



Living After Loss

AN EXPLORATION OF HOW THE
PHYSICAL, SOCIAL AND PSYCHOLOGICAL
DESIGN OF A BEREAVEMENT SPACE CAN
AFFECT HEALTH AND WELLBEING.

Louise Win San Chai

BA(Hons) Interior Architecture and Design

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*Submitted in fulfilment of part of the requirements for the degree Bachelor of Arts in
Interior Architecture and Design in the School of Architecture and Design*

Supervisor: Raymund Konigk

Declaration of Originality

I declare that the dissertation which I hereby submit of the degree Bachelor of Arts In Interior Architecture and Design is my own work and has not previously been submitted for a degree at this or any other tertiary institution.

LOUISE WIN SAN CHAI

25TH APRIL 2017

Abstract

Death is an inevitable phenomenon that will affect us all in our lifetimes but can potentially be eased through the eyes of design. The concept of death is a unique and complex process that will impact everyone's life; though it is so prevalent in everyday life, it is rarely confronted with in architectural form. Demographic statistics reveal that we are an aging population with an unprecedented rise in the average global age. Though the majority of the population pass away in a hospital setting, it is this environment that people are most emotionally dissatisfied with. This dissertation aims to explore the weaknesses and potential oversights of bereavement design in an attempt to produce an effective space for bereavement.


To fully understand how to design for bereavement, we must not only acknowledge successful instances of design, but understand the core complexity of bereavement and the people that experience it. The paper will first examine the theoretical knowledge of the bereavement process where specific psychological models will be considered to analyse the factors that can alter an individual's response to death. Despite the negative stigma of death, focus will be put on the importance of designing for grief: discussing architecture's fundamental link to health, evaluating current healthcare designs and perceived health and a further study on psychological experiments that prove the influence of specific design variables on wellbeing and health. Following this, I will demonstrate the

intrinsic link between interior space and wellbeing by examining three core studies in detail: natural environments (Shunyi House), spiritual environments (Baumschulenweg Krematorium) and social environments (Maggie's Centre). These case studies serve as summative examples that highlight the influence of architecture and design on health and wellbeing.

As a result, the implications and prospective future of bereavement design will act as a catalyst for the final design proposal and form a body of research that will redefine a successful instance of bereavement design in the built form. Moving through my selected site and conceptual thinking, the collective research will inform and test the proposed design in developing an innovative and dynamic approach to bereavement design.

KEYWORDS: Bereavement, Death, Health, Wellbeing, Duality

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Introduction

Bereavement is a natural experience; despite its negative stigma, the decline of a person's wellbeing can be alleviated through design. This paper aims to explore the philosophy of death and how the process of bereavement can ultimately influence the way in which we design for it.

Designing for bereavement is a multifaceted process requiring three primary areas of analysis: psychological processes, methodology of physical space and human interactions with the proposed space (Gifford, Steg, Reser, 2010). First, the core definition of bereavement will be explored through heuristic research and psychological models of grief to further understand the variables of grief and its effect on people and design. In this, external contributing factors and its link to subsequent health results of bereavement will be examined to fully recognise the probable concerns and diversity of the bereavement process. In this, an analysis of the current and past thinking between space and health will be made in regards to existing architecture. Following this, an introduction to environmental psychology, but most importantly, how designing for bereavement can affect wellbeing and influence health will be explored. Various experimental studies will also be evaluated to test the relationship between space and health. This will be continued with a survey of precedence using key case studies that convey positive and negative instances of natural, spiritual and social environments. Finally, the collective research will inform and test the design language of the bereavement hub design proposal.

Ultimately, the paper aims to explore the concerns of existing bereavement spaces and analyse how architecture and design can play a positive role in health and wellbeing. As architects and designers are already making progress in linking the two concepts, there is potential to increase wellbeing and health in society (see Figure 0.1). As a stimulus, I aim to present a final project that aids positive wellbeing through the design of a bereavement space.

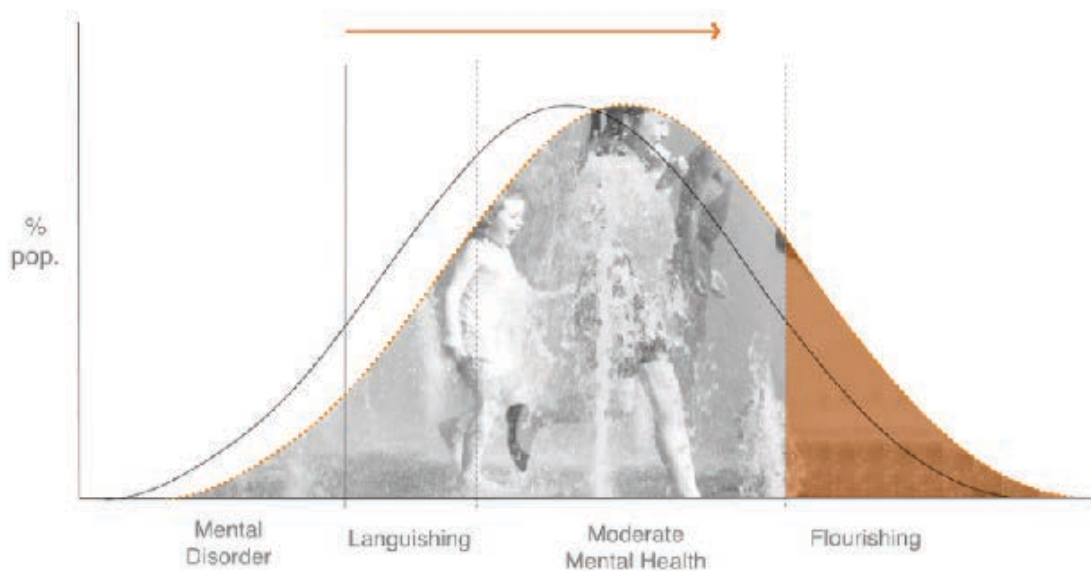


Figure 0.1. *Current wellbeing population vs potential wellbeing population*
 (The University of Cambridge, 2015)

chapter one

>> understanding bereavement <<



S H O C K

1.0

Understanding Bereavement

To fully understand how to design for bereavement, we must first define what the process of bereavement entails and its effect on conscious decisions we make as designers. The phenomenology of death is that everyday life has an “*ambiguous acknowledgment of the certainty of death*” yet “*together with the certainty of death goes the indefiniteness of its when*” (Heidegger, 2010, p.238–248). The paradoxical but integral nature of this concept means that there is a both a certainty and ambiguity about death suggesting that no two people will experience it the same – thus, creating an extensive set of difficulties and responses.

Due to individual differences, no two people ever experience bereavement the same. By using bereavement models, psychologists and theorists have made it possible to tap into the mind of a bereaved person and understand the basic stages they go through during bereavement (see Figure 1.1). In a complex experience, like bereavement, architecture must adapt to vulnerabilities yet also display dynamic qualities that can be interpreted by all users.

Figure 1.1.

Table of six theoretical bereavement models from Saunders, Kubler-Ross, Bowlby & Parkes, Engel, Worden and Rando.

Catherine Saunders (1992)	Kübler-Ross (1969)	Bowlby & Parkes (1992)
<i>The Five Stages of Grief</i>	<i>The Five Stages of Grief</i>	<i>The Four Stages of Grief</i>
<ol style="list-style-type: none"> 1. Shock 2. Awareness of loss 3. Withdrawal 4. Healing 5. Renewal 	<ol style="list-style-type: none"> 1. Denial and isolation 2. Anger 3. Bargaining 4. Depression 5. Acceptance 	<ol style="list-style-type: none"> 1. Numbness 2. Yearning/searching 3. Disorganisation/disrepair 4. Reorganisation
George Engel (1964)	William Worden (1982)	Therese Rando (1993)
<i>The Six Phases of Bereavement</i>	<i>The Four Tasks of Grief & Mourning</i>	<i>The Six 'R' Processes of Mourning</i>
<ol style="list-style-type: none"> 1. Shock and disbelief 2. Awareness of death 3. Restitution 4. Resolution 5. Idealisation 	<ol style="list-style-type: none"> 1. Accept the reality 2. Process the pain 3. Adjust to environment 4. Emotionally relocate and move on 	<ol style="list-style-type: none"> 1. Recognise 2. React 3. Recollect/re-experience 4. Relinquish 5. Readjust



1.1 Definition

Combining the work of six theorists, the process of grief can be distilled into a series of key stages: shock, awareness, withdrawal, healing, renewal. Though bereavement is a multifaceted experience, this breakdown of stages can allow us to understand the foundation of grieving. Saunders (1999) combines four theories of bereavement into five key stages that ultimately result in three possible outcomes: adverse change, no substantial change and psychosocial growth. Within this process of bereavement, a mourner will inevitably have one of three outcomes; a cynical yet logical approach to the understanding of bereavement.

The aforementioned bereavement model is a method of explaining the process of bereavement in logical stages. Supposedly, bereavement begins with a state of shock where the victim can respond with a refusal to accept the concept of death. Usually, there is no emotion felt in this stage but instead a numbness felt in the body and in the mind. The second stage of bereavement is the awareness of the death where the concept begins to penetrate your consciousness which can happen within minutes after shock or months. After this, the state of withdrawal begins where the mourner can become overwhelmed with the information and thus, isolates themselves and limits social activities to "*preserve energy and emotional resources*" (Pham, 2015). The penultimate fourth phase of bereavement is healing which results in a restoration of wellbeing and resuming everyday life activities. This could potentially be the most crucial stage of all as

it makes a transition between the positive and negative wellbeing of a person: this healing phase can last years or can happen instantaneously. The fifth and final stage is a renewal of wellbeing and circumstances which sets in once the healing has taken place. Only after the process of shock, awareness, withdrawal, healing and renewal will a mourner find any peace with a death.

In these five stages of bereavement, Saunders considers the social, emotional and biological state of each phase and deduces the three potential outcomes for a person's wellbeing after the bereavement process. Though there are three previously mentioned outcomes of bereavement, the most frequent, is that the experience will result in a personal growth or heightened independence and self-assurance. In this stage of growth, external precautions such as wellbeing spaces are crucial to the forthcoming wellbeing of mourners.

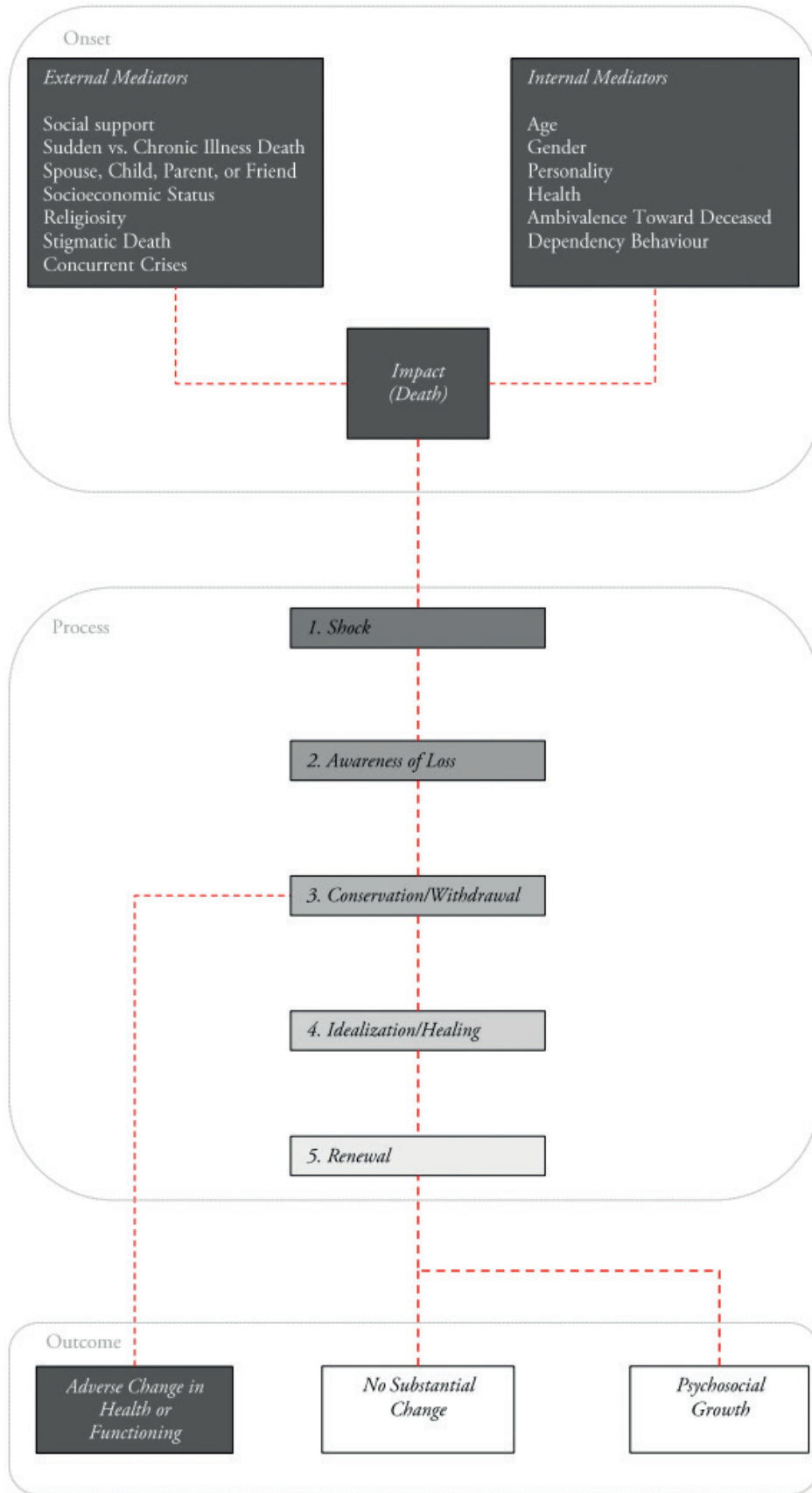


Figure 1.2. *Integrated Bereavement Model identifying individual differences*
 (Harold Pham, 2015: p.19)

1.2 Individual Differences

Although we can identify standard stages of bereavement, its social context and personal factors must be considered to understand how to design for individual reactions. We must consider social, personal and external factors in a person's life: this may be state of employment, relationship to the deceased, age or previous experiences (see Figure 1.2). For example, a young widower without experience of bereavement and prior responsibilities is likely to react differently to an elderly mourner with a supportive family and minimal duties. Similarly, a person will react differently to a sudden death as opposed to an anticipated death which will consequently alter the model of bereavement to an individual. By taking into consideration the gravity of personal factors and type of death, bereavement design must be designed with a sensitive and dynamic quality.

Whilst an array of contributing factors can influence the way that an individual grieves, "*bereavement is a universal and integral part of our experience*" which –dependant on our contributing factors– can ultimately strengthen our personal growth (Lewis, C.S., 1976, p.50). Although design efforts are made to accommodate individual circumstances and

the uneasiness of death, the end result is usually demonstrated in a “*formalized, stiff manner*” (Lindermann, 1944, p. 189) and not centred around the bereaved people but instead the focused on the concept of bereavement itself. Bereavement is not only a period of mourning for a deceased loved one but the loss of a part of the self (Freud, 1916) and thus a space designed for both bereavement and wellbeing should centre around the individuals experiencing bereavement as well as the leading concerns.

Though bereavement can be logically explained through bereavement models and further distinguished with individual differences, design should ultimately centre around the needs of the users inhabiting a space rather than the concept of easing bereavement. By understanding the bereavement process in basic terms, a greater sense of empathy can be felt by the designer, but ultimately, the core heart of design should lie within the user and how they experience the space.

chapter two

>> the importance of <<
designing for grief



A W A R E N E S S

2.0

The importance of designing for grief

Death is a taboo topic and not often confronted with in design. It is common to reject or suppress the idea of bereavement when designing for grief but power comes in the presence of bereavement. Successful instances of designing for grief will embrace and respond to societal changes of death and dying (McGann, 2013) as opposed to categorising it into one stagnant and morbid typology. Upon research into mourning spaces, the dominant result was of hospitals or hospices; these outweighed any other bereavement spaces despite it impacting such a large population.

It is inevitable that someone will experience bereavement at some point in their life; whilst such a widely-known topic and broad demographic, it is one of the least talked about. Death and bereavement come hand-in-hand but as does the cumulative aftermath for people effected by the death. It is not a topic that can be spoken about lightly as it can have detrimental effects to a person's health and wellbeing which ultimately makes up a person's life. There is strong evidence that links design directly to health and how it can make wellbeing better or worse which is crucial for the bereavement stage in someone's life.

2.1 Link to Health

The mere task of bereavement as discussed in the chapter one, determines that bereavement is not only an emotional experience but a physical strain and social task that can compromise health. As someone who has experienced bereavement, there is a lack of hands-on emotional and logistic support for first-time bereaved people in one welcoming and safe space. In a time of isolation and withdrawal, a space that encourages both privacy and community can make all the difference.

Between the time frame of death and resolution, there is a “gap” of experiential healing experienced by bereaved people that can be aided by design and architecture (CRUSE, 2013). Amidst a constant duality of emotions, architecture is a vital stage in creating a space for people to reflect and heal in but simultaneously gain a structure and organisation in an otherwise unfamiliar process. In a space that is primarily driven by healing and recovery, there is “a need to explore relationships between public spaces, social relations and well-being” (Cattell, 2008).

The state of ambiguity between awareness and resolution of death intensifies stress and “levels of increased anxiety” (Green & Soloman, 1985, p.61) which can encourage greater health concerns. When studies by Clayton and Darvish (1979) were conducted, it is said that “approximately 12–15 percent [of bereaved people] still reported symptoms that were sufficient to meet the criteria for clinical depression” (p.54) demonstrating the strong link between bereavement and health, both physical and mental. If not affecting mental health –physical and social health can be compromised.

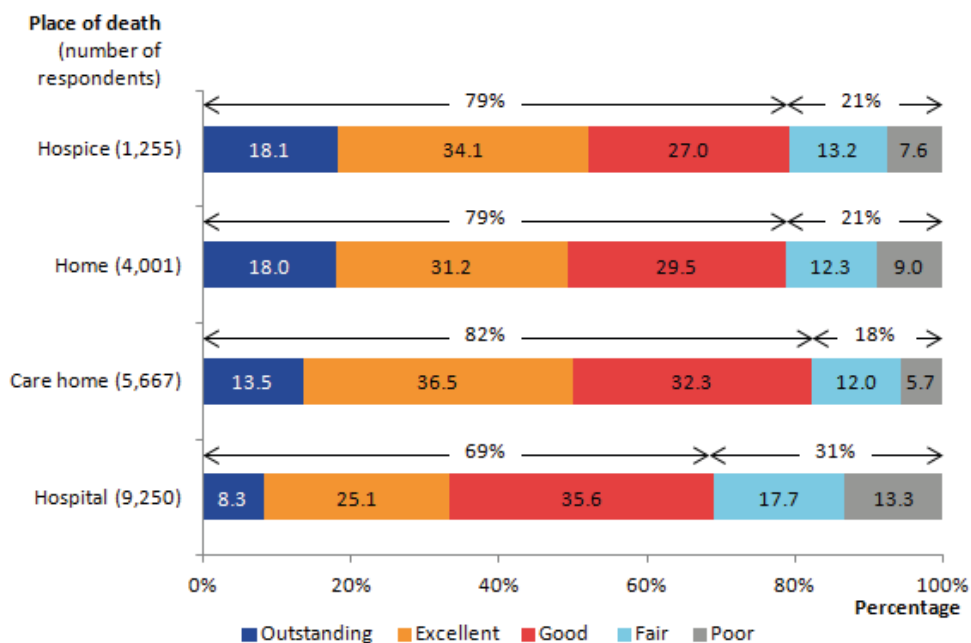


Figure 2.1. Overall quality of care by place of death in the last 3 months of life, England, 2015 (Office for National Statistics, 2015)

2.2 Current Healthcare Design

Though the most common place for death is in the hospital, patients stated that it is the least desired because it does not account for emotional wellbeing after death. The World Health Organisation (1948) defines wellbeing as a “*positive health*” or “*a state of physical, mental and social wellbeing*” (p. 100). In 2015, the Office for National Statistics (2015) reported 9250 deaths that took place in the hospital. Having said this, the hospital accounted for the highest percentage of ‘poor’ quality of care (13.3%) and the lowest percentage of ‘outstanding’ care at only (8.3%) (see Figure 2.1). Although the hospital accounts for sanitation, medical expertise and 24-hour staff for the deceased, the aftermath for the bereaved family and friends are a low priority in hospital concerns. In cases where the bereaved public did receive aftercare with bereavement, 10% did not understand the information given to them and 14% of people’s emotional needs were not met. From this, it is clear to see that the ratio of hospitals and density of deaths in comparison to wellbeing spaces is imbalanced.

In the process of bereavement, it is argued that we never “*return to the same state as before*” but instead we “*adapt and stabilise*” to our surroundings and peers (Green & Soloman 1985, p. 53). In this adaptation and stabilising process, the design and architecture of mourning spaces should be a direct reflection of a new, constructive outlook of a bereaved person.

The reoccurring issue with current bereavement design is the detachment between spatial and social design whilst appreciating user dignity regarding bereavement. The current architecture of hospitals represents the efficiency and uniformity of healthcare systems but are considered "*spatially much less satisfactory*" than of domestic environments (McGann, 2013). Domestic interiors supposedly mimic the comfort and individuality of an occupant whereas hospital interiors often convey qualities of instruction and hygiene. Architecturally speaking, bereavement environments that had least resemblance to hospitals and "*appeared domestic in character*" were considered the "*optimum setting*" to grieve in (Chrysikou, 2014).

It is common to attach a negative stigma of rigidity to healthcare architecture which ultimately result in a soulless and uniform design that do not consider the complex needs or interactions with the users. Having said this, Alvar Aalto is a leading example of creating a modernist and cynical hospital building aesthetic that is simultaneously a place of comfort by putting "*emphasis on patient comfort as well as on efficiencies*" (2013, p.17). Not only did he create light and airy spaces, but these views were strategically framed by utilising the existing greenery around the site (see Figures 2.2, 2.3 and 2.4). By allowing concepts of society, domesticity and institutionalisation to coalesce as one rather than in disconnect, a successful bereavement design can be created through an intimate and stimulating design that enables views of life, movement through seasonality and security of safety (Stoneham, 1990).



Figure 2.2

Alvar Aalto's Paimio Hospital: 1930s communal spaces

(National Board of Antiquities, 2005: p.44)

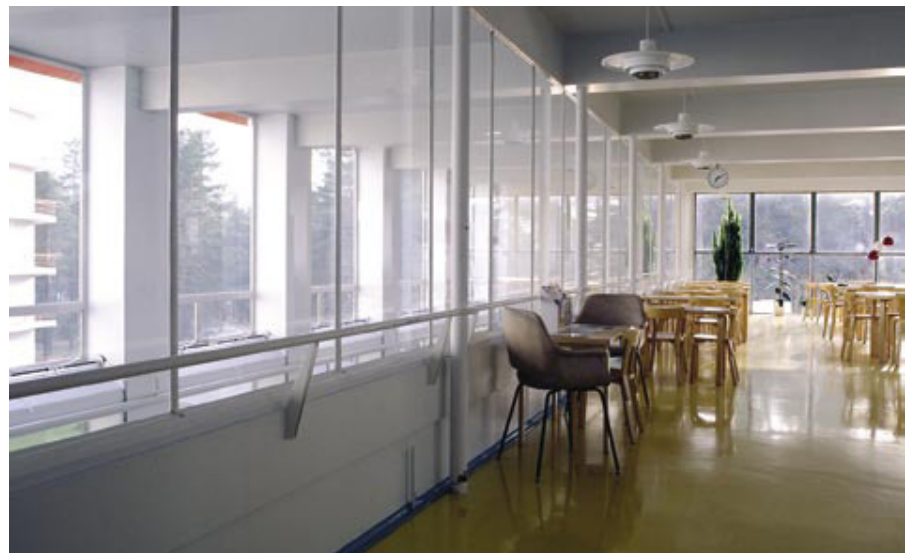


Figure 2.3

Alvar Aalto's Paimio Hospital: communal spaces

(National Board of Antiquities, 2005: p.44)



Figure 2.4.

Alvar Aalto's Paimio Hospital: rear facade staircase

(National Board of Antiquities, 2005: p.56)

2.3 Green Space and Perceived Health

In a study investigating the relationship between the amount of green space and perceived health through the impact of a stressful life event, statistic data was provided to show a positive correlation between the two variables (Van Den Berg, 2010). The aim of the study was to investigate the impact of green space in a person's life who is going through a stressful life event. Like the previously discussed individual differences that everyone has when experiencing bereavement, the study sample consisted of a varied demographic to account for the general public.

To ensure a reliable experiment, specific controls and variables were put in place. The sample was statistically controlled for gender, age, education status, household income and urbanity (see Appendix A). Secondly, a stressful life event was assessed with all participants categorised into the 25 stressful life events during someone's life course (Brugha, Bebbington, Tennant & Hurry, 1985) ranging from death of a family member, separation in relationship, unemployment, financial crisis and legal problems. Using this data, the percentage of green space within a 1km and 3km radius around a participant's home was calculated and measured in approximate size. The results in *Figure 2.5* illustrates the negative health impact of a stressful life event when not exposed to much green space (3km) and little green space (1km).



Although the results were not noticeably significant, we are able to tell that when measuring the variables of 'no life event' with 'stressful life event', it is clear to see that a stressful life event is likely to impact health negatively as they almost doubled in negative impacts on every result. The results show that the little amount of green space furthest away from a home (3km radius) was the variable that gave the least effective outcome. On the other hand, the 'much green' variable lowered perceived complaints in health on all accounts of participants with life events in comparison to those without live events. Through this study, we can learn that a stressful life event can dramatically escalate into major health concerns and that green space can only buffer a negative experience therefore design should take a more direct approach in integrating nature into everyday spaces.

Ultimately, when confronted with a broad and complex subject like bereavement, it is unlikely to think that an interior space can influence a person's mental behaviour. In the same way that therapy or counselling can encourage health, a well-designed space can refresh the mind and body from the difficulties of bereavement. Before, during and after the process of bereavement, mourners showed symptoms of heightened anxiety and depression; this draws specific attention in using design to reduce these concerns and encouraging good mental and physical health. Current examples of bereavement spaces show a bias towards hospital desires rather than the needs and understandings of the people who would physically inhabit the space. In more recent studies, domesticity has been adopted in conjunction with hospital regulations to harmonise both concepts of the home and the hospital.



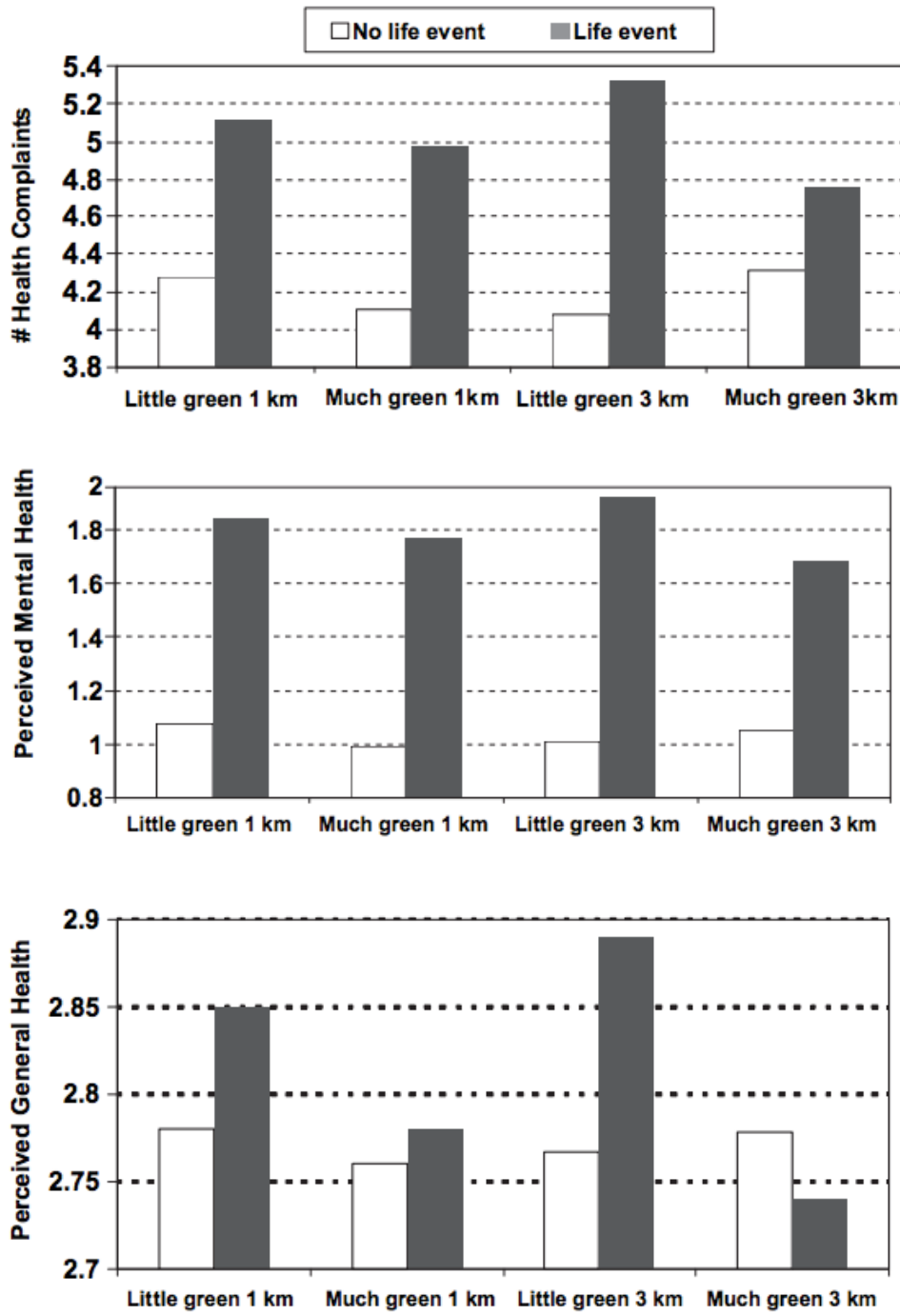


Figure 2.5. *Chart of health complaints, perceived mental health and perceived general health in correlation with little green space and much green space (Van de Berg, 2010: p.1207)*

chapter three

>> environmental psychology <<



W I T H D R A W A L

3.0

Environmental Psychology

Psychological studies have shown that there is an intrinsic link between our designed environment and how a person behaves. Our time in the 21st century is spent mainly indoors, therefore, Kopec (2012) investigated into the environmental psychology behind spaces and wellbeing to combine both notions of emotion and architecture.

To prove Kopec's hypothesis that design can physically effect wellbeing, experiments bespoke to a specific design aspect were conducted to produce quantitative data. For example results found: users (in a hospital scenario) who received more natural light experienced less stress and took 22% less pain medication per hour on average (p.273). Providing environments that can help reduce levels of stress and anxiety is a primary concern in the developing of healthcare institutions arising mainly from negative experiences such as losing control of routine or feeling vulnerable. To combat this, research has shown that green space can improve perceived health but can also promote privacy and healing. In examples of healthcare facilities that included green space, the overall design encouraged an increase in productivity and activity amongst patients, visitors and staff. Access to these natural landscapes also proved to be a beneficial distraction and mood enhancer (Whitehouse et al., 2001).

Other than the use of nature, naturally occurring elements such as noise levels and view content can be manipulated in a way to improve psychological functionality. By making the link between space and behaviour, we are able to approach design in a way that can stimulate positive attitudes and reduce mental anxieties.

3.1 Implications of interior design

Our interior space, where over 90% of our time is spent –according to the Environmental Protection Agency– is inhabited by both sensory and physical elements that can have major impacts on our behaviour. We spend our entire lives in different spaces that we shape and “*in time, our buildings shape us*” (Churchill, 1943). The quote by Churchill describes buildings and settings as manmade expressions that ultimately influence our behaviour and attitudes. He believed that the two-party government system arose from the divided, rectangular angles of the meeting room. To oppose this, Churchill suggested a semi-circular room to encompass all parties for an unbiased and fairer result. From a man with little influence in design or architecture, he could easily identify a problem with design and how it shapes behaviour; yet even today we still accommodate dying people in a dying hospital space.

Significant studies have been created to prove that the control of irregular design variables such as noise is equally beneficial for wellbeing and can even increase its progression than in healthcare services alone. Studies proved that the relationship between annoyance and noise exposure rose on a positive correlation (see Figure 3.1) (Ryalnder, 2006). Ulrich, in a breakthrough study in healthcare design, found that patients in a hospital setting recovered faster and required less medication when they were isolated or exposed to specific design decisions. Using noise as an example, there was evidence to suggest that in a study of 295 people, staff perceived sound reflecting noise levels as stressful and patients' comfort and recovery were compromised correlating directly to emotional

exhaustion and noise-induced stress (see Figure 3.2) (Blomkvist et al., 2005; Bayo, Garcia & Garcia, 1995; Topf & Dillon, 1988). On the other hand, sound absorbing noise levels were associated with increased social support, quality of patient care and comprehension (see Appendix B). The study demonstrates that intangible and sensory design aspects can be controlled in a manner that can manipulate behaviour with the same impact that physical design can.

In an attempt to prove that physical design of clinical units can significantly improve a health, Debajyoti studied the relationship of "*stress and alertness*" against variables of "*view content*" (Debajyoti, 2008, p.36). In simpler terms, the hypothesis of the experiment noted that there would be an improvement in wellbeing when users were exposed to nature views and there would be an increase in stress levels with any other variable. The results found that views of nature did improve wellbeing. Nevertheless, unlike the predicted hypothesis, the second variable of 'non-nature' views were almost level on a positivity scale with the results of natural views producing no significant difference. The third variable that made most note was 'no view', that increased acute stress levels and decreased alertness levels. The results made aware that it is not only natural views that can stimulate productivity but any view of outdoors –even a brick wall or a building– can improve alertness in comparison to no view at all (see Figure 3.3).

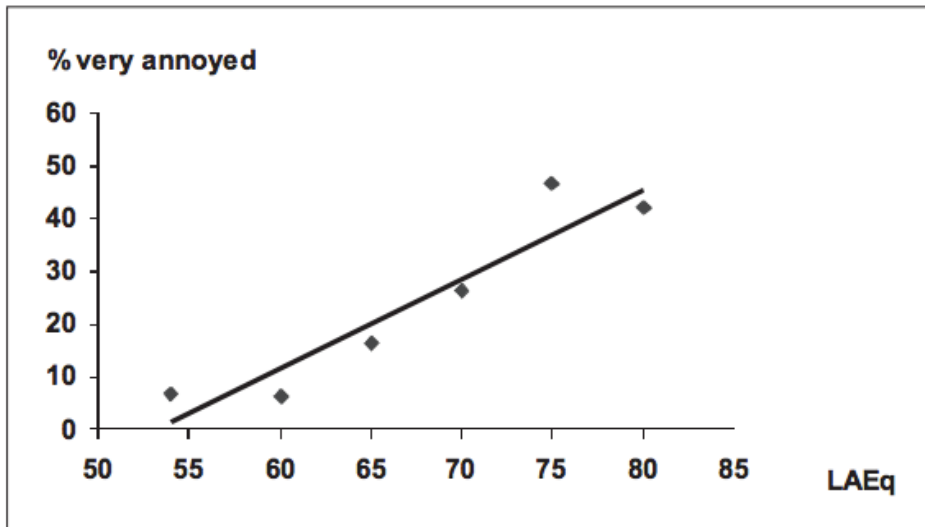


Figure 3.1. *Relation between extent of annoyance and noise exposure from road traffic (Rylander, 2006: p.10)*

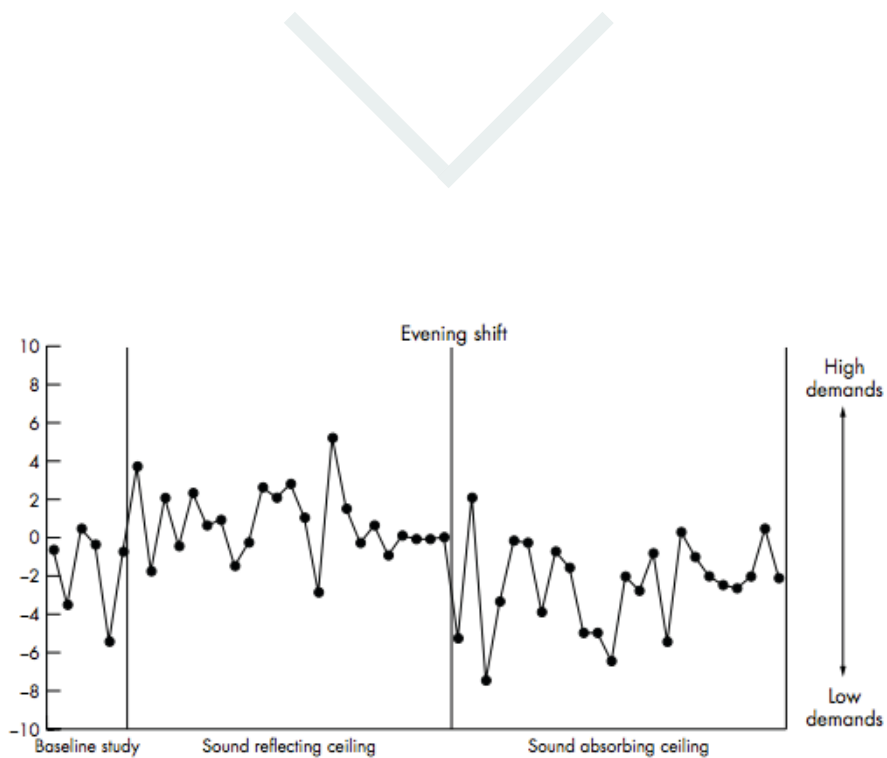


Figure 3.2. *Changes in demand perception in correlation to sound reflecting and sound absorbing ceilings for healthcare workers (Blomvist, 2005: p.6)*



Figure 3.3.

Views through patient room windows showing a representative sample of nature views and non-nature views

(Debajyoti, 2008: p.30)



3. 2 Controlling Design Variables

McCubbin, head of CSU's Health and Human Sciences stated that "*experts know that indoor space can pose health risks*" and additionally that "*excessive noise, artificial light, poor nutrition and sedentary lifestyles can damage health or affect well-being*" (Gerding, 2016). Excessive noise has been known to encourage high blood pressure and heart disease whereas artificial lighting can interrupt circadian rhythms and is a promoter of certain cancers. Similarly, inactive lifestyles (such as working in an office) is a cause to an array of medical illnesses such as diabetes, cardiovascular disease, cancer or early death (Anthnes, 2016). In an era that relies mainly of desk jobs in environments that can only be controlled by design, poorly designed interior spaces are a major growing problem.

When interviewed about indoor environments, Bauer, Well Living Lab's medical director, quoted that "*if we don't optimize [design], we're going to have a hard time optimising wellness as a whole*" (2016). To provide evidence of McCubbin's hypothesis, the Well Living Lab conducted an experiment by testing office workers' wellbeing in a controlled office environment (see Figure 3.4). In a bespoke and transformable 700 square metre laboratory office space, variables of light levels, air temperature, humidity and atmospheric pressure were altered throughout the experiment using sensors around the office. Though still in progress, the initial results are proving that office workers are responding best to "*an office with plenty of natural light, a thermostat set to 21 °C and a modest hum of*

background noise". The workers exposed to this condition had increased productivity and accuracy in workload. Other investigations have proved that adult patients undergoing surgery reported less pain when faced with a view of a landscape painting in comparison to those who had a view of nothing (Diette et al., 2003).

Similarly, a study testing the sounds of nature against no noise reported a high tolerance for pain when exposed to natural sounds (Tse, Ng, Chung, & Wong, 2002). The results from this experiment collectively reinforces the studies explored in chapter 3.1 and proves that design should be used as a tool to control all contributing elements of an experience as opposed to focusing mainly on visual design.

Architecturally speaking, design is initially recognised through a visual stimulus rather than sensory. By a minor adjustment of external factors such as noise and view, the behaviour and wellbeing of a person can be influenced in the same way that physical forms can. The finding that noise and view can alter the perceived behaviour of a person translates into the selection of potential materials that are used in the future design of bereavement spaces. In a further study, many external variables were controlled to examine the optimum setting for wellness in an office scenario demonstrating the positive and negative response of users to specific design aspect. To summarise, it is not only physical design of a space but the manipulation of irregular external factors that can influence the progression of wellbeing during the bereavement process.

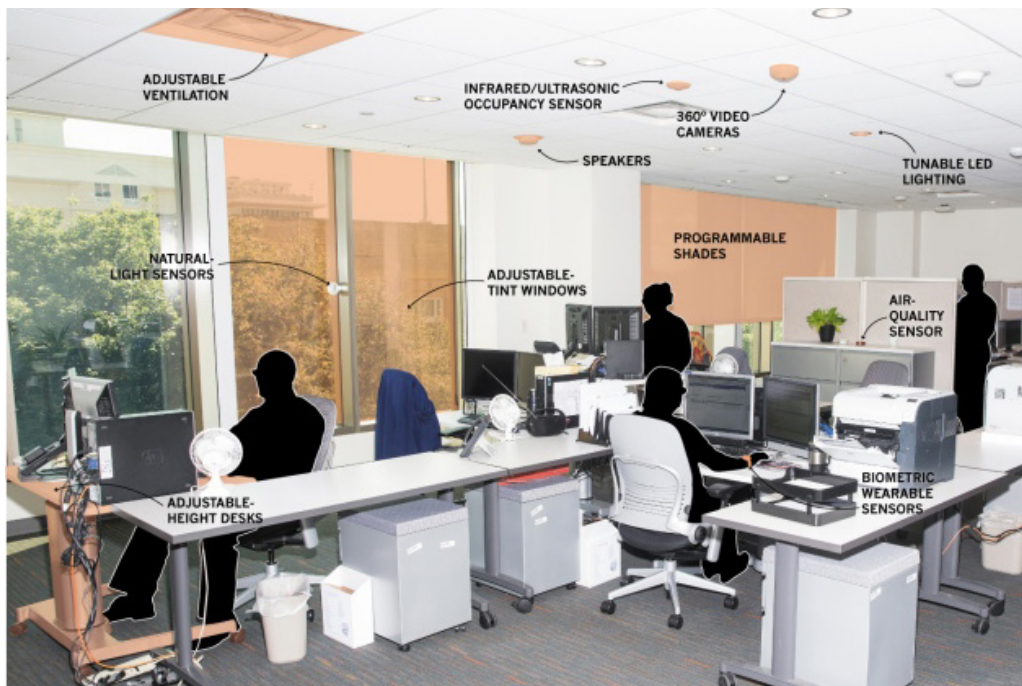


Figure 3.4.

Well Living Lab's indoor simulation room (Ackeman and Gruber, 2016)



chapter four

>> wellbeing <<
spaces



H E A L I N G

4.0

Wellbeing Spaces

Despite the negative implications of indoor spaces, research has shown that a well-designed interior can pose similar restorative benefits than of an outdoor landscape. The connection between indoor and outdoor spaces can create a model balance of wellbeing by uniting the concepts of privacy, control and openness which is a major concern in bereavement design. The key aspects of a well-designed wellbeing space can be defined by fulfilling basic human needs of security, identity, materiality and aesthetic pleasure. Three specific landscape themes regarding wellbeing have been identified: natural environments, spiritual environments and social environments (Cattel et al, 2007). Through internal structures and forms, studies have focused on how specific design aspects can gradually improve wellbeing through a decrease in stress, improvement in physical health and social interaction. The predominant finding in wellbeing improvement is the sense of place; a concept that explains the “emotional connection to a geographical environment” (McCunn, 2014, p.20).

Wellbeing spaces are foremost described as “*people-centred*”, aiming to integrate “*spatial elements that interact with people’s physiology and psychology*” (Chrysikou, 2014). Chrysikou argues that the architecture of a space should be designed from the perspective of user and focus of

how the *"life in those spaces interacted with the architectural design"* (p. 1). In a scenario when designing for death, it is vital to promote the living nature and the living elements of people that is experiencing the space to provide a place that embraces life rather than death. Conradson (2005) explained that settings are not fundamentally healing, but their unique interpretation and the presence of different individuals can enrich the therapeutic possibilities of a setting. These distinct experiences suggest that spaces cannot be relied on for their wellbeing properties but only to positively encourage its relational outcome. By discussing the three types of environments, the notion that environments should not be socially and physically segregated but is a *"result of continuing interactions"* will be explored (Yen and Syme, 1999).

4.1 Natural Environments

An environment devoid of nature can pose negative effects on well-being. According to Staats and Hartig (2004), “*the likelihood of restoration is judged to be greater in natural [environments]*” than in any other setting. Natural settings are known for their therapeutic qualities but have been “*critically important to human well-being and development*” (Kellert, 2006). Though the stage of healing primarily takes place in your own body and mind, mourning people will seek physical spaces to heal and recover, often in its rawest, most natural form. A natural setting is not defined specifically as an outdoor space but a space that connects the outdoors with the indoors. Kellert (2008) defines a successful biophilic design with organic forms, light and space, place-based relationships and evolved human-nature relationships –elements that all link in continuity. The diversity and health of an environment is directly associated to a person’s own physical, mental and spiritual wellbeing.

Natural environments allow nature and human-nature to interact; though often characterised as biophilic design, Shunyi House explores methods of utilising natural materiality, surroundings and atmosphere to create a dynamic design out of minimalism. With the implicit use of nature, natural environments work by encouraging human interaction in conjunction with the life of nature to improve wellbeing. Despite the openness of the site using an open plan with floor to floor windows, the abstract layout naturally forms individual niches of space within the the building. The overall

facade then uses aluminium louvers to shield from any heavy noise and harsh sunlight whilst also framing the views of nature through the louver slats (see Figure 4.1). The two-tonal material palette is a dramatic but subtle design language that puts emphasis on the liveliness of nature and highlights the shadows through natural movement throughout the building (see Figures 4.2 and 4.3). The main finding from nature as a wellbeing space comes from the utilisation of natural elements to stress the movement of time and seasonality.



Figure 4.1.

Shunyi House connecting the facade with its surroundings (Xia Zhi, 2014)

Figure 4.2.

Shunyi House's light and shadow

(Xia Zhi, 2014)



Figure 4.3.

Shunyi House's spacing and scale

(Xia Zhi, 2014)





4. 2 Spiritual Environments

Buildings are crucial in portraying symbolic meaning and in turn, creating therapeutic and spiritual landscapes that aid personal wellbeing (Rowtree and Conkey, 1980). In the discussion of mortality, most spiritual outlooks on death such as funerals or crematory services can be distressing events which encourage spaces to be designed in a way to make peace and to soothe the mind and body.

Set in a forest of greenery, Baumschulenweg Krematorium provides a contemporary take on traditional crematorium styles. The exterior entrance presenting a symmetrical façade leading from an open outdoor entryway. Inside, triple height concrete columns are used to mimic the surrounding woodland area in an abstract and irregular style and connect with the elevated design language of God. The columnar hall brings character to the crematorium whilst giving structure to the space. The minimalism of the entire interior alludes to a calm and respectful spaces where the architecture can be "*invisible and silent*". This simplicity is carried through the whole space allowing the architecture to play with other elements such

Figure 4.4.

Baumschlulenweg Krematorium columnar hall

(Hamrén, 2013)





as light and scale without overpowering the space. The primary material is concrete and with its unperfected texture, qualities of human presence and memory are supposedly evoked. In addition, rings of light are created from the top of each column on the ceiling to appear as if they are floating with sacred symbolism (see Figure 4.4). To finish, the central pool of water reflects the overhead light and glass to animate the space. The dynamic space uses naturally occurring factors to animate the space and interior structures to enhance the surrounding.

Although architecture is fundamentally based on form and structure, when approaching bereavement, atmosphere is essential to promoting wellbeing. The interior of Baumschulenweg Krematorium is not explicitly loud with nature but the imitation of nature indoors creates a dynamic atmosphere inside. The interior ultimately acts as a modern mirror of the outdoor forest in attempt to connect users with the nature outdoors without feeling exposed. Using variations of scale and heights, user can feel both intimate and open with the space (see Figure 4.5). The scale of space also allows different air flow to permeate the building, mimicking the outdoor air flow. By using textured concrete throughout the building, user can feel secure and safe by the materiality of such a strong material. Though you could argue that concrete is cold and uninviting, the subtle additions of natural elements of light and water combat this and bring the user back to the natural roots (see Figure 4.6).



Figure 4.5.
Baumschulenweg Krematorium using scale
(Hamrén, 2013)

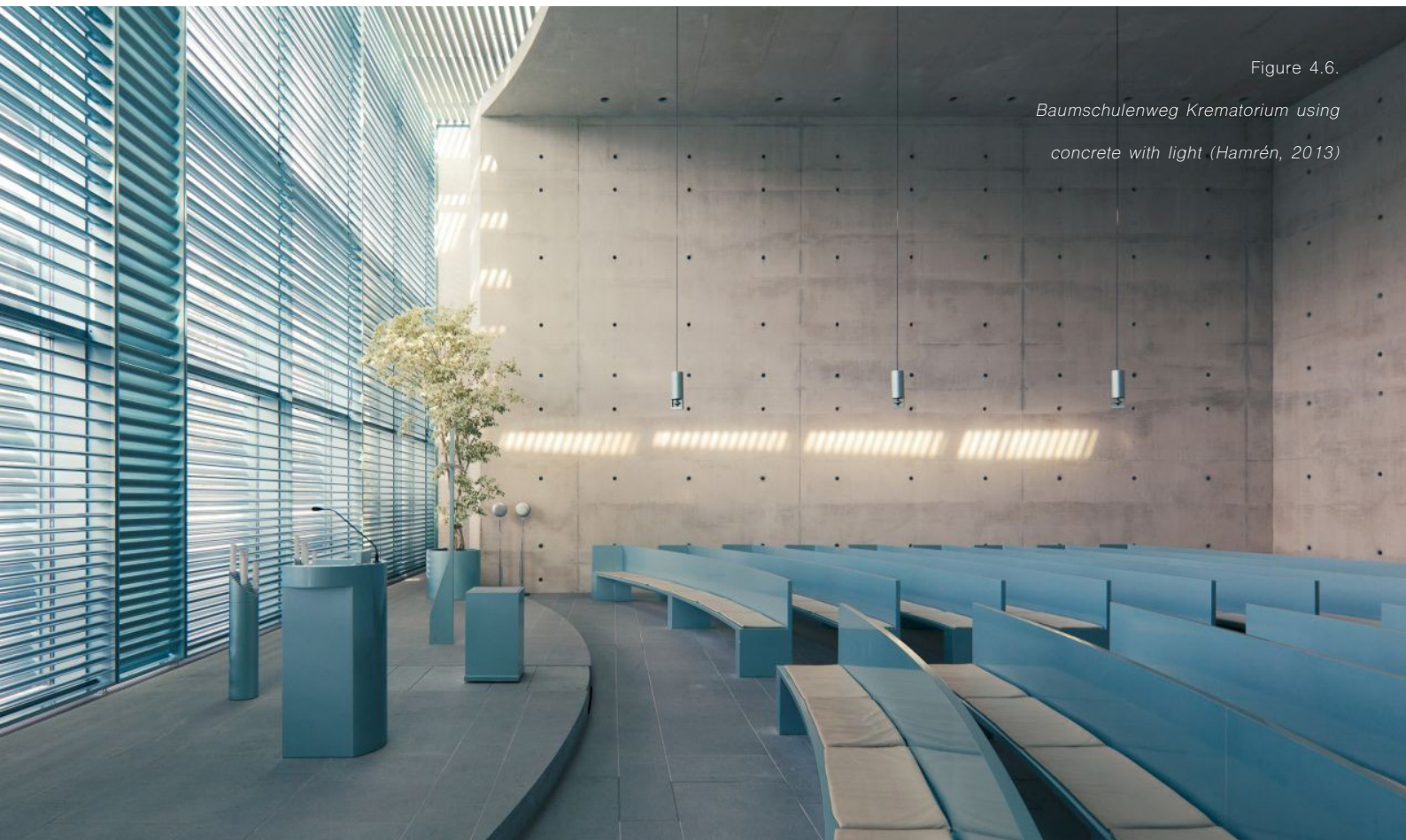


Figure 4.6.
*Baumschulenweg Krematorium using
concrete with light* (Hamrén, 2013)

4.3 Social Environments

Social environments combine elements of good design to ultimately create a community within a building space. Maggie Jencks, victim of cancer described her experience in hospital with “unnecessary anxiety” linking both design and experience in a statement:

“waiting in itself is not so bad – it’s the circumstances in which you have to wait that count. Overhead (sometimes even neon) lighting, interior spaces with no views out and miserable seating against the walls all contribute to extreme mental and physical enervation.”

–Maggie Jencks

To combat the mentally and physically draining design of hospitals, Jencks went on to leave a legacy of Maggie’s Centres: a contemporary and revitalizing space to visit during or after the diagnosis of cancer originating from a cancer patient herself, who believed *“not to lose the joy of living in the fear of dying”*. Maggie’s Centre offers a comfortable and open atmosphere with the flexibility to sit and socialise, or simultaneously a place to hide away. Her husband and co-founder of Maggie’s Centre describes the concept of the space as a hybrid between a church,

gallery and a home to respond to individual requirements of each person (BBC, 2016). Each centre in England is designed with a collective brief: developing its natural surroundings, portraying an “*architectural expression of domesticity*” and a communal kitchen table which is said to “*anchor the space in material and semiotic ways*” (Bates, Imrie & Kullman. p40–41). In achieving this, Maggie’s Centres are designed in collaboration with a different lead architect so their interpretation of the brief makes individual centres unique to their own town.

An example of a recent and successful design was executed by Foster and Partners in Manchester; the core purpose was to put the interest of the patients first to “*create a more human place*”. A fundamental aspect in the effectiveness of Foster’s design was his intrinsic knowledge of his hometown in Manchester and his first-hand experience of the distress of cancer diagnosis. Likewise, experience or empathy to the needs of the bereaved users should be the driving force for design, despite incorporating proven design styles such as domesticity. When asked about landscape, Foster and Partners commented that the core focus was on “*natural light, greenery and views to the garden*”, which directly opposes the flawed analysis of hospital design that Jencks provided. These focal points are optimised with specific design aspects of sliding doors, purposeful orientations and individual niches for people to communicate and socialise in a private but connected space (see Figure 4.6). The combined use of latticed natural timbers and clay in conjunction with



soft edges and a minimal palette creates the illusion as if the building is an invisible structure within its surroundings (see Figure 4.7). The use of materiality and empathetic design allows people to be a part of nature itself and work alongside it to embrace the fullness of its naturally occurring therapeutic qualities (Foster, 2016).

Following the analysis of wellbeing landscapes, it is common to “*equate physical presence within a landscape*” with therapeutic influences (Conradson, 2005), however, it is important to understand the diversity in which these spaces are experienced. Within this, we can then develop an awareness of the complexity that people and space entail.



Figure 4.6.

*Maggie's Centre in Manchester interior
lattice structure (Young, 2016)*



Figure 4.7.

Maggie's Centre in Manchester: connecting indoor and outdoor (Young, 2016)

chapter five

>> renewal <<



R E N E W A L

5.0

Design Proposal

Using a collective understanding of the given research, the proposed design combines the work of wellbeing spaces and sensitive design strategy to provide one enveloping space for bereaved people. The main conclusions from the research suggest that bereavement design should enable “*seeing without being seen*” (Appleton, 1975) by creating a balance between juxtaposing qualities to respect the vulnerable state of mourners (see Figures 5.1 and 5.2). The previously mentioned studies explore the flaws in current bereavement designs that have potential to be refined and to better accommodate users and their wellbeing. It has been identified that spaces for grief are not private but instead, are “*segregated*” (McGann, 2013, p19) which implicitly isolates users from one another despite attempts at promoting community. Similarly, Yen and Syme (1999) acknowledged that “*social and physical environments do not exist independently of each other*”.

Figure 5.1.
*Collage expressing precedent
research*



Figure 5.2.
*Collage expressing 'seeing
without being seen'*



5.1 Site Analysis

On a global scale, the United Kingdom are within the top quartile of mortality rates averaging at approximately 993 deaths per 100,000 people as of 2015 –a 5.6% increase compared to the previous year (National Statistics, 2016). A further study investigated into the global mortality rates between 2002 and 2030 suggesting a continual increase of deaths nearing the future (see Figure 5.3) (Mathers & Loncar, 2006). Within the UK, Manchester is home to the highest death rates with an absence of outlets for bereavement. Manchester alone averages 1309.5 deaths per 100,000 people running higher than any other town or city in the United Kingdom (National Statistics, 2014). Though Greater Manchester is the second most populous urban city in the United Kingdom with the highest mortality rates, there are approximately 3 spaces with a similar link to bereavement indicating a demand for a dedicated outlet of grief and bereavement.

Due to the increased demand and lack of outlets specifically in Manchester, the destination site is located on the outskirts of Central Manchester maintaining an atmospheric balance between a social and remote location. The area is set on a visually calming pocket of land, encircled by River Irwell (see Figure 5.4) –a tranquil yet iconic river that runs throughout the city– allowing users to feel protected whilst in an open space. Adjacent to the building lies a ‘forest garden’ that complements the river and utilises the natural surroundings in aid of reconnecting users to



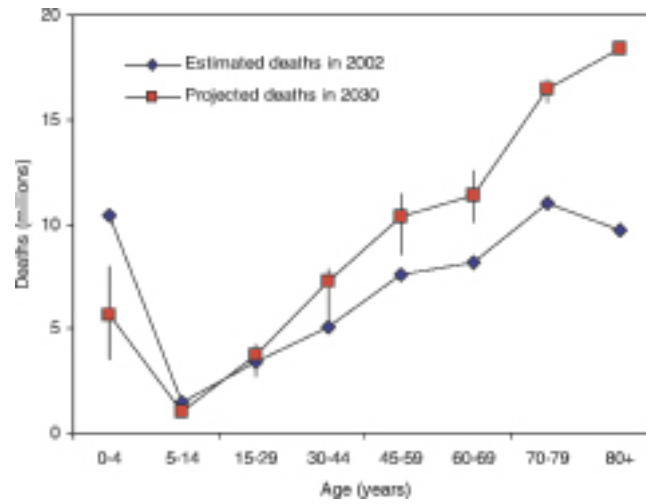


Figure 5.3.

Estimated and projected global mortality rates predicted from 2002 to 2030

(Mathers and Loncar, 2006)

the seasonality and the existing life around us (see Figure 5.5). Away from the noise of the city centre, the site is still within a comfortable 10-minute walking distance in conjunction with an aesthetic footbridge that leads across the river (away from the city centre) and a short walk from local amenities and public parks. As the building seeks to step away from the intensity of a hospital atmosphere, the site, too, is not suggestive of a hospital setting but instead, of a natural and wholesome surrounding providing layers of sensory experience upon arrival.

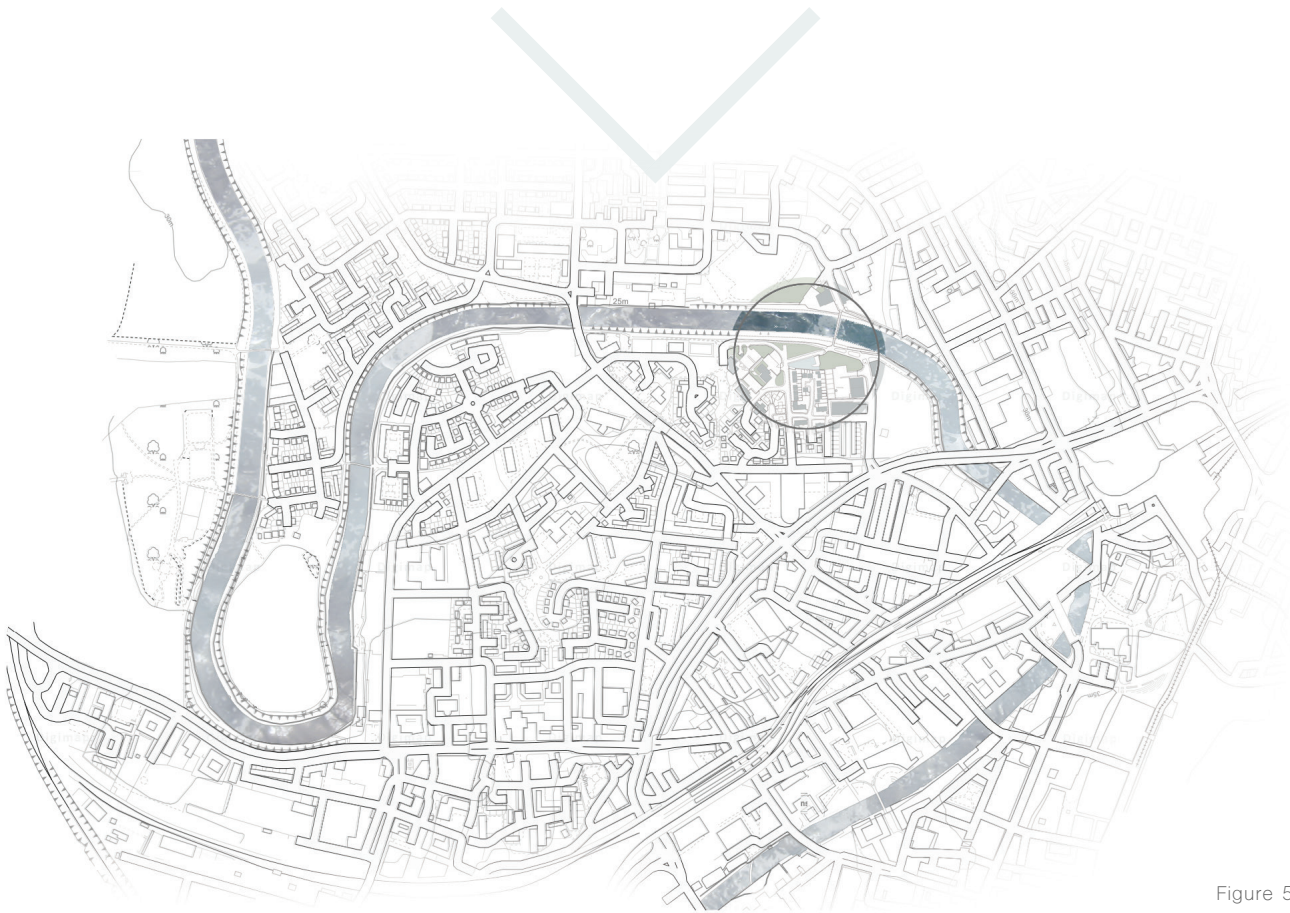


Figure 5.4.

1:50000 Manchester Site Map

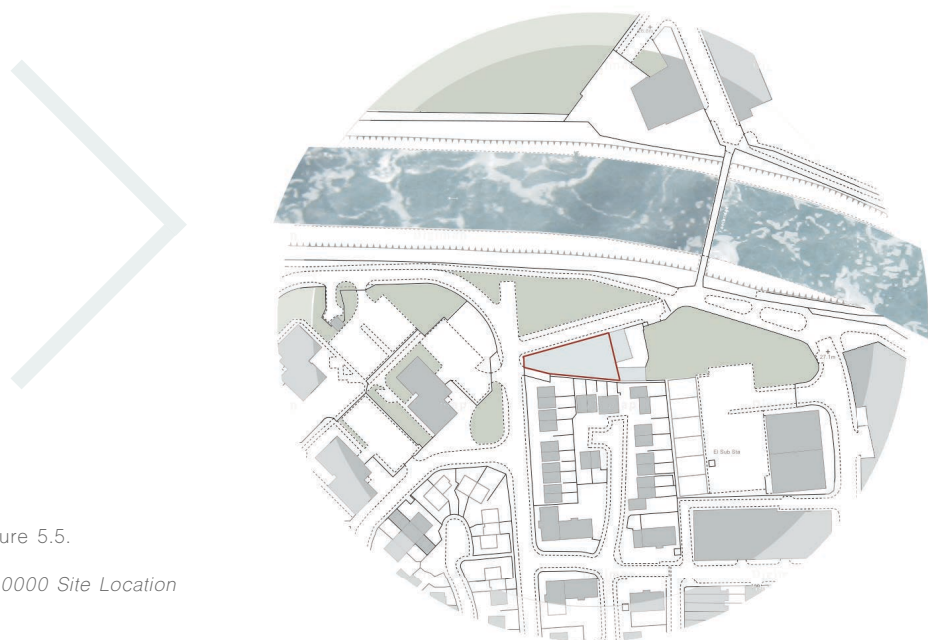


Figure 5.5.

1:10000 Site Location

5.2 Conceptual Thinking

The driving force of the design will move through the concept of duality by using juxtapositions that work collaboratively to accommodate the diverse needs of individuals. As every person experiences bereavement differently, it is important to produce a dynamic design that can be interpreted in multifunctional ways, all with a beneficial outcome. Using contrasting design elements that work in unity (dualism), the space will embody the notion of creating protection and privacy within an open and encompassing community.

Another key design aspect to note is the abundance of nature surrounding the site and its positive effect on wellbeing. Still integrating this idea of dualism -nature and people should interact in the way that nature "*influences human nature which, in turn, influences nature*" (Serres, 1995, p.36). The overall atmosphere of the building should ultimately lead users into a space of self-discovery and serenity to disengage their emotions of grief and isolation.

- VOID
- VEIL

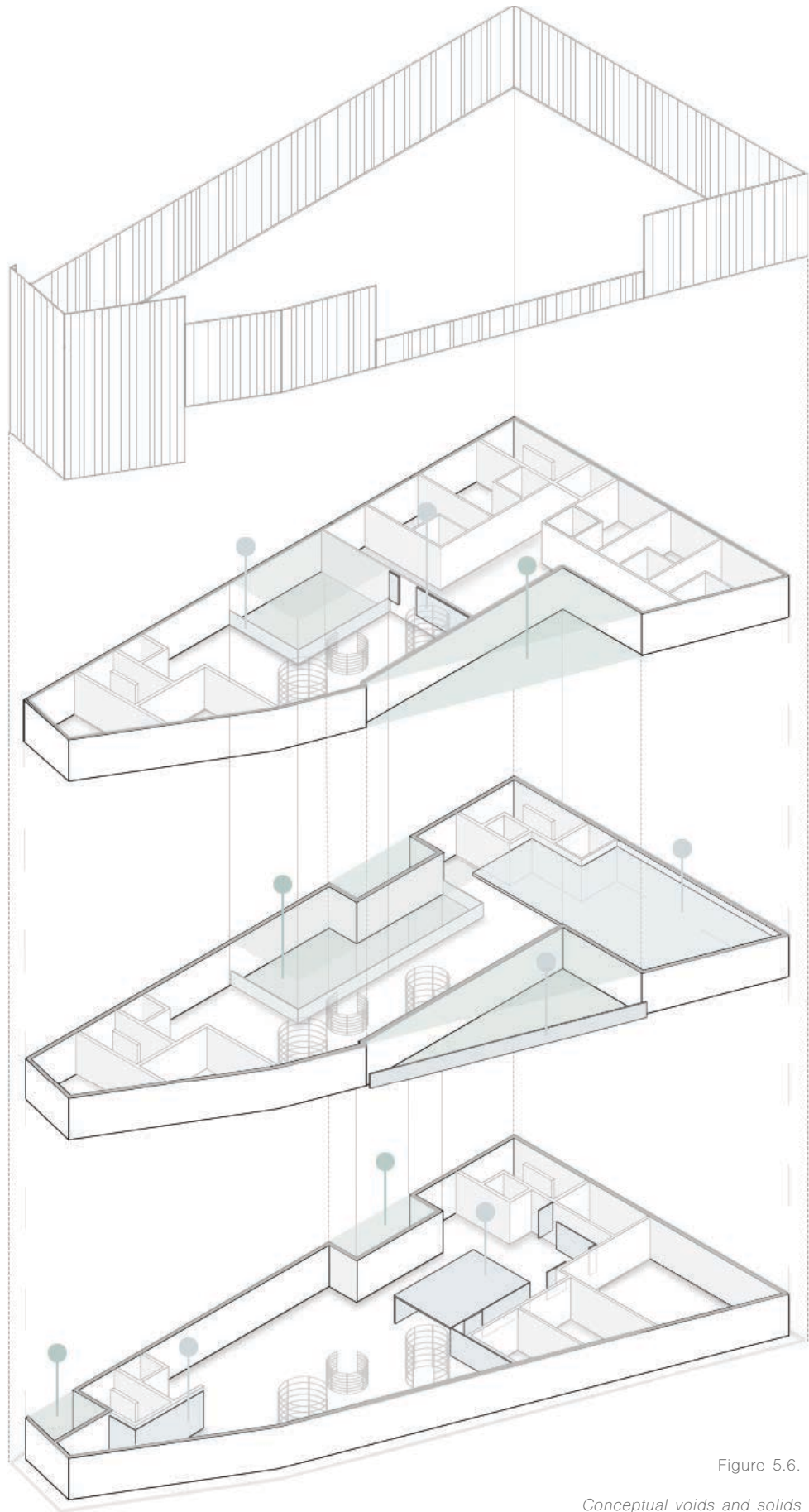


Figure 5.6.

Conceptual voids and solids

5.3 The Design Process

The final design incorporates three core concepts of design: duality, nature and light, which will be fulfilled through the perception of people. The idea is to embrace the surrounding nature and create alcoves of smaller communities within a larger structure; this will allow occupants to feel the ambiance of life and enable protective pockets of space in a welcoming and open-plan building.

A key focus of duality is the idea of solids and voids. Not only can they signify the vulnerability and strength of bereavement but they can also spatially map the private and public space (see Figure 5.6). Upon arrival, people will be greeted with a void that will celebrate the entrance space but also keep a protective sense of place. The overhanging ceiling will create the illusion between indoor and outdoor. Though the entrance is on the north of the building, the natural sunlight hits the south side, prompting the decision to insert a 2-level void that forms a simulated courtyard of the existing surrounding nature. Not only does this create a dual of the forest garden at the front of the site, but it creates a social outdoor viewing platform and aesthetically pleasing views from the indoors. To utilise the north-facing views of the garden and river, there will be a central interior void that houses the main stairway and elevates people up through the building whilst simultaneously engaging with the view outdoors.

Similarly, the last decided void connects the outdoor ground floor with the building's interior occupying two levels whilst also allowing the natural sunlight from the courtyard void to filter into the lower levels. The use of varying voids enables shadow and light to create dynamic spaces made from the changing sunlight. In the cases where voids have been used, they can appear both exposed and vulnerable which can explain the levels of privacy used for each decision. The entrance void keeps a sense of privacy from its overhang and concealed mapping; the courtyard void faces the residential buildings to face a quieter view and reinforce domestic identity; the staircase void is north-facing which is the most public area of the building, though it is indoors to keep users from the noise; finally, the connecting void keeps its overhang to create the illusion of being indoors though being out.

To further accentuate the void forms and simultaneously encourage social interactions between users, a veil concept (another duality) will be introduced to form a protective layer using a delicate structure (see Figure 5.8). Not only does the veil act as a protective layer that guards the facade of the building, but the physical form of the delicate but protective veil will translate the same design language through the interior space to promote "*social interaction with alcoves*" (see Figure 5.7) (Cox and Groves, 1990). Using a delicate built form of the veil as a signifier for protection enables a duality of emotions and vulnerabilities that would mimic the people who would use the building. The continuation of the veil form arrangement establishes a visual and spatial continuity from the site surroundings, to the building facade and into the interior.

Figure 5.7.
Initial conceptual veil model
-internal alcove structure

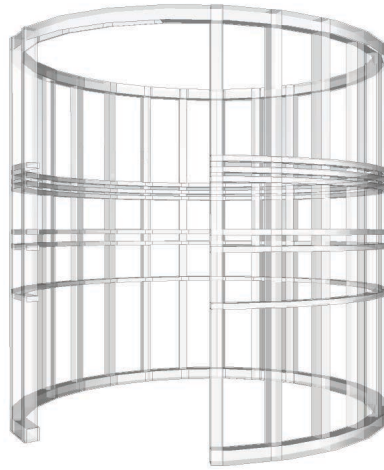




Figure 5.8.

Veil in Madrona, Seattle

(Vandeventer + Carlander, 2009)

Conclusion

Following my research, it is clear to see that wellbeing can be deeply influenced by architecture, playing an integral role in designing for bereavement. In an age of indoor spaces, architecture and wellbeing go hand in hand and has been proven to stimulate emotions and health positively. As someone who has experienced bereavement, it can be an alien experience with constant flux of extremities that make it is easy to isolate yourself and temporarily remove yourself from society. As a stimulus for the project, I planned to create a space that encourages a community of people to feel comfortable and natural in an otherwise challenging and distressing situation in a multifaceted place of guidance and relaxation. By adopting a duality concept to accommodate the diverse needs of bereaved people, the building explores the ambiguous boundaries of bereavement and creates built forms conveying both strength and vulnerability. In doing this, latticed alcoves of safe spaces within an open area are used to give the user control of their own interactions and to determine the use according to their own needs. The overall atmosphere should value the simplicity and complexity of built forms whilst appreciating imperfection and the passing of time. Having said this, bereavement is not something that can be overcome with architecture but instead should be used as a tool to encourage the recovery of bereavement.

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Appendix A.

Table 1
Characteristics of the study population ($N = 4529$).

Gender (% Male)	44.3%
Age (years)	49.3 (SD 16.6; range 19–97)
<i>Level of education</i>	
Unknown	12%
Elementary school or less	15.4%
Secondary school	53.1%
Higher vocational or academic education	19.5%
<i>Income</i>	
Unknown	4.8%
Low (<1350 euro)	30.1%
Modal (1350–2450 euro)	40.5%
High (>2450 euro)	24.6%
<i>Urbanity</i>	
Very strongly urban (>2500 addresses/km ²)	15.6%
Strongly urban (1500–2500 addresses/km ²)	23.9%
Moderately urban (1000–1500 addresses/km ²)	20%
Slightly urban (500–1000 addresses/km ²)	30.2%
Non urban (<500 addresses/km ²)	10.3%
<i>Percentage of green space</i>	
Average percentage of green space in 1-km radius	42.45% (SD 24.2; range .4–99.3)
Average percentage of green space in 3-km radius	60.7% (SD 21.7; range 6.16–97.3)
<i>Health</i>	
Average number of complaints (0–37)	4.32 (SD 3.85)
Mean perceived mental health (0–12)	1.18 (SD 2.29)
Mean perceived general health (1–5)	2.78 (SD .95)
<i>Stressful life events</i>	
% of respondents who experienced a stressful life event in the past 3 months	19.1%

Controls and results from “Van Den Gerg, A. E., et al. Green Space as a buffer between stressful life events and health.”

Table 2
Summary of results of multilevel regression analyses predicting health from stressful life event in past three months and amount of green space in a 1 and 3 km radius ($N = 4529$).

	β	z	p
<i>Number of health complaints</i>			
Main effect stressful life event	.08	5.30	<.001
Main effect green space 1 km	-.03	-1.46	.14
Interaction stressful life event \times green space 1 km	.01	.39	ns
Main effect green space 3 km	.00	.03	ns
Interaction stressful life event \times green space 3 km	-.05	-2.36	.02
<i>Perceived mental health</i>			
Main effect stressful life event	.15	10.12	<.001
Main effect green space 1 km	-.02	-1.30	.19
Interaction stressful life event \times green space 1 km	.01	.38	ns
Main effect green space 3 km	.00	.03	ns
Interaction stressful life event \times green space 3 km	-.04	-1.65	.10
<i>Perceived general health</i>			
Main effect stressful life event	.02	-1.26	ns
Main effect green space 1 km	-.02	1.03	ns
Interaction stressful life event \times green space 1 km	-.02	.75	ns
Main effect green space 3 km	-.01	.55	ns
Interaction stressful life event \times green space 3 km	-.05	-2.35	.02

Appendix B.

Results from “Blomkvist, V., et al. (2005). Acoustics and psychosocial environment in coronary intensive care.”

Table 1 Delta (end of shift minus start) sum scores based on principal component analysis

		Baseline (B)	Sound reflecting (SR)	Sound absorbing (SA)	F value	B-SR Post hoc p	B-SA Post hoc p	SR-SA Post hoc p
Morning shift		n=13	n=94	n=70				
Demand	M/SD	-1.15/2.91	0.78/2.71	0.55/2.26	3.31	0.011	0.021	0.739
	95%CI	-2.74 to 0.43	0.23 to 1.33	0.12 to 1.18				
Control/supp	M/SD	0.67/1.55	0.38/1.58	0.82/1.51	1.60	0.527	0.761	0.078
	95%CI	-1.51 to 0.17	-0.70 to 0.07	-1.17 to -0.45				
Distress	M/SD		0.06/1.18	0.03/0.91	0.71			0.668
	95%CI		-1.18 to 0.29	-0.19 to 0.24				
Pressure	M/SD		1.48/2.77	1.34/2.83	9.42			0.758
	95%CI		0.92 to 2.04	0.68 to 2.01				
Strain	M/SD		0.62/1.87	0.26/1.34	2.58			0.171
	95%CI		0.24 to 0.99	-0.06 to 0.57				
Afternoon shift		n=18	n=53	n=36				
Demand	M/SD	-0.55/3.09	0.26/2.86	-2.16/2.30	9.47	0.282	0.043	0.0001
	95%CI	-1.98 to 0.88	-0.51 to 1.03	-2.51 to -1.41				
Control/supp	M/SD	-1.15/1.60	-0.98/2.04	-0.89/1.82	0.12	0.730	0.632	0.837
	95%CI	-1.90 to -0.40	-1.53 to -0.43	-1.49 to -0.30				
Distress	M/SD		-0.05/1.15	-0.39/0.88	1.87			0.116
	95%CI		-0.36 to 0.26	-0.48 to -0.10				
Pressure	M/SD		0.25/3.17	-1.73/2.29	4.96			0.003
	95%CI		-0.60 to 1.11	-2.48 to -0.99				
Strain	M/SD		0.08/2.02	-0.85/1.88	2.45			0.029
	95%CI		-0.46 to 0.63	-1.47 to -0.24				
Night shift		n=46	n=53	n=37				
Demand	M/SD	1.52/2.52	1.26/2.57	1.23/2.36	0.18	0.611	0.601	0.953
	95%CI	0.79 to 2.25	0.57 to 1.95	0.47 to 1.99				
Control/supp	M/SD	0.18/1.46	0.20/1.31	0.29/0.81	0.09	0.932	0.692	0.742
	95%CI	-0.24 to 0.60	-0.15 to 0.56	0.03 to 0.55				
Distress	M/SD		0.16/0.89	0.17/1.63	1.36			0.957
	95%CI		-0.08 to 0.40	-0.35 to 0.70				
Pressure	M/SD		1.49/2.64	1.32/2.44	0.20			0.785
	95%CI		0.78 to 2.20	0.23 to 2.11				
Strain	M/SD		0.25/1.37	0.04/1.98	1.24			0.585
	95%CI		-0.12 to 0.62	-0.60 to 0.67				

Results expressed as number of observations, means (M)/standard deviations (SD), 95% confidence limits of means (CI), and results of one way analysis of variance. Post hoc p values for analyses with three conditions (Plinar's P-SD).

Table 2 Two-way analysis of variance with reflecting/absorbing acoustics and shift as explanatory and the five delta sum variables as dependent variables

	F value	p
Delta demand		
Sound reflecting/absorbing	8.78	0.003
Shift	18.03	0.0001
Interaction	6.63	0.002
Control/supp		
Sound reflecting/absorbing	0.23	0.630
Shift	13.43	0.0001
Interaction	1.14	0.323
Distress		
Sound reflecting/absorbing	0.87	0.352
Shift	2.70	0.069
Interaction	0.70	0.496
Pressure		
Sound reflecting/absorbing	5.89	0.016
Shift	19.46	0.0001
Interaction	3.54	0.030
Strain		
Sound reflecting/absorbing	6.43	0.012
Shift	6.19	0.002
Interaction	1.07	0.344

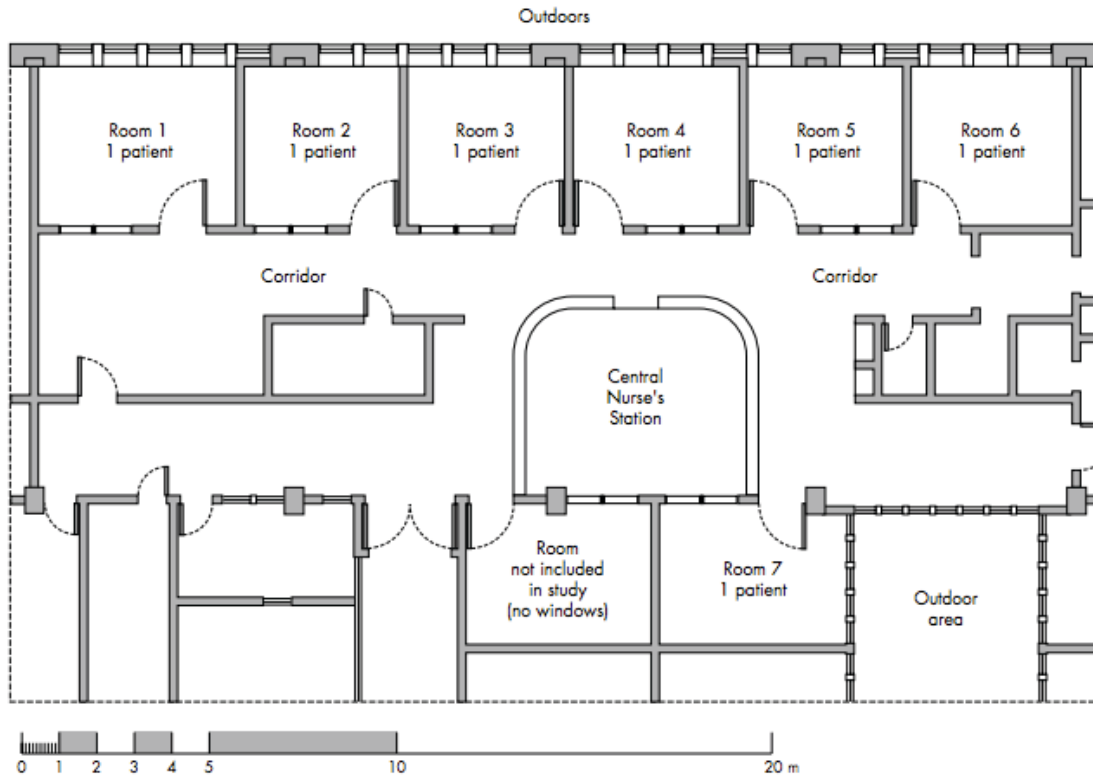


Figure 1 Floor plan of the CCU.

Table 3 Sound reflecting ceilings vs. sound absorbing ceilings; acoustic measurements in three areas of the ward (reverberation time, sound pressure level, and speech intelligibility)

Area	Reverberation time (s)		Equivalent sound pressure level (L_{Aeq})		Speech intelligibility (RASTI value)	
	Sound reflecting	Sound absorbing	Sound reflecting	Sound absorbing	Sound reflecting	Sound absorbing
Central area	0.8	0.4	57	56	0.72/0.68*	0.88/0.83*
Patient room 4	0.9	0.4	56	50	0.67	0.87
Patient room 7	-	-	56	51	-	-

-, not measured.

*Measurements performed in two different positions.

Table 4 Sound propagation; attenuation of the reference sound (pink noise 88 dB(A) 1 metre from the source) at predetermined intervals from the source

	Distance from the source (m)					
	2	6	10	14	18	22
Sound reflecting L_{Aeq} (dB)	83	80	78	75	72	70
Sound absorbing L_{Aeq} (dB)	82	76	72	70	65	64