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An Interior Design Approach to Improving Mental Health

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abstract.

To build a supportive environment it is important to understand the specific needs of an individual or group and how the physical environment can impact health. This practicum project proposes a center that goes beyond the use of medication to support those who suffer from depression using alternative therapies and applications to help the guests relax. A main goal for the center is to remove the hurdle of stigma that surrounds mental health. By offering a safe and comforting environment the aim is to encourage those who have depression to reach out and begin a treatment plan tailored to their personal goals. Offering traditional therapy approaches paired with alternative and supporting therapies and an aesthetic of natural elements and comfort.

The intent of this practicum project was to design a pro-social space to encourage network building and to bring together people experiencing similar issues while working towards becoming a healthier individual. The goals of this project were to offer those who struggle with their mental health a resource center and place of connection for these individuals to help reduce the risk of suicide.

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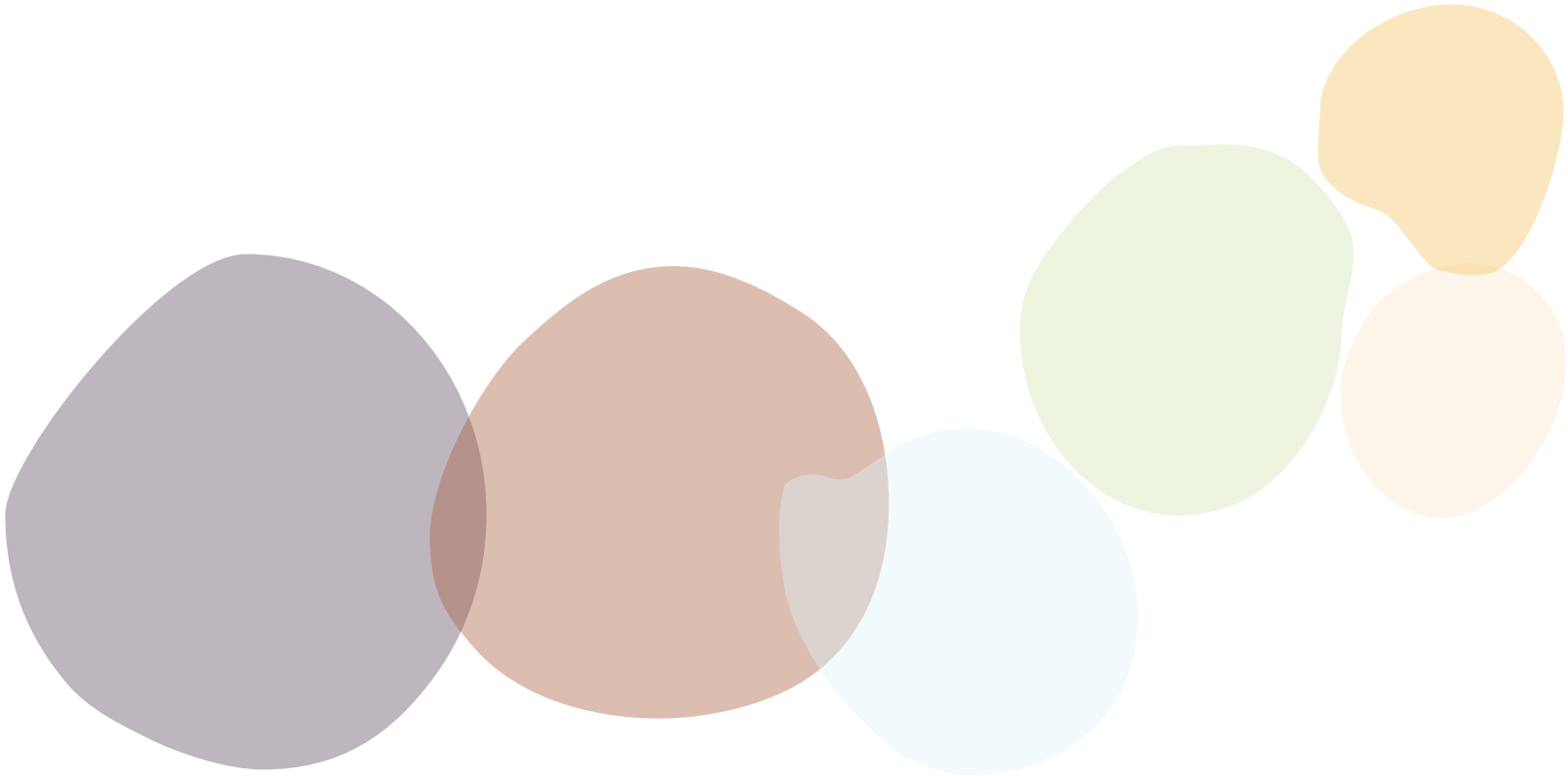

1.0 project overview.

.1 introduction
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1.1 introduction

Depression is a mental illness that affects an estimated 300 million worldwide (World Health Organization, 2018) and approximately 2.3 million people across Canada (Statistics Canada, 2019). The World Health Organization (WHO) defines depression as "characterized by sadness, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, tiredness, and poor concentration" (World Health Organization, 2018). In some cases, depression can lead to suicidal thoughts and, at its most extreme, suicide. Mood Disorders of Manitoba (2019) claims that "suicide due to depression is the second leading cause of death [In Canada] for people ages 15-29" (Mood Disorders of Manitoba, 2019) and in 2014 the number of suicides reached 4,405 people (Statistics Canada, 2019). From 2013-2018 there were over 300,000 Manitoba residents treated for mental illness representing approximately 25.5 percent of Manitobans over the age of ten (Manitoba Health, 2013). In Winnipeg, over 26 percent of the population aged ten and older were affected by mental illness (Manitoba Health, 2013). Many people affected by depression are afraid to seek help, unsure about who to talk to or unable to put their emotions and concerns into words, and unfortunately many people believe they are alone in their struggle.

Despite the actions taken to remove the stigma that surrounds mental health in Canada it can still be seen as a hurdle when an individual decides to seek treatment. Seeking treatment for mental illness can be an intimidating process and results in many people leaving their illnesses untreated. According to the WHO, depression prevention programs have proven to be successful in treating and managing depression for both children and adults. There are few programs that offer a non-medical, informal environment to develop recovery plans to manage and treat mental illness. Managing depression requires a multi-faceted approach that integrates a variety of techniques to promote wellness. Fortunately, there is a wide variety of treatments and therapies available, including medication, physical activity, and counseling. These treatments can be combined with alternative therapies to uniquely tailor a program to an individual, their needs, and their health goals.

As with many illnesses, depression is a condition with varying types, severity levels, and associated conditions. Mood Disorders of Manitoba (2019) identifies six types of depression: clinical, dysthymia, seasonal affective disorder, psychotic, bipolar, and postpartum. Each type of depression requires a different treatment approach. Available treatments should be chosen based on the individual and must provide the support the individual needs in order to achieve their goals and overcome their personal struggles. Clearly, there is no universal or typical approach to treating depression.

1.2 project rationale

Depression can cause an individual to become reclusive, avoid everyday responsibilities and activities, and suddenly become disinterested in activities that they once enjoyed doing (Hales and Lauzon, 2018). Depression can also present itself though drastic changes in mood, feelings of sadness, loneliness, hopelessness, decreased energy, and irregular sleeping and eating habits (Hales and Lauzon, 2018). Mood Disorders of Manitoba (2019) identify other possible reasons people choose to not receive treatment that include financial difficulty, lack of resources, social stigma, or an incorrect diagnosis.

Given the issues identified by Mood Disorders of Manitoba and numerous authors, such as Aaron Antonovski, Steven Kellert, Alan Dilani, and Roger Ulrich, the purpose of this practicum is to design a community center with pro-social spaces for teens and young adults, aged 16 to 30, who are dealing with depression and depression symptoms. In their article "The Evolution of Prosocial and Antisocial Competitive Behavior and the Emergence of Prosocial and Antisocial Leadership Styles", Paul Gilbert and Jaskaran Basran (2019) identify the goals of prosocial strategies as to "create relaxed and secure social interactions that enable sharing, cooperative, mutually supportive and beneficial relationships" (Gilbert and Basran, 2018). The design objective of the center was to provide a supportive environment to ease the stress of seeking treatment and resources to educate people about their condition. The center will help teens and young adults feel safe, supported, and comfortable discussing their concerns about their mental health, and will encourage the formation of a strong support network. The practicum focused on developing flexible spaces to host a variety of activities, therapies, both traditional and alternative, and implemented a design aesthetic rooted in the concepts of support and wellbeing.

The center was designed to serve as a holistic health hub offering of a variety of classes, resources, support, and activities for those experiencing depression within a pro-social space. Because a strong support network is an essential part of depression recovery, the center was designed to exhibit an informal, social hub atmosphere rather than a cold, clinical one. The intent was to use pro-social spaces to encourage network building and to bring together people experiencing similar issues to support one another while working towards becoming a healthier individual. The goals of this project were to offer those who struggle with their mental health a resource center and place of connection for these individuals to help reduce the risk of suicide.

1.3 project objectives

A goal of this practicum was to understand the effects and benefits of different activities, socialization, and interior environments on teens and young adults with depression. A thorough literature review informed how a thoughtfully designed interior environment could be beneficial to elevate mood and promote overall health and wellness. The literature also made clear the importance of mental health support programs and increased wellbeing and how an interior designer could utilize these techniques to design a supportive environment.

The literature also informed the programming of the center by identifying the variety of treatments, applications, methods, and interior design interventions that could be applied to help treat and manage depression.

The center is intended to encourage those who feel alone or are at risk of harming themselves to seek help and address their concerns by providing them with practical tools to manage and recover from depression. The center helps to fight the social stigma of depression and seeks to reinforce the idea that having depression is nothing to be ashamed of and aid in understanding the fear or reluctance to receive help.

The support center offers a variety of programs, workshops, and activities. Creative expression workshops include art-based programs such as beading, pottery, painting, and drawing. Other activities include horticulture, nutrition and physical education seminars, and fitness classes. The wide variety of activities is meant to encourage those who suffer from depression to be social and active while pursuing interests from the range of options to suit a wider variety of guests.

1.4 questions of inquiry

The field of mental illness and depression is a broad area of research that offers an abundance of information. Consequently, it was important to identify focused and specific questions of inquiry. The questions were derived from personal experience, the literature review, and information about treatments, therapies, mental illness, and theories that are conducive to a holistically healthy environment. The questions are as follows:

- What aspects of an interior environment can improve the overall health and wellbeing of individuals who suffer from depression?
- What interventions can be applied to support the health and wellbeing of those who suffer from depression?
- How can theories or techniques be used to inform the design of social environments to support those with depression?
- What alternative depression and mood improving therapies can be combined with physical interventions to achieve a holistic health model within a social interior setting?

2.0 literature review.

.1 introduction + theoretical framework
.2 salutogenic design theory
.3 supportive environments theory
.4 biophilic design theory
.5 supporting theories + therapies

2.1 introduction & theoretical framework

The literature review conducted for this practicum focused on how the interior environment has been used to improve health and wellness. Particularly important was understanding applications and theories that are specifically useful for those who suffer with depression. The primary theory reviewed was that of salutogenic design as put forth by Aaron Antonovsky (1996). Salutogenic design is a holistic approach to designing a space that, at its core, is essentially supportive design.

Within the salutogenic design literature, there are references to theories of restorative environments supported by the work of Terry Hartig (2004), supportive environments within the work of Roger Ulrich (1991), psychosocially supportive design from Alan Dilani (2009), the biophilic design investigated by Stephen Kellert, and also supportive environments is the Kaplans' (1989) theory of attention restoration which speaks to both biophilic and supportive environmental design. Together, these theories provided answers to the questions of inquiry regarding the effect an interior environment can have on an individual suffering with depression.

Additional literature was reviewed in order to understand the variety of treatments, therapies, and techniques currently used to treat depression. This review also revealed possible relationships between the various treatments and the theories mentioned above. The review of literature on theories and treatments revealed how, together, they could inform the design of a center that positively impact guests suffering with depression.

With regard to the design and programming aspect of this practicum, the understanding of depression, health and well-being, and typical, integrative, alternative or complementary therapies was applied to plan an environment that wholly supports the guests of the center. Figure 1 is a representation of how this practicum has been explored.

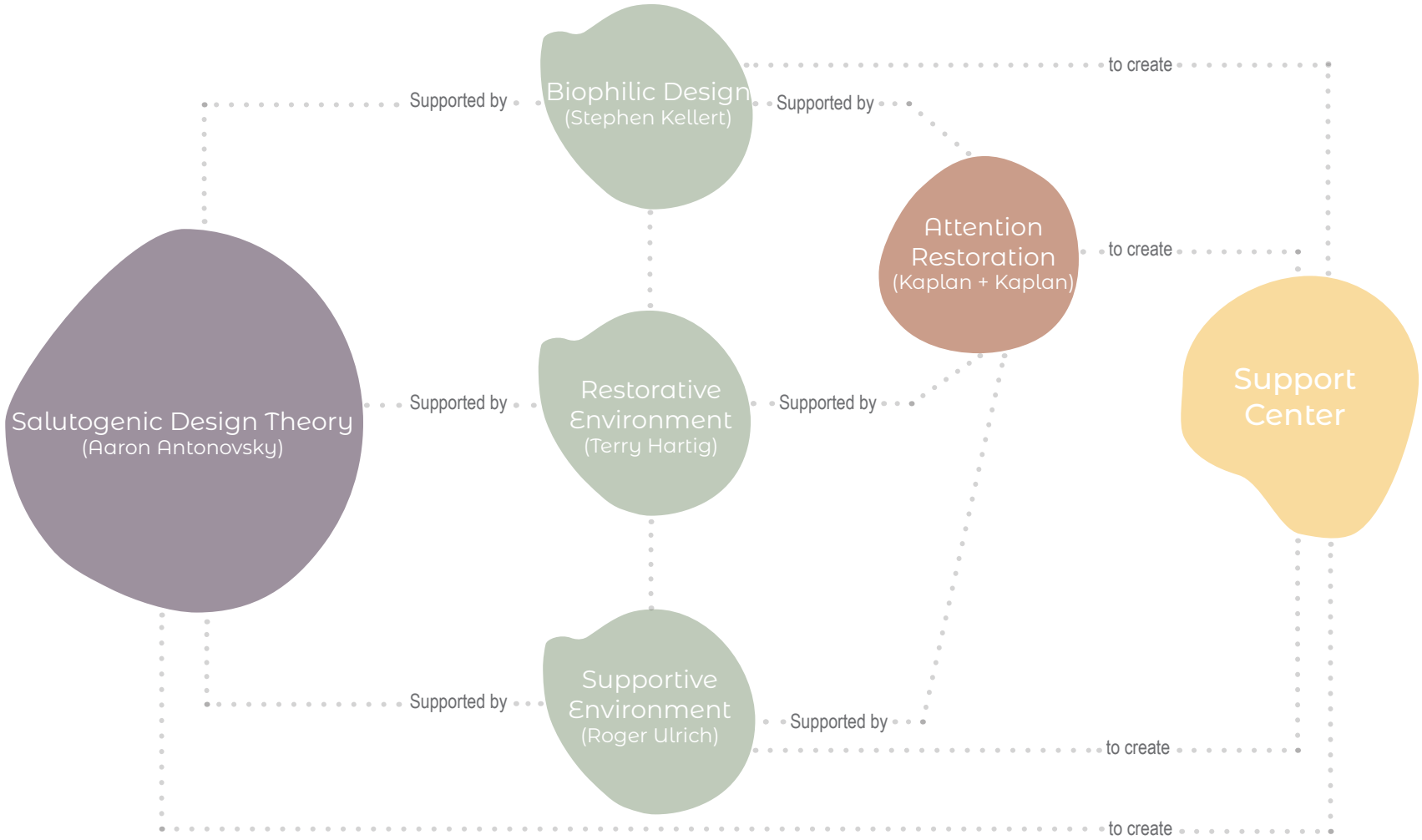

fig. 1 - theoretical framework

2.2 salutogenic design theory

Professor of medical sociology Aaron Antonovsky (1996) coined the word "salutogenesis." Salutogenesis is a model focused on human centered factors that support health and well-being rather than on factors that cause disease. The model of salutogenesis is rooted in the connections and relationships between health, stress, and coping. In other words: building environments that have a positive effect on health can drastically improve the happiness of those who inhabit them. Antonovsky's research centers on building a strong sense of coherence (SOC). The focus of SOC is two part; the way in which we learn to cope with situations as an individual through our learned behaviours, and the way in which individuals process the information from said situation.

2.2.1 benefits

The challenge in designing a public center to be used by a variety of people is the highly personal and subjective nature of depression, its vast continuum of effect, a variety of coping mechanisms, and combination of related concerns. Antonovsky's SOC theory focuses on achieving personal wellness, and is, not surprisingly, sensitive to individuals and their needs. A strong SOC enables a person to absorb the mental, emotional, physical, and environmental stimuli, cope with it, and process the situation without being negatively affected by it. Antonovsky explains that an individual with a strong SOC can process information and understand the challenges they face (comprehensibility), are motivated to deal with these challenges (meaningfulness), and believe they have access to resources to help them overcome these challenges (manageability) (Antonovsky, 1996).

Tye Farrow (2013), a senior partner at Farrow Architect, views the salutogenic approach to health as a vehicle to provide a better quality of life in the way that it is focused on creating environments that "cause health" to make people more self-reliant, encourages development of coping skills, and build environments with a focus on a holistic wellness approach (Farrow, 2013). Environments that apply the salutogenic design encourage healthy behaviours with elements that are proven to accelerate health. Farrow identifies, salutogenic design to have five vital elements including: nature, authenticity, variety, vitality, and legacy.

The element of nature is precisely using elements of the natural world and applying them through design (Farrow, 2013). This was translated into the center's interior environment through natural finishes, living walls, and using motifs that are closely related to natural elements.

Authenticity is the way in which the design draws inspiration from and connects with the local cultural and physical environment (Farrow, 2013). To achieve authenticity within this neighbourhood it was important to understand the past of the building and neighbourhood as well as the current demographic and apply or maintain these elements within the building.

Variety is focused on cultivating a range of experiences to foster a sense of discovery within the built environment (Farrow, 2013). Introduced with varying spaces, design implementations and sensory stimuli, variety was introduced into the design to encourage exploration, interaction and connection to the space. Applying the element of variety was also considered for the large age range of the center. To be sensitive to all demographics using the space it was important to apply elements that were both fun and sophisticated to be attractive to a wide range of interests as well as incorporate specifically age focused areas for the younger attendees.

Vitality promotes a regenerative energy between people and ideas; legacy embraces the idea of resiliency in design and the concept of making a lasting contribution to the health program in which it is applied to (Farrow, 2013).

2.2.2 relevance

The salutogenic model has gained recognition in hospitals and mental health facilities due to the research-based positive impact that a physical environment can have on an individual. Antonovsky's (1996) theory of salutogenesis focuses on factors of an individual's life and how they can learn to use their experiences to cope with stressful situations and work towards holistic wellness. Dr. Alan Dilani (2009), defines salutogenics as being focused on the physical environment and ways in which the environment can promote and strengthen well-being rather than focusing on the things that make us unwell (Dilani, 2009).

According to Dr. Dilani, Antonovsky's concept of a SOC defines good health as possessing the qualities to cope with stressful situations by turning stimuli in the immediate surroundings into information to comprehend, manage, and find meaningfulness. The concept of comprehensibility in relation to SOC means the individual can absorb and understand their situation coherently. Manageability is the body's coping mechanisms applied when faced with a challenge. Meaningfulness is having motivation to find meaning and use the experience for personal growth (Dilani, 2009). In other words, if presented with a stressful situation a person with a strong SOC applies the concept of comprehensibility to assess what is happening around them, manageability to apply learned and biological coping mechanisms in reaction to the situation, and meaningfulness to understand the stress and learn and grow from the experience.

The physical environments that surround us have a greater impact on our health and stress levels than many realize. Within the health care system there is a proven correlation between a healing environment and reduction in pain levels, recovery time, and an increase in staff morale. Salutogenics is a broad theory that encompasses a variety of health and wellness aspects because the core belief is a holistic health model. Antonovsky's work within the field of salutogenesis and health is a basis for many of the theories that are investigated in this practicum and provides a strong starting point to expand on the regions of design discussed within the theory.

2.2.3 application

Antonovsky's theory for salutogenic design and increasing one's sense of coherence provided a vague but pliable method for designing a supportive space. The vague nature of the individualized or specific group approach applications made it necessary to seek out supporting theories with more tangible applications for programming and application of this theory. Fortunately, the theory is a widely accepted and recognized method of design that fluidly connected a number of supporting theories that provided guidance and knowledge on how to physically apply the theory to the built environment. The main focus derived from the theory of salutogenic design was the application of specific elements that have the power to provide positive distraction and encourage stress reduction.

For the community center that is the focus of this practicum, the theory of salutogenesis informed how the guests could physically, visually, and emotionally connect with the built environment. Antonovsky's belief in the idea of a continuum of health, and the subjective nature of environmental interaction suggested that the design must be functional and autonomous with multiple types of interventions to serve the needs of a larger variety of guests. This practicum used the theory of salutogenics to understand the needs of individuals suffering from depression and inform the design of a physical environment that provides choice, encourages social interaction, offers supportive resources, while providing an appealing aesthetic. This approach resulted in a space that is not "one size fits all" but, instead, provides guests with the opportunity to find support within an environment that exudes comfort, and improves their quality of life in ways that each guest feels personally comfortable in.

2.3 supportive environments design theory

Antonovsky suggests that if the goal is to build a supportive environment then it is important to understand the specific needs of an individual or group. Dr. Dilani (2009) defines the goals of psychosocially supportive design as an application of element to stimulate the mind and produce feelings of pleasure, creativity, satisfaction, and enjoyment, (Dilani, 2009) all of which are conducive to reducing stress, anxiety, and symptoms of depression. Dilani states that the physical environment has the power to impact health and can become a critical stressor for an individual. It seems reasonable then that by understanding the needs of the user the potential stress or discomfort a physical environment can evoke can be reduced and avoided.

Dr. Roger Ulrich (1991) suggests that if an environment is unsuited to the people who are using it, meaning their needs have not been considered, it can negatively affect health and physiological indicators of wellness (Ulrich, 1991). In other words, if a person does not feel comfortable within the spaces they occupy on a regular basis it is possible that the stresses this physical environment produces for this individual can negatively impact their health and well-being. It is then important to use the precedent of salutogenic design, to design interior environments that promote wellness and are psychosocially supportive through designs that relieve stress and evoke a sense of comfort.

2.3.1 benefits

Stress can manifest itself psychologically, physiologically, and behaviourally, all of which can lead to adverse health effects. The implementation of biophilic design within the physical environment has been proven to reduce stress, improve cognitive function, and contribute to overall well-being (Browning et. Al, 2014). Depression is a psychological outcome of stress and therefore an option of treatment can involve learning and applying stress relief techniques. Roger Ulrich (1991) suggests that environments should by design help relieve symptoms and potential causes of stress and promote wellness by creating a sense of control, access to social spaces, and to an environment that serves as a positive distraction. Although focused towards health care settings, Ulrich's guide to designing a supportive environment align with the intended outcomes of this practicum by providing access to social support, personal control, and positive mental stimuli.

A sense of control and a variety of options is important in cultivating energy and atmosphere within an interior environment. A sense of control fulfills the needs of self-efficacy in environmental and social situations. Studies have shown that when a person's sense of control is compromised their stress levels increase and can lead to health complications such as high blood pressure and depression (Ulrich, 1991). It was important to encourage a sense of control within the community center because one of the most common causes of stress is being in a physical-social environment (Dilani, 2009). By integrating rooms that allow for a customized sensory experience the guests are given full control over an area of respite and privacy to apply their personal stress relief technique preferences. This sense of comfort can be very different on an individual basis, it could be as simple as finding a comfortable chair near a window, or a complex as using light and colour or other sensory applications to achieve a sense of calm. For example, if an individual tends to fidget or finds the need to move to relieve the stress of a situation and relax it is important to provide them with these opportunities to do so. Using furniture that rocks, swings or swivels could be different ways in which to achieve relaxations using a gentle motion. These same furniture interventions can also be used stationary therefore maximizing the use of these pieces across multiple preferences.

Stress levels can rise when seeking help for depression. Therefore, it was crucial that the environment created in the community center was supportive, welcoming, and comfortable to the guests to reduce stress levels, increase the likelihood of maintaining treatment plans and building on social interactions within the center. If the center becomes a place that is comfortable and welcoming it increases the likelihood of the guests returning to further their education, therapy, social network, life skills and improve their overall quality of life.

It was important to promote social interaction within the community center to relieve feelings of loneliness or a perceived lack of social support. Designing pro-social spaces, or spaces that encourage social interaction that is both spontaneous and planned, allowed for the opportunity for guests to connect and come in contact with others who share the same or similar issues and promote a casual dialogue to begin the healing process and build a strong support network.

2.3.2 application

Inspired by Antonovsky's theory of sense of coherence, Dilani identifies key components that can be adapted and applied to a physical environment to strengthen a person's strong sense of coherence. Ellen Ziegler (2014), a graduate student at the University of British Columbia, made the correlation between Dilani's design attributes and Antonovsky's factors of sense of coherence. In Table 1 Ziegler identifies the physical and experiential components of an interior environment that satisfy the three key factors of a strong SOC.

comprehensibility	manageability	meaningfulness
way finding	aesthetic elements	social support
colours	natural light	music
nature	green environments	art
perception	stimuli	culture
landmarks	interior design	gym (autonomy/freedom)
pleasure	restoration	pets
	ergonomics	views
		comfort
		positive distractions

table 1. sense of coherence design applications (Ziegler, 2014)

Studying the works of Stokols and Heerwagen et al. Dilani developed guidelines or design considerations that promote physical, mental, and social health with reference to salutogenic design principles. Heerwagen et al's model of salutogenesis outlines the importance of social cohesion at informal and formal meeting points. These meeting spots, or nodes, should be designed to encourage interactions that are both planned and unplanned. Heerwagen et al also identify the importance of personal control in regard to lighting, sound, temperature, and privacy, for example, providing access to rooms that promote restoration, lighting and air control, and a direct access to views and nature (Dilani, 2009). These room as aforementioned are multi-sensory rooms that provide guests with full control of their immediate environment to apply personalized stress relief techniques and a sense of comfort in a space that is uniquely tailored to their preferences.

In her thesis Zieger also identifies how Heerwagen et al correlate their theory with Antonovsky's sense of coherence theory in reference to the factors of manageability, meaningfulness, and comprehensibility through environmental qualities "such as noise control, ability to control the built environment, ability to control the social environment and access to spaces that are not over-crowded" (Ziegler, 2014). This correlation supports the need for autonomy and control by providing the center's guests with the ability to control their environment, understand what makes them comfortable and apply it to their individual space.

Salutogenic design implications are based on creating environments that focus on improving physical, mental, and social health. Dilani recommends applications of salutogenic design to improve all three states of health. Physical health can be improved through consideration of the ergonomics of a space and providing a non-polluted environment with high indoor air quality and access to natural light. Improving social health means providing access to a support network and pro-social spaces that encourage spontaneous interaction between guests. Mental health can be improved by providing a sense of control, predictability within the environment, an appealing aesthetic, and connections to symbolic or spiritual elements (Dilani, 2009).

Ulrich uses similar approaches to Dilani including the principle that interiors should be designed to strengthen stress coping mechanisms, promote wellness, provide comfortable social spaces, and access to positive distractions. The guidelines compiled in the works of these theorists served as a reference for the design phase of this practicum to ensure the physical environment maintained the commitment to provide a supportive environment, promote wellness, reduce stress, encourage positive social experiences, and create spaces for restoration.

Among the theories explained above, the three recurring supportive design principles strive to provide a sense of control within the physical environment, designed spaces that promote and encourage social interaction while still maintaining the option of areas of privacy, and the design of a space that reduces stress using positive distractions. The goal of the wellness center is to create a supportive space that has a positive impact on mental and physical health and reduce the guests' stress and anxiety levels. The challenge then became how to design for the specified group, the age ranges of those to attend the center and the variety of individualized views on what is beneficial for stress reduction. For many teens and young adults' games, video games, television and movies serve as positive distractions from everyday stress and therefore it was important to dedicate a large amount of space to this. The second floor of the center was designed as the entertainment level with varying types of entertainment to appeal not only to the younger demographic but provide quiet spaces and age appropriate fun for the guests aged 25-30.

The supportive environments theory again provides a vague understanding of the approach that should be taken to create an environment that serves as a positive distraction to relieve stress. The difficulty was identifying physical applications that can be used to specifically treat those with mood disorders and depression. It was identified that stress can be directly related or a direct result of depression, and vice versa, which encouraged the review of how and what are some popular and effective techniques used to achieve this.

2.4 biophilic design theory

The theory of biophilia and biophilic design focuses on reconnecting humans with the natural world, using designs that promotes health and well-being within the built environment. Exposure to natural elements within the built environment has proven to have a positive effect on health and well-being. Biophilic design applies natural elements within the built environment to provide spaces that are both inspirational and restorative. Stephen R. Kellert (2008) is a leading theorist in the field of biophilia and has defined dimensions, elements, and attributes of biophilic design. Kellert's theories are based on the concept that contact with the natural environment is a vital part of enhancing physical, emotional, and intellectual fitness (Kellert, 2008).

2.4.1 benefits

The built environment has created a separation between humans and the natural environment. Studies have shown individuals who live in close proximity to open spaces with small amounts of vegetation such as grass and trees, have lower health and social problems and stronger developed stress coping mechanisms (Kellert, 2008). Biophilia is a form of restorative design that incorporates direct and indirect interactions with nature to create a connection to the natural environment within the built environment. According to Kellert, these connections reduce stress, increase motivation, and restore a sense of coherence by offering positive distractions (Kellert, 2008).

Restorative design aims to replenish diminished biological, psychological, or psychosocial resources. Terry Hartig (2004) defines restorative environments as environments that promote restoration with respect to their "physical, social, activity, temporal, or spatial features" (Hartig, 2004). Stephen and Rachel Kaplan (1989) developed the theory of attention restoration that is focused on how spaces have the ability to attract attention and the power to distract individuals from the stressors of everyday life. The Kaplan's research uncovered that natural elements and aesthetics have the greatest impact and were most effective in achieving a sense of restoration. Ulrich also references the effect of the natural environment on reducing stress, implying that simply having direct visual access to natural elements, such as trees and water, resulted in restoration and stress recovery. Visual access to the natural environment is an economical and fairly easy connection using strategically planned access to views (Ulrich, 1991). According the Ulrich, views of nature can reduce stress, elicit positive emotions, and have proven to calm negative emotions such as anger, fear, and sadness within three to five minutes (Ulrich, 1991).

2.4.2 relevance

Stephen and Rachel Kaplan (1989) define a restorative environment as the ability to use natural elements to provide positive distractions from daily life stresses and promote a sense of renewal and restoration (Kaplan and Kaplan, 1989). This is important to the mental health of the guests of the center because a common outcome of stress is depression. Therefore is it essential to design spaces, or the space overall, that serve as the positive distraction many of the guests attending the center may need. The theory of biophilia and the work of Kellert in the area of biophilic design identify two basic dimensions, six design elements, and approximately seventy design attributes that can be applied to create a restorative environment.

The first dimension is using natural or organic material to connect the built environment symbolically, directly, or indirectly to the natural environment. A direct relationship to the natural environment includes self-sustaining features such as fresh air, daylight, plants, and animals. Indirect connection requires human intervention such as caring for potted plants, a water fountain, or an aquarium, and symbolic connections are representations of the natural world using natural motifs.

The second dimension of biophilia is place based. Kellert defines the place-based dimension as the connection of an environment to its geographic location and incorporating the culture, history, and ecology to create an extension of the physical surroundings (Kellert, 2008). This dimension can be seen within the work of architect Frank Lloyd Wright and how his designs were inspired by the site conditions where he integrated the built physical form into the landscapes in which they were placed. This can also tie into Tye Farrow's authenticity dimension of salutogenic design. Paying respect to the neighbourhood and history of the building can create a connection to the community.

Kellert's six design elements of biophilic design are: introducing natural elements into the built environment, using natural shapes and forms to simulate the natural world, applying natural patterns and processes, playing with and utilizing light and space, connecting the design to the geographical context, and enhancing the human-nature relationship by including natural elements humans find appealing (Kellert, 2008). Each design element has design attributes that can be applied in the built environment as referenced in table 2.

environmental features | characteristics of the natural world in the built environment	
- colour	- flowers, colours, rainbows, sunsets, glistening water, blue skies, and other colours found in the natural world
- water	- water features
- air	- natural ventilation
- sunlight	
- plants	
- animals	- metaphorical
- natural materials	- patina and character
- views and vistas	- natural features and vegetation
- facade greening	
- geology and landscape	- connection to surroundings
- habitants and ecosystems	- compatible relationship to local habitants
- fire	- heat, cooking as a sign of comfort, warmth, and movement

natural shapes and forms | representations and simulations of the natural world	
- botanical motifs	- shapes, forms & pattern of plant & vegetation
- tree & columnar support	- appealing structure can suggest forest
- animal motif	- stylized, fictionalized, & contorted shapes & forms
- shells & spirals	- patterns & biomimicry (systems)
- egg, oval, & tubular forms	- literal & metaphorical, ornament & structure
- arches, vaults & domes	- copy natural forms (hives, nests, shells, and cliffs) decorative and functional
- organic shapes	- sinuous, flowing, adaptive, juxtapose the rigid shapes of the modern built environment
- simulation of natural feat.	- simulate not replicate
- biomorphy	- no resemblance to natural forms but deemed organic
- Geomorphology	- mimic or metaphorically embrace landscape & geology in close proximity
- biomimicry	- borrowed adaptations from nature

light & space	
- natural light	- effect of daylighting & full spectrum light, physically & psychologically rewarding, contributes to health & well-being in the built environment
- filtered & diffused light	- mitigate effects of glare, simulate observation, connection between spaces particular inside & outside spaces
- Light and shadow	- complementary contrast
- Light pools	- Connected light draws people into a space, movement, way finding, security & protection
- Warm light	- Islands of light surrounded by darker spaces evokes feeling of nested, secure & protected
- Space & light as shape & form	- manipulation of natural light to create stimulation & dynamic forms, adds beauty & simulated interest, curiosity, exploration & discovery
- Spaciousness	- feelings of openness, mix spacious setting with smaller spaces
- Spatial variability	- fosters emotional & intellectual stimulation, complementary to organized & united spaces
- Spatial harmony	- blend light, mass, and scale. Evoke harmony, security, & facilitates movement
- Inside-outside spaces	- connection with outside environment, porch, foyers, atrium, interior gardens

natural pattern & processes | incorporation of natural properties into built environment, representation or simulation of shapes & forms	
- sensory variability	- light, sound, touch, smell, etc.
- information richness	- cognitive richness, stimulate curiosity, imagination, exploration, discovery, & problem solving
- age, chance & patina	- familiarity and satisfaction despite death & decay (character)
- growth & efflorescence	- evoke pleasure and satisfaction
- central focal point	- point of reference, facilitates passage and way finding, organization
- patterned wholes	- variability united by integrated and patterned wholes, structure, mastery & control
- bounded spaces	- territorial tendency
- transitional spaces	- foster comfort by providing access from one area to another (thresholds, portals, doors, bridges)
- linked services and chains	- physical and temporal, link spaces, organization, and connection
- integrations of parts to wholes	- structural integrity, pieces fitting together to create a whole
- complementary contrasts	- meaning, stimulation, blending, contrasting, and complimenting
- dynamic balance & tension	- balancing different and/or contrasting elements to evoke a sense of strength & durability
- fractals	- repeating but varying patterns of a basic design
- hierarchically organized ratios & scales	- facilitate assimilation of complex patterns

evolved human-nature relationships	
- prospect & refuge	- secure & protected, comfortable & nurturing, resources, movement
- order & complexity	- organization can lead to boredom, variability can lead to chaos, therefore blend the two
- curiosity & enticement	- exploration, discovery, & creativity
- change & metamorphosis	- growth, maturation
- security & protection	
- mastery & control	- self-confidence & self-esteem
- affection & attachment	- Bonding
- attraction & beauty	- Aesthetic attraction to nature, curiosity, imagination, creativity, exploration & problem solving
- exploration & discovery	- Intellectually stimulating
- information & cognition	- Complexity of natural shapes & forms
- fear & awe	- Reason we build structures to protect us
- reverence & spirituality	- Connection, meaningfulness, defy loneliness

table 2. Kellert's six design elements of biophilic design (Kellert, 2008)

According to Kellert, studies have shown that access and exposure to light, daylight or bright artificial light, can reduce depression and improve mood (Kellert, 2008). Based on Kellert's theory of biophilic design, and the detailed elements of table 2, Heerwagen and Gregory (2008) simplified and outlined a summary list of attributes that combine biophilia and sensory aesthetics as represented in table 3 (Heerwagen, and Gregory, 2008).

sensory richness	- odors, tastes, sounds, smells, haptic sensations, and visual patterns - variation in seasons - variation in light
motion	- activity - sounds - air movement - rhythmic patterns
serendipity	- unexpected encounters - switch in focus
variation of theme	- variation & similarity in form & appearance due to growth patterns
resilience	- relationships
sense of freeness	- choice - openings - views - escape - vistas
prospect & refuge	- privacy to replenish - see without being seen & see and be seen - materials - light - openings, screens, gaps, peepholes - changes in height, overhangs, implied horizon - borrowed elements from external prospects

table 3. biophilia & sensory aesthetics (Heerwagen and Gregory, 2008)

Kellert's model of biophilic design strives to reconnect the built and natural environments to create more pleasing and enjoyable spaces.

2.4.3 application

Unlike other theories that have been examined thus far for this practicum, the theory of biophilic design has tangible design guidelines that helped inform all stages of the design process. The specific and descriptive guidelines identified by Kellert, Heerwagen et al., and Mador (2008) result in a biophilic design handbook of sorts that describes how a supportive environment, based on these principles, be experienced and function in order to maximize the benefit for the users' well-being.

The fluid nature in which biophilic design theory, restorative environments, and supportive environments connect to one another allow for a comprehensive understanding of how the principles can be applied and/or translated into physical applications. Ulrich draws on information from multiple theories to create a comprehensive list of design recommendations that outline the physical, emotional, and psychological design goals of this project. Ulrich's design recommendations are as follows:

- Provide restorative window views of nature and gardens
    - Green foliage, flowers, and park like landscapes
    - Limit the views of hardscapes (concrete)

- Provide an abundance of natural light
    - Large windows

- Avoid deep building plan layouts

- Provide outdoor garden spaces
    - Flowing water
    - Movable seating to promote social interactions
    - Access to privacy
    - Opportunity for physical activity, movement, and exercise
    - Shade to escape direct sunlight

- Visual art of nature

- Technology for simulated nature
    - Visual and auditory

(Ulrich, 2008)

According to Browning et. Al, (2014) there are 14 definable patterns of biophilic design under three categories as shown below in table 4.

nature in the space patterns	natural analogues patterns	nature of the space patterns
- visual connection to nature - non-visual connection to nature - non-rhythmic sensory stimuli - thermal air flow & variability - presence of water - dynamic & diffuse light - connection with natural systems	- biomorphic forms & patterns - material connection with nature - complexity & order	- prospect - refuge - mystery - risk/peril

table 4. biophilic design patterns (Browning et. Al, 2014)

Within each pattern category in table 4, there are certain aspects that have the greatest effects on emotion, mood, and preference. All aspects of the nature and space patterns contribute to the elevation of mood, and positive emotions. Browning et Al identify that the three patterns within the natural analogue category all also contribute to elevating mood and emotions as well as the nature of the space category (Browning et. Al, 2014).

Considering the patterns and categories that have the greatest benefit to emotion, mood, and preference, Browning et. al suggest best practices when incorporating the pattern-based categories in the built environment. To establish a strong visual connection with nature, real and authentic representations are preferable to simulation. Biodiversity should be a consideration when choosing elements, to encourage physical activity position the space next to a green space. Establish visual connections that can be utilized for 5-20 minutes a day, and carefully consider the spatial layout of a space to achieve optimal sight lines to views with minimum obstructions (Browning et. Al, 2014).

Achieving a non-visual connection with nature, means utilizing natural sounds, and non-visual aspects to build a connection, and combine the visual and non-visual connections to maximize the potential for positive health responses (Browning et. Al, 2014).

Non-rhythmic sensory stimuli can be achieved using interventions such as plants that attract bees, bird feeders, and hummingbird plants and feeders. These interventions can provide visual and interactive ways to connect with nature. Thermal comfort and air circulation variability means creating optimal interior environment conditions through airflow, mechanical and natural ventilation, and daylighting.

Fairly self-explanatory, the presence of water involves a multi-sensory water experience that is either natural or achieved through a water feature.

Dynamic and diffused light can be used to integrate colour, daylighting, and be used to promote a healthy circadian rhythm.

Creating a connection with natural systems can be achieved simply through visual access and incorporating design approaches that illicit a positive response including stress reduction.

Natural analogue patterns can be achieved by implementing biomorphic forms, and organic patterns such as foliage. Material connection with nature can be achieved using natural materials rather than synthetic and incorporating natural colours.

Complexity and order can be implemented with architectural expressions, fractal geometries and hierarchies.

Under the category of nature of the space patterns: prospect, which includes optimal access to indoor and outdoor vistas, high ceilings, and focal lengths at 20 feet or more. Refuge can also be considered when addressing patterns of prospects, this can include dropping sections of the ceiling, suspending acoustical paneling, or fabric. Light should also differ in the areas of created refuge space.

Patterns of mystery can be implemented using curved edges, dramatic shading and shadows, and mysterious organic conditions.

The risk and peril category are intentional interventions that are not always appropriate and therefore should be carefully designed around the spatial conditions and to protect users from harm (Browning et. Al, 2014).

Through careful review of the user's needs, understanding the spatial conditions, and how to apply biophilic design principles with intention, biophilia has the power to link people, health, and high-performance design.

Biophilic design in conjunction with attention restoration theory has the ability to apply natural elements such as living walls, water features, and other sensory distractions that are important to the mental health of the guests attending this center. Biophilic design has the capability to reduce stress, improve recovery rates and pain levels within health care, and reconnect the guests of this center with nature. The application of biophilic design is the largest design element within the center. It is applied throughout with materials, shapes, forms, access to natural light and the outdoors, as well as using plants and water to heighten the sensory experiences within each space. The introduction of plant life has also been proven to improve air quality within an interior environment and has therefore been applied as a unifying design language throughout the center.

2.5 Supporting therapies/theories

2.5.1 alternative, integrative & complimentary therapies

Psychiatrists, psychologists, mental health counsellors, and social workers provide a wide range of professional treatment options for moderate to severe depression. These mental health professionals recommend and administer treatments that include behavioural activation, cognitive behavioural therapy, interpersonal psychotherapy, electroconvulsive therapy, or prescription medication (Mood Disorders of Manitoba, 2019).

In addition to professional treatment, self-care is an essential part of improving mood and promotes recovery. Self-care includes remaining physically active, maintaining a healthy diet, and taking time to mentally recover by spending time alone. According to Mood Disorders of Manitoba, self-care "helps to replenish yourself – physically, emotionally, mentally, and spiritually," (Mood Disorders of Manitoba, 2019)

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Alternative, integrative, or complimentary therapies are those that are not classified as standard medical practices. These therapies encompass a wide range of options that include yoga, massage, guided imagery meditation, aromatherapy, art therapy and multi-sensory environments. Utilizing both standard and alternative therapies contributes to a more effective, and holistic form of depression treatment because each person that struggles with depression requires individualized treatment plans that are tailored to their specific needs.

Lifestyle changes are an essential part of treating an individual for depression. Changes such as regular exercise, building a strong social support system, reducing stress, and improving sleeping and eating habits are simple changes that can drastically improve recovery rate and reduce depressive symptoms. When in a depressed state the brain is not producing enough serotonin, endorphins, or

dopamine. According to Joanne Saisan, Melinda Smith, and Jeanne Segal (2019), participating in 30 to 60 minutes of exercise a day has shown to have similar effects to anti-depressant medications (Saisan, Smith, and Segal, 2019). Exercise can be a great way to build social support as well, going to regular classes or joining a team can reduce feelings of isolation as well as encourage regular physical activity. In addition to social support, physical activity can help reduce stress, boost feelings of joy and well-being, and induce relaxation. Social support is very important when managing depression and can be a simple as maintaining regular contact with friends and family, volunteering, and attending group events or classes that encourage social interaction. Nutrition is another pillar of health and is important to eat properly to maintain energy and minimize mood swings (Saisan, Smith, and Segal, 2019).

Experiential therapies, such as art therapy and garden therapy, can help individuals cope with stressors and connect with their emotions. Art therapy is a treatment that uses creative expression to connect to feelings and emotions and replace negative thoughts. Creative therapies also include dance, drama, and music (Iliades, Chris, 2012).

Integrative therapies, in combination with medical and/or standard therapies and self-care, provide more options for an individualized, holistic depression treatment plan and maintenance of a healthy lifestyle to work towards overall wellbeing. The center includes flexible spaces that incorporate a variety of different classes and activities to support a wide variety of interests for the center's guests.

2.5.2 light & colour theory/therapy

According to Kendra Cherry and Steven Gans (2018), colour psychology is the study of the effect colour can have on moods, feelings, and behaviours (Cherry and Gans, 2018). Reactions to colour are personal, often subjective, and can have cultural meaning and importance.

Axel Buether and Anke Augsburg (2014) say that in addition to the ability to form an aesthetically pleasing space, colour is a powerful medium that can change the way individuals experience a space. The way in which colour is applied within the built environment can covey meaning, effect emotions, and can be used to relay functional information (Buether and Augsurg, 2014). Buether and Augsburg also identify colour's ability to communicate shape, tactility, and provide spatial context within an interior environment. Buether and Augsburg also suggest that when designing an interior, the context, the application, and tasks to be performed must be considered to ensure the colour applied will be appropriate for the environment (Buether and Augsburg, 2014).

It is a designer's task to use colour as a tool to plan and design a space that communicates the intended function, as well as to be sensitive to the potential perception and reaction towards the colours used. Buether also suggests that the use of colour is part of a holistic view of environmental perception and the perception of an environment can be different between individuals and groups. Thus, the intended effect of colour can only be planned if it is in direct relation to a specific socio-cultural group (Buether and Augsburg, 2014) meaning that when designing the community center, it is important to consider how colours specifically affect those who have depression.

Although subjective there are some aspects of colour that are considered universal. For example, colours on the blue end of the spectrum are known as cool and can induce feelings of calm but also pose the risk of inducing feelings of sadness, and colours in the red area are considered warm and create feelings of warmth and comfort but risk inducing feelings of anger and hostility (Cherry, 2018). Therefore, it is important to understand the intended uses and users of the space and identify the potential impact colours could have on mood and behaviour.

Parkin Architects (2017), leaders in healthcare and mental health design, conducted research on the effects of colour within healthcare settings. Based on the evidence, Parkin Architects suggest the following considerations:

- sensory overload should be avoided and improved relaxation should be achieved using cool colours
- lighting should be on the warm end of the spectrum
- shadows should be avoided by using non-uniform lighting
- to avoid an institutional and neutral look one wall should be have a warm and soothing accent
- private or isolation rooms should be cozy and inviting

(Parkin Architects, 2017)

From *Colour and Wellbeing from Cognitive Behaviour* by Therapy Self Help Resources, Parkin Architects developed a table that identities the ways in which different colours could affect and influence mental health.

The colours identified to have a positive effect on depression are blue, red, orange, gold, yellow, green, and violet. Most of the effective colours are on the warm end of the spectrum leading to the conclusion that the perception of warmth within a space beyond the colour would also be beneficial to the management of depression and depression symptoms. Unfortunately, due to the highly subjective and potential cultural meanings associated with colour there are no conclusive studies that prove the effect of any one colour on people as a generalization. The use of colour in this practicum is drawn on the conclusions that these colours cold have the potential to elicit their claimed associated responses.

Light, opposed to colour has shown to be very beneficial to health and well-being. According to Zena O'Connor (2009), an environment-behaviour study researcher for the Faculty of Architecture at the University of Sydney Australia, desynchronization of the circadian rhythm can happen if there is a change in light-dark exposure. This change could affect the ability to maintain a proper sleep cycle and have negative impacts on physiological and metabolic processes, and mood and behaviour (O'Connor, 2009). O'Connor identifies these potential negative physiological effects as the suppression of melatonin, that could throw off healthy sleeping patterns, and elevating cortisol production causing an increase in stress (O'Connor, 2009). The Mayo Clinic outlines the negative effects that elevated cortisol levels can have on the body. If an individual experiences elevated cortisol levels for long periods of time there is an increased risk of health problems which include anxiety and depression (Mayo Clinic Staff, 2019).

In a study that compared the effects of anti-depressant drugs and the benefits of light exposure, light therapy was proven to work approximately twice as fast as prescription medication. The prescribed mediation was shown to be effective in approximately 4-6 weeks, but light exposure was as effective in as little as two weeks of treatment (Kellert, Heerwagen, and Mador, 2008). Light therapy is a common treatment for seasonal affective disorder (SAD) and has been shown to improve mood for other types of depression as well.

SAD is a type of depression that is common in northern communities due to the lack of access to sunlight during the fall and winter months (Mayo Clinic Staff, 2017) and is very common in Manitoba and Canada in general. Light therapy uses a device called a light box that mimics natural outdoor light. An individual uses the light box daily and sits or works near it to provide a simulation of the natural light lost during the fall and winter months. The light box is designed to affect the brain chemicals that have the ability improve mood and restore proper sleeping habits that can help decrease depressive symptoms. Identified by the Mayo Clinic Staff (2017), the "happy light", as it is sometimes called, is most effective at 10,000-lux, at a distance of 12-24 inches away from the user's face, and used for approximately 30 minutes a day (Mayo Clinic Staff, 2017). Light therapy helps by easing symptoms of depression and increasing energy and can yield results within a few days but may take as long as a few weeks depending on how the individuals reacts to the treatment (Mayo Clinic Staff, 2017).

2.5.3 multi-sensory stimulation

Multi-sensory stimulation has gained recognition within the special needs community and has proven to be an effective form of therapy. Unfortunately, there is limited research of the effectiveness of sensory rooms within the mental health community. Dr. Tina Champagne (2017), a leading clinician and consultant for alternative therapies, says that when used appropriately sensory rooms can help to create a safe space as well as promote self-care, resilience and recovery (Champagne, 2017). These qualities defined by Dr. Champagne align with the design goals of this practicum and will provide guests with fully customizable spaces promoting autonomy and personalized therapeutic experiences. Within these rooms there will be tactile, visual, and auditory stimulation. The tactile stimulation will be integrated through plush fabrics on seating, a moss wall, and fiber-optic light cords that are draped over one of the seating areas. The visual sense is engaged using fully adjustable lighting both in colour and brightness, using lighting and water features, and programmable projections. Speakers are placed in the rooms to satisfy the auditory sense and finally, for smell, there are diffusers with multiple options for oil blends to provide a complete experience. The sensory rooms are intended to provide the guests who use them with a fully customizable experience to help reduce stress in a space that is tailored to their needs and preferences.

3.0 precedent studies.

.1 rollins campus for young adults
.2 anima mentis wellness center
.3 credit valley hospital

3.1 rollins campus for young adults

3.1.1 description

Designer: New South Construction

Location: Atlanta, Georgia

Square Footage: 35,000 FT²

Year Completed: 2016

The Rollins Campus is a treatment programs for young adults aged 18-25. The campus provides unique spaces to promote social interaction. The common areas have fireplaces and cafe-style seating to encourage socialization with friends and family. There is also a media and game room, a dining room, outdoor gardens and unique outdoor therapeutic areas. The outdoor gardens provide spaces for yoga, musical performances, and art or garden therapy.

Fig 2. rollins campus courtyard path

3.1.2 analysis

Skyland Trail is a beautiful campus that is surrounded with natural elements. The design of the Rollins Campus building incorporates a large percentage of glazing which allows guests of the campus a visual connection with the natural elements. As well as the visual connection to nature, the Rollins Campus introduces other natural and artificial elements of biophilic design. The use of natural materials, colours, patterns, and water features also contributes to the application of biophilic design. Using biophilic design principles the Rollins Campus also incorporates the fundamentals of restorative and supportive design.

The Rollins Campus has a koy pond, gardens, walking trails, fitness facilities, a games room, a café, and a variety of flexible spaces to host various activities and classes. This is an excellent case study to show how to incorporate the activities that are ideal to improve overall health of individuals suffering with depression. The campus has spaces that encourage mingling and interaction to build strong, interpersonal relationships, and a good support network. The campus incorporates a variety of alternative therapies and provides helpful information on the importance of healthy eating, nutrition, and physical activity.

The negative aspect of the campus is the institutional feel that still remains in some of the rooms. The goal of this practicum is to create a space that removes the healthcare feeling and replaces it with a comfortable and inviting environment. This will be achieved with the right finishes, materials, furniture, and the incorporation of biophilic design principles to create a holistic approach to wellness.

Fig 3. rollins campus dining hall

3.2 anima mentis wellness center

3.2.1 description

Designer: -
Location: Auerspergstrasse, Vienna
Square Footage: 7,000 FT²
Year Completed: October 10, 2018

The Anima Mentis facility is focused on improving the mental health of the individual. Located in Vienna the facility provides a one on one experience and then from the gleaned goals and information from the guest creates what they call a customized mental fitness plan. With guidance from mental health studies conducted at Salzburg's Paracelsus Medical University, Anima Mentis combines a range of techniques and therapies that have been proven to prevent stress and depression (Anima Mentis, 2017). Therapies offered at the Anima Mentis center include snoezelen rooms, light, 360-degree nature cinema, virtual reality, physical activity, seminars, and one on one coaching.

Fig.4 Anima Mentis - sensory room 1

3.2.2 analysis

The Anima Mentis center embodies the goals, both programmatic and design, of this practicum. Focused on holistic wellness the center uses one on one interviews to customize the experiences of their guests to suit their wellness goals. Salutogenic design is evident in their approach to creating programs that are tailored to each person's specific needs. Additionally, supportive design and the theory of attention restoration are evident in the center's program through providing spaces that are intended to relieve stress and promotes relaxation. The center is designed to create a relaxed atmosphere that incorporates sensory applications and interventions similar to a spa. The goals of the center to create a calming space to prevent stress and depression are the same as the goals of this practicum. Using calming rooms and environments, seminars and incorporating physical activity all touch on the theories and therapies proven to help with depression as revealed in the literature reviewed for this practicum. The biophilic applications both literally using moss wall applications and natural materials, botanical representations that can be seen in the acoustical interventions for the sensory rooms in the shapes of leaves that hang from the ceiling, and the projections used to display natural environments. In addition, alternative therapies are used throughout the center as well in the sensory rooms such as light and sound. One negative aspect of this precedent is the size of the multi-sensory rooms. The large rooms don't feel very comfortable but more expansive and cavernous. If the intention for these rooms were to host a small group these spaces would work but for solely providing a room of relaxation for one person, the rooms seem too large. To avoid this feeling in the design of this practicum the rooms will be made smaller with lower ceiling planes.

Fig 5: Anima Mentis sensory room 2

3.3 credit valley hospital

3.3.1 description

Designer:	Farrow Partnership Architects
Location:	Mississauga, Ontario
Square Footage:	11,500 FT²
Year Completed:	2004

The Credit Valley Hospital's Cancer Care and Ambulatory Care Facility is an example of how the architectural and interior design of a space can make a difference in how patients trust and respond to their care. The cancer center is a highly recognized example of biophilic design. The design of the center incorporates organic tree like forms, natural light, foliage, and materials.

Fig 6. credit valley hospital main lobby

3.3.2 analysis

The center is also an example of salutogenic design as well as biophilic design. The incorporation of colour, light, natural materials, and plant life are aspects of design that help to reduce stress, improve mood, and promote mental restoration and recovery. Although the programme of the cancer center differs from this practicum, it is still an excellent example of how to incorporate and implement biophilic and salutogenic design principles. The tree like structures are a great example of how organic forms and nature inspired design can be applied. Despite the vastness of the room, the organic form imitation allows the area to feel natural.

4.0 programme.

.1 project objectives
.2 design objectives
.3 building code analysis
.4 space planning
.5 programme activities
.6 facility operations
.7 user profiles

node.

/nōd/

1. a point at which lines or pathways intersect or branch; a central or connecting point.

2. the part of a plant stem from which new leaves emerge.

4.1 project objectives

The community center is intended to be used by those who struggle with their emotional and mental health in the forms of depression. To achieve a supportive environment the center was designed to provide:

- a safe & welcoming space
- a space to discuss emotional and mental health concerns
- a space to build connections & a support network
- guests with the tools to live a healthier life
- a judgment free center to combat stigmatism
- a variety of workshops & activities for health education & expression of creativity

4.2 design objectives

The concept for the center's design were based on creating a supportive environment using the principles of salutogenic design, biophilic design, colour theory, and including integrative and alternative therapies. This concept was built upon by incorporating the principles of the theories aforementioned and striving to meet these design objectives:

- to use natural materials & elements
- incorporate restorative spaces & provide places of refuge
- maximize the amount of natural light introduced into the space
- use colours that are identified to help with depression
- maximize the environmental quality through air movement & thermal control
- incorporate living walls & plant life
- use natural shapes & organic form
- provide a sense of refuge by using varying ceiling heights
- provide a sense of freeness by designing spaces that guests can use to observe but not be observed using openings, views, and screens

4.3 building code analysis - occupancy

The community center falls under the category of Public and Institutional Zoning. The combination of building use put the building within the A2 and D classes.

A2 group:	D group:
community Hall	offices
restaurant	
gymnasium	
workshop	

SPACE:	EST. FT²:	FT²/PERSON:	EST. OCCUPANCY:
Gymnasium	1,400	8	175
Class Room	2,600	20	130
Lounges	1000	20	50
Offices	1,200	100	12
Kitchen	300	100	3
Dining/Cafeteria	1,000	12	83
		estimated total occupancy:	453

table 5. occupancy

Building Code Data Matrix

Project Description:	Change of use
Major Occupancy:	Group D
Building Area:	47,000 ft²
Number of storeys:	5
Number of streets/firefighter access:	2
Building classification:	3.2.2.58 (56 2010v.)
Sprinkler system proposed:	Entire building
Standpipe required:	Yes
Fire Alarm Required:	Yes
Water Service/Supply is Adequate:	Yes
High Building:	No
Construction Restrictions:	Combustible and non-combustible
Actual Construction:	Combustible and non-combustible

Occupant load based on:	ft² per person	
	Occupancy:	Load:
First floor:	11.8	628 persons
Second floor:	100/20	217 persons
Third floor:	20	391 persons
Fourth floor:	100/20	217 persons
Fifth floor:	20	391 persons

Required Fire Resistance Rating:	Floors: 1 hour minimum
	Roof: 1 hour minimum

Male/Female Count @	50% / 50%	
	Occupancy:	Fixtures Required:
First floor:	628	Min. 8
Second floor:	217	Min. 2
Third floor:	391	Min. 6
Fourth floor:	217	Min. 5
Fifth floor:	391	Min. 6

table 6. building code matrix

4.4 space planning - estimate square footage

CLIENT SPACES	#	ESTIMATED FT²
W/C (UNIVERSAL)	-	TO CODE
CAFE	1	500-1000
MULTI PURPOSE ROOMS	3-4	400
FITNESS CENTER	1	1000-1400
CHANGE ROOMS	2 (M+F)	400
GROUP THERAPY SPACES	1	200-300
THERAPY ROOMS	5 +/-	300-400
GARDEN	1	FLEXIBLE
COMPUTER LAB	1	400
LOUNGE SPACES	MIN.1	800-1000
COFFEE BAR	1 Per Floor	100-200
MEDIA/GAMES ROOMS	1	200-400
QUIET AREAS/NOOKS	4	40-50
		APPROX. TOTAL: 26,300

STAFF/SUPPORT SPACES	#	ESTIMATED FT²
RECEPTION/WAITING	1	350-400
FILE STORAGE	1	100-150
PROGRAM MANAGER OFFICE	1	100-150
PERSONAL TRAINER'S OFFICE	1	100-150
STAFF LOUNGE	1	100-200
CONSULTATION ROOMS	4-6	100-150
KITCHEN	1	200-300
STORAGE	3	50-100
		APPROX. TOTAL: 2,550
		APPROX. TOTAL: 28,850
		+ CIRCULATION (20%): 5,770
		OVERALL TOTAL: 34,620

table 7. space planning - estimated square footage

FIRST FLOOR	
Programme:	Dining, beverages, & cafeteria space
Size:	7,411 FT^2
Required Space:	11.8 FT^2/person
Occupancy:	628 people

SECOND FLOOR	
Programme:	Billiard, game room, & lounge
Size:	7,220 FT^2 (7,220 FT^2 & 7,220 FT^2)
Required Space:	100 FT^2/person & 19.9 FT^2/person
Occupancy:	36 people & 181 people = 217

THIRD FLOOR	
Programme:	fitness center
Size:	7,800 FT^2
Required Space:	19.9 FT^2/person
Occupancy:	391 people

FOURTH FLOOR	
Programme:	Education & Alternative Therapies
Size:	7,800 FT^2 (3,900 FT^2 & 3,900 FT^2)
Required Space:	100 FT^2/person & 19.9 FT^2/person
Occupancy:	39 people & 195 people = 234

FIFTH FLOOR	
Programme:	Support (offices & therapies)
Size:	7,750 FT^2
Required Space:	19.9 FT^2/person
Occupancy:	389 people

OVERALL OCCUPANCY TOTAL: 1,859

table 8. space planning - estimated occupancy

4.5 programme activities

Guest Spaces				
Room	FT²	Qty.	Function	F,F&E
W/C (Universal)	To Code	5	Support needs of clients.	• Required w/c fixtures
Cafe	500-1000	1	Mingle and enjoy meals together	• Tables and seating
Sensory Rooms	400	3 min.	Individual sensory therapy rooms.	• Soft/comfortable seating, sensory stimulation
Fitness Center	1000-1400	1	Physical activity, personal training and gym classes.	• Weights, cardio machines, TRX straps
Group Therapy	200-300	1	Group therapy and flexible space for classes	• Desks/tables, seating, storage, media ability
Multi-Purpose	300-400	4	Fitness classes, informal meetings and classes, art therapies, and seminars	• Storage for equipment • Tables, seating, sink/clean up area, pin up space
Garden	Flexible	1	Garden therapy and retreat for clients	• Storage, planters, seating
Computer Lab	400	1	Classes & research	• Desk, computers, projector and AV equipment
Lounge	800-1000	1 min.	Social space, lounge, mingle	• Comfortable seating
Coffee Bar	100-200	2	Lounge, mingle, eating	• Cabinets for storage, bar style seating, counter space, coffee maker, fridge
Media/ Games	200-400	4	Games, movies	• TV, games, storage, tables, comfortable seating.
Nooks	40-50	4	Quiet time, rest, and meditation	• Comfortable seating and privacy

table 9. programme activities - guest spaces

Staff/Support Spaces				
Room	FT^2	Qty.	Function	F,F&E
Reception/ Waiting Area	350-400	1	Welcome and direct guests, book appointments with various services, and check guests in for activities.	• Desk • Monitor, printer, phone
File Storage	100-150	1	Store confidential patient/guest information.	• Lockable file cabinets
Center Manager Office	100-150	1	Organize and direct programs, activities, meetings, guest speakers and therapists, and classes.	• Desk, computer, phone, lockable storage, desk chair, printer
Staff Lounge	100-200	1	Area for staff to break, relax, and rejuvenate	• Comfortable seating • Kitchenette
Consultation Rooms	100-150	4-6	Private spaces for consultation, counseling, individual meetings and/or family meetings.	• Comfortable seating, desk, file storage, computer, telephone
Small Kitchen	200-300	1	Provide clients/guests with nutritious meals, provide a space for cooking lessons and meal preparation	• Commercial kitchen appliances, counter space to teach and prepare, storage
Storage	50-100	3	Storage for janitorial/cleaning products, garden supplies, art supplies and other therapy needs	• Storage space (shelves, bins, mop sink, etc.)

table 10. programme activities - staff/support spaces

4.6 facility operations

HOURS OF OPERATION:

Monday - Friday	8:30am - 10:00pm
Saturday + Sunday	10:00am - 8:00pm

- Longer hours for maximum access and to provide a wider range of activities and schedule variety.
- Schedule times and activities vary. There are also unscheduled activities available.

LIST OF EMPLOYEES:

EMPLOYEE TYPE	ESTIMATED #
Counselors + Psychiatrists	5-8
Office Manager/Activity Coordinator	1
Activity Directors (Variety)	5-10
Fitness Instructors	1-3
Support/Custodial Staff	1-3
Administration/Reception	1-2
Kitchen Staff	5-10
Volunteers/Mentors	5-10
Teachers/Work Shop Leads	3-5

Total: Approx. 52 employees maximum.

4.7 user profiles

PRIMARY

COUNSELORS + PSYCHIATRISTS

Age:	25-65
Job Description:	Consultation for psychological help or basic counseling needs
Activities:	Open door or appointment based sessions in regards to mental health
Needs:	Desk and task chair for paper work as well as comfortable seating for consultations
	Welcoming, supporting, stress free environment and privacy
	Natural light, confidential spaces, desk space and comfortable seating

OFFICE MANAGER/ACTIVITY COORDINATOR

Age:	20-65
Job Description:	Plan and organize activities and class schedules
Activities:	Contact teachers, fitness instructors, workshop leads and schedule activities
Needs:	Private space to make phone calls, answer emails and schedule activities
	Organized, friendly environment
	Desk space, natural light and a connection to the activity spaces.

ACTIVITY DIRECTORS (VARIETY)

Age:	20-65
Job Description:	Coordinate and lead a variety of activities and classes for the guests
Activities:	Lead daily activities and classes
Needs:	Spaces to teach and store items needed for each activity
	Large, adaptable class rooms, activity spaces and gymnasiums.

ADMINISTRATION/RECEPTION

Age:	20-65
Job Description:	Sign in and greet guests for activities and classes, schedule appointments
Activities:	Manage class and activity sign in, appointments, maintain files and records
Needs:	Access to guests upon arrival to direct them to their activity or appointment
	Computer, desk, and file storage

table 11. primary users

SECONDARY

GUESTS/CLIENTS

Age:	16-30
Job Description:	Teens and young adults experiencing depression and anxiety
Activities:	Engage in activities with other guests, and use professional services
Needs:	Comforting and welcoming staff and positive influences from other guests
	Spaces to attend classes, engage in social activities, seek guidance
	Comfortable seating, private spaces, areas to meet and socialize

FITNESS INSTRUCTORS

Age:	20-40
Job Description:	Conduct and teach fitness classes and the practice of physical health
Activities:	Personal training, fitness classes, sport practices.
Needs:	Spaces to teach fitness classes, importance of physical fitness
	Fitness studios, training spaces and equipment storage

TEACHERS/WORKSHOP LEADS

Age:	25-65
Job Description:	Lead daily workshops and classes
Activities:	Lead activities of their choosing or specialty
Needs:	Large, adaptable class rooms, activity spaces and equipment storage

VOLUNTEERS/MENTORS

Age:	18-35
Job Description:	Mentor and socialize with guests
Activities:	Participate in activities and workshops along side the guests
Needs:	Access to safe and comfortable environments to mentor and socialize

table 12. secondary users

TERTIARY

SUPPORT/CUSTODIAL STAFF

Age:	18-65
Job Description:	Support the center with mechanical, technological and custodial issues
Activities:	Mechanical, technological and custodial support
Needs:	Access to mechanical room, custodial room and storage for supplies

KITCHEN STAFF

Age:	18-65
Job Description:	Prepare and clear breakfast, lunch and dinner
Activities:	Culinary preparation and cooking, general cleaning to dishes and dining area
Behavioral Needs:	Prepare food and drinks for the guests, take payments for food and drinks
Psychological Needs:	Clean and comfortable environment
Spatial Needs:	Basic kitchen elements and spaces

DELIVERY STAFF/ SUPPLIERS/ WASTE REMOVAL

Age:	18-65
Job Description:	Supply the center with basic needs and amenities
Activities:	Deliver supplies and remove waste
Behavioral Needs:	Supply the center with required supplies, remove waste and recycling
Psychological Needs:	Clean and efficient working conditions
Spatial Needs:	Access to storage rooms

table 13. tertiary users

4.7.1 guest narrative

Amy is a 25 year old University student attending the University of Manitoba. Recently she has been experiencing a lack of motivation, constant fatigue and a generally low mood. Amy made an appointment with her doctor and discusses her options after being diagnosed with acute depression. Amy's doctor recommends that she attend node, a new resource center where she can connect with other people her age that are experiencing the same changes she is.

A week later Amy buses to the center, a little nervous, and is greeted at the front reception by Sarah. Sarah asks Amy if she is a returning guest or if this will be her first time attending the center. After a brief conversation of Amy's goals Sarah offers Amy a tour of the center. She shows her the cafe, the coffee/snack bar, the patio and tells her that there will be a local band performing on the Saturday if she would like to attend. Sarah explains that all scheduled performances will be displayed in reception on the monitors but she can also see the full schedule online on their website. Getting off the elevator on the second floor Sarah shows Amy the various forms of entertainment available, from a small movie theater, a games room, and the arcade. From here the girls take the elevator to the third floor where Sarah shows Amy the gym and the list of classes offered that week.

Getting off on the fourth floor Amy is immediately drawn to the center of the space to where the large planted tree grows tall towards the fifth floor and she feels a sense of warmth as the sun shines down from the atrium windows on the roof. Sarah tells Amy that this is where the seminars, classes, and a variety of types of therapy classes take place. Sarah tells her that when she first started attending the center her favourite classes/activities were pottery, indigenous bead work, and the "smash lab" which she explains is where they set up plates or bottles that you can throw balls at as hard as you can to smash them, she compares it to a "non-rigged" carnival game.

Sarah completes the tour on the fifth floor where she explains the sensory rooms and how to book time slots online, at the front desk, or from her phone on the center's app. She also shows her the private meditation room and the massage or physical therapy rooms where they offer a variety of different stress relief treatments.

Amy is drawn to the fireplace lounge, the green walls, and the top of the view that she was so mesmerized with from the fourth floor. At the end of the tour Sarah introduces Amy to Jill who will take over her experience from here. Jill is a wellness consultant at the center, she grabs a coffee for Amy and herself and leads her to her office.

Amy and Jill discuss Amy's wellness goals, schedule, and favourite activities. Amy takes note of how casual the environment is and Jill's amazing ability to make her feel like they have been friends forever. At the end of their conversation Jill shows Amy the wellness plan they have built together to help Amy through what she is experiencing. Jill has identified all of the classes that Amy has indicated she would be interested in and the times they take place, scheduled her for a session in the sensory room so they can identify how and what will help reduce her stress levels and also scheduled her an appointment with the nutritionist and personal trainer that attends the center so she can achieve the physical health goals she had outlined. Jill shows Amy how to download the center's app to her phone and Amy can see her plan, schedule, and recommendations the app has made based on her interests for classes, or therapy session that are coming up. Amy takes note that a couple of her favourite third and bird vendors will be at the center on the 6th and 13th of the month.

Jill accompanies Amy to the elevator and tells her that if anything needs changing with her plan or if she needs to talk that she is always available by phone or email and says she will see her for a check-in appointment in two weeks.

On her way out Amy stops by the coffee bar on the main floor to grab herself a snack for the bus ride back to campus. She says goodbye to Sarah and thanks her for the tour and says she'll see her soon. As Amy stands waiting for her bus she is overcome by a sense of accomplishment and a motivation to improve her health.

A year later, Amy is standing at the front desk of node, welcoming her first new-comer into the center and she couldn't be more excited to share her journey with her.

5.0 site analysis

.1 winnipeg mental health statistics
.2 neighbourhood
.3 building

5.1 winnipeg mental health statistics

Neighbourhood	Population	# of people w/ depression	% of population w/ depression (approx.)
Fort Garry	85,775	26,929	31
Assiniboine South	33,405	7,986	24
St. Vital	67,580	13,943	20
St. Boniface	58,520	11,701	20
River Heights	57,375	12,983	22
Transcona	36,285	7, 408	20
St. James-Assiniboia	58,485	14,742	25
Seven Oaks	68,360	11,881	17
River East	84,605	18,348	21
Inkster	31,985	4,635	14
Downtown	66,850	15,507	23
Point Douglas	40,795	9,322	23

Table 14: Mood & Anxiety Disorder by Winnipeg Neighborhood Cluster in 5 year Period (2010/11 - 2014/15)
Based on 2016 Winnipeg Census Data & WRHA Community Health Assessment 2016

According to the Winnipeg Regional Health Authority (WRHA) over a five year period (2010 - 2015) there was an average of approximately 20% of the population in each Winnipeg neighbourhood that had been diagnosed or treated with depression (Table 15)(. As represented in figure 7, the neighbourhoods of the city are close to equal when comparing the percent of people within a neighbourhood's population affected by mood disorders. Therefore choosing a central location that is easily accessed by all neighbourhoods is important. The 140 Bannatyne location is in the city's central downtown neighbourhood and is easily accessible my various modes of transportation.

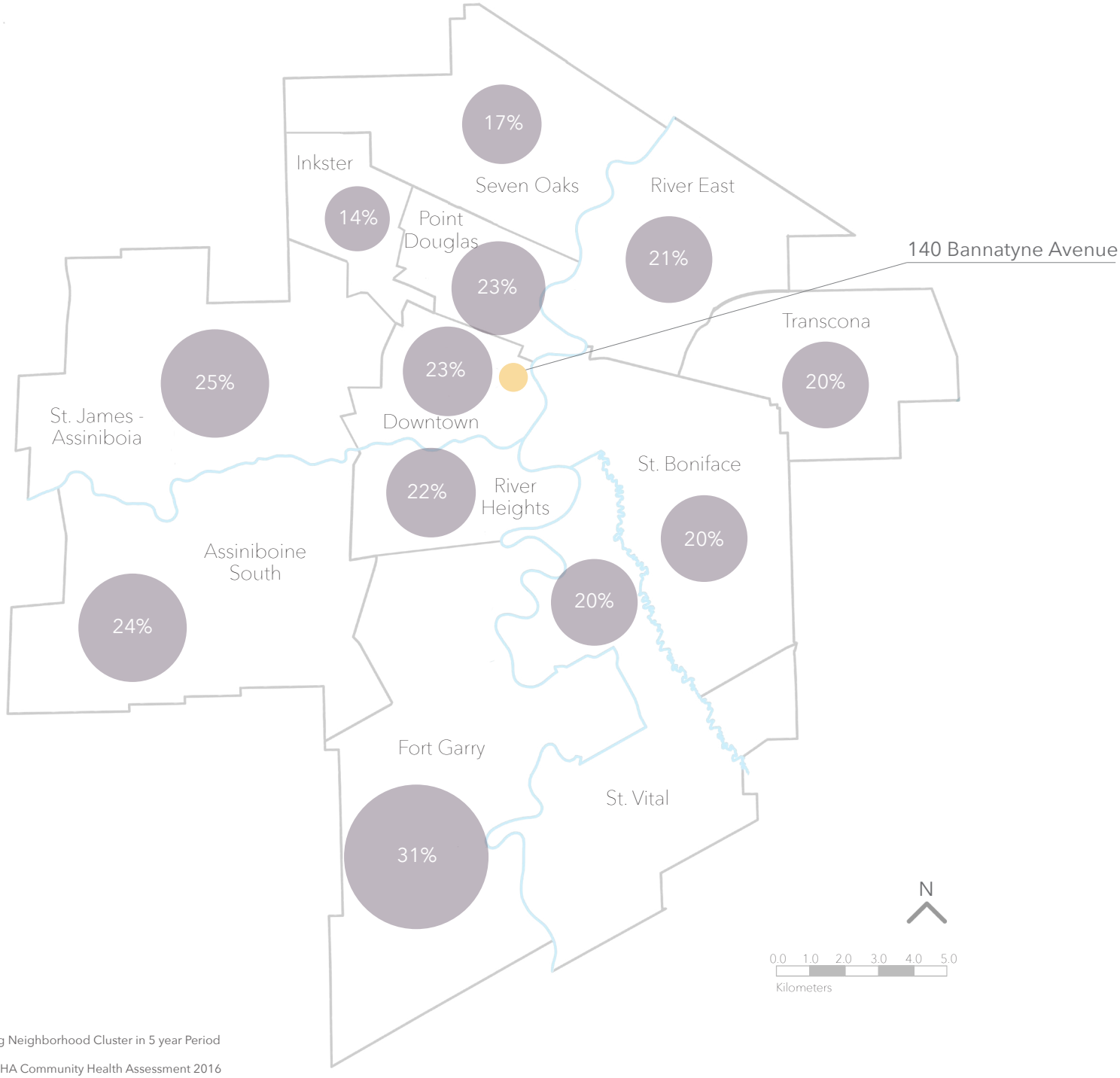


Fig. 7: Mood & Anxiety Disorder by Winnipeg Neighborhood Cluster in 5 year Period (2010/11 - 2014/15)
Based on 2016 Winnipeg Census Data & WRHA Community Health Assessment 2016

5.2 neighbourhood

The project site is in the heart of downtown and in close proximity to some of Winnipeg's most iconic sites and attractions; the Exchange District (see figure 8.). The district is known for its historic architecture, cafes, restaurants, art scene, and shopping. Stephen Juba Park, and Waterfront Drive provide walkable access to green space and the Red River; this is beneficial to incorporating aspects of biophilic design and views, and vistas. The green spaces allow the guests of the center to escape urban life and walk along the river on a path through a treed area. Also, in close proximity is Shaw Baseball Park, the Canadian Museum for Human Rights, the Forks market, and Fort Gibraltar. The neighbourhood in which the center will be located has access to a variety of different activities, and amenities that provide opportunity for a range of personalities and needs. The diversity of available attractions could be beneficial in getting the guests of the center involved and socializing to increase their mood.

Fig. 8: neighbourhood views

neighbourhood map

Fig. 9. neighbourhood map

5.3 building

5.3.1 building history

Located at 140 Bannatyne Avenue, the building has been designated as a municipally designated historic site and has a long and unique history. The Northern Electric Building office was built in 1928 with the original address 65 Rorie Street. The first floor was the one to be viewed by the public, therefore the designers reserved the more expensive materials to be applied here (Historical Buildings Committee, 1985). The exterior of the building is made of a fire-proof steel construction with a redbrick exterior and tyndall stone foundation and trim. In the late 1950s the building was converted into a garment factory but was vacated by 1975 and turned into an office space (Goldsborough & Kramer, 2020). According to an article written by the Historical Buildings Committee in 1984, the building was just being turned into the Rorie Street Marble Club nightclub. The same article also claims that the new life of the building helped to bring new life to the exchange district (Historical Buildings Committee, 1985). In 2005 Prairie Architects added the top 2 floors which included the atrium space (Winnipeg Architecture Foundation, 2020). The first floor has been most recently occupied by nightclubs and is currently the space is occupied by Skip the Dishes as their staff headquarters.

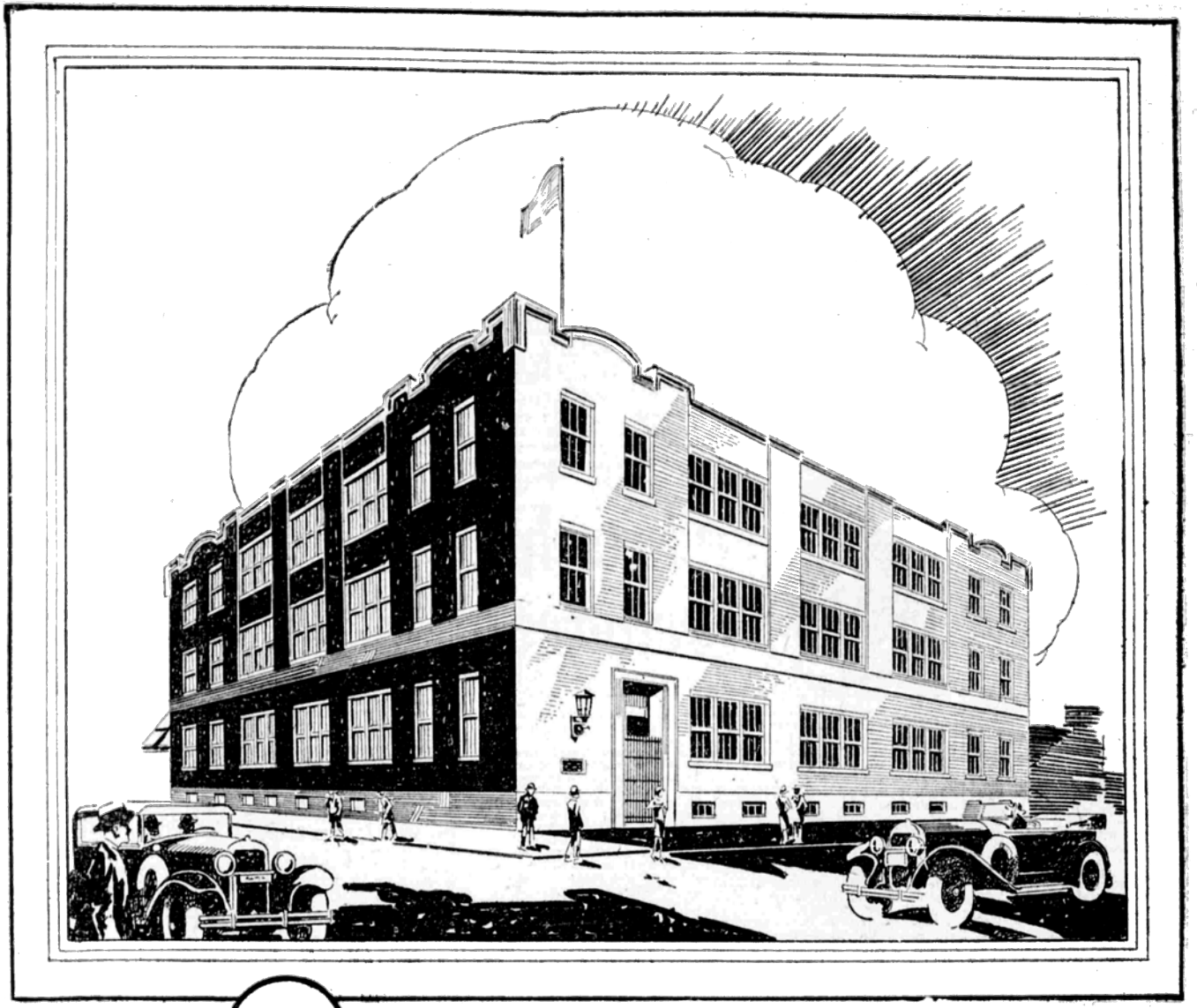


Fig. 10

Opening the New NORTHERN ELECTRIC BUILDING in WINNIPEG

5.3.2 current condition

The building has five floors; each will serve a purpose for different areas of the programme. There are natural and original materials within the space that will be salvaged and maintained to keep the integrity of the original building. More natural elements will be integrated to contribute to implementing biophilic design principles.

The main floor vestibule and elevator lobby provides access to the other floors, in the programmable space on the main floor there will be a café and casual meeting place for the guests of the center. The main floor café will have a small kitchen and coffee bar. The main floor also has large windows to maximize natural light entering the space and access to views of the surrounding area. The café will also be able to access a patio that will have greenery and natural elements to create a space that simulates a natural environment.

fig. 11. building exterior

The second and third floors will be the recreation areas such as a gym, games rooms, and lounges.

The forth and fifth floors have access to additional natural light through the atrium in the center of the building. The fourth and fifth floors will be the hosts to the offices, quiet lounges, classrooms, and meditation spaces. Ideally to incorporate horticulture therapy and access to private green spaces the roof will be turned into a green roof and host an area to practice horticulture. To maintain the quality of light within each floor there will be a minimal use of walls and when partitions are required they will be glazed with use of vinyl film for privacy. Maximizing the natural elements available to the site and access to the near by green spaces will be essential in achieving a supportive and healing environment that will support the holistic model of health.

fig. 12 WALL BRICK

fig. 13 WOOD ACCENTS

fig. 14 CONCRETE FLOOR

fig. 15 WOOD COLUMNS

fig. 16 WOOD SLAT CEILING

5.3.2.1 interior finishes

fig.17. overall first floor

5.3.2.2 interior photos

fig. 18 north facing windows

fig. 19. west facing windows

north exterior elevation | nts

fig 20

west exterior elevation | nts

fig. 21

6.0 design intervention

.1 literature review synthesis
.2 space planning
.3 first floor intervention
.4 fourth floor intervention
.5 fifth floor intervention
.6 building sections

6.1 literature review synthesis

Applying the concepts of salutogenic design, and the supporting theories of biophilic design, restorative environments, supportive environments and attention restoration, the center was designed to host a variety of guests and provide them with distraction from the stress of everyday life. Serving as a support center the space is programmed to build custom treatment programs incorporating traditional therapy approaches combined with alternative therapies and coaching to encourage a better quality of life.

The three categories defined in the field of salutogenics applied are comprehensibility, manageability, and meaningfulness. Comprehensibility was applied to the design of the center through way-finding and application of colours, natural elements and defining landmarks or focal points. Way-finding was achieved by incorporating wood flooring and carpet to define areas. The negative space, or original flooring, was maintained to denote the circulation paths. Colours were applied using the carpeting, upholstery and the colours applied to the fifth-floor offices/consult rooms & group therapy room. On the first-floor colour was also introduced using large aggregate terrazzo for the reception desk and the bar top. The natural elements introduced into the design include the application of green or live walls, wood flooring, wood accents on new surfaces introduced and maintaining the existing wood beams and ceiling. Defining landmarks or focal points were introduced as representations of each floor. For the first floor the representation is wood. On the first floor the use of wood as a material is very present throughout, the window seats, benches and planters are all constructed from wood, the hanging tables and the table in the private room are made of raw edge wood slabs, and the reception desk and bar are both clad in wood. The fourth floor, or education floor's, focal point is the large planter and tree. This is to represent growth and provide a direct connection with nature. The fifth floor or therapy floor is represented with water. The intent was to create a serene space that incorporated spa like qualities to evoke a sense of calm and relaxation as this floor could be the most daunting for the guests.

Manageability was an aesthetic application using mainly biophilic elements such as natural light, and green environments. It was important to the design to allow as much of the natural light from the large perimeter windows to penetrate the space. To achieve this if the room required a wall for privacy it was constructed of mostly glass, this allows for acoustical privacy while still allowing the light to continue through into the next space. Using glazing for the walls in the therapy area was not ideal, therefore the sensory rooms were placed toward the interior, close to the atrium. The atrium was able to make up for the lost light from the exterior windows and therefore placing walls for maximum privacy still allowed for the floor to have adequate access to daylight. Green environments were introduced throughout the building using a variety of green walls, moss walls, plants, and access to the outdoors through the patio.

The program activities implemented aspects of meaningfulness through the inclusion of alternative therapies such as music, art, culture, and other creative, positive distractions. The education floor, fourth floor, is equipped with two multi-purpose rooms intended to be fully flexible to be able to host a variety of workshops, art therapies, other creative therapies as well as seminars and life-style education classes. Manageability also helped inform the programme and the design, with the inclusion of a fitness center, a variety of sensory rooms, and providing access to resource materials and seminars or classes to improve life skills. The fitness center on the third floor also contributed to meaningfulness by providing the guests with autonomy and a sense of freedom. In addition to the fitness center, massage and other physical therapies will be available. One of the biggest goals aesthetically, and environmentally was to provide a sense of comfort both physically and mentally. This was incorporated in the design using furniture that provided comfort but more importantly the center provides the positive distraction and acceptance to achieve the mental and emotional comfort many people who suffer from depression need.

Biophilic design is the unifying design language carried throughout the entire center. The aspects of biophilic design through the center include the use of the existing wood finishes, the oval, round, and organic shapes of furniture, celling planes and separation of space using changes in flooring. On the first floor the biophilic element of colour, is introduced as aforementioned using the large aggregate terrazzo, upholstery, and by implementing green walls into the space. The oval and egg shapes are seen on the first floor in the rounded edges of the flooring, the reception desk, and built in benches. Using large, fully opening patio doors the element of inside-outside spaces is achieved by removing this thresh hold between the lounge area and the patio. Prospect and refuge are also incorporated into the design of the first floor through the use of screens, planters and different partitions. On the fourth floor, the design aspects of colour and organic shapes are introduced using partitions, screens, flooring and furniture and prospect and refuge was achieved with varying ceiling heights. Wall planting and the tree in the center of the atrium also bring the living and green aspect into the space and risk and peril are also introduced through the swinging chairs near the atrium. On the fifth floor, the therapy floor, there are also green or live walls, the colour is introduced through upholstery and wall colour within the consultation rooms, water is used with the waterfall feature at the entrance and fire is included in the fireplace lounge.

Colour contributes to the physical environment and can help to improve mood and overall health. The colours that have the alleged greatest impact on depression and depression symptoms are red, orange, gold, yellow, green, blue, and violet have therefore influenced the colour palette within the center and used mainly natural elements and small areas that utilized these colours. Due to the subjective and potential cultural preference of colour the therapy rooms on the fifth floor are equipped with colour and light controls to personalize the experience. Everyone experiences and manages stress differently and when untreated can have negative health effects that include depression. Through the application of the explored theories including physical interventions and programmed therapies the guests who attend the support center are provided with a comfortable and personalized experience to address their mental health concerns.

6.2 space planning

Each floor will serve a purpose for different areas of the programme. There are natural and original materials (e.g., the slatted ceilings, timber columns, and brick) within the space that will be salvaged and maintained to keep the integrity and authenticity of the original building. Because these materials were reserved exclusively for the first floor the materials will be replicated and applied to the upper floor as well to unify the look. More natural elements, such as wood, linens, stones, and natural decorative elements, will be integrated to implement biophilic design principles.

The main floor has a vestibule and elevator lobby that provides access to the other floors. In the programmable space on the main floor there is a café and casual meeting place for the guests of the center. The main floor café is equipped with a small snack and coffee bar. The main floor also has large windows to maximize natural light entering the space and provides access to views of the surrounding area. The café also provides access to a patio that has a variety of greenery and natural elements that create a space that simulates a natural environment. The second and third floors are the recreation areas housing the gym, game rooms, and lounges. The fourth and fifth floors provide access to additional natural light through the atrium in the center of the building. The fourth and fifth floors host the offices, quiet lounges, classrooms, and meditation spaces. In order to incorporate horticulture therapy and access to private green spaces. It would be ideal to turn the roof into a green space and hosts an area to practice gardening and horticulture therapy.

To maintain the quality of light within each floor there is a minimal use of walls and when partitions are required, they are glazed with use of vinyl film for privacy. Maximizing the natural elements available to the site and access to the nearby green spaces was essential in achieving a supportive and healing environment that support the holistic model of health.

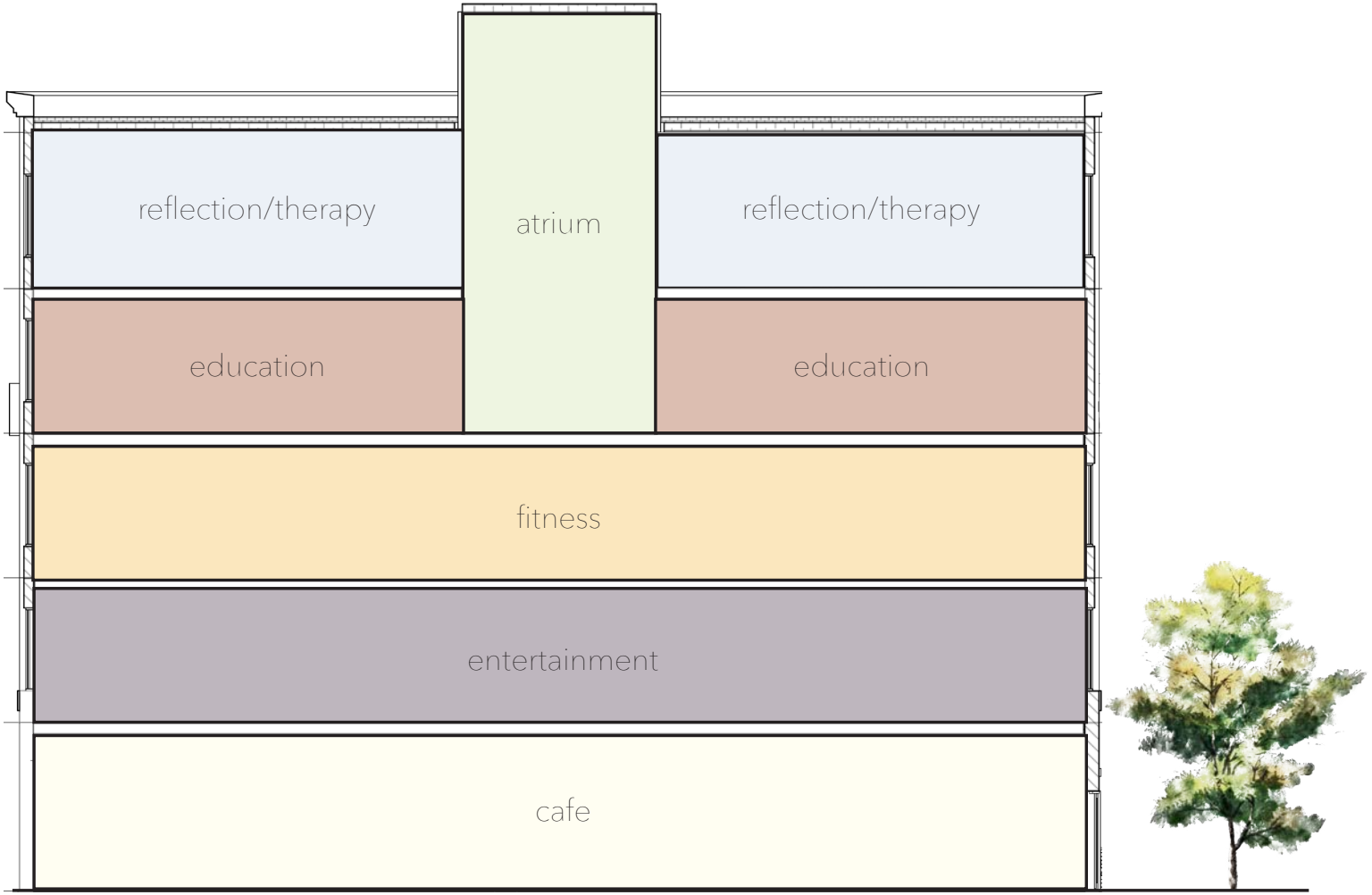
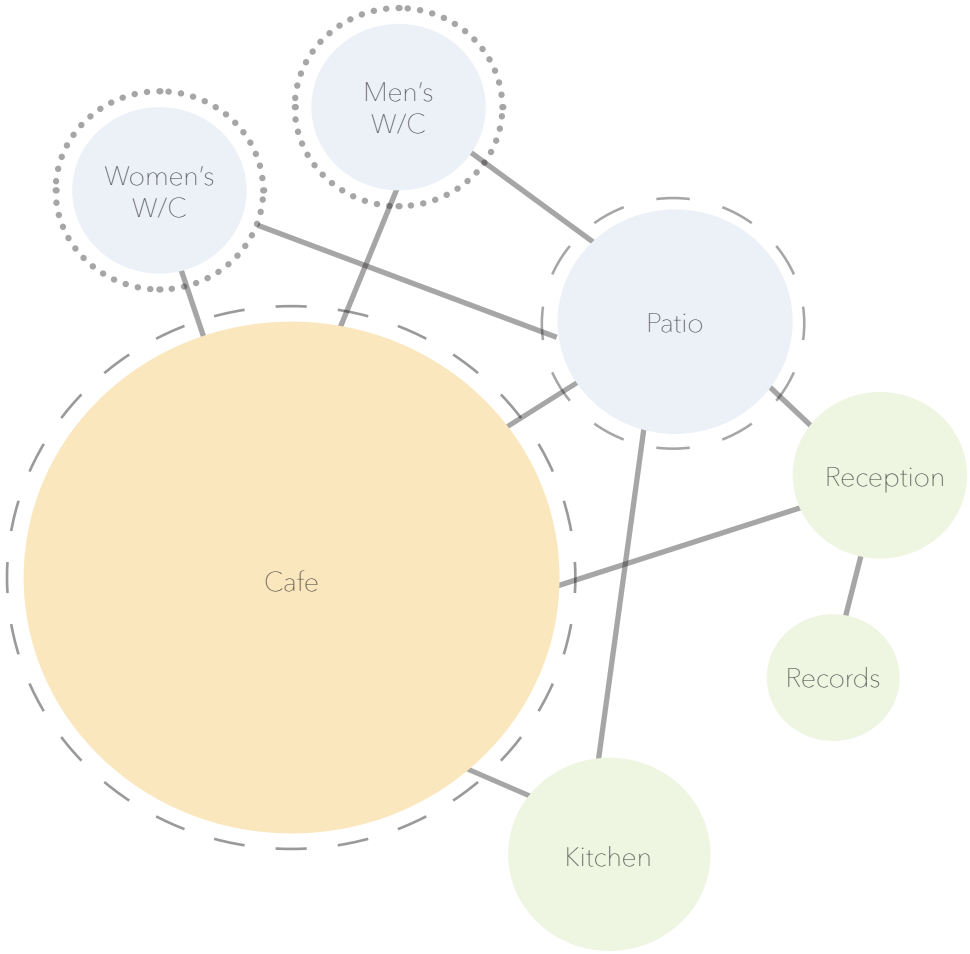


Fig. 22 - building section

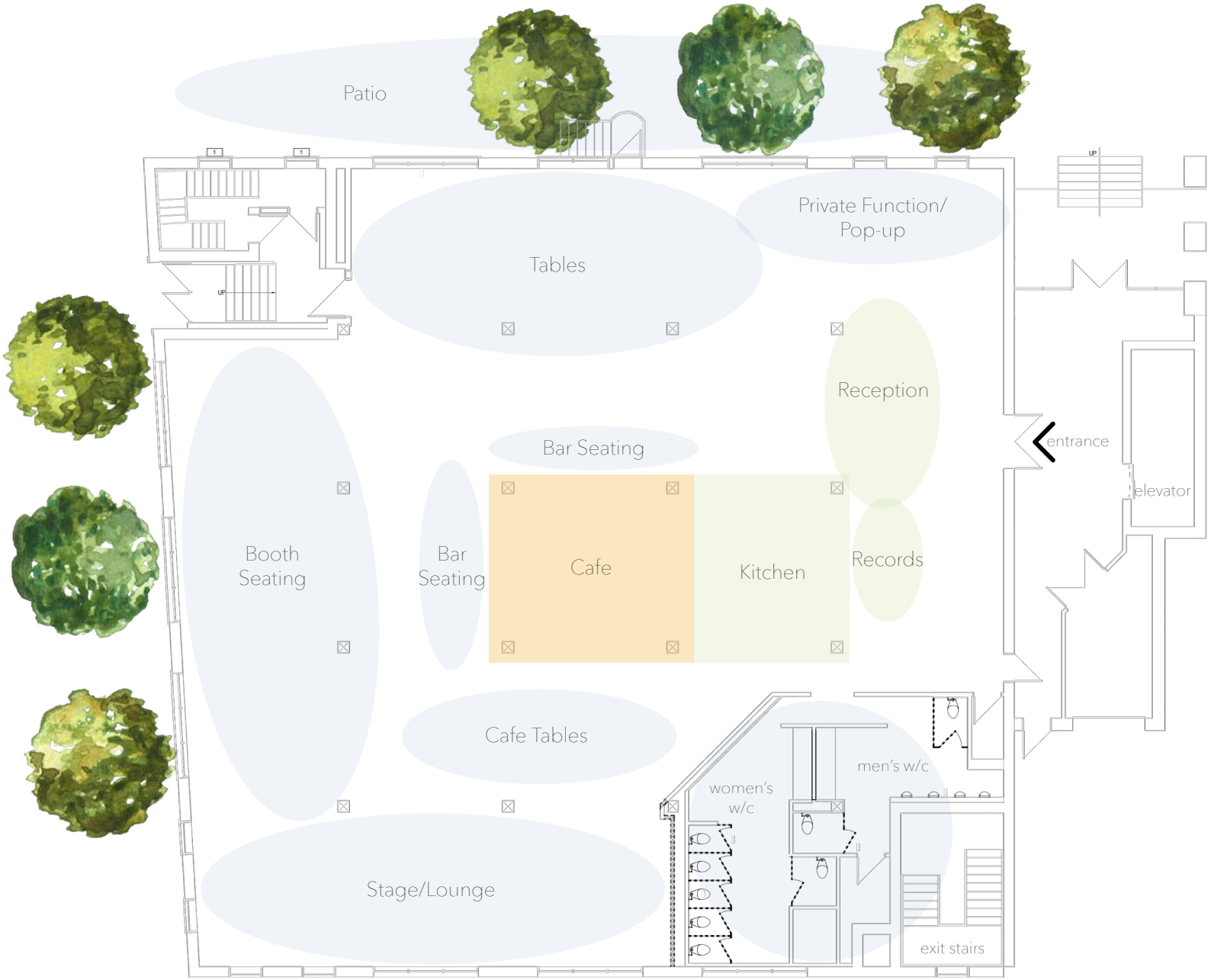
6.2.1 first floor adjacencies



Legend:

- Staff Areas with Guest Access
- Staff Access Only
- Required Adjacency
- Acoustic Privacy
- Access to Views/Daylight

fig. 23 - first floor adjacencies



first floor plan | nts

fig. 24 - first floor space planning

6.2.2 fourth floor adjacencies

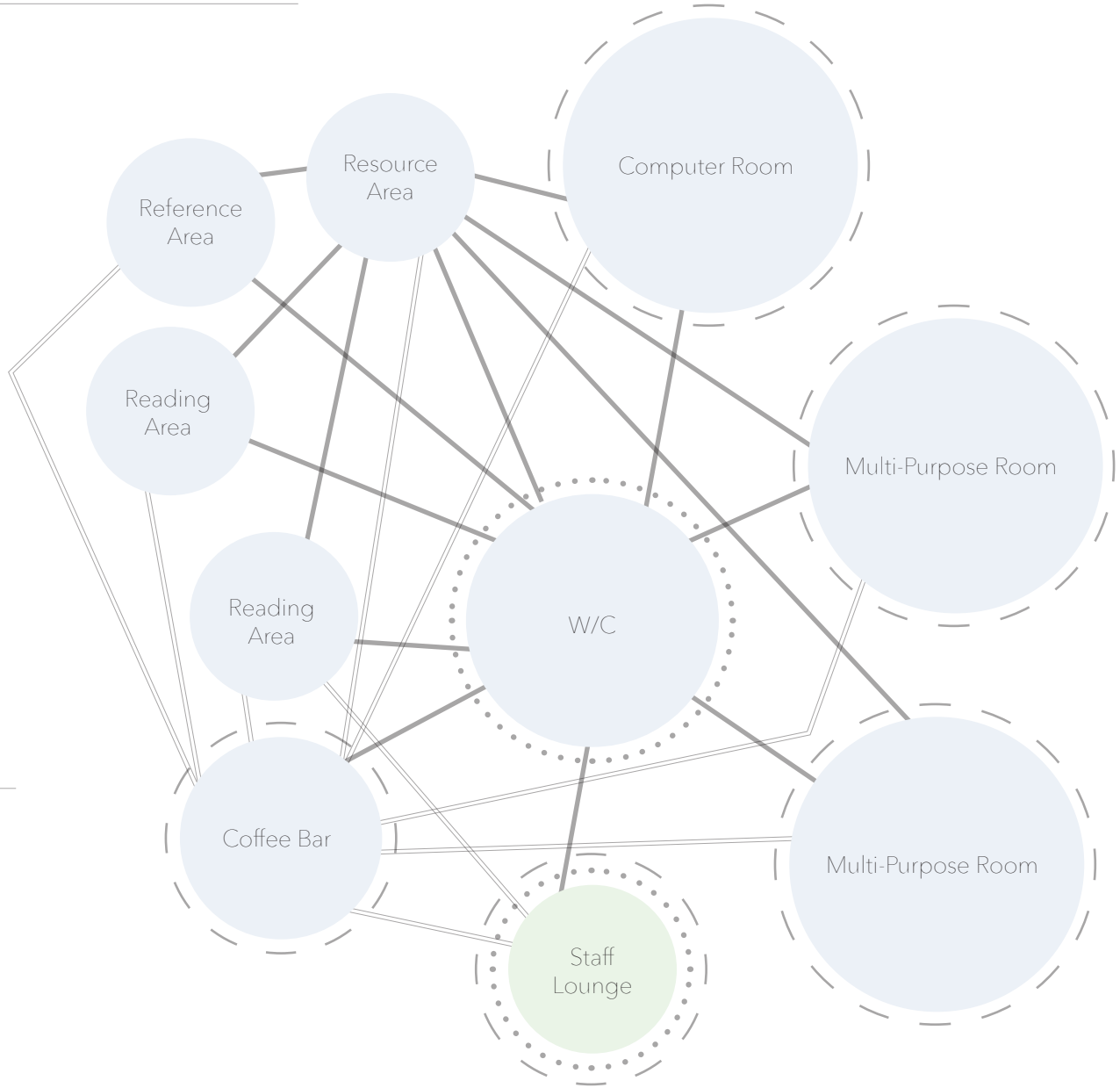


fig. 25 - first floor adjacencies

fourth floor plan | nts

fig. 26 - fourth floor space planning

6.2.3 fifth floor adjacencies

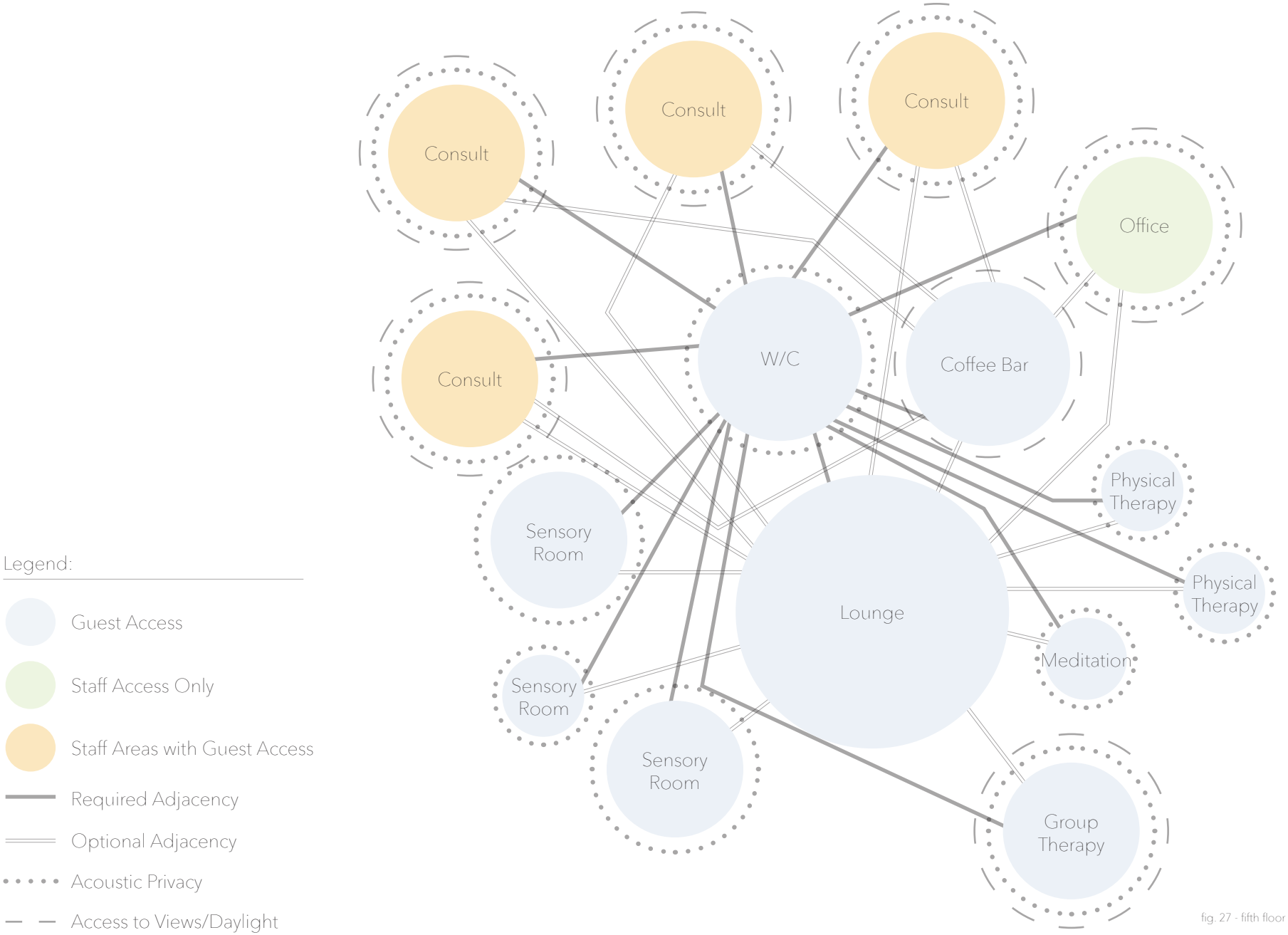
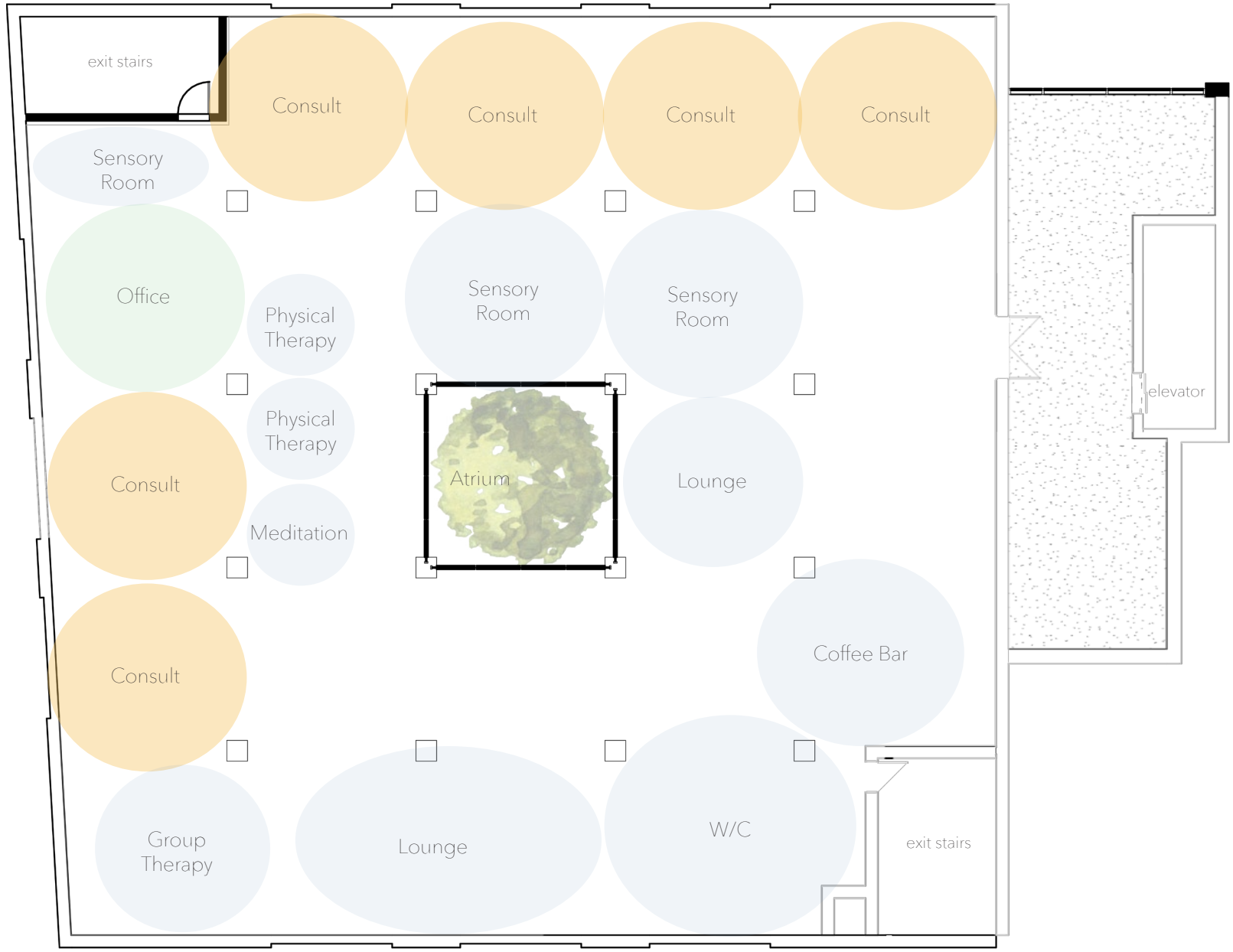


fig. 27 - fifth floor adjacencies



N

fifth floor plan | nts

fig. 28 - fifth floor space planning

6.3 first floor

The first floor was designed as the cafe. This is the main pro-social space that encourages interaction between guests. Guests check in here at the reception desk for their classes, seminars or appointments. If the guest is just attending the center for a casual social visit then they are able to use to first floor without the need to check in. The stage serves as additional seating when not in use but also provides guests with entertainment for events. The window seats provide an alternative seating area for a casual, more comfortable space to sit that has direct access to sun and views of the street. The coffee bar and kitchen serve the guests with nutritional meals and snacks to help support their health. There is direct access to the patio from the first floor and uses large doors to remove the threshold between the indoor and outdoor spaces when the weather is favorable as well as providing additional day lighting into the space. There is also a private room on this first floor that allows for private events or pop up shops for local vendors.

first floor plan | nts

fig. 29

cafe | perspective

fig. 30

reception elevation | nts

fig. 31

cafe north | nts

fig. 32

cafe | perspective

fig. 33

stage east elevation | nts

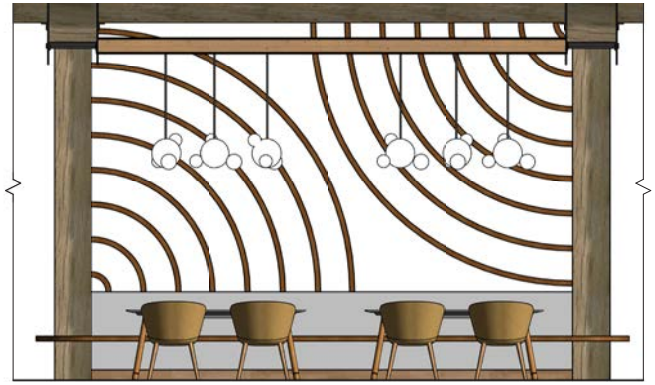
fig. 34

stage south | nts

fig. 35

stage | perspective

fig. 36



booth elevation | nts

fig. 37

cafe west | nts

fig. 38

view of bar | perspective

fig. 39

6.4 fourth floor

The fourth floor is the education floor. Here is where the guests attend seminars, classes, participate in a variety of art therapies, and have access to computers. The casual seminar space can be used for small informal seminars or a social space where guests can relax and interact in a different setting. What was once the atrium space has been opened up to incorporate a large planter and tree that connects to the fifth floor. The reading areas allow for casual browsing of materials both entertaining and educational. The reading area to the east of the atrium uses swings as the seating option to incorporate an element of fun and motion which can be also therapeutic.

fourth floor plan | nts

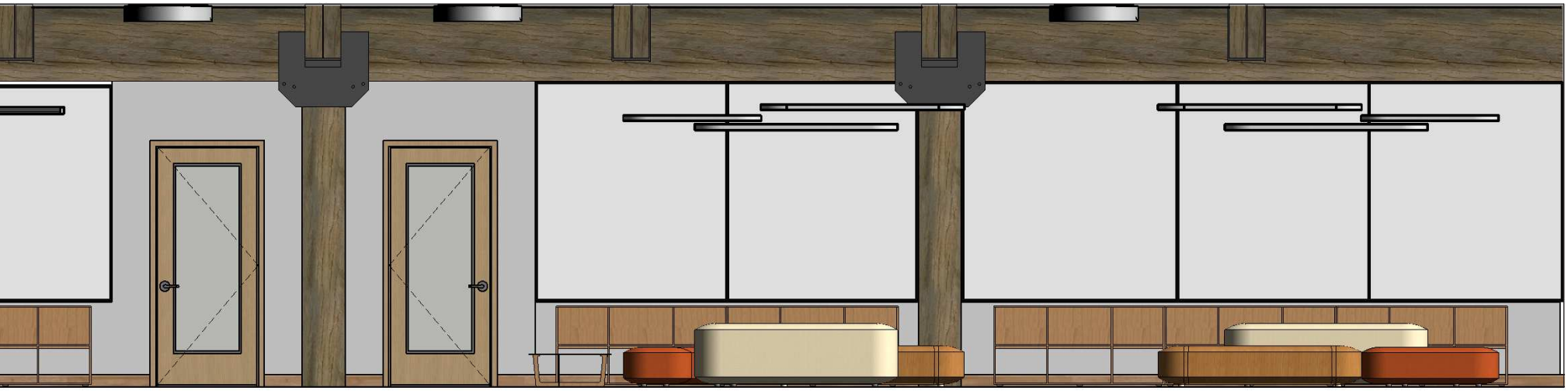
fig. 40

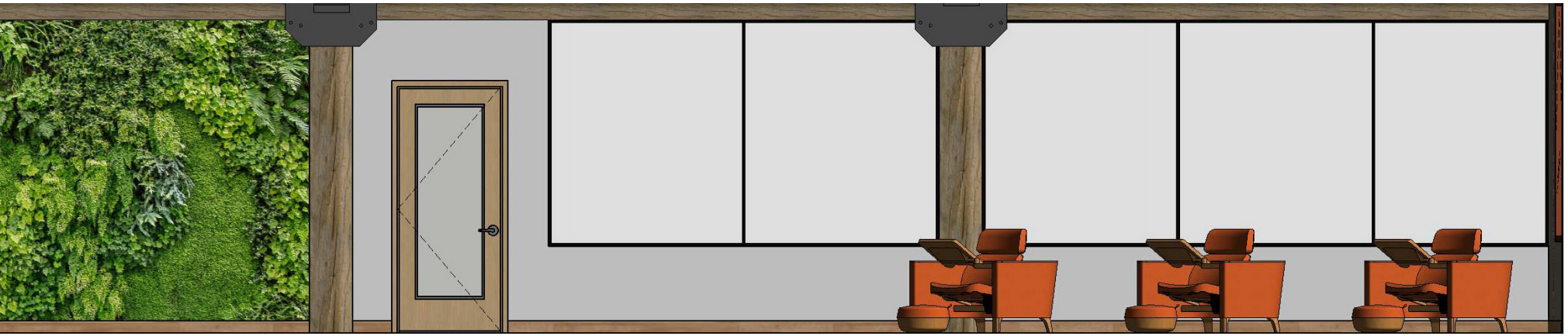
fourth floor north | nts

fig. 41

fourth floor south | nts

fig. 42





fourth floor overall | perspective

fig. 43

fourth floor atrium| perspective

fig. 44

fourth floor MPR | perspective

fig. 45

6.5 fifth floor

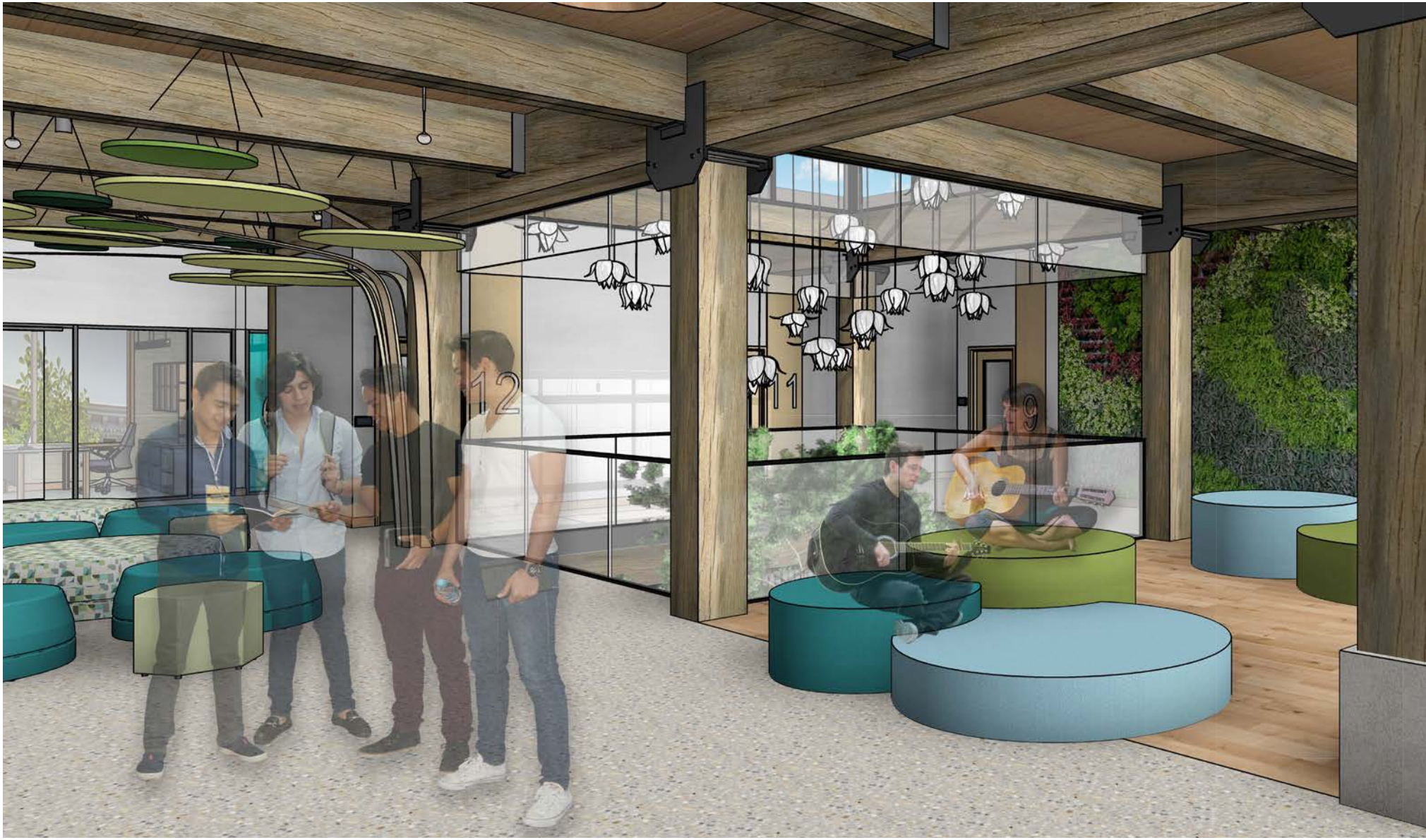
The fifth floor is called the support floor. This floor incorporates a variety of different therapies such as group therapy, sensory rooms, and consultations. This floor was designed to have a spa like quality to it to maximize relaxation. Upon first entering this floor the guests are greeted with a large water feature that stimulates both the visual and auditory senses. Additionally there is the fireplace that uses fire as the sensory quality to provide a sense of warmth and home like feeling to the space. Around the perimeter of the floor are the consultation rooms. These rooms have glass walls with film applied to ensure maximum privacy while allowing light to penetrate into the space. These rooms are identified by number as well as colour as shown in the elevations. This floor incorporates a number of green walls to enhance the environmental quality and the tree from below connects the fourth and fifth floors.

fifth floor plan | nts

fig. 46

fifth floor south | nts

fig. 47



fifth floor overall | perspective

fig. 48

fifth floor atrium live wall | nts

fig. 49

fifth floor atrium | perspective

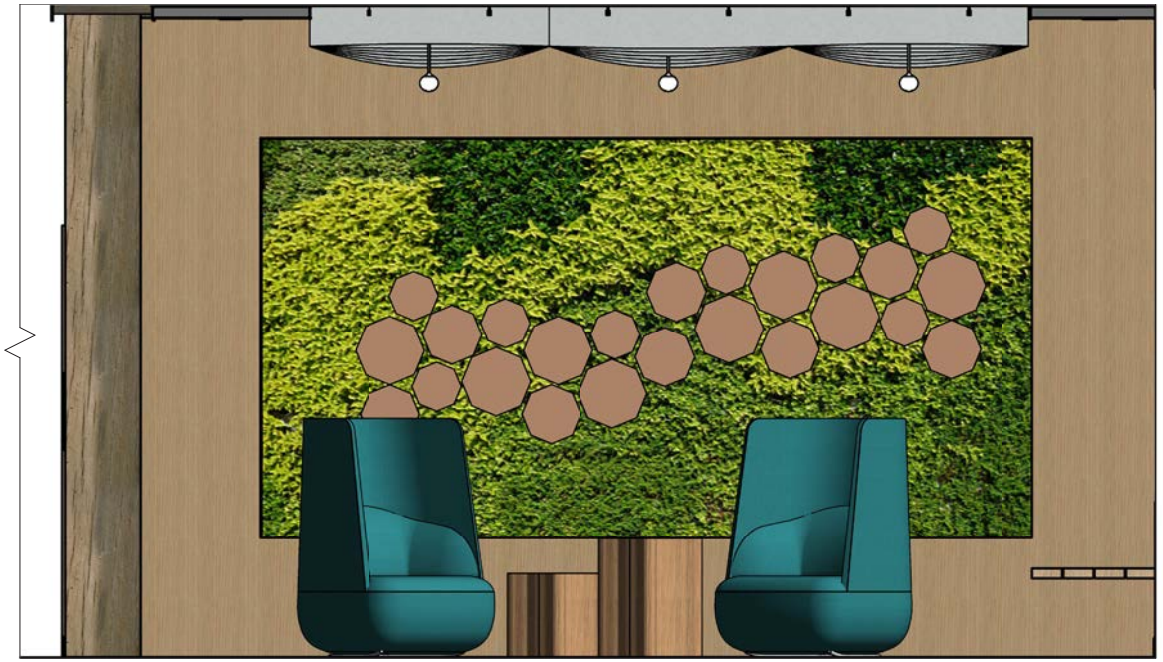
fig. 50

fifth floor therapy rooms | nts

fig. 51

fifth floor fireplace lounge | perspective

fig. 52



fireplace lounge - east | nts

fig. 53

fifth floor consult rooms north | nts

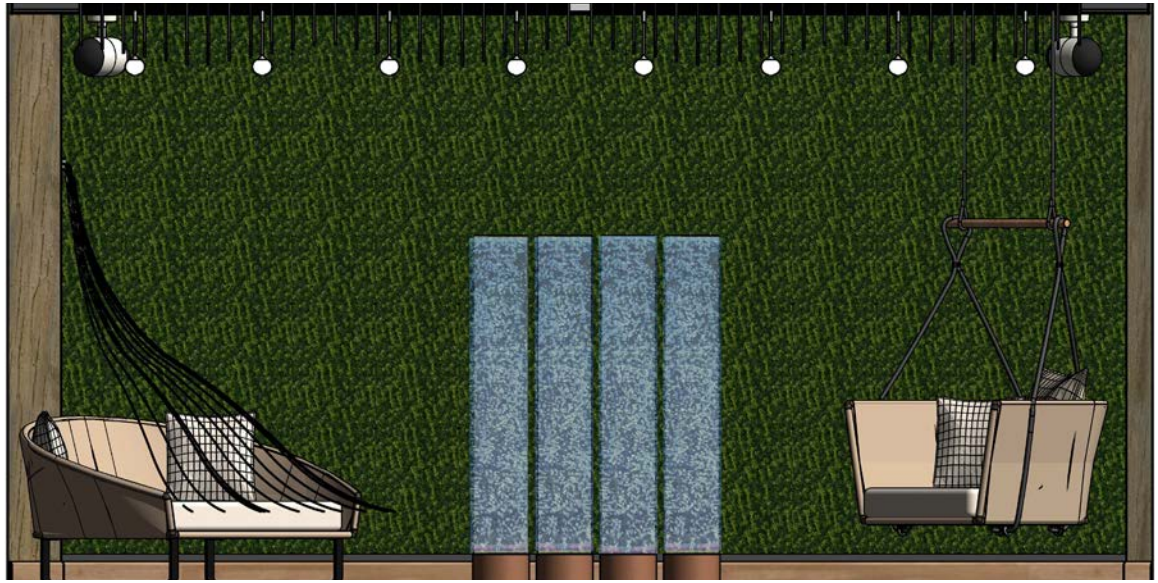
fig. 54

fifth floor consult rooms east | nts

fig. 55

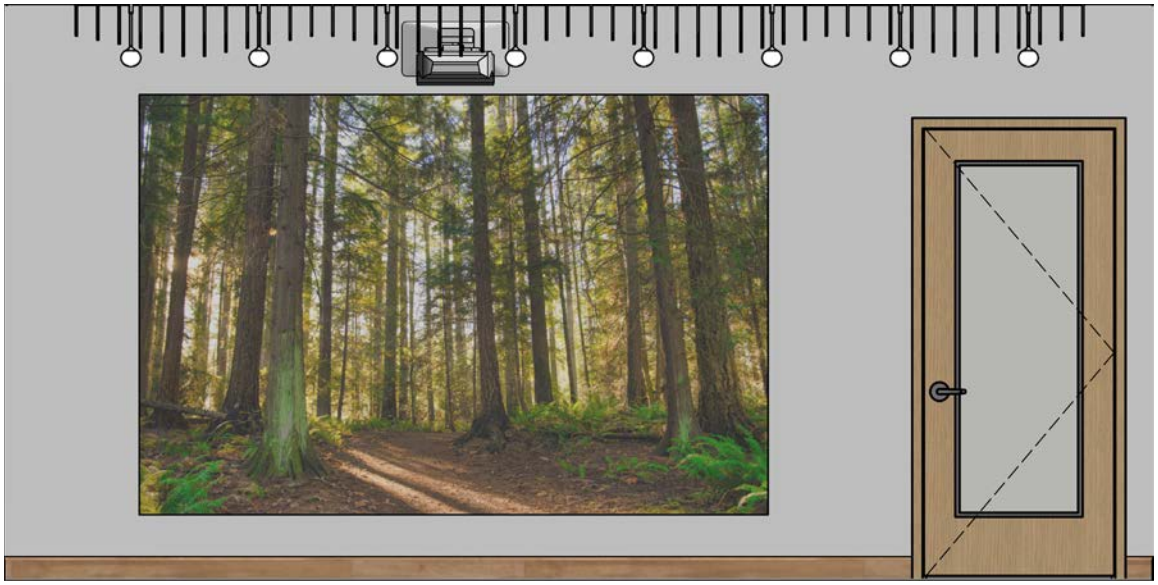

1


5



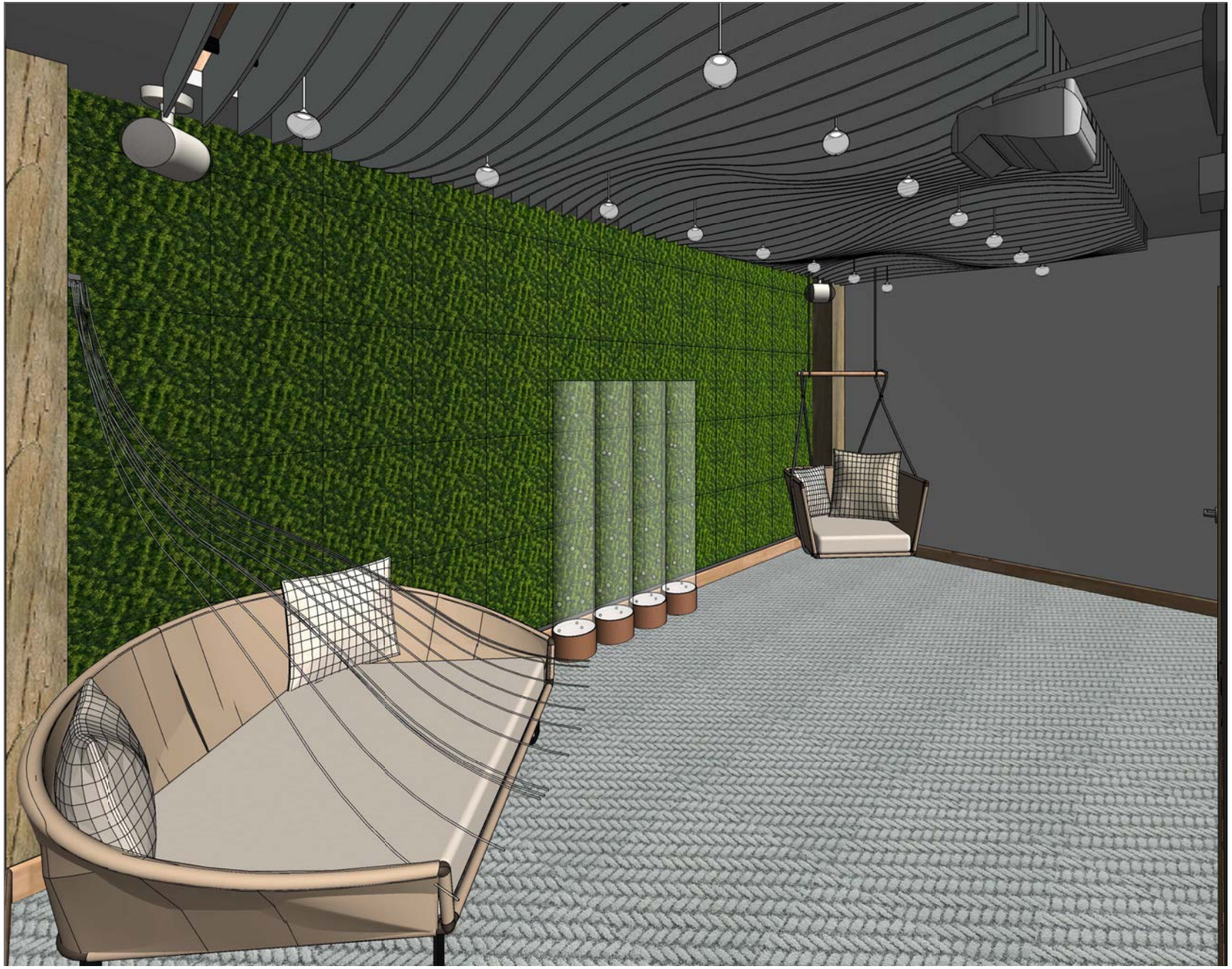
typical sensory room - north | nts

fig. 56



typical sensory room - south | nts

fig. 57



typical sensory room | nts

fig. 58

6.6 building sections

north - south | nts

fig. 59

east-west | nts

fig. 60

6.7 summary / reflection

I have struggled with depression for fifteen years. It took me ten of those years to come to terms with my mental illness and finally reach out and improve my health. It was terrifying to sit in front of a doctor and admit or even just inquire about my mental health struggles. The day I decided to walk into that doctor's office was the best thing I could have ever done for myself. This experience made me a stronger and healthier person and I wish I had done it sooner. I wanted to create a space that had the ability to comfort and support those who are suffering from depression and relieve the fear factor that is associated with accepting you have a mental illness.

This practicum allowed me to explore the ways in which a physical environment can affect a person's mood and overall health. One goal for this design was to apply elements of an interior environment that could help to improve the overall health and wellbeing of individuals who suffer from depression. Researching salutogenic design provided an understanding of how to approach design by paying attention to the specific demographic and their needs. From this understanding I was able to look at the other theories I chose and apply the design elements that best suited the space I was trying to create.

Understanding the interior environment and the aspects of the environment that can be used to improve overall health and wellbeing provided me with the tools I needed to apply interventions into the environment such as natural elements and materials, private spaces and pro-social spaces, and sensory rooms. The theories also helped form techniques and applications that could support people with depression through incorporating colours, a variety of spaces that appealed to different people, and the use of screens and materials to help relieve stress and provide support.

It was also important to apply spatial techniques that have the ability to help others emotionally. By designing pro-social spaces, I was able to achieve spaces that encourage the guests of the center to be social amongst themselves and built stronger support networks. Spatially it was also important to allow privacy or respite areas to give people spaces to decompress and de-stress from their daily stressors and/or time to reflect after a therapy session.

This project also helped me to understand how I could apply these elements in my life to help myself when I am stuck in the ruts that come with depression. It was beneficial to have the personal connection to the clientele that would be using the space so I could put myself in these spaces and consider how I could react or feel in the environment. The ability to understand your clients and the users of the spaces is a crucial aspect of the profession of interior design. Sometimes the design and look of a project can take precedence over the consideration of the users of the space. Applying salutogenic design, or human centered design, to each project has the ability to elevate a design beyond the aesthetic appearance of the space. The user should always be at the center of any design decision.

This area of design was difficult to research or find precedents for as it is an under studied design typology. Although there are some places that offer treatment and campuses for people who need treatment during or after an episode, I found it very challenging to find any examples of places that provide a proactive method of treatment that helps maintain overall health and wellbeing rather than fix health issues after they occur. Anima Mentis was an excellent example of how a center can tailor a program to support specific wellness goals. As the mental health movement gains momentum, it will be interesting to see the research and outcomes that building places such as Anima Mentis and other wellness centers can have on those with mood disorders. I think mental health is a field that needs to have a proactive approach to design to prevent and/or reduce the rate of suicide.

The literature reviewed provided a solid insight into how to design to relieve stress and focus on the needs of the individuals that will be using a space. I think it is important to be conscious of how big of an effect the physical environment can have on anyone who inhabits a space. Further research is needed to understand the emotional effects that environments have on people and how to design to suit specific needs beyond spatial planning and physical limitations.

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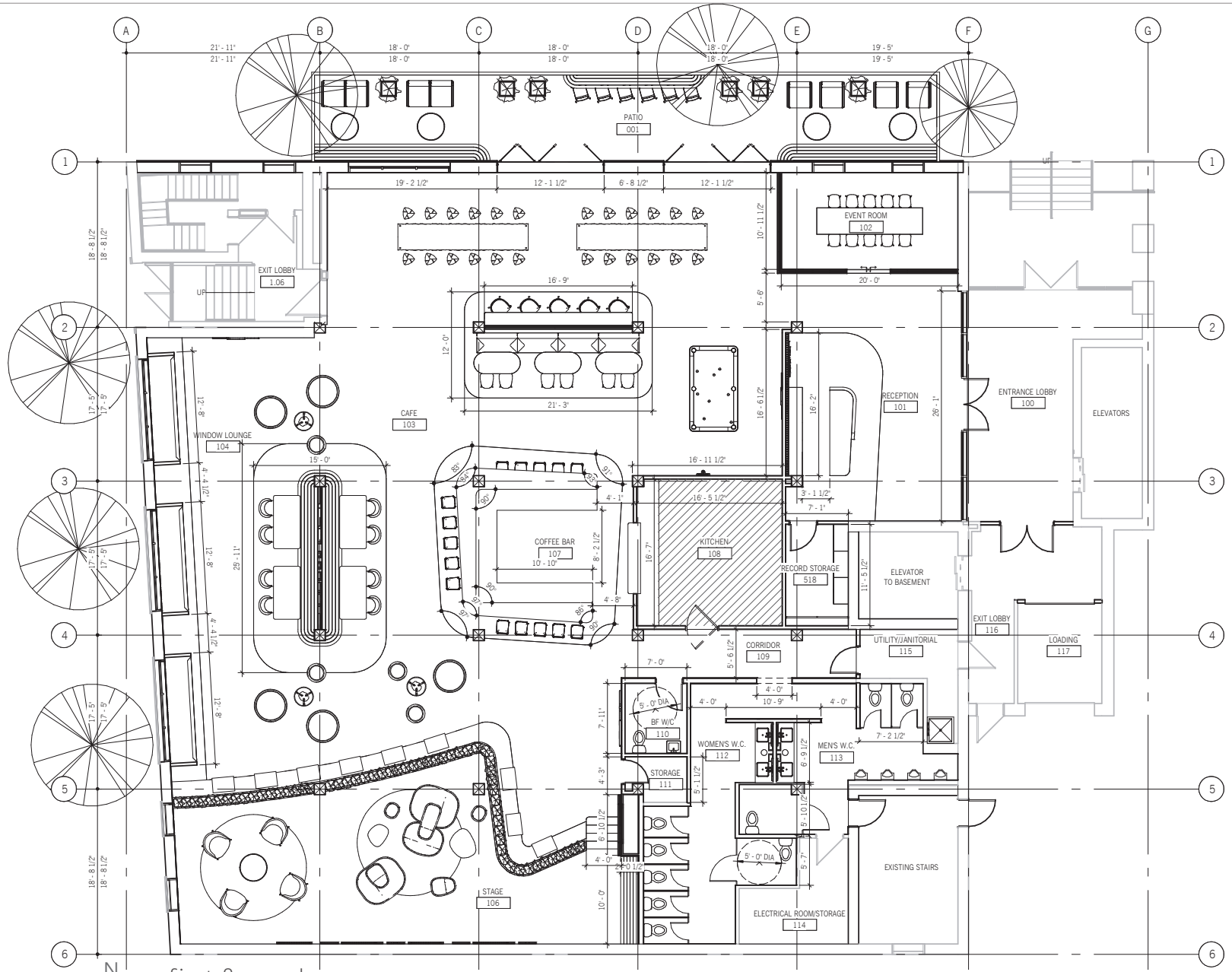
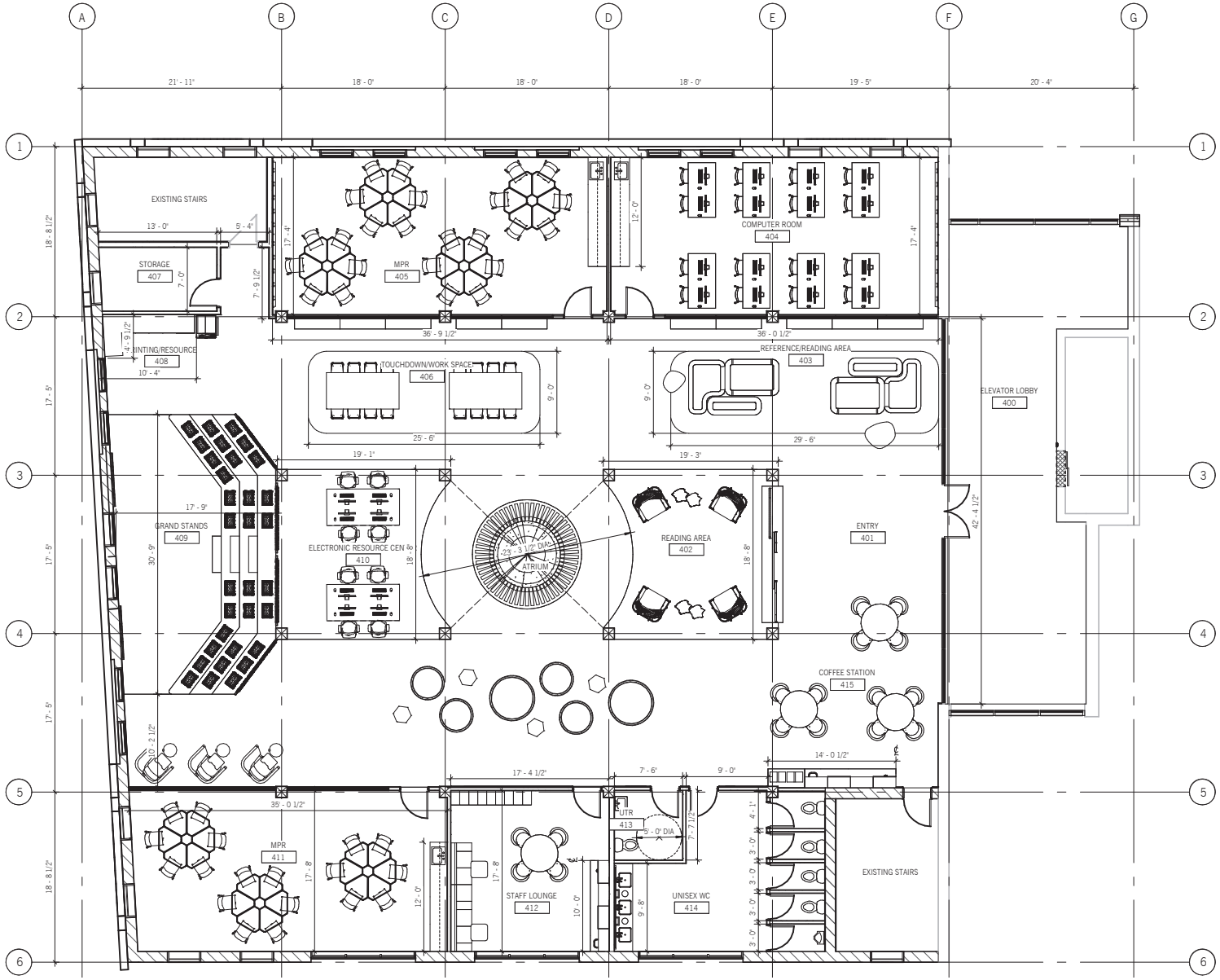
A.1 appendix 1 - floor plans



first floor plan

nts



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fourth floor plan

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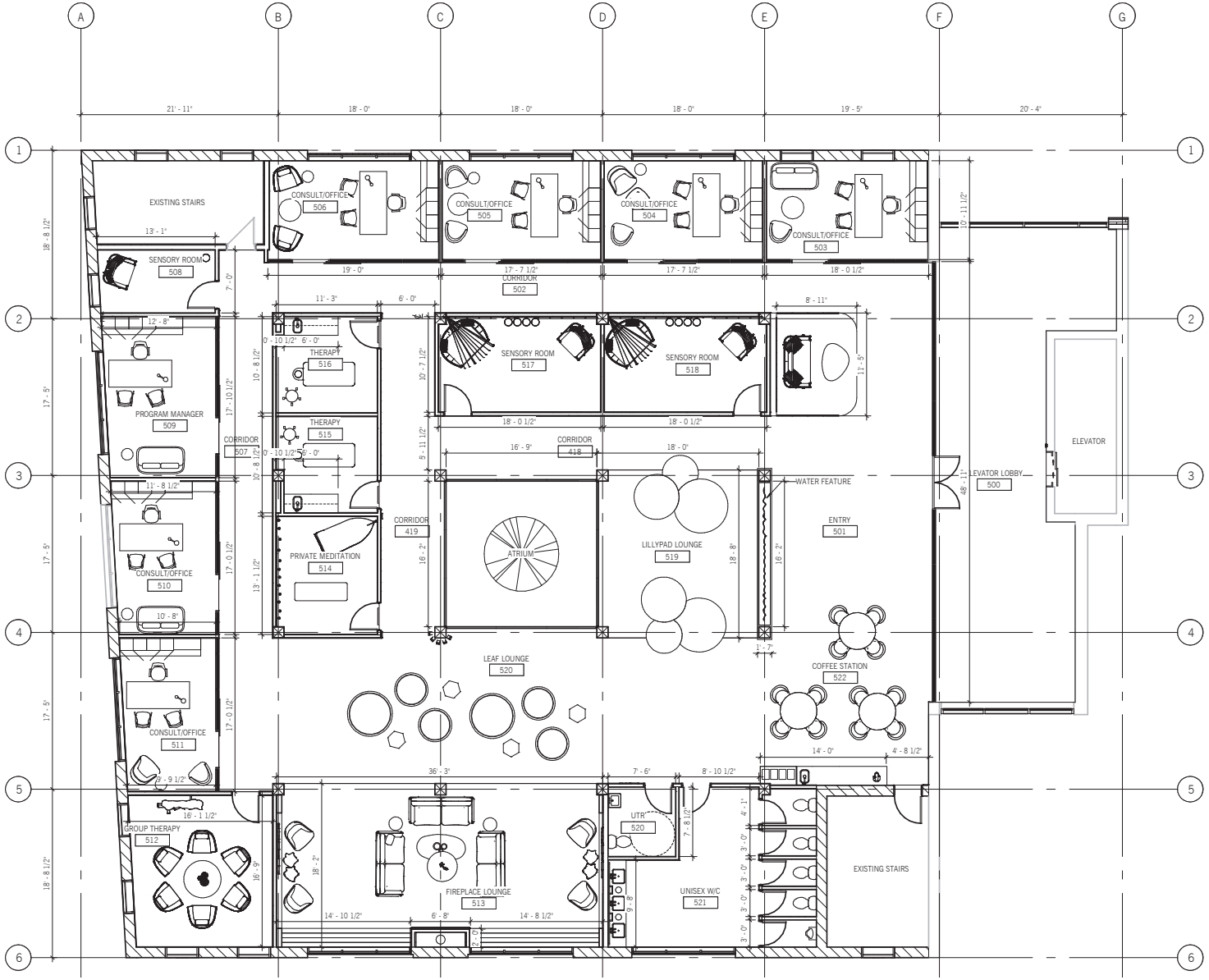

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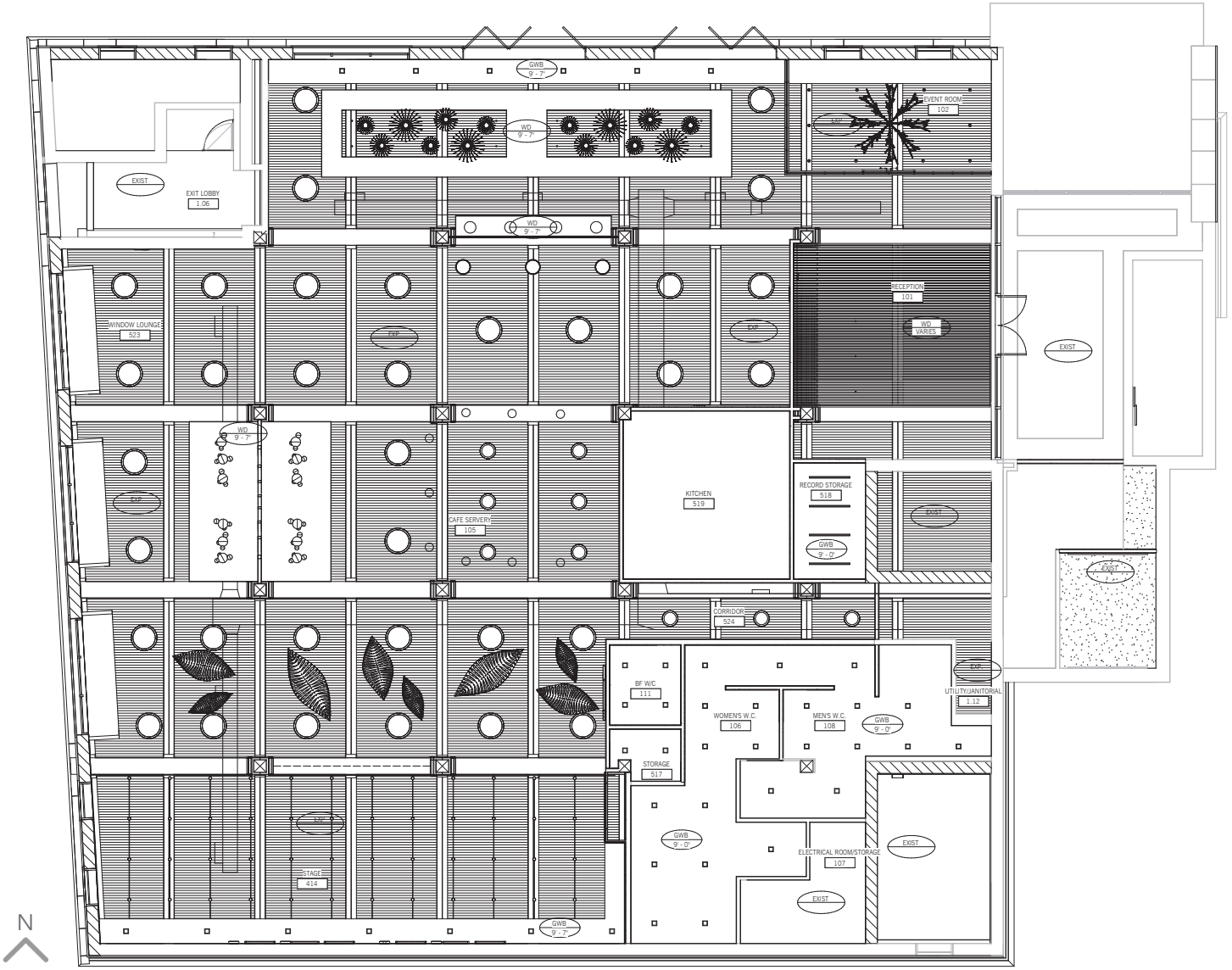
fifth floor plan

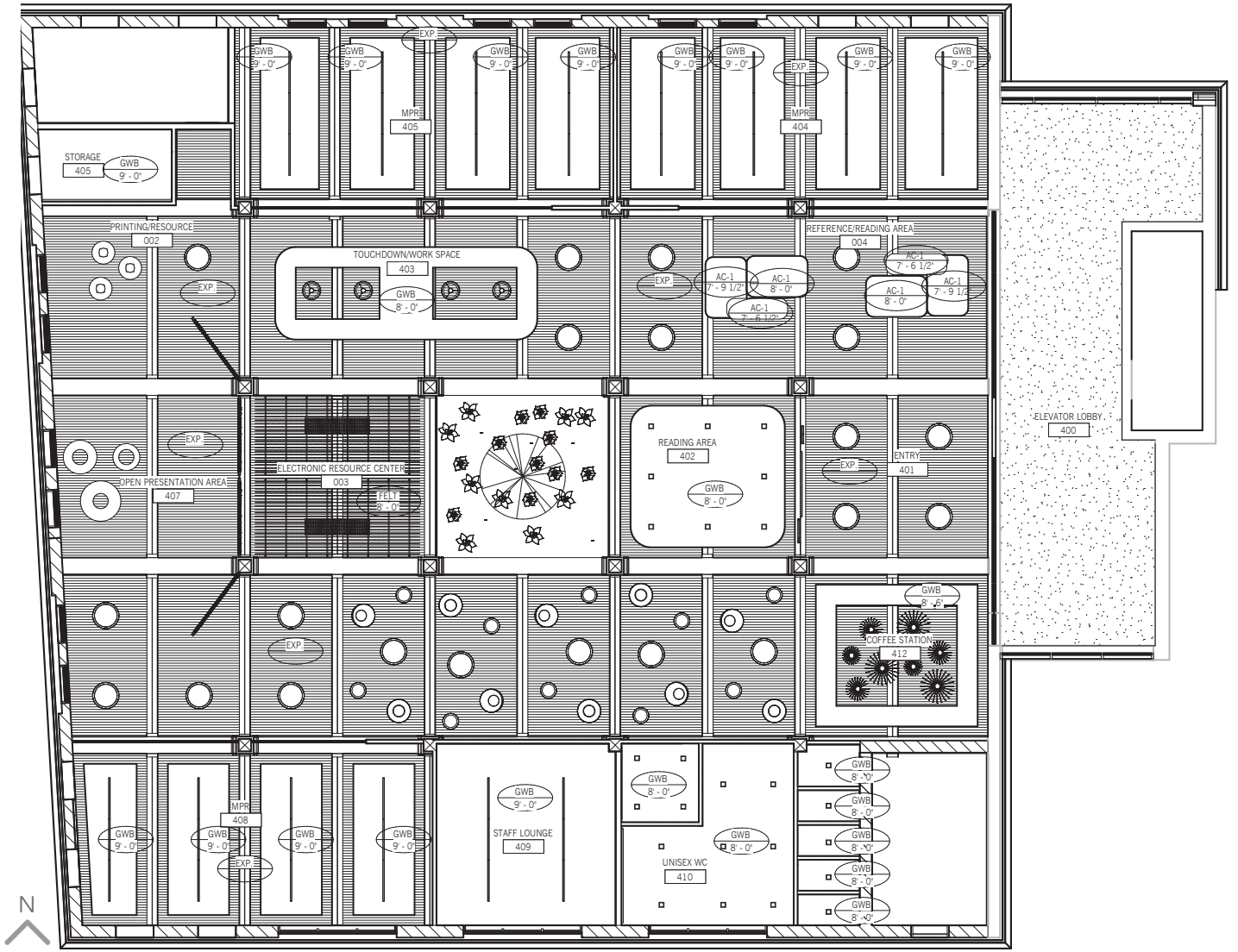
nts

A.2 appendix 2 - reflected ceiling plans



first floor reflected ceiling plan

nts



fourth floor reflected ceiling plan

nts

fifth floor reflected ceiling plan

nts

reflected ceiling plan legend

TYPE
2800

CEILING MATERIAL AND TYPE
HEIGHT ABOVE FINISHED FLOOR LEVEL

BROTHER'S DRESSLER - BRANCHES 1850
(REFER TO ELECTRICAL DRAWINGS)

PENDANT LIGHT - LP CIRCLE 450
(REFER TO ELECTRICAL DRAWINGS)

PENDANT LIGHT - WHITTINGTON OPAL W/ OAK
(REFER TO ELECTRICAL DRAWINGS)

PENDANT LIGHT - BUBBLE LIGHT
(REFER TO ELECTRICAL DRAWINGS)

PENDANT LIGHT- ZERO MIST (YELLOW)
(REFER TO ELECTRICAL DRAWINGS)

PENDANT LIGHT - VIBIA WIREFLOW
(REFER TO ELECTRICAL DRAWINGS)

RECESSED DOWN LIGHT - FOCAL POINT SQUARE
(REFER TO ELECTRICAL DRAWINGS)

PENDANT LIGHT - DAHL
(REFER TO ELECTRICAL DRAWINGS)

PATIO STRING LIGHTS
(REFER TO ELECTRICAL DRAWINGS)

CEILING MOUNTED LIGHT - VIBIA DUO 4880
(REFER TO ELECTRICAL DRAWINGS)

CEILING MOUNTED LIGHT - VIBIA DUO 4878
(REFER TO ELECTRICAL DRAWINGS)

CEILING MOUNTED LIGHT - VIBIA DUO 4872
(REFER TO ELECTRICAL DRAWINGS)

CEILING MOUNTED LIGHT - VIBIA DUO 4870
(REFER TO ELECTRICAL DRAWINGS)

PENDANT LIGHT - LIGHTART ROUNDOVER LARGE
(REFER TO ELECTRICAL DRAWINGS)

PENDANT LIGHT - LIGHTART ROUNDOVER
MEDIUM (REFER TO ELECTRICAL DRAWINGS)

PENDANT LIGHT - LIGHTART ROUNDOVER SMALL
(REFER TO ELECTRICAL DRAWINGS)

PENDANT LIGHT - VIBIA RHYTHM WAVE
(REFER TO ELECTRICAL DRAWINGS)

PENDANT LIGHT - SEEM 4 POP DOWN
(REFER TO ELECTRICAL DRAWINGS)

PENDANT LIGHT - HAWORTH BUZZY MOON SMALL
(REFER TO ELECTRICAL DRAWINGS)

PENDANT LIGHT - HAWORTH BUZZI MOON MEDIUM
(REFER TO ELECTRICAL DRAWINGS)

PENDANT LIGHT - HAWORTH BUZZI MOON LARGE
(REFER TO ELECTRICAL DRAWINGS)

PENDANT LIGHT - NAVICULA LARGE
(REFER TO ELECTRICAL DRAWINGS)

PENDANT LIGHT - NAVICULA MEDIUM
(REFER TO ELECTRICAL DRAWINGS)

PENDANT LIGHT - NAVICULA SMALL
(REFER TO ELECTRICAL DRAWINGS)

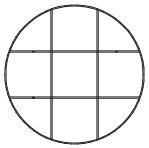
PENDANT LIGHT - ACOUSTIC SHADE SMALL
(REFER TO ELECTRICAL DRAWINGS)

PENDANT LIGHT - HAWORTH BUZZILIGHT MONO
(REFER TO ELECTRICAL DRAWINGS)

PENDANT LIGHT - LIGHTART BLOSSOM (STYLE A/B/C)
(REFER TO ELECTRICAL DRAWINGS)

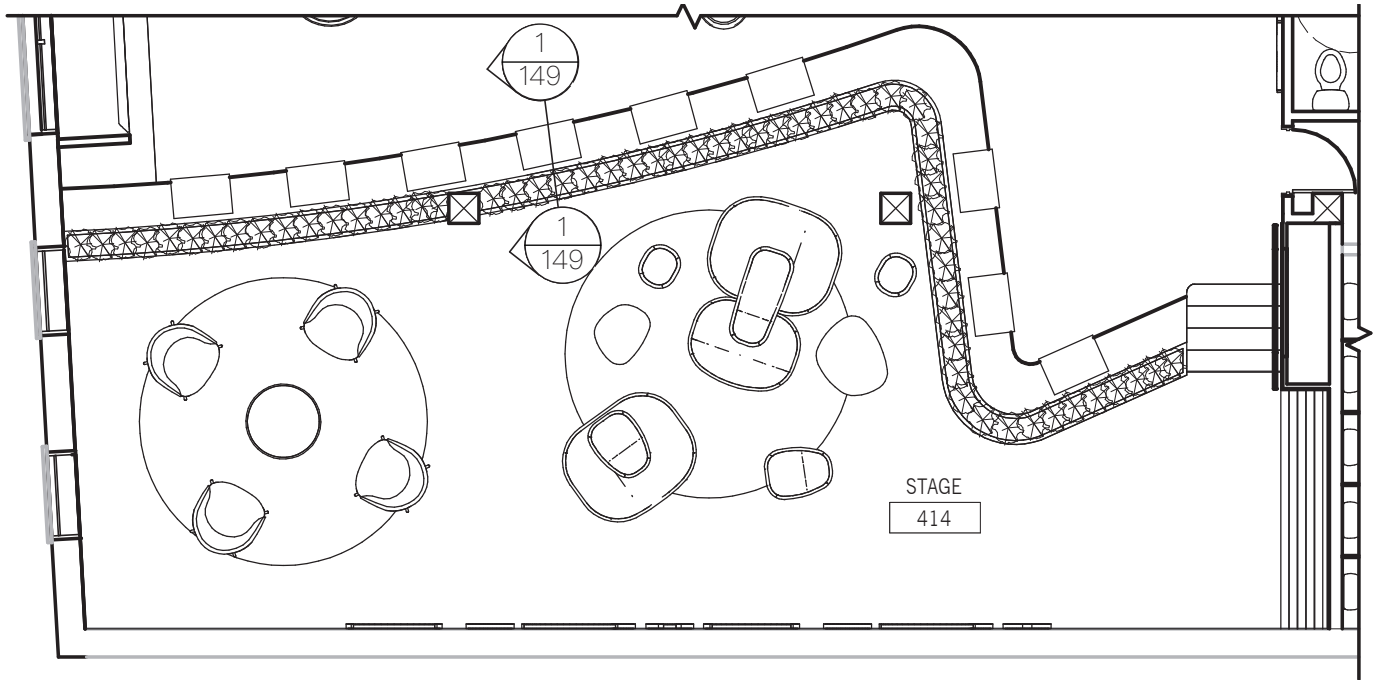
CEILING MOUNT - ACOUSTIC PANEL LIGHT FIXTURE
(REFER TO ELECTRICAL DRAWINGS)

CEILING MOUNT - SPEAKER
(REFER TO ELECTRICAL DRAWINGS)



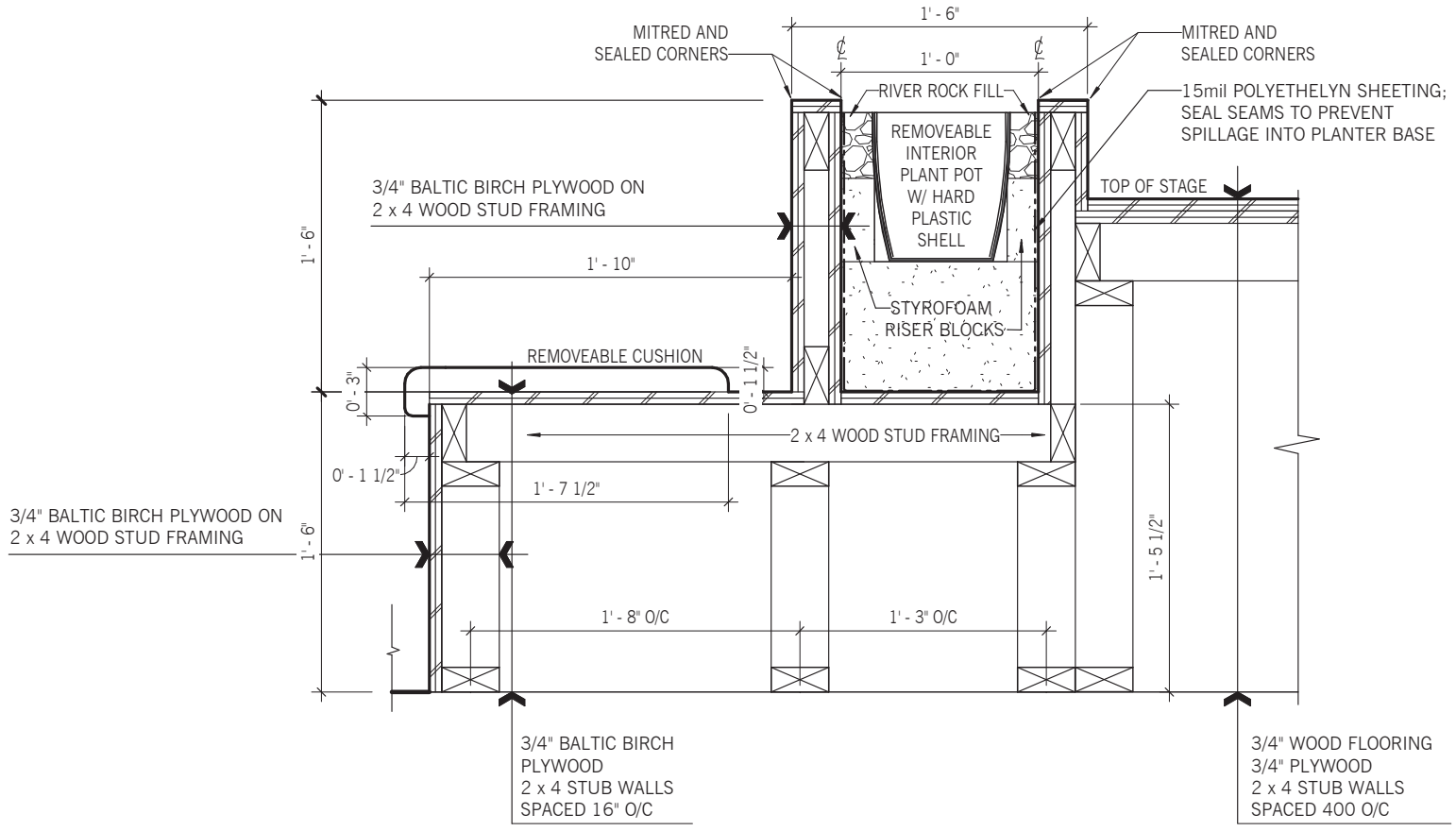
PENDANT LIGHT - SIMULATED SKY LIGHT W/ CLOUDS
(REFER TO ELECTRICAL DRAWINGS)

A.3 appendix 3 - detail drawing



first floor stage

nts



1/149 stage & stage bench detail

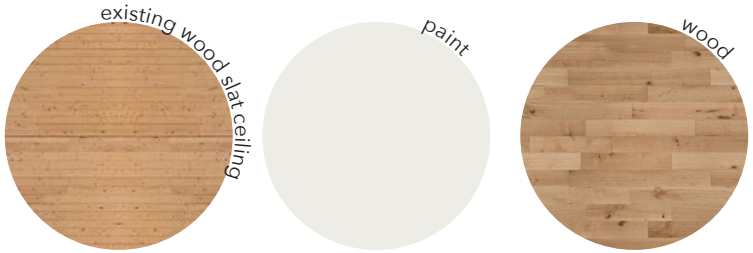
nts

A.4 appendix 4 - materials - level 1

flooring

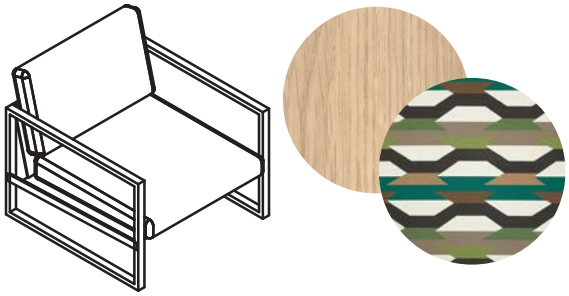
walls

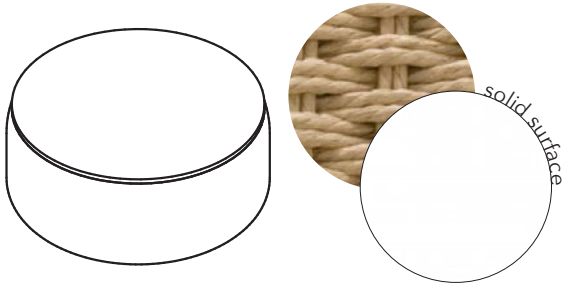
ceilings

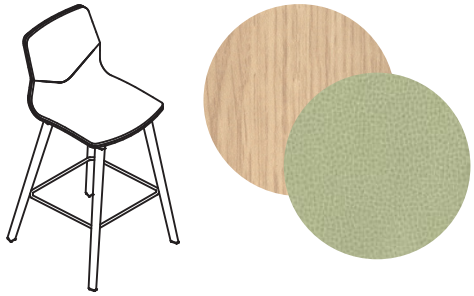


millwork

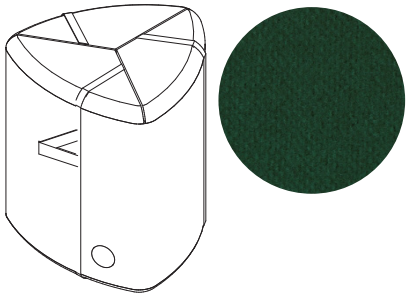
patio



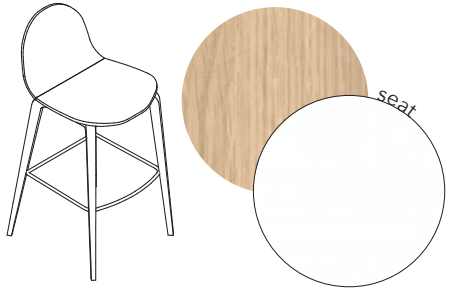




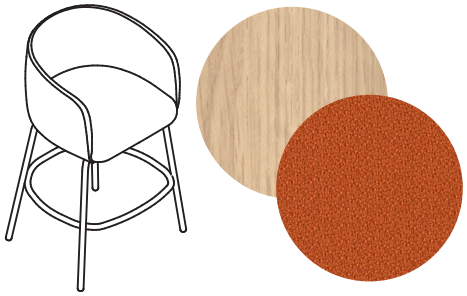
hanging tables



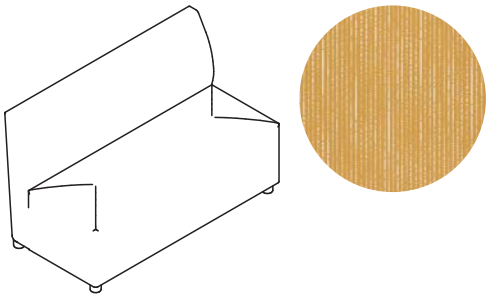
private room

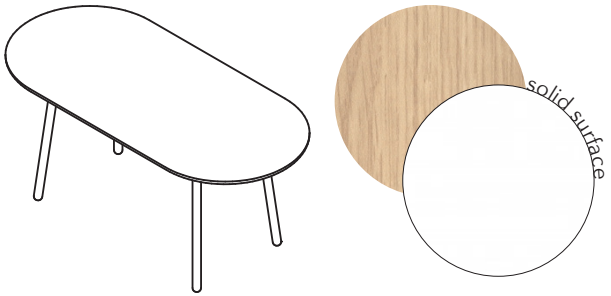


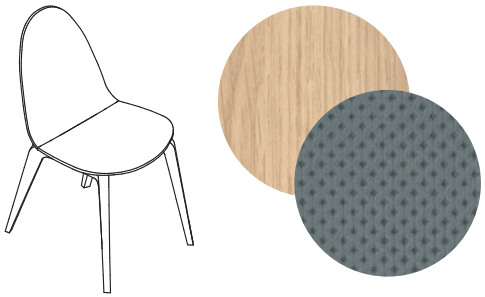
bar



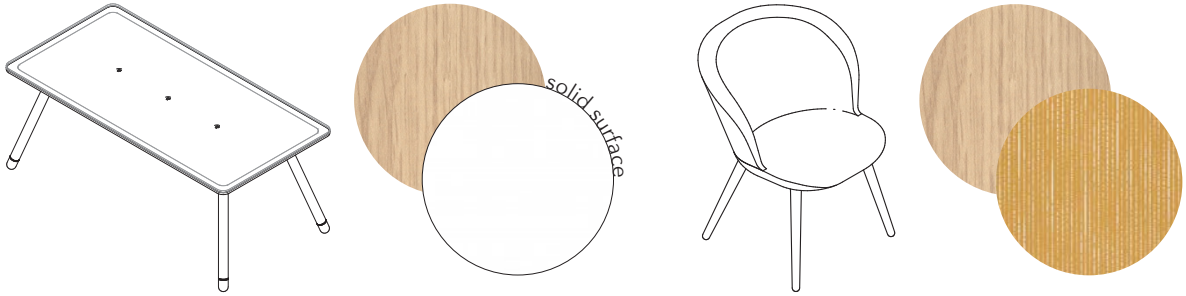
booth



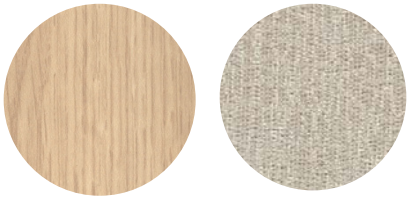




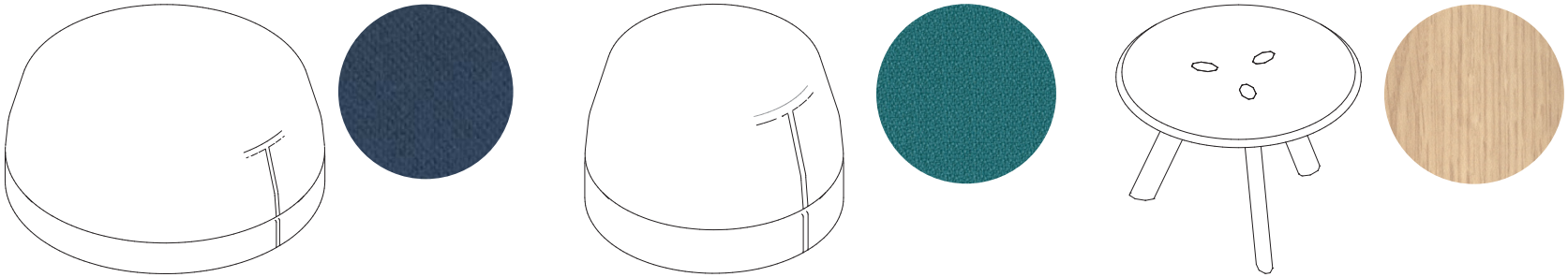
booth



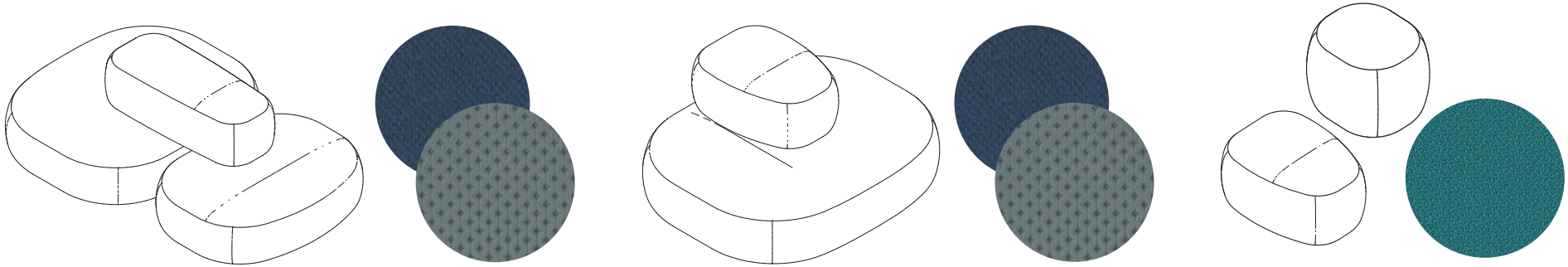
window boxes

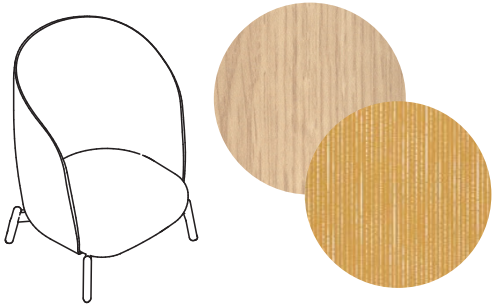


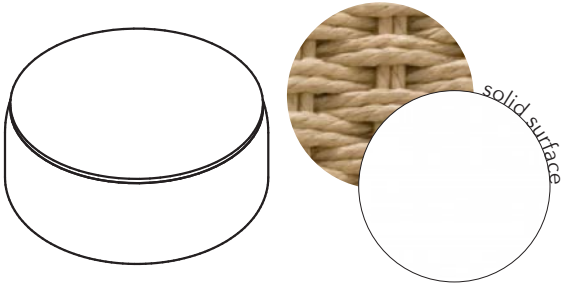
floating seating



stage



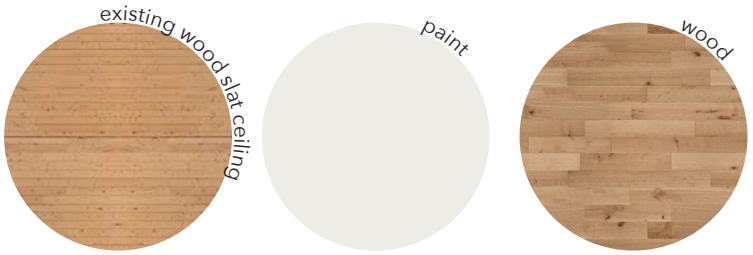



solid surface

A.4 appendix 4 - materials - level 4

flooring

ceilings



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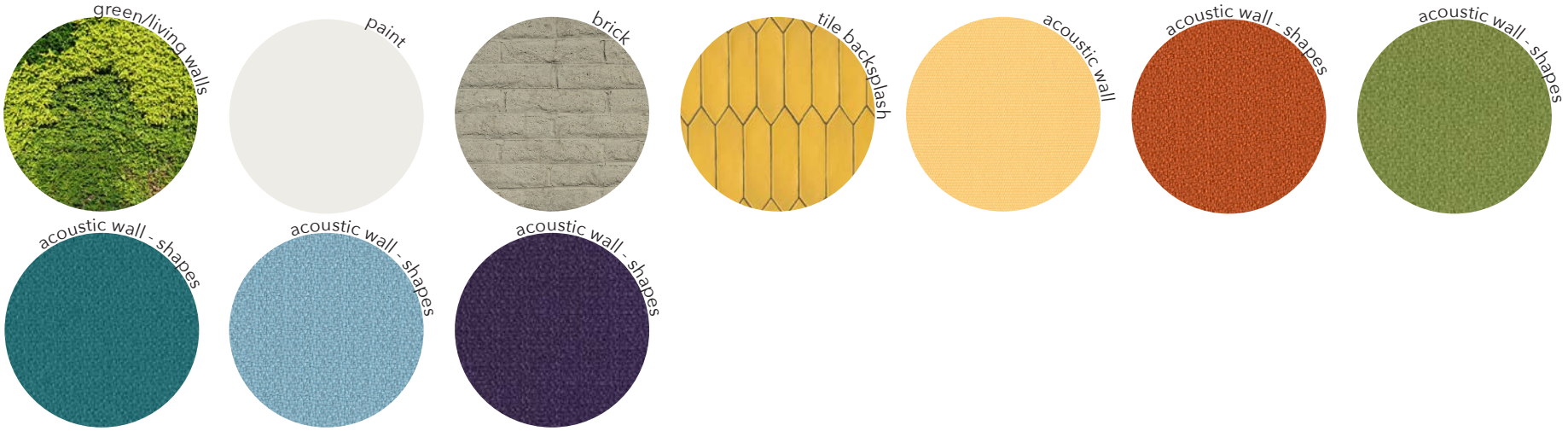
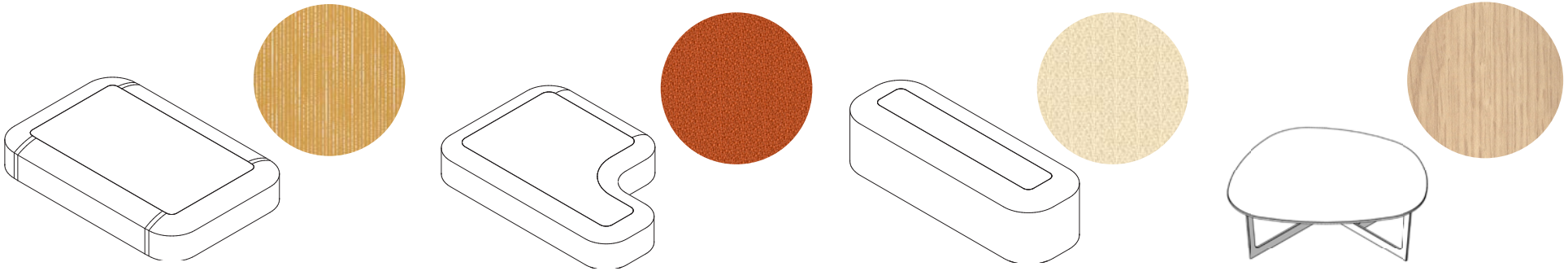
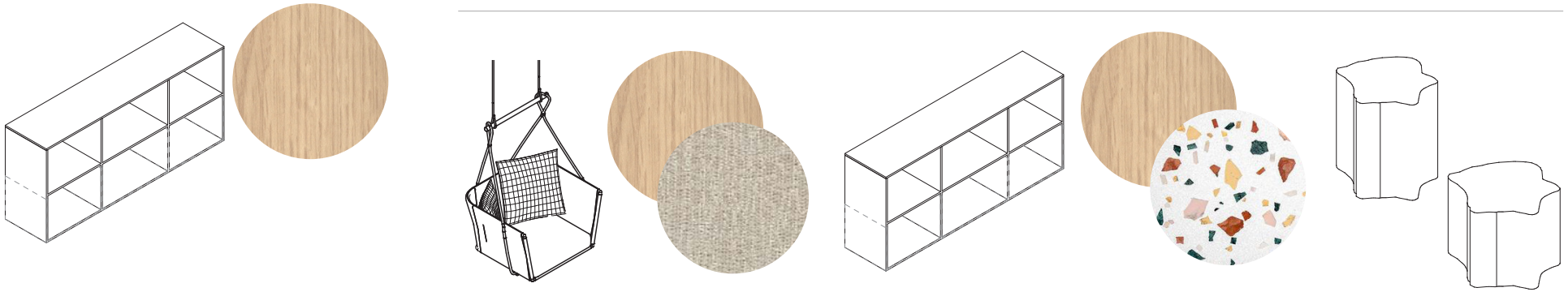


millwork

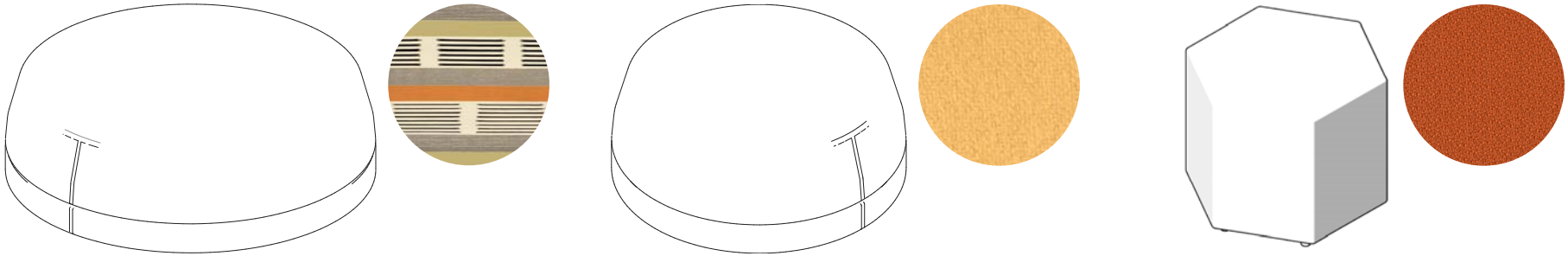
reference/reading area



reading area



atrium



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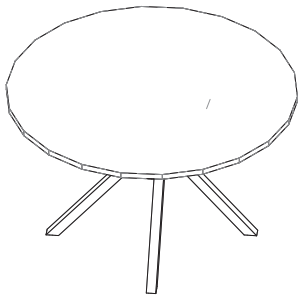
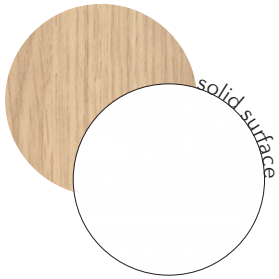
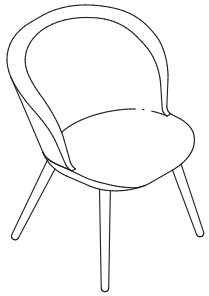
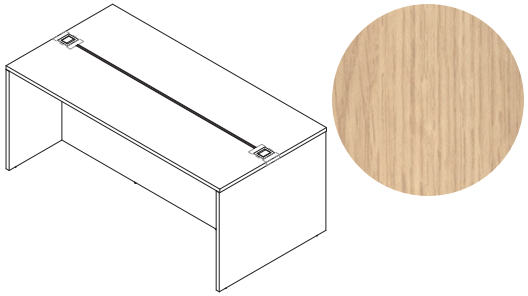
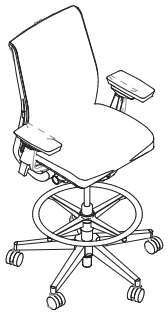




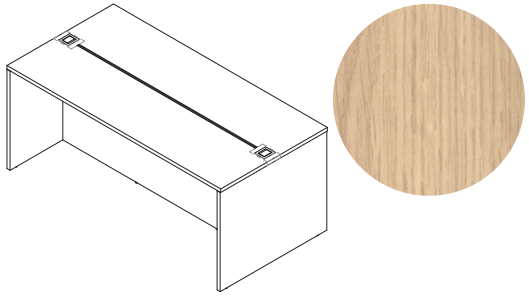


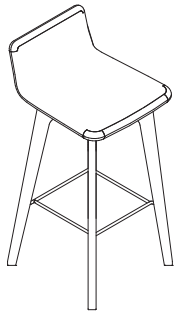
electronic resource center

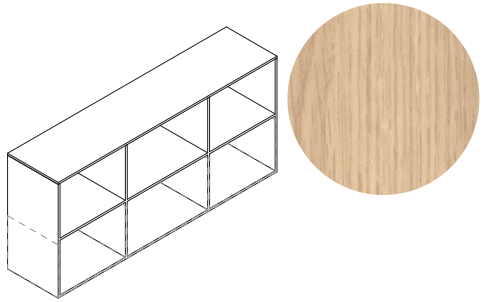




touchdown work surface

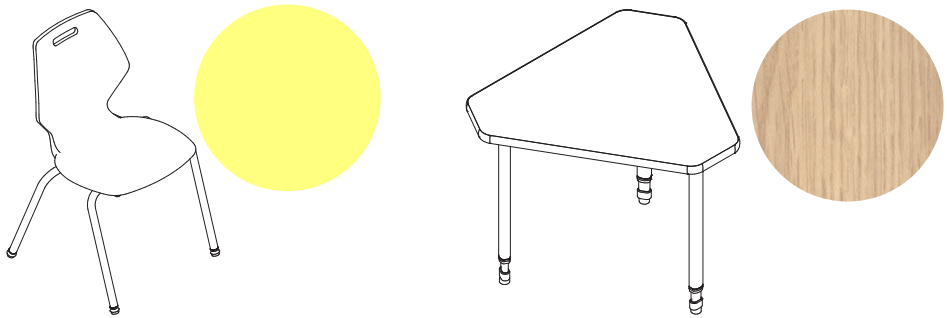




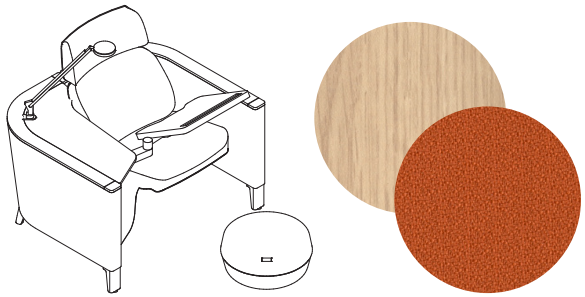


electronic resource center

MPR

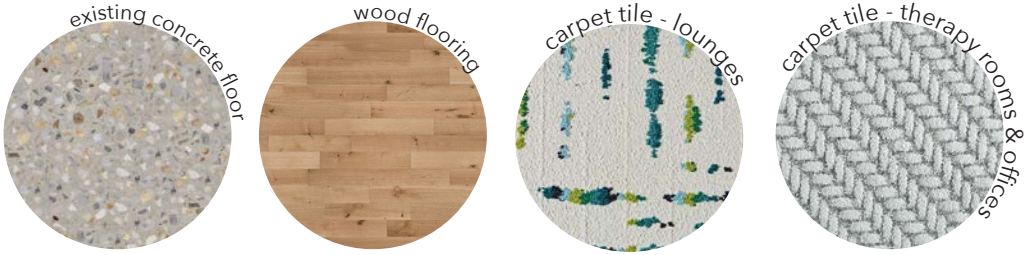


personal work station



A.4 appendix 4 - materials - level 5

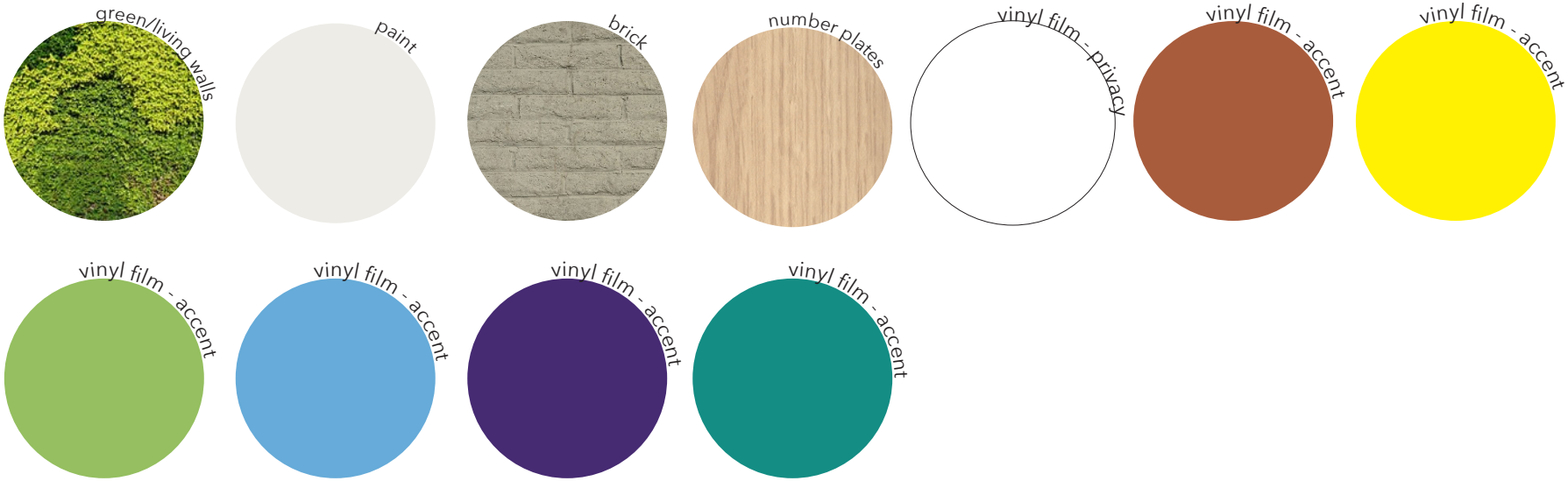
flooring



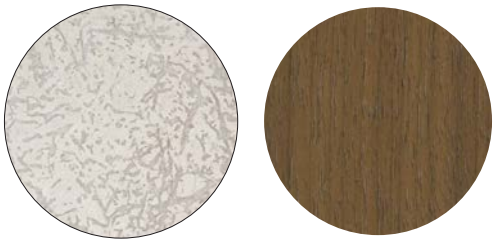
ceilings

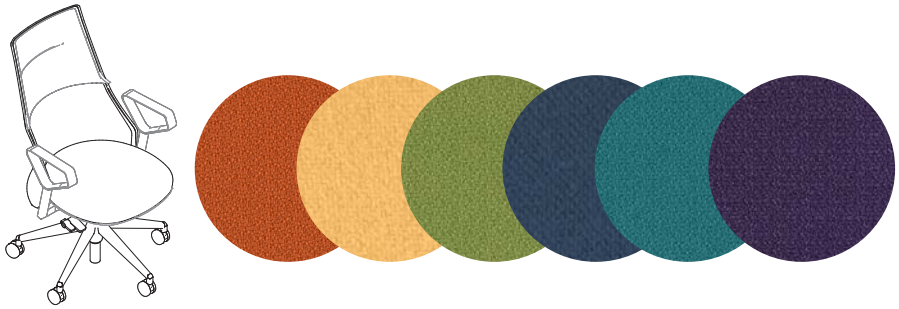
millwork

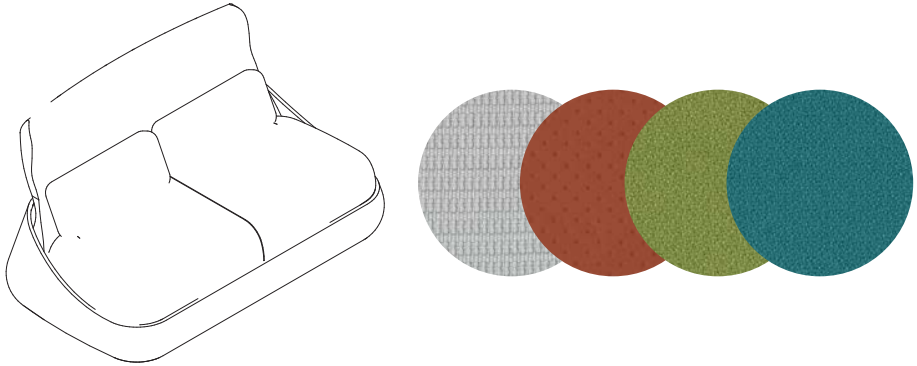
walls

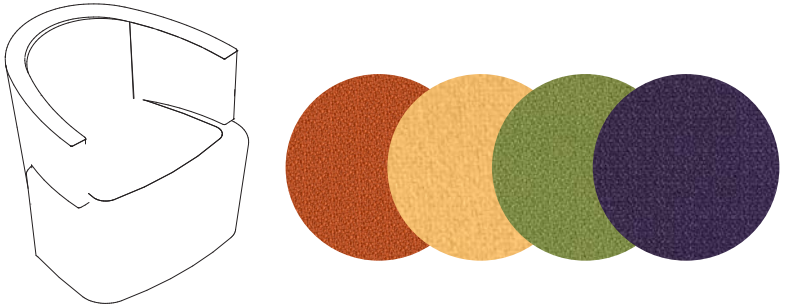


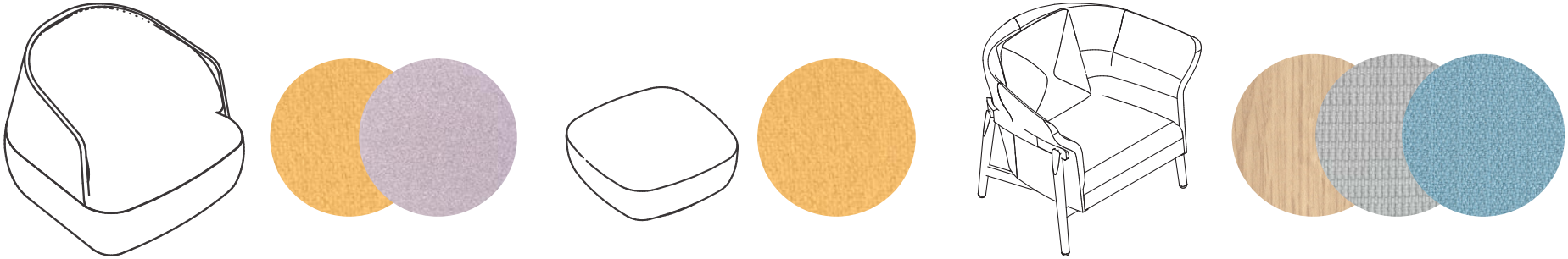
water feature



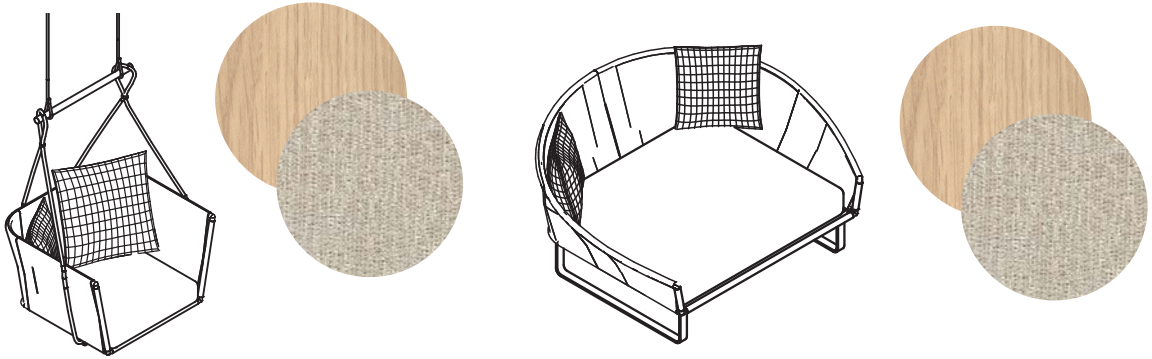








sensory rooms



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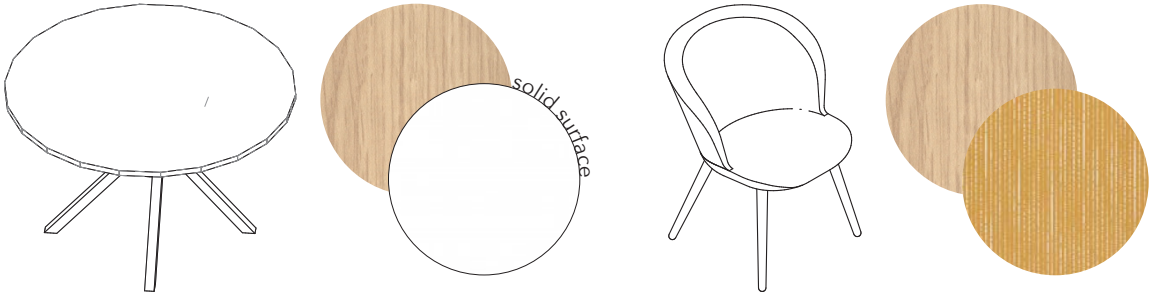

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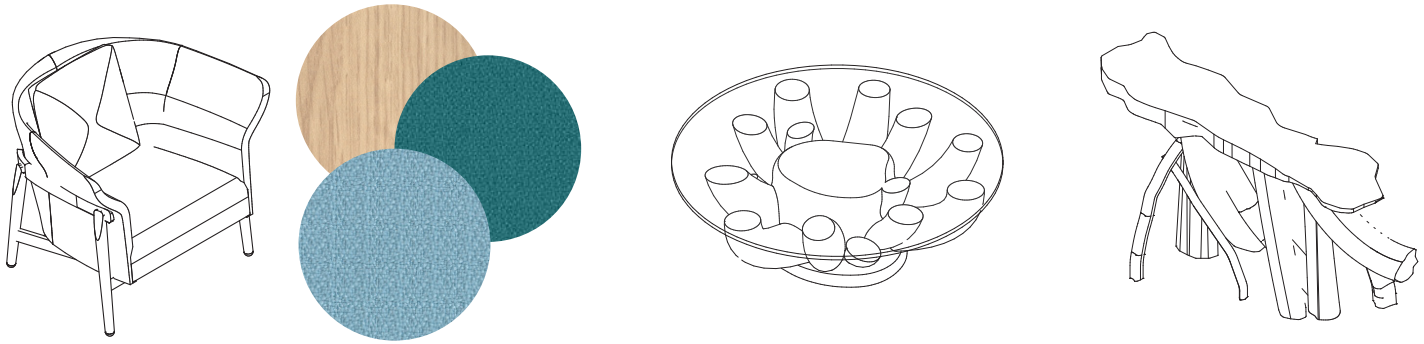
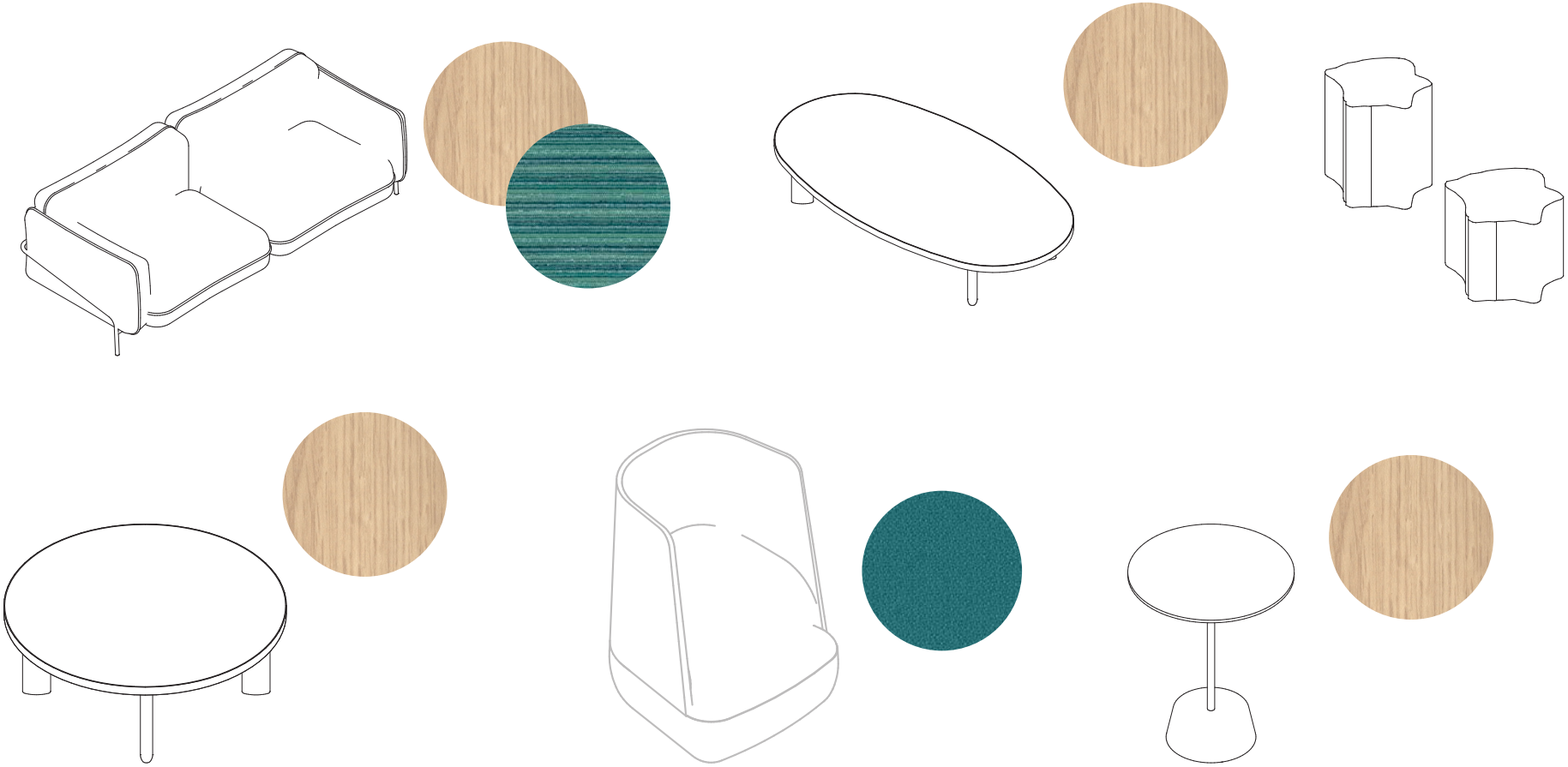
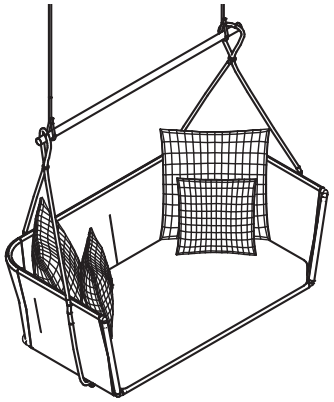
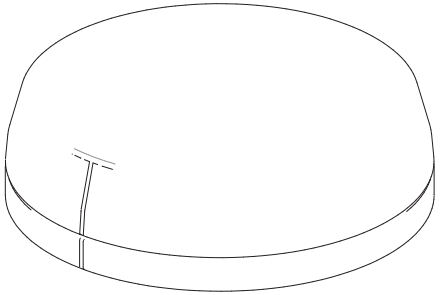


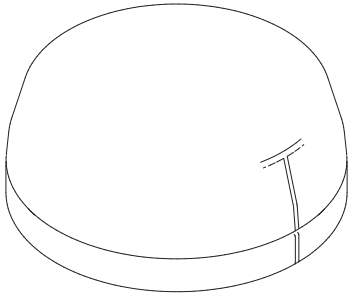


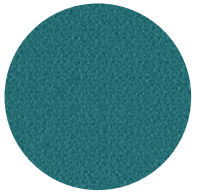
private lounge

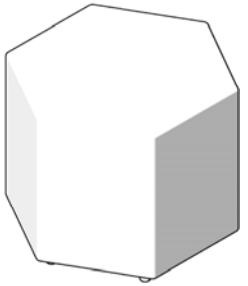


atrium









3.1.3 Multiple Occupancy Requirements

3.1.3.1. Separation of Major Occupancies

1) "Except as permitted by Sentences (2) and (3), major occupancies shall be separated from adjoining major occupancies by fire separations having fire-resistance ratings conforming to table 3.1.3.1." (National Research Council Canada, 2010, pp.3-2 & 3-3).

Major Occupancy:	A-2
Adjoining Major Occupancy:	D
Minimum Fire Resistance Rating of Fire Separation:	1 hour

3.1.4 Combustible Construction

3.1.4.7. Heavy Timber Construction

1) "Wood Elements in heavy timber construction shall be arranged in heavy solid masses and with essentially smooth flat surfaces to avoid thing sections and sharp projections." (National Building Code, Pg. 3-5).

2) "Except as permitted by Sentence (3) to (6) and (12) the minimum dimensions of wood elements in heavy timber constructions shall conform to Table 3.1.4.7." (National Research Council Canada, 2010, pp. 3-5).

Supported Assembly	Floors, floor plus roofs
Columns (Solid Sawn):	191mm W x 191mm D
Beams, girders, trusses and arches (solid sawn):	140mm W x 241mm D or 191mm W x 191mm D

7) "Wood Columns in heavy timber construction shall be continuous or superimposed throughout all storeys." (National Building Code, Pg. 3-5).

8) "Superimposed wood columns in heavy timber construction shall be connected by
a) reinforced concrete or metal caps with brackets
b) steel or iron caps with pintles and base plates, or
c) timber splice plates fastened to the columns by metal connectors housed within the contact faces."
(National Research Council Canada, 2010, pp. 3-5).

9) "Where beams and girders in heavy timber construction enter masonry, wall plates, boxed of the self-releasing type or hangers shall be used." (National Research Council Canada, 2010, pp. 3-5).

3.1.13. Interior Finish

3.1.13.1 Interior Finishes, Furnishings and Decorative Materials

1) "Except as otherwise provided by this Subsection, interior finishes, furnishings and decorative materials shall conform to Section 2.3. of Division B of the NFC." (National Research Council Canada, 2010, pp. 3-26).

2) "Interior finish material shall include any material that forms part of the interior surface of a floor, wall, partition or ceiling, including

a) interior cladding of plaster, wood or tile,
b) surfacing of fabric, paint, plastic, veneer or wallpaper,
c) doors, windows and trim,
d) lighting element such as light diffusers and lenses forming part of the finished surface of the ceiling, and
e) carpet material that overlies a floor that is not intended as the finished floor"
(National Research Council Canada, 2010, pp. 3-26).

3.1.17. Occupant Load

3.1.17.1 Occupant Load Determination

1) "The occupant load of a floor area or part of a floor area shall be based on

a) the number of seats in an assembly occupancy having fixed seats,
b) 2 persons per sleeping rooms in a dwelling unit, or
c) the number of persons of which the area is designed, but not less than that determined from Table 3.1.17.1. for occupancies other than those described in Clauses (a) and (b), unless it can be shown that the area will be occupied by fewer persons." (National Research Council Canada, 2010, pp. 3-30 & 3-31).

2) "If a floor area or part thereof has been designed for an occupant load other than that determined from Table 3.1.17.1., a permanent sign indicating that occupant load shall be posted in a conspicuous location."
(National Research Council Canada, 2010, pp. 3-30 & 3-31).

Classrooms:	1.85m2 per person
Reading or writing rooms or lounges:	1.85m2 per person
Dining, beverage and cafeteria space:	1.20m2 per person
Offices:	9.30m2 per person
Kitchens:	9.30m2 per person

3.2.2.4 Buildings with Multiple Major Occupancies

1) "The requirements restricting fire spread and collapse for a building of a single major occupancy classification are provided in this Subsection according to its building height and building area" (National Research Council Canada, 2010, pp. 3-34).

2) "If a building contains more than one major occupancy, classified in more than one Group or Division, the requirements of this Subsection concerning building size and construction relative to major occupancy shall apply according to Articles 3.2.2.5. to 3.2.2.8" (National Research Council Canada, 2010, pp. 3-34).

3.2.2.6. Multiple Major Occupancies

1) "Except as permitted by Articles 3.2.2.7. and 3.2.2.8., in a building containing more than one major occupancy, the requirements of this Subsection for the most restricted major occupancy contained shall apply to the whole building."
(National Research Council Canada, 2010, pp. 3-35).

3.2.2.7. Superimposed Major Occupancies

1) "Except as permitted by Article 3.2.2.8. and as required by Sentence 3.2.2.18(2), in a building in which one major occupancy is located entirely above another major occupancy, the requirements in this Subsection for each portion of the building containing a major occupancy shall apply to that portion as if the entire building was of that major occupancy."
(National Research Council Canada, 2010, pp. 3-35).

2) If one major occupancy is located above another major occupancies shall be determined on the basis of the requirements of this Subsection for the lower major occupancy. (See also Article 3.1.3.1.) (National Research Council Canada, 2010, pp. 3-35).

3.2.6.2. Limits to Smoke Movement

1) "A building to which this Subsection applies shall be designed in accordance Sentences (2) to (5) and Article 3.2.6.3. to limit the danger to occupants and firefighters from exposure to smoke in a building fire."
(National Research Council Canada, 2010, pp. 3-89 & 90).

2) "A building referred to in Sentence (1) shall be designed so that, during a period of 2 h after the start of a fire, each exit stair serving storeys below the lowest exit level will not contain more than 1% by volume of contaminated air from the fire floor, assuming an outdoor temperature equal to the January design temperature on a 2.5% basis determined in accordance with Subsection 1.1.3. (See Appendix B.)" (National Building Code, Pg. 3-89 & 90)..

3) "Each stairway that serves storeys above the lowest exit level shall have a vent to the outdoors, and

a) has an openable area of 0.05m2 for every door between the stair shaft and a floor area, but not less than 1.8m2,
b) opens directly to the outdoors or into a vestibule that has a similar opening to the outdoors, and
c) has a door or closure that
    i) is openable manually, and
    ii) can remain in the open position during a fire emergency."

(National Research Council Canada, 2010, pp. 3-89 & 90).

4) "Measures shall be taken to limit movement of smoke from a fire in a floor area below the lowest exit storey into upper storeys. (See Appendix B.)" (National Research Council Canada, 2010, pp. 3-89 & 90).

5) "Except for exhaust fans in kitchens, washrooms and bathrooms in dwelling units, and except for fans used for smoke venting as required by Article 3.2.6.6., air moving fans in a system that serves more than 2 storeys shall be designed and installed so that in the event of a fire these fans can be stopped by means of manually operated switch at the central alarm and control facility." (National Research Council Canada, 2010, pp. 3-89 & 90).

3.2.8. Mezzanines and Openings through Floor Assemblies

3.2.8.1 Application

1) "Except as permitted by Article 3.2.8.2. and Sentence 3.3.4.2.(3), the portions of a floor area or mezzanine that do not terminate at an exterior wall, a firewall or a vertical shaft stall

   a) terminate at a vertical fire separation having a fire-resistance rating not less than that required for the floor assembly and extending from the floor assembly to the underside of the floor or roof assembly above, or
   b) be protected in conformance with the requirements of Articles 3.2.8.3. to 3.2.8.9." (National Building Code, Pg. 3-95).

2) "The penetration of a floor assembly by an exit or a vertical service space shall conform to the requirements of Sections 3.4., 3.5. and 3.6." (National Research Council Canada, 2010, pp. 3-95).

3.2.8.4. Sprinklers

1) "A building containing an interconnected floor space shall be sprinklered throughout." (National Research Council Canada, 2010, pp. 3-95).

3.2.8.7. Draft Stops

1) "A draft stop shall be provided at each floor level within an interconnected floor space, immediately adjacent to and surrounding the opening, and shall be not less than 500mm deep measured from ceiling level down to the underside of the draft stop." (National Research Council Canada, 2010, pp. 3-97).

3.2.8.8. Mechanical Exhaust System

1) "A mechanical exhaust system shall be provided to remove air from an interconnected floor space at a rate of 4 air changes per hour. (See Appendix A.)" (National Research Council Canada, 2010, pp. 3-97).

2) "The mechanical exhaust system required by Sentence (1) shall be actuated by a switch located on the storey containing the entrance for firefighter access referred to in Articles 3.2.5.4. and 3.2.5.5. near the annunciator for the fire alarm system." (National Research Council Canada, 2010, pp. 3-97).