

**Amidst the Olive Trees:
A Dalmatian Grove for Mental Rehabilitation**

by

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Dalhousie University is located in Mi'kmaq'i,
the ancestral and unceded territory of the Mi'kmaq.
We are all Treaty people.

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To those who needed peace and friendship.

Contents

Abstract	v
Acknowledgements	vi
Chapter 1: Introduction	1
Suicide in Croatia	1
Statistical Analysis	2
Prevalence of Post-Traumatic Stress Disorder	6
Prevalence of Depression	12
Prevalence of Disabilities	16
Public Perception and Stigma	18
Lack of Suicide Prevention Strategies	18
Searching for a Safe Place	20
Chapter 2: Literature Review	22
What Makes a Place of Healing?	22
Ibashi's Eight Principles	22
Maggie's Centres	26
Research on Mental and Physical Healing	29
Creating the Framework	33
Chapter 3: Framework	36
Application to Croatia	36
Situating the Site	36
Small Town of Tisno	38
Health	42
Culture	44
Connection	45
Environment	47
Productivity	47
Chapter 4: Design	52
Site Selection: Šuplji Dolac Bay	52
Programmatic Organization	54
Architecture	56

Form Decisions.....	56
Material Choices.....	58
Architectural Plans.....	62
Lively Square.....	62
Calm Square.....	62
Garden Square.....	63
Architectural Elevations.....	63
From the Approach.....	63
From the Sea.....	67
From the Rising Sun.....	67
From the Setting Sun.....	67
Architectural Sections.....	72
Through the Lively.....	72
Through the Calm.....	72
Through the Garden.....	72
Zooming In.....	76
Sleeping Quarters.....	76
Workshop.....	76
Vignettes.....	76
Chapter 5: Conclusion.....	82
References.....	84

Abstract

Suicides are one of the leading causes of death from injuries in Croatia. The groups most at risk are those struggling with mental illnesses and those over 60 — due to loneliness and loss of familial and inter-personal roles. How can architecture consider these issues and create a safe place that rehabilitates those in need?

This proposed mental health centre is designed to benefit the mental and physical health of its users, as well as to create the social connections that were previously absent in their lives. Using the key words of health, culture, connection, environment, and productivity, an architectural and programmatic framework was created. It was then applied to the Šibenik-Knin county — a problematic area on Croatia's coast. Situated specifically in an abandoned olive grove on the outskirts of Tisno, where a symbiotic relationship is created as the users rejuvenate the grove and the grove helps rejuvenate in return.

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Chapter 1: Introduction

Suicide in Croatia

Croatia, officially the *Republic of Croatia*, is a small Mediterranean country sitting at the crossroads of Central and Southeast Europe. It's located on the northwestern part of the Balkan Peninsula, with its entire coast lining the Adriatic Sea. As of November this year, Croatia's population was approximately 4 million.

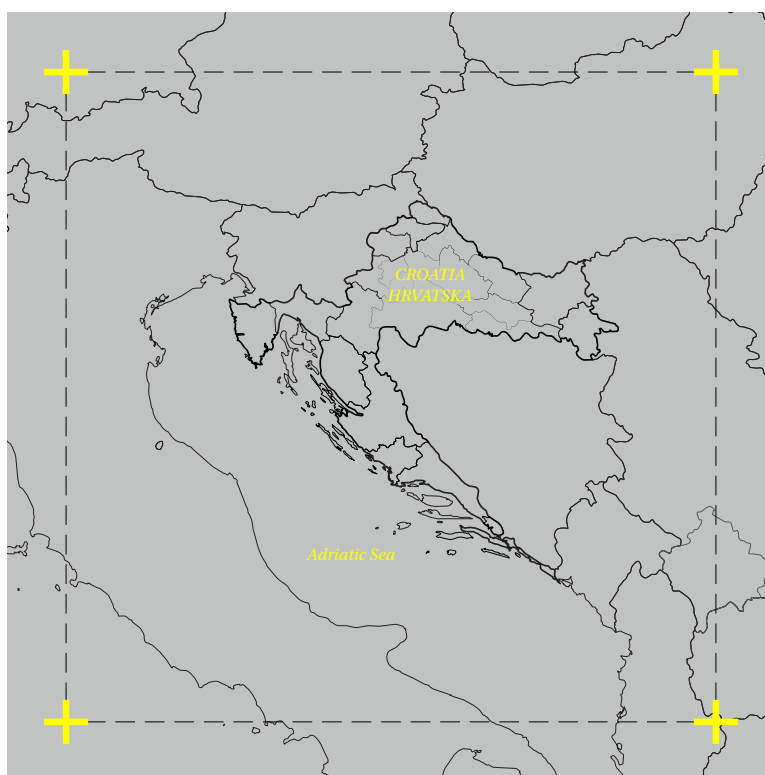


Figure 1. Map showing the location of Croatia in relation to the Adriatic Sea.

This country represents happiness for many. In 2019, Croatia received around 19.6 million tourists. And post-pandemic, the first 9 months of 2023 welcomed 18.7 million visitors (Kryeziu 2023). International tourism accounts for almost 20% of the country's GDP — the largest share in the European Union (Orsini and Ostojčić 2018, 1). Many people enjoy the sun and the sea of the country, finding

it unimaginable that it has a suicide rate higher than the European and global average. Suicides are one of the leading causes of death from injuries in Croatia. It remains a growing national concern with the suicide rates in Croatia being among the highest in the world. In 2016, Croatia was the 16th highest ranking country globally and 8th in the European Union when it came to average suicide rates (Pajić and Orešković 2022, 1).

Statistical Analysis

In 2019, the number of suicides per 100 000 people was 16.4 in Croatia. This means that almost 2 in every 100 deaths were the result of suicide. In comparison, the world average for 2019 was 9.1 — making Croatia's rate almost double. Europe on the other hand wasn't too far below Croatia with

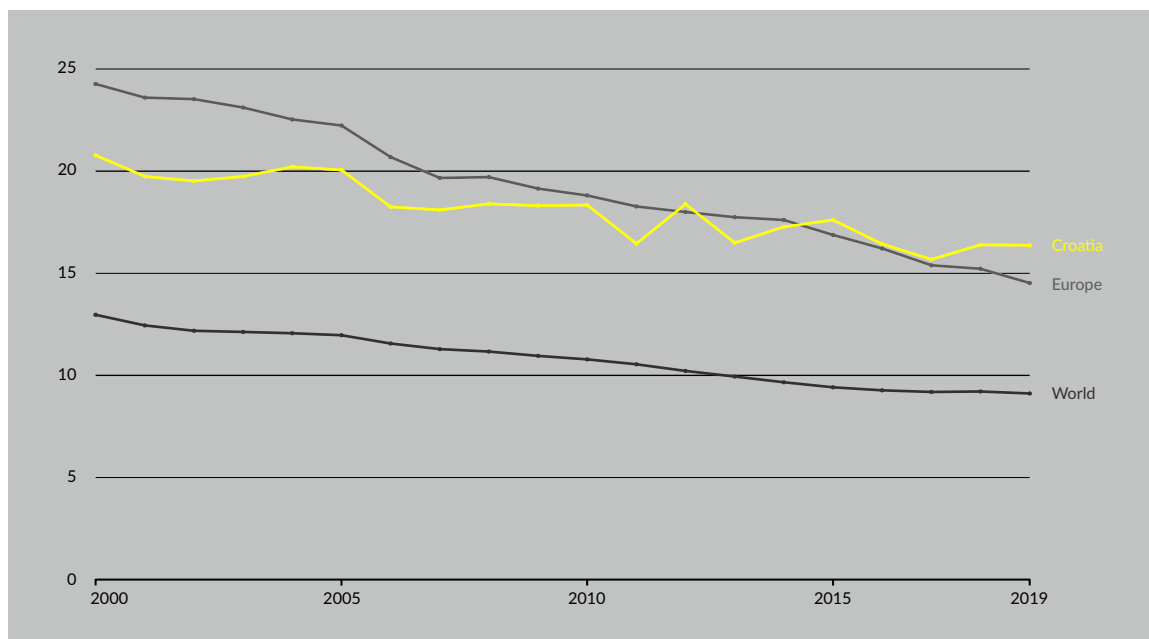


Figure 2. Graph showing the annual number of suicides per 100,000 people for Croatia, Europe, and the world (Our World in Data 2020).

a rate of 14.5 in 2019. Looking at the suicide rate of Croatia in relation to Europe specifically, in the year 2000, Croatia's rate was 20.8, while Europe's was 24.3 — making Europe's

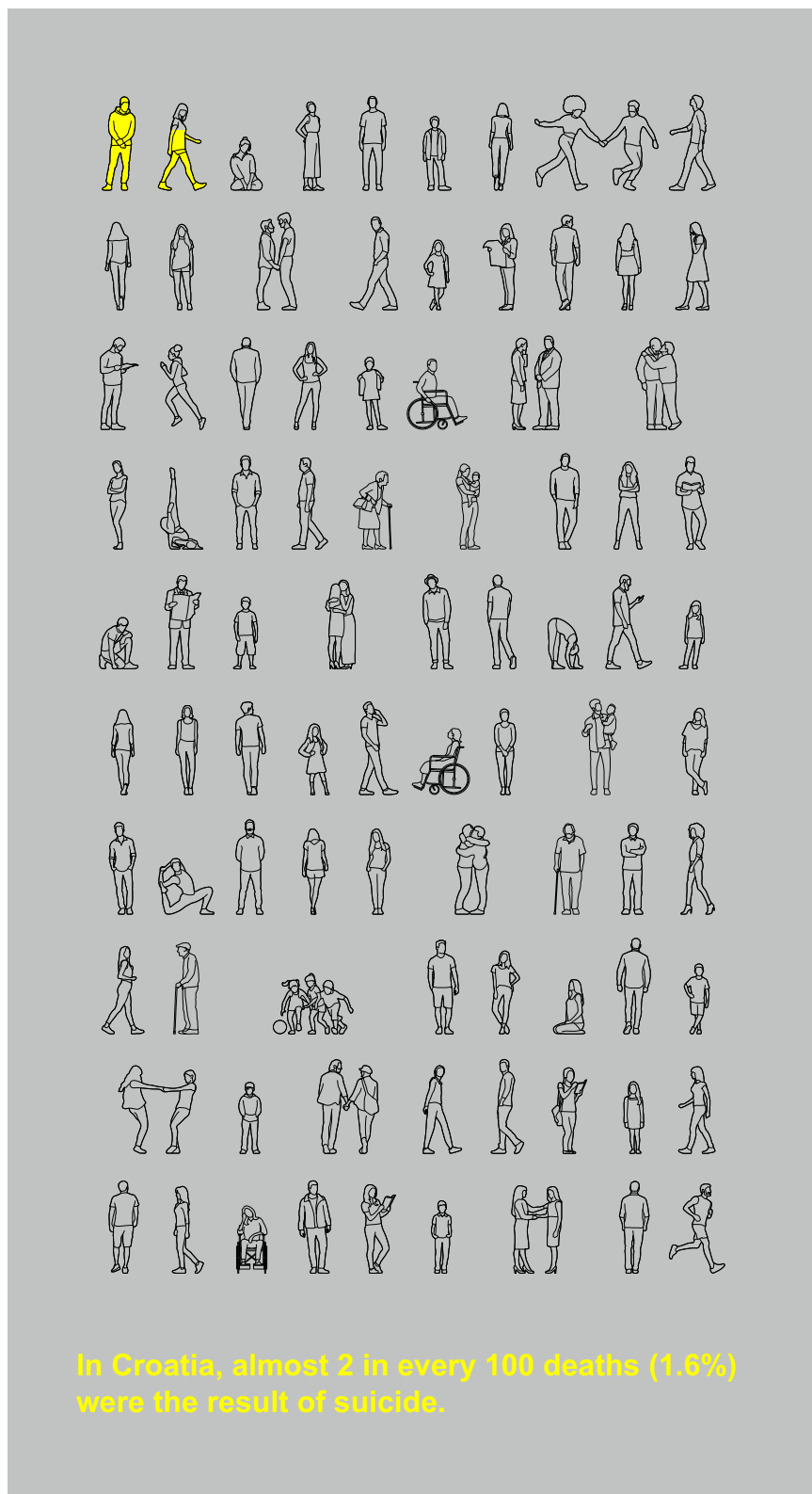


Figure 3. Diagram illustrating Croatia's suicide rate in 2019.

rate higher than Croatia's that year. From the span of 2000 to 2019, Europe's rate decreased by 9.8, while Croatia's only decreased by 4.4. Europe's rate has been improving overall, but Croatia hasn't been making much progress.

Figure 2 shows how unpredictable Croatia's suicide rate is compared to the steadier declines of Europe and the world. It also shows Croatia consistently surpassing Europe's suicide rate since 2014.

According to "Epidemiological Indicators of Suicides in the Republic of Croatia", which analyzes data for suicides between the years of 1990 and 2000, 74.9% of deaths by suicide were male and 25.1% were female. The average age for males was 51.2, while females was 55.6. The highest number of suicides for males occurred in those aged 65 and above, while the number of suicides for females occurred in those aged 60 and above.

Furthermore, medical problems was the largest motive for suicides, as it contributed to 67.9% of male deaths and 80.4% of female deaths. For the health conditions of males specifically, 30.4% had mental disturbances, 16.8% had a physical disorder, and 20.0% had alcoholism. For females on the other hand, 59.8% had mental disturbances — almost double the percentage compared to males, 12.4% had a physical disorder, and 4.7% had alcoholism. The remaining percentages are of healthy status.

Looking at "An Exploratory Analysis of Fifteen Years Suicide Trends Using Population-Level Data from Croatian Committed Suicides Registry", which states the data from 2004 to 2018, on average three-quarters of all suicides were committed by males — maintaining the same percentage from the 1990 to 2000 collection. But it's worth noting that

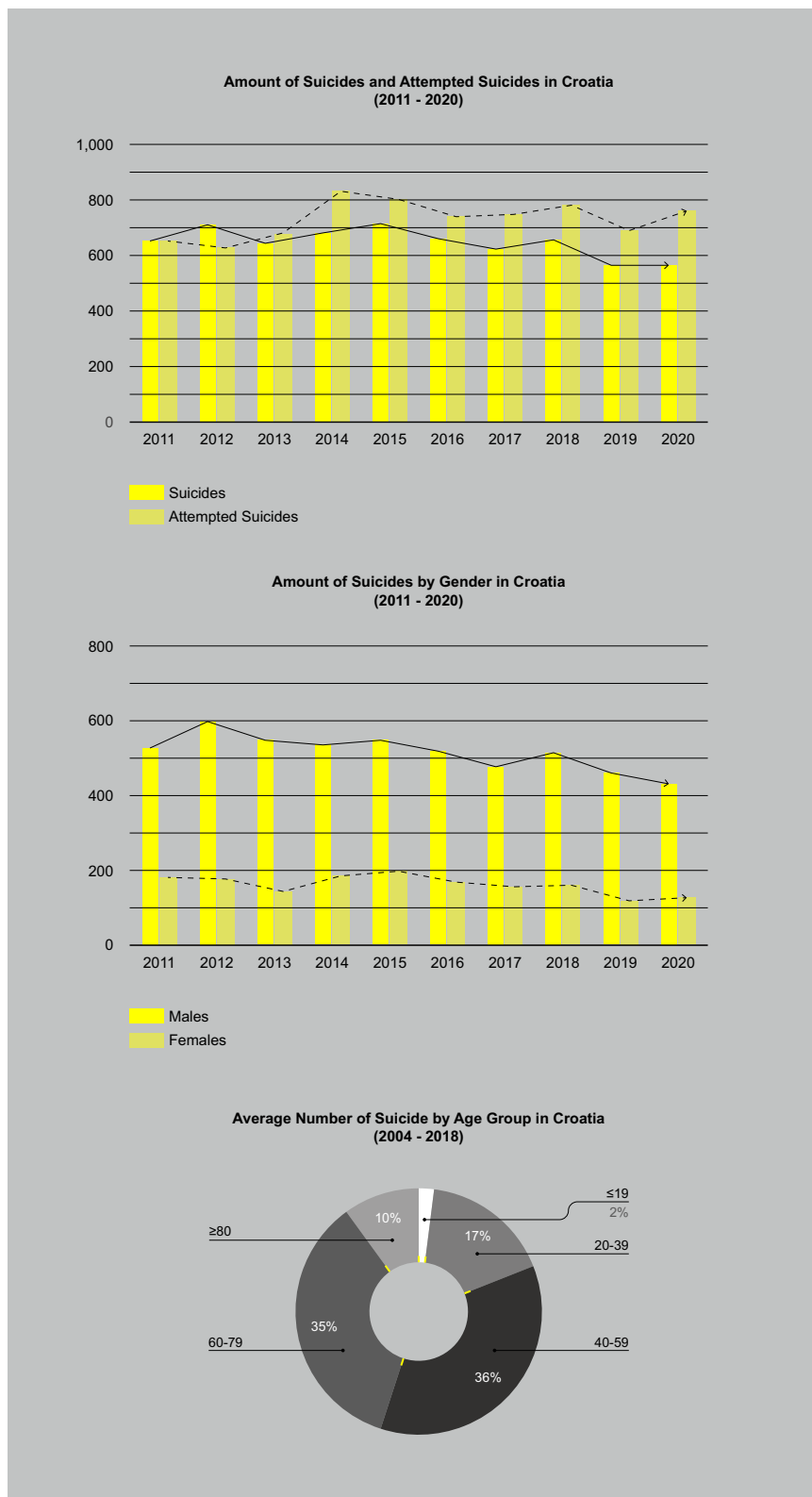


Figure 4. Graphs showing the number of suicides and attempted suicides in Croatia, along with the percentage for each age group.

the male to female ratio has slowly been narrowing. The ratio was 3.5:1 in 2004 and 2.82:1 in 2018.

The majority (88%) of deaths by suicide in this time period occurred between the ages of 20 and 79. Within this age group, 17% of deaths were between the ages of 20 and 39, 36% were between the ages 40 and 59, and 35% were between the ages of 60 and 79. All age groups experienced a slight decline except for the 0 to 19 and 80 to 99 age groups. The average age for deaths by suicide has also increased since the earlier study.

The overall population is aging and the suicide rates appear to be increasing with age (Pajić and Orešković 2022, 7). Based on the studies done from 1990 to 2018, we can see that the biggest age group at risk are those aged 60 and above. The increased suicide rate among this age group tends to be related to physical and mental illness, as well as to the loss of familial and interpersonal relationships (Kozarić-Kovačić et al. 2001, 164). Loneliness is often at the top of the list — seniors are often homebound, living on their own. They may have no family members or friends nearby — eliminating a social network that they may need to thrive in the world (National Council on Aging 2024). This sense of loneliness is something that can be improved through meaningful social interventions.

Outside the loneliness and loss of social roles that comes with aging in Croatia, mental illnesses and disabilities are other contributors to suicide.

Prevalence of Post-Traumatic Stress Disorder

Post-traumatic Stress Disorder (PTSD) remains a major problem in Croatia nearly three decades after the beginning

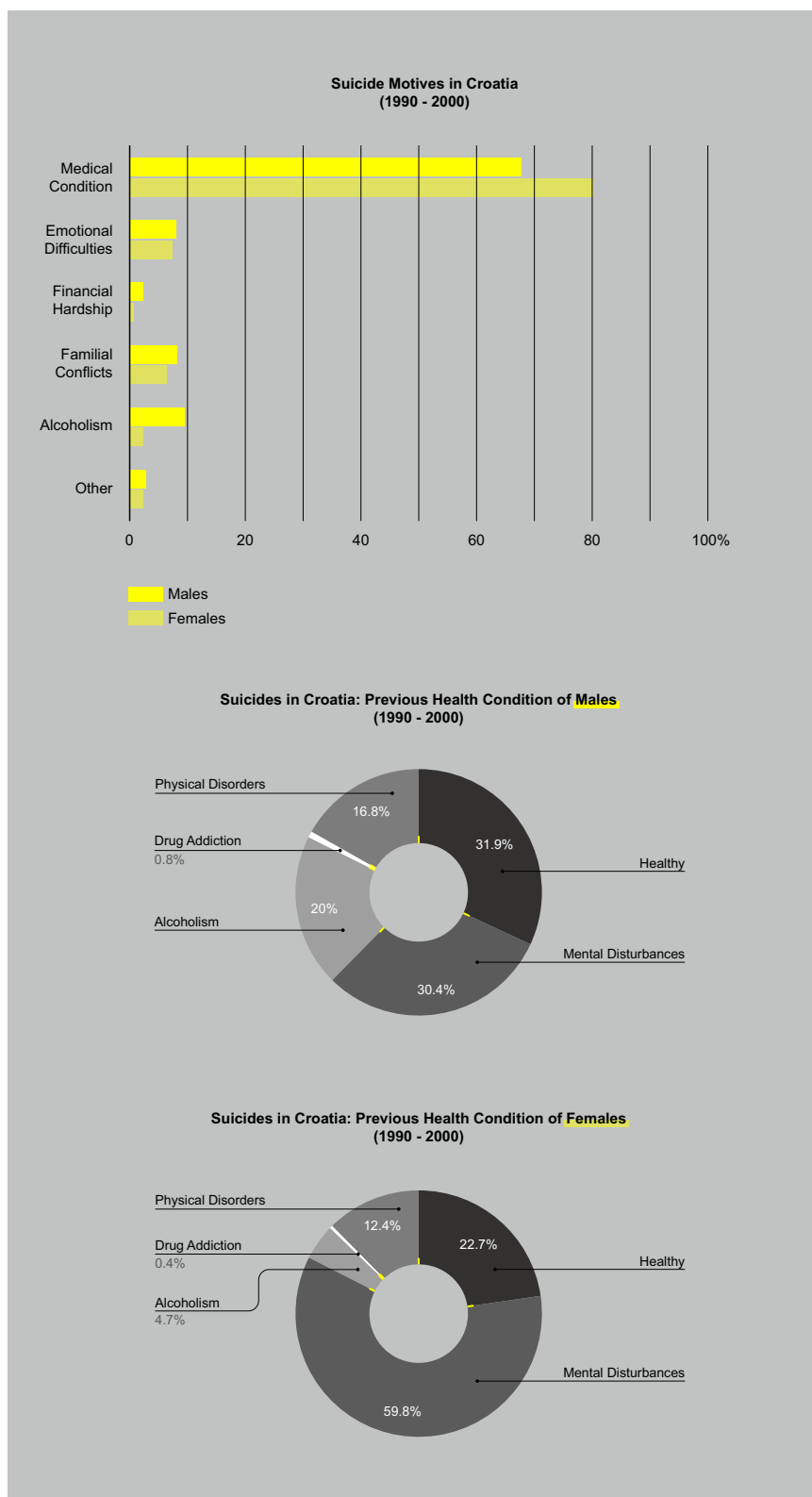


Figure 5. Graphs showing the suicide motives and health conditions of the Croatian males and females dying by suicide from 1990 to 2000.

of the Croatian Homeland War or War of Independence (Braš et al. 2019, 1). The Croatian War of Independence was fought from 1991 to 1995 in which the Government of Croatia declared independence from the Socialist Federal Republic of Yugoslavia.

There are around 500,000 veterans from this war. Though there is no information on how many of them have PTSD, there are 58,000 veterans officially registered as disabled. Of these, 37% are disabled on the basis of a PTSD diagnosis. The percentage is higher if veterans with a combination of diagnosis are included (Milekic 2014).

Quality of Life for those Impacted by War

Veterans with PTSD have lower health-related quality of life, they perceive less social support from family and friends in comparison to veterans without PTSD (Braš et al. 2019, 1). Low social support is one of the precursors for psychological problems such as depression, anxiety, attention problems, social problems, bodily complaints, and low self-esteem (Braš et al. 2019, 2). Social support is very important, “It is considered as a mechanism that buffers against life stressors and promotes health and well-being” (Braš et al. 2019, 2).

Croatian veterans with PTSD believe their bodily and social functioning to be considerably worse than those without PTSD; they have higher limitations in functioning due to physical and emotional difficulties, they also experience pain and fatigue more commonly than those without PTSD. They estimate their overall health to be poor (Braš et al. 2019, 4).

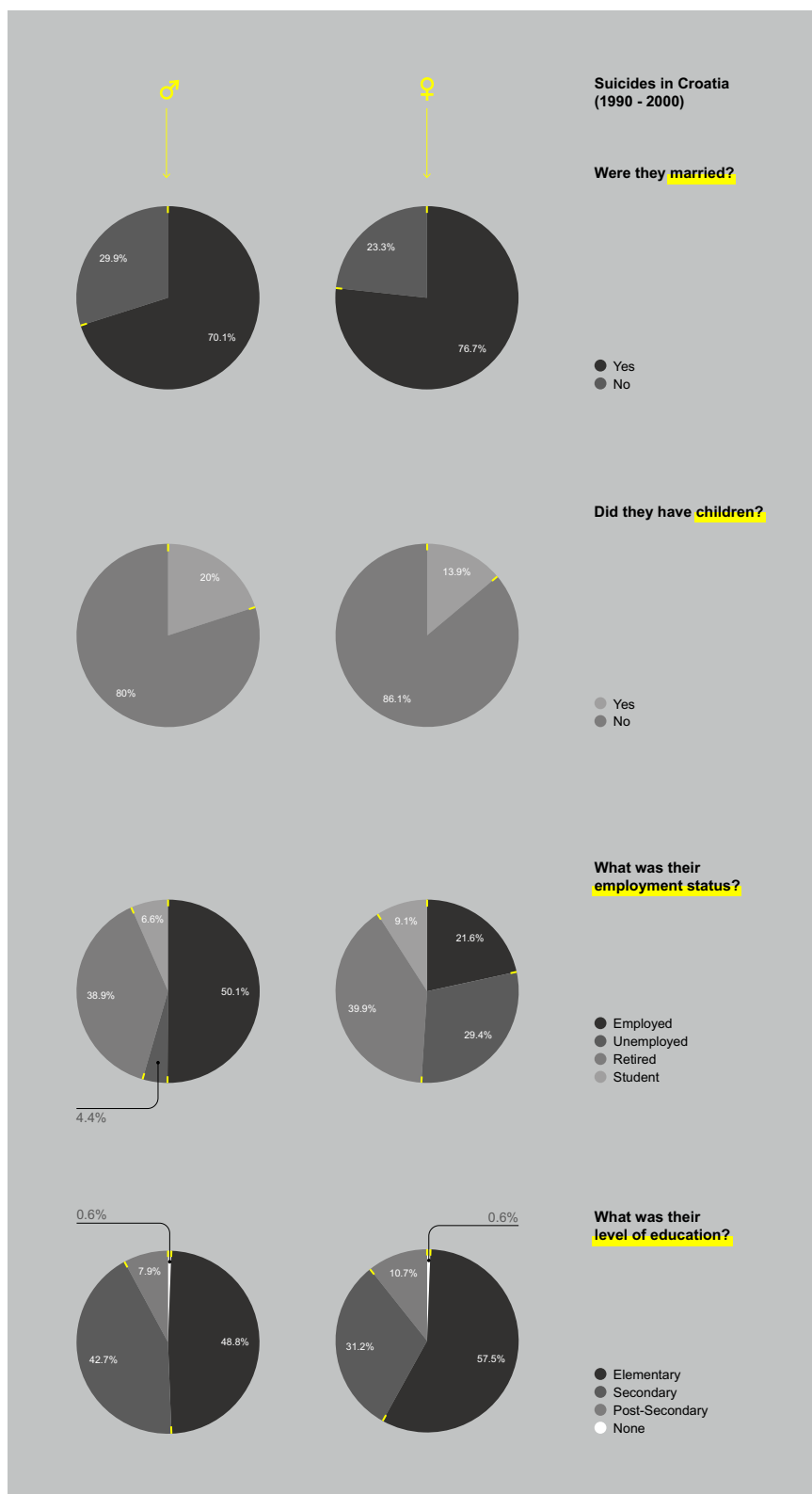


Figure 6. Graphs showing personal data from those dying by suicide in Croatia from 1990 to 2000.

Out of the 277 veterans that partook in the study noted, 54.9% have a registered status of military disability (Braš et al. 2019, 3). 77% claim psychological disturbances as a result of the war. 62.3% requested psychological help for their symptoms. 57% were diagnosed with PTSD. 53% emphasized sleeping problems. They also noted other health-related problems such as lumbar spine difficulties (77%), cervical spine difficulties (63%), amongst others (Braš et al. 2019, 3).

Veterans themselves aren't the only ones impacted by PTSD — their families are also affected. Some studies have shown that the wives of veterans suffering from PTSD were significantly more depressed and anxious, more often showing symptoms of indirect trauma, and more often suffer from pain syndromes, compared to wives of veterans without PTSD (Zdjelarević et al. 2010, 282). They too are reporting low quality of life due to these symptoms.

Protests for Post-War Suicides

In 2014, around 3,000 former soldiers marched through the centre of Zagreb, demanding that the government take action after the suicides of numerous 1990s war veterans. The leader of the protest, president of Association of 100 Per Cent Disabled War Veterans, Djuro Glogoski, claimed that of the 800 to 1,000 suicides in Croatia each year, between 100 and 120 are war veterans. Glogoski blamed government entities for the deaths, and demanded new measures for suicide prevention and an official tally of veterans who have killed themselves (Milekic 2014). According to a study from 2015, 'Suicide of Croatian Veterans in Zagreb and Croatia', by conflict psychology expert Zoran Komar, a total of 2,734

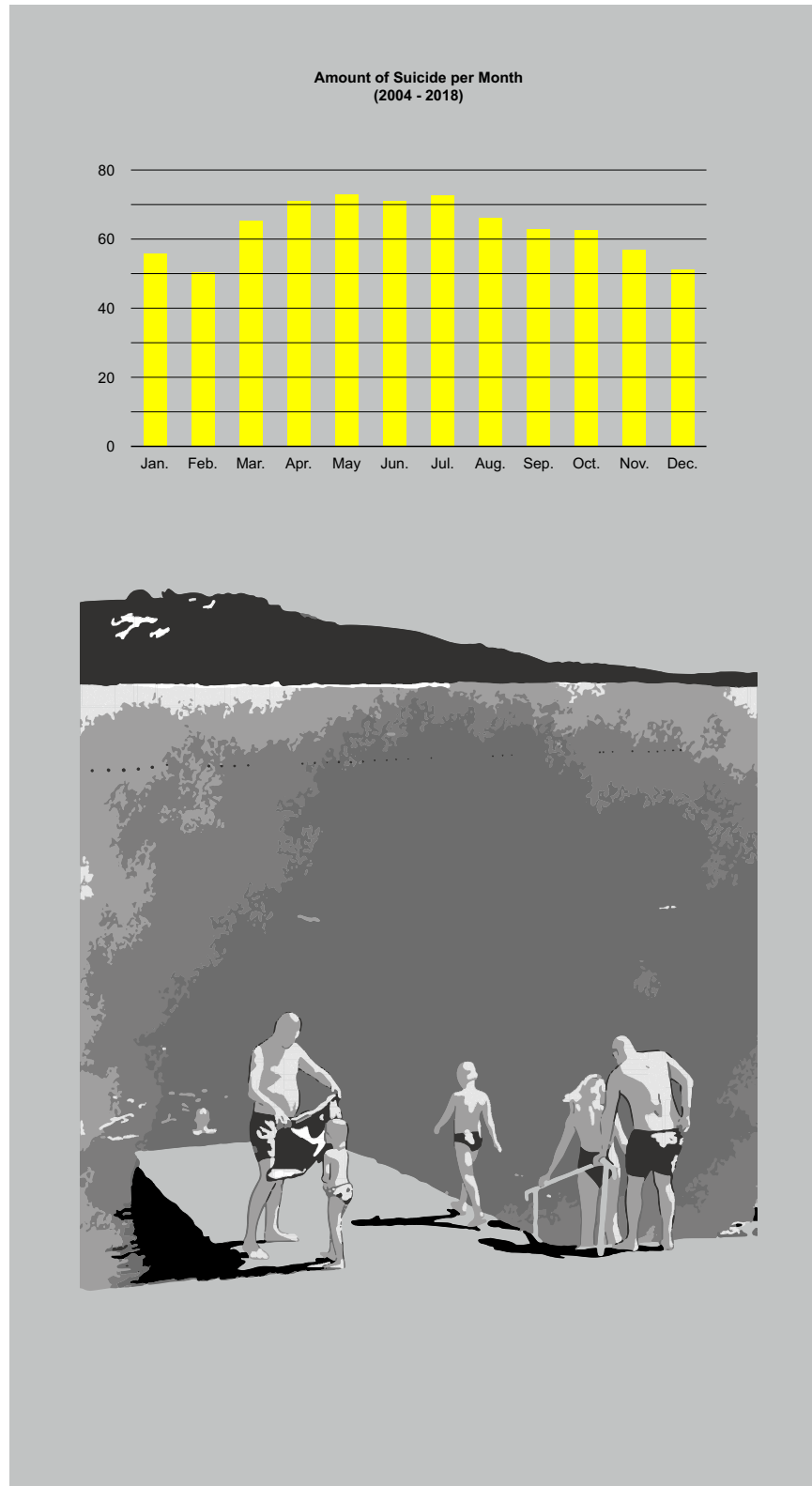


Figure 7. Graph showing the average number of suicides per month from 2004 to 2018 in Croatia.

veterans committed suicide from the beginning of the war to the end of 2014 (Vladisavljevic 2019).

The Croatian government adopted a new War Veterans Law in December 2017, which said that people who did not already have veteran status could apply for it, even though the original deadline for applying was in 2009 (Vladisavljevic 2019). This would help the veterans get a pension, helping relieve some financial burden they may be experiencing in life.

A few years later in 2019, the Croatian government promised to set up four new centres with rehabilitation and recreation facilities for war veterans in an attempt to provide better care for people who fought in the 1990s. The centres will be located in four towns around Croatia (Daruvar, Petrinja, Sinj and Šibenik) and they will provide care and assistance, basic physical rehabilitation and sporting, recreational and educational activities for Croatian veterans (Vladisavljevic 2019).

Like these new centres, it is necessary to develop a health care program that emphasizes improving quality of life for those with PTSD, as well as their family. A connection between mental, physical, and social health needs to be created.

Prevalence of Depression

People with depressive illnesses carry out the majority of suicides in the world. Depression is present in at least 50% of all suicides — this percentage increases to 80% for older people (Centre for Suicide Prevention 2015). The World Health Organization (WHO) predicts that by the year 2030, depression will be the leading cause of disability in

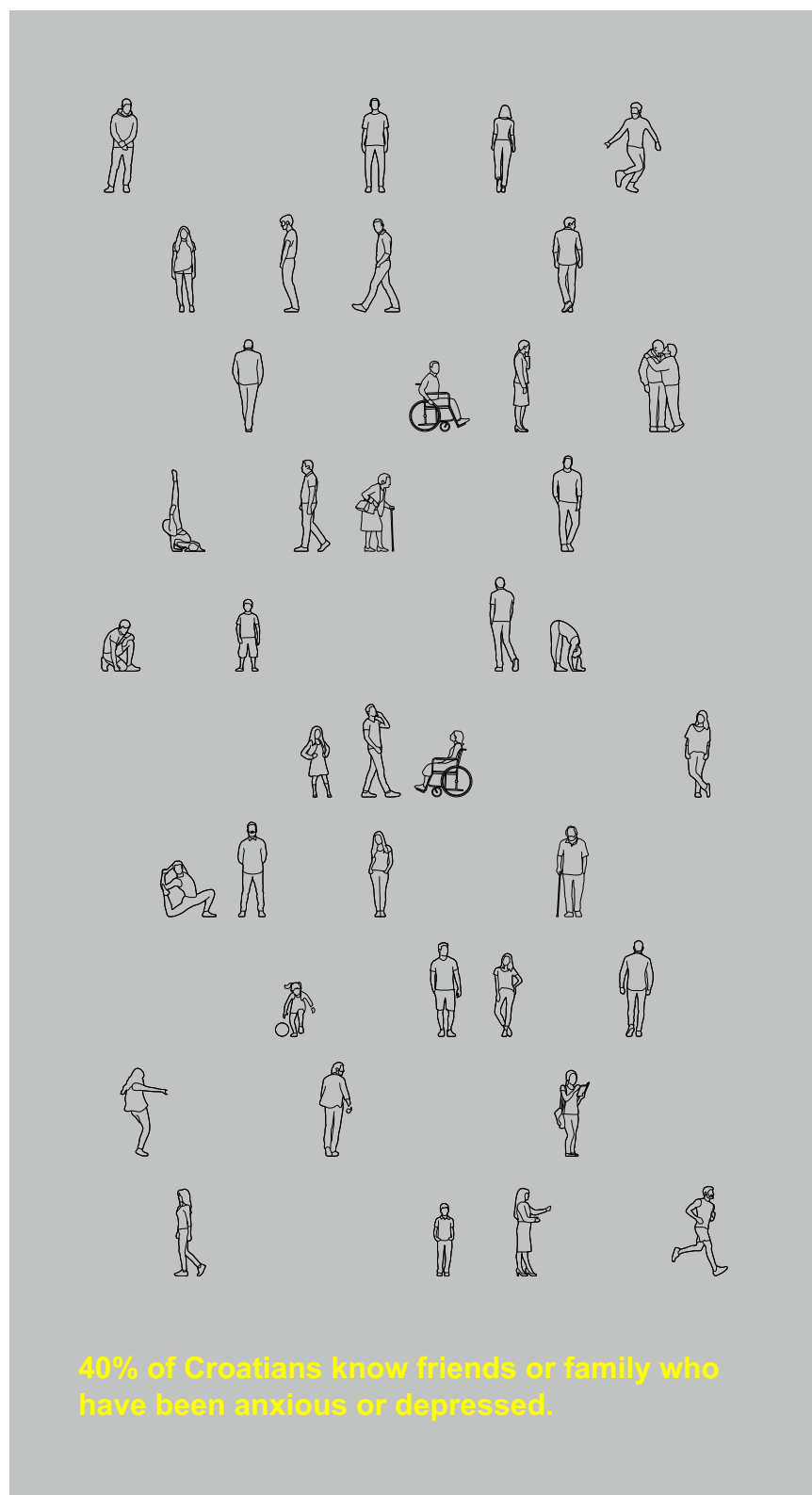


Figure 8. Diagram expressing the prevalence of depression and anxiety in the Croatian population.

the world. And those suffering from depression are at a 25 times greater risk for suicide than the general population (Centre for Suicide Prevention 2015). Right now only a third of those with depression seek help. To raise the percentage of those seeking help, there needs to be de-stigmatization and openness.

In the European Union (EU), Croatia is tied with Germany in third place for reported chronic depression. Croatia is second place for reported chronic depression in women. On average, 7.2% of the population reports chronic depression in the EU. This is 11.6% for Croatia. 9.2% for males in comparison to the 5.5% for the EU. And 13.4% for females in comparison to the 8.7% for the EU (Eurostat 2021). Most importantly, when looking at the specific numbers of reported depression in the age groups of 65 to 74 and those above 75, Croatia ranked number one in the first (19.4%) and second in the latter (18.1%), showing again that these age ranges are most at risk (Eurostat 2021). These numbers are just for the *reported* cases of chronic depression. In an Our World in Data study, respondents were asked,

Thinking about your close friends and family members, have any of them ever been so anxious or depressed that they could not continue with their regular daily activities as they normally would for two weeks or longer? (Our World in Data 2021c)

It was noted that 40% of the Croatian population know friends or family that have been depressed or anxious to such a state (Our World in Data 2021c). Considering this statistic and the fact only a third of those with depression seek help, the number of depression would be significantly higher than 11.6%.

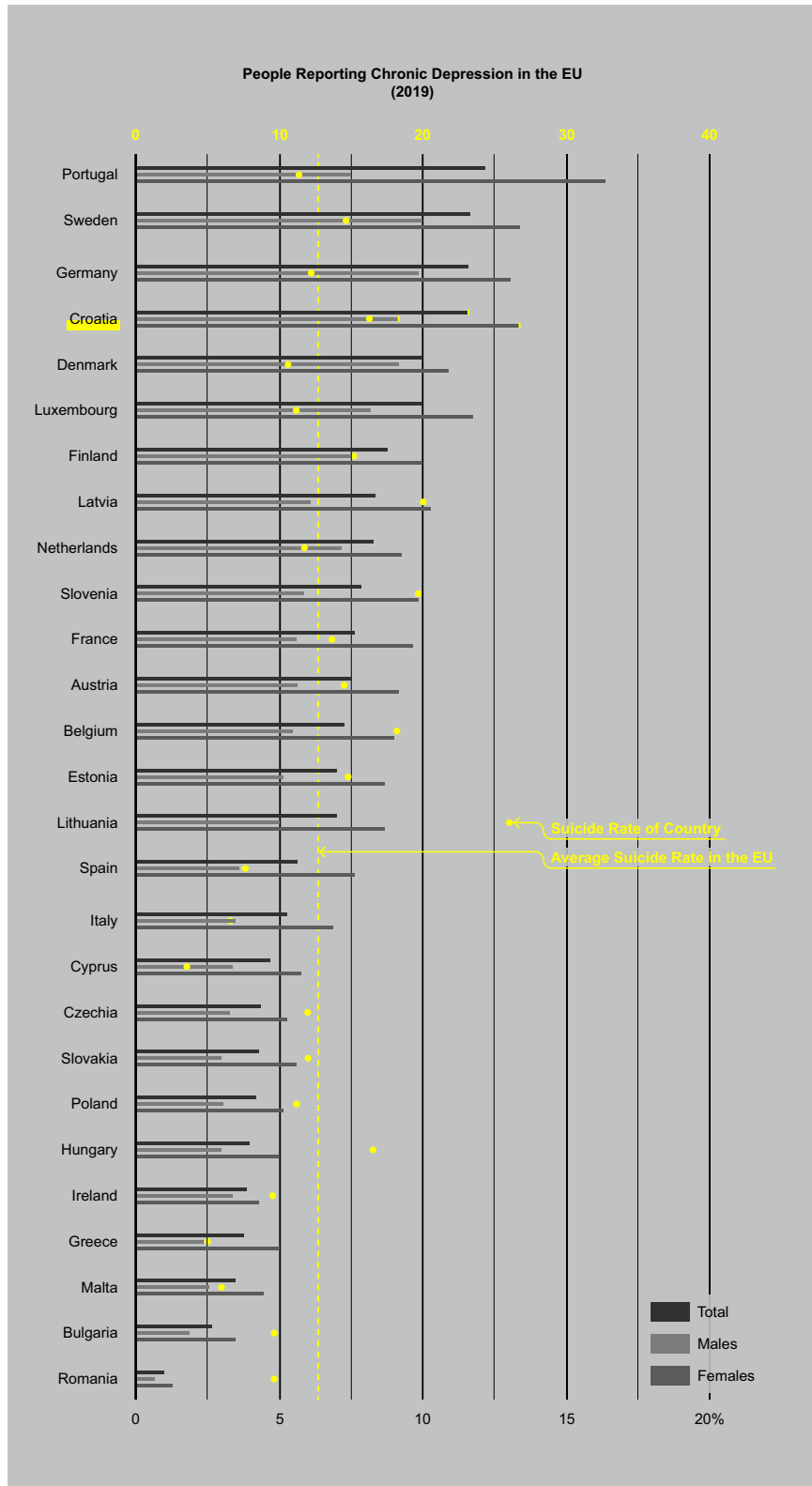


Figure 9. Bar graph comparing the reported chronic depression of each country in the European Union. As well as the countries' corresponding suicide rate.

Prevalence of Disabilities

Disabled people are much more likely to die by suicide than non-disabled people. In a census collected in the United Kingdom, males with disabilities were three times more likely to die by suicide than males with no disabilities; a rate of 48.36 per 100,000 people compared to 15.88. For women, the difference was four times; the rate was 18.94 compared to 4.47 (Disability Rights UK 2023).

In Croatia, 16% of the population has a registered disability. Currently, there are 624,019 people with some kind of disability registered in Croatia. This is an increase of about 110,000 people since the 511,281 registered in 2019 (Hina 2022). This share of people with disabilities is significantly higher than the worldwide average. According to the United Nations, one in ten people is a person with some form of disability. Croatia used to have a similar rate. The increase in people with disabilities the past few years can be partially explained by the aging population (Hina 2022). 30.3% of those aged 65 and above in Croatia have a registered disability (Benjak et al. 2022, 175). This is the group with disabilities most at risk of suicide. They're the most likely to be suffering from social isolation, loneliness, and depression, alongside their disability (Meltzer et al. 2011, 9).

While disability has a direct effect on the likelihood of suicide attempts, there is also an indirect effect through depression. Medical illnesses and disabilities are strongly associated with depression (Meltzer et al. 2011, 9). Depression itself can also be the direct cause of a disability. And war itself — thinking to the veterans of the War of Independence.

When looking at the suicide in Croatia, these are the groups most at risk, those impacted by the war, those with

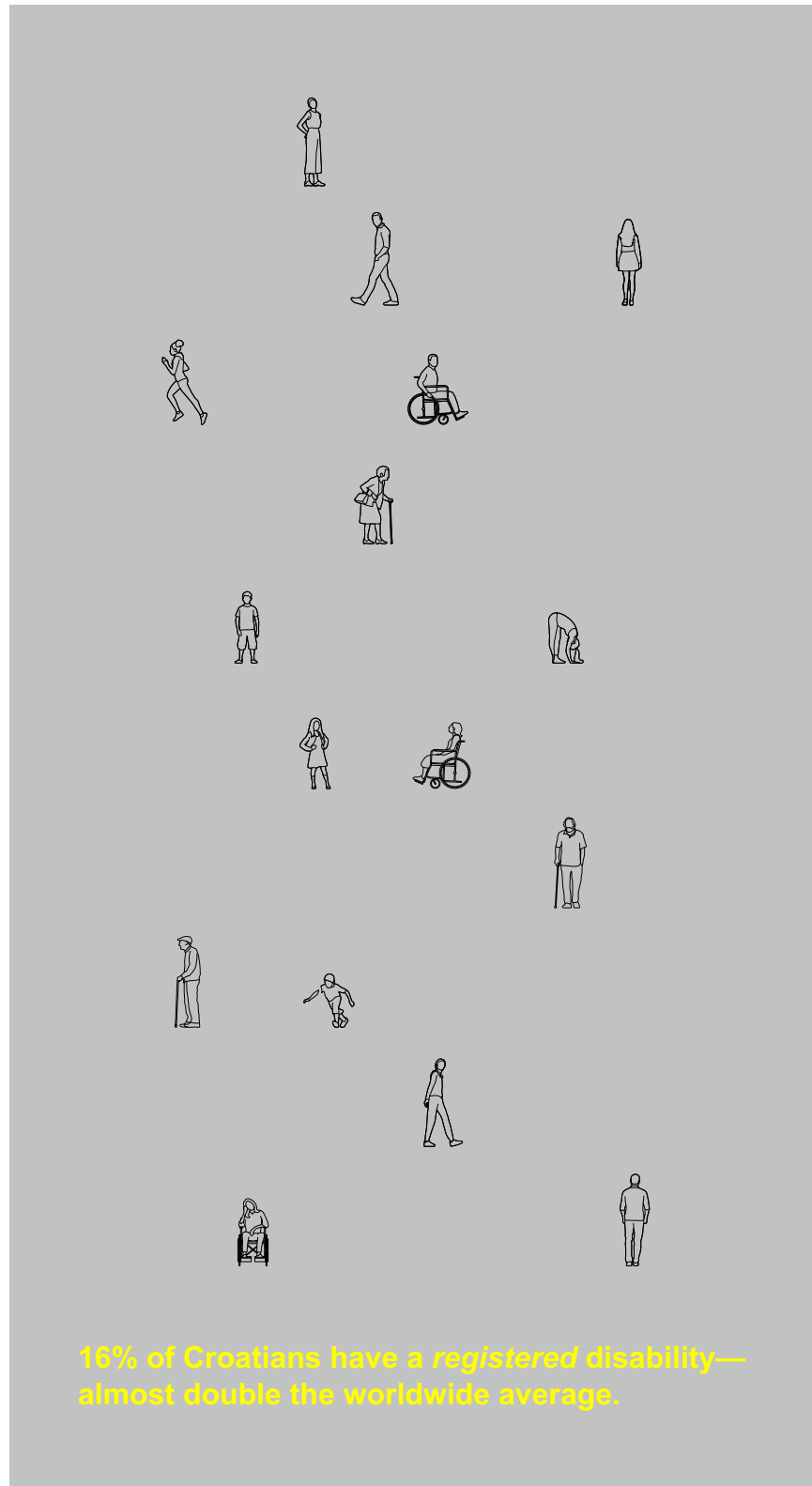


Figure 10. Diagram illustrating the percentage of the Croatian population with a registered disability.

depression and disabilities, and those aged 65 and above. Loneliness and loss of social roles are frequent problems in these groups that can be improved.

Public Perception and Stigma

In a census done in 2020, respondents were asked how comfortable they would feel speaking about anxiety or depression with someone they know. Only 20% of Croatians stated that they would be very comfortable, while 39% said somewhat comfortable. 32% said they wouldn't be comfortable at all (Our World in Data 2021b).

They were also asked, when they “felt so anxious or depressed that they could not continue their regular daily activities”, what did they do to feel better? The top three responses were:

1. Talked to friends or family
2. Spent time in nature/the outdoors, and
3. Improved healthy lifestyle behaviours.

Talking to a mental health professional was in sixth place (Our World in Data 2021a). Considering the preferred methods for seeking help above, a mental health centre should rehabilitate with a people-centric approach.

Lack of Suicide Prevention Strategies

There is currently no nation-wide hotline for crisis intervention or suicide prevention. And no 24/7 nation-wide availability of in-person psychosocial or psychiatric crisis services. There is a centre for crisis situations and suicide prevention at the University Hospital Centre Zagreb (in the capital) that works 24/7 and can be reached nation-wide through their helpline, however, the telephone number the centre uses is not toll-free — making it not accessible to everyone (Ćukelj et al.

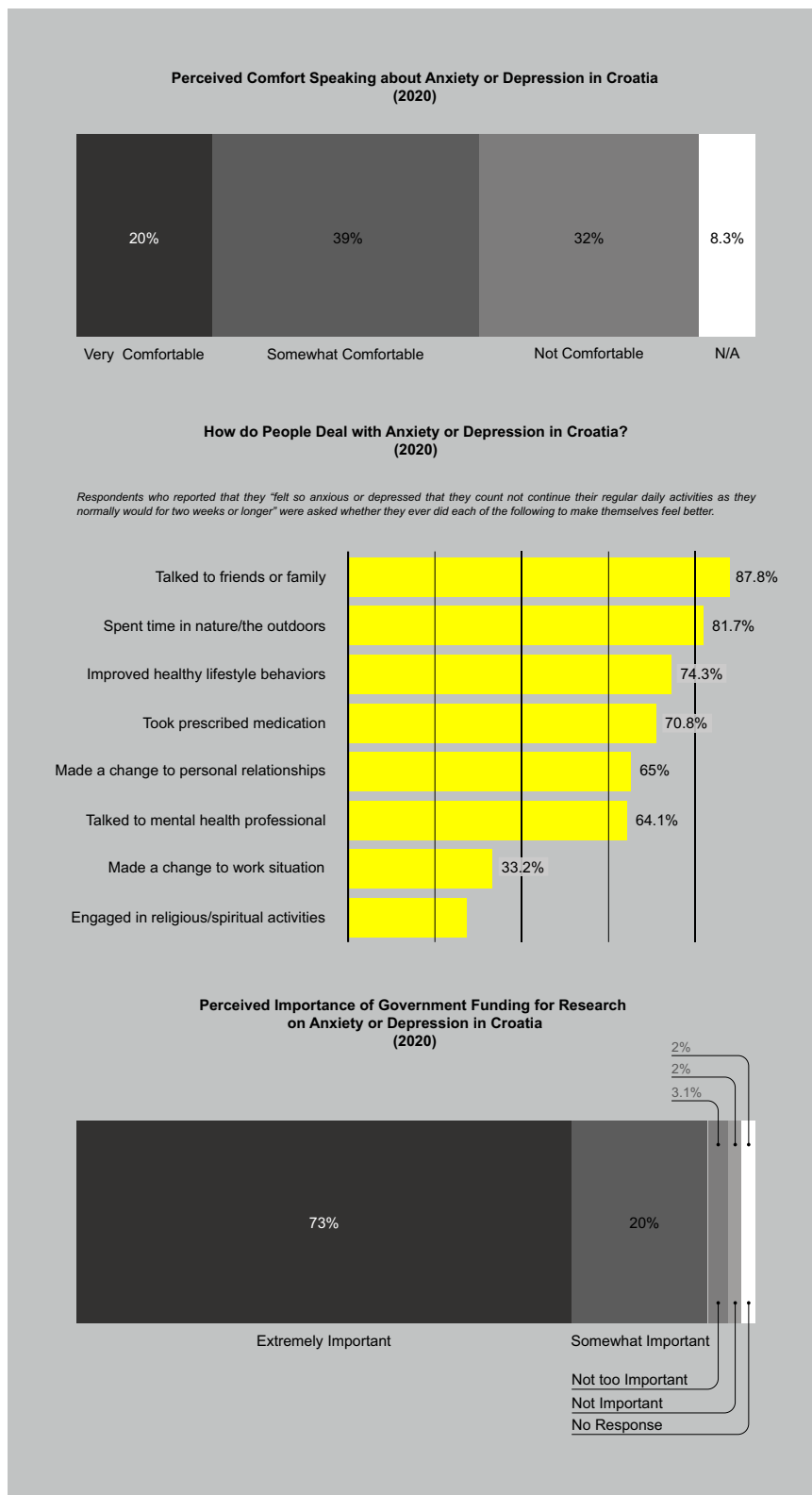


Figure 11. Graphs showing the various responses to a census regarding mental health.

2023, 5). But the capabilities of the centre are very limited as it is very Zagreb-centric, making it not as helpful for those calling out of that county.

The Ministry of Science and Education established a “team for crisis situations” in 1995. Team members are trained for providing psychological help in different crisis situations, including suicide. They are most often invited for interventions by principals of educational institutions such as pre-school institutions, primary and secondary schools, student dormitories, and higher education institutions. They’re also invited to public and private companies (Ćukelj et al. 2023, 5). But these teams which are frequently going to educational settings are out of reach for the older generations that are the most vulnerable population for suicide. This group especially lacks prevention methods.

Searching for a Safe Place

In Croatia, the average length of hospital stay due to mental disorders is higher than the European Union average, as is the suicide rate. Due to insufficient recognition at the primary level of health care, inadequate treatment and stigma, people with mental disorders rarely seek help (Stimac Grbic 2022).

A film titled *Safe Place* (or originally *Sigurno Mjesto* in Croatian) was released in 2022 depicting the real-life events of the director Juraj Lerotić. In the film, Damir, a man struggled with negative mental health, tries to commit suicide. His brother (portrayed by the director, in what is an autobiographical work) and mother try to protect and help him, but the “systemic protocols Damir is placed in, sterile, impersonal, and devoid of empathy, underline the lack of truly safe spaces” (Valente 2023).



Figure 12. Film cover of *Safe Place* by Juraj Lerotić (IMDb 2022).

The search for a safe place that is depicted in the film is the influence for this thesis. Suicide is preventable, but it's something that everyone has to work together on as a society. What is architecture's role? How can architecture, program, and environment work together in creating such a safe place? A person-centered program with special emphasis on improving quality of life is necessary.

Chapter 2: Literature Review

What Makes a Place of Healing?

The first step in designing a safe place is looking at places of healing, those with mental and physical benefits. As well as looking at elderly community design and how to improve the quality of life for those that are vulnerable to suicide.

Ibasho's Eight Principles

The Ibasho organization was first looked at as they aim to help socially integrate the elders that suffer from isolation and loss of respect from their communities. The term "ibasho" is a Japanese word that means "whereabouts", but also "a place where one feels a sense of belonging and purpose, and is accepted as oneself" (Kiyota et al. 2015, 2). Like the phrase "safe place", the meaning of Ibasho is what this thesis aims to create.

After the Tōhoku earthquake and tsunami of 2011, the organization, alongside local elders, created the Ibasho Café in Ofunato, Japan using the concept of "ibasho" at its core.

The project objective was to help strengthen the social capital needed to recover from the disaster, giving community members of all ages a place where they can develop more and deeper connections with each other (Kiyota et al. 2015, 2).

The following are the eight guiding principles of Ibasho that allow for replication in different cultural and geographical contexts:

- 1. Older people are a valuable asset to the community (elder wisdom)**

In modern society, the elderly are often considered to be a burden, as people needing to be looked after and taken care of. However, the elders' wealth of wisdom is something to be

valued and treasured. Ibasho believes in a society where the elderly can contribute to the society with confidence and are leaned on and valued.

2. Create informal gathering places (normalcy)

Living in institutions: lives with strict rules and schedules are confining and limiting. Ibasho believes in places of normalcy where elders can pop in at any time at their leisure.

3. Community members drive development and implementation (community ownership)

Ibasho believes in each member of the community to share a sense of ownership and pride of its place. It is not something that is created for them but it is created with them.

4. All generations are involved in the community (multi-generational)

Connecting within one's own generation is easy and comfortable but why stop there? Ibasho believes in a place where the young learn from the richly lived lives of the elderly and the elderly learn from the young's ability to pick up new things quickly.



Figure 13. Members of the Ibasho Café farming (Kiyota et al. 2015, 46).



Figure 14. The exterior of the Ibasho Café , showing the design following local traditions (Kiyota et al. 2015, 15).

5. All residents participate in normal community life (de-marginalization)

A cross section of a community includes the young, elderly, disabled, family rearing, care taking and even the socially disconnected. Ibasho is a place where one does not have to worry about what he/she “cannot” do, but a place to share the things one “can” do.

6. Local culture and traditions are respected (culturally appropriate)

Each community has its own history and culture. Perhaps it is not something you can quite put your finger on. Ibasho is where one can discover and reflect on the treasures of the community.

7. Communities are environmentally, economically, and socially sustainable (resilience)

Ibasho is a place where we strive for the environment, economy and the people to be in harmony. Ibasho will protect the nature that brings bounty to life, be economically self sufficient, and cherish the connections between each individuals. How special it will be if those connections forge beyond the boundary of the community or even beyond its own country.

8. Growth of the community is organic and embraces imperfection gracefully (embracing imperfection)

Ibasho does not strive for immediate perfection. It is adaptive and flexible in working with life, as life is forever changing. Each community has its own path to balance and perfection. Ibasho believes in the possibility of change. With time, with people, Ibasho will gently embrace imperfection (Ibasho n.d.).

These principles are used when new projects are established to ensure they will be successful and guide them towards their own unique adaptations. The original Ibasho Café provided a testing ground for the Ibasho principles.

Ibasho Café

The physical site of the Ibasho Café was chosen because it was close to the people it served — the displaced people in temporary housing due to Tōhoku. The project was structured as a not-for-profit organization, led by the elders, and with some aid from the local government in the form of resources such as technological support or legal counsel (Kiyota et al. 2015, 12).

The building itself was an old farmhouse that was donated by a local family. The farmhouse was built without the use of nails, allowing for its disassembling and reassembling at a different site in the Massaki area, then becoming the Ibasho Café. This traditional Japanese architectural technique was

able to be passed down to younger craftsmen by the elder carpenters during this process, creating opportunities for knowledge exchange (Kiyota et al. 2015, 16).

The café's program was developed in collaboration with community members of all ages over 10 workshop sessions. The governing elders created four types of economic activities to support the project, which were soliciting donations for food and drink, organic farming, organizing a farmers' market, and applying for grants (Kiyota et al. 2015, 17).

The farm and farmers' market was started a year after the café's opening. Outside the farming program, people used the space for socialization and planning. People reported having more friends when they attended the café regularly and people came from out of town to help with disaster relief and used the café as a place to organize from (Kiyota et al. 2015, 24). Overall, people involved with the café found new avenues for providing something useful for their fellow community members. Because of this, "Regular attendance at the café was significantly tied to individuals' deeper connection to their neighbourhood and the city" (Kiyota et al. 2015, 23).

Through Croatia's data, we know that feelings of low quality of life is a major contribution to suicide, especially amongst the elderly population and those with mental and physical disabilities. The Ibasho principles are valuable references for creating this thesis' safe place, as they both aim to help society's vulnerable.

Maggie's Centres

Maggie's Centres began due to the efforts of Maggie Keswick Jencks, who was diagnosed with cancer in 1988, to build an alternative type of cancer centre. Her negative experience with the United Kingdom's healthcare system inspired her to pursue a different approach to cancer care (Jencks 2007, 3).

Maggie believed cancer treatment should revolve around diet, meditative exercises, maintenance of an active role in one's own treatment, and spaces that treatment occurs in. She wrote in her publication *A View from the Front Line*, "In general, hospitals are not patient-friendly... interior spaces with no views out and miserable seating contribute to extreme mental and physical enervation" (Jencks 2007, 21). Maggie listed a series of improvements to existing spaces, creating the basis for Maggie's Centres design guidelines. These improvements were: thoughtful lighting; a view out to trees, birds, and sky; seating within which to chat to people; proper and private washrooms; a library; and a place to cheer you up through laughter (Jencks 2007, 21).

There is now a detailed architectural design brief for any new Maggie's Centres that are being designed called "Maggie's Architecture and Landscape Brief". As the title suggests, the landscape is as important as the architecture for these centres as it gives respite from the surroundings and contrasts the harsh hospital environments patients are coming from (Maggie's 2015, 2).

The connection to the outdoors and specifically to natural outdoor environments is continually reinforced in the design brief.

The interplay between outside and inside space, the built

and the “natural” environment is an important one. Sheltered inside, it helps to be reminded by a seasonal and changing scene outside, that you are still part of a living world (Maggie’s 2015, 5).

Further, all the spaces in Maggie’s Centres have a common goal of being welcoming. This goal is achieved by the rejection of institutional design: “We want the ethos to be domestic. There should be as much natural light as possible” (Maggie’s 2015, 8).

Spatial requirements of each centre are listed with descriptions of the specific needs and the desired sensation of being in those spaces. The required spaces include: an entrance and welcome area, office, computer desks, notice board, library, consultation rooms, toilets, retreat, views in, parking and three other key spaces:

1. Kitchen: The kitchen area should have room for a large table and is usually the main hub of the building (Maggie’s 2015, 8).
2. Sitting rooms: There should be three “sitting rooms” which can be shut off from each other or opened up depending on how they are to be used. The sitting rooms vary slightly in size and use but function as multi-purpose rooms accommodating groups of about 12 people. They should be located in proximity to the kitchen, but offer some privacy for counseling sessions, or other uses (Maggie’s 2015, 9).
3. Views out: It is important for the centres to have views to the exterior as often as possible. Further to views, being able to step outside at any moment even if it is only to an interior courtyard is highly encouraged. Having a garden and plantings near the building helps people

feel at ease through privacy and a connection to natural environments (Maggie's 2015, 9).

Maggie's West London Centre

Based on the design guidelines, a Maggie's Centre was built in London, England called Maggie's West London Centre, designed by Rogers Stirk Harbour + Partners in 2008. This centre exemplifies the priorities of the design brief and Maggie Keswick Jencks' ambitions for an inspiring cancer centre. It is located on a busy urban lot near the Charing Cross Hospital in Hammersmith, and therefore utilizes its landscape and architecture to wrap the inner spaces with



Figure 15. Photograph facing the courtyard of Maggie's West London (RSHP 2008).



Figure 16. Photograph facing the kitchen and dining area of Maggie's West London (RSHP 2008).

plantings and warm red coloured walls to create a private and welcoming building. The kitchen acts as the heart of the project, and the conceptual basis of the design. Radiating out from the kitchen there are suitable spaces for relaxation, conversation, work, or meditation both indoor and within small outdoor courtyards. The spaces are all exposed to natural light in part due to the raised roof and in part the large expanses of windows. Many of the rooms have doors

to the outside courtyards to allow users the benefit of the outdoor space when the weather is good. Warm wood materials, a lack of signage, and comfortable seating create a domestic atmosphere that lets people relax and receive the support they need to make their journey with cancer more manageable (Heathcote 2016, 6).

The Maggie's Centre design guidelines share similarities with the Ibasho Principles in terms of domestic architecture, informal gathering spaces, and usage of green space. As opposed to farming at the Ibasho Café, the Maggie's guidelines further emphasizes the importance of landscape and connection with it through architectural design for its benefits to mental health.

Research on Mental and Physical Healing

Alongside the principles of Ibasho and Maggie's Centres, different therapies were looked at such as horticultural therapy, hydrotherapy, and creative arts therapy.

Horticultural Therapy

The paper, "Social and Therapeutic Horticulture: Evidence and Messages from Research", reviews the main findings from research on social and therapeutic horticulture. Social and therapeutic horticulture is defined as the process by which people foster well-being through the use of plants and gardening. The activity can be done individually or in groups, but provides a handful of related benefits to participants. It is also beneficial to a wide array of people with distinct backgrounds because of the array of benefits it can provide.

"Horticulture and gardening improve mental health, self esteem, self confidence, and social interaction" (O'Reilly and Handforth 1955, 766). "Students with learning difficulties

developed feelings of value and worth, allowed them to express themselves in a positive way” (Smith and Aldous 1994, 217).

The values horticulture provides can be broken down into three categories: social interaction and inclusion; mental health; and physical well being.

The social benefit of gardening is the ability to create “employment, work discipline, the development of skills and socially useful activities as well as promoting social interaction between participants” (Aldridge and Sempik 2002, 2).

The mental health benefits are tied in part to biophilia which is the innate human attraction and appreciation of nature. “The natural environment is said to stimulate involuntary attention which requires no effort and is therefore restorative. This improves attention fatigue and aids in recovery from stress” (Aldridge and Sempik 2002, 3).

The physical benefits can help people recover from ailments as “a number of studies have looked at outcomes for stroke patients, those with aphasia, car-accident victims, and children with cerebral palsy; the nature of horticultural activities lend themselves easily to communicative disabled individuals” (Sarno and Chambers 1997, 89).

“Gardening for Health: A Regular Dose of Gardening” describes the many facets of how gardening and natural environments can have a large positive effect on mental and physical health especially with concern for the healthcare system.

The simple viewing of a natural environment for patients in hospitals or other care settings has been proven to help

improve their moods and “reduce analgesic use, surgical complications, and length of stay” (Thompson 2018, 1).

Viewing nature has also been proven to help regulate mood; “In a Japanese study, viewing plants altered EEG recordings and reduced stress, fear, anger, and sadness, as well as reduced blood pressure, pulse rate, and muscle tension” (Thompson 2018, 1). Biodiverse natural environments also help lower stress, and increase satisfaction.

Beyond viewing the natural environment, actively participating in it through the act of gardening offers a host of benefits “due to the combination of physical activity, social interaction, and exposure to nature and sunlight (which lowers blood pressure, and increases Vitamin D levels)” (Thompson 2018, 2).

Working in a garden can help dexterity, strength, and cardiovascular abilities. It can also counteract social isolation, which in turn helps prevent dementia, and improve PTSD symptoms.

Viewing nature and working within it through the act of gardening will be key measures in helping improve the quality of life for the members of this mental health centre. Therefore the project should be placed in nature, and have access to it so gardening can occur.

Hydrotherapy

The paper, “Association Between Habitual Hot Spring Bathing and Depression in Japanese Older Adults: A Retrospective Study in Beppu”, in the journal, *Complementary Therapies in Medicine*, studied the relationship between habitual daily hot spring bathing and depression. Various studies cited in the article suggested hot baths were beneficial for

mental health. “Whole-body hyperthermia may induce an antidepressant effect with prolonged therapeutic benefit” (Janssen et al. 2016, 789-795) and “hyperthermic baths may be effective for patients with depression, and hyperthermic baths combined with usual care may improve depression severity” (Naumann et al. 2017, 172).

While occasional hot spring bathing didn't have a large influence on mental health, daily habitual hot spring bathing in unhealthy people had beneficial effects on mental stress and sleep disorders (Yamasaki, Maeda, and Horiuchi 2023, 1). “Insomnia is a risk factor for the development of depression in older adults, but the persistence of insomnia has been associated with the persistence of depression; hot spring bathing before bedtime is significantly associated with shorter sleep onset” (Yang et al. 2018, 261-272).

“Hot spring bathing has beneficial effects on quality of life, heart failure-related symptoms, heart rate responses, and stress hormone levels in patients with chronic heart failure” (Yamasaki, Maeda, and Horiuchi 2023, 4) Because of the many health benefits, both physical and mental, bathing in hot springs (or an accessible equivalent) as a habitual activity will be included in the project.

Creative Arts Therapy

In the Journal of Behavioural Sciences the paper “Creative Arts Interventions for Stress Management and Prevention – A Systematic Review” reviews 37 research papers studying various types of creative arts and their effects on mental health – specifically analyzing the effectiveness of Creative Arts Therapy (CAT) and creative arts interventions. CATs are defined as “the creative use of the artistic media as vehicles for non-verbal and/or symbolic communication,... encouraged

by a well-defined client-therapist relationship” (Martin et al. 2018, 3). The four categories of therapy considered are Music Therapy, Art Therapy, Dance/Movement Therapy, and Drama Therapy. Beyond the targeted therapies there are creative arts interventions which “use the arts to offer primarily artistic experiences with a therapeutic potential” (Martin et al. 2018, 3).

The paper indicates that Creative Arts Therapies and creative arts interventions seem to have a positive impact on perceived stress and stress management. They reduce anxiety levels (Martin et al. 2018, 14), and three studies reported significant positive mood changes (Martin et al. 2018, 13). Active art interventions, such as drawing or working with clay, significantly reduced stress and anxiety in eight out of eleven studies (Martin et al. 2018, 13)

In total, stress was reduced in 30 out of 37 included studies (81.1%). Eleven out of twelve (91.7%) included studies on CATs (Creative Arts Therapies) found a significant stress reduction. Nineteen out of 25 (76%) included stress on mere arts interventions found a significant reduction in their stress measurement (Martin et al. 2018, 14).

The benefits of creative arts are recognized in both therapeutic sessions and more informal interventions. The active participation of the subjects in the creative tasks was a key driver for the positive influence on mental health so accessible opportunities to do creative arts in the project should be pursued.

Creating the Framework

Various aspects of the five research areas noted (Ibasha Principles, Maggie’s Centres, horticultural therapy,

hydrotherapy, and creative arts therapy) can be summarized by five key words: *connection*, *culture*, *productivity*, and *environment*, with *health* being the overarching theme as each focuses on bettering mental and physical health in their own way.

The Ibasho Principles focus on connection, culture, productivity, and environment through community-oriented activities within a traditional, domestic building. Through the activities at the Ibasho Café such as fundraising and planning, farming and organizing farmers' markets, deeper social connections amongst people and their neighbourhood and city were created.

The guidelines for Maggie's Centres focuses on those key words as well. Similarly, there is an emphasis on connection through socialization, culture through domestic architecture, productivity through gardening, and a major focus on environmental appreciation.

Horticultural therapy benefits health through acts of gardening. Gardening, which inherently involves the environment, can be a social activity that creates connection (as seen in the Ibasho example), can represent culture through traditional plants and agricultural products, and productivity through active participation.

Hydrotherapy, which can also be directly related to the environment, focuses more on mental and physical health, but can relate to connection and culture through local value and productivity through aquatic fitness. But hydrotherapy is important for a mental health centre in Croatia due to its benefit in aiding PTSD and disability-related symptoms especially.

And finally, creative arts therapy focuses on productivity directly through the act of creating something. This creation can involve cultural art and music, and the act-there of can involve connection through socialization. Environment can be of some influence through inspiration, setting, or medium. For example, one can paint it, paint in it, or paint using it.

The five key words of *connection*, *culture*, *productivity*, *environment*, and *health* are the foundations to a framework for designing a mental health centre. This framework will then be applied to Croatia.

Chapter 3: Framework

Application to Croatia

From the literature review, the key words *connection*, *culture*, *productivity*, *environment*, and *health* became the framework for creating a safe place that focuses on mental rehabilitation. These key words can be expanded on further, being customizable based on the country, province or state, county, and so on, that the safe space would be in. This section will be investigating how these words can be expanded on in the context of Croatia.

Situating the Site

In the Croatian suicide analysis pertaining to the years of 2004 to 2018, the warmer months showed an increase in suicide (Pajić and Orešković 2022, 5). The spring and summer are considered the social seasons around the world. This is shown to be true when looking at the travel patterns of Croatians. The majority of trips are being taken within the country, and the number increases significantly in the summer time — with the top two reasons for travel being to visit the sea and/or sunbathing, then visiting relatives and friends (Omerzo et al. 2022, 3). When one lacks the ability to experience the sea or socialize, it can be understood why suicide rates increase in the summer time, or why loneliness is felt more prominently. This emphasizes the importance of the sea and socialization to the Croatian people.

Furthermore, when looking at maps of Croatia that separate inner counties by population density (in which we will correlate lower population to loneliness), suicide rate, and disability rate, there are two main problematic areas. There is the Krapina-Zagorje county encircled in the northern

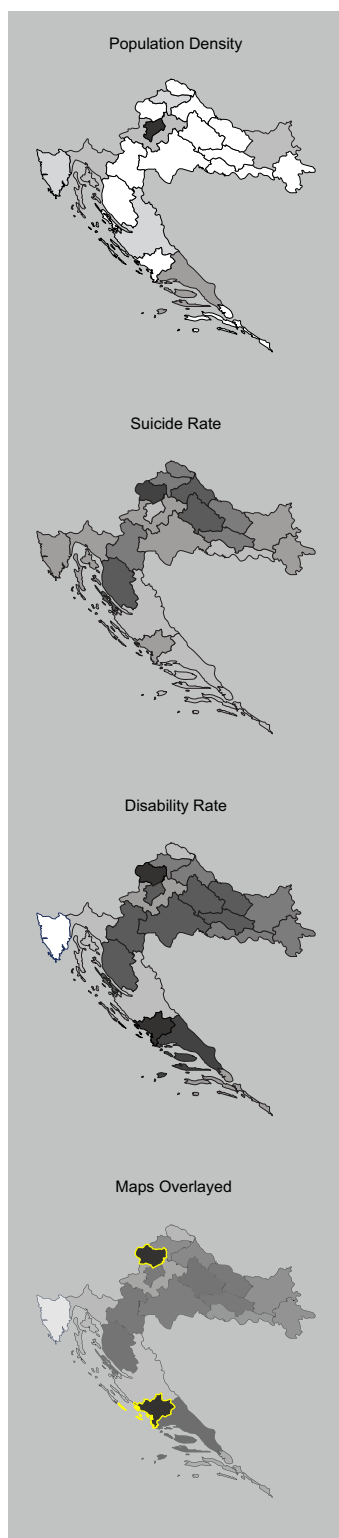


Figure 17. Various data for each county within Croatia.

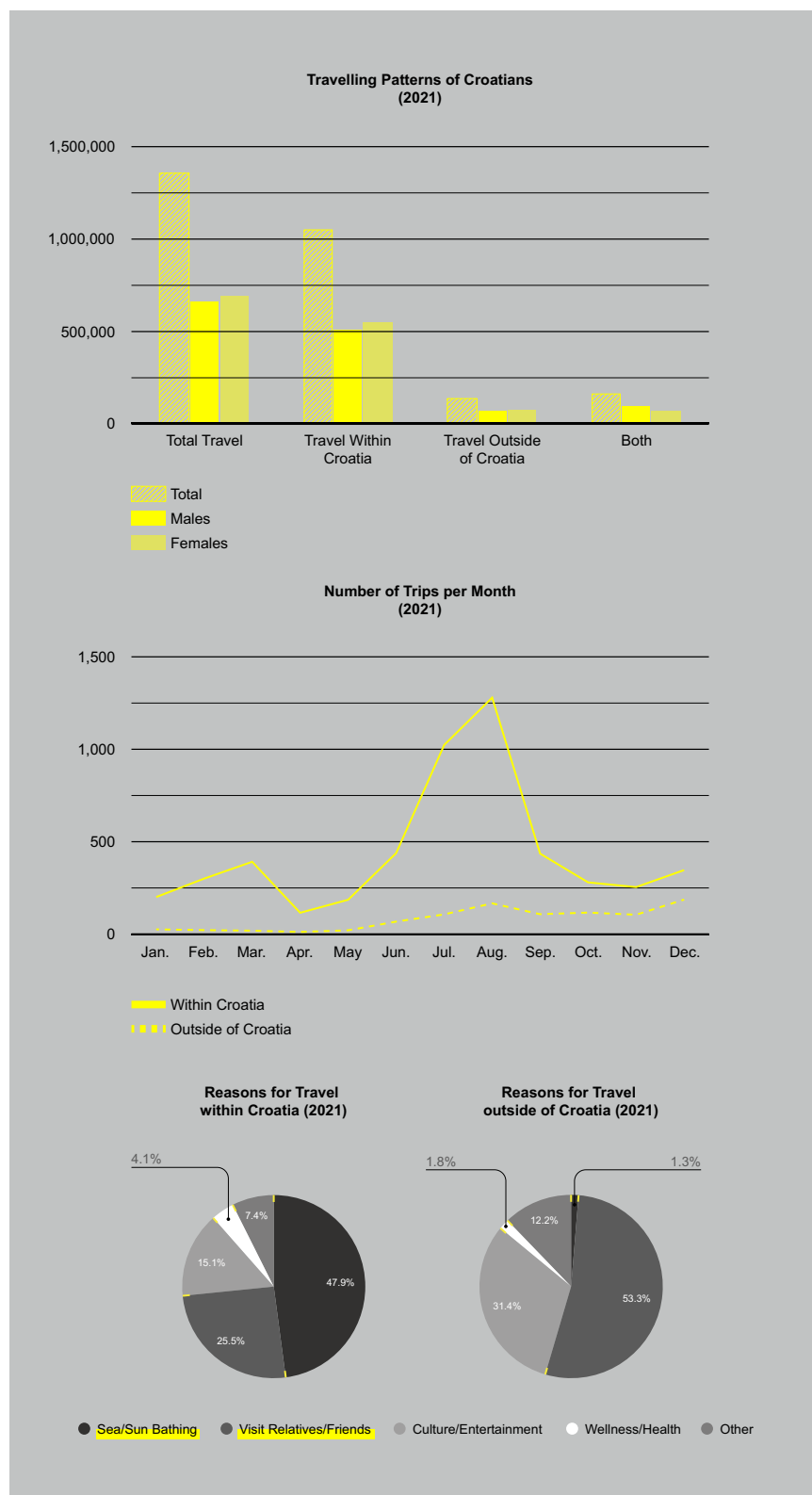


Figure 18. Graphs showing the travel patterns of Croatians and reasons for travel.

region of the country, and the Šibenik-Knin county encircled closer to the south, along the coast. Because the Krapina-Zagorje county is right beside the capital (which has most of the resources for mental health already) and due to the deep love for the sea that the Croatian people have, Šibenik-Knin is the chosen county to place this mental health centre in.

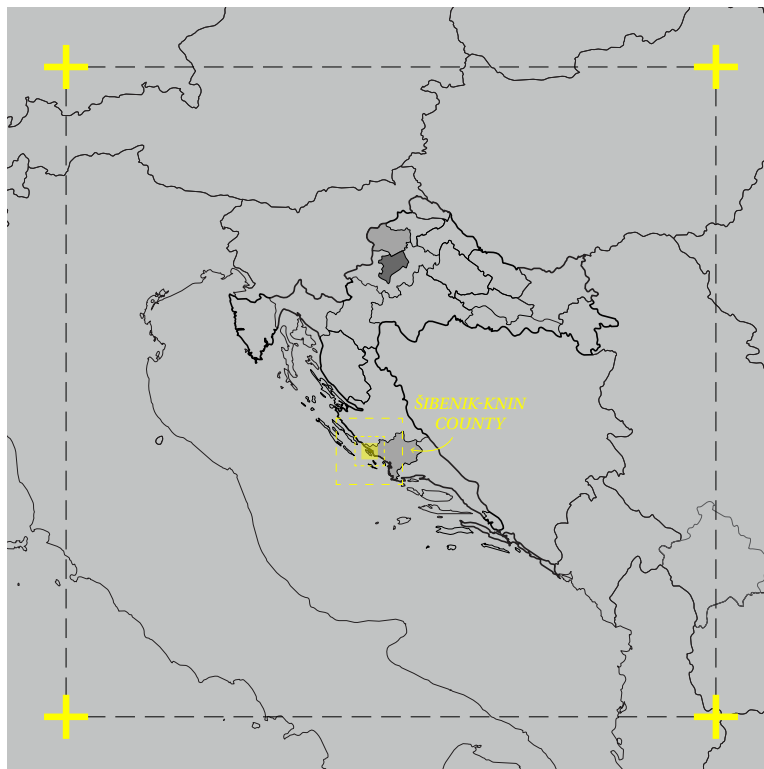


Figure 19. Map showing the two main problematic counties, with focus on the Šibenik-Knin county, and the location of Tisno noted.

Small Town of Tisno

The small town of Tisno is within the Šibenik-Knin county, just 25 kilometres away from the city of Šibenik. It's located about halfway between Zadar and Split, two other major cities along the coast. It has a population of around 2,900 people (City Population n.d.).

History

Tisno is a very picturesque coastal town with rich history and cultural significance. Over the centuries, Tisno has experienced the influences of various civilizations, including the Romans, Byzantines, and Ottomans, which have left their lasting imprints on the town's architecture and culture. Today, visitors can explore the remnants of ancient Roman villas, medieval churches, and fortifications that serve as vivid reminders of Tisno's history (Dalmacija Tisno n.d.b).

There is also an archaeological site by the church of Saint Martin - Ivinj. Archaeological excavations revealed the walls of a villa complex dating back to the 2nd and 3rd century. Remnants of a basilica from the 5th century, an altar, an early Christian baptistery, and 900 tombs from the 15th century have also been found. Archaeologists are still searching this area for a cemetery (Dalmacija Tisno n.d.a). Another prominent religious structure, is the shrine dedicated to Our Lady of Karavaj (Caravaggio) that was built in 1720. An image of her is still there with the text, "Much appreciated image with miracles of Blessed Virgin Mary of Caravaggio and her appearance on May 26th 1432 when she brought the light of mercy". On the same date every year, Tisno celebrates The Feast of Our Lady of Karavaj by organizing a pilgrimage (Dalmacija Tisno n.d.c).

Tisno was a cradle of trades, especially developing between the two World Wars. The population was also engaged in traditional activities with vines and olives, and was the first settlement in the area that engaged in organized tourist offerings. In the period between the two World Wars, foreign tourists would come to Tisno which already had hotels and pensions (Visit Murter n.d.).

Cultural Activities

Other than a rich historical significance, there are plenty modern-day cultural activities taking place in this town. The town hosts Croatia's major music festivals, such as *Love International*, *Outlook*, *Dimensions*, and four others.

There are the *Igre na Korentu*, or *Games on the Current* in English, which is a sports and entertainment spectacle that takes place every August on the Tisno bridge (which began construction after the fall of the Venetian Republic, but has had many reconstructions since then). This is a competition between two teams: one is the mainland team made up of competitors living in the mainland side of Tisno and the other is the island team made up of those residing on the island side of the town. They compete in various games of resourcefulness, speed, and strength. The sea current is extremely strong near the bridge, making it very difficult for competitors to compete (Kuscer 2020).

There's also the *Međunarodna Trka Tovarov* or *The International Donkey Race* in English. This is simply, as the name states, a donkey race, also taking place in August. A variety of entertainment, cultural, and artistic events take place during this event. The spectacle also promotes donkeys, saving the authentic Dalmatian animal from extinction (Kuscer 2020).

Alongside these, a number of religious holiday festivals take place. This is a town, full of history and diverse cultural events catering to a variety of different interests, that would be an ideal place to situate a mental health centre. Some of the five key words will be narrowed down to the context of the Dalmatian coast.



Figure 20. View of mainland Tisno from the island, showing the prominent red tiled roofs lining the coast

Health

We know from the statistical analysis, that people most at risk of dying by suicide in Croatia are those aged sixty and above, veterans and loved ones suffering from PTSD, and those with depression and/or disabilities. Some of the symptoms or negative impacts on quality of life that can be improved through architectural, programmatic, and environmental interventions are stress, negative moods, physical ailments and sleeping problems, loneliness, and loss of social roles.

Spaces for Mental and Physical Healing

Looking at the literature review, some of the key programs to include for mental and physical healing include spaces for gardening or interaction with nature, spaces for aquatic activity, and creative spaces. Making the entirety of the design accessible and providing equitable experiences for each inhabitant is necessary in order to limit the social isolation those with disabilities might feel.

A community garden helps foster wellbeing through the use of plants and gardening. It has a large array of benefits including increasing self esteem, confidence, social interactions, as well as improvements to dexterity, strength, and cardiovascular abilities, and the ability to improve attention fatigue and stress recovery.

Access to a swimming area and the inclusion of a heated pool is necessary for bodily aches, bettering mood, and sleep quality. Alongside this, a small fitness area would help with physical therapy. As well as the inclusion of a sauna, which benefits a variety of different ailments. It improves outcomes such as reduced overall mortality and incidences



Figure 21. An old church with traditional stone walls and red tiled roofs in Tisno.

of cardiovascular events and dementia – at least in men (Hussain and Cohen 2018, 24). The most noted benefits are for cardiovascular disease, but there's also evidence to suggest they benefit people with rheumatic diseases such as fibromyalgia, rheumatoid arthritis, and ankylosing spondylitis, as well as patients with chronic fatigue and pain syndromes, chronic obstructive pulmonary disease, and allergic rhinitis (Hussain and Cohen 2018, 24). Regular sauna use generally improves the quality of life for its users.

An art studio is a space that reduces stress and anxiety and improves mood. As well as providing a space for self expression and creativity. These are spaces that should be involved in person-centric mental health centres.

Culture

Based on the Ibasho principle of respecting local culture and tradition, the project being situated along the Croatian coast implies that Dalmatian architecture, and more specifically domestic architecture (as the Maggie's design guidelines state), should be a major influence on the design. This helps the residents feel more comfortable in their setting.

Spaces with Traditional Architecture

The architectural styles that are prominent in Croatia are a mixture of Romanesque, Renaissance, and Baroque — more noticeably for the religious or government buildings. Domestic architecture can simply be described as stone buildings with a wooden structure supporting red tiled roofs.

In Figure 22 there is an outdoor oven found on the coast of Tisno. Similar structures can be found outside many Croatian homes. Outdoor barbecues are a frequent occurrence for socialization, playing card games, and laughter. These



Figure 22. Photograph of an outdoor oven found on the coast of Tisno.

ovens are the hearths or *komin* of residences, symbolizing connection between people.

Connection

Besides providing spaces for healing, the main goal in this safe place is to provide opportunities for socialization, productivity, and self-expression — in a setting that feels domestic and blends with nature. In summary, spaces for connection.

Spaces that Embody the Social Culture

Croatians have a love for the sun and the sea. They are social people that love cooking and eating together. Having coffee and playing cards is a regular pastime. Providing informal gathering spaces where the residents can experience these together is important.

Alongside seating or resting areas, spaces for creating and working are also of significance. Connection represents interacting through socialization, cooking, creating, working, and so on.



Figure 23. Cooking outdoors with a group of family and friends is a frequent occurrence in Croatian culture.

Environment

Immersion in nature stimulates the five sensory systems which increase activities in one's parasympathetic nervous system and leads to heightened awareness (Lim, Dillon and Chew 2020, 3). The parasympathetic nervous system carries signals that relax body systems. Exposure to nature provides individuals with opportunities for restorative experiences and aids one in the recovery of attentional fatigue (Lim, Dillon and Chew 2020, 3). Natural environment and interaction with said environment is necessary for mental healing — an area surrounded by nature is optimal.

Spaces Surrounded by Nature

Three geographic features make up the appearance and nature of Croatia. There is a long shoreline along the Adriatic Sea with a large number of islands, there's a mountain chain of moderate height that separates the coastal areas from the continental interior, and there's the plain — a large lowland and inland region traversed by major rivers (Sommer n.d.). Even though the country is small, Croatia is naturally diverse in appearance, flora, and fauna. Each of these areas have their own benefits and inherent culture. This project will focus on the coastal or Dalmatian culture and relationship with nature.



Figure 24. Croatia's national coin (pre-Euro) depicting an olive branch (Hobby of Kings n.d.).

Productivity

The feeling of being productive tackles the “lack of social role” issue previously mentioned as one of the major contributions to suicide amongst those aged sixty and above. One can be productive in the art studios or in the community gardens — selling their works or produce at markets, which can be an external source for socialization as well.

There should be a direct relationship between environment and productivity. The types of productivity should be influenced by the type of environment the project is in. In this case of being on the coast of Croatia, looking at the types of vegetation being grown in these landscapes is important.

Spaces for Production

The Mediterranean climate along the Dalmatian coast is perfect for the growth of olive trees. Dating back to the Roman times, high-quality olive oils have been produced in the country. Many of the olive groves have been tended to for generations; small family-owned olive farms are common, emphasizing the commitment to artisanal and quality production (Come to Croatia 2023). Olives, which used to be on Croatia's currency before the transition to the euro, are a symbol of heritage and a source of pride. It's a "testament to the enduring connection between the people, their land, and their traditions" (Come to Croatia 2023). Having spaces for olive oil production is necessary.

Supplementary to olive oil production, figs and lavender also have a deep history that can be accommodated in the project. The tradition of growing lavender in Croatia dates back to ancient times. The region's climate and soil make it an ideal country for plant cultivation. Lavender has been used for its medicinal, culinary, and aromatic properties for centuries. Growing lavender is most common on the island of Hvar (Expat in Croatia 2023). This island is famous for producing some of the finest lavender in the world. In 1966, 80 tons of lavender oil was produced on the Island of Hvar, which was 90% of the production in the former Yugoslavia and about 10% of the world lavender production (Jug-Dujaković et al. 2022, 1). One of Croatia's most popular lavender products

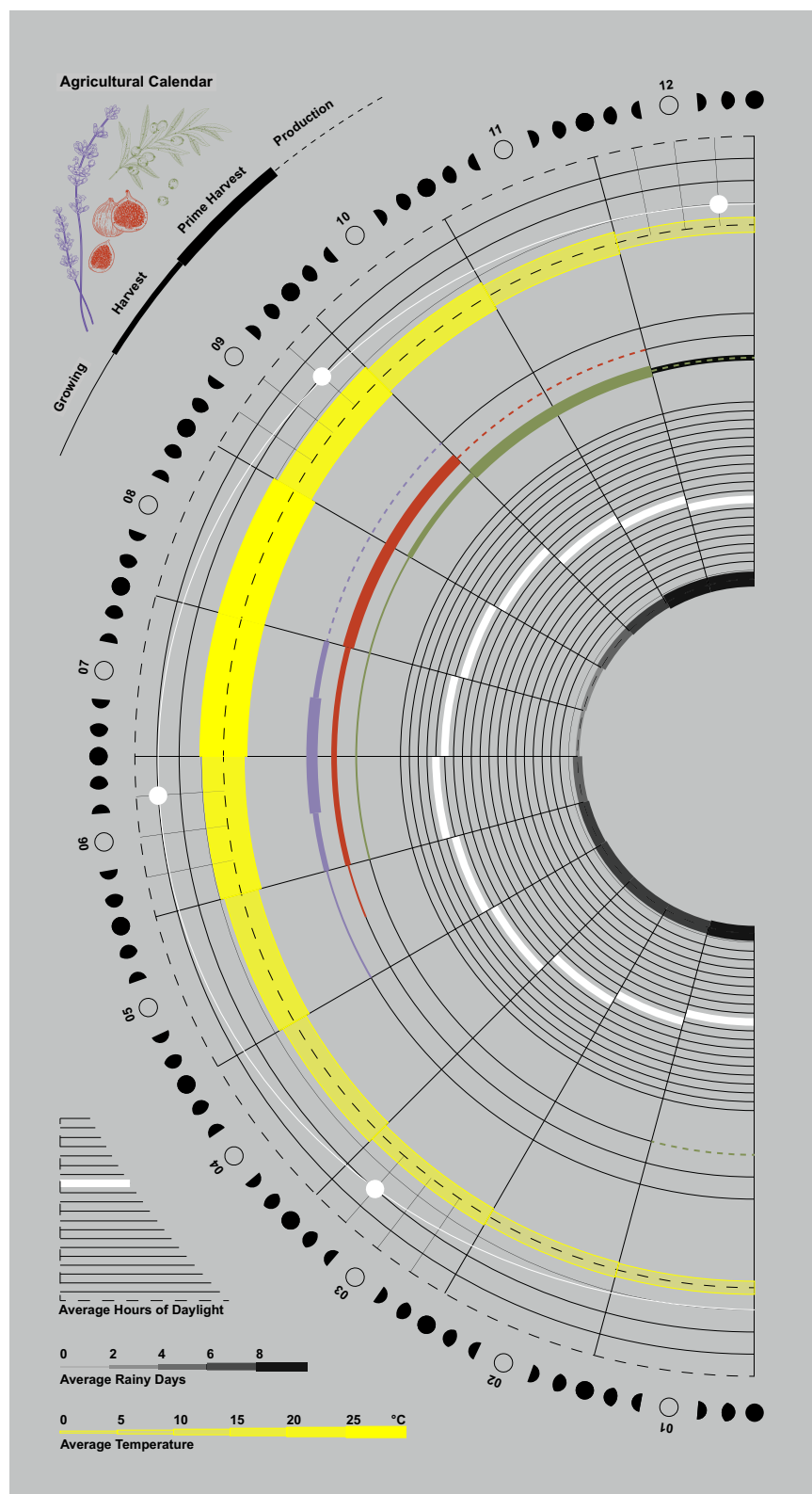


Figure 25. An agricultural calendar depicting information for lavender, figs, and olives, as well as temperature and weather data for the site.

is an essential oil used in skincare and aromatherapy to relax and relieve stress (Expat in Croatia 2023). This can be something produced for the wider community or for the residents in the mental health centre themselves.

Figs, on the other hand, are another common tree in Croatia and Tisno especially, walking down the streets of Tisno you'll find many properties with fig trees. It's a fruit fresh in the summer and dried in all other months, where they become prominent as snacks during the working day. Going to the coast and looking forward to figs is commonly expressed amongst Croatians. Fig spread is also gaining success in Croatia, winning awards.

A design that considers the creation of olive, lavender, and fig products is necessary to push productivity amongst the residents. Figure 25 shows an agricultural calendar that considers the growth and harvest of these three plants, aiming to fulfill year-round production in the mental health centre.



Figure 26. A fig tree outside of my aunt's house, with a view of the sea right behind.

Chapter 4: Design

Site Selection: Šuplji Dolac Bay

On the northern coast of Tisno is an area full of greenery that I believe provides the best environment for this project. In Figure 28, you can see the area noted, emphasizing the lack of inhabitation compared to the area that surrounds the aforementioned bridge of Tisno. Figure 28 also shows the notable community spaces in relation to this site — the majority being within 2.5 kilometres. This is a walkable distance, yet still isolated in a natural, coastal area — providing the environmental immersion needed for mental healing.

This noted area is off the Šuplji Dolac bay, which has a direct view of another town named Pirovac, and is a short distance from the town of Betina. These two being only a boat ride away, could provide for additional community connections.

The specific site, has an abundance of unkempt olive trees, supplying the needed grove for olive-related productions. For those staying at this mental health centre, they can



Figure 27. Photograph of the unkempt olive trees populating the site.

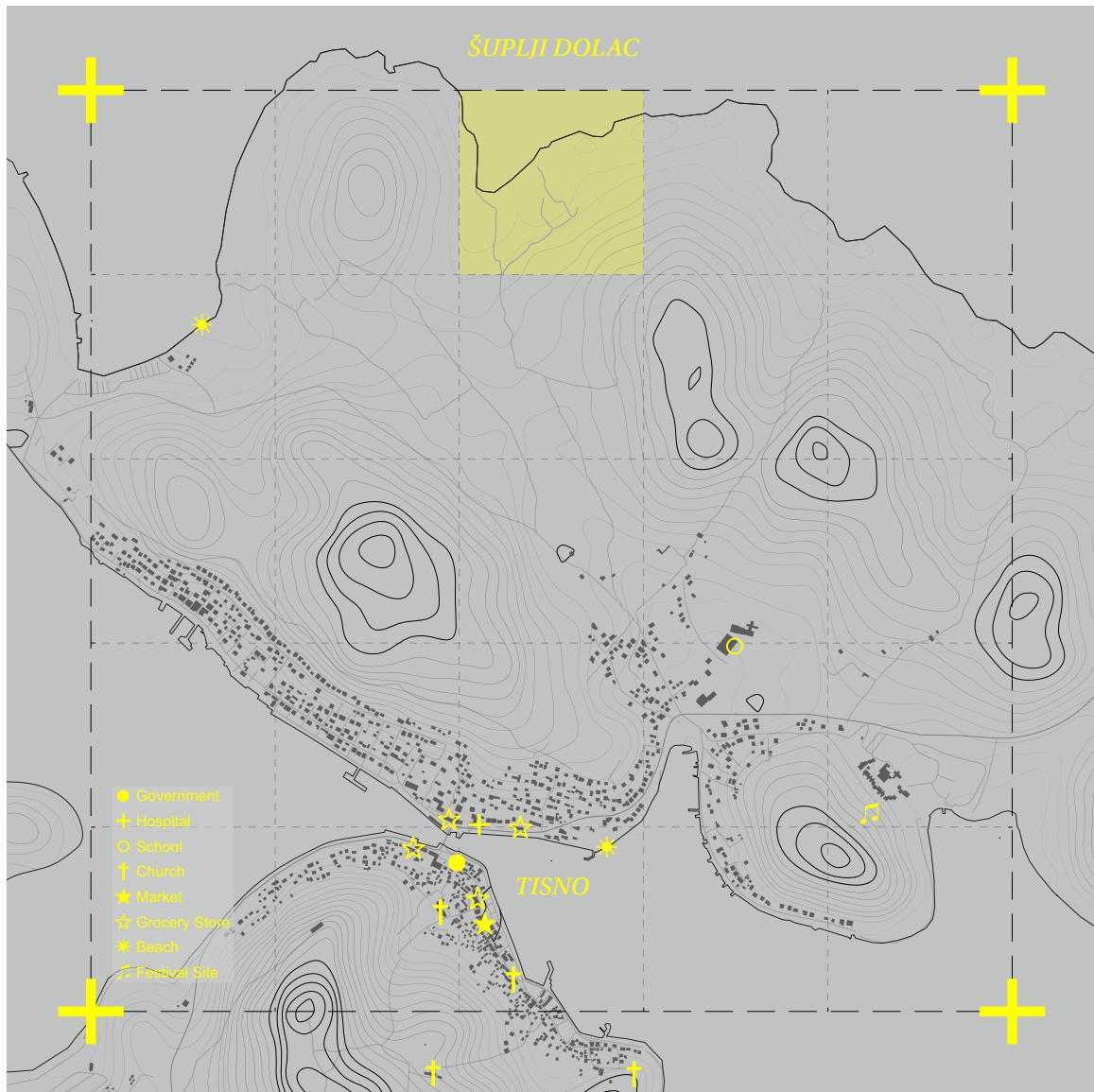


Figure 28. Map showing Tisno and its noted areas, as well as the Šuplji Dolac bay.

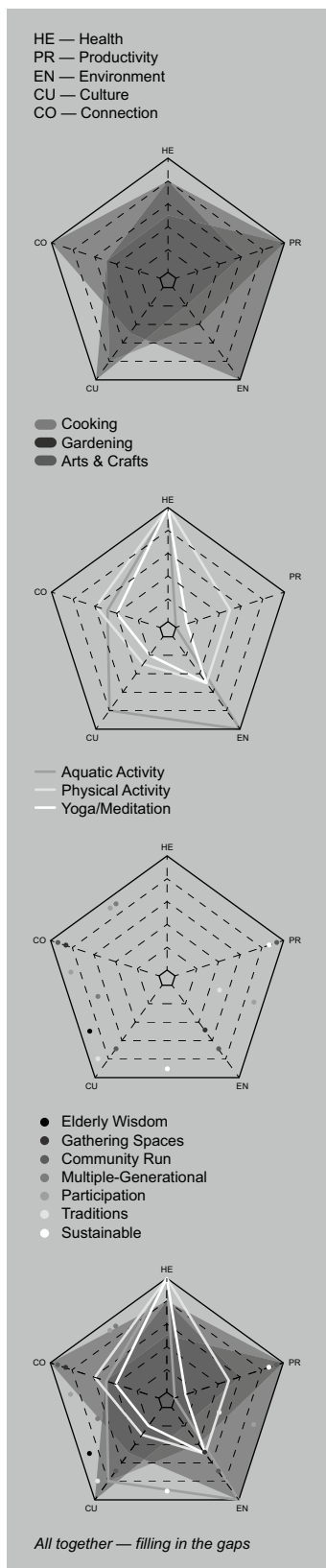


Figure 29. Evaluating programs and principles against the five key words.

rejuvenate the abandoned grove, having a symbiotic relationship with the site, as it helps care for those in return.

On the coastal edge of the site is an existing gate and dock oriented in the North-West direction, this serves as the organizational axis for the project.

Programmatic Organization

After organizing the relevant programs and principals based on the literature review, three zones were developed as seen in Figure 30. These separate the concepts based on function types (social or solo activities, productive or relaxing) and noise levels (conversationally and musically heavy or calm and reflective).

		Zone 1 — Social	Zone 2 — Quiet	Zone 3 — Work
Programs	Cooking	X		X
	Gardening			X
	Arts & Crafts	X		
	Aquatic Activity		X	
	Physical Activity		X	X
	Yoga/Meditation	X	X	
	Living Quarters		X	
Principles	Elderly Wisdom	X		X
	Gathering Spaces	X		X
	Community Run			X
	Multiple-Generational	X	X	X
	Participation	X		X
	Traditions	X		X
	Sustainable	X	X	X

Figure 30. Chart designating the various programs and principles from the literature review into zone types.

The social zone houses all the programs in which people can do activities together, such as: the dining and living areas, art studio, and music room. The quiet zone has the sleeping quarters and programs in which people prefer to be alone, such as fitness spaces and a calm heating pool. The work zone houses the programs meant for productivity, such as the gardening spaces and corresponding production workshop. These zones were named to the “Lively” square, “Calm” square, and “Garden” square.



Figure 31. Photograph showing the existing arch and concrete dock on the site.

When placing these zones on the site, their narrower and wider contexts are both taken into consideration. The Garden square should be open to the wider public and have a relationship with the school nearby to create the community-run and multiple-generational principles taken from the Ibasho guide. Because of this, it is placed closest to the existing roads for ease of access.

The Lively square is placed closest to the sea, as spending time with people — cooking, eating, playing cards and music — while having a view of the water embodies the Dalmatian culture. Adjacent to these two zones is the Calm square. It's placed between these areas to create a flowing live-work interaction. Yet, it is still close enough to the sea to appreciate the sounds of the waves — aiding relaxation and sleep.

Architecture

Form Decisions

The courtyard, which is prominent within Croatia, was chosen as the main form due to its symbolism of protection, and to create places of connection, either with people, nature, or within themselves.



Figure 32. Aerial photograph of Zadar showing the prominent courtyards and A-frame architecture (Rakić 2023).

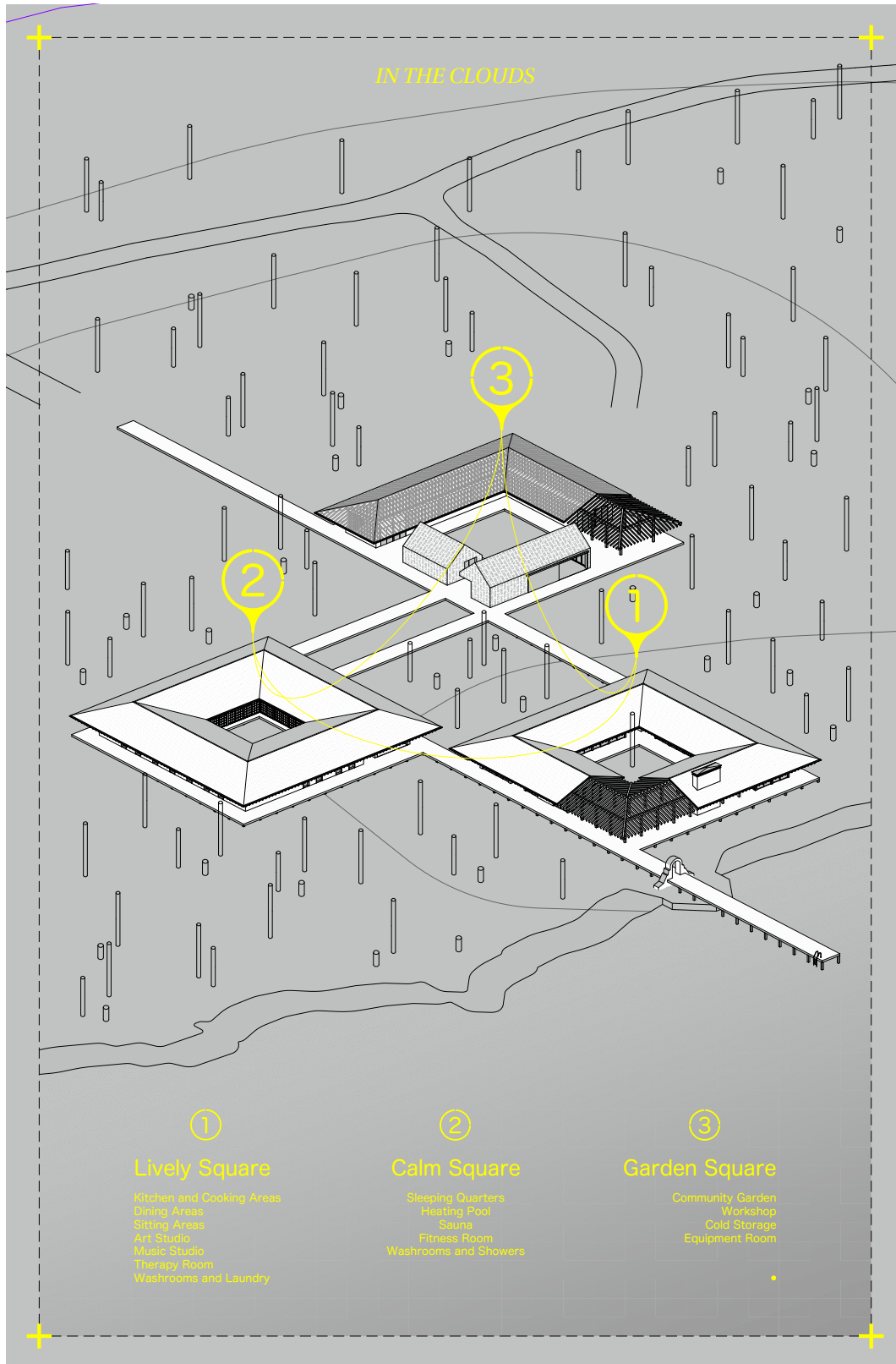


Figure 33. An axonometric drawing illustrating the programmatic zones in relation to the site.

Traditional architecture in Croatia is almost exclusively built with a gable roof construction. This remains true for this project, solidifying the respect for local culture and traditions that the Ibasho principles emphasize.

A system of paths connects the courtyards to each other, weaving around and through, allowing for accessible meandering or reflective circumambulation around the entire site.

Through the courtyards, paths, and environment in general, there is constant opportunity for interaction with the natural landscape.

Material Choices

In the Framework chapter, we read about the prominent use of stone walls and clay tiled roofs on the Dalmatian coast. These are the main materials used for the project.

Stone Walls

As mentioned previously, Dalmatian buildings typically have double stone walls. This enables for the evaporation and diffusion of moisture. The stones are plastered with equally porous lime-based mortar, having the breathability prevent the trapping of moisture. The thickness of the walls also provide insulation, preventing unwanted heat and cold from entering. Windows are usually kept small to maintain this energy efficiency (Expat in Croatia 2022). Alongside these benefits, these walls are also resistant to harsh weather, ideal for any storms that may occur.

Clay Tiled Roof

Clay tiled roofs have a strong durability, they can withstand fire, wind, sun, snow, rain and hail. They keep homes cool



Figure 34. View of clay tiled roofs outside of my aunt's house in Tisno.

during the hot weather and warm during cold weather (Sanchez Garcia 2024). And they also have a long lifespan.

To complement the palette of the stone walls and tiled roof, wood and cork is used throughout the project.

Wood Elements

Wood is used throughout the project in finishes, flooring, and structure. In “Wood and Human Stress in the Built Indoor Environment: A Review”, Burnard and Kutnar state,

Wood is a well-suited building material for sustainable design because it sequesters carbon throughout its life cycle and is derived from a renewable resource. Furthermore, because wood is a material that is well recognized as being natural, it is an excellent material for biophilic design (Burnard and Kutnar 2015, 982).

Wood finishes are emphasized in the interior through doors, the flooring, and the ceilings. The structure of the roofs are all constructed with timber framing and the remainder of the structure for each building is wood besides the stone walls. To solidify the use of wood for this mental health centre, “Studies suggest interior wood-use provides restorative benefits and positive health impacts to occupants” (Burnard and Kutnar 2015, 983).

Cork Cladding and Finishes

Cork cladding is a renewable building material sourced from the bark of cork oak trees, primarily from the Mediterranean region and mostly from Portugal. Cork is very similar to wood as it is also a carbon sink, but contrary to wood, the cork tree is not cut down when the bark is harvested, so the tree continues to be a carbon sink throughout its lifetime (Amorim Cork Insulation n.d.). Cork is also a completely recyclable product. This material is used for the garden workshop and shed, which have simple forms. The contrasting material

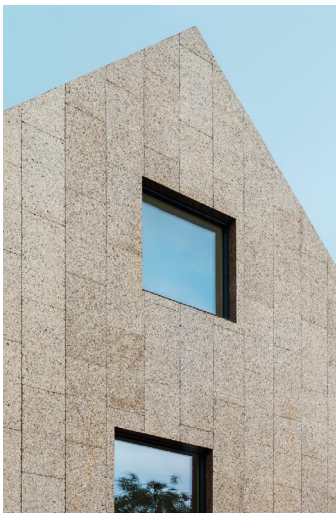


Figure 35. Cork facade of a house in Berlin, Germany by rundzwei Architekten (Hill and Geuder 2019).

and forms to the rest of the buildings, emphasize them as an “other” — they are meant to be noticeably different from the domestic architecture, labelling them as workspaces and in that, open to the public. Cork also has insulative properties, ideal for the food storage in these buildings.

Cork is also used as the flooring for the sleeping quarters and as the finishes for the walls between each room. The material is a great choice for improving air quality as it has extremely low levels of VOCs (Bridges 2022). It also has a “cellular structure” like honeycombs, that works as an acoustic insulator to absorb sound (Bridges 2022). This helps to achieve the peaceful environment that the Calm square aims for. And finally, it is comfortable. It’s warm and soft —yet rigid, perfectly balancing between stability and comfort. It helps “minimize heel strike impact and reduce body fatigue”, being ideal for a space that aims to benefit physical ailments as well as mental health (Bridges 2022).

Corrugated Polycarbonate

Corrugated Polycarbonate panels are a strong and durable plastic that are fully recyclable. These panels fully encompass the greenhouse roof and walls and “promote uniform growth from the scattering of the diffused light into the canopy of the plants” (ePlastics 2024). They are also non-combustible, self-extinguishing, and have high insulative qualities relative to their width (ePlastics 2024).

Besides these, transparency is used to provide opportunities of “viewing out” that the Maggie’s Centre emphasizes as important. The corrugation makes the views in and out interesting through its blurring effect, also adding a sense of curiosity.



Figure 36. Polycarbonate Wall in a House in Skinkawa by Yoshichika-Takagi Sapporo, Japan (Oseto 2015).

Architectural Plans

Lively Square

In the plan of the Lively square, on the left hand side is the kitchen, dining, and sitting areas — one for a larger group of people, and one reading nook. Glazing lines the majority of the perimeter, providing views to the courtyard, sea, and greenery. The dining area itself is surrounded by sliding doors, allowing for the blending of interior and exterior. It opens to a deck with a larger sitting and dining space. A large outdoor oven marks the centre of the plan, its location being the most important due to the significance it has to Croatian culture.

Other spaces include an art studio and music room (for the creative arts therapy), psychological counselling room, and necessary amenities such as bathrooms and laundry room.

A firepit and olive tree sit on opposite ends of the courtyard. The latter metaphorically symbolizing the peace and friendship this project is meant to create, and the other being a literal space for connection — whether through evening conversation with a campfire, or through the Croatian *peka*. That being the traditional method of preparing meals which involves roasting food over an open flame using a clay or wrought-iron vessel (Croatia Full of Life n.d.).

Calm Square

The Calm square has sleeping quarters lining the outer edges. The rooms vary in size depending on length of stay and accessibility needs. Each bedroom has a workspace with views outside. On the inner edge is a small fitness room, a sauna, and bathrooms and showers. In the centre

is a heating pool for mental and physical relaxation, creating the hydrotherapy component.

Garden Square

The Garden square has a large greenhouse that wraps the South-Western corner, receiving plenty of sun. Opposite is a workshop for producing the olive-related products, as well as the supplementary fig and lavender products. Within is a long kitchen and dining counter, providing workspace, and a small storage room in the corner. There is also a small shed with the upper portion housing a cellar, and the lower for machinery necessary for caring of the land.

The courtyard has the outdoor garden for year-round plants and vegetables. This square represents the horticultural therapy component.

Architectural Elevations

From the Approach

Looking at the elevations, when you approach, you first see the greenhouse on the left, enveloped in corrugated polycarbonate sheets. Being transparent to expose the structure and to maximize the sunlight.

On the right is the Calm square. The sleeping quarters have a traditional stone facade — I have this material symbolizing the private programs. The Lively square in the middle is mostly glazing and wood cladding — I have these for the shared programs. I used clay tiled roofing on the two domestic squares as this is the type of roofing that you typically see in Croatia, especially on the Dalmatian coast.

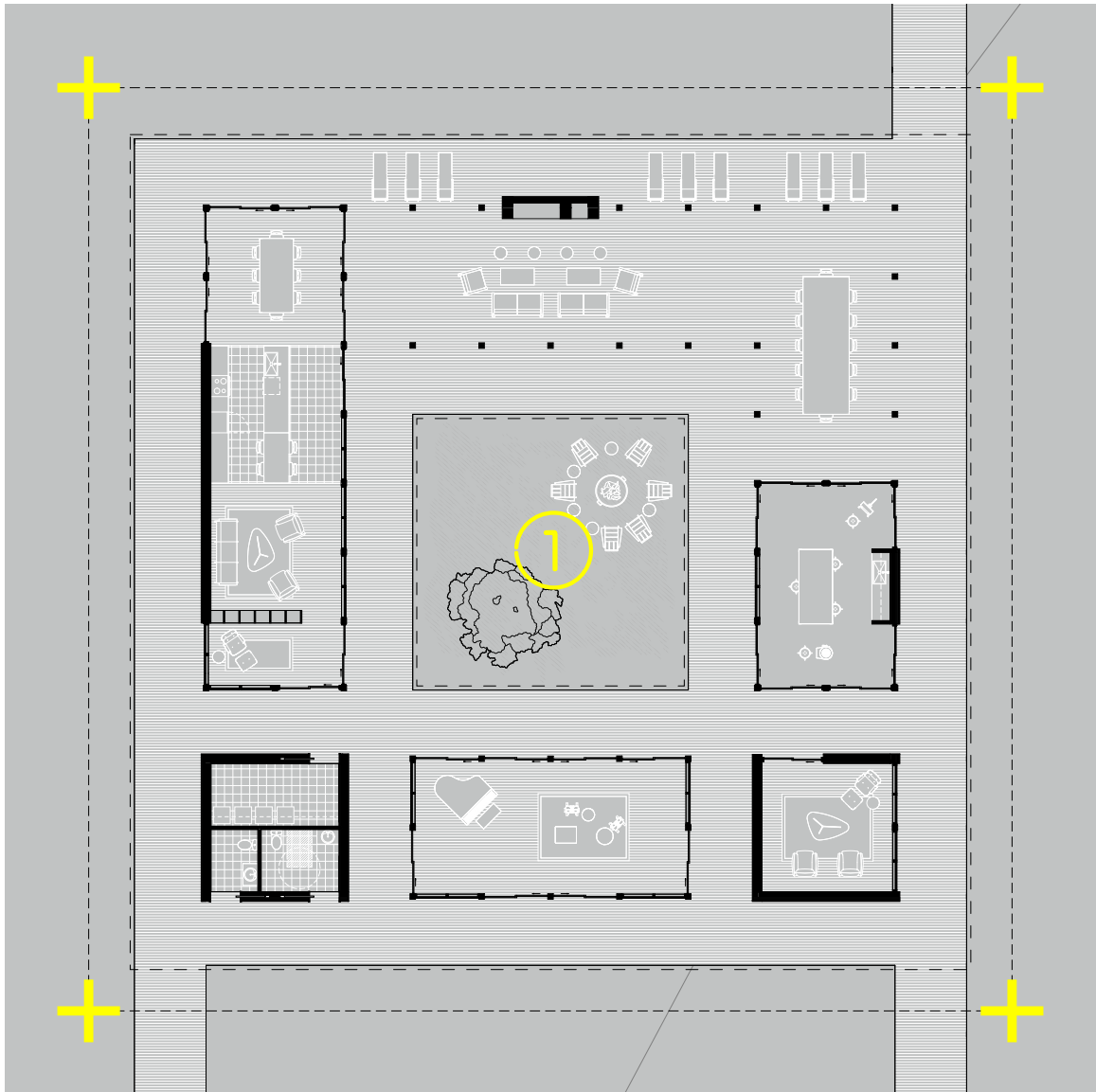


Figure 37. Plan of the Lively square.

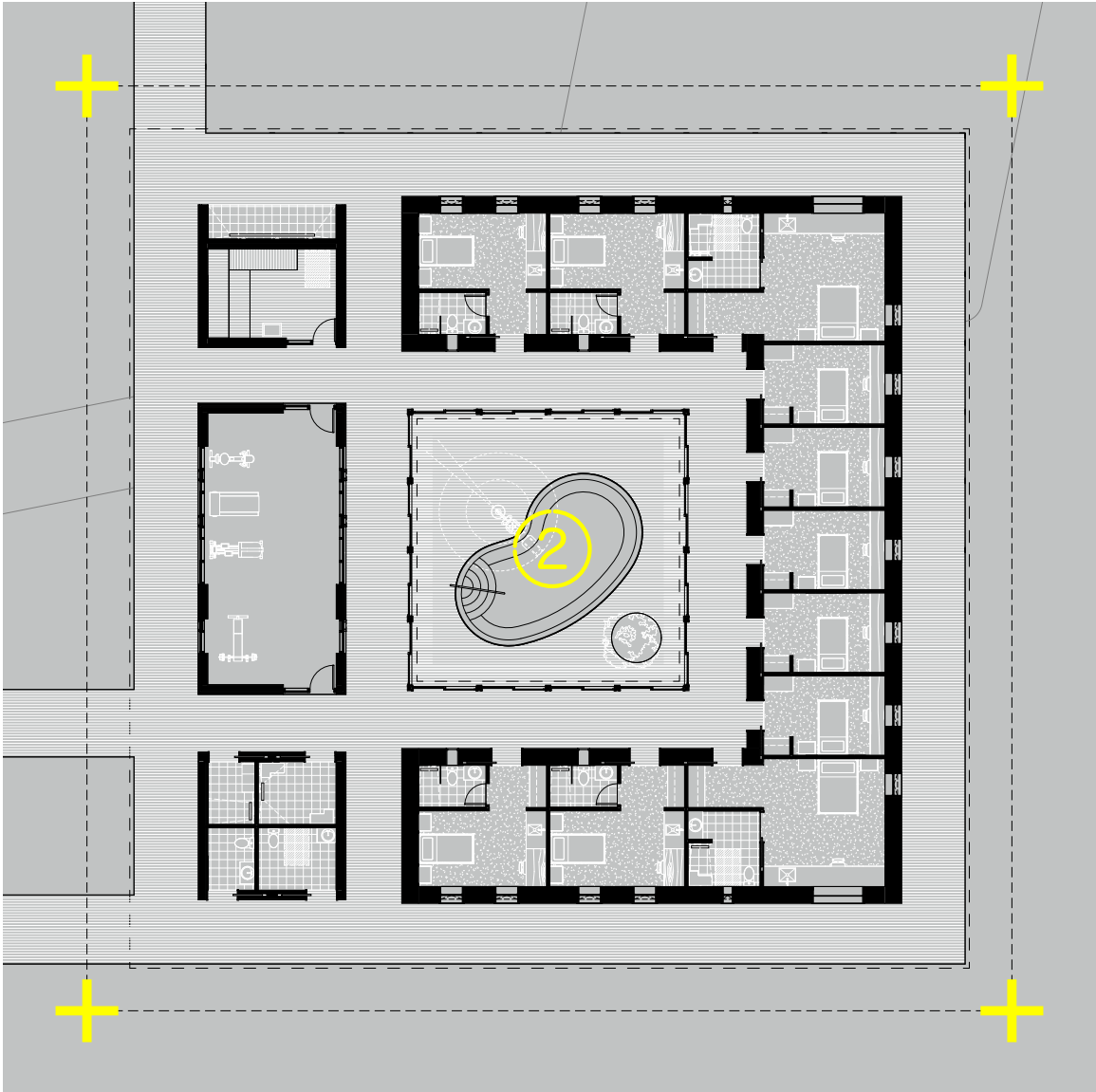


Figure 38. Plan of the Calm square.

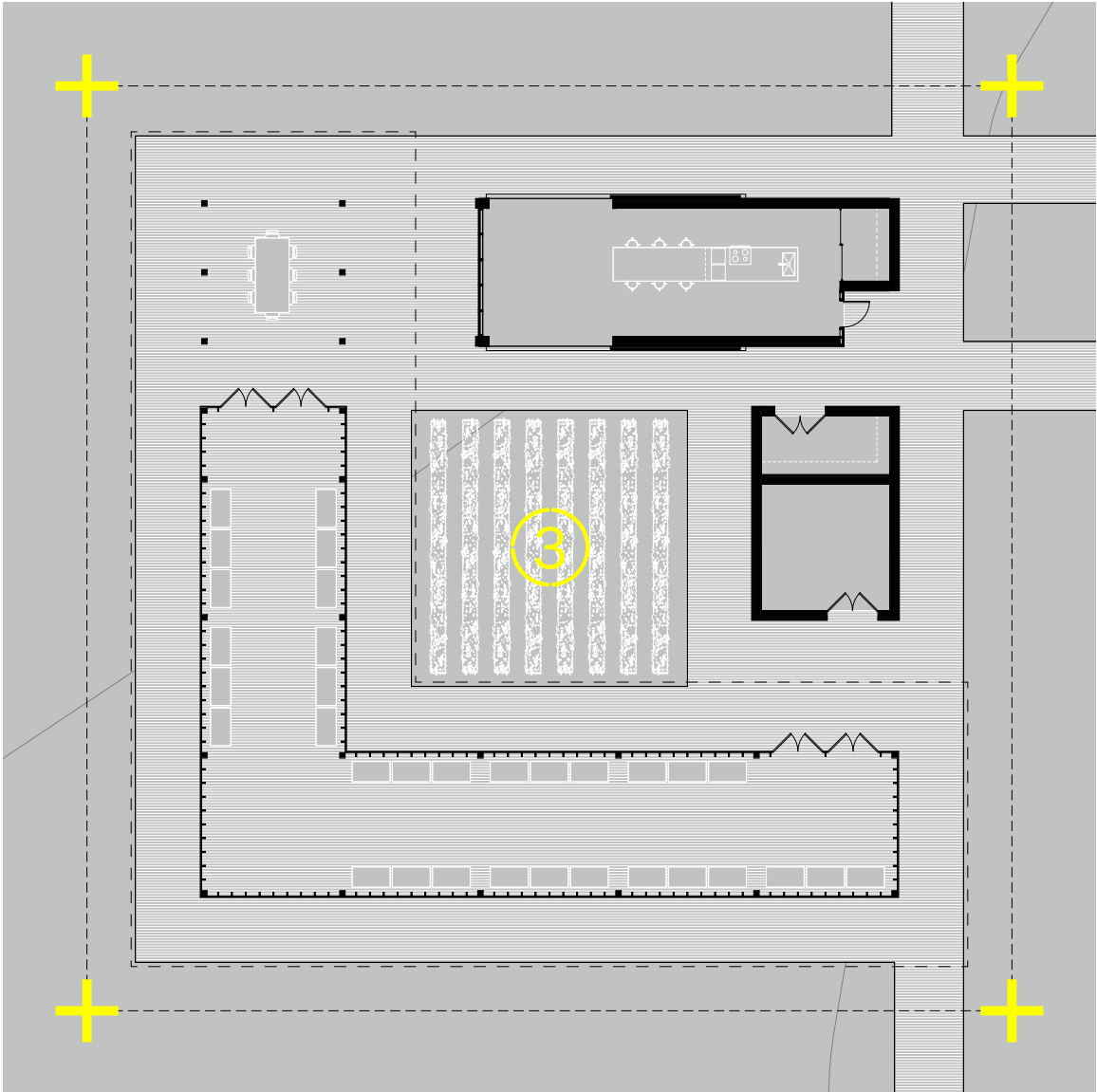


Figure 39. Plan of the Garden square.

From the Sea

Next is the view from the sea, approaching the Lively square first. You can see the central outdoor oven, and a pergola above the dining area. One could start growing grapes here, which is also typically seen at Dalmatian homes.

On the left is the Calm square, showing the mirrored facade from the previous elevation. And the outdoor showers just off of the wooden deck for a quick rinse before and after swimming in the sea. On the right you can see the workshop building with cork cladding and large sliding doors that again blend interior and exterior space. As well as another pergola attached to the greenhouse.

From the Rising Sun

In the foreground of the Eastern elevation is the domestic sleeping quarters with elongated windows. The left side shows the transparent greenhouse and the small shed, clad in cork, that houses the equipment room and cellar. The right side shows the mixing of glazing and wood cladding for the Lively square. Being able to see through, enjoying different views of the landscape is of key importance.

From the Setting Sun

In the foreground of the Western elevation, we have the Garden square, showing the transparent greenhouse and pergola with a working or dining table below, again with opportunity to grow grape vines. Beyond the pergola, you can see the glazed elevation of the workshop.

On the left is the Lively square with its mix of glazing and wood cladding, and the Calm square in the middle with the same materiality, showing the shared amenities.

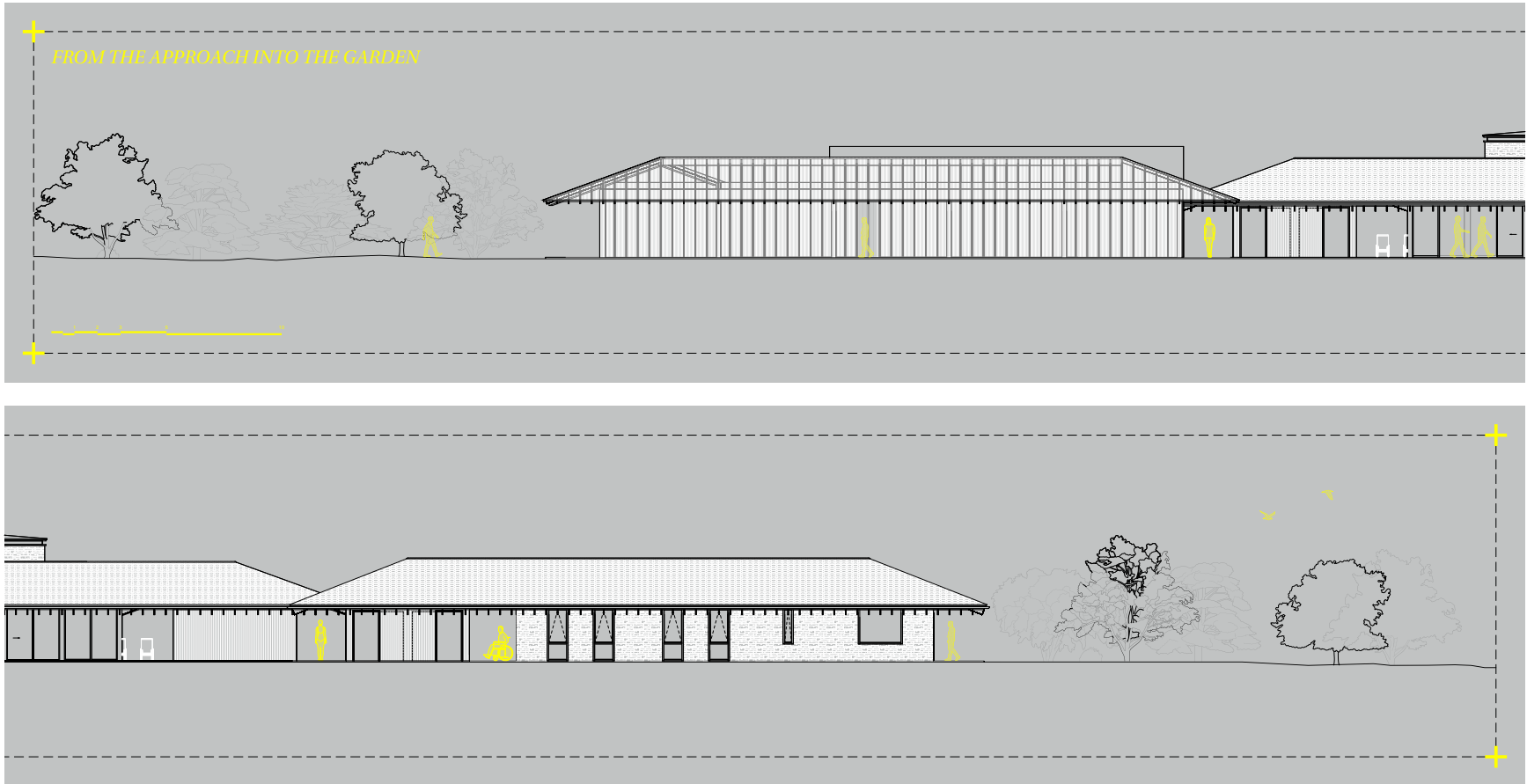


Figure 40. Southern elevation showing the approach.

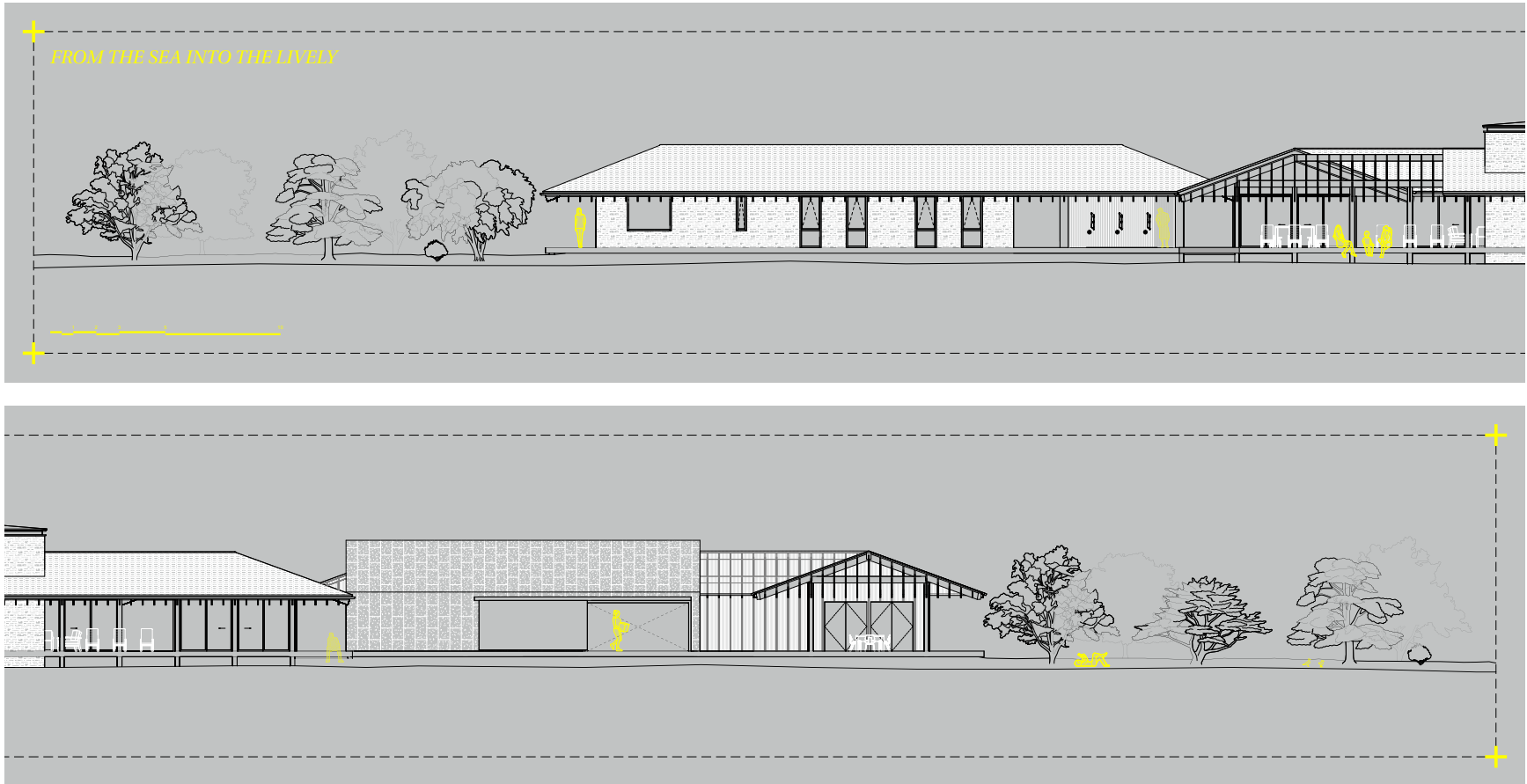


Figure 41. Northern elevation showing the view from the sea.

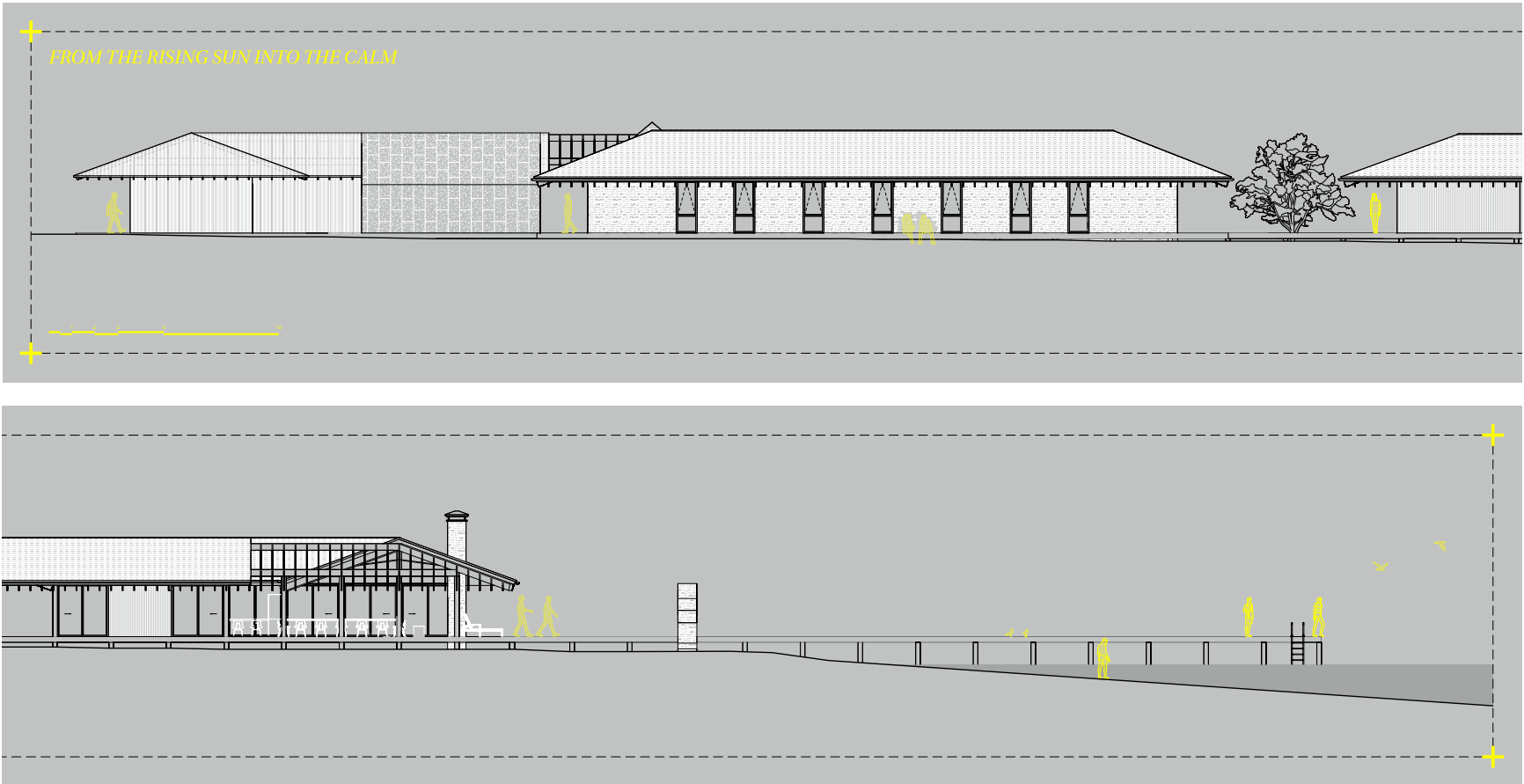


Figure 42. Eastern elevation showing the view from the rising sun.

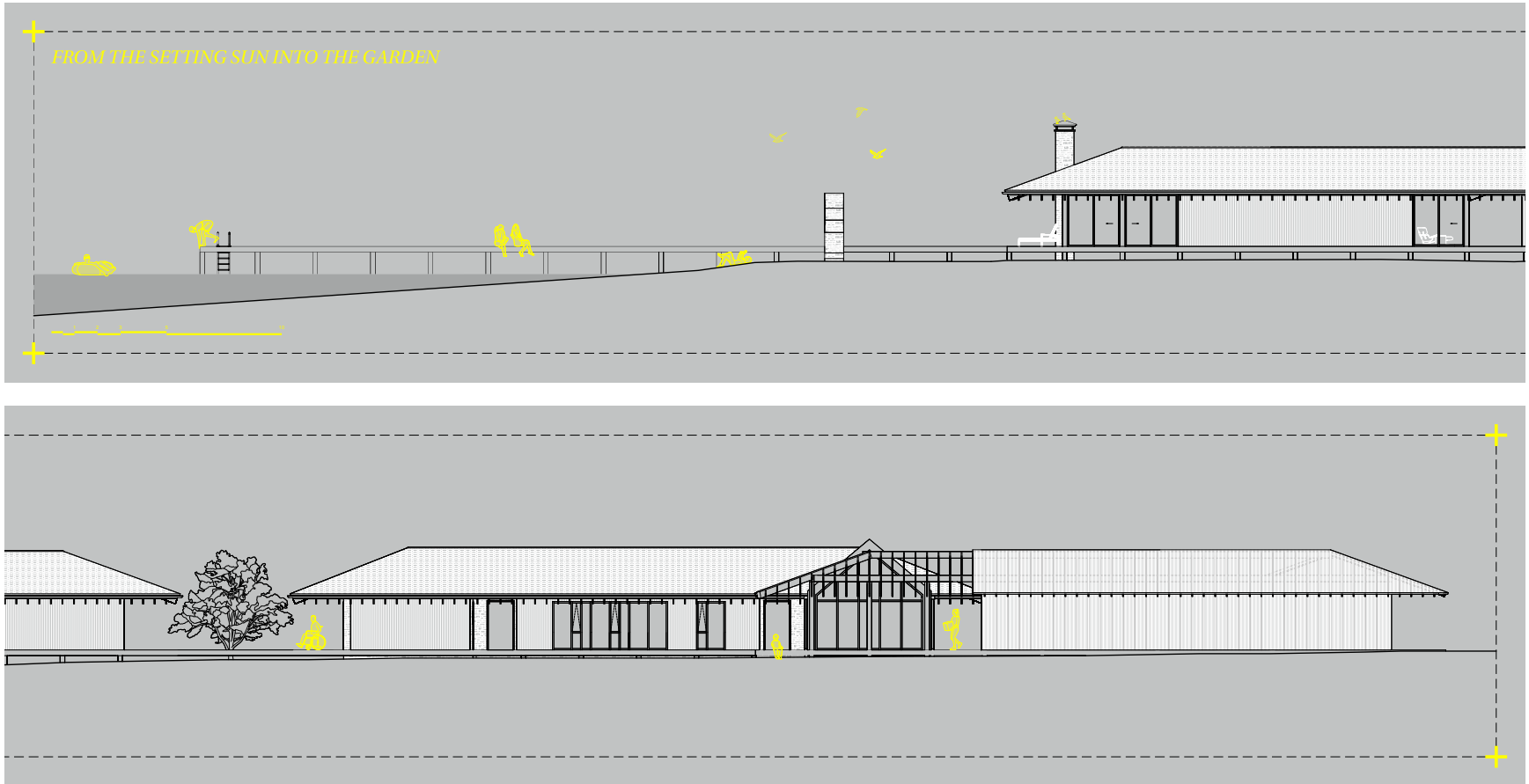


Figure 43. Western elevation showing the view from the setting sun.

Architectural Sections

Through the Lively

The section through the Lively square shows the indoor kitchen and dining area on the left. The art studio on the right opens to the courtyard and the sea, allowing for a breeze to flow into the space and creating views for creative inspiration. In the courtyard is the firepit with people sitting around, being a space for socialization and cooking. In the middle, you can see the outdoor oven beyond and it's corresponding seating area, being the hearth of this square.

Through the Calm

Through the Calm square, there is a short-term sleeping quarter on the left. A clerestory on the outer facade is operable to let in a breeze as well. On the right is the fitness room with glazing outwards. And in the centre is the heating pool with accessible machinery to help one in and out of the pool. Sliding doors wrap around the inner corridors, providing extra privacy to those in the pool.

Through the Garden

The section through the Garden square shows people working in the indoor and outdoor garden. The spaces are designed for a variety of abilities, having planters at an accessible height indoors. As mentioned previously, the courtyard can house year-round plants and vegetables, or be a space dedicated for lavender growth. The section also cuts through the equipment shed, showing the tools within. In the middle you can see the workshop beyond with its large sliding doors that are on both sides of the structure, allowing for people to wander indoors and outdoors.



Figure 44. Section through the Lively square.

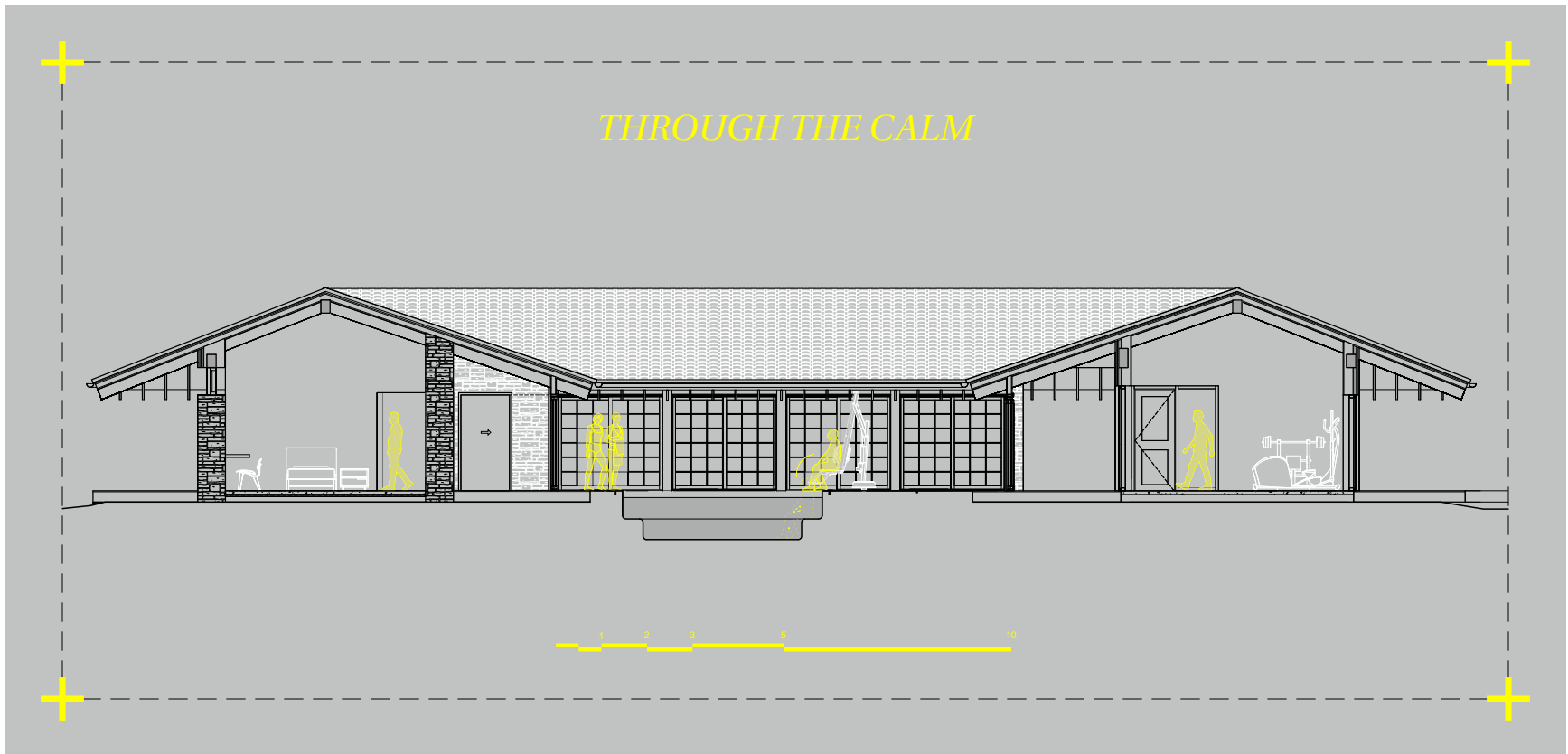


Figure 45. Section through the Calm square.

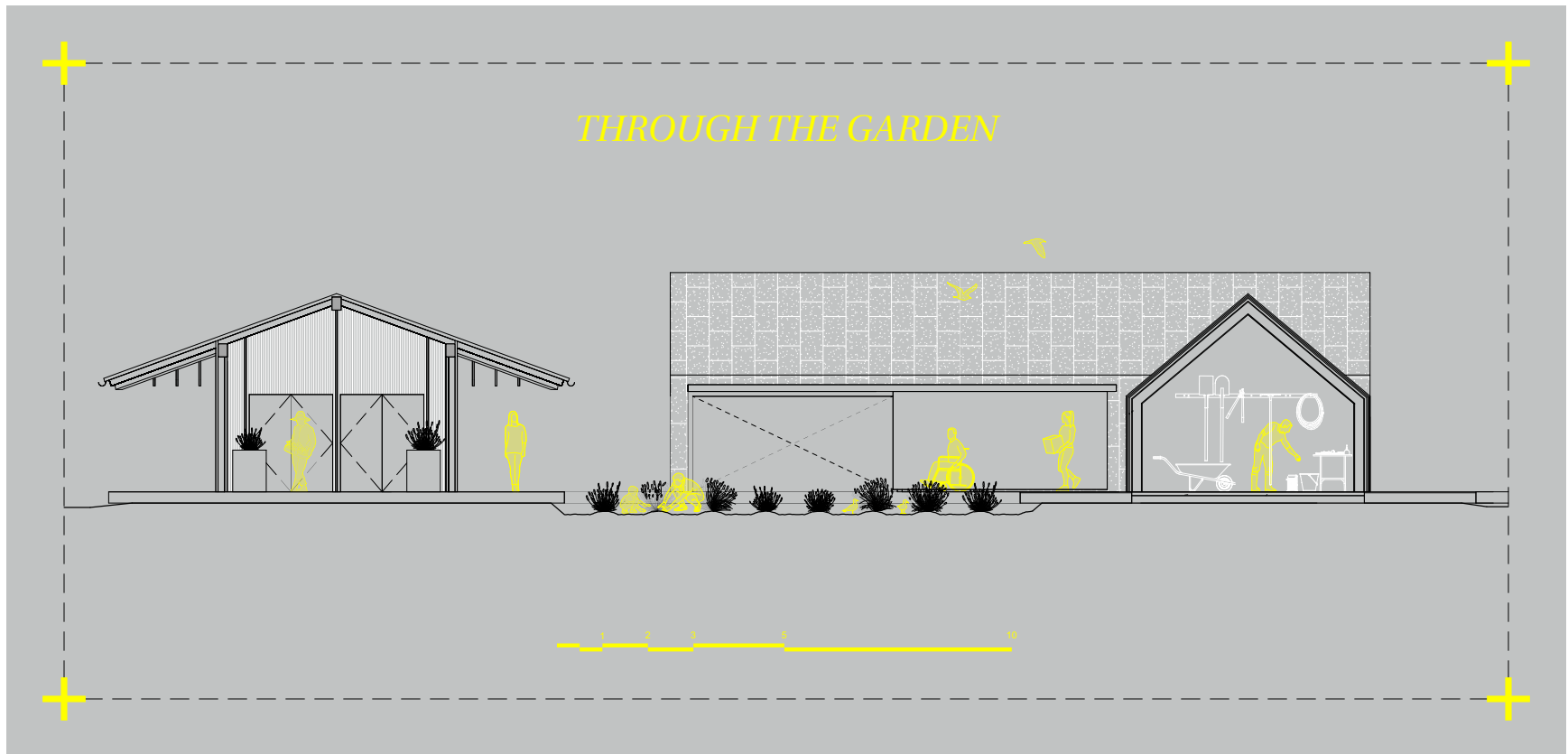


Figure 46. Section through the Garden square.

Zooming In

Sleeping Quarters

Shown is a close up of one of the sleeping quarters dedicated more for shorter stays. It's a cozy size, giving each person a desk with operable windows and view outside. One could be writing or relaxing in their room while appreciating the view of the olive trees outdoors.

Workshop

Next is a close up of the workshop, showing a variety of people working and socializing inside. One can be working inside, helping with the production of olive oil, while looking outdoors to those collecting olives or taking care of the trees.

Vignettes

One vignette shows a scene on the sea, the second peaking through the trees, and the third deep in land. One representing joy and liveliness, the second peace and serenity, and the third connection with nature — all encompassing what this project aims to achieve.

For Croatia, and on the Dalmatian coast specifically, abandoned olive groves can be the ideal setting for a mental rehabilitation centre. As once stated, for the residents, they can rejuvenate the abandoned grove, having a symbiotic relationship with the site, as it helps care for those in return.

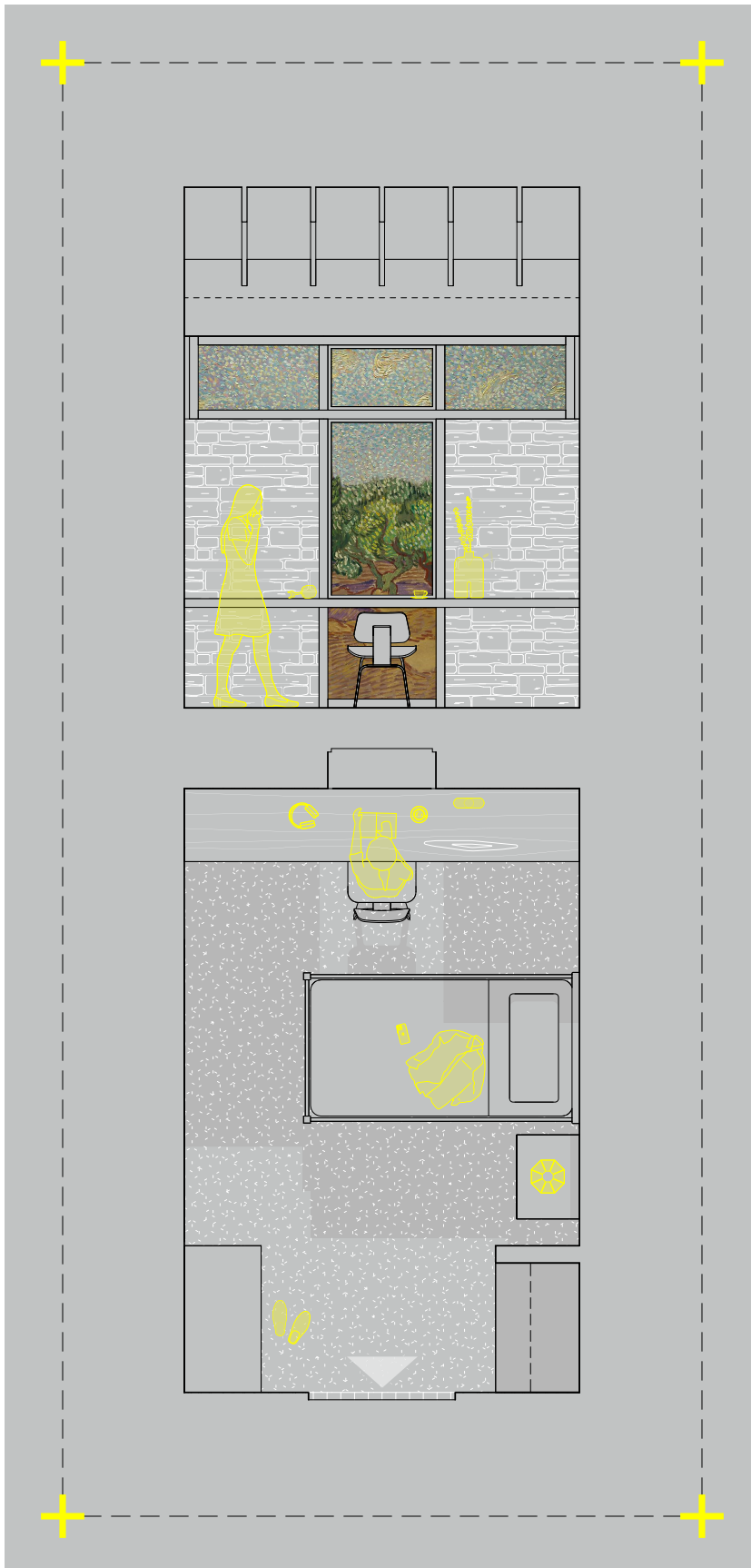


Figure 47. Plan and elevation of the short-term sleeping quarters.



Figure 48. Plan and elevation of the workshop.



Figure 49. Vignette on the sea.



Figure 50. Vignette peaking through the olive trees.



Figure 51. Vignette in the land.

Chapter 5: Conclusion

When looking at suicide in Croatia, those most at risk are the older generations, those with post-traumatic stress disorder and depression, and those with disabilities. One connecting issue between these groups is loneliness and a loss of familial and inter-personal roles.

A mental health centre should consider how to create opportunities for socialization amongst those within the centre and the wider community in general. It should provide opportunities for productivity and motivation.

This thesis aims to combine mental health centres and retreats into one in order to improve the overall quality of life for those struggling. Through this thesis, the framework consists of a combination of relaxing productivity, socialization, in traditional architecture with healing programs.

This is a framework that can also be applied around the world in order to help the United Nations *Sustainable Development Goals*. By 2030, Goal 3, Target 3.4 aims to reduce premature mortality from non-communicable diseases by one third through prevention and treatment, and promote mental health and well-being (United Nations 2024). At the current rate, the goal of lowering suicide rates will not meet that target. Suicide is preventable. Suicide prevention isn't just about making it harder to die by suicide (limiting gun access for example). Motives need to be looked at and person-centric solutions need to be provided. It takes every discipline to work together on providing these solutions.



Figure 52. Amidst the olive trees.

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