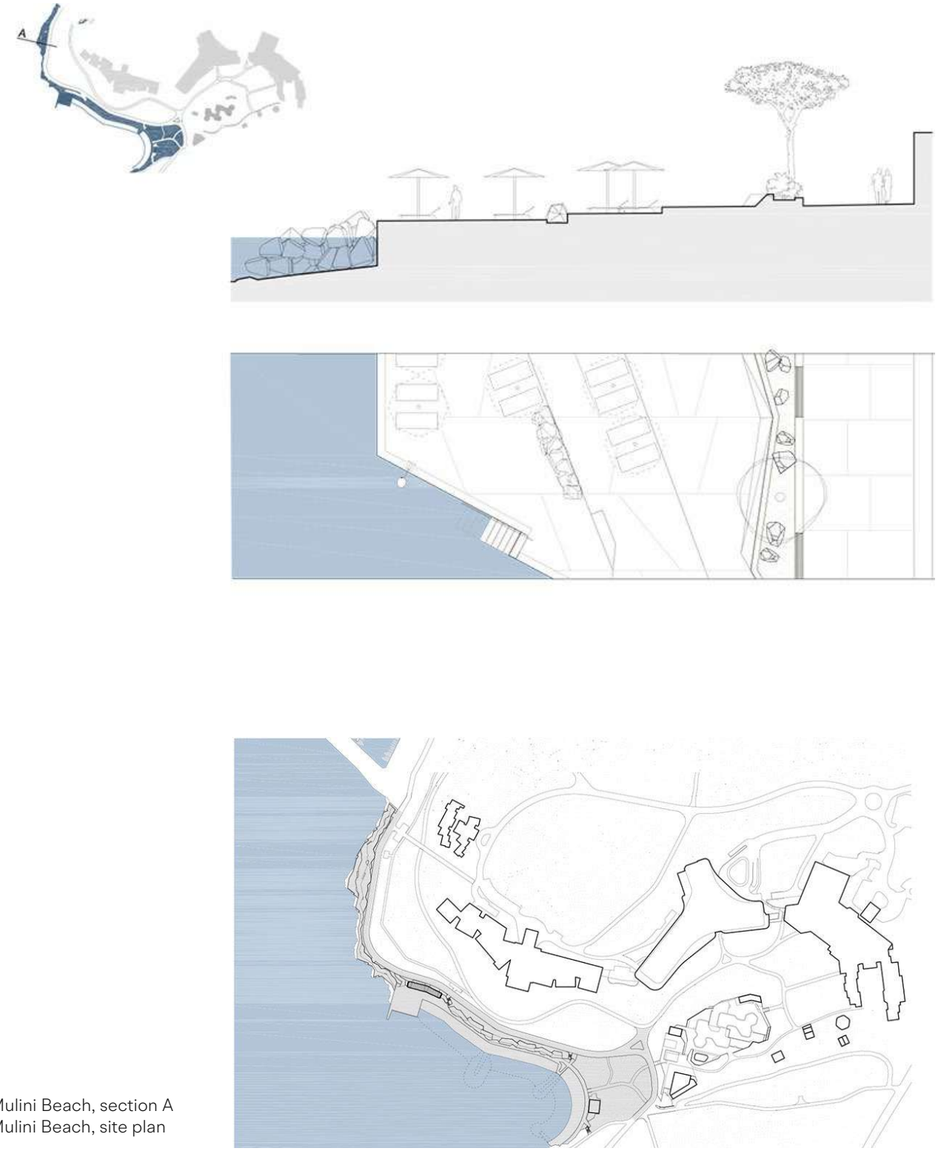

Fig. 25: Mulini Beach, section A
Fig. 26: Mulini Beach, site plan

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Fig. 27: Mulini Beach, steel pergola
Fig. 28: Mulini Beach, pebbly beach

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03

Location & Region

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Šibenik-Knin County
Geography and Relief

The Šibenik-Knin County is geographically located in the middle Dalmatia and Dalmatian Hinterland and has a surface of 2994 km2 and 96624 inhabitants (2021). It spreads from the Dalmatian coast of the Adriatic Sea on the west to the border with Bosnia and Hercegovina on the east side. North of the Šibenik-Knin County is the Zadar County, and to the south is the Split-Dalmatian County. The County's cultural, economic, and administrative centre is the city Šibenik. There are 285 islands, of which seven are inhabited. Next to the border of Bosnia and Hercegovina, on the mounting Dinara is the highest point of Croatia with 1831m and two national parks, the NP Kornati (islands) and NP Krka (river). [25]

The County has a karst relief, mainly consisting of carbonate rocks. Based on the natural characteristics, two main spatial units are defined: the coast with the islands and the karst hinterland (Zagora), with the two main areas the Knin and Drniš hinterland. The main types of relief are limestone and dolomite bedrock, limestone plateau and the river Krka valley. There are a few hills and mountains in the continental part of the County: Promina, Veliki Kozjak, Dinara, Svilaja, and Moseć. Spacious karst fields spread between the mountains: Kosovo, Petar, and Knin fields. From a geomorphological sense, the direction and form of all macro-relief shapes (hills, plateaus and islands) are defined by the direction of the Dinarides (NW-SI). The ground varies between terra rossa, typical soil for the Mediterranean region and

[26] Razvojna strategija Šibensko-Kninske Županije," Javna ustanova Razvojna agencija Šibensko-Kninske županije," Šibensko-Kninska Županija. Službene Stranice, February 2019, P. 9, https://www.sibensko-kninska-zupanija.hr/stranica/razvojna-strategija-ibensko-kninske-upanije-2016-2020/199.

[27] "Razvojna strategija Šibensko-Kninske Županije," Javna ustanova Razvojna agencija Šibensko-Kninske županije," Šibensko-Kninska Županija. Službene Stranice, February 2019, P. 47-48, https://www.sibensko-kninska-zupanija.hr/stranica/razvojna-strategija-ibensko-kninske-upanije-2016-2020/199.

Dalmatia, brown soil and rocky grounds. The largest part of the County's surface is suitable for extensive farming with some smaller areas like the karst fields, which are very suitable for agriculture. The coast is mostly rocky and bare karst, and is not good for agriculture. The beaches are usually pebbly, there are also natural sandy beaches, but they are rare. Through the flow of underground waters, caves and tunnels are created in the karst relief, attracting speleologists and adventurists. The area of the Šibenik-Knin County is seismically active, scoring between 6 and 8 degrees on the Mercalli intensity scale. [27]

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Fig. 29 : Šibenik-Knin County map

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Municipality Rogoznica

Rogoznica is a municipality in the southern part of Šibenik-Knin County with altogether 20142 inhabitants and includes eleven small villages: Dvornica, Jarebinjak, Ložice, Oglavci, Podglavica, Podorljak, Ražanj, Rogoznica, Sapina Doca and Zečevo Rogozničko. The inhabitants' main occupation is fishing, agriculture and tourism. There is one elementary school in the County. The municipality Rogoznica is positioned in the middle of the Dalmatian coast, where the land bulges far into the Adriatic Sea, resulting in winds and sea currents clashing which especially manifests at the cape Planka. The Centre of the Municipality is the village with a small port, also called Rogoznica, placed in the deep bay protected from the clashes of wind and sea storms. The centre is partially set on land and partially on the small island Kopara which is connected with land by an embankment. The village is on the half-island where the old traditional stone houses retained with the traditional Mediterranean atmosphere. Rogoznica is characterised by the long walkway along the coastline, beautiful beaches, and a dense pine tree forest on the island.[28]

The first settlement of today's port in Rogoznica was in the 14th century. In the middle of the 15th century, the inhabitants of the village moved to the island Kopara to flee from the Turkish invasions. When the dangers of the Turkish army went away, they connected the island with the land through an embankment. During the French ruling, a fortress was built. The old church of Saint John of Trogir (Sveti Ivan Trogirski), one of the oldest historical witnesses was built in 1324 on the cape Planka close to today's holiday settlement Kanica. [29]

[28] See Općina Rogoznica, "Rogoznica," [accessed 08.06.2022], https://rogoznica.hr/nova/rogoznica/.
[29] Ibid.

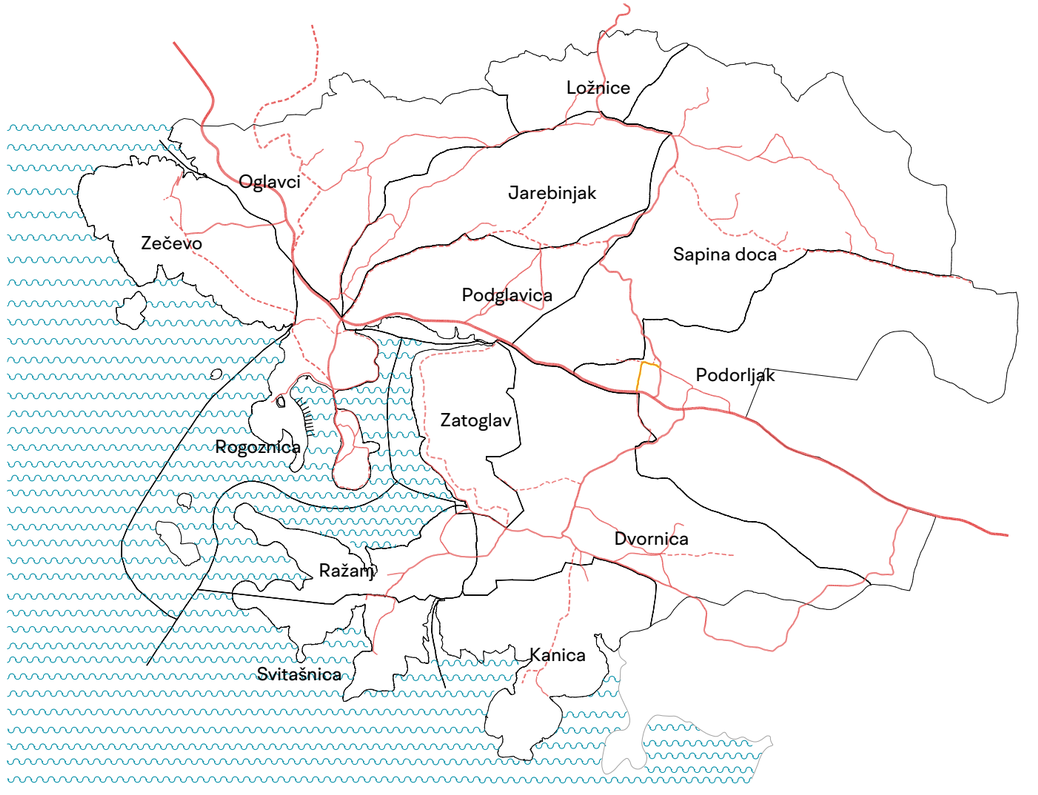

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Fig. 30: Church of Saint John of Trogir

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Climate and Vegetation

Based on its geographical position Kanica belongs to the Mediterranean region. Rogoznica, like most of the Croatian coast, has a Mediterranean climate, which is characterised by hot, dry summers and mild, rainy winters. The area is one of the sunniest in Dalmatia, with around 2600 sunny hours annually. The average temperature is the highest in July at 24.4 degrees Celsius, and the lowest in January when it is around 7.1 degrees Celsius. The least amount of rain occurs in July, with an average of 18 mm, and the greatest amount of precipitation is in November when the average is 155 mm. Bura and Jugo are two winds that are characteristic of the whole coast. Bura is a strong cold wind coming from the northeast and the continent. Jugo is a wind from the southeast with a consistent speed, and it is more common in the southern parts of the coast.[30]

Most of the Croatian islands, a narrow coastal area and middle and south Dalmatia belong to the Mediterranean coastal area. In this area the holm oak (lat. Quercus ilex), Aleppo pine and dalmatian black pine (Pinus halepensis and Pinus nigra subsp. dalmatica). Due to centuries of deforestation for agriculture and settlement purposes, the forests remained in smaller areas. Aleppo Pine trees are prevalent in Croatian coast because of their good adaptation to the Mediterranean climate and the poor soil conditions. They have evolved to withstand dry Mediterranean summers and are able to grow on rocky grounds with little soil. With Aleppo pine other species can also grow in stands

[30] "Razvojna strategija Šibensko-Kninske Županije," Javna ustanova Razvojna agencija Šibensko-Kninske županije, Šibensko-Kninska Županija. Službene Stranice, February 2019, P. 49, https://www.sibensko-kninska-zupanija.hr/stranica/razvojna-strategija-ibensko-kninske-upanije-2016-2020/199.

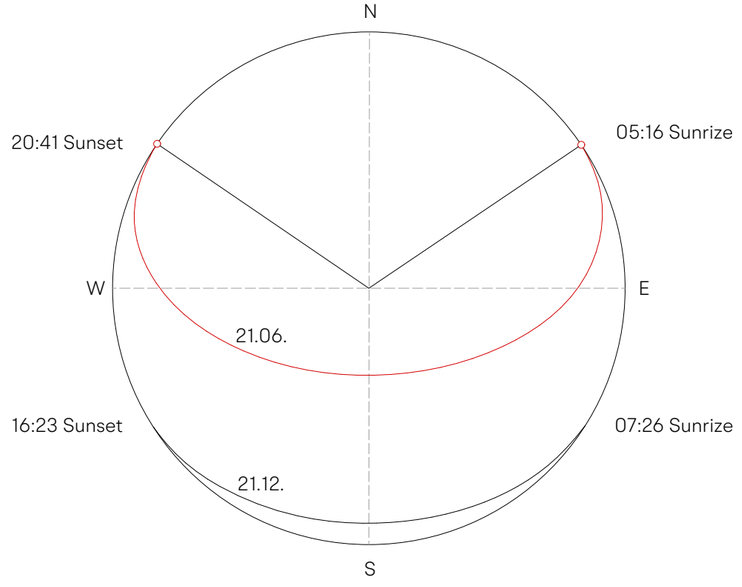

Fig. 31: Sun-path Chart for Kanica

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like wild olive (Olea oleaster), carob (Ceratonia siliqua), lentisk (Pistacia lentiscus), common myrtle (Myrtus communis), rough bindweed (Smilax aspera), prickly juniper (Juniperus oxycedrus and J. macrocarpa), asparagus (Asparagus acutifolius) and others.

In addition to natural forests, pine trees are also commonly planted in Dalmatia and other parts of Croatia for various reasons. They are being planted for reforestation and land rehabilitation after wildfires or other disturbances. Pine trees are also popular for landscaping, ornamental and recreational purposes, and can be seen in parks, gardens, and along roadsides. They have an anti-erosive effect and support biodiversity by providing habitats for a variety of wildlife including birds, mammals and insects.

As a result of human impact, deforestation, forest fires and grazing of the livestock macchia (dense evergreen shrubs) and garrigues (dwarf shrubs) are more prevalent. Macchia and garrigue are degradative forms of holm oak forests which emerge through a regressive succession process with macchia being the first stage degradative form and garrigue the second stage degradation form. Macchia is a shrubland ecosystem characterized by evergreen, sclerophyllous shrubs and small trees. The structure of macchia is very dense and not passable, the height is usually 1-3 meters. It has some benefits like erosion prevention, habitat for wildlife and good adaptation to the hot and dry Mediterranean climate. Important plants for the maquis vegetation in Croatia include various species of rockrose (Cistus), broom (Genista), bulbous plants, common juniper (Juniperus communis), strawberry tree (Arbutus), olive family (Oleaceae), and mastic tree (Pistacia lentiscus), also known as wild pistachio.

With continued regression of the vegetation under difficult climatic conditions, deforrestation and intensive grazing of livestock macchia turns into garrigue. The garrigue consists of typical Mediterranean spice shrubs such as thyme (Thymus vulgaris), sage (Salvia officinalis), savory (Satureja spec.), and lavender (Lavandula angustifolia), as well

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[31] Antun Alegro, “Vegetacija Hrvatske,” Botanicki zavod PMF-a, 2000, P. 2-4, https://scholar.google.com/citations?view_op=view_citation&hl=en&user=8r3Dr78AAAAJ&citation_for_view=8r3Dr78AAAAJ:ruyezt5ZtCIC

as shrubs. But also bulbous plants such as crocuses (Crocus), hyacinths (Hyacinthus), checkered lilies (Fritillaria meleagris), immortelle (Helichrysum italicum), and irises (Iris) are represented in the garrigue. These make the flora in Croatia particularly colorful and fragrant. The most prevalent agricultural land in the County is karst pastures, olive groves, plough fields, vineyards, fig trees and citrus trees. [31]

Fig. 32: Pine forrest in Rogoznica

Fig 33: Macchia in Kanica

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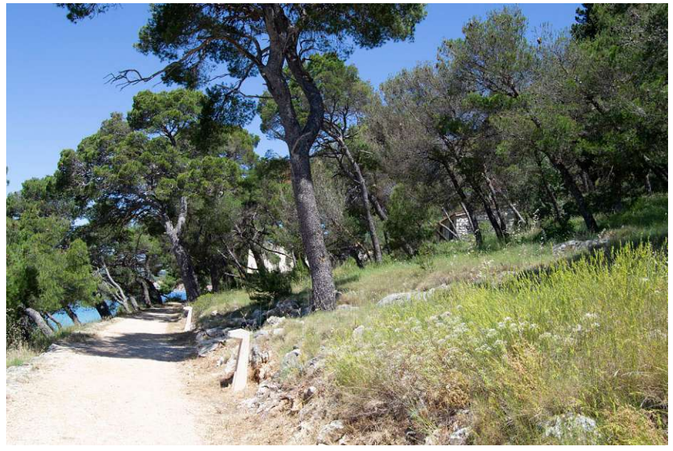
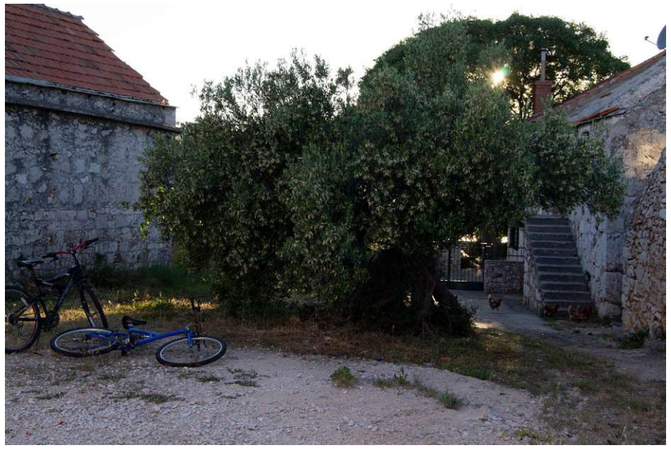


Pinus halepensis
Aleppo pine
Fig. 34

Native to Mediterranean region
Evergreen medium size tree, 15-25 meters high
Grows well in hot and dry areas.



Olea europea
Olive tree
Fig. 35

Hight 6-9m, spread 4.5-7.5 m
Native across Mediterranean region, adapted to warm and dry summers with wet and mild winters.
Culinary use,
production of olive oil.

Agave americana
Agave
Fig. 36

Native to hot and arid regions of the Americas and Carribean.
Strong fleshly leaves, succulent and xerophytic species that form large rosettes of strong fleshly leaves.
90-180 cm tall and
180-300 cm wide.

Helichrysum arenarum
Hellicrysum
Fig. 37

Perennial plant, grows to 30cm tall.
Native to the Mediterranean area, widely spread on the dalmatian coast in Croatia.
The plant has a heling effect due to the numerous beneficial substances it contains.

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Salvia rosmarinus
Rosmary
Fig. 38

Native to Mediterranean region
An evergreen fragrant shrub.
It can reach height up to 1.5m.

Citrus limon
Lemon tree
Fig. 39

Small evergreen tree, 4 to 5 m tall.
Native in China and India grows
well in the Mediterranean region.
Fruit is used for culinary purposes.

Morus alba
Mulberry tree
Fig. 40

Small tree, up to 15 m
originated in China.
Traditionally planted inside
a patio, because it provides
thick and large shade.

Cypresus
Cypress tree
Fig. 41

Evergreen tree, that can grow up to 30 meters. Cypress trees are native to many parts of the world, incwluding the Mediterranean, North America, and Asia. They are often used in landscaping for their aesthetic qualities and are also known for their longevity - some species can live for more than 1,000 years.

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Kanica, Dvornica

Kanica is a holiday settlement in the Rogoznica Municipality, which belongs to Dvornica village. It has been developed in the past few decades. The first houses were built in the 1970s, and today there are mostly private houses with one café and one restaurant.

Kanica has 129 inhabitants, but during the summer months, the number of residents rises significantly. Its peaceful atmosphere, creates a suitable location for a relaxing holiday. There are a few smaller pebble beaches in the village with the crystal-clear sea, and some parts of the rocky coast are evened with concrete to allow access to the sea.

Kanica is a secluded and idyllic location, accessible only by car, offering a peaceful escape from the fast city life. The closest bus line passes through Podorljak, a small village located 5,4 km away from Kanica. Despite this, the location's remote and secluded nature adds to its charm, offering visitors a truly peaceful and tranquil experience.

Fig 42: Houses in Kanica

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Infrastructure in Kanica

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Fig 43: Road in Kanica with drystone wall

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Vernacular Architecture in Dalmatia

Traditional building, also referred to as vernacular architecture, is characterised by functionality, and limitation of resources which requires the use of directly available local materials. Climate, natural resources and social and cultural influences are the main factors in shaping the way of life and building. Buildings were constructed by the community and, often by the people who would inhabit the space with the help of neighbours and family. Homes were built using knowledge and methods that were passed from one generation to another. Dalmatia has a rich traditional and relatively well-preserved building heritage. Due to the area being located on a karst relief, stone is the primary building material used. The stone is mainly limestone, marl and, tufa.

Based on the differences in living conditions coupled with cultural influences, vernacular architecture in Dalmatia can be divided into the coast (Cro. obala) and, the Hinterland (Cro. Zagora). The Dalmatian coast was primarily influenced by Adriatic culture, in the Hinterland by Dinaric and Adriatic cultural spheres. Dalmatian settlements had been built traditionally until the second world war, after which, new building technologies and materials were introduced. Modern movement and the processes of industrialisation and urbanisation, resulted in people becoming more interested in the future, internationality, and technological progress. This resulted in distancing from tradition, as it was perceived to be antiquated. At the beginning of the 21st century, in a globalized world, interest for traditional building has risen due to its authenticity, beauty and simplicity. [32]

[32] See Zdravko Živković, *Hrvatsko tradicijsko graditeljstvo* (Zagreb: Ministarstvo kulture, 2013), 6-11.

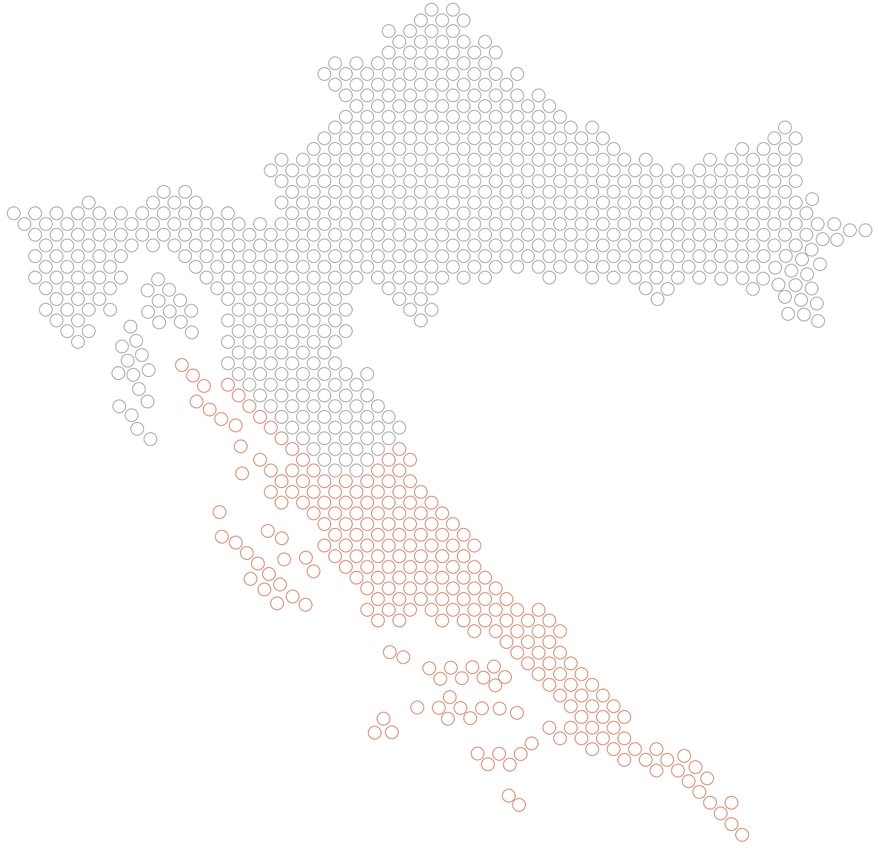

Fig. 44: Map of Dalmatia

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Settlement Structures

At the coast, there was a threat of piracy. As such, settlements were built tightly to improve security. In some cases, they were fortified to provide better defence from piracy and other threats from the sea. Houses at the coast were usually higher than those in the Hinterland because of the need for density. The agglomerations were composed of narrow and curved stone-paved streets with a square. Courtyards were uncommon, and barns were placed elsewhere. The dense configuration gave the settlements an urban character.

In the Hinterland, there were no threats from the sea, but wars with the Turks had marked the region. Here, settlements were composed of several houses, one to two stories high, organized around a courtyard (Cro. Dvor). An example of this house type is Jurlinovi Dvori, which was built at the end of the 18th century and restored in the seventies. The warm Mediterranean climate allowed inhabitants to spend a significant part of the year outdoors. This resulted in much interaction between the indoor and the outdoor space. In the courtyard there would typically be a stone bench with a shade made by grapevine. Settlement structures were dependent on the relief. Houses were usually organized linearly to make greater use of walls to provide better protection from the wind. Different areas such as living, hearth and barns were organized in different zones for hygiene. On steeper slopes, less organised and sponatneous settlements emerged.[33]

[33] See Zdravko Živković, *Hrvatsko tradicijsko graditeljstvo*, 24-25.

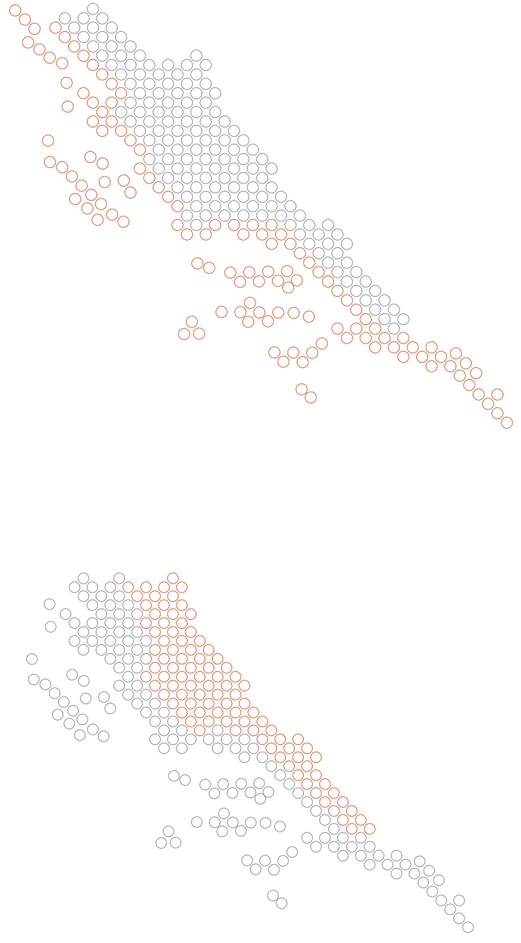

Fig. 45: Dalmatian coast
Fig. 46: Dalmatian hinterland

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Fig. 47: Mali Iž,
a dense Settlement on the Island Iž

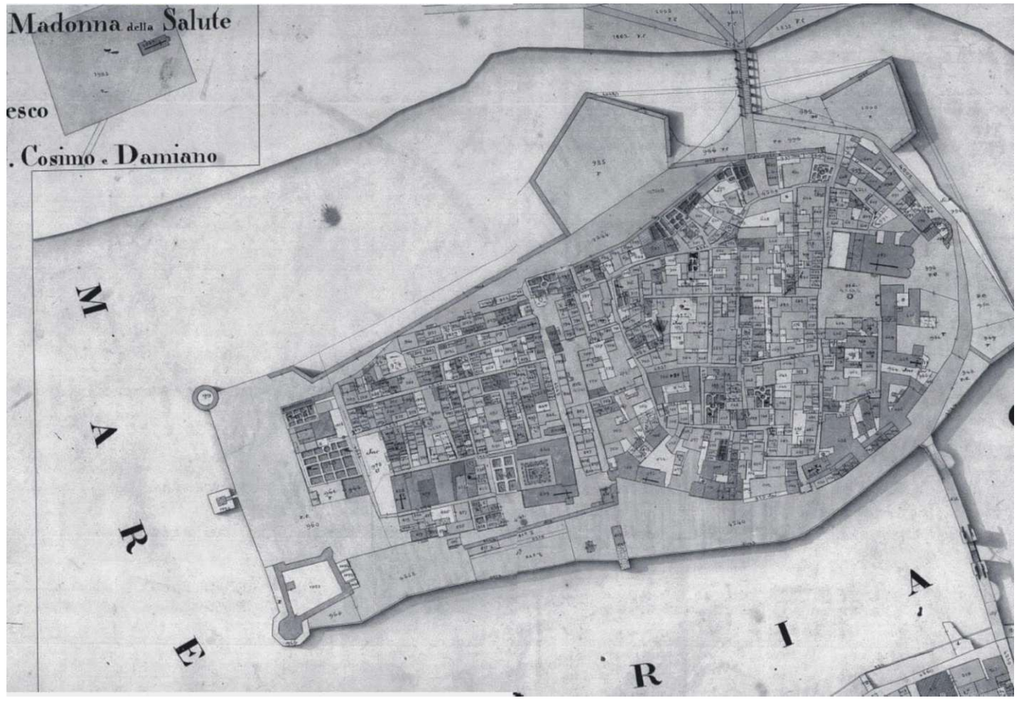

Fig. 48: map of Trogir from 1830.
Dense settlement structure with
narrow curvy streets

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Construction and Materials

Stone was the primary building material in Dalmatia. It was used for fundaments, walls, window and door frames, roofing, paving courtyards and, streets. For construction of walls, stone was roughly carved and bound with lime mortar. Walls were approximately 50 cm in width and afforded an insulating effect. Windows were small, large amounts of natural interior lighting was not required as inhabitants spent much of their day working outdoors. Smaller windows also prevent excessive heat and light entering the interior durring the summer months. Furthermore, glass for window production was difficult to source.

By the end of the 19th century, window and door frames were manufactured with regularly and finely carved stone. Window blinds were constructed with wood and painted in dark green. The reasoning for this colour choice has not yet been determined. Ceilings were constructed out of wood; roofs were covered with stone tablets if available and otherwise out of straw and reeds. At the beginning of the 20th century, monk and nun tiles, transported by sea, came into use as roof covering in the coastal area. The walls on the outside were not plastered, whereas the interior walls were.[34]

[34] See Zdravko Živković, *Hrvatsko tradicijsko graditeljstvo*, 229-269.

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First Floor

1 Soba za spavanje/ bedroom
2 Krušna peć/ oven
3 Terasa/ terrace

Ground Floor

1 Kužina/ kitchen
2 Konoba/ tavern
3 tineja
4 Soba za spavanje/ Bedroom
5 Sjedenje/ sitting area
6 loza (brunac)/ grapevine
7 bunar (gusterna)/ well

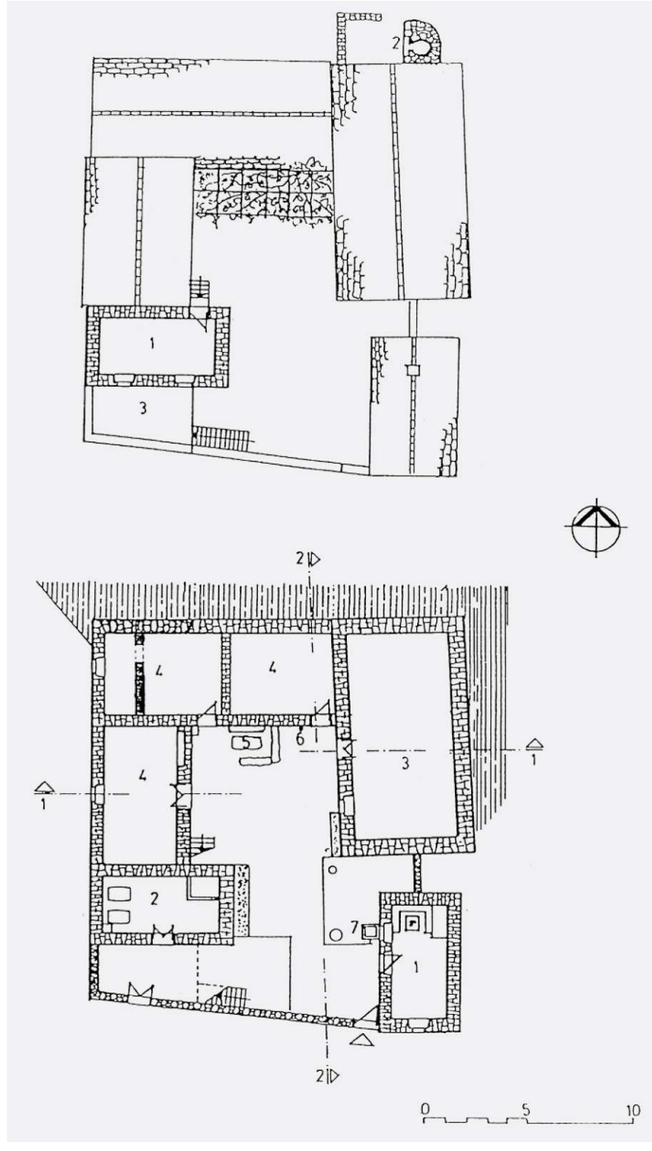

Fig. 49: Jurlinovi Dvori, plans
A few houses organized arround a courtyard, typical for Dalmatian hinterland.

Fig. 50: Jurlinovi Dvori
in Draga village, near Primošten

Fig. 51: Čavoglave,
linear settlement in the Hinterland

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In today's perspective, the traditional building is seen as environmentally friendly because local natural materials are being used without exploiting nature. Precisely because of using local materials and adapting the construction to climatic conditions, vernacular architecture is bioclimatic in today's classification. Through globalisation, there has been a rise in sameness in architecture worldwide. Analysing traditional houses can help better understand the culture and plan buildings specific to the region and its natural conditions. Traditional references in architecture convey a sense of identity and belonging to the inhabitants and help preserve the authenticity and uniqueness of the place.

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Fig 52: Solar, an attractive element of the traditional house, had many purposes. The main was connecting the first floor with the ground level; it was also used as a terrace and provided shade for the tavern entrance (Cro. Konoba).

Fig. 53: Window frames
Fig. 54: Door frames

Fig. 55: Houses in Koprno, Unešić
Due to the hilly relief, houses were often positioned on slopes. That resulted in a typical cascade row of houses.

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Drystone Wall

Drystone wall (Cro. suhozid) is a simple structure that characterizes Dalmatian landscapes. It is built by stacking stones on each other, usually in two layers filled with smaller rocks. The walls were primarily created by clearing the rocky land for agriculture. Stones from the ground were stacked into a wall, dividing the land and protecting the soil from erosion. Field workers also built small round drywall structures (Cro. bunje, or kažun in Istria) for use as shelter from the rain, storms, heat, and storage of tools. The diameter of these structures was rarely more than 3m. The art of drystone wall building is inscribed on the UNESCO Intangible Cultural Heritage.[35]

[35] See Zdravko Živković, *Hrvatsko tradicijsko graditeljstvo*, 296-298.

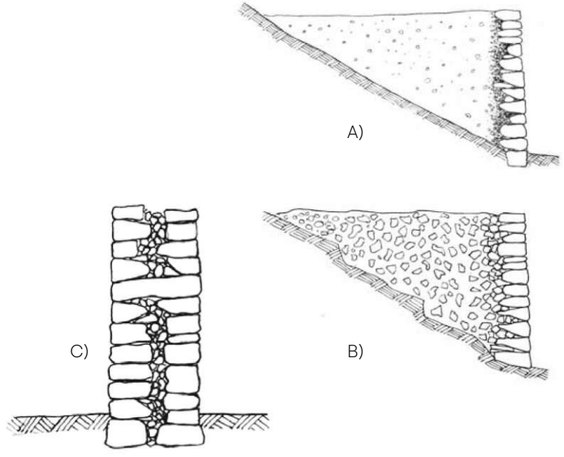

Fig. 56: Drywall Construction

A) a wall that holds the soil
B) a wall retaining a stone embankment
C) free standing self-supporting wall

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Fig. 57: Drywall on the island Bajlenac

Fig. 58: Olive Trees
Fig. 59: Drywall round shelter at Preko island (Cro. bunja)

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Monolithic Building & Natural Stone

The term monolithic draws etomological routes from the Greek word “monolithos”, “one stone” which means to be out of one piece. In architecture generally, monolithic architecture describes a structure that seems to be out of one piece but refers to constructions that consist of one layer. The three most common layers in construction nowadays are the loadbearing layer, the insulating layer and the protective layer, which are being replaced with only one layer that is supposed to fulfil all three functions. Materials that can be used for monolithic construction are concrete, stone, brick, clay, glass and wood.

The most commonly used material in monolithic building is concrete because it can be poured in one piece form. The exact production process is in this case, the pouring stages and the joints are disregarded. In the case of masonry walls, a monolithic structure is made of single bricks or stone pieces, that are laid on top of each other and connected with a binder to create a single continuous wall.[37]

Natural stone is the oldest building material. It is a firm and durable material that has been used for centuries. The first constructions were made by carving out rock and adding stone blocks. With industrialization and the widespread use of reinforced concrete in the 20th century, building with natural stone declined.

[37] See Andrea Deplazes, Andreas Kohne, “*Einführung,*” *in Monolithisch Bauen, eine Bestandsaufnahme* (Verlag der Technischen Universität Graz, 2017), 11-15.

Fig. 60: Plano stone quarry, close to Trogir

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Nowadays the biggest challenge in the monolithic building with natural stone is the higher cost. Stone is obtained by carving out rock with machinery, then cut and shaped into pieces. Big natural stone blocks are heavy so they need to be cut into smaller pieces for transportation and construction on site. Natural stone is a very durable material that needs little maintenance so the higher investment costs are relative in the case of long-term use. Stone structures are also aesthetically pleasing with a unique appearance that shows the reference to the place of origin.

Another advantage of natural stone in monolithic architecture is its ability to regulate temperature. Natural stone has high thermal mass, which means it can absorb and store heat, helping to regulate the temperature inside the building. Natural stone walls that have a thickness of 50 to 80 cm are considered to have a sufficient insulating effect. Being a durable and firm material with high aesthetic qualities it is nowadays commonly used for flooring and facades.

An important aspect to be considered when building with stone is sustainability. Stone as a material with natural origin and durability is considered to be a sustainable material. The carbon dioxide output increases if the stone blocks are being transported long distances. Higher energy consumption and higher cost are also connected with the complicated and detailed processing of the stone. The impact that carving out rocks has on the landscape is also something that needs to be considered.

In conclusion, monolithic loadbearing natural stone structures have high firmness, durability and a unique aesthetic appearance that shows the reference to the region of origin. As a natural material it is considered to be sustainable and cost-effective when used for a long period.[38]

[38] See Ansgar Schulz, Benedikt Schulz, *Naturstein Atlas: Kassicher Baustoff in zeutgemäßer Anwendung* (Detail Bussiness Information GmbH, München 2019), 31-39.

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Fig. 61: Stone blocks
Fig. 62: Flagstone

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04

The Project

We identify ourselves with this space, this place and this one moment, and all these dimensions become part of our own existence. Architecture is the art of reconciling ourselves with the world, a kind of meditation that occurs through our senses.

-Juhani Pallasmaa

The Site

The site is a piece of land, measuring 56,000 square meters in size. It is located in a prime location, on a slope facing south and boastsing views of the sea on the south side. The site is surrounded by intact nature and offers a peaceful and serene environment, making it an ideal place for a relaxing holliday and meditation. The south-facing aspect of the site ensures that it is flooded with natural light, making it a bright and welcoming place. The views of the sea from the site are breathtaking, offering a constant reminder of the beauty and majesty of nature. With the sea stretching out as far as the eye can see, the place provides a stunning backdrop for meditation and reflection, inspiring a sense of calm and inner peace.

The site, as the rest of Kanica is, accessible only by car, offering a peaceful escape from the fast city life. The closest bus line passes through Podorljak, a small village located 5,4 km away from Kanica. This remote location offers a unique and tranquil atmosphere, allowing visitors to focus on their meditation practice and connect with their inner selves.

In the land use plan of the Rogoznica Municipality, the site has been earmarked for touristic and hospitality use, primarily for hotels. A public green zone has been designated between the public beach and the site, providing a buffer between the private use and the public beach and guarantee access to the sea to the public.

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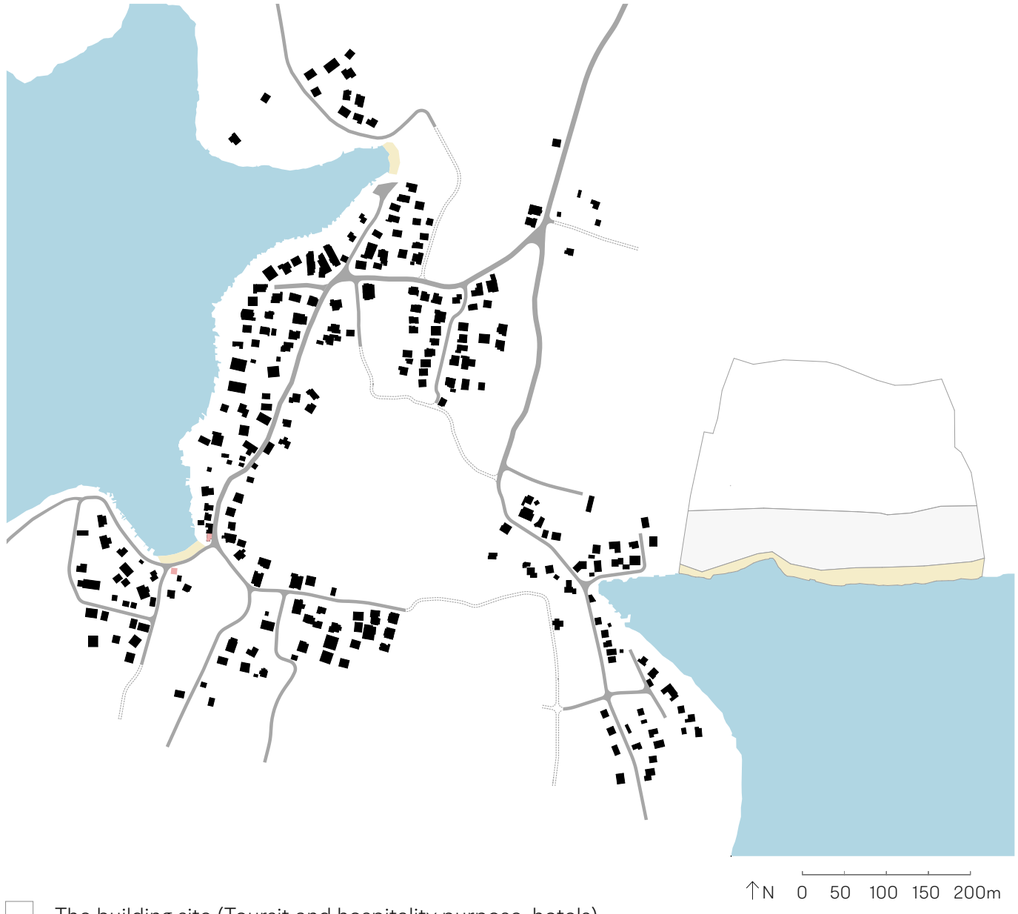

The building site (Toursit and hospitality purpose, hotels)

Public green zone

Fig. 63: The Site, view

Fig. 64: The site, bird perspective

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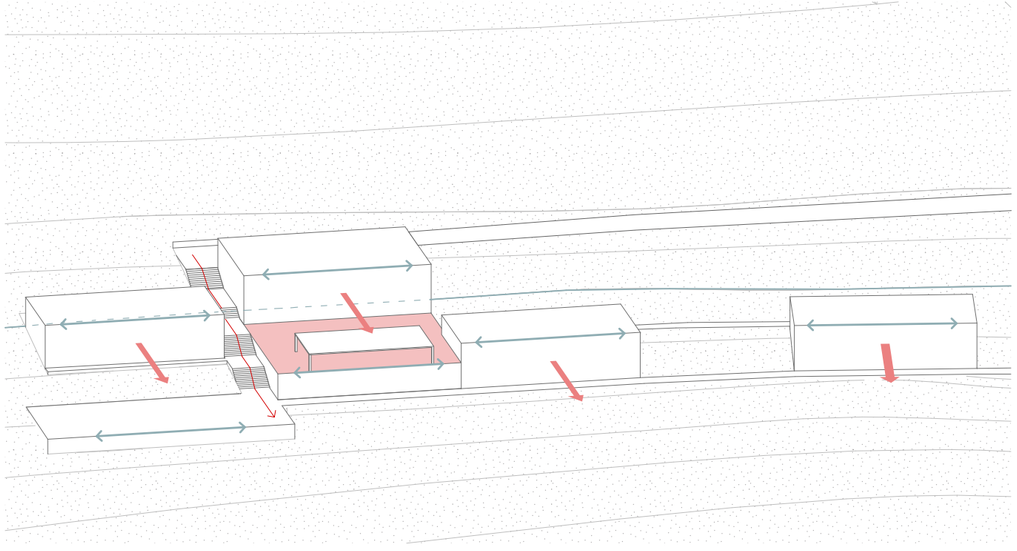
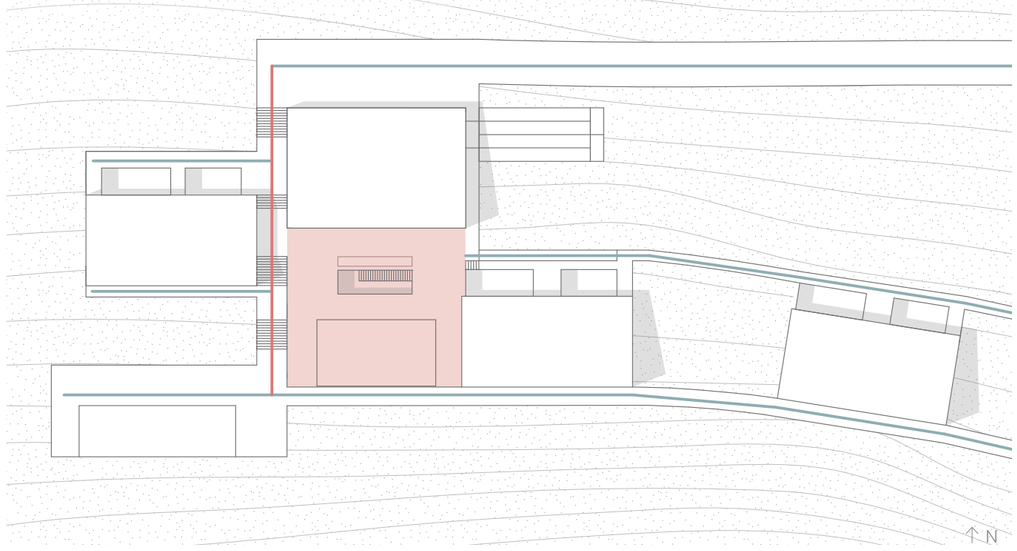
Concept



The placement and orientation of the buildings are primarily defined by the relief and topography of the site. The buildings have a rectangular floor plan with the longer side following the contour lines.

The entrances to the units are on the north uphill side, but the main orientation of the spaces is to the south downhill side

Each building in the complex is positioned in a manner that ensures an unobstructed view of the sea downhill, towards the south.



The four buildings, outdoor spaces and gardens are organized around a patio which is a rooftop of the meditation room.

The main outdoor staircase connects the entrance to the top, the patio in the middle and the pool area downstairs. From there various levels spread the volumes with hotel rooms along the contour lines.

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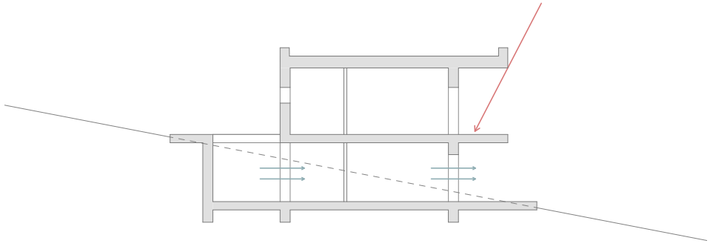
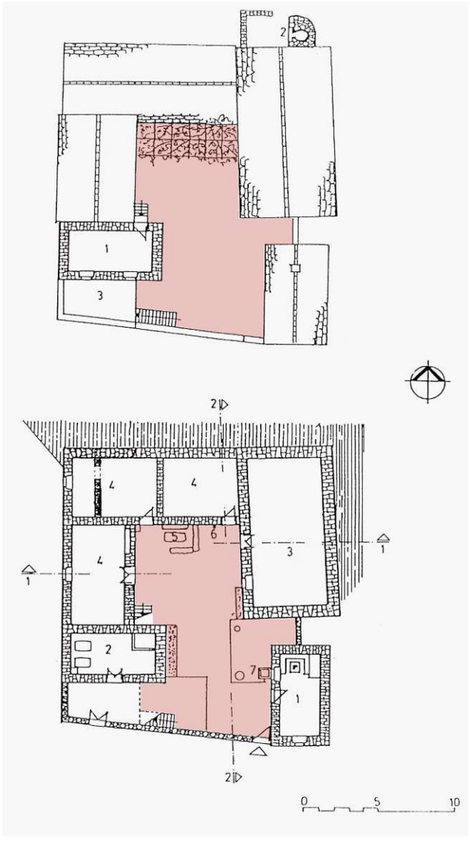


Due to the slope of the site, buildings are partially dug into the terrain. All hotel rooms and suites have a balcony oriented to the south with a view and the units on the lower floor, that are partially underground have an additional smaller patio on the north side allowing cross ventilation and light to come in.



The patio is a modern interpretation of the central courtyard, Cro. “dvor” in traditional Dalmatian architecture, around which several one or two stories houses were built.

Fig. 65: Jurilovi Dvori

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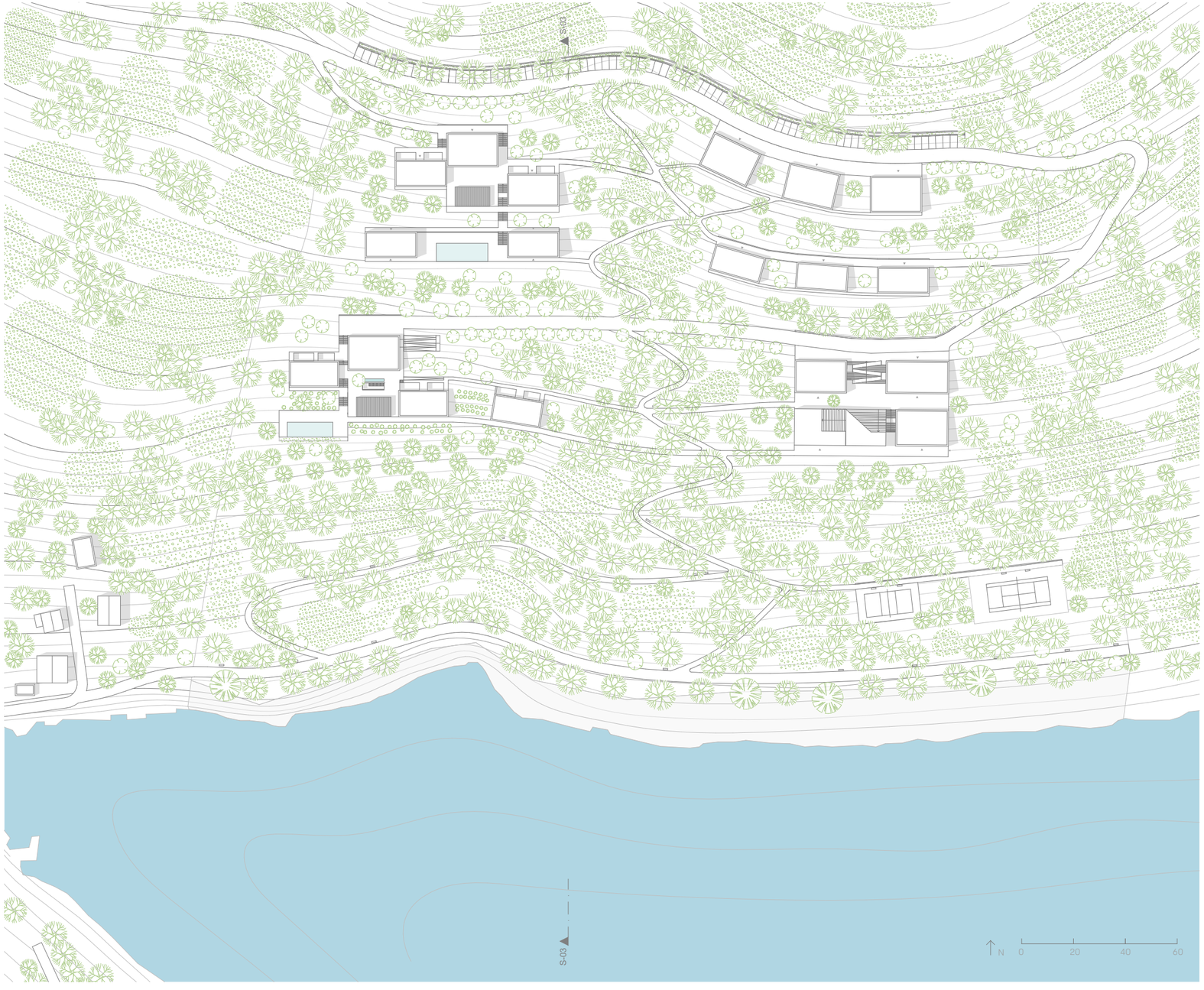
Masterplan

On the site, 4 main complexes are planned. The placement and orientation of the buildings are primarily defined by the relief and topography of the site. The buildings have a rectangular floor plan with a longer side following the contour lines. This type of orientation is common in traditional architecture. Each building in the complex is positioned in a manner that ensures an unobstructed view of the sea downhill, towards the south.

A new road is planned for cars and bicycles connecting the site with the existing road in Kanica. The entrance to all four complexes is on the north uphill side and the main orientation is to the south downhill side. A parking lot along the road up the hill is planned for all the guests of the hotels. Smaller pathways connect the complexes and lead downhill to the sea. The road and the pathways are followed by groups of trees that provide thick shade.

On the west side of the site, two similar smaller (boutique) hotels are planned from which the one on the south is the Retreat Centre I planned in detail. The building complex on the northeast side is an aparthotel designed for families and anyone who wishes for a larger and more affordable living area on their holiday. On the south side, a public complex with commercial use is planned as a meeting point for the guests and the whole of Kanica. Here two restaurants, a café, two shops and a spa are planned. In the green protective area, south of the site a tennis court and a beach volleyball court surrounded by trees and greenery are placed. Both the beach area and the protective green area belong to the open public space.



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Schnitt S-03

The Retreat Centre

The Retreat Centre is positioned on the southwest side of the site. The main four buildings, outdoor spaces and gardens are organized around a patio which is the rooftop of the meditation room. The shared areas like the reception, lobby, restaurant, bar, patio, and meditation space are organized orthogonal to the contour lines and follow the downhill topography of the site. The main outdoor staircase is placed alongside these spaces and connects the entrance to the top, the patio in the middle and the pool area downstairs. From there, the buildings with hotel rooms spread along the contour lines on different levels.

The central piece of the complex, the patio serves as the main meeting point and features a small pond, an olive tree, and a pergola. The patio is a modern interpretation of the central courtyard, Cro. “dvor” in traditional dalmatian architecture around which several one or two floor houses were organized. It allows for different uses: a large outdoor dining area, as a part of the restaurant, as an outdoor meditation space under the wooden pergola, or for various events.

Due to the slope of the site, buildings are partially dug into the terrain. All hotel rooms and suites have a balcony oriented to the south with a view and the units on the lower floor, which is partially underground have an additional smaller patio on the north side allowing cross ventilation and light to come in.

Wooden latticework screens inspired by Japanese architecture ensure intimacy on the balconies between different units. The meditation area can be accessed either by the small descending staircase at the patio or from the downside through three large glass sliding doors. The main meditation room is a large rectangular space with an intimate character which is achieved by the dim light that enters through

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Construction

All exterior walls of the building are constructed with natural stone that is extracted from the site while preparing the terrain and in the stone quarry Plano close to Trogir, 30 km away from Kanica. Stone pieces are bonded with lime mortar into a monolithic wall with a 50 cm thickness to provide sufficient insulation for the interior. The slabs and fundaments are constructed with reinforced concrete. Stone is also used for flooring the patio and the outdoor pathways within the complex. The shutters, the pergola and the lattice work are made of wood and give a warm note to the structure. The stone buildings blend in with the surrounding and the landscape and show reference to the Dalmatian region and tradition.

Planning according to the climate

The use of material and the planning was done according to the warm Mediterranean climate of the region. Numerous outdoor spaces were planned that allow for outdoor living during warm months: the central patio, a loggia, balconies, and gardens. Monolithic stone walls have a high mass, so they regulate the interior temperature through thermal inertia. The temperature of the spaces that are partially underground is getting regulated by the ground temperature. Big glass surfaces, except for the loggia, were avoided to prevent excessive lighting and heating of the interior during the hot summer months.

Landscape design

The site is a slope oriented to the south and to the Sea. Currently, the vegetation on the site is macchia, dense shrubland, typical for the Mediterranean area. Macchia is 1-3m high and the species included in macchia are various types of rockrose (Cistus), broom (Genista), bulbous plants, common juniper (Juniperus communis), strawberry tree (Arbutus), olive family (Oleaceae), and mastic tree (Pistacia lentiscus), also known as wild pistachio.

Around and between the four main building clusters and along the pathways, pine trees (Aleppo pine and black pine), cypress trees and holm oak trees are planted in groups. These trees are common on the Dalmatian coast because of their good adaptation to the Mediterranean climate and rocky ground with poor soil conditions. That means that the part of macchia was cleared to make space for the tree groups and a part was preserved. The trees have various benefits over macchia. Pine trees in particular have an aesthetic quality and create dense shade so movement and recreation in hot summer months are possible. They also provide habitats for a variety of wildlife including birds, mammals and insects and are low maintenance because of their good adaptation to the climatic and soil conditions of the area. Beaches with pine forests are particularly pleasant because of the shade they provide.

The landscape in between the building complexes has a wild character and is low maintenance, compared to the vegetation inside the complex has a garden character. Here various cultures that are either native to the area or grow very well are planted. Along the pathways and terraces inside the complex, plants like lavender, agave, rosemary, helichrysum and smaller palms are planned. There is an olive tree on the patio and some around the buildings as well as a mulberry tree close to the pool. Additionally, there is a vegetable garden and lemon, mandarin and fig trees that provide some fresh fruit and vegetables for the guests.

Conclusion

Calm and simple architectural forms with natural materials like stone and wood with rich and varied vegetation cultivate a sense of peacefulness, groundedness and connection to nature. The placement and orientation of the buildings are in accordance with the site's relief and topography, following the traditional rectangular floor plan with a long side aligned with the contour lines. The Retreat Centre revolves around a central patio, which is a modern interpretation of the central courtyard (Cro. "dvor") in Dalmatian vernacular architecture and serves as the heart of the complex. The use of local natural stone in construction adds uniqueness and authenticity to the overall feel of the place while blending seamlessly with the surrounding landscape. Additionally, the planning and use of materials take into account the region's warm Mediterranean climate, by creating numerous outdoor spaces and ensuring that all interior spaces are comfortable and livable during the hot summer months. The vegetation of the entire site and the retreat Centre enhances the architecture and increases the quality and pleasantness of the space. The idea is to create context-sensitive architecture that facilitates meditational practice and reflects the Buddhist idea of connection and harmony with the natural world.

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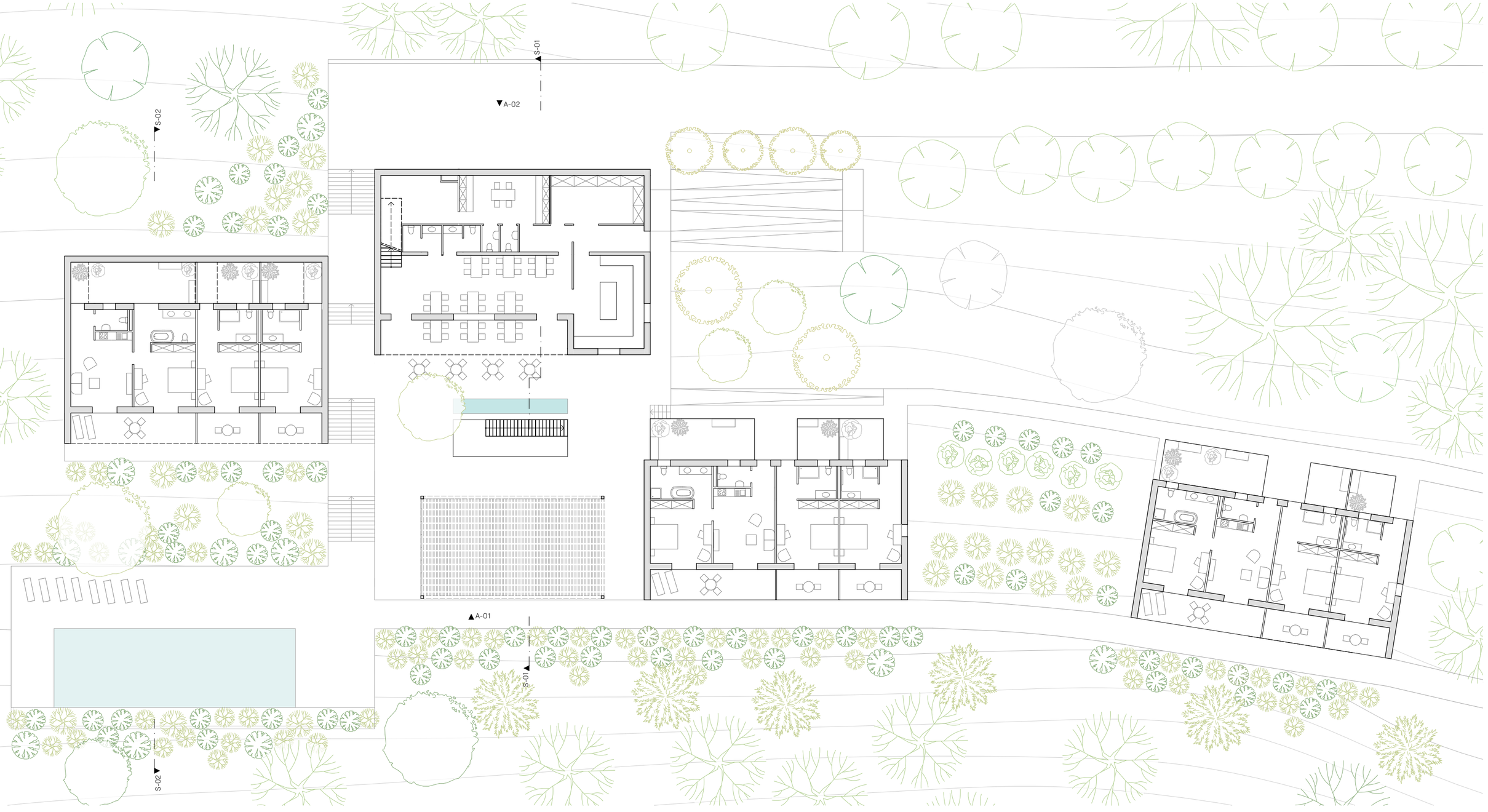

Ground Floor 1:250

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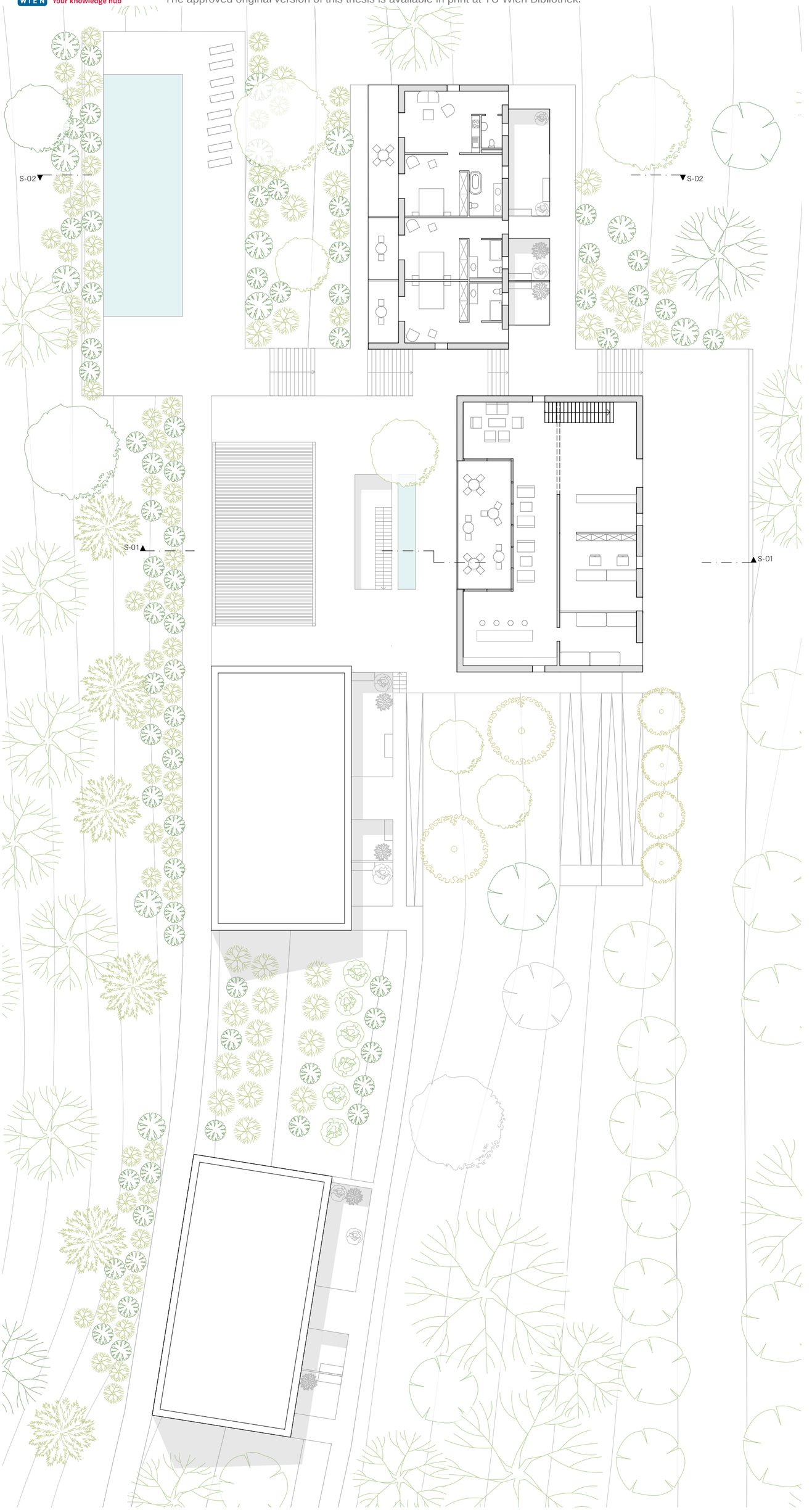

1st Floor 1:250

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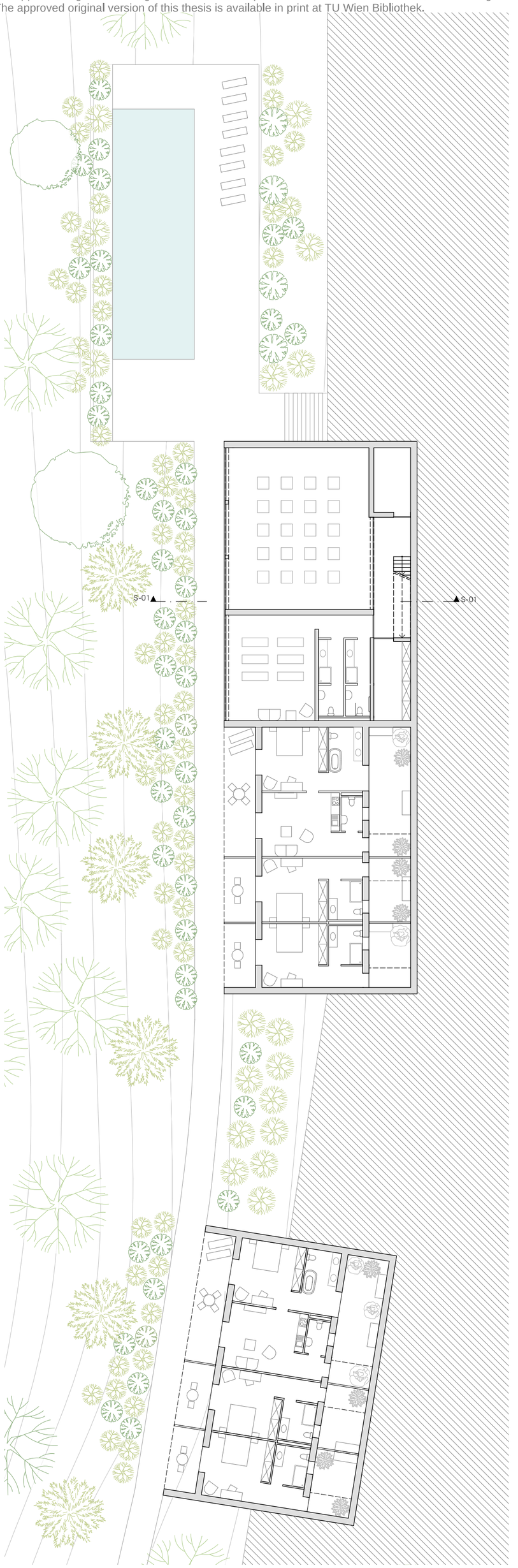

-1 Floor 1:250

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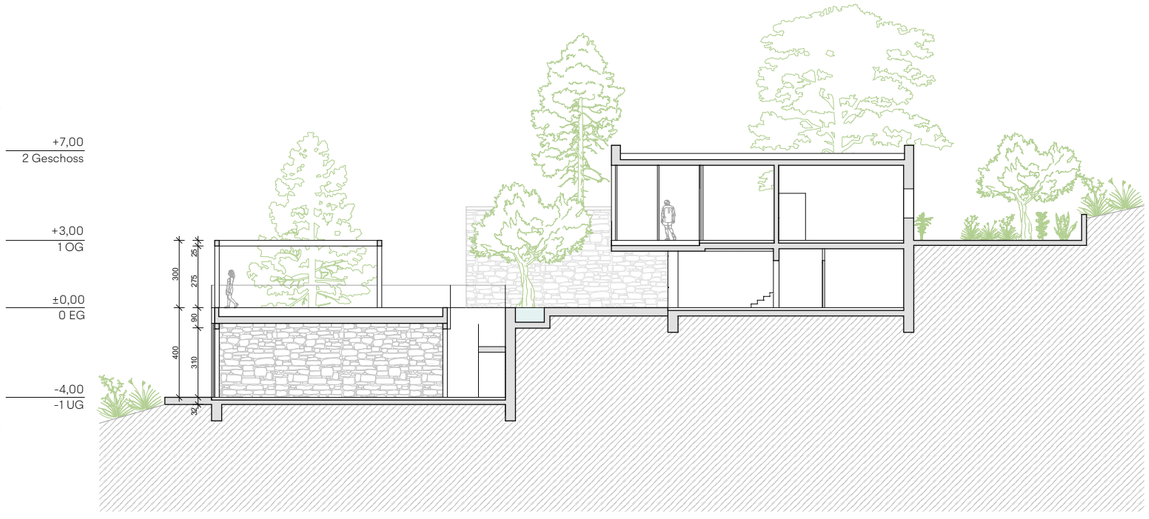
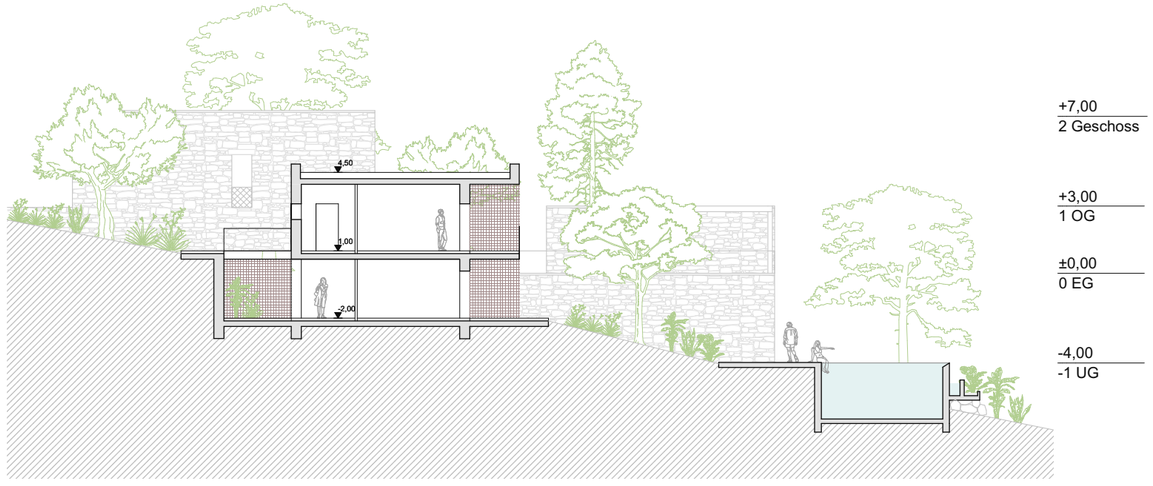


Section S-01 1:250



Section S-02 1:250

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Elevation A-01 1:250

Elevation A-02 1:250

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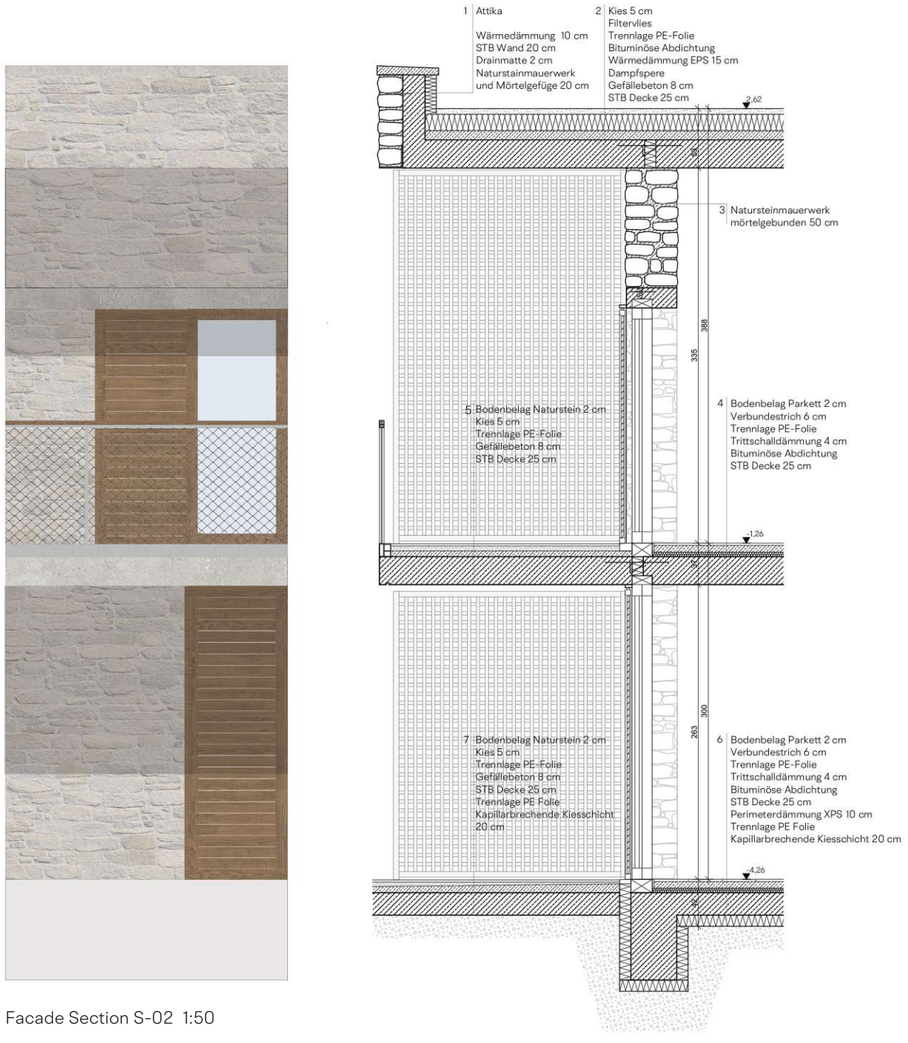
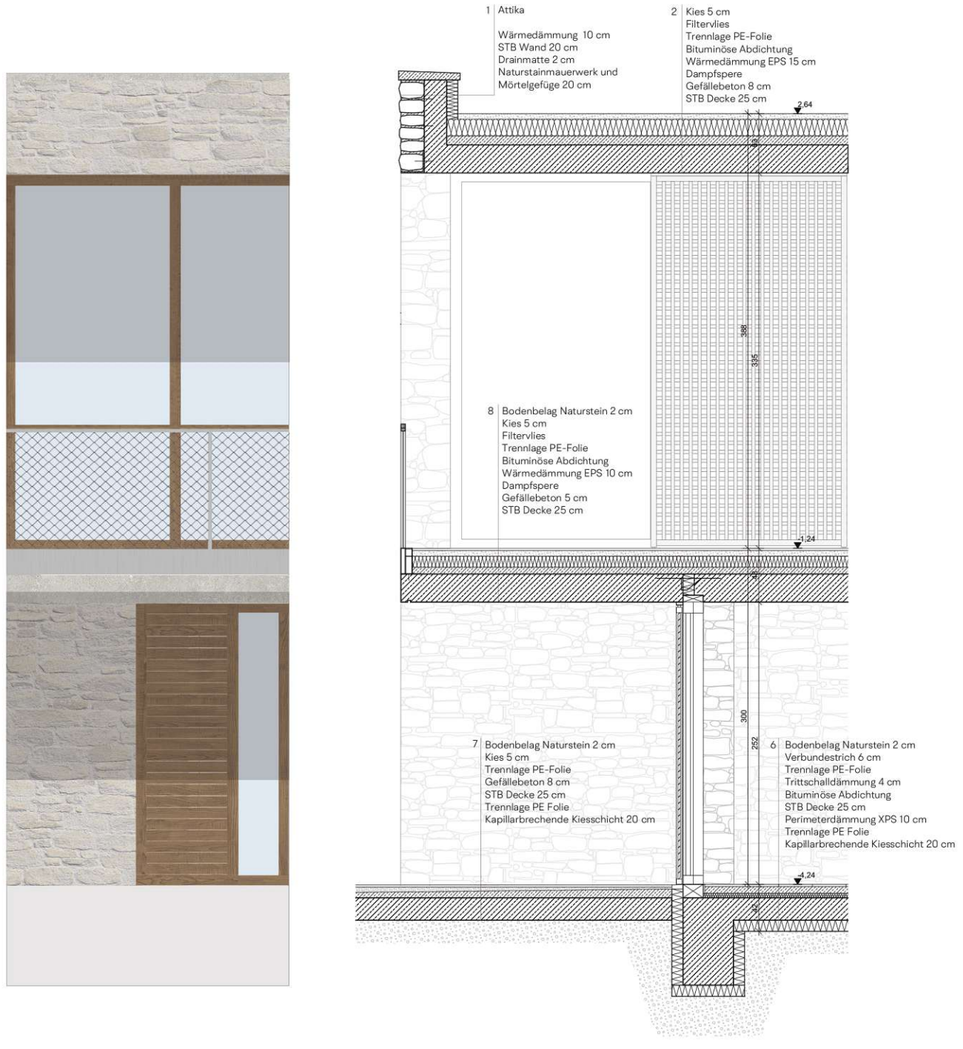


Facade Section S-02 1:50



Facade Section S-01 1:50

1

Thermal insulation 10 cm
Reinforced concrete wall 20 cm
Natural stone masonry with
mortar bond 20 cm

2

Thermal insulation 10 cm
Reinforced concrete wall 20 cm
Natural stone masonry with
mortar bond 20 cm

3

Natural stone wall 50 cm
bonded with mortar

4

Parquet flooring 2 cm
Composite screed 6 cm
Separating layer PE foil
Impact sound insulation 4 cm
Reinforced concrete slab 25 cm

5

Flooring natural stone 2cm
Gravel 5 cm
separating layer PE-foil
Sloping concrete 8 cm
Reinforced concrete slab 25 cm

6

Parquet flooring 2 cm
Composite screed 6 cm
PE foil separating layer
Impact sound insulation 4 cm
Bituminous sealing
STB ceiling 25 cm
Perimeter insulation XPS 10 cm
PE foil separating layer
Capillary-breaking gravel layer 20 cm

7

Flooring natural stone 2 cm
Gravel 5 cm
Separating layer PE foil
Sloping concrete 8 cm
STB slab 25 cm
Separating layer PE foil
Capillary-breaking gravel layer 20 cm

8

Flooring natural stone 2 cm
Gravel 5 cm
Filter fleece
Separating layer PE foil
Bituminous waterproofing
Thermal insulation EPS 10 cm
Vapour barrier
Sloping concrete 5 cm
Reinforced concrete slab 25 cm

Materials

Natural stone wall
Fig. 66

Outdoor walls are made out of natural stone from Dalmatia bonded with lime mortar.

Natural stone flooring
Fig. 67

In outdoor areas, pathways and the patio natural stone from Dalmatia was used.

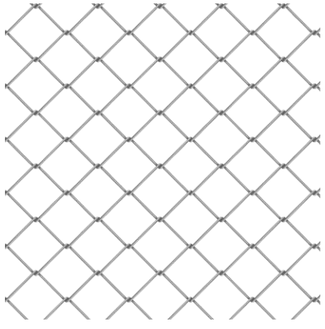
Wood
Fig. 68

Wood with light brown colour gives the building a warm note and it was used for:

The pergola
Latticework
Window and door shutters
Fence handrail

Concrete
Fig. 69

Concrete was used for the slabs and it is exposed in the exterior as well as the interior.



Steel wire mesh
Fig. 70

Fine steel wire mesh was used for all fences. Due to its lightness and pleasant appearance it does not obstruct the view and it blends nicely into the surroundings

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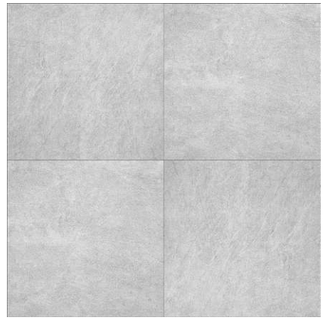

Stone tiles

Fig. 71

Stone tiles were used in the interior:
reception, lobby, lounge area,
bar, and the restaurant.

Parquet

Fig. 72

Parquet was planned for meditation
rooms and hotel rooms.

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05

Appendix

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Picture Credits

Fig. 1 Zen Symbol: https://en.wikipedia.org/wiki/Ens%C5%8D [accessed 18.05.2022].

Fig. 2 Water Temple Plan: Jodidio, P., & Andō, T. (1997). Tadao Ando. Köln ; New York: Taschen.

Fig. 3 Water Temple Section: Jodidio, P., & Andō, T. (1997). Tadao Ando. Köln ; New York: Taschen.

Fig. 4 Water Temple situated on the hill: https://www.architravel.com/project/water-teple-shingonshu-honpukuji/,[accessed 18.05.2022].

Fig. 5 Water Temple, the descending staircase: https://www.pinterest.com/pin/73957618858959926/, [accessed 18.05.2022].

Fig. 6 Temple Hall: https://www.interiorsbycolor.com/water-temple-japan-tadao-ando/, [accessed 18.05.2022].

Fig. 7 Water Temple, view from above: Water Temple Plan: Jodidio, P., & Andō, T. (1997). Tadao Ando. Köln ; New York: Taschen.

Fig. 8-14 https://www.archdaily.com/956386/vigna-maggiore-orma-architettura, [accessed 18.05.2022].

Fig. 15-19 https://www.archdaily.com/960772/sforza-house-taller-de-arquitectura-x-alberto-kalach, [accessed 18.05.2022].

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Fig. 29 edited image was taken from the website: https://oss.uredjenazemlja.hr/ [accessed 22.03.2023].

Fig. 30 https://en.m.wikipedia.org/wiki/File:Crkvica_sv._Ivana,_Punta_Planka,_Ra%C5%BEanj.jpg [accessed 22.03.2023].

Fig. 31 https://www.suncalc.org/#/40.1789,-3.5156,3/2023.03.22/00:54/1/3, [accessed 22.03.2023].

Fig. 32-38 Photos were taken by the author

Flg. 39 https://perrysfruitnursery.com.au/blog/can-we-plant-citrus-now, [accessed 22.03.2023]

Flg. 40 https://www.barchampro.co.uk/store/media/cache/sylius_shop_product_large/6d/c3/5f4459b1a82fe70996841a73713e.jpeg, [accessed 22.03.2023].

Flg. 41-43 Photos were taken by the author

Fig. 44 Zdravko Živković, *Hrvatsko tradicijsko graditeljstvo*, p. 227.

Fig. 45 Zdravko Živković, *Hrvatsko tradicijsko graditeljstvo*, p. 257.

Fig. 46 Zdravko Živković, *Hrvatsko tradicijsko graditeljstvo*, p. 241.

Fig. 48 http://tragurium.blogspot.com/2015/03/stari-planovi.html, [accessed 22.03.2023].

Fig. 49 Zdravko Živković, *Hrvatsko tradicijsko graditeljstvo*, p. 263.

Fig. 50 Zdravko Živković, *Hrvatsko tradicijsko graditeljstvo*, p. 262.

Fig. 51 Zdravko Živković, *Hrvatsko tradicijsko graditeljstvo*, p. 245.

Fig. 52 Zdravko Živković, *Tradicijska kamena kuća*, p. 26.

Fig. 53 Zdravko Živković, *Tradicijska kamena kuća*, p. 28.

Fig. 54 Zdravko Živković, *Tradicijska kamena kuća*, p. 28.

Fig. 55 Zdravko Živković, *Hrvatsko tradicijsko graditeljstvo*, p. 252.

Fig. 56 Filip Šrajer, Andrija Suić, Hrvoje Vidović, Silvija Kipson, Hrvoje Carić, *Mediteranska kamena kuća: Tehnike gradnje i obnove kuće*, p. 21.

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Fig. 58-59 Photos were taken by the author

Fig. 60 https://www.kamen.hr/hr/kamenolomi/plano/

Fig. 61 https://sprega-kamen.com/proizvodi-od-kamena/kameni-blokovi/

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Fig. 65 Zdravko Živković, *Hrvatsko tradicijsko graditeljstvo*, p. 263.

Fig. 66 https://www.poliigon.com/textures/stone?page=3

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Fig. 68 https://www.sketchuptextureclub.com/textures/architecture/wood/fine-wood/dark-wood/dark-brown-wood-matte-texture-seamless-04215

Fig. 69 https://www.sketchuptextureclub.com/textures/architecture/concrete/bare/clean-walls

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Acknowledgements

First and foremost, a special thanks to my supervisor Mr Franz Karner for his dedicated assistance. Thank you very much for your guidance and friendly support.

Thanks to all my friends and colleagues, especially Sara and Anna, for your advice and encouragement.
A big thanks to Alex for support, for reading this thesis and for giving your advice and comments.

None of this would have been possible without my family.
You have been there for me throughout my entire education, in many difficult moments and offered your advice and encouragement.
To my parents, Karolina and Marin,
thank you for your unceasing support and care.

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Impressum

Titel	**House of Feelings** Retreat Centre in Kanica, Croatia
Author	Lucija Dobrović lucijadobrovic@gmail.com
Print	Facultas Druckerei, 1050 Vienna
Binding	Buchbinderei Ira Laber, 1230 Vienna
Paper	Munken Lynx Rough 120g
Font	BR Hendrix light BR Hendrix bold

Vienna, April 2023