BETWEEN ARCHITECTURAL SPACE AND PSYCHOTHERAPY

Insertion of Urban Regeneration in Amsterdam

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Our work will focus on the architectural space and built environment into psychotherapy. We all know that architecture could have a strong impact on people, whatever physically or mentally, and that people have impact on architecture as well. In this research, we are interested in the interaction between architecture space, built environment, and the people really use them. A person who has mental problem perceives and feels the environment differently. The integration between architecture space and healthcare in terms of the field of psychotherapy will appear as a ‘pilot project’ which so called experiment in our work.

It is interesting to know that, if the surrounding can affect a healthy people's perception, sense, emotion, then what is the ideal architecture space and environment for person who has mental problem or need healthcare. In this research we would like to explore some medical and psychotherapeutic aspects which are going to match the needs of the common citizens. Then we realise our design application as experiment. So that we try to go towards and explore a sort of new methodology from a different perspective of architectural design that is more people oriented.

Some report shows that mental disturbed patients are particularly sensitive to their environment, so we think that might architectural and environmental design is a good starting point, which can contribute to their well-being and even have an influence on the healing process of the mentally ill. We think it is a worthy challenge to design architecture and environment that meets the needs of these people.

**Keywords:**
mental health, psychology, psychotherapy, emotion, sensory space, healthcare, healing landscape, architectural space, built environments.

“**We shape our buildings, and afterward our buildings shape us.**”

—Winston Churchill, 1943
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The first thing we need to do is to clarify the basics and to get an overview of the topic. Then we will have a general vision of mental problem in EU from different perspective. And then we will select some key aspects from the research, which are more common in daily life and potential for our theme. The part that we are most interested in is the impact of emotional and environmental factors on people's mental health. In order to link the architectural design and medical treatment, we need to study how psychologically emotion works. This is discussed in Chapter 1.

Additionally, in Chapter 2, the discussion continues by laying the foundations for a structured approach to perception in architecture through the rational understanding of human emotions, basic concerns and stimuli. The thesis then examines the architectural principles of different architectures based on a number of sources from precedent access to published articles, journals as well as books and documentaries. Then according to the common and potential types of psychotherapy issues selected, we will clarify the common medical treatment in architectural space and built environments today.

All of this we will compare different cases and study the potentiality to better understand how architect ‘treat’ these patients in detailed and comprehensive scale of architectural space and built environments. In order to explore the ideal modulus so called ‘archetype,’ which could be used as fundamental design tool in the future. The according to all of the research, we also put forward relevant questionnaires on future design. This is discussed in Chapter 3.

Then we have a final experiential design with analysis and case studies in Chapter 4. The goal is to create psycho-friendly experiential community, which includes architectural spaces, and landscapes in Amsterdam, which can engage, attract citizens, so that promote, and share the knowledge of urban healthcare, in order to improve the mental health of local inhabitants through implementing architectural elements. It is important that a building or an environment is experienced as comfortable, intuitive, foreseeable and safe in architectural psychology. We consider the project with psychological knowledge by using the pillars of chapter 2 as well as by considering observations of the users’ behaviour and the analysis of prototypes.

Finally conclude in Chapter 5. Overall with describing how our design, which is a Psychotherapy Center, creates distinctive psychology, emotion, and health care environments, which can inspire evoke, even healing users subconsciously to think and feel differently about space. It is hoped that this study of a cumulative psychological and sensorial development of thought will invite, encourage and perhaps even inspire the reader to appreciate the powerful impact of the senses and psychology and emotions in an attempt to enrich architecture, and hopefully lead to the creation of more embodied psychological experience in the future.
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Mental Health and the Effect of Emotion
1.1 INTRODUCTION OF MENTAL HEALTH

1.1.1 The Definition of Mental Health

According to Medilexicon’s medical dictionary, mental health is: “Emotional, behavioural, and social maturity or normality; the absence of a mental or behavioural disorder; a state of psychological well-being in which one has achieved a satisfactory integration of one’s instinctual drives acceptable to both oneself and one’s social milieu; an appropriate balance of love, work, and leisure pursuits.”

According to the WHO (World Health Organisation), mental health is: “... a state of well-being in which the individual realises his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community.”

The WHO stresses that mental health “is not just the absence of mental disorder.”
1.1.2 Influential Factors of Mental Health in EU

For many individuals within any one country of the EU, the diversity of European culture may seem the most striking feature, and, indeed, there is incontrovertible diversity. Despite this, Europeans still face many of the same problems which will have great impact on their mental health.

Mental health was conceived as an indivisible part of general health which reflects the interaction between the individual and the environment. Crucial demographic factors which relate to mental health are sex, age, marital status, ethnicity and socio-economic status. Social networks and, especially, close confiding relationships, can act protectively or as risk factors for the onset and recurrence of mental ill health and may affect the course of an episode of illness.

Immigration has also been a feature of most EU countries in the last few decades and most migrants settle also in towns. Everywhere there are issues of multi-culturalism and assimilation, legal and illegal residents and citizenship, participation, discrimination and disadvantage. There are risks to both general health and mental health attached to immigrant status, and to experience of social exclusion, made more difficult by serious communication problems related to alien languages and cultures.

In many countries of Europe there is concern about low fertility, some failing to reach replacement level. Alongside this, life expectancy has been increasing at all ages. This probably means that people reaching traditional retirement age will need to continue working. It certainly means increasing numbers of people with dementia and increasing numbers of carers, often themselves elderly and vulnerable. It should also mean that children are more valued, but also that child deaths, now rare, are more tragic in their effects on families.

The low birth and fertility rates are no doubt related to increasingly late marriage, at least among middle-income groups. Divorce has also become far more frequent, and living alone consequently more common, needing more independent housing. This is often accompanied by a lack of social support, especially of close confiding relationships known to be protective in mental health terms. Children increasingly have broken and multiple families; it is not yet clear what mental health consequences there may be on a whole population scale.

All countries in the EU are relatively wealthy, yet, in almost all countries there are regions of poor economic performance. And there are ethnic minorities or other distinct sub-groups in the population who are also disadvantaged in these various ways. Since these features are linked at the population level to higher prevalence rates of the common mental disorders, there are obvious implications for both prevention and care. Total health spending varies; the highest countries are Germany and France. All countries appear to have been increasing their health expenditure over the last few years.
1.1.3 The Responds on Mental Health

Since mental health has many determinants, it has been established that some factors will protect a person and increase his or her resilience to the various stresses he or she may be exposed to. Conversely, some factors are considered to be risk factors and these will increase vulnerability. It is important to recognise these risk factors in order to prevent psychological distress and, potentially, psychiatric disorders.

Prevention and health promotion in mental health and the necessity of improving living conditions in various areas: education, housing, employment, access to leisure and culture, human rights and health care organisation (especially the training of health professionals to deal with psychological suffering).

- Providing adequate care to those who need it and to carefully allocate specialised and non-specialised resources, according to the severity of disorders in order to optimise resource use,
- Providing adequate medical and social resources to the severely mentally ill, and of minimising discrimination, and of integrating people with severe mental illness fully into society and helping their family and friends to support them.
Since mental health is a rather broad concept which should be described in three dimensions. Positive mental health relates to well-being and the ability to cope with adversity. Negative mental health comprises both psychological distress, which refers to the presence of symptoms (mainly depression or anxiety), and diagnosis of psychiatric disorders. In these three dimensions, we mainly focus on the positive mental health and the presence of symptoms which we try to solve those problems through architectural space and built environments. The third dimensions diagnosis of psychiatric disorders is more serious mental illness and conditions which need to be resolved through more specialised medical measures.

Most environmental factors have a positive or negative influence on mental health and when policy makers want to set up prevention programmes it is essential to know how much these various factors could be protective or could constitute a risk. Mental health was conceived as an indivisible part of general health which reflects the interaction between the individual and the environment.
It has already been argued by David Howes and Constance Classen (2014) that the way we use our senses and the way we create and understand the sensory world is shaped by culture. Perception is informed not only by the personal meaning or a particular sensation but also by the social values. And also there are a variety of cultures even cognitions that influencing our sensation and behaviour subconsciously in the world, which is clearly explained in “The order of things” by Michel Foucault. Thus, someone’s emotional response towards an architecture might be very different from another.

Nevertheless, Pieter Desmet (2002) stated that the process of how emotions are triggered is universal. According to his recent emotional design strategy, a basic model of emotions comprises of three underlying key variables; appraisal, concerns and stimulus which are responsible for the generation of our emotions. Figure 1.1 describes an emotional response as the outcome of an appraisal process in which the architecture is linked to basic human concerns and stimulus.

Figure 1.1 - The basic model of emotions (Pieter Desmet, 2002)
1. APPRAISAL
An emotion always involves an assessment of how an object may harm or benefit a person (Arnold, 1960), who defined an appraisal as "the direct, immediate sense judgment of weal or woe," and as being at the heart of every emotion. An appraisal is a non-intellectual, automatic evaluation of the significance of a stimulus for one's personal well-being. One author of an early seventeenth century medical treatise asked: "Does melancholy induce fear and sadness because it is black in color or because it is cold?" (Thorndike, 1934. II: 205). The assumption was that, not only did illness cause certain sensations, but certain sensations caused illness. The opposite of this notion that certain sensations could promote health was also held true (Howes and Classen, 2014, p. 38).

2. CONCERNS
From an evolutionary perspective, the purpose of sensation and perception is adaptation that improves a species' chances for survival (Hartman & Smith, 2009; Mader, 2010). This implies that every emotion hides a concern, a more or less stable preference for certain states of the world (Frijda, 1986). According to Frijda, concerns can be regarded as the points of reference in the appraisal process. An environment will only evoke an emotion if it either matches or mismatches a concern: stimulus that match our concerns are appraised as beneficial and those that mismatch our concerns as harmful.

The difficulty in understanding basic concerns is that the number and the variety of human concerns is endless. Various typologies of concerns have been developed in the fields of organizational behavior (Maslow, 1943); [Fig. 1.2], personality psychology (Murray, 1938), social psychology (Rokeach, 1973) and consumer behavior (Hanna, 1980).

The basic concern of humans is probably best described by "the hierarchy of needs" of Maslow. This theory is often depicted as a pyramid consisting of 5 levels: the 4 lower levels are grouped together as deficiency needs associated with physiological needs, while the top level is termed growth needs associated with psychological needs. This principle is also applicable to architecture: a building elicits an emotion to the extent it is appraised as relevant to a person's concern. Why was Alice proud of the louvered windows? Because it matched with her concern for comfort. Why was Matthew inspired by the pattern on the wall? Because it matched his concern for creative stimulation.

3 STIMULUS
According to Frijda, any perceived change has the potential to elicit an emotion. This can be some event, something being said by someone or encountering something in a space. Not only actual events but also remembered or imagined events have the potential to evoke emotions such as thinking of our loved ones is enough to elicit strong emotions. Or merely fantasizing about a planned summer vacation can fill us with anticipatory excitement.
Base level – Physiological

The base of the pyramid is formed by the physiological needs, including the biological requirements for food, water, air, and sleep.

2nd level – Safety

The second level, the need for safety and security. Included here are the needs for structure, order, security, and predictability.

3rd level – Love/belonging

The third level, the need for love and belonging. Included here are the needs for friends and companions, a supportive family, identification with a group, and an intimate relationship.

4th level – Esteem

The fourth level, the esteem needs. This group of needs requires both recognition from other people that results in feelings of prestige, acceptance, and status, and self-esteem that results in feelings of adequacy, competence, and confidence. Lack of satisfaction of the esteem needs results in discouragement and feelings of inferiority.

5th level – Self-actualization

Finally, self-actualization sits at the apex of the original pyramid. Self-actualization is the instinctual need of humans to make the most of their abilities and to strive to be the best they can.
Through the summary of the European mental health research report, we learned that mental health is not only related to people's physiological conditions, sex, age, marital status, ethnicity, but also inseparable with environmental and cultural conditions (socio-economic status, education, housing, employment, access to leisure and culture, human rights and health care organisation), among which environmental factors have a great impact on mental health, whether positive or negative. As humans, we communicate with the outside world through various senses, such as touch, taste, smell, see and hear. We shape the environment, and the environment also affects our mental health.

The basic model of emotions applies to all human emotions. A stimulus elicits an emotion when it is appraised as either harmful or beneficial for one of our concerns. Thus, emotions can only be understood in relation to the person who is experiencing them. Therefore, designers can only predict or manipulate the emotional impact of their designs when they are aware of the concerns of those for whom they design these environments;

“We want architecture that has more, Architecture that bleeds, that exhausts, that whirls, and even breaks. Architecture that lights up, stings, rips, and tears under stress. Architecture has to be cavernous, fiery, smooth, hard, angular, brutal, round, delicate, colourful, obscene, lustful, dreamy, attracting, repelling, wet, dry, and throbbing. Alive or dead. If cold, then cold as a block of ice. If hot, then hot as a blazing wing. Architecture must blaze” (Prix et Swiainsky, 1992, p 92).

This manifesto tends towards a ‘soulful architecture,’ an architecture that heightens all human senses and is capable of raising the most fascinating emotions out of one’s body. Perhaps the most appropriate summary of this point is, a fundamental connection with the human spirit is needed in order to experience good architecture’. It is these roots that we have to become consciously aware of as designers. We question how and why these experiences made an impression on us. What these characteristics were like, how they are felt, how they sounded.
Architectural Environments and Psychology
There is no emotion within us without a place, just as there is no place that does not generate somatic commotions, as mild as they may be. The experience of architecture is a subjective dialogue that emerges in the unique encounter of space and the person: “Architecture is the art of reconciliation between ourselves and the world, and this mediation takes place through the senses” (Auhani Pallasmaa, 1996, p. 50). By define the role of all the senses as mediators of experience, and understanding the fields of emotional impact between architecture and human itself, then provide means for architects and planners to design in new emotionalising architectural environments.

There are full of stimuli in our world, it’s filled with spirited objects and events that around us in our external environment. We are connected with the world by exploring sensations through touch, taste, smell, see and hear. Through sensation of stimuli, we understand and give meaning to an external environment. What are the parameters of designing atmospheres that attune to the concerns of the user? Light, form, color, sound, movement, texture and scale, are examples of how architects have created certain atmospheres, Pieter Desmet created a basic model of emotions for his research (Designing Emotions), which was drawn up on the basis of this definition and on the related appraisal models developed by psychologists such as Roseman, Onony, Lazarus, etc.
Based on the model shown in figure 1.3, an architectural feature or built environment (stimulus) evokes an emotion when it is appraised as either inspiring or indifferent to one’s concern. The range of qualities to be examined in an architecture included: sense, form, mass, void, movement, expression of form, material, tension and pressure, scale and proportion, rhythm, light, color, associations and conceptions. One resides or travels to visit a place with concerns such as the need for prospect and refuge, exploration, enticement, thrill and being in a dramatised haven.

Emotional experience in architectural design intends to develop a unique experience of the phenomena of space, light and form. It is determined by the architectural quality based on its affect on the sensitivity of human perception, instead of developing a mechanical sense of reason and tectonics (functionalism). The potentiality of an architectural experience depends on the ability of the architecture to integrate the mind and body. People’s concern changes from the functional qualities of a space to an emotional involvement, the individual has the capability to achieve a more fulfilling experience.

“Architecture is shaped by human emotions and desires, and then becomes a setting for further emotions and desires. It goes from the animate and inanimate and back again. For this reason it is always incomplete, or rather is only completed by the lives in and around it. It is background.”

———“Why we build”, Rowan Moore
What then is the relationship between the theories of emotion, and the study of architectural experience and design? These concepts can be understood through first, the perception of the individual participant as it elicits personal sensations and evokes meaningful experiences. Second, the perception of the individual that from stimulates as it provides sources which direct bodily activity and therefore feelings. Third, the approach to a design based on lived experience as interpreted through behaviour, experience and meaning. It is the logical thinking of these concepts providing, that this thesis aims to show the framework for an emotional experience of architecture based on the “basic model of emotion”. The thesis will explore these concepts in the context of the body, emotion and architecture.

The interpretations of emotional relationships within a designer’s own experience and the study of other’s emotional experiences, is necessary in the understanding of architectural experience. It is the realisation of personal experience as a designer and then the implementation and translation of such mental images that help the framework of an emotional experience of architecture. The designer, who has the capability to explore their personal images, their unique motivations, and the capability to catch the emotional expression of architecture. As explored by Zumthor, the experience of the designer is invaluable when he working for synthesis of spatial quality and emotional involvement. Peter Zumthor states, “The roots of architectural understanding lie in our architectural experience: our room, our house, our street, our village, our town, our landscape, we experience them all early on, unconsciously, and we subsequently compare them with the countryside, towns and houses that we experience later on.”
2.2 INTRODUCTION OF ARCHITECTURAL PSYCHOLOGY

Architectural Psychology is an area of psychology, which deals with the interaction of psychology and architecture. It is the study of the implications of buildings or the built environment on behaviour. It examines various aspects or dimensions of architecture that may play a role on behaviour and life in general. Some of the topics studied in architectural psychology are the role of architecture in representing culture, cultural diversity, and cultural change; the impact of the design of buildings on physical and mental health; and the influence of specific features of architecture on cognition and emotions.

The interplay between architectural design and human psychology is significant, yet it remains largely unnoticed or even ignored both in and outside the design industry. Moreover, the relationship between design and psychology is
Architectural Psychology is an area of psychology, which deals with the interaction of psychology and architecture. It is the study of the implications of buildings or the built environment on behaviour. It examines various aspects or dimensions of architecture that may play a role on behaviour and life in general. Some of the topics studied in architectural psychology are the role of architecture in representing culture, cultural diversity, and cultural change; the impact of the design of buildings on physical and mental health; and the influence of specific features of architecture on cognition and emotions.

The interplay between architectural design and human psychology is significant, yet it remains largely unnoticed or even ignored both in and outside the design industry. Moreover, the relationship between design and psychology is not only consequential, it is bidirectional. On one hand, successful design has been shown to have clear psychological and physiological impacts; on the other hand, psychology, human experience, and the function of our neurological systems all play a significant role in what we perceive to be successful design. This thesis endeavours to create an understanding of how that complex relationship evolved and how it works in today’s world. It does so by first exploring how the human brain and nervous system is structured and functions, how that structure and function benefited our human ancestors, and how modern society impacts that function. With that knowledge as a background, the interrelationship — both positive and negative — between design, psychology and our perception is explored.

"The purpose of architecture is to move us. Architectural emotion exists when the work rings within us in tune with a universe whose laws we obey, Recognise and respect."

—Le Corbusier
2.3 Potential Psychotherapeutic Approaches into Architecture

2.3.1 Natural Remedies

Natural remedies are the application of substances and methods that have a direct relationship with human life, such as food, air, water, sunlight, gymnastics, sleep, rest, and mental factors that are conducive to health, such as hope, belief, etc., to maintain and restore health. Western alternative medicine originated in the 18th and 19th centuries. The term natural therapies did not begin to be used until the end of the 19th century. However, its philosophical guiding ideas can be traced back to the Hippocrates school of medicine in 400 BC.

Natural remedies are medicinal products in which the active ingredient is derived from natural sources, have not been processed too highly and consists of an animal part, bacterial culture, mineral or salt. This means that, for example, isolated compounds or chemically modified ingredients cannot be included in natural remedies.

But he view that natural remedies are in some way superior to those developed scientifically is mistaken. Many useful drugs in the pharmacopoeia are derived from natural sources but these have been purified and assayed so that accurate and safe dosage becomes possible. Most readily available and useful natural remedies have been exploited in this way and the search for other useful natural drugs continues.

2.3.2 Color Remedies

Color therapy and healing (also known as chromotherapy or light therapy) is a type of holistic healing that uses the visible spectrum of light and color to affect a person's mood and physical or mental health. Each color falls into a specific frequency and vibration, which many believe contribute to specific properties that can be used to affect the energy and frequencies within our bodies.

Colours are known to have an effect on people with brain disorders or people with emotional troubles. For example, the color blue can have a calming effect which can then result in lower blood pressure, whereas the color red might have the opposite effect. Green is another color that may be used to relax people who are emotionally unbalanced. Yellow, on the other hand, may be used to help invigorate people who might be suffering from depression.

There is evidence of people attempting to use color for healing and therapy from as far back as 2000 years. And it has gained in popularity throughout the years, with numerous books being written about it, including Johann Wolfgang Goethe who studied the physiological effects of color. As we mentioned though, many people are skeptical about using color and light for healing or therapy.
2.3.3 Horticultural Therapy

Horticultural therapy (also known as social and therapeutic horticulture or STH) is defined by the American Horticultural Therapy Association (AHTA) as the engagement of a person in gardening and plant-based activities, facilitated by a trained therapist, to achieve specific therapeutic treatment goals. The visual aesthetics of plants are known to elicit feelings of inner peace, which generates positive emotions toward a meaningful appreciation of life. Direct contact with plants guides the individual’s focus away from stress enhancing their overall quality of life. The AHTA believes that horticultural therapy is an active process which occurs in the context of an established treatment plan. Horticultural therapists are specially educated and trained members of rehabilitation teams (with doctors, psychiatrists, psychologists, occupational therapists and other) who involve the client in all phases of gardening, from propagation to selling products, as a means of bringing about improvement in their life.
2.3.4 Aromatherapy

Since aromatic plants have many beneficial effects on human health, the use of aromatic plants for disease prevention and treatment has also become a new type of natural, healthy and safe and effective therapy. The term of Aromatherapy was first proposed by the French chemist René Maurice Gattefossé, known as the “father of modern aromatherapy,” in his work in 1928.

Aromatherapy in the broad sense refers to the purpose of restoring physical and mental health by utilizing the aroma that plants emit. This aroma can come directly from the plant’s roots, stems, leaves, flowers, fruits, etc., can also be derived from the plant's "essential oil". Essentially speaking, aromatherapy uses the relationship between scent and human physiology and psychological reactions, and uses specific odors to influence and mobilise emotions to achieve therapeutic goals such as relieving fatigue and eliminating stress and tension.

Aromatherapy has the advantages of reliable efficacy, safety and comfort, high acceptance and no side effects. Although serious emotional stress and physical ailments cannot be completely cured by aromatherapy alone, aromatherapy as an effective adjuvant therapy has been recognised and accepted by more and more people.

In addition to aromatherapy, aromatherapy can be used for massage, bathing, and coating to achieve beauty and prevent disease. In addition, it can be combined with natural therapy, music therapy, animal therapy, horticultural therapy and other means to better achieve the effect of its health and medical care.

2.3.5 Music Remedies

Music therapy is an emerging edge discipline. Based on the theories and methods of psychotherapy, it uses the unique physiological and psychological effects of music to enable the ruler to participate in the music therapist's participation, through a variety of specially designed music behavior, experience the music experience, to eliminate the psychological barrier, To restore or promote the purpose of physical and mental health.

Music as an independent art is aesthetic. In people's aesthetic activities, the artistic image is born of affection, so that the aesthetic subject feels the same, and the emotional experience of the viewer is evoked. The melody timbre change and rhythm beat process of music, this aesthetic object, glows the unique charm of the human spiritual world. The essential connection between music and medicine is influencing the role and influence of this unique charm on human mind and body. When it mobilises people's thinking memory, association, imagination and other factors, it arouses sympathy and arouses people's resonance. The sentiment of the aesthetic subject is released and vented in the evoked state of the musical modality, which intensifies positive emotions and negative emotions. It can even turn the original negative state into a positive modality, relieve the stress state of the body, relieve psychological distortion and tension, and create opportunities for self-healing power. Therefore, long-term effective appreciation of music can relieve people's bad physical and mental reactions, cultivate temperament, and change their personality and taste.
Those Natural remedies are based on human health, with an emphasis on maintaining physical health and preventing diseases. Educate patients to adopt a healthy lifestyle, enhance the body’s ability to heal itself, and apply natural and non-toxic treatments. Let patients believe that the body’s self-healing ability, in its medical process to avoid the use of any means to weaken the body’s self-healing ability.

These therapies are non-drug therapies that have no toxic side effects on the human body but can prevent and treat diseases. Most these therapies use an integrated approach that combines various aspects of the aforementioned therapeutic approaches. They then customise the approach based on the client’s needs and preferences. An integrated approach is usually as effective as a singular therapeutic approach. There are, however, circumstances where clients might prefer or benefit more from a singular approach.

Summarising the therapies written above, we will discuss in detail in the next chapter, how they are combined with the architectural space, how to use the architectural space to influence people’s psychology and behaviour.
According to the previous research, people communicate with the outside world mainly through the senses, including visual, olfactory and auditory. We will discuss in this chapter, how those sensation formate and how those effects as well as impact on people's psychology, and then we try to find out how to apply it to the design of architectural space through case studies.

An important concept in modern psychology, stimulus-response theory is any form of conditioning in which a specific stimulus comes to be paired with a particular response in the mind of the subjects. The most common applications of stimulus-response theory are in classical and operant conditioning. The pioneers of stimulus-response theory are Ivan Pavlov, John B. Watson, and B. F. Skinner. As we talked in chapter 1, it is the foundation of any basic Psychology class. It defines our relationship to the world around us. It would induce a certain response by these sorts of stimulus.
3.1
JAMES RUSSELL'S
FOUR QUADRANTS
We look to the work of James Russell, whose career has been devoted to understanding human emotional development and response, which is relatively supporting our later work. In Russell’s model the primary emotional responses to the environment determine the behavioural responses. According to this model, human sensory systems process the environment and characterise the relationships between various aspects of the stimulus. This sensory input combines with personality characteristics to produce primary emotional responses in three areas — the pleasure that a person finds in the environment, the amount of arousal or stimulation that the environment provides, and the extent of dominance or control that people feel they have while in the environment.

Ultimately, Russell settled on the pleasure and arousal emotions as the two primary ways that we respond to environments. In Russell’s view, whenever we enter a new environment, we quickly place it into one of four quadrants (Figure 1.4) that are defined by the two axes of pleasure and arousal. This structure is shown in the figure below. While Russell’s initial work related directly to architectural environments, he later explored human emotional response to all types of stimuli. His model has been used in a variety of industries and applications, from advertising studies to experiments in childhood development. It seems that these emotional responses are fundamental to the human condition.

From his point of view, our emotional response to a stimulus along the two dimensions of pleasure and arousal is a single, integrated, directional response rather than two distinct responses. The words we use to describe spaces reflect this sort of integrated response. An environment that we call, “Stimulating,” is one that is both arousing and pleasant, while one that we call, “tense,” is also arousing but a bit unpleasant. A “relaxing” space rates low on arousal but relatively high on pleasure, while a “dreary” space is also low on arousal but elicits a response that is low on pleasure as well.
Flynn examined the human response to lighting by studying an array of subjective impressions related to architectural settings, in order to determine which of those impressions were affected by changes in the lighting stimulus. For some impressions, changes in the lighting produced significant changes in the response – impressions such as spaciousness, visual clarity, privacy, pleasantness, relaxation, and complexity.
3.2 LIGHTING PSYCHOLOGY AND BUILT ENVIRONMENT
By linking lighting to these impressions, Flynn demonstrated that architectural lighting plays a much more significant role in the human experience than simply as an enabler of task performance.

Lighting designers are trying to work to get the right stimulus to bring the desired response. Actually, there are a lot of detailed and careful characterisation of visual tasks under different lighting conditions — the stimulus, and a variety of important methods for measuring visual performance as those conditions are varied — the response. From the theoretical research we read on bibliography, we have learned a lot about the nature of the stimulus-response relationships relating to human visual performance.

Lighting can help create excitement in a themed environment. Lighting can help a person navigate through a new space. Lighting can help to bring about a sense of calm and peacefulness in a sacred setting. Lighting can help to bring about mystery in a theatrical production. And, lighting can cause us to strongly dislike a room which we would otherwise find appealing.

How does our mind process the visual stimulus to produce these sorts of responses? What do we understand today about the way that we light buildings that enables us to link the stimulus of a lighted environment to the full array of cognitive and emotional human responses? We try to make connections that can help us to establish a framework for a more general view of lighting’s impacts from architectural perspective on fields of environmental cognition and human emotional response. In this chapter, we’ll summarise a list of archetypes of this framework, and explore how merge all these tips together which can help to move us along to a deeper understanding of the broad range of human responses to the lighting stimulus.

For most lighting designers, the phrase “Lighting psychology” immediately brings to mind the work of the late John Flynn. (Architectural Lighting Design by Gary Steffy and Light: The Shape of Space by Lou Michel. Both books provide excellent details on Flynn’s findings and how they relate to architectural lighting design practice.) Flynn and his colleagues explored what were at the time new research and analytical techniques, in an attempt to document and understand the full range of human impacts of lighting. In addition to studying human responses to lighting, Flynn also sought to understand the nature of the stimulus that produced those responses. Which attributes of lighting in a space seemed to relate to the various impressions that could result? Flynn identified four of these attributes, which he called the “lighting modes.”

The modes each express a continuum of changes in lighting between two extremes. Flynn’s lighting modes express the basic parameters of lighting which designers manipulate in creating the environments they desire — bright / dim, uniform / non-uniform, central / perimeter, and warm / cool. Flynn’s message was that as you change the lighting stimulus along these dimensions, you will produce changes in the human response in terms of the impressions that are reinforced. And – importantly — these responses will occur whether you planned for them or not.

The practicality of Flynn’s work for lighting designers resided in his attempts to link the lighting modes to the human subjective responses. To reinforce a particular impression in a space, a designer could focus on certain aspects of the lighting mode descriptors in designing the lighting system. For example, the designer could reinforce a feeling of relaxation by employing non-uniform lighting on the perimeter room surfaces from warm-tone light sources. Uniform lighting on the perimeter room surfaces reinforces an impression of spaciousness. Although the design guidance that resulted from the Flynn work is qualitative in nature, many practitioners have found the linkages between the lighting modes and the subjective impressions to be a useful characterisation of the stimulus and responses to lighting that move beyond task performance.
3.2.1 Types of light effect

There is often in texts a reference to 'light effects' and yet no formal definition of this notion is met in any of the lighting literature. One might question how a light effect is identified and defined and, if categorised, according to what criteria this categorisation takes place. Moreover, what is the usefulness that justifies the persistence here of trying to classify the light effects into types? To define a notion is to grasp its elusive identity and to be able to explain with words something that is commonly understood and perceived. Light effects are commonly understood and admitted as notions by lighting designers. They can tell the difference between them and very often they use metaphors or technical terms — that imply the techniques of creating them - to name them. Wall washing for example is a metaphor that evokes the effect of water or fluid running down a surface. Cove lighting is a name that originates from the technique of hiding a linear source inside a cove detail and restricting its 'flow' to the limits of the cove opening. This, however, does not answer the question of how light effects are identified and defined. Answering this will lead to answering the second question of categorisation and its role in design. This set of questions will not expand much on the typology and the 'idea of type' because this can be a research subject on its own, but will focus on the ontological question of lighting effects as notions and the criteria of differentiation. If one can see clearly enough the difference between two light effects then this will explain their de-composition into types and their recomposition into full lighting schemes. At this point an analogy with architecture is useful to grasp the concept of light effects and to demonstrate the usefulness of identifying types of light effect and defining their specificity.

What is the usefulness of trying to classify light effects into types? A classification of light effects bears the logic of comparison and is emerging from the different features. The whole process makes the design process more conscious and, on an interpretative level, shifts the discussion from merely technical problems to problems of form and meaning.

In the following pages there is a schematic representation of several lighting terms that are used before being analysed. The circle represents the lighting design vocabulary and the words in it. This is not an exhaustive list, but rather is indicative of a large variation of meaning content and origin.

At first glance one would assert that some bear common enough characteristics to be able to be grouped into categories. For example, one would be tempted to group 'down light,' 'up light,' 'side lighting' and 'backlighting' into one cluster labeled: 'direction' or 'position of source in relation to surface'. In the same way, one would then continue grouping 'linear,' 'planar' and 'point source' into another cluster labeled 'geometry of light source', and so on. Then a quick schematic representation of that classification would look like Figure 1.3. The terms start to lose their chaotic arrangement and gain a different meaning when connected with others bearing common characteristics. The problem that arises then is that after a closer look, one starts to doubt the validity of the initial classification since some terms seem to belong to more than one group, because they have more than one attribute and can, if met in a text, be interpreted according to the genre of the text. One word with many possible 'readings', for example, is 'ambient'. Ambient light can be classified as part of the elements defined by Richard Kelly6, as geometry of source (implying diffuse general light), as syntax (noting neutrality in relation to surface) and as direction (implying a multi-directional lighting source) (Figure 1.4). Richard Kelly: (1910 - 1977) American lighting designer and pioneer of architectural lighting design. Known mostly for some of his successful projects, such as Seagram Building, and his personal classification of light effects in 'ambient light,' 'focal glow' and 'play of brilliants'. 
Light
Light alone can already create the effect of emotional space.

We try to merge the relative studies and researches together for a unified design approach, also to bring different archetypes on lighting treatment by architectural language to inspire architectural space and built environments from psychological architectural lighting perspective. So Flynn gives us a thread of a stimulus described by lighting modes, linked to the human response of subjective impressions of environments. And Russell gives us a thread of primary emotional responses to stimuli that apparently drive our assessments of any environment, as we integrate a response along the dimensions of pleasantness and arousal.

How can we weave these disparate threads together? We can think of many open questions that remain. Can we map the Flynn modes onto the Russell emotional responses? That is, what attributes of the lighting cause a space to seem more stimulating? Or less pleasant? Does increasing complexity as defined by Kaplan lead to higher levels of arousal? How do we match the cognitive and emotional needs to the context, so that we have differing guidelines depending on the desired human response to a work setting, a social setting, or a retail setting? These are all important and critical questions to explore as we seek to better understand the human brain on lighting. (Try to solve these, by architectural ways!)

We can explore this more fully in the following case studies and archetypes.
Light is very relevant for human beings to sense and feel the spaces around them, and the property of the light in a space in which could be seen. It also influences our emotion and wellbeing. Not only our surroundings are described by light and shadow but also form, materials, texture, rhythm and history. It’s the main topic to work with form and light in architectural design. Design the light in aperture is to design not only the space’s lighting, but also its appearance and atmosphere.

The character of daylight – its intensity, direction, and color – influences how spaces and objects are perceived. These parameters are well known from nature, such as when the sun changes direction, intensity and color throughout the day. Most humans know by heart how their surroundings change according to changes in light's character: for example, how spaces and objects shift character when clouds cover the sun, creating diffuse daylight where shadows are dissolved in a second. All of these details and atmospheres would have a significant mental impact to humans.
Emotional impact of architectural lighting

“Light and shadow reveal form.”
— LE CORBUSIER (1965) Textes et dessin pour Ronchamp

The Chapel of Notre-Dame-du-Haut, one of Le Corbusier’s later works, is in big contrast with his earlier buildings with daylight-flooded rooms. He created a church interior that had “the emotional appeal that is based on the shadowed dimness of indirect lighting, in which form is only vaguely revealed.” (STIRLING, J.1956, Ronchamp; Le Corbusier’s Chapel and the Crisis of Rationalism)

From rational to expression of emotion. Le Corbusier himself wrote to the client: “I have not experienced the miracle of faith but I have often known the miracle of inexpressible space, the apotheosis of plastic emotion”. (LE CORBUSIER,1954, Le Modulor and Modulor 2 [ENGLISH EDITION], p. 32).

Later, he was interested in “the effect of architectural forms and the spirit of architecture. In other words, he sought to evoke spiritual emotions through the play of form, space and light, and without recourse to any obvious church typology. (Le Corbusier – Oeuvre complete, Vol. 5: 1946-1952, p.88).
Use the direct light, adjust the contrast of light and dark in the building to make people feel exciting.
Wintergarden Façade

Studio 505

“The Wintergarden Façade is a radically experiential composition, a complex and beautiful study of nature, geometry and layering that communicates the rich diversity of life.”

As the position and strength of the sun changes from day to day and season to season so the folds, cuts and textures of the façade generate new patterns of highlights and shadows, and as night falls the lighting within the façade creates yet another reading. A low resolution integrated lighting system has been created that can change from a snowstorm through to the bursting of spring, into summer and finally into autumn, all within a single night. Rain, sunsets, storms and fireworks are other examples of the system’s expressive capabilities. In short, the façade is similar and different but never the same. As well as being functional the façade is also engaging and entertaining.
On a sunny day, this oculus resembles the flare of a star that can be attributed to a reference of Brother Klaus’s vision in the womb. The very somber and reflective feelings that become inevitable in one’s encounter with the chapel make it one of the most striking pieces of religious architecture to date. With no plumbing, bathrooms, running water, electricity, and with its charred concrete and lead floors, the seemingly uninviting chapel remains an anticipated destination for many.

“In order to design buildings with a sensuous connection to life, one must think in a way that goes far beyond form and construction.”
Distressing

Use a weak light in a dark environment in the building to make people feel distressing.
The interior is composed of reinforced concrete which reinforces the moments of the empty spaces and dead ends where only a sliver of light is entering the space. It is a symbolic gesture by Libeskind for visitors to experience what the Jewish people during WWII felt, such that even in the darkest moments where you feel like you will never escape, a small trace of light restores hope. One of the most emotional and powerful spaces in the building is a 66’ tall void that runs through the entire building. The concrete walls add a cold, overwhelming atmosphere to the space where the only light emanates from a small slit at the top of the space.

“The Jewish Museum is conceived as an emblem in which the Invisible and the Visible are the structural features which have been gathered in this space of Berlin and laid bare in an architecture where the unnamed remains the name which keeps still.”
Japan's Chemical Warfare Exhibition Hall

The Black Box is conceived by the architect specifically for the building. It represents a truth-recording container, which will disclose all the truth once being opened.

The concept of “Black Box” is basically an unearthing of the crimes committed by Unit 731. The incident was not exposed during the Tokyo Trial, and the atrocities came to people's knowledge gradually afterwards. The process is like finding the black box and restoring the accident after an air crash. So we hoped to use the concept of “Black Box” as a container from the beginning, and gradually unfold the dusty and hidden story to people and expose the Japanese crimes against humanity.

What we tried to express is not an angry mindset, instead, we hope to look at the whole issue from the standpoint of human civilization.
Gloomy

Use light rhythms to repeat or change to make people feel gloomy.
Our final road is uncertain. Neither church nor temple of the dead offer a model for the path to nothingness or angelhood. In lending shape to freedom and necessity, the intensity, the texture of a Maghreb mosque comes closest to meeting the task: a Piazza Coperta, a place in the middle of this cenotaph, where many can assemble and yet the individual is shielded; a catalyst for all our feelings.

The ceremonial halls are simply boxes of split stone, set open-fronted into a second, slat-steered casing of glass: the departed soul, the coffin, the urn has gone before already, into the realm of light, is at one now with the heavens, the clouds, the trees.

‘People die and they are not happy’ – architecture can’t change that. A place of rest, a space for silence: that is something it still manages to provide, despite the fact that not even stones are as heavy as they were in more solid epochs with a firmer belief in the eternal.
Berlin Memorial
Eisenman Architects

“The memorial evokes a graveyard for those who were unburied or thrown into unmarked pits, and several uneasily tilting stelae suggest an old, untended, or even desecrated cemetery.”

According to Eisenman’s project text, the stelae are designed to produce an uneasy, confusing atmosphere, and the whole sculpture aims to represent a supposedly ordered system that has lost touch with human reason. The memorial’s grid can be read as both an extension of the streets that surround the site and an unnerving evocation of the rigid discipline and bureaucratic order that kept the killing machine grinding along. It’s a place where people can grasp “what loneliness, powerlessness and despair mean.”
Use the reflection light under a darker environment in the building to make people feel relaxing.
The spatial diversity one experiences when walking through the arches different in span and height changes seamlessly from a cloister-like space filled with natural light, to the impression of a tunnel that cannot be penetrated visually.

The new library is a place where everyone can discover their style of “interacting” with books and film media as if they were walking through a forest or in a cave; a new place of arcade-like spaces where soft mutual relations form by simply passing through; a focal centre where a new sense of creativity begins to spread throughout the art university’s campus.
This space was designed for visitors to luxuriate and rediscover the ancient benefits of bathing. The fascination for the mystic qualities of a world of stone within the mountain, for darkness and light, for light reflections on the water or in the steam saturated air, pleasure in the unique acoustics of the bubbling water in a world of stone, a feeling of warm stones and naked skin, the ritual of bathing – these notions guided the architect. Their intention to work with these elements, to implement them consciously and to lend them to a special form was there from the outset.
3.3
COLOR PSYCHOLOGY
AND BUILT ENVIRONMENT
Color is the property possessed by an object of producing different sensations on the eye as a result of the way it reflects or emits light. (Oxford American College Dictionary)

Color psychology, the study of how color affects mood and behaviour. Different color gives out different wavelength of light, and stimulates different association and reaction by human brain when seen by human eyes. Hence, color has directly various effects on human sentiment.

Color plays an important role in the perception of a space in mind. Color can have many psychological effects on us. Using lighter shades makes space appear bigger while darker shades make the same appear smaller. Hence colours can be used appropriately to adjust the proportion of room. For example: For an extraordinarily large room, using dark color will make the room feel small and cozy.

Different colours represent different things, and sometimes can represent different things in different countries. Certain colours make objects seem lighter or heavier, large or small, near or distant, cool or warm and unity through color.
3.3.1 The Colour and Colour Psychology

There are four psychological primary colours RED, BLUE, YELLOW and GREEN. They relate respectively to the body, the mind, the emotions and the essential balance between these three. The psychological properties of the eleven basic colours are as follows:

RED
Red is the most dramatic, vital and exciting of the three primaries. Red is warm and welcoming and highly energising too.

**Negative:** However too much of red can induce aggression and violence.

**Red in interiors:** Red enlivens interior spaces by creating excitement, warmth and elegance and so is used in those areas where one needs excitement like bars.

BLUE
Psychologically, blue is associated with tranquility, peace and contentment. This must be because blue symbolises nature, the clear sky and pure water.

**Negative:** However, if used indiscriminately, it can produce strong feelings of melancholia and uneasiness and can be quite depressing.

**Blue in interiors:** Blue shades can be used for a restful or a bold effect. Pale blue has a calming effect and gives space to a room and can be used for lager areas. A darker blue will draw things closer and add depth.

YELLOW
It is a powerful color, both light in value and extremely intense in its purest from. It evokes a sense of energy and excitement and stimulates the brain.

**Negative:** Yellow is associated with fear, emotional fragility and anxiety.

**Yellow in interiors:** Yellow is a perennial favorite in interior design, combing with greens to provide natural freshness and red, richness.
GREEN

Green represents greeneries of nature and so generates a feeling of tranquility, peace and coolness in interiors. It is also believed to support intelligence.

**Negative:** Green is associated with boredom and stagnation.

**Green in interiors:** Green goes with every other color and thus makes it a natural neutral and a perfect background.

VIOLET

Violet is a color of emotional contrasts. Dark violets induce the impression of richness and reverence while its paler tints are unabashedly romantic and fragile.

**Negative:** Violet is associated with suppression and inferiority.

**Violet in interiors:** It was quite popular in the Victorian era and now is once again emerging as a popular choice in interiors.

PINK

Pink is delicate and soft and reflects joy, happiness and pure feeling essential for a happy life. Pink has an interesting quality that seems to halt the body's ability to stay angry.

**Negative:** Pink is associated with inhibition and physical weakness.

**Pink in interiors:** Pink blends wonderfully with greys, brown and sharp blues. Because pink is essentially a pastel, it should be used with a stronger color to highlight its pleasant tone.
BROWN

Earth and comfortable, brown ranges from the palest of cream-beiges to the deepest of chocolate brown. Browns are associated with ‘mother earth’ and so impart a sense of warmth and serenity.

Negative: Brown gives the impression of cheapness and stinginess in certain circumstances.

Brown in interiors: Wood furniture, doors and windows provide brown in a room. Because any brown tone is essentially warm, cool colours should be used as accents.

ORANGE

Orange color inspires spirituality as it represents transcendence and an otherworldly aspect of life—same reason spiritual people wear saffron robes.

Negative: Orange when used excessively, it can induce restlessness.

Orange in interiors: It is amazingly versatile, emitting great energy in its purest form. As an earth tone, it evokes warmth, comfort and reassurance.
WHITE

White symbolises purity. There is nothing that reflects natural light better than white.

Negative: White is associated with coldness, barriers, and unfriendliness.

White in interiors: Snow white wall and cabinets make a room sparkle. Wood and metal contrast with white and it highlights furnishings.

GREY

Grey is cool and contemporary. Ale grey pushes walls away to create space.

Negative: Too much grey can cause melancholy and depression.

Grey in interiors: varying in range from a light to medium value, grey is an elegant neutral.

BLACK

It is essentially an absence of light, since no wavelengths are reflected. Positively, it communicates absolute clarity. Black creates a perception of weight and seriousness.

Negative: Black is all colours, totally absorbed. It creates protective barriers, as it absorbs all energy and hides a person’s personality.

Black in interiors: Symbolises sophistication, glamour, security, emotional safety and efficiency.
Color
“Color is an integral element of our world, not just in the natural environment but also in the man-made architectural environment. Color always played a role in the human evolutionary process. The environment and its colors are perceived, and the brain processes and judges what it perceives on an objective and subjective basis. Psychological influence, communication, information, and effects on the psyche are aspects of our perceptual judgment processes. Hence, the goals of color design in an architectural space are not relegated to decoration alone.”

------Frank H. Mahnke

Color is a visual experience that subconsciously affects individuals' functions and emotions. The human response to color is based upon one's perception of behavioural aspects that are controlled by the brain. The study of color is a complex subject composed of various theories. Many experiments have been conducted to prove that color is indeed an influential factor composed of both subjective and objective aspects. Color affects individuals differently based upon their gender, age, culture and other biological factors that are explored throughout this exploration.

Throughout history, ancient scholars used color to solve mysteries among their time. Sometimes portrayed as symbolic or magical, color has been used in healing practices dating as far back to the Egyptian period. It was not until the late 19th century that color would begin to be practiced in healing again. By considering color in design, it allows designers to create a mood within a space that tells a story and leaves an emotional impact on each individual.
Vasily Kandinsky’s paintings have been exploring the relationship between color and observers. He avoids the cubism of grey, brown and black, mainly using bright colours to express. The practice of his paintings is to capture "music" through shadows and tones in plastic media, bringing the same feeling of a piece of music and letting people "listen" to painting. His color theory is used in a variety of creative fields, and the Dutch style movement has been extended to industrial design and architecture. Kandinsky explained the feelings, emotions and the "sounds" it creates in each shade of the color wheel. Here are some examples of color theory in Kandinsky’s book The Spirit of Art, sorted according to the color of the rainbow.
Use the warm color, like red, orange and yellow, improve brightness and purity to make people feel exciting.
Red: Symbolizes lively, unsettled, confident, hard-working. "Male maturius" toward a goal. Transformed into "sound": powerful and powerful horn sound, violin sound.

The red colour is a symbol that makes them visible... that robs us of prejudice... that emphasizes the social work... makes us more sexy! The material... the shape of this whole "scene" had to be modelled nobly! Façade and roof are covered with red zinc coated sheet. Historically, these centres, known as asylums were unrecognizable and hidden by society. But Hospital, "hospitare" in Latin, means "to receive as a guest" and together with the values of the Congregation and its founder, "Hospitality between people who suffer mental impairment" and "integrating the patients into society as far as possible" where the main goals...
The building in which ArcelorMittal develops new and more efficient ways to produce this material must communicate solely through its external appearance the primary, metal-oriented purpose of its activity. An existing building, rational, symmetric, with a heavy architecture, heavy concrete walls and brick facades, that have been already extended in the 70’s. The front facade, where brick and concrete predominated, has acquired a new metal fascia. ArcelorMittal’s corporate colours, dark grey and orange, now predominate.

Orange: a mixture of red and yellow; radiant, healthy, and serious; Converted to “sound”: the middle of the church bell, the second treble.
In Falcón the main house of a walled-in existing residential complex was completely renovated and became a yellow glass box floating in the garden with interstitial landscaping behind its facade and strategically framed views to the outside. It conceptualized as an extension of the garden itself so that it would complement the main building and preserve its green views; visual connection between interior and exterior was emphasized.
Dim colors are calming and suppressing emotions, such as grey, or the color with lower lightness and purity.
The interior is composed of reinforced concrete which reinforces the moments of the empty spaces and dead ends where only a sliver of light is entering the space. It is a symbolic gesture by Libeskind for visitors to experience what the Jewish people during WWII felt, such that even in the darkest moments where you feel like you will never escape, a small trace of light restores hope.
The color between cool and warm colors which makes people feel gloomy and mysterious, it is purple.
Purple: a mixture of red and blue, "morbid, eliminate sadness"; Converted to "sound": mid-range oboe, bass tube

We expect that this landscape architecture will coexist with the surrounding context for a long time, as if a small purple hill...

Merit = site plan faced to evergreen mountain=Demerit=Facing not south but northwest=Lack of southern sunlight.From agony about the direction to which major living space see, the plan of this house started. After all, the direction to the opposite mountain that will be preserved in the natural green space forever was selected.
The best psychological sedatives that nature gives to humans such as blue and green, which make people feel relaxing and calm.
123 Social Green Housing

SOMOS Arquitectos

The building’s exterior is clad in plastic panels on aluminium frames, in three shades of green. The building poses reflections dealing with the scale reduction, bringing a friendly relation with the surroundings. The facade is split into small coloured units that are combined with each other and are able to transmit a changing sensation, a dynamic chameleon-like skin.

Green: Calm, but hidden with negative energy. “Green is like a very healthy cow lying still, only chewing food, observing the world with dull eyes”

Converted to "sound": a smooth elongated violin
Didden Village

MVRDV

Blue: deep, restrained, supernatural, peaceful. "Blue implies sadness, it is not the color of the world, but should belong to heaven." Transformed into "sound": flute, cello, organ.

The ‘village’ is enclosed by a parapet with windows that offer views of the street. Trees, tables, open air showers and benches added, optimising the rooftop life. By finishing all the elements with a blue poly-urethane coating a new heaven appears.

“The addition can be seen as a prototype for a further densification of the old and existing city. It adds a roof life to the city.”
Although color as an objective existence has nothing to do with human cognition, human vision accepts color and combines color with some kind of psychological cognition.
La Muralla Roja
Ricardo Bofill

"the geometric basis of the layout is also an approximation of the theories of constructivism, and makes La Muralla Roja a very clear evocation of these."

La Muralla Roja, Spanish for 'The Red Wall,' is a housing project located within the La Manzanera development in Spain’s Calpe. The building makes clear references to the popular architecture of the Arab Mediterranean Area, a result of the architects’ inspiration by the Mediterranean tradition of the casbah. The striking colors that cover the outer and inner facades are selected to either contrast with nature or complement its purity.
3.4 SMELLING PSYCHOLOGY AND BUILT ENVIRONMENT
The smell of mammals is the most developed of all its senses. In the history of animal development, the earliest Smelling was developed. After many years of its development, vision and hearing began to appear.

The sense of smell can only perceive different scents within a very limited range. Only within a distance of less than one meter can we smell weaker odors from other people's hair, skin and clothes. Perfume or other more concentrated smells can be felt from 2--3 meters away. Above this distance, people can only smell very strong scents.
3.4.1 The Smelling and Smelling Psychology

THE ADAPTABILITY OF SMELLING

The sense of smell is more obvious than any feeling. “Into one room full of flowers, stay a long time without smelling the incense; into the seafood shop, stay a long time without smelling the fishy smell,” which is the reason for adaptation.

Smell triggers some of the most powerful emotional responses and can cause some of our most visceral responses. Just as people have “voice signatures,” people also have “smell signatures.” Take Body Scent as an example. Everyone has its own special body scent, but the strengths and weaknesses are different and also vary with age. Infants, young children, adults and elderly people each have their own special scents; for example, infants often carry the smell of oleic acid, the elderly bring the smell of withered leaves. Sometimes we can identify the age from body scents.

THE EMOTIONAL REACTIONS OF SMELLING

Smell is pervasive as we constantly breathe, to the extent that we have to switch off from many of the smells our noses detect. Because of this, says Victoria Henshaw, author of Urban Smellscapes: Understanding and Designing City Smell Environments, “We frequently don’t appreciate the contribution smells make to everyday experiences of places and buildings.”

Of all the human senses, the process of smelling takes the longest to reach the brain, and once you do smell, the smell lasts longer than other senses. This leads to the assumption that smell and memory are linked in different ways as compared to the other senses; and this is an important differentiation.

Smell has the ability to have such a strong an effect on our experiences because it is processed in the Smelling cortex of the brain’s limbic system, close to the area in which emotions, memories, and feelings are stored. The sense of smell can deepen people’s understanding of the environment. Different scents can also arouse people’s memory of specific places.

The smelling used as an adjunct recognition with the environment. A special scent allows people to re-enter a space that has been completely erased from visual memory. For example, the scent of a candy store reminds people of an imaginary childhood; although the visual image of a small town may not be distinctive, but the tempting aromas of various snacks along the street are deeply impressed by passing memories. Flowers are the best souvenirs because its aroma evokes its former life. When a flower is seen at home, on campus, or elsewhere, it will be recalled after years of seeing it smell it. Even seeing the same flower elsewhere, or smelling the same smell, can also recall the past.
MEDICAL CHARACTERISTICS OF SMELLING

With the continuous development of medicine, the medicinal value of aromatic plants has gradually been paid much more attention. People find that different aromas have different effects on different organs of human beings, and aromatic medicine is increasingly accepted by people.

Recent studies have shown that aromatic plants have a significant effect on Alzheimer's disease. Medical workers believe that the fragrance of flowers stimulates the parts of the back of the nose and the brain that are in contact. This part of the body remembers the Smelling stimuli during childhood, which allowed the brain to move and significantly improve the symptoms of Alzheimer's disease. The application of aromatic plants is conducive to expanding the space for people with disabilities.

Also it has been proven through a number of studies that fragrance has an effect on a person's mood. According to the Smell Report, their have been tests done with odourless placebos where subjects were told that despite the fact that they could not smell any fragrance, pleasant scents had indeed been administered. In the placebo test, the subjects' moods were altered positively a bit, however, when subjects could actually smell a pleasant fragrance, the positive effects on their mood were far greater.

The reason why aromatic scents has the function of treating diseases is because:

A. Psychological Effects

Elegant fragrance, refreshing scents which can increase the excitability of nerve cells, giving people a pleasant feeling, so that the mood is improved, eliminate fatigue and regulate the immune system.

B. Regulating Nerves

Some scent can regulate the nerves, promote the secretion of healthy hormones and other body fluids to release enzymes, acetylcholine and other physiologically active substances, improve the human nervous system, secretion system, etc., so that to achieve the coordination of systemic organ function.

C. Medicinal effects

The volatile oil of many aromatic plants has its own pharmacodynamic effect. The aromatic oil molecules have the same exact functions as the pharmacologically active substances. They can be absorbed by the body and transferred into the bloodstream and have a significant effect on the human body.
“There was a time when I experienced architecture without thinking about it. Sometimes I can almost feel a particular door handle in my hand, a piece of metal shaped like the back of a spoon, I used to take hold of it when into my aunt’s garden. That door handle still seems to me like a special sign of entry into a world of different moods and smells. I remember the sound of the gravel under my feet, the soft gleam of the waxed oak staircase, I can hear the heavy front door closing behind me as I walk along the dark corridor and enter the kitchen, the only really brightly lit room in the house. [...] Memories like these contain the deepest architectural experience that I know. They are the reservoirs of the architectural atmospheres and images which I explore in my work as an architect.”

----------ZUMTHOR, P.
Thinking Architecture (2005)

3.4.2 The Architectural function of Scents

Architecture and its environment move us, they caused different emotions. They can bring back memories, but they can also cause direct emotions, like letting you feel small or big, or give us a save feeling or an unsafe one. Architecture is sometimes even able to bring us in a spiritual mood. But the same space can make someone feel calm and another person would maybe feel uncomfortable or even unsafe there, still most of the people feel small in a big gothic church and unsafe in a dark alley at night. Architectural spaces have certain atmospheres which influence the emotional state of a person; the interaction between the environment and its occupant.
THE SCENT CAN MARK THE PLACE

The scent can be used to “tag” objects and places and accordingly build associations and habits. It can facilitate a higher sense of symbolism and personalisation of design, as in a more direct and human connection to meaning, symbols, and personal histories.

A common strategy big brands follow is using a signature scent as their brand identifier. These companies take full advantage of sensory design by scenting their spaces with aromas that represent their brand and appeal directly to their target market.

THE SCENT CAN GUIDE BEHAVIOUR

Smell offers a type of way-finding that not only becomes part of our experience of a space, but also serves to prompt or guide behaviour within that space. A smell can act as a boundary which signals what lies ahead, or what has just been experienced. Often, it is smell that can evoke a powerful memory — to emotionally reconnect us with our past experiences. Yet, the vocabulary to describe different smells is not very diverse, thus making Smelling information a bit invisible and intangible.

Eric Spangenberg, a consumer psychologist and academic, and his colleagues found that once feminine scents—such as vanilla—were released, women’s sales doubled. Similar were the effects on men when more masculine smells were released, such as Rose Maroc. According to Spangenberg, “Men don’t like to stick around when it smells feminine, and women don’t linger in a store if it smells masculine.”

Scents are such an important part of a consumer’s experience that there are firms which specialise specifically in scent marketing, such as Scent Air, which help businesses conquer the art of perfectly scenting spaces that aid in the company’s growth.

THE SCENT CAN ENHANCE THE VISUAL

The scent can play a more emotional, expressive, and even functional role in our everyday lives. Since our associations with scent are incredibly strong and cognitively bonded with memory, scents might open up new ways to learn and remember. Becoming more alive to scents will also add texture, depth, and richness to our everyday experiences, if we can find ways to incorporate them that move beyond air fresheners and analogs of natural scents.

Although some retail store owners will argue that they like to concentrate on visual elements, ambient scenting offers a number of proven benefits to retailers. Customers browse longer in stores where pleasant fragrances are diffused, increasing the chances of a purchase. Also, when scents that boost a fun and inviting environment are added, the shopping experience becomes memorable and the shopper’s perspective of the store is affected positively.

Gemma Hopkins, fragrance expert and founder of Design in Scent suggests that “when you choose which home fragrances to use, consider how it will harmonise with its surroundings and ensure it complements the mood that you have curated through visual design.” Scents should be incorporated with already existing home fragrances in mind. Fresh and clean fragrances best complement kitchen spaces; soothing, warm scents can be beautifully incorporated in the bedroom to create a relaxing ambiance; heady florals find a good home in any powder room, as small spaces can be nicely treated to fresh scents; and clean fragrances are the most desired choice for living rooms.
3.4.3 Aromatic Plants and Effects

Aromatic plants can be divided into herb plants, fragrant plants, fragrant wood plants, and fragrant fruit plants according to the different aromatic parts. Herbaceous plants refer to plants that are aromatic in the whole plant of herbs. The "vanilla" mentioned in the herb gardens and herb gardens abroad is the collective name for a part of the plants in the aromatic plants. It generally refers to herbaceous aromatic plants that have functions such as appreciation, edible drinking and medicinal use, and also includes some shrubs. Sub-shrubs, aromatic plants, for example: Lavandula pinnata, Ocimum basilicum, Rosa rugosa.

The aromatic plants used in Chinese classical gardens are more of fragrant plants, that is, various flowering plants with fragrant odor, including not only herbaceous plants, shrubs, but also many trees, for example: Magnolia denudata, Chimonanthus praecox, Osmanthus fragrans. Also there has some plants which have fragrante fruits, like Mangifera indica, Citrus sinensis, Vitis vinifera, Citrus limon, and most of them is edible, and people can improve their mood by smelling during the process of picking and tasting. Fragrant woody plants refer to woody plants where branches can emit aromatic odors. Many aromatic woody plants are valuable furniture materials, such as Symplocos paniculata, Phoebe zhennan, Cinnamomum camphora.
Aloe vera can absorb formaldehyde, carbon dioxide and sulfur dioxide. Harmful substances such as carbon monoxide. Aloe vera can also kill harmful microorganisms in the air and absorb dust, which has a great effect on purifying the living environment.

A. PURIFYING THE AIR

As we all know, plants can release oxygen and absorb carbon dioxide through photosynthesis. Many plants can also absorb some harmful gases, adsorb dust in the air, and also have ecological functions such as noise reduction and sound insulation, temperature and humidity regulation, and urban heat island effect alleviation. On the other hand, plants can increase the concentration of negative ions in the air. Negative ions in the air can effectively improve the body’s cellular immunity and humeral immunity, so as to achieve treatment and health functions such as fatigue elimination and physical recovery. Many plants can also secrete bactericidal substances, which can purify the air by inhibiting the growth of bacteria. Aromatic plants not only have the above advantages, but also can release volatile aromatic substances that are beneficial to the human body. They are excellent plant materials that create a clean fragrance and clean living environment. The combination of aromatic plants and water landscapes can greatly improve the quality of air. Aromatic plants directly affect the improvement of the ecological environment, providing people with a good living environment, indirect health and positive impact on the human body.
Ocimum basilicum is mainly used as a mosquito to repel mosquitoes, and its aroma enhances an open mind and improves clarity.

B. CREATING A GOOD ECOLOGICAL ENVIRONMENT

The role of aromatic plants in creating a good ecological environment is not only to purify air but also to release odors from plants such as Mentha spicata, Ocimum basilicum, and Rosmarinus officinalis. On the other hand, the aroma emitted by aromatic plants has the effect of attracting insects such as bees and butterflies to pollinate them; the fruits of aromatic plants and the insects they attract are also food for many birds. The creation of a good ecological environment through aromatic plants is an effective means to realise the garden landscape of birds' flowers and flowers.
### The ecological role of common aromatic plants

<table>
<thead>
<tr>
<th>Name</th>
<th>Aromatic Part</th>
<th>Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Magnolia denudata</em></td>
<td>flower</td>
<td>Strong resistance to smoke and dust, drive away mosquitoes</td>
</tr>
<tr>
<td><em>Gardenia jasminoides</em></td>
<td>flower</td>
<td>Absorption of sulfur dioxide</td>
</tr>
<tr>
<td><em>Osmanthus fragrans</em></td>
<td>flower</td>
<td>Absorbing mercury vapour, absorbing soot, inhibiting the growth</td>
</tr>
<tr>
<td><em>Chimonanthus praecox</em></td>
<td>flower</td>
<td>reproduction of bacteria, and purifying the air</td>
</tr>
<tr>
<td><em>Syringa oblata</em></td>
<td>flower</td>
<td>Absorb mercury vapor and absorb soot</td>
</tr>
<tr>
<td><em>Matthiola incana</em></td>
<td>flower</td>
<td>Strong ability to purify air</td>
</tr>
<tr>
<td><em>Ocimum basilicum</em></td>
<td>whole plant</td>
<td>It can inhibit the growth and reproduction of bacteria and achieve</td>
</tr>
<tr>
<td><em>Mentha spicata</em></td>
<td>whole plant</td>
<td>the effect of purifying the air</td>
</tr>
<tr>
<td><em>Cymbopogon Citratus</em></td>
<td>whole plant</td>
<td>The fragrance is overflowing and has the effect of repelling</td>
</tr>
<tr>
<td><em>Acorus calamus</em></td>
<td>whole plant</td>
<td>mosquitoes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Repel mosquitoes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Strong biocide effect</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Can be used as a spice or to drive mosquitoes</td>
</tr>
</tbody>
</table>
C. ADJUST EMOTION

The influence of odor on people's psychological and spiritual state is enormous. For example, when we smell the delicious aroma of food, we immediately feel that the appetite is wide open, people are subconsciously caused by positive emotions and other positive emotions; smell the smell when Will frown, cover your nose and mouth, nausea, and negative emotions. We can feel more environmental factors through odors, and expand our associations to obtain more than “seeing”. People suffer from emotional stress in many ways, such as rapid heartbeat, insomnia, headache, nausea, skin irritation, body aches, irritability, anger, depression, etc. Therefore, choosing a suitable way to give emotional decompression is very common in modern life. The necessary part, while aromatic plants and aromatherapy is such a safe and effective means of supplementing and replacing medical care.

Mint aroma can regulate mood, reduce stress, remove irritability, concentrate, and mint can relieve headaches and help to sleep.
<table>
<thead>
<tr>
<th>Name</th>
<th>Aromatic Part</th>
<th>Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citrus figo</td>
<td>fruit</td>
<td>Exciting</td>
</tr>
<tr>
<td>Origanum majorana</td>
<td>flower</td>
<td>Improve headaches and soothe your mind and body</td>
</tr>
<tr>
<td>Matthiola incana</td>
<td>flower</td>
<td>Give people a feeling of hearty and happy</td>
</tr>
<tr>
<td>Michelia x alba</td>
<td>flower</td>
<td>Relieve boredom and depression, make people feel good</td>
</tr>
<tr>
<td>Rosmarinus officinals</td>
<td>whole plant</td>
<td>Good promotion of imagination</td>
</tr>
<tr>
<td>Mentha haplocalyx</td>
<td>whole plant</td>
<td>Refreshing</td>
</tr>
<tr>
<td>Narcissus Pseudonarissus</td>
<td>flower</td>
<td>Can increase the excitability of nerve cells, improve mood, eliminate fatigue, make people feel clear-headed</td>
</tr>
<tr>
<td>Pelargonium hortorum</td>
<td>flower</td>
<td>Calm nerves, eliminate fatigue, promote sleep</td>
</tr>
<tr>
<td>Lavandula pinnata</td>
<td>flower</td>
<td>Lower blood pressure, relax calm, promote sleep</td>
</tr>
<tr>
<td>Perilla frutescens</td>
<td>whole plant</td>
<td>Relieves nerve discomfort and regulates heart depression caused by intense fear</td>
</tr>
<tr>
<td>Melissa Officinalis</td>
<td>whole plant</td>
<td>Eliminate fear and relieve intestinal cramps</td>
</tr>
</tbody>
</table>
D. HEALTH & BEAUTY

The beauty and health functions of aromatic plants were first recognised and developed by people. In ancient literature, there are many records of women using various aromatic plants to make cosmetic skin and beauty. Nowadays, many of the artificial chemical ingredients in cosmetics, although they have strong whitening and skin rejuvenation, have a great impact on the fragile skin of modern urban people. People gradually realise the beauty and health effects of aromatic plants which is effective and excellent security. In addition, the beauty and health effects of aromatic plants can be realised not only through cosmetics, but also through other methods such as fumigation, bathing, hot compress, massage, tea, food, etc., such as facial masks, massage oils, and herbal teas. Flower cakes and dried flowers and sachets.

_Calendula is rich in vitamins, especially vitamin A and vitamin C, which can prevent pigmentation, increase skin's luster and elasticity, slow down aging, and avoid sagging skin._
The beauty and health effects of common aromatic plants

<table>
<thead>
<tr>
<th>Name</th>
<th>Aromatic Part</th>
<th>Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rosmarinus officinalis</td>
<td>whole plant</td>
<td>Anti-oxidize effect</td>
</tr>
<tr>
<td>Cymbopogon Citratus</td>
<td>whole plant</td>
<td>With the aroma of lemon, drink tea</td>
</tr>
<tr>
<td>Rosa rugosa</td>
<td>flower</td>
<td>Whitening and rejuvenating, drinking tea</td>
</tr>
<tr>
<td>Matricaria recutita</td>
<td>whole plant</td>
<td>Antibacterial anti-inflammatory</td>
</tr>
<tr>
<td>Cymbopogon citrat</td>
<td>flower</td>
<td>Calms skin, heals and promotes metabolism</td>
</tr>
<tr>
<td>Hamamelis mollis</td>
<td>whole plant</td>
<td>Helps sleep, relieves inflammation and pain</td>
</tr>
</tbody>
</table>

*Convergence, calm skin*
E. MEDICAL EFFECTS

"Aromatherapy" using aromatic plants is a safe and effective medical aid. In recent years, more and more medical institutions have been recognised and clinically applied. Aromatic plants cannot only be used to treat diseases through inhalation, but can also be processed through massage, sticking, fumigation, foot-bath, nasal drops and other methods.

Lavender is an aromatic plant that has been widely used to improve the symptoms of insomnia.
<table>
<thead>
<tr>
<th>Name</th>
<th>Aromatic Part</th>
<th>Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Lonicera japonica</em></td>
<td>flower</td>
<td>Clear heat table, anti-inflammatory</td>
</tr>
<tr>
<td><em>Osmanthus fragrans</em></td>
<td>flower</td>
<td>Evacuate stomach cold, calm liver, eliminate fatigue, relieve depression</td>
</tr>
<tr>
<td><em>Jasminum sambac</em></td>
<td>flower</td>
<td>Stagnation, moderate effects, relieve headaches, nasal congestion and other symptoms caused by colds, have the role of disinfection and sterilization</td>
</tr>
<tr>
<td><em>Ageratum conyzoides</em></td>
<td>flower</td>
<td>Treatment of colds, fever, traumatic bleeding, burns, etc.</td>
</tr>
<tr>
<td><em>Matthiola incana</em></td>
<td>flower</td>
<td>Conditioning the respiratory tract, bronchitis</td>
</tr>
<tr>
<td><em>Peplis frutescens</em></td>
<td>whole plant</td>
<td>For cold, cold, headache, cough</td>
</tr>
<tr>
<td><em>Thymus mongolicus</em></td>
<td>whole plant</td>
<td>For colds, coughs, headaches, toothaches, indigestion, acute gastroenteritis, hypertension</td>
</tr>
<tr>
<td><em>Cymbopogon Citratus</em></td>
<td>whole plant</td>
<td>Prevent various infectious diseases, cure stomach pain, diarrhea, headache, fever, influenza</td>
</tr>
<tr>
<td><em>Herba Allii Schoenoprasi</em></td>
<td>whole plant</td>
<td>Treatment of cold, headache, external application of dampness, redness, gout, sore</td>
</tr>
<tr>
<td><em>Glycyrrhiza uralensis</em></td>
<td>whole plant</td>
<td>Detoxification, relieving cough and sputum</td>
</tr>
<tr>
<td><em>Menta haplocalyx</em></td>
<td>whole plant</td>
<td>Dispelling phlegm, relieving swelling, relieving itching, relieving cough, relieving asthma, relieving cough</td>
</tr>
<tr>
<td><em>Salvia farinacea</em></td>
<td>whole plant</td>
<td>Eliminate body oils, help circulation, antiseptic, antibacterial, antiinflammatory, relieve headache and neuralgia</td>
</tr>
</tbody>
</table>

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Smell
Victoria Henshaw, author of Urban Smellscape: Understanding and Designing City Smell Environments, “we frequently don’t appreciate the contribution smells make to everyday experiences of places and buildings.”

Traditionally in the area of architecture, smell is just considered as ventilation system in kitchen or building commercially like something unpleasant, problematic element that need to be managed technically.

However, smell triggers some of the most powerful emotional responses and can cause some of our most deep emotional responses. It is so important that it also subconsciously influence the emotional and memorial center of the brain. It has such a potentiality to change our way to sense architecture.
As the Social Issues Research Centre finds, “…the actual smell can have dramatic effects in improving our mood and sense of well-being.” Pleasant smells even heighten our perception of people’s attractiveness, and a product’s effectiveness.

The impact of smell on how a person feels is strong; as Theresa Molnar, the executive director of the Smell of Sense Institute, comments, “Scents can have positive effects on mood, stress reduction, sleep enhancement, self-confidence, and physical and cognitive performance.”

Today, with a growing emphasis on designing buildings with all five senses in mind, there is a renewed focus on the power of smell and how it can positively contribute to our experience of a building.

It’s a new opportunity for architects to carefully consider the certain smells in architectural design.

Of course, the materials used for a building, its fittings and furnishings also contribute to smell. Timbers like oak, pine and cedar all issue their own unique smell, as do materials like terracotta, leather, and somewhat surprisingly, concrete.
As Jonathan Foyle says in his article *Scent of a Building*, “smell is intrinsic to the personality of a place.”

When used in combination with other sensory elements, smell can play a central role in creating a specific atmosphere within architectural. The considered and creative use of smell can generate new opportunities to create buildings and spaces that delight and satisfy all of our senses.
Smells can make or break a space.

Odor is actually a major reason why people complain about an indoor environment, nobody likes to talk about it much when it comes to building design. Smells within a building can either be good, bad or simply natural. Plus, after being in a space for a longer time, you may actually stop smelling a particular odor that was pungent when you first came in.

We design for someone’s sense of smell particularly when everyone interprets smells differently.

We all know that a gym smells different from an office that can also smell different from a classroom.
When designing an environment, we could consider what the “smell journey” will be like for the occupants. We can spend more time on the sense of smell. Improve our design on sense of smell in order to make architecture push occupants at deeper levels by using smell to evoke emotion.
A fresh smell can stimulate the nervous system to make people feel exciting.
The market is one of the most dynamic and lively places in the city. Barcelona’s Santa Caterina market is located in the axis of symmetry of the main church of Barcelona. Fresh fruits, vegetables, meat and seafood are sold in the market, and all the flavors are mixed together to create an active atmosphere. The strong taste of ham and the freshness of fresh fruits and vegetables are not only a symbol of high quality but also a taste of sweet life.

The inspiration and colour of the design comes from the colorful fruits and vegetables placed on the stalls in the market.
A smell can cause sad memories to make people feel distressing and melancholy.
Churches, cemeteries, or other religious ceremonial buildings, because of their special architectural environment, will evoke sadness and melancholy in people’s hearts. The smell of dryness, dust, gradually wilting flowers, food for sacrifices, and burning candles reminds people of the sadness of their relatives and friends.

In the building of Rossi, the red earth facade and the pure reinforced concrete inside also bring a calm and solemn atmosphere.

"the question of the fragment in architecture is very important since it may be that only ruins express a fact completely... I am thinking of a unity, or a system, made solely by reassembled fragments.”
Water often brings inner peace, and aquatic plants often have unusual fresh aromas. In the process of entering the water temple, along with the fragrance of the lotus, the olfactory memory of the venue is strengthened. The combination of water and aquatic plants creates an environment of calm, contemplation and meditation that calms people's excitement, but at the same time deepens the already depressed.
Use the reflection light under a darker environment in the building to make people feel relaxing.
Water is an integral part of the design of the architectural olfactory environment and an important part of aromatherapy. Aromatic plant essential oils, through massage, sauna and bathing, have active ingredients that penetrate into the skin or enter the body through the respiratory tract.

Therme Vals is designed with the impact of the water environment in mind, not only for the visual and auditory experience, but also for the sense of smell.
3.5 ACOUSTIC PSYCHOLOGY AND BUILT ENVIRONMENT
Acoustics, from the Greek acoustics and meaning that which pertains to hearing, now refers mostly to the behaviour of sound waves (vibrations) in solids, liquids, or gases. Listening is not required, and may not even be possible, for underwater, ultrasonic, or high-pressure acoustics. The adjective aural, which parallels visual, refers exclusively to the human experience of a sonic process; hearing, to the detection of sound; and listening, to active attention or reaction to the meaning, emotions, and symbolism contained within sound.
3.4.1 The Acoustic and Acoustic Psychology

Sound can affect people’s mood through many ways.

**The first is physiological.**

Take the alarm clocks ring as an example, when you hear the sound, just like someone gave you a shot of cortisol, you fight-flight hormone. Sounds are affecting your hormone secretions all the time, but also you’re breathing, heart rate and your brainwaves. It’s not just unpleasant sounds like that that do it.

This is surf. (Ocean waves) It has the frequency of roughly 12 cycles per minute. Most people find that very soothing, and, interestingly, 12 cycles per minute is roughly the frequency of the breathing of a sleeping human, so there is a deep resonance with being at rest. We also associate it with being stress-free and on holiday.

**The second is psychological.**

Music is the most powerful form of sound that we know that affects our emotional state. (Albinoni’s Adagio) This is guaranteed to make most of you feel pretty sad if I leave it on. Music is not the only kind of sound, however, which affects your emotions.

Natural sound can do that, too. Birdsong, for example, is a sound which most people find reassuring. There’s a reason: over hundreds of thousands of years we’ve learned that when the birds are singing, things are safe. It’s when they stop you need to be worried.

**The third is cognitively.**

You can’t understand two people talking at once (Voice-over) or in this case, one person talking twice. You have to choose which one you’re going to listen to. We have a very small amount of bandwidth for processing auditory input, which is why noise like office noise is extremely damaging for productivity. If you have to work in an open-plan office like this, your productivity is greatly reduced. And whatever number you’re thinking of, it probably isn’t as bad as this-Open-plan offices productivity down 66%. You are one-third as productive in open-plan offices as in quiet rooms. I have a tip for you: if you work in spaces like that, carry headphones with you, with a soothing sound like birdsong. Put them on, and your productivity goes back up to triple what it would be.

**The fourth is behaviourally.**

The fourth way in which sound affects us is behaviourally. With all that other stuff going on, it would be amazing if our behaviour didn’t change. If you ever going to drive at a steady 28 miles per hour, you may move away from unpleasant sound and towards pleasant sounds. So if you exposed with the sound of Jackhammer, for more than a few seconds, you’d feel uncomfortable; for more than a few minutes, you’d be leaving the room in droves.

For people who can’t get away from noise like that, it’s extremely damaging for their health. And that’s not the only thing that bad sound damages. Most retail sound is inappropriate and accidental, even hostile, and it has a dramatic effect on sales. Inappropriate retail soundscapes sales down 28%. They’re losing up to 30 percent of their business with people leaving shops faster, or just turning around at the door. We’ve all done it, left the area, because the sound in there is so dreadful.

Music is the most powerful sound there is, often inappropriately deployed. It’s powerful for two reasons: you recognise it fast, and you associate it very powerfully. Most of you associate that with something! Now, those are one-second samples of music. Music is very powerful, and unfortunately, it’s veneering commercial spaces, often inappropriately.
Sound
“Can architecture be heard? Most people would probably say that as architecture does not produce sound, it couldn’t be heard. But neither does it radiate light and yet it can be seen. We see the light it reflects and thereby gain an impression of form and material. In the same way we hear the sounds it reflects and they, too, give us an impression of form and material. Differently shaped rooms and different materials reverberate differently.” ----Experiencing architecture “Hearing Architecture” (Ch. X), Steen Eiler Rusmessen

"Hearing Architecture" (Ch. X) is a brilliant introduction to buildings and sound and also the effect of architecture on church music, specifically how building styles led to the change from monotony to polyphony (single melody to multiple melody). This chapter remind me of my old friends in my hometown who is blind, and I suddenly realized why he seems know all the spatial condition without seeing it. The chapter opened my mind so much.
Sound reveals invisible secret about the space through echo and reverberations. Those non linear physical process articulate the space along a dynamic and continuous medium and the geometrical space suggested by echo and reverberation not longer deals with Euclidean but with Multidimensional spaces. In this work, the conception of 'Space' explores structurally and visually the dynamic process engaged in a huge architectural volume (the Byzantine Saint Mark’s basilica in Venice) by reflections of the acoustic rays produced by a polyphonic song and the following transcription of reflections phenomena into geometric parameters and shapes.
This process enhances how the same acoustic phenomenon distorts the architectural space creating “ghost-spaces”. These “unreal” spaces will exist even beyond the physical limits of real architecture. As a consequence this doubling process will destroy the spatial identity (perceptive level) as well as the centrality role of the subject (existential level). The space and the Ego will dissolve into a new geometrical and psychological pattern, mutable, dynamic and elastic.
Use the cheerful melody, faster rhythm to make people feel exciting.
A series of polyethylene tubes of different diameters run along the inside surface of each flight of steps, connecting the submerged part with a gallery that runs along beneath the parade. With the variable force of the waves, the water penetrates the lower end of the tubes and is carried into the subterranean gallery, which collects it and returns it to the sea. In this process the air of the interior of the conduits is pushed to orifices that connect the gallery with the surface of the parade, generating sound vibrations which, given the variations in the diameter and length of the tubes, cover a broad range of musical tones.
Use interval syllables to repeat the same piece of music to make people feel distressing.
Many prayers who can't get away, or stroking the wall with their hands, are like stroking the wounds of the Jewish people for thousands of years; or whispering the verses to remember the history of national glory; or stuffing papers with prayers Between the walls and the stone, it seems that you can pass your wish to God. After thousands of years of wind and rain and the touch of pilgrims, the stone of the Wailing Wall is also glowing, such as crying.

Wailing Wall

The Wailing Wall is the spiritual home of the Jewish people who have been displaced since 2000. It is also the most sacred place in the Jewish mind.
Use sad tone, melancholy melody to repeat or change to make people feel gloomy, such as blues.
When thinking of metro stations, the word quiet generally doesn’t come to mind—with all of the train and pedestrian traffic, not only is noise produced in high quantities, but it is also echoed.

Through the use of three-dimensional panels in pyramid and prism shapes, the walls and ceilings of the station act as acoustic and sound absorbing elements, preventing sound waves from bouncing and creating echoes.

But extreme silence can sometimes have counter-effects, worrying about breaking the silence and causing people's inner uneasiness, or negative emotional reactions.
Use the soothing and natural sounds to make people feel relaxing.
Concert halls, cathedrals and art museums are designed with acoustics in mind. But these tend to be structures we visit — we’re there for a performance, a sermon or an exhibit and then we leave. It’s the buildings we inhabit for the longest periods of time that are often sorely lacking when it comes to acoustics.

While designing the Southwest Washington Medical Center, NBBJ spent a lot of time on controlling noise that disrupts patients, providing places of solitude but also places where sound is masked. They also created a garden for staff intended to provide a space to decompress.

“There’s a lack of enlightenment about caring about sound. Sound gives you information about how someone cared about what they put together; but this is a visually dominated society” and sound is often overlooked in design.
3.6
TOUCHING PSYCHOLOGY
AND BUILT ENVIRONMENT
Touch, which is one of the Stimulus as we discussed about before, is possibly the least considered sense when it comes to designing buildings. It's easy to underestimate how much of our tactile experience makes up our general awareness and memories.

Biologically, touch is defined as a combination of sensory experiences; temperature, texture, pressure and the stretching of the skin are a few.

Not much help really but just stop and focus on the endless flow of tactile data that is finding its way to creating your mind’s interpretation of your physical contact with the world. It’s difficult to find an equivalent to the mind’s eye or mind’s nose here. It’s too real on one hand, but then equally as abstract on the other. It may be that because touch is so primal that it is taken for granted. Touch signals that are understood as the generation of experience, which are more abstract than those that create sight, smell or sound. The fact that the sensation of touch is so real may make us difficult to be aware of how abstract it actually is.
3.6.1 Cognitive and Emotional Responses to tactility

We know a hug from a loved one can lower your blood pressure and make you feel valued and important. A firm handshake with a friend can create a connection. How you perceive the hug or handshake, along with how your touch receptors receive the pressure, is rooted in your brain.

There are several basic kinds of touch that you may experience:

Intimate -- Here, your pressure receptors respond to a handshake, hug or kiss. If the person giving the touch is someone you care about, you'll probably feel warm and comforted. Your pressure sensors send the feeling of how hard the embrace is, and your brain interprets the nature of the touch as soothing [source: A.D.A.M.].

Healing or therapeutic -- This type of touch is often associated with massage or acupuncture. Sometimes, the pressure is gentle and meant to soothe sore muscles. Other times, the pressure is deep in order to work out knots. Despite differences in severity of pressure, you likely to be aware that the outcome is healing, so your body allows you to relax.

Exploratory or inquisitive -- We all learn about the world through our sense of touch. Many people test foods, fabrics or other objects by feeling different textures. Sometimes its possible to rely solely on the sense of touch. This is why it's easy for you to reach into your bag and find a pair of keys without looking. You know the cold feeling of the metal key and hard smooth feel of your plastic key chain.

Aggressive or painful -- Of course, we all know that touch can also equate to pain if the pressure is too much and the intent is wrong. A handshake that's too firm can be uncomfortable instead of reassuring.

Your sense of touch is not only related to your nerve endings undergoing stimulation; the way you interpret the touch is also important.
There are several root words, tact, tang, tig, tag and ting, which all mean touch. All these variations come from the conjugation of the Latin tango, tetigi, and tactus. From these roots, we are able to form words such as tangent meaning the straight departure from a point of contact, tangle which implies a contact that results in a mixing or jumbling, and contagious meaning the spread of something through contact. Even the word contact itself shares the same root, which, obviously also implies touching in some form or another. The use of the word tactile can be traced back to French literature in the 17th century. It was used by a biologist named Helkiah Crooke in his description of the human tongue. “Beside the sapour (the ability to taste), it hath also many tangible or tactile qualities”. Given this etymology, it is interesting to note the contemporary usage of the word tact. Today, it is most frequently used to describe a sensitivity toward how our words or actions will be interpreted by another party. Indeed, we have to be aware of how what we say or do will touch other people. In this sense, the word tact means a metaphorical sense of touch.

This sense informs so much of the way we “see” the world around us. Some have even said that touch is the greatest of all the senses. It is interesting to think that in some way all of our other senses engage in some form of “touch” as we experience the things that make up our environments. Thus, as we move through architectural spaces, we touch what we perceive and we perceive what we touch — we extract it, interpret it and make meaning of it in our memory and through learning. You can say that “touch” helps us to understand.

Again, touch can involve all of the senses in some way. When you touch something it has been said that you can “feel” it. One could suppose that this means that you completely take it in through the senses — to cognitively and emotionally form a perception and then an impression.

3.6.2 Experience Architecture Through Touching

Tactile is an adjective to describe something that appeals to the human sense of touch. In architectural discourse, it is usually employed to describe how materials relate to a user’s experience when felt. Having said that, we do not necessarily need to touch an object to know what it feels like. As presented in “Experiencing Architecture” by Steen Eiler Rasmussen, we build an enormous library of tactile memories. We remember touching materials like stone and brick at a very young age, and cognitively store the feeling of these things in our minds. We can tell by the visual texture of an object how it’s going to feel when we touch it. Therefore, there may be a difference in how we experience a wall made of concrete, which we would perceive as cold and rugged compared to a wall made of wood, which we would perceive as warm and somewhat smooth. These perceptions are extended to include weight and hardness as well, which also have bearing on how we experience materials. The implementation of the tactile senses in architecture has purposeful uses as well. A widespread example of tactile design is the use of dimpled sidewalk pavers at train stations and pedestrian crossings. The change in the feeling of the ground surface signals to the user that they should stop or pay attention. This kind of design can also be called haptic architecture. Haptic, coming from the Greek word, optik-os, meaning “to come into contact with”. Unfortunately, much like any word, the word tactile can be abused or overused in an architectural discussion. Some use the word to wrongly describe anything that has texture. However, the sense of touch implied in the word tactile is not synonymous with the physical structure of a substance implied in the word texture.
3.6.4 Touching Materials Visually

Designers’ visual way of knowing and working tends to be highly valued in design research. In architecture such an approach is increasingly criticised. Since people experience buildings with all their senses, architects’ visual focus is said to run the risk of disregarding non-visual aspects.

Here we focus on the visual and tactile assessment of building materials. Vision dominates the overall assessment, yet does not always anticipate touch correctly.

People interact with the built environment through all their senses: They see the light and colours of a space, hear sound reflections, smell and feel the properties of its materials. Despite all senses being involved in people’s architectural experience, during the design process architects often focus on the visual aspects (Pallasmaa, 2005). Numerous design projects are prized for their visual qualities. Nonetheless, some of these buildings, like Jørn Utzon’s Sydney Opera House and Zaha Hadid’s Fire Station in Vitra, have caused considerable problems for their occupants (Franck & Von Sommaruga Howard, 2010). Whereas the visual way of “conceiving architecture” may be considered as a strength of the design process by the design research community (Cross, 1982; Goldschmitt & Porter, 2004; Lawson, 2000), a multisensory approach to design is more likely to appeal to the building’s users.

The way a space looks is obviously important, but people’s experience of architecture is intrinsically multisensory in nature (Pallasmaa, 2005; Rasmussen, 1962). Space is “a place for many senses: sight, sound, touch, and the unaccountable things that happen in between” (Auping & Ando, 2002, p. 31).

Different categories of material descriptions described in the literature were used to organize and analyze the keyword descriptions in relation to the senses used for evaluation. People describe (their experiences of) materials in different ways, such as naming the material, describing technical, and sensory properties, illustrating the use of materials, or describing the experiential behavior (van Kesteren, Stappers, & de Bruijn, 2007; Wastiels, Wouters, & Lindekens, 2007). Technical descriptions refer to material and manufacturing properties; sensory descriptions to all aspects of materials that can be sensed; descriptions of the material use relate to the usage (van Kesteren et al., 2007). Experiential behavior describes how materials are perceived and includes expressive meanings, associative meanings, and emotions elicited by the materials. Expressive meanings, such as modern or feminine, and associative meanings, such as toy-like, are not factually part of a material’s physical entity or appearance but refer to the meanings associated with the material. Descriptions of emotions refer to the emotions elicited by the materials. Table 1 provides an overview of these categories with description and examples.

<table>
<thead>
<tr>
<th>Categories</th>
<th>Description</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>Materials (M)</td>
<td>Naming the material</td>
<td>Plastics, wood, metals</td>
</tr>
<tr>
<td>Technical (T)</td>
<td>Material and manufacturing issues</td>
<td>Material and manufacturing issues</td>
</tr>
<tr>
<td>Sensory (S)</td>
<td>Aspects of the material that can be sensed</td>
<td>Aspects of the material that can be sensed</td>
</tr>
<tr>
<td>Use of materials (U)</td>
<td>Descriptions related to usage of the material</td>
<td>Used in kitchen, user-friendly, hygienic</td>
</tr>
<tr>
<td>Expressive meanings (EM)</td>
<td>Values and personality characteristics attributed to the material</td>
<td>Modern, feminine, sexy, sober</td>
</tr>
<tr>
<td>Associative meanings (AM)</td>
<td>Associations requiring retrieval from memory and past experiences</td>
<td>Toy-like, associated with factories, business-like</td>
</tr>
<tr>
<td>Emotions (E)</td>
<td>Toy-like, associated with factories, business-like</td>
<td>Surprising, boring</td>
</tr>
</tbody>
</table>
Material
The sense of materials in architecture is crucial for architects—to give impact to people’s experiences, emotions by being aware of the different sensory inputs and assessing them as such while making design decisions. This is especially relevant in the context of material selection.

An architect’s design intention and the materials used to realize it are absolutely linked with each other. In addition, materials’ inherent and associative qualities carry much of the design content (Malnar & Vodvarka, 2004). For architect Eva Jiricna, for instance, the key early decision is almost invariably about materials: “In a way material dictates the concept… and materials are not interchangeable…to me the material really is the starting point of the story” (Lawson, 1994, p. 52).
The materials architects select during the design process thus contribute significantly to the experience of a space or building. The immediate emotional impact of material use on the architectural experience has received only limited research attention. In a study on the symbolism of building materials, researchers found that people attribute personality characteristics such as warm-cold, artistic-nonartistic, or tough-tender to building materials non-randomly, and concluded that certain components of a material’s personality are associated with its sensory and emotional qualities (Sadalla & Sheets, 1993).
In an architectural context, studies about the link between materials and people’s perception and emotions mainly focus on the direct impact of color. Color psychology and the meaning of color in different cultures has been studied extensively (e.g., Derefeldt, Swartling, Berggrund, & Bodrogi, 2004; Gao & Xin, 2006; Valdez & Mehrabian, 1994). In addition to the more fundamental color investigations and theories in architecture (Albers, 1971; Itten, 1970), a number of recent studies have focused on the impact of color in specific environments, such as hospitals or educational facilities (e.g., Dalke et al., 2006; Stone, 2001; Yildirim, Akalin-Baskaya, & Hidayetoglu, 2007). Researchers found, for example, that cool colors, such as blue and green, promote relaxation, while warm colors, such as red, orange, and yellow, promote physical and social activity (Gulak, 1991).
When architects select materials in the design process, they consider technical and functional aspects, as well as aspects related to sensory effects and emotional experience (Wastiels & Wouters, 2012). It is the context and given condition that drives the architect’s considerations during this selection process and certain projects may invite architects to consider more carefully the (multi) sensory aspects. For example, when designing a concert hall, a performance space, or an auditorium it seems logical to consider the acoustic quality (Heylighen, Rychtáriková, & Vermeir, 2010). In the design of buildings for blind people, e.g., a school (Herssens & Heylighen, 2011) or a rehabilitation center (Nijs, Vermeersch, Devlieger, & Heylighen, 2010), touch is more likely to be taken into consideration explicitly while selecting materials. However, these multisensory considerations of feeling and hearing materials are also relevant in other conditions.
Building occupants tend to touch various types of building surfaces either consciously or unconsciously: People stroll over floors, lean up against walls, or open and close doors. It is up to the designer to account for these different interactions by considering different touch related aspects in the design—like spatial configurations and material parameters such as roughness, warmth, or weight (Herssens & Heylighen, 2011).
Material texture

We all know that stepping careless onto a wet marble floor might cause us to slip. The same way we know that running on grass in the park is safe; even if we fall we are unlikely to get hurt. Although we may not be aware of it, texture provides us with information that triggers certain emotional qualities and expectations. Knowing how to measure and control these would result in an untapped source of information.

Texture is a part of our daily life – it is in nature and the designs all around us. It provides us with clues about the safety of our surroundings or the strength and quality of certain objects. We are able to recognize the texture of an object's surface simply by looking at it. This makes texture a significant part of the sensory input that we receive each day.
And it evokes emotional responses within us, just as a particular score of music might. Much of the research conducted in the past has focused on the relationship of emotions to music, smell, color and taste. We have since learned to use these to achieve certain effects from texture psychologically.
3.7 QUESTIONNAIRE
PUBLIC SPACE ENVIRONMENT EVALUATION
AND SATISFACTION SURVEY OF
HEALTHCARE ARCHITECTURE

We are currently conducting research on the evaluation and satisfaction of the public space environment in healthcare architecture. This research mainly provides some research on the development of space environment design under the background of psychology in the hospital. Up to now (28 May 2018), 73 valid questionnaires have been received.

The proportion of women in the survey was 47%, of which 22-45 years old accounted for 64.71%, and 45-59 years old accounted for 23.53%; among them, there were 6 medical staff, 15 visiting staff, and 13 accompanying people.

The male respondents accounted for 53%, of which 22-45 years old accounted for 74.36%, 45-59 years old accounted for 20.51%; among them, there were 4 medical workers, 17 doctors and 18 escorts.

The preferred hospital for most people is a tertiary hospital. The medical conditions and treatment environment are relatively good in all current hospitals. Overall, the highest frequency of use was: waiting room (86.3%), outpatient hall (75.34%), and medicine hall (60.27%).

In addition, medical workers use the highest frequency of space: clinics, wards, restaurants and staff restrooms; the highest frequency of use of medical staff and accompanying staff are: clinics, wards, and outdoor gardens.
In the three most frequently used spaces (hospitals, medicine collection halls and waiting halls), the highest levels of crowding, ventilation, bad smell and noise in the rooms were the main problems, and the respondents stated that they hope to increase the comfort of the outpatient hall. Degree, increase of green plants, improvement of indoor lighting and furniture comfort; ventilation and bad odor are still the primary reasons for dissatisfaction in other spaces where usage rate is relatively low. People pay attention to indoor details in sports rehabilitation and restaurants and other spaces. The degree is higher, and it is hoped that the color of the indoor environment, natural light and indoor materials will be more considered. Environmental background sounds were less noticed by respondents in various environments.
In the emotional surveys conducted in various construction sites, the respondents used the most frequently used three spaces. The respondents were more emotionally calm, usually calm, bored, nervous, tired, drowsy, etc.; the mood of people in the treatment room appeared. In diametrically opposite situations, calm and tense emotions accounted for half of the time; mixed emotions emerged in the hospitalization space, with the highest frequency of calmness and drowsiness; and positive emotions (pleasant, happy) in sports recovery space and restaurant space. As the ratio increased, negative emotions such as anger, tension, and drowsiness accounted for relatively low.
3.8 CONCLUSION
The main responsibility of architects is that, design architectures linking with the concerns and stimulus of occupants, neighbourhoods, and community, as an architectural design approach, to create and evokes the proper emotions with adopted architectural atmosphere. In Chapter 3, we analysed how to use five senses to shape architectural spaces and built environments.

Sometimes we can limit certain senses and strengthen other senses. As we have studied in each part, we exclude other sensory disturbances and only consider the feelings of the architectural space under certain conditions and how it impact on our emotions. But most of the time, it is difficult for us to completely distinguish one feeling from another. For example, we cannot watch, we cannot touch, but we can't stop hearing, we can't help ourselves to breath. Therefore, we should pay more attention to deal with the application of the five senses in architectural space and shaping environment.

Then, we try to use the four quadrants of emotion to describe how emotion works in the architectural space and shaping the environment. The emotions in the four quadrants are cyclical, uninterrupted, and constantly changing. Changing any of these sensory factors can cause emotional changes, even if the changes are so subtle that we are hard to detect.
We listed the four emotions separately and found an architectural case for each of them, try to explain how architect use architectural space to influenced people’s emotions. In the latter design, we mainly focused on the two positive emotions: exciting and relaxing. It is not mean that the emotions of distressing and gloomy are not important in architectural space and built environments, but for special reasons or special spatial feelings, we still use two more negative emotions. In our design, there is architectural space for experiencing all emotions, as well as some space and environment for promoting positive emotions to avoid negative emotions.

In the prat of light, hearing and smelling, it is easier to distinguish between negative feelings and positive feelings. In these three parts of the design, we focus on how to create a suitable environment, let people feel relaxed and invigorating, while avoiding negative emotions, such as avoiding irritating or disgusting smells, creating a good ventilation environment; or avoid strong light or irritating sounds.

In the section of touching and color, it is difficult to distinguish the four emotions very clearly. So our main task is to balance the outcome and comprehensively use all of the means in order to achieve a good building space and environment.
04

Design
Experimental
Application
The goal is to create psycho-friendly experiential community, which includes architectural spaces, and landscapes in Amsterdam, which can engage, attract citizens, so that promote, and share the knowledge of urban healthcare, in order to improve the mental health of local inhabitants through implementing architectural elements. It is important that a building or an environment is experienced as comfortable, intuitive, foreseeable and safe in architectural psychology. We consider the project with psychological knowledge by using the pillars of chapter 3 as well as by considering observations of the users’ behavior and the analysis of prototypes.
4.1 SITE ANALYSIS
The New Amsterdam Urbanism
BASIC FACTS ABOUT AMSTERDAM

The Netherlands is a country situated in Western Europe, bordering Belgium to the south and Germany to the east. To its north and west is the North Sea. Although the Netherlands is the country's official name, people often call it Holland. The provinces of North Holland and South Holland form only part of the Netherlands.

Although the seat of Netherlands government is in The Hague, Amsterdam is the nominal capital. It is also the country's largest city, with a population of more than 851,000, and the most visited, with over 3.5 million foreign visitors a year.

AMSTERDAM BUIKSLOTERHAM

The north of Amsterdam is a rapidly rising canal area in recent years. Although it is not in the traditional canal area we are familiar with and it is not often visited by ordinary tourists, it has become a contemporary music creator, producer, creative worker and designer. The colony of artists and artists has become an area of idle old industrial district into a cultural and creative park dedicated to the development of culture and art. Cultural events are often held in the summer, and the surrounding restaurants and creative buildings are even more attractive. The area is filled with fresh vitality and creativity, which has transformed this area into a stylish and artistic area in Amsterdam. The Buikslooterham is an industrial estate in Amsterdam undergoing a gradual transformation into a mixed-use urban area.
THE BACKGROUND OF THE EXTENSION TO THE SOUTH

_Geography:_ Amsterdam is located at sea level, and land development depends on complex special technologies

_Population:_ Amsterdam’s resident population tripled from 1850 to 1920

_Canal:_ From 1865 to 1875, the realization of the North Sea Canal Project became the starting point of urban modernization. Canal plays an important role in the urban structure

_Policy:_ At the same time as government actions intervened in 1896, the land in the southern part of the city began to expand. In 1901, the government housing bill was passed. The bill emphasizes the formulation of development plans and the government’s management of land

Under such conditions, compared with other places, people are more likely to accept the intervention of government agencies.

The corner block uses the following methods:

- Retain the principle of private garden so that the bottom of all houses can reach the sheds in the garden
- Diverse corner effects:
  - Increase or decrease the height of the house
  - Continuous receding facade
  - Commemorative techniques
- The picturesque symmetrical approach brings the competition between face to face neighborhoods
4.2
PROPOSAL
To restore or promote the purpose of physical and experience, to eliminate the psychological barrier, music therapy uses unique physiological therapies. Based on the theories and methods of psychotherapy, it uses the unique physiological and psychological effects of music to enable the ruler to participate in the music therapist's participation, through a variety of specially designed music behavior, experience the music experience, to eliminate the psychological barrier. To restore or promote the purpose of physical and mental health.

**Music Therapy Theater**

The music therapy center provides a space for Music remedies for people who need therapies. Based on the theories and methods of psychotherapy, it uses the unique physiological and psychological effects of music to enable the ruler to participate in the music therapist's participation, through a variety of specially designed music behavior, experience the music experience, to eliminate the psychological barrier.

Aromatherapy

A landscape architecture which can provide people experience of smelling. People can sense different ascents while they walk on the path. The fiber baffles control the airflow of the wind in order to realize different intensity of ascent from variety of the vegetations, which influence people differently in terms of psychology.
To restore or promote the purpose of physical and experience, to eliminate the psychological barrier, of psychotherapy, it uses the unique physiological therapies. Based on the theories and methods designed music behavior, experience the music the ruler to participate in the music therapist's and psychological effects of music to enable participation, through a variety of specially.

A landscape architecture which can provide different ascents while they walk on the path. The people experience of smelling. People can sense variety of the vegetations, which influence people order to realize different intensity of ascent from fiber baffles controls the airflow of the wind in differently in terms of psychology.

Experiential Psychotherapy Center
The design is based on the goal of creating a ‘world’ of experiential hub where people can enjoy. We put all the experiential spot between the wall pieces to give people curiosity and keep the privacy from North and South street, but also gives people an unpredictable adventure during they explore their ‘world’ based on their personal psychological needs.

Promoting Hub
Here we try to bring a architectural community where all different kinds of activities happens based on the topic of psychotherapy and healthcare. It’s a place where people can finds knowledge, entrepreneurship, communication, business, working labs.

The clinic helps clients achieve their personal attain a more productive, gratifying and fulfilling life. The clinic’s approach to helping clients has always included vigorous efforts to help each individual pharmacological and psychological testing.

Psychotherapy Center’s mission is to provide low-cost, high quality psychotherapeutic services to children, adolescents, adults, couples and families.
To restore or promote the purpose of physical and experience, to eliminate the psychological barrier, of psychotherapy, it uses the unique physiological theprapies. Based on the theories and methods designed music behavior, experience the music the ruler to participate in the music therapist’s and psychological effects of music to enable.

The music therapy center provides a space participation, through a variety of specially for Music remedies for people who need mental health.

Aromatherapy
Since aromatic plants have many beneficial effects on human health, the use of aromatic plants for disease prevention and treatment has also become a new type of natural, healthy and safe and effective therapy.
Here we created a avenue as insertion, not only linking between different spots of our proposal, but also realized a psychotherapeutic experiential path, where people can sense and experience by their psychological needs. The ascents from the plants we set gives users healthcare subconsciouly.

Psychotherapy Center
Psychotherapy Center’s mission is to provide low-cost, high quality psychotherapeutic services to children, adolescents, adults, couples and families. Group therapy is offered as well. Psychiatric, pharmacological and psychological testing services are available.
The clinic’s approach to helping clients has always included vigorous efforts to help each individual attain a more productive, gratifying and fulfilling life. The clinic helps clients achieve their personal goals within the context of a safe and supportive environment.
Therapy Centre Roof Garden

Therapy Centre First Floor
Therapy Centre Facades

View of Ground Floor
PROMOTING HUB
Tea House & Meditation Room

Steam Therapy Room
Restaurant-Color Therapy
Summary and Concluding Comments