

the role of
ARTISTIC EXPRESSION
in therapeutic design

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As I write to acknowledge, it has caused me to reflect on the countless moments and people that have influenced, impacted, and supported me to the conclusion of this chapter and the opening of a new one.

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Thank you all!

- Alexis M. Davies

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00

INTRODUCTION

ABSTRACT GOALS + OBJECTIVES

Over my years at Kansas State University pursuing my master's in interior architecture, I have realized that my design philosophy revolves around human connection and expression. I aspire to design spaces that are artistic and inclusive while placing value on well-being.

To implement and represent this concept, my thesis looks to struggles of occupational stress and self-expression, both of which are key professional problems present and relevant to today.

Throughout this research, design development, and final proposal, I seek to design a therapeutic space that hinges on creative expression through the practice of art therapy. In the design of this interior build-out, I hope to showcase my interior architecture, furniture, and graphic design knowledge and versatility.

0.1

ABSTRACT

justification + overview

Stress, along with other mental health problems that negatively impact well-being, is uniquely significant for young adults as they are in the process of gaining independence and typically have minimal access to resources or support (Varma et al., 2021). Therefore, young adults are more susceptible to negative coping mechanisms which in turn affect social and workplace success. The COVID-19 pandemic has exacerbated existing stressors specifically in the workplace as a new work model was established resulting in a new “normal”. Adapting to this new “normal” while simultaneously coping with traumatic, emotional, and psychological effects of the pandemic leads to a decrease in mental well-being and workplace success, which can culminate in unemployment and financial burden thus increasing difficulty in receiving needed treatment and support (Volk et al., 2021).

Art therapy is a sensory and action based interactive form of psychotherapy with “purposeful application and integration

of art, music, dance/movement, dramatic enactment, creative writing, and imaginative play” (Malchiodi, 2023, p. 3). As each artistic outcome is unique to an individual, the practice of art is individually expressive in itself. Art therapy recognizes that everyone expresses themselves differently and, by encompassing a variety of mediums and activities, it allows each individual to communicate in their own way. As art therapy directly relates the study of the mind to the body with “interplay of experiences, emotions, behavior, and physical health,” (Masterson et al., 2008, p.21) it can serve as an appropriate method of psychotherapy to address traumatic stress in young adults post-pandemic in addition to overall mental well-being. By implementing sensory experiences, art therapy provides an individual the opportunity to effectively communicate their emotions (Malchiodi, 2023). This not only helps process stressors, but also builds confidence in individual expression which aids in collaboration and socialization.

Accordingly, this research focuses on the following research question “How can artistic expression within the context of a therapeutic environment improve well-being in young adults experiencing occupational stress?” Data is collected through a series of semi-structured interviews with art therapy experts (n=8+) and working young adults (n=8+). Key discussion points identified in the interview framework include stress, isolation, individuality, expression, belonging, work-life balance, and therapist-patient dynamic. Transcriptions were interpreted in accordance with the iterative thematic analysis method (Braun & Clarke, 2006). Based on the findings, a framework for designing therapeutic spaces for artistic expression will be developed. It is expected that the findings will help designers understand the benefits and limitations of artistic expression for addressing stress in young adults, and how artistic expression can be utilized to develop therapeutic spaces.



fig. 0.1

0.2 GOALS + OBJECTIVES

design criteria

01 *health + wellness*

Promote positive mental health that allows art psychotherapy to impact those experiencing occupational stress.

OBJECTIVES

- Maximize space for movement and equipment in enclosed therapy rooms for comfortable and quality treatment
- Utilize diffused daylighting to create a calming and uplifting atmosphere
- Strategically design spatial layouts and furnishings to frame exterior views and support a visual connection to the natural environment
- Select and combine materials that heighten sensory activity while ensuring relaxation and preventing over-stimulation

02 *safety + comfort*

Promote a sense of belonging and emphasize comfort and user control to establish a safe environment for therapist-patient relationships and treatment.

OBJECTIVES

- Create an inviting and warm entry through form, materiality, and color
- Vary degrees of enclosure and privacy both visually and acoustically
- Utilize dimmable and color temperature-controlled lighting to provide appropriate task/activity lighting levels while accommodating preference
- Provide a variety of seating and furniture options/types that are easily movable

03

universal design

Design for diversity and inclusion to account for all individuals regardless of ability.

OBJECTIVES

- Accommodate and provide furniture for differing body sizes, postures, and mobility level
- Provide adequate space within pathways and a feeling of release in shared space for users to comfortably move and congregate
- Incorporate elements of wayfinding through signage and color to establish a sense of place
- Use sufficient contrast in materiality, color, and light to visibly and effectively communicate essential information

04

socialization

Encourage a supportive community that prompts interaction and fosters collaboration between patients and community members.

OBJECTIVES

- Centralize socialization spaces between public program and private treatment areas to foster informal gathering
- Orient elements of display for intentional views that encourage interaction and collaboration
- Include flexible and movable furniture accounting for multiple group sizes and seating preferences
- Incorporate smaller, more intimate gathering spaces throughout for private socialization or consultation

05

therapeutic design

Prioritize creating an environment fit in functionality for the practice of art therapy while enhancing the spatial atmosphere for patients and therapists.

OBJECTIVES

- Incorporate biophilic design elements that connect users to the natural environment to reduce stress and increase well-being
- Design exhibition spaces adequate to display art created by patients that allows focus on the individual
- Provide private space for therapists and staff to relax so they are able to best serve patients
- Utilize soft, muted, and soothing colors and materials with emphasis on natural elements to ensure patients are relaxed and able to creatively communicate and express themselves

01

BACKGROUND

LITERATURE REVIEW
PRECEDENT ANALYSIS
SITE + CONTEXTUAL STUDY

Research was conducted regarding the desired program and activities and intended users. Through peer-reviewed research, and precedent analysis of artistic and therapeutic spaces insight on the spatial requirements and qualities of the intended design program was gained.

Site and contextual study was done to relate the interior build-out to the surrounding environment and ensure site placement, adjacencies, and existing building conditions are incorporated into the design process.

1.1

LITERATURE REVIEW

*stress, expressive art therapy, +
therapeutic space*

INTRO
STRESS IN YOUNG ADULTS
ART THERAPY
THERAPEUTIC DESIGN

The literature review seeks to examine and gain a deeper understanding of the project's main goals and objectives in relation to young adult stress. The corresponding research studied the impacts of stress in young adults especially in regards to occupational stress and the influence of the pandemic. As this review also looks to the practice of expressive art therapy as a solution to reducing young adult stress, the methodology, spatial requirements, and needs of expressive art therapy were analyzed. These prompted a study of current therapeutic design to ultimately influence the project's program and spatial qualities in order to establish a set of design guidelines.



fig. 1.1



fig. 1.2

0.0 | INTRODUCTION

Mental health and well-being are topics of frequent discussion that have become more prevalent over the years. The idea of stress, whether due to occupation, academia, finances, relationships, or environmental conditions, is one of the leading causes of poor mental well-being. Stress is uniquely significant for young adults, those between the ages of 18 and 25, as they are in the process of gaining independence and typically have minimal access to resources or support (Varma et al., 2021). Therefore, young adults are more susceptible to negative coping mechanisms, like excessive drinking or eating and turning to harmful drugs which can ultimately lead to addiction. Not only do these ways of coping cause physical damage, but in turn affect social and workplace success. As it has become increasingly apparent in recent years, the COVID-19 pandemic has exacerbated existing individual and environmental stressors. Undergoing this traumatic experience had direct effects during

the state of emergency as well as post pandemic. The research indicates the inflation of these negative effects in young adults specifically showing a need for improved well-being.

Looking to therapeutic solutions, art therapy directly relates the study of the mind to the body with “interplay of experiences, emotions, behavior, and physical health,” (Masterson et al., 2008, p. 21). As a relationship is formed between mental capabilities and physical actions, the practice of art therapy can serve as an appropriate method of psychotherapy to address traumatic stress in young adults post-pandemic in addition to overall mental well-being. There is a general lack of spatial requirements and atmospheric qualities for the art therapy space discussed and published currently. Through this study, design and architectural elements pertaining to therapeutic design overall can be inferred to benefit an expressive art therapy environment.



fig. 1.3

Accordingly, this research focuses on the following research question: “How can artistic expression within the context of a therapeutic environment improve well-being in young adults experiencing occupational stress?”

accordingly,

How can artistic expression within the context of a therapeutic environment improve well-being in young adults experiencing occupational stress?



fig. 1.4

01 | STRESS IN YOUNG ADULTS

History + Definition

Throughout history, there have been countless studies and research compiled on the topic of stress, varying in definition by discipline and context. In terms of behavioral science, stress is induced by the “perception of threat” (Fink, 2010, p.5) therefore increasing anxiety and discomfort. Speaking more literally, stress is directly linked to the function of the human brain. Reviewing definitions proposed by Hans Selye, founder of the stress theory, and Eugene Yates, an American physiologist, Fink summarized Yate’s definition of stress as “any stimulus that will provoke the release of ACTH and adrenal glucocorticoids” (Fink, 2010, p.5) in his book *Stress Science: Neuroendocrinology*. These releases cause changes to brain structure affecting the central nervous system in turn prompting functional changes regarding memory and cognition (Yaribeygi et al., 2017). Glucocorticoid receptors are especially

prevalent in the amygdala, hippocampus, and prefrontal cortex. As young adults are still developing these areas of the brain, they show increased vulnerability to the negative impacts of stress (Russell, 2016).

In addition to cognitive and memory, the idea of stress can be unified under the concept of emotions (Cooper & Dewe, 2004). The hippocampus involves mediating aspects of emotional function while the prefrontal cortex is critical to the regulation of emotional behavior (Russell, 2016). Both areas show dramatic structural changes during adolescence and young adulthood which only serve to increase negatively when experiencing stress. The Transactional Model of Stress supports this concept with its definition drawing on the relationship between an individual and the environment (Li et al., 2023). Although a specific definition is debated, it can be agreed that everyone experiences stress in some form whether physical or psychological. Furthermore,

stress is recognized as a universal problem affecting mental health and thus impacting quality of life.

In addition to being in a state of development in terms of mental functionality, young adults are also in the process of becoming independent. This includes potential relocation, occupational or academic transitions, new financial responsibility, and changes in support and relationships (Schiller, 2016; Parker et al., 2005).

In regards to early emerging adults such as college students, environmental and social stressors are particularly apparent (Jiang et al., 2021; Schiller, 2016). Environmentally speaking, students are introduced to contextual changes with less structure and consolidation of activities such as the proximity between sleeping, eating, and attending class. Educational transitions in general often cause increased stress with new workloads and a lack of sufficient support to counteract. The COVID-19 pandemic added further strain as typical education models were disrupted with the need for implementing remote learning. Building upon an increased access of food and academic stress, binge eating and the intake of unhealthy foods is one major emotional coping mechanism resorted to by college students (LaCaille et al., 2021). As the pandemic enforced stay-at-home orders, physical routines were altered.

Just as stress interferes with academic progression, it also affects young adults within an occupational context. Financially at this phase of life, one may be faced with student loans, relocation finances, professional clothing budgets, and the finances that correspond to building a family or parenting. On top of an increased amount of expenses, young adults are learning to manage these finances, control spending, and take advantage of available resources. Economic hardships pertaining to such can result in pressures on well-being and general dissatisfaction which in turn lead

to greater mental health problems (Ranta et al., 2020). As a part of their transitional period, young adults are also establishing and discovering their personal identity. Within this, personal choice becomes apparent as young adults are faced with many more decisions, some of which define set aspects of their life in the future. One such idea is their occupational path. This decision is often primarily individual where parents, counselors, teachers, and friends offer little influence as one's personal ambition and life goals dictate this outcome (Hoogstra et al., 2001). While the variety of responsibilities and changes during the transition to young adulthood is extensive, the stress that coincides is just as extensive.

Impact of Stress

Broadly speaking, stress impacts an individual in a variety of ways including financial, educational, occupational, and social components. Stress caused by these factors negatively affect physical and psychological health. This cycle of cause and effect is circular in nature as the assurance of maintained personal health is prevalent to success in the previously mentioned aspects of life.

In addition to external stress factors, internal forces in terms of personality and establishing a self-concept can bring about stress that then leads to psychological distress (Schiller, 2016). The process of developing one's "self" in maturity relates to the ideas of "self-acceptance, self-actualization, and openness" (Donnellan et al., 2007, p.240). Within this, an individual will likely self-critique resulting in negative psychological health through low self-esteem.

An ongoing trend, especially recognized within young adults, is the increased symptoms and reports of depression and anxiety (Lee et al., 2017). Depression "can alter a person's mood, physical functions and social interactions" hindering mental well-being (Moreh & O'Lawrence, 2016,



fig. 1.5

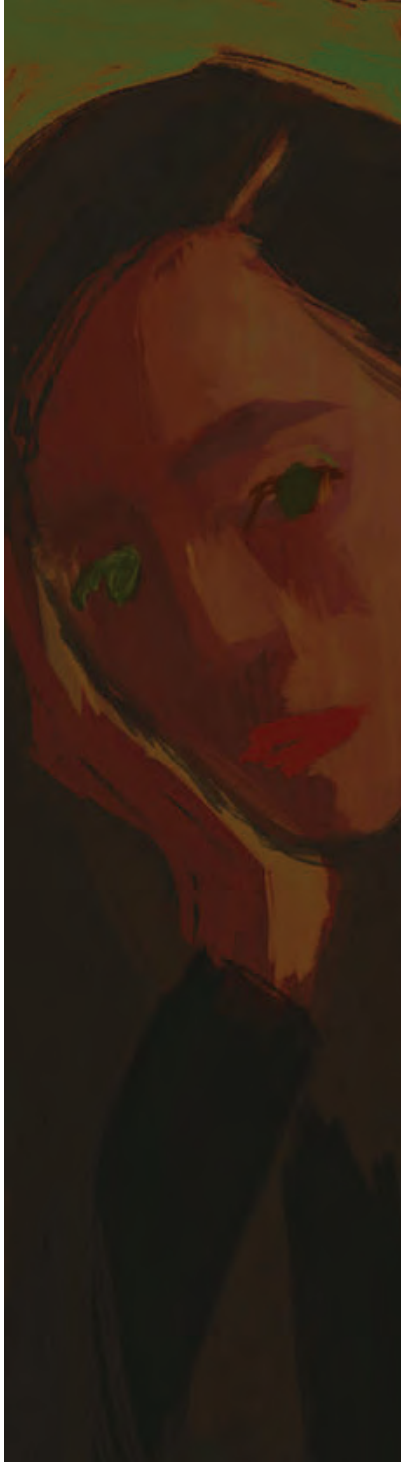


fig. 1.6

p.284). Unfortunately, there have been many instances where depression has been the leading cause of suicide. As it has been stated, young adults are substantially more vulnerable to these disorders. The World Health Organization (WHO) recognizes suicide as the fourth leading cause of death within youth ages 15-29. If left untreated it can “lead to more stress and dysfunction” and worsen one’s life situation and depression in general (Moreh & O’Lawrence, 2016; WHO, 2023, para. 13).

COVID-19 Impact on Stress

As it has been established that the pandemic has greatly affected multiple aspects of one’s life, one of the most prominently affected facets was that of the workplace model and environment. In a study by The Harvard Business Review, employees reported increased work demands, lack in connection, and growing disengagement due to the pandemic as major components affecting workplace well-being (Campell & Gavett, 2021). Along with these components hindering an individual’s ability to do work, psychological and emotional demands heightened at this time. Adapting to this new workplace “normal” while simultaneously coping with traumatic, emotional, and psychological effects of the pandemic leads to a decrease in mental well-being and workplace success, which can culminate in unemployment and financial burden thus increasing difficulty in receiving needed treatment and support (Volk et al., 2021).

Organizational shifts leading to the threat of or loss of job “exacerbated employees’ psychological strain and emotional exhaustion” (Chan et al., 2022, p.264). Adapting to this new “normal” while simultaneously coping with traumatic, emotion, and psychological effects of the pandemic leads to a decrease in mental well-being and workplace success in young adults. As a result of these stressors, unemployment for young adults rose

from 8% to 25.3% between February and May in 2020 (Graupensperger et al., 2023). From a financial standpoint, young adults are often inherently at a disadvantage receiving lower economic support from their occupation compared to older adults as they are in lower-level positions. Financial burdens ultimately increase difficulty in receiving needed treatment and support (Volk et al., 2021).

One would assume that the rise in unemployment during the pandemic would increase motivation to returning to the workplace post-pandemic with greater job security, yet conversely, many reassessed or left their occupation due to increased psychological distress, virtual micromanagement, struggles with work-life balance, and overall trauma related to the physical burdens of the pandemic (Chan et al., 2022).

Research points to young adulthood as the stage in which loneliness, due to a lack in social support, is the most prevalent (Lee & Goldstein, 2016). As COVID-19 caused social distancing ordinances and stay-at-home restrictions to be implemented, the level of socialization diminished significantly. Building upon both these ideas, this social isolation not only increased the likelihood of depression in young adults but has caused greater socialization and collaboration issues in returning to the workplace.

These economic and social factors along with work demands all add to occupational stress. If these emotions and psychological stressors are not addressed, an individual’s resources of time and energy are depleted “leaving insufficient resources to fulfill their core work and life demands” (Chan et al., 2022, p. 259). Interest in involving the regulation of emotion, or the idea of emotional intelligence, within the workplace has increased over the last decade, even prior to the traumatic experience of COVID-19. Daniel Goleman’s notion of emotional intelligence is “based on several competencies and tendencies

related to the experience of moods and emotions.” (Fox & Spector, 2000, p.124) and can be demonstrated within the workplace. Mayer, Salovey, and Caruso (2000), approach this by distinguishing four core abilities summarized as “the ability to perceive, appraise, and express emotion, the ability to understand and utilize emotional knowledge, the ability to use emotions to facilitate thinking and behavior, and the ability to regulate emotions” (Parker, 2005, p.100). Using emotional intelligence as a framework where individuals practice coping and management of strong emotions, like those due to the pandemic, can ultimately lead to success in the workplace (Nikolaou & Tsaousis, 2002).



fig. 1.7



fig. 1.8

02 | ART THERAPY

History + Definition

Art therapy is a sensory and action based interactive form of psychotherapy with “purposeful application and integration of art, music, dance/movement, dramatic enactment, creative writing, and imaginative play” (Malchiodi, 2023, p. 3). There have been many theories researched

historically. Today art therapists embrace a variety of these theories ultimately focusing on a client-centered approach (Dunn-Snow, 2015). In this practice, the patient primarily dictates the progression. Although this approach is widely known, there is still a general lack in text published on expressive art therapy.

While art therapy broadly links ideas of

psychology and the multitudes of art, this allows it to be utilized in a wide variety of settings. Uniquely, “art therapy exists on a continuum between art in therapy and art as therapy” (Dunn-Snow, 2015, p.80) meaning it can be viewed as a form of psychotherapy while also being therapeutic in action. Edith Kramer, one of the early artists and founders of the art therapy field, initiated the concept of art as therapy. This idea is framed around the “relationship of art and psychotherapy through her artist identity” (Thompson, 2014, p.183). Her approach further emphasizes the continuing idea of focus on the individual and expression of personal thoughts, feelings, and emotions.

Margaret Naumberg’s definition relates highly to the understanding of the practice today. She expresses that “spontaneous graphic art becomes a form of symbolic speech which may serve as a substitute for words” (Naumberg, 1953, p.3). While this idea is valid and art therapy primarily revolves around the creation of a physical piece, the artistic process can also work in tandem with verbal communication to prompt discussion and further understanding. In the 1990s, there was debate on the term art therapy vs art psychotherapy (Case et al., 2023). Presently, this name has become more flexible moving toward the term expressive art therapy, but the initial argument still stands. While art therapy is a form of psychotherapy, by exclusively using that term, it implies the primary focus shifting toward the therapeutic relationship rather than the meaning of the art created. Today, these concepts have been developed through “oral history or philosophical explorations of human expression rather than through psychotherapeutic applications” (Malchiodi, 2023, p.5).

Now referring to this practice as expressive art therapy, there have been some key influencers within the 20th century. Natalie Rogers explores the idea of creative connection where different

medias are used to “enhance the interplay of the arts to support self-exploration and to ‘connect’ to oneself through arts-based experiences” (Malchiodi, 2023, p.5). This can relate to Maslow’s theories and stages of human development and needs including safety, order, autonomy and control as well as socializing and belonging to overall reach self-actualization (Maslow, 1970). Late 1995, Paolo Knill conceptualized intermodal transfer, low skill-high sensitivity, and crystallization. Intermodal transfer refers to the shift between medias or art forms; low skill-high sensitivity recognizes the competency of an individual to participate and express themselves regardless of artistic skill or training; and crystallization draws on the sensory experiences and how these can “crystallize into art expressions” (Malchiodi, 2023, p.6). Moving into the 2000s, Shaun McNiff is recognized as an educator who promoted the use of “all of the arts” as a process and method that allows for personal growth and well-being by involving “the whole person in the therapeutic process” (McNiff, 2009, p.3). These concepts set the foundation for further expansion and development of a practical framework.

Methodology

Art therapy recognizes that everyone expresses themselves differently and, by encompassing a variety of mediums and activities, it allows each individual to communicate in their own way. There are four general functions that are focused on within practice. These include self-regulation, co-regulation, exploration, and restoration. Self-regulation serves as a foundation for physical and mental health, emotional well-being, and performance success through the act of managing emotions and cognition (Murray et al., 2015). The basic function of rhythm, which is an underlying theme within all art forms, is also “key to physiological regulation” (Malchiodi, 2023, p.28) as it can help energize and ground an individual. Co-

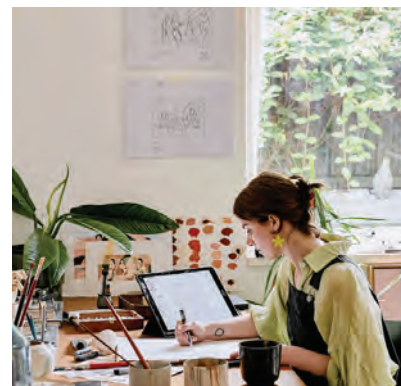


fig. 1.9

regulation draws on art-based interactions and can be recognized in the relationship between therapist and patient as well as collaboration in group therapy (Malchiodi, 2023). Exploration is the main, tangible action within practice as an individual is learning or processing through hands-on, sensory-based actions. Finally, restoration of self is the ultimate goal and done so through art approaches. Similarly looking at Maslow’s concept of self-actualization, the restoration process encompasses and relies on a variety of aspects. This step can be summarized by the three ideas of re-experience, re-sensitize, and reconnect (Malchiodi, 2023). This is where an individual participates in sensory experiences to develop new narratives, enliven oneself, and interact with a larger support system to heal (Malchiodi, 2023).

Referencing Knill’s concept of intermodal transfer, expressive arts therapists use a multimedia approach often utilizing multiple simultaneously (Malchiodi, 2023). This can be seen with the introduction of Focusing-Oriented Expressive Arts Therapy. Integrating Eugene Gendlin’s evidence-based work in Focusing (1981, 1996), this mindfulness-based approach capitalizes on the relationship between the mind and body through “felt sense” (Rappaport, 2023, p.118). Methodically, this is done through clearing a space, choosing an issue, symbolically align to



fig. 1.10

the felt sense, resonate, ask questions, and receive outcomes (Rappaport, 2023). These steps can be integrated through gestures, relating to lines, shapes, and colors, creating a poem, or overlaying these in combination (Rappaport, 2023).

As this research emphasizes expressive art therapy as a solution to trauma and occupational stress, exacerbated by the pandemic, the methods of trauma-informed expressive arts therapy (TIEAT) need to be addressed. Based on recent definitions and publications on the practice (NCTIC, 2023; SAMSHA, 2021), there are five major principles of trauma-informed practice: trauma is a component of many disorders and affects all ages, trauma is not only psychological, but also a mind-body experience, symptoms and traumatic reactions are not pathology, but rather “re-framed as adaptive coping necessary to survive” (Malchiodi, 2023, p.144), collaboration in encourages in therapy and intervention reflects cultural and world perspectives, the outlook is to not only have the potential to survive, but also thrive (Malchiodi, 2023). These principles can be applied more specifically during expressive arts therapy and can be summarized into seven key points; referencing the scientific basis, neurodevelopment and neurobiology inform intervention; self-regulation and co-regulation are emphasized as “overactivation, hyperarousal, and general anxiety are common manifestations” (Malchiodi, 2023, p.145) of post-traumatic stress; body experiences of distress are identified and ameliorated, a sense of safety, positive attachment, and pro-social relationships are established; individual strengths are supported and resilience is enhanced; an individual’s preferences are respected within self-expression and narration; and meaning-making experiences are capitalized to encourage and construct new narratives post-trauma (Malchiodi, 2023). Integrating these principles and key points in expressive art therapy can lead to further processing

and disclosure of traumatic experiences through alternative forms.

Outcomes + Benefits

As stated in *The Handbook of Expressive Art Therapy*, “traumatic experiences may not always be encoded as explicit memory but may rather be stored as nonverbal, sensory fragments” (Malchiodi, 2023, p.7). Drawing on the sensory experiences, traumatic events and post-traumatic reactions can be understood from a more holistic perspective. For example, in a case study referenced, a woman was drawn to the act of photo collaging, where she was attracted to imagery that represented a traumatic bus accident (Malchiodi, 2023). This incident had not formerly been an initial topic or reasoning for therapy, but upon further sensory exercises, it was discovered that many of the woman’s reactions were prompted from sensory experiences reminiscent of this event (Malchiodi, 2023). Recognizing this allowed the woman and therapist to work through these feelings and reactions and prompted small exercise recommendations that focused directly on these issues.

As referenced in the previous section, suicide is a leading cause of death in the younger population and can be heavily influenced by the compounding factors of depression, stress, and traumatic events. Another example from an experienced art therapist includes her intervention after a teenage boy had drawn three hanging nooses. This action preceded a suicide attempt which was able to be averted (Dunn-Snow, 2015). Although a very pointed example, this demonstrates the importance of art created in therapy in both its permanence, in that it serves as a strong motivator for action if needed, and the patient-therapist trust present to set an environment comfortable for making.

Self-expression is also highly emphasized within the practice of expressive arts therapy. As young adults are at the stage



fig. 1.11

of developing their personal identity and idea of self, this practice can help an individual attain and reach that goal. “The very nature of art creation can provide an individual with choice, freedom and power” (Curl, 2008, p.165) which ultimately empowers an individual and inspires confidence to make other decisions. From the perspective of the workplace, individuals, especially younger employees, may struggle with confidence and presence within their work environment. The mere action of creating art and the permanence of the work created, no matter the size, simplicity, or aesthetic, is “ultimately a form of self-validation” (Curl, 2008, p.165). Bruce L. Moon (1994), a well-known art therapist, writes:

Every paint streak, each chalk line, every slab of color-harmonious and dissonant [alike] - declares to the artist themselves, to the beholders of their work and to all humankind that “I am, I am here and I have something to express” (p.30).

This idea and benefit, along with others

mentioned, recognizes artistic expression and creativity as an important component in an individual’s mental health. In terms of navigating stress, reorganization of one’s thoughts is often a cognitive action to improve mental health and reduce stress. Looking back at the method introduced as Focusing-Oriented Expressive Arts Therapy, this problem-solving technique can be implemented within this method through guided imagery or movement.

As art therapy directly relates the study of the mind to the body with “interplay of experiences, emotions, behavior, and physical health,” (Masterson et al., 2008, p.21) it can serve as an appropriate method of psychotherapy to address traumatic stress in young adults post-pandemic in addition to overall mental well-being. By implementing sensory experiences, art therapy provides an individual the opportunity to effectively communicate their emotions (Malchiodi, 2023). This not only helps process stressors, but also builds confidence in individual expression which aids in collaboration and socialization.



fig. 1.12

03 | THERAPEUTIC DESIGN

Definition + Importance of Spatial Design

As outlined in the practice of Expressive Art Therapy, the patient is at the forefront of the experience. The same can be said for therapeutic design. Although commonly referencing hospital design specifically, the same general knowledge and research can be applied to all types of healthcare facilities; wellness centers, counseling centers, psychiatric care, and environments housing all forms of therapy. Therapeutic design can be viewed as taking measures to promote health, and from a design perspective, encompassing the relationship between art and design (Liu et al., 2021). It ultimately “reduce[s] stress and promote[s] healing through aesthetic enhancement” (Liu et al., 2021, para.2).

There is evidence linking human well-being to the built environment within healthcare facilities (Liddicoat, 2020). In addition, mental well-being is rooted in neuroscience. Recognizing the correlation

between neuroscience and architecture, the idea of human perception is at their center. This established link emphasizes the important role of architects and designers to “strategically design... spaces that consider this relationship” (Youssef, 2014, p.3). Expanding on Juhani Pallasmaa’s architectural philosophy of architecture as an extension of one’s mental space, Liddicoat suggests the design of therapeutic spaces “will have effects on the service users’ mental space” (Liddicoat, 2019, p.43). It is the responsibility of the designer to positively impact the user’s physical experience and mental interpretation of space. Specifically looking to design in healthcare, it has been shown that the design of the interior “can significantly benefit the process of healing, recuperation, or even just the improvement of a condition” (Leydecker, 2017, p.9). As interior architecture “defines the reciprocal relationship between people and the spaces they occupy,” (Leydecker, 2017, p.10) this acknowledges the need

for designers within the healthcare environment alongside medicine and medical or care staff.

This importance of interior spatial design to quality healthcare is not a new realization. An article published in “The Canadian Medical Association Journal” in 1984 states, “interior design is image maker, controller of mood and aid to efficiency” (Kimball, 1984, p. 1364). Within this article, the author points out the need for physician individuality in addition to professionalism in the interior space. This idea of balance continues today. A healthcare facility has certain standards to uphold regarding sanitation and safety which can inadvertently appear institutionalized and sterile. While these care environments need to give an impression of professionalism to promote trust, they also must adhere to patient comfort. Similarly, this can be viewed as the balance of functionality and the user’s emotional needs (Leydecker, 2017). These “physical and psychological needs can guide the design elements and characteristics of therapeutic design” (Liu et al., 2021, para.17).

As stated previously, although the idea of creating more hospitable healthcare environments has existed for decades, there is still a problem today. One factor hindering this advancement is in reference to economics. While functionality is largely involved in the spatial design, for efficiency and economic purposes, it can become the only factor considered. This leads to standardization of clinical cases ultimately influencing a standardization of interior spatial design across institutions (Leydecker, 2017).

So, the key to quality therapeutic design lies in prioritizing the patient and recognizing the diverse individuality of each. To create these environments, this comes through establishing a place where users feel safe and have control. Safety in itself “is one of the most emphasized parameters in the healthcare environment” (Cho,

2023, p.4). Both physical and emotional aspects contribute to overall patient safety and comfort. Within counseling environments, the establishment of a patient-therapist relationship along with the physical environment affects the user’s comfort (Liddicoat, 2019). The design of the interior space inherently reflects the physician or therapist, regardless of their involvement of the design, which in turn creates an impression of their “credibility, expertise and skills (Devlin et al., 2009; Miwa & Hanyu, 2006; Liddicoat, 2019, p. 42). Overall, it has been proven through evidence-based design that healing environments, that promote patient well-being and the healing process, are established by placing focus on the patient while catering “to the needs of everyone involved in the healing process” (Aiken et al., 2012; Leydecker, 2017, p.14; Payne et al., 2015).

Current Spatial Design

In current interior spatial design, it is frequent that only the visual appearance and aesthetics are considered. To create quality spatial design, and especially within healthcare environments, a multisensory experience must be created through the use and consideration of “color, light, form, texture, acoustic and haptic qualities” (Leydecker, 2017, p.12). A multitude of researchers have placed importance on a variety of components associated with interior spatial design. These include spatial organization of the physical space, indoor comfort in terms of ambient environmental factors, and interior design including materiality and furnishings. Within all of these, it is essential to consider the symbolism the environment conveys (Marwah, 2021) as this influences human perception and emotion.

Spatial arrangements and physical space, in psychiatry or therapy spaces specifically, have “an effect of user’s outcomes and experiences, and sense of wellbeing” (Liddicoat, 2019, p.42).



fig. 1.13



fig. 1.14

Spatial layout, orientation, size, shape, and type of room all play a role in user satisfaction, both patient and staff related (Cho, 2023). Inadequate use of space can cause a variety of issues regarding wayfinding, accessibility, inefficiency, and privacy. Another key factor to the physical environment is flexibility of space through configuration and differing arrangements. Not only does flexibility allow for a variety of activities, it also provides patients with the opportunity to develop a sense of control (Liddicoat, 2019). This can also be emphasized through a single-user room. Research has proved that this has more advantages in terms of overall organizational cost and patient care and management while also impacting patients in terms of privacy and lowered stress (Cho, 2023).

Another influential component of space is lighting. Not only is this of importance to architects and designers from a sustainability view, but also from a functional and emotional standpoint. Generally, "lighting should be designed to provide building occupants with the right visual conditions to help them perform visual tasks efficiently, safely, and comfortably" (Youssef, 2014, p.5). In addition to hindering a user's visual comfort, inefficient or poor lighting can become a safety hazard relating to falls or other related injuries (Cho, 2023). Variation in luminance and even color can trigger emotions and affect mood (Youssef, 2014). In a study by Miwa et.al regarding the effects of interior design on counseling patients, "low lighting... produced pleasant and calm emotions, as well as a better image of the interviewer" (Marwah, 2021, p.2). It has also been suggested that indirect lighting covering a wide or full spectrum is preferred (Marwah, 2021).

Biophilic Design

It has been continually proved that the use of biophilic design has increased mental and physical health by reducing stress and even encourage quicker

healing and recovery. This was first seen in Roger Ulrich's study comparing patient recovery rates between those with and those without exterior views to nature (Browning et al., 2014, p.7; Ulrich, 1983). Biophilic design revolves around human's inherent connection to nature and the idea of reestablishing that connection through design (Browning et al., 2014; Tekin et al., 2023). Introducing nature into the built environment carries a myriad of positive effects including stress and anxiety reduction (Bratman et al., 2015; Maas & Verheij, 2009; Song et al., 2015; Stigsdottir et al., 2010; Ulrich et al., 1991; can den Berg & Van den Berg, 2011; Ward Thompson et al., 2016), bettering cognitive and creative functions (Magsamen & Ross, 2023), enhancing mood (Astell-Burt et al., 2014; Gascon et al., 2015; White et al., 2013), and bettering social connectedness by establishing a relaxing, calm, and soothing environment (De Vries et al., 2013; Goldhagen, 2017). The term "biophilia" was first defined by social psychologist Eric Fromm and made popular by biologist Edward Wilson. Today, the concept is integrated and discussed within a variety of professional fields (Browning et al., 2014).

Specifically within hospitals, gardens have been used to improve well-being of patients and their families (Marcus, 2016; Nieberler-Walker et al., 2023). These gardens can be highly designed to be referred to as therapeutic landscapes which focus on creating a sense of place for all users (Bell et al., 2018).

These extensively designed gardens are not always an option in urban environments or in smaller scaled clinical settings. Biophilic design principles can be implemented within the interior by "maximiz[ing] the use of natural materials, natural colors, fresh airflow, natural light, safety, and security" (Tekin et al., 2023, p. 241). In 2014 Terrapin Bright Green LLC released fourteen patterns of biophilic design as a guideline to implementing these principles

in design applications. They organize these principles into three categories; nature in space, natural analogues, and nature of the space (Browning et al., 2014). One of the most important of these being a visual connection to nature, falls under nature in space. Multiple studies have found that access to natural light and windows with views to exterior greenery have significantly improved mood (Gillis & Gatersleben, 2015; Zadeh et al., 2014; Ulrich, 1984). In expressive art therapy, many therapists have supported the need for daylight and outside views. Not only does this encompass all the previously mentioned benefits, but also can serve as a distraction or escape from the difficult thoughts and emotions of a patient (Case et al., 2023).

These views of nature can also be implemented within the interior space on a smaller-scale or through artificial means. Nature-themed artwork either physical or

digital (Cho, 2023) in addition to placing indoor plants or green walls within the therapy space and patient rooms can aid in accelerating recovery and reduce stress (Cho, 2023; Browning et al., 2014). These micro-restorative components, biophilic moments or sensory experience, can be just as effective as large courtyards or garden spaces. The frequency and placement of these biophilic elements is key to their success. Evidence shows a mere five to ten minutes of exposure can enhance emotions and mental restoration (Browning et al., 2014).

As windows provide exterior views, they naturally let daylight into a space. In addition to the diffused light daylight offers, it provides users with options that stimulate the eye, encourages a positive psychological or physiological response, and aids in maintaining circadian rhythm functioning (Browning et al., 2014). This can become especially important within

therapeutic environments that users are occupying for extended periods of time.

In the expressive art therapy environment, patient safety, comfortability, and sense of belonging are essential. The biophilic principle of sense of place goes hand in hand in supporting this concept. A connection to place, in a biophilic sense, establishes a connection to the local environmental surroundings. This can also be achieved within the art therapy environment by allowing the user control in their own space. By implementing aspects that provide that connection to the exterior while simultaneously providing opportunities for control, users will develop a sense of belonging and place. Allowing for adjustment in temperature or ventilation can provide users preference (Browning et al., 2014).

Implementation of biophilic principles can further complement the art



fig. 1.15



fig. 1.16

therapy process by enhancing sensory experiences. Nature has an abundance of sensory aspects including “odors, sounds, tastes, smells, haptic sensations, and visual patterns” (Heerwagon, 2008, p.229). Expressive art therapy encourages the exploration of sensual experiences; these experiences can even utilize and capitalize on the sensual patterns found in nature as a part of the therapy process.

Another key aspect to the interior spatial design of therapeutic spaces is the choice of materiality. Studies have shown that natural materials such as wood and stone as well as natural textures and patterns, create a more comfortable feeling within the interior space (Browning et al., 2014; Gillis & Gatersleben, 2015; Sofiana et al., 2021). Earth color tones, primarily blue and green, have also been proven to be

especially soothing and relaxing (Tekin et al., 2023).

Integration in Practice

Researchers and art therapists can agree upon the immense emphasis on the relationship between patient and therapist needed for successful progress. Supporting a patient's sense of control "is important for their comfort and recovery or coping process" (Ostrander, 2021, p.51). To support this, therapist's need to "trust the individual's internal capacity to become well" (Herron, 2023, p.99) and provide an atmosphere for this to flourish. This autonomy has also been linked to higher well-being, quality of life, and daily functioning in those suffering from mental illnesses (Andrade et al., 2013; Devlin & Arneill, 2003; Eklund & Backstrom, 2006; Middelboe et al., 2001; Ostrander, 2021). These patient-therapist interactions prompt other relationships to form between therapist, clients, and the arts processes and products (Estrella, 2023, p.82). It is essential for the therapist to follow their client's lead and be receptive to their choices of art medium, movement, or expression (Herron, 2023, p.104).

In order to establish and support these needed relationships, an adequate environment and atmosphere is crucial. Historically, art therapy departments were housed in larger institutions, especially for psychosis patients (Case et al., 2023). Looking at Britain specifically, Edward Adamson and E.M. Lydiatt established the idea of an open art studio which created a space for contemplation and creativity that was peaceful and quiet. Today, artist therapists work in a variety of settings; educational, institutional, rehabilitative, community based, wellness programs, and private practices (Dunn-Snow, 2015). In the lieu of COVID-19, there was a need for virtual space as well.

Continually mentioned, is the idea of the art therapy room as a "container." Acting as a "container," this private space enables a

sense of "security, freedom from intrusion and an atmosphere of calm and reflection" (Case et al., 2023, p.50). Katherine Killick, trained art therapist and psychotherapist, describes a particular room and space where she worked where patients felt 'safe' and as if they were in a 'sanctuary' (Gilroy & McNeilly, 2000, p.102). This similarly correlates to the concept of the art room becoming "a symbolic space as the therapeutic process gets underway" (Case et al., 2023, p.51). Psychologist Robert Gifford identifies home-like decorations and dim lighting as providing a positive atmosphere that increases calmness and encourages more intimate conversation (Miwa & Hanyu, 2006). It can be implied that within the counseling and therapy environment, these objects and lighting qualities can prompt higher participation and progress between client and therapist. Research has shown that these home-like objects or personal decorative items could positively impact a user's experience. Positively, objects reflect the personality of the therapist, creating a more personable and relatable environment (Kimball, 1984). There have also been case study examples, indicating patients relating to or using objects within the room as representation of their emotions and experiences (Case et al., 2023).

Another aspect to supporting the client-therapist relationship is the allocation of space. While practice settings differ, the need for open space for making is important. As it is encouraged to allow the patient to lead a therapy session, accessibility to the required materials is necessary. Although private therapists have more general freedom in the layout of space compared to those utilizing a multi-purpose or shared space, there is still an emphasis on access and flexibility. Some aspects remain at a constant within these spaces; physically speaking, adequate space for movement, material access, and wash basins and water are needed (Case et al., 2023). In terms of atmosphere, a well-lit room appearing warm and open



fig. 1.17

is also essential for establishing a sense of security and belonging. Referring to the larger scale of Killick's space, it included a large studio space, individual patient rooms, a kitchenette, an office, a restroom, and access to exterior space (Gilroy & McNeilly, 2000). This program remains open for modification within while containing the essential spaces that have not changed over the years, but merrily have been adapted to meet other setting or patient types.

While there are certain privacy and atmospheric qualities that remain consistent in general therapeutic design (eg. lighting, flexibility, views to the exterior), there are components to a space that can induce stigma or make patients feel uncomfortable or heighten anxiety. As indicated earlier, personal decor has been known to positively impact a user's experience. In a study by Stephanie Liddicoat, PhD, MArch, of Melbourne Australia, it was found that spaces that appeared barren or limited in materials "served as punishment" to service users (Liddicoat, 2020, p.110). This study focused particularly on the "waiting room" space, but these results can be applied on a broader scale as well. While aspects of wayfinding can be amplified within a space to serve a certain client group, such as color coding and providing handrails and defined table edges for the visually



fig. 1.18

impaired (Case et al., 2023), wayfinding signage may deter service users who seek a more privatized entry and approach (Liddicoat, 2020).

Furthermore, materials and furnishings can play a role in supporting the expression of oneself and the ease at which a patient is able to create. Materiality used on furniture as well as other architectural elements can also aid in psychological well-being. The artistic expression process relies on the comfortability of patients to participate. The Art Shed at Kate Greenaway Nursery School provides an example of a space with tiled flooring; therefore, encouraging a mess to be made while making. It has already been established that the flexibility of furniture and layout within the studio or therapy space is key. Arguile and Danieli et al. (2006) found that in reference to children, a therapy space must remain clear in order for them to “put down their own chaos and creatively find their own order from it” (Case et al., 2023, p53). Although referring to children, the concept of allowing oneself

to embrace the chaos associated with art to process emotions can be applied to any age group.

Overall, these spatial and atmospheric requirements indicated emphasize patient-therapist relationships and place priority on the sense of safety and control of the client.

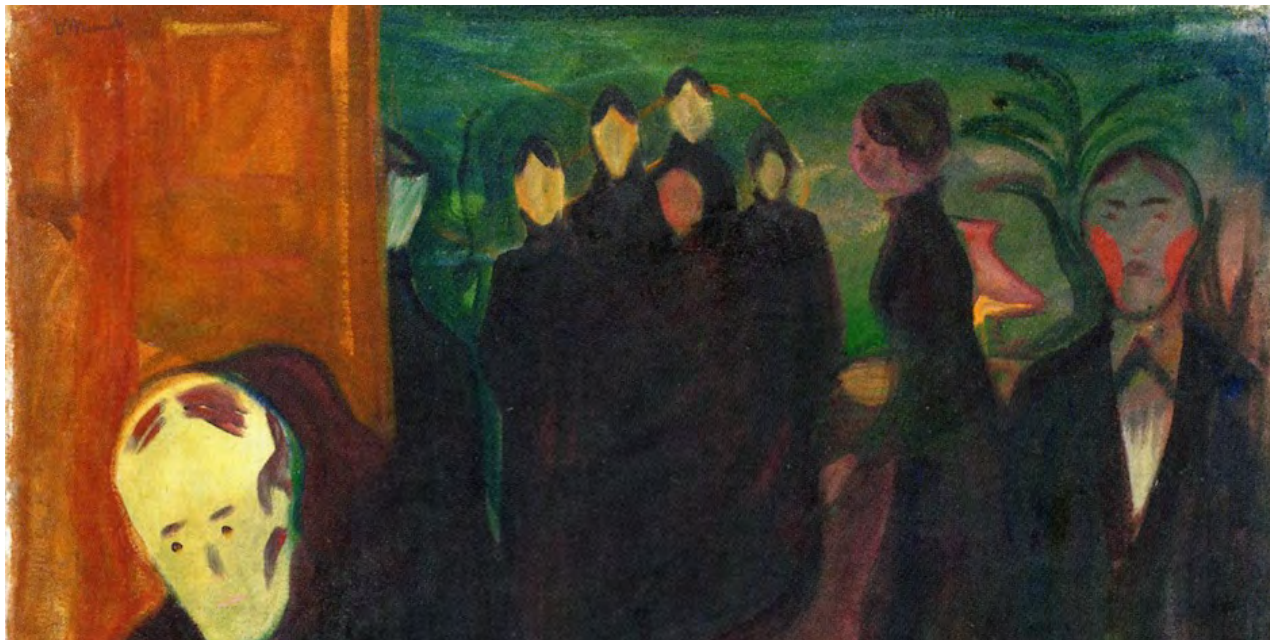


fig. 1.19

04 | CONCLUSION

As the delve into occupational stress and mental well-being indicates a need for a positive coping or solution, especially after the impact of COVID-19 on the workplace and the emerging young adult population, this review looked to the benefits of expressive art therapy as a solution.

To embrace this as a possible solution, study on therapeutic spaces in general was conducted with emphasis placed on comfortability of space through material, color, and spatial layout and biophilic design. As minimal precedents and documentation on the art therapy room or space exist, the review recognizes the need for patient-therapist relationships and placement of priority on the patient. Spatial requirements and atmospheric qualities that influence healing and self expression were analyzed from a healthcare and artistic viewpoint to lead into greater architectural precedent review.

1.2 PRECEDENT ANALYSIS

studies of artistic + therapeutic spaces

NEXT DOOR CREATIVE OFFICES
YOGA GARDEN + ART GALLERY
BEDALES SCHOOL OF ART + DESIGN
MAGGIE'S SOUTH HAMPTON
DENTISTA AMSTERDAM DENTAL CLINIC
PARSLEY HEALTH

As precedents are lacking for art therapy specific spaces, healthcare and therapeutic environments along with educational or occupational art facilities were analyzed. Derived from the initial research topics and goals and objectives, precedents were analyzed in terms of belonging, comfort, biophilia, and socialization.

ANALYSIS CRITERIA

sense of belonging + place
comfort + safety
biophilic design
socialization



fig. 1.20

NEXT DOOR CREATIVE OFFICES

creative workspace

Through the development of a people focused “campus,” the Next Door Creative Offices houses a variety of creative business workspaces. The interconnected buildings are independent in their private, exterior entries, but united through a shared courtyard containing a large, heritage oak tree. Natural materials provide a neutrality to the facades, allowing a seamless blend into the primarily residential site.

DESIGNERS POLLEN ARCHITECTURE + DESIGN
TEN EYCK LANDSCAPE ARCHITECTS

LOCATION AUSTIN, TEXAS

DATE 2021

SIZE 27,000 SF



fig. 1.21



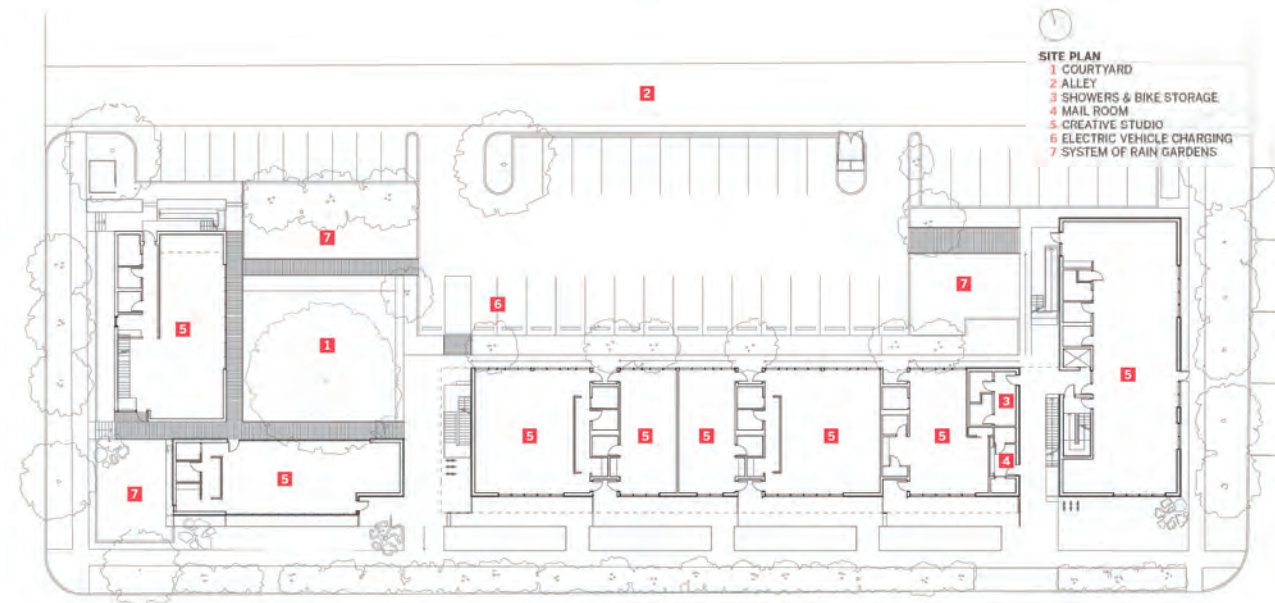


fig. 1.22



fig. 1.23

SENSE OF BELONGING + PLACE

Uniquely Pollen Architecture + Design's office sits within the Next Door Creative Offices site. Initially, Starting with just one land plot, the studio has expanded by acquiring additional lots and establishing a "creative campus." Spurred by the general lack and affordability of creative studio spaces within Austin, Pollen developed a communal space to house multiple design studios ranging from architecture and design firms, maker-spaces, software design companies, and other artist studios. This idea of a shared space draws on the overlaps between each creative entity creating a sense of both belonging to the creatives.

The exterior facade and building as whole harmonizes with the existing historical, residential development of the area. The creative campus stretches across multiple lots horizontally allowing the buildings to remain at a lower height vertically to better blend with the adjacent residences. This horizontal relationship is

further defined by the height consistency between the varying floor levels and the residential porch heights. Although blending a commercial, concrete building into a residential neighborhood may have seemed less than ideal, principals at Pollen felt the neighborhood quality enhanced the appeal appearing like a "small town" (Texas Architect) in itself. Change in materiality continue to emphasize the building's connection to the exterior neighborhood's built fabric as well as reference the industrial lofts common of artist studios in other large cities.

By creating primarily exterior circulation and unit access, this emphasizes tenant individuality and identity allowing them to feel a part of a larger community while occupying their own space. Building upon this distinct sense of place, porch-like entries are painted a deep orange further defining each as an individual unit.



fig. 1.24

BIOPHILIC DESIGN

In addition to the emphasis on comfort and sense of well-being with the integration of biophilic elements, often these elements enhance the level of sustainability. While window mullions typical to a curtain system are removed at ground level to provide an uninterrupted view to the exterior through structural silicone glazing, this expansive opening creates an opportunity for passive heating strategies. The setup of views to the exterior within the interior directly correlates to the development and placement of elements externally. The large fenestration along the north and south sides provide views to courtyard beyond. Along the front facade, pedestrians are greeted by a front garden which both external pedestrians and interior users are able to appreciate. Not only are views improved for both, but privacy is emphasized as the garden provides a visual buffer while still allowing daylight into the interior.

These gardens wrap around the entirety of the buildings amplifying views while acting as strategic barriers. By implementing rain gardens, rainwater is collected from the roof and hardscaping. Placement of this feature allows vegetated views while retaining rainwater and ultimately allowing it to seep back into the ground.

The exterior facade and building as a whole harmonizes with the existing historical, residential development of the area.



fig. 1.25

Within the interior studio spaces, there is a high level of flexibility enhancing each tenant and individual user's comfort.

COMFORT + SAFETY

Emulating the rhythm within the surrounding neighborhood, the porch-like unit entries are also designed as deep niches created by extended overhangs. This design provides residents with both a shading element and privacy right at the entry to their individual unit. The shading especially becomes necessary along the

south facade due to expansive sections of south-facing glass. Emphasizing safety and privacy, there are entries into each unit at the rear. These entries also provide ease of access from the parking to the units and internal courtyard. To further enclose the campus and provide visual and acoustical privacy, a buffer is placed



fig. 1.26

between the buildings and parking. Within the interior studio spaces, there is a high level of flexibility enhancing each tenant and individual user's comfort. Again, the placement of circulation and entry along the exterior, creates distinct separation of space. Each tenant lives within a space entirely their own with full

control over their interior environment and climate. This is accomplished by each unit having their own mechanical system and implementation of operable windows with bug screens to allow ventilation.



fig. 1.27

SOCIALIZATION

As has been established, the connection from the site to the neighborhood infrastructure and fabric create a relationship between the building tenants and the neighborhood residents.

Sitting on the existing site, a large, heritage oak tree becomes the central space the larger communal courtyard is oriented toward highlighting not only the space itself, but also the historical reference of the tree. Not only does this courtyard placement prompt interaction between residents, it serves as the linking element between each building. As each tenant needs to pass through this space to get to their individual unit, this space also becomes an opportunity for impromptu interaction alongside intentional gathering.

Looking to the building, the interior space is flexible and populated according to the needs of each company. The process of making and creativity often needs large surface area and takes up a large amount of space. These surfaces become adaptable platforms that encourage physical collaboration while providing the space essential for each individual to express their ideas.

MAGGIE'S CENTRE SOUTHAMPTON

cancer center

Its no secret that all Maggie's Centres create a calming, reassuring, and relaxing environment for patients, loved ones, and staff through unique design relative to location and place. Maggie's Centre Southampton is no different, with its garden niches corresponding to interior program and emphasis on natural materials that reflect the surrounding environmental context.

DESIGNERS AL_A
SARAH PRICE LANDSCAPES

LOCATION SOUTHAMPTON, ENGLAND

DATE 2021

SIZE 3,552 SF

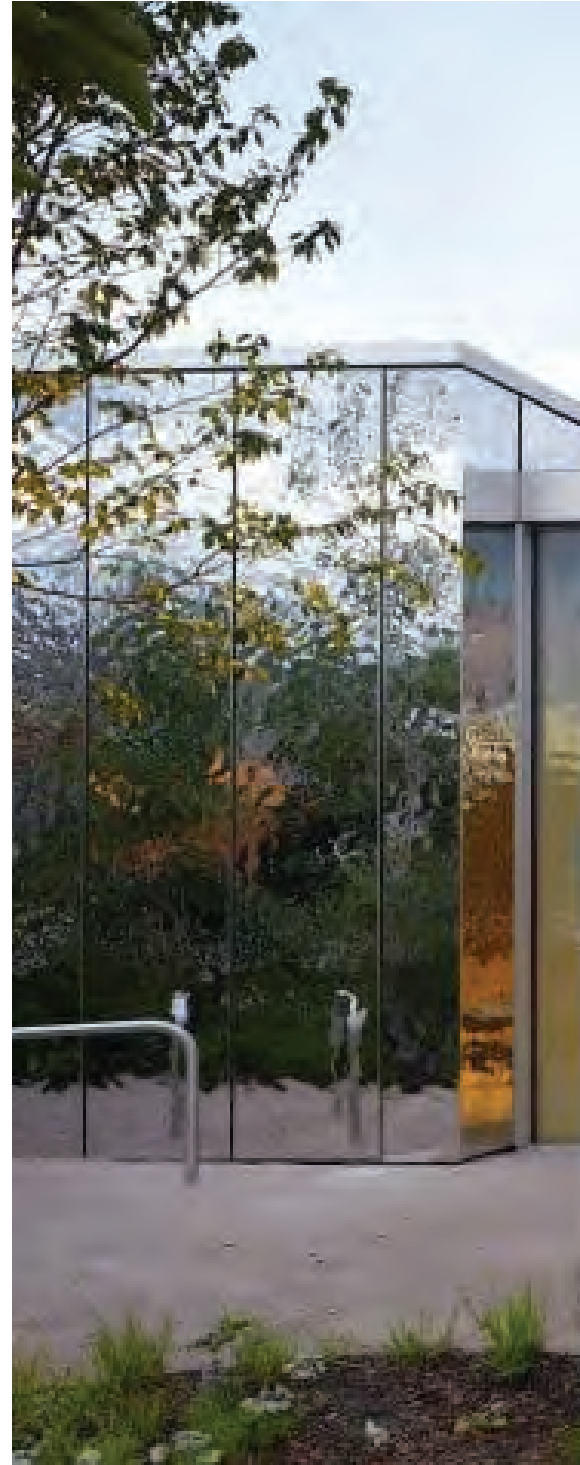


fig. 1.28





fig. 1.29



fig. 1.30

SENSE OF BELONGING + PLACE

Although built on the site of an existing hospital, the cancer center becomes its own oasis disappearing into the surrounding landscape. The landscape ties to the nearby New Forest so the flora consisting of wood anemones, orchids, wild garlic, lesser celandines, bluebells, and primroses seamlessly blend appearing as if they had always been there. This landscape surrounding not only creates a shield from the adjacent suburban campus of the Southampton General Hospital, but also provides patients a feeling of seclusion and protection.

The site itself is centrally organized with four walls radiated from the interior of the building in the form of a pinwheel. These create four distinct pocket landscapes that correspond to the interior programming. It was the intention of the architect that the interior and exterior spaces were in a dialogue with each other with no distinct separation between the two.

Through the exterior materials, the

building is able to further reflect the surrounding gardens. On the main The four “blade” walls use earth colored ceramic blocks reminiscent of the garden soil. On the remaining walls, stainless steel undulates creating a mirror-like effect literally reflecting the vegetation.



fig. 1.31

BIOPHILIC DESIGN

Just as the landscaping establishes a sense of place, its placement also aids in other biophilic design goals. The exterior cladding materials reflect the natural environment seen at the building's entry as well as along the surrounding walking paths. The other natural materials used bring warmth into the interior space as ceramic block continue from exterior to interior.

Interior programming corresponds to the pocket gardens. Consulting rooms and smaller, quiet niches open into the adjacent gardens from glazed pocket sliding doors minimizing the boundary between the interior and exterior. These sliding doors along with other full height glazing allow natural light to filter into the space making it feel light and airy. This was also intended to “lift the weight from the shoulders of all who work and visit there” (AL_A, 2021). The use of biophilic elements has been proven to create a soothing atmosphere that simultaneously improves and speeds patient recovery. The architect's design goes one step further in acknowledging the immense feelings, physical and psychological, that users of the space encounter.

At the heart of the interior, a large skylight sits just above the central kitchen table bringing both daylight and views of the sky to the space.

This was intended to “lift the weight from the shoulders of all who work and visit there.”



fig. 1.32

While other interior niche spaces allow for socialization, the large, open gathering space prompts patients and staff to interact with each other.

COMFORT + SAFETY

As the landscape is designed to block views of the adjacent hospital parking lot, the ground plane is raised at the edges. This creates a physical barrier between the building and lot while also bringing a higher sense of safety to patients. Sheltered between the gardens and trees, users are able to forget they are directly

adjacent to a hospital. This can reduce feelings of anxiety in reference to their treatments as well.

In addition to private consulting rooms, intimate niches are nestled into four corners of the building with gardens surrounding them. By placing these



fig. 1.33

lounge spaces away from the central, open core, they become more privatized for users. These spaces vary in size and furniture allowing for both individual and small group use. Furniture used within the space consist of natural materials and are upholstered in soft, muted color tones similar to the interior and exterior

cladding. By painting most walls white, light from the exterior is reflected into the entire space.



fig. 1.34

SOCIALIZATION

As most Maggie's Centres are centrally organized around a kitchen table, Maggie's Southampton is no different. Naturally, the eating or dining experience is one that is predominately social. By placing this space within the heart of the space, the center is emphasizing its importance. While other interior niche spaces allow for socialization, the large, open gathering space prompts patients and staff to interact with each other.

This center placement also means socialization is inevitable for users. Walls within the interior are also flexible creating a higher level of adaptability for users and providing varying levels of privacy and interaction.

DENTISTA AMSTERDAM DENTAL CLINIC

dental clinic

This dental clinic in The Netherlands strives to create a calm, relaxing environment for users in what is commonly thought to be an anxiety inducing experience. Hinging on biophilic design through direct implementation of a large courtyard, lighting, and color, user comfortability is enhanced and prioritized within a relatively small floor plate.

DESIGNERS i28 INTERIOR ARCHITECTS

LOCATION AMSTERDAM, THE NETHERLANDS

DATE 2021

SIZE 2,798 SF



fig. 1.35





fig. 1.36



fig. 1.37

SENSE OF BELONGING + PLACE

As a dental clinic, the space was designed to be recognizable as a clinical environment. This was predominately done through the use of the color white with minimal other colors used. The white was accented with a muted hue of green. With only the addition of one accent color, the user is able to easily orient spaces. This gives the user a sense of ease and relaxation in a space that can bring apprehension.

The main reception is bright and open, and placed right off the main entry. Patients are able to easily navigate through the rest of the interior spaces through simple spatial organization and color wayfinding.

With only eight patient rooms, staff is able to provide treatment on an individual level. This places priority on the patients and makes them feel as though they are receiving the best quality treatment possible.



fig. 1.38

BIOPHILIC DESIGN

Not only is the color green emphasized through interior plants, but by using the color in other materials and furnishings, this also is reminiscent to nature. This along with other natural materials such as wood, bring a sense of relaxation and ease to patients.

Interior plants are placed to block views to the adjacent parking on the exterior. While the reception is located directly at the front of the building and right off the parking lot, from the interior, views are blocked and focused on other aspects of the interior.

Emphasis is placed on a connection to the natural landscape with the inclusion of an interior courtyard. Views of this courtyard are provided to both patients and staff. Located centrally, this space is viewed from pass-by spaces for patients as well as from the break room for staff.

Within patient rooms, dental chairs are oriented to face a green painted wall and skylights are placed directly above to provide patients natural views while receiving treatment.

Emphasis is placed on a connection to the natural landscape with the inclusion of an interior courtyard.



fig. 1.39

Patients are able to focus on the natural and changing views of the sky that can distract from the treatment being received.

COMFORT + SAFETY

As color blocking is used as a wayfinding tool, it also worked in conjunction with sharp angles to create separation between spaces. Patients are directed from the green washed reception into the adjacent corridors leading to treatment rooms.

In addition to orienting patient rooms

away from public spaces, a patterned film is applied to the glass of patient rooms for a greater layer of privacy that still allows light to pass through.

As mentioned, roof lights are placed within treatment rooms to not only bring more natural light into the space but allow

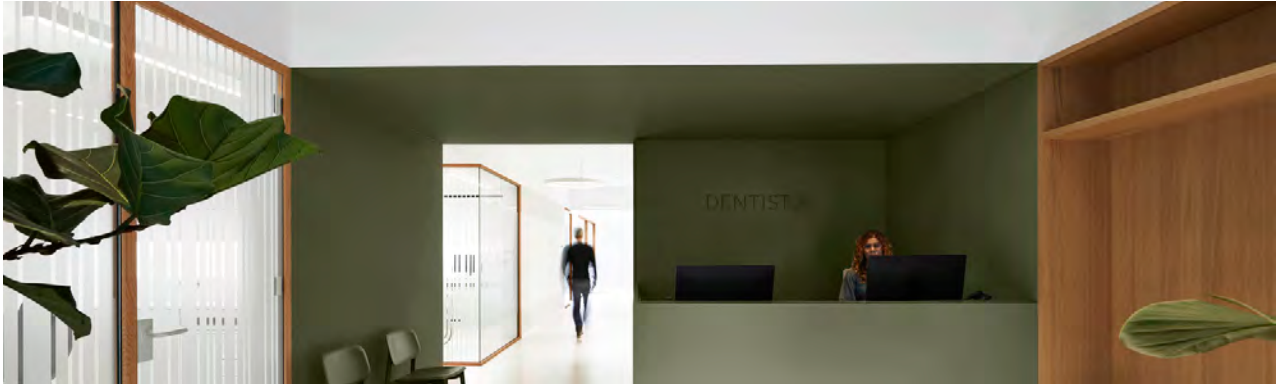


fig. 1.40



fig. 1.41

SOCIALIZATION

Acting as not only a space for staff to retreat and refresh, the break room allows flexibility in the level of socialization

Within the space, banquette seating provides space for staff to converse in varying amounts of people. There are also individual seating and work areas provided. By including differing levels of socialization and privacy, this encourages staff to utilize this space. Although given the option to work individually, this space becomes more popular therefore bringing forth more interaction.

the patient views to the outside providing further comfort. Patients are able to focus on the natural and changing views of the sky that can distract from the treatment being received.

Although the use of white can bring the idea of stability and credibility to a

healthcare clinic, by only using one other tone of green, the space can feel negatively sterile and cold. By incorporating more wood materials into patient rooms, this could be minimized through the warmth of the material.

YOGA GARDEN + ART GALLERY

yoga + gallery

Classified as a Czech heritage building, the architects renovated the existing building to contain a yoga studio and flexible gallery space. Channeling the more abstract and natural connections from both the practice of yoga and art, the design seeks to avoid the use of “cliche” decor instead encapsulating on the close contact to the natural environment the building lends itself to through natural materials and by introducing adjacent vegetation.

DESIGNERS RO_ AR SZYMON ROZWALKA
ARCHITECTS, MIRKA SVOROVÁ

LOCATION BRNO-STRED, CZECH REPUBLIC

DATE 2019

SIZE 6,599 SF

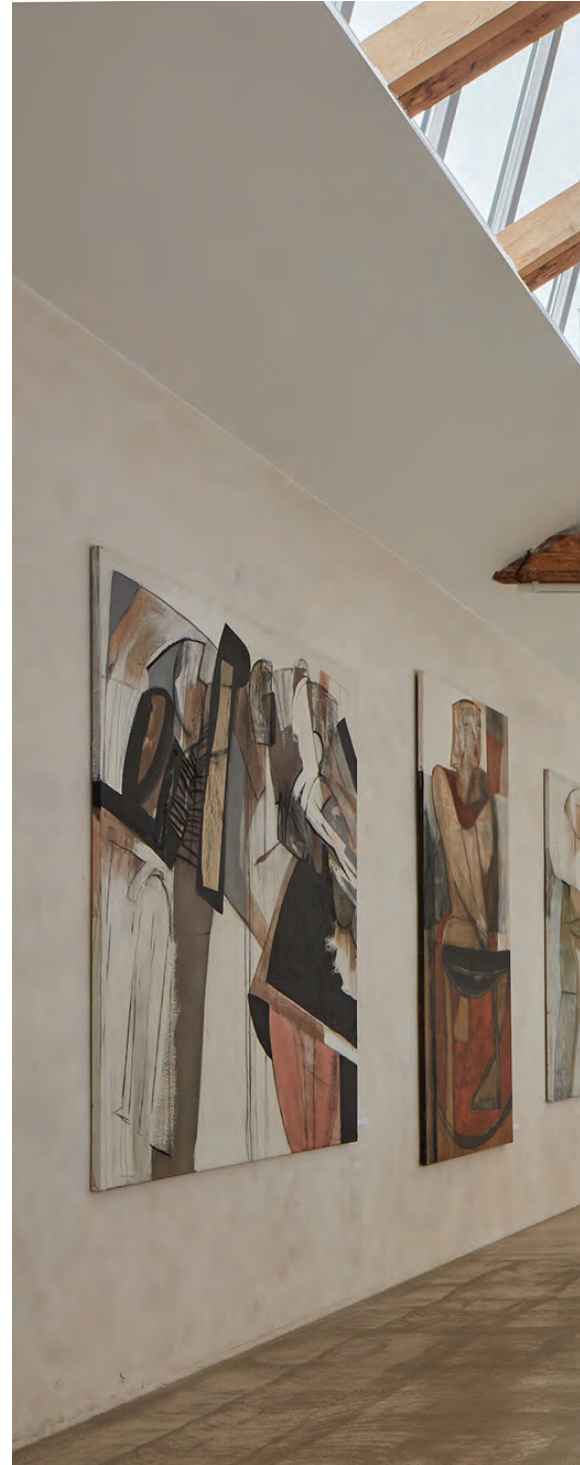


fig. 1.42





fig. 1.43

The use of natural materials brings warmth to the space while connecting the users to the surrounding landscape.

SENSE OF BELONGING + PLACE

The architect's established a distinct guideline within the design to respond to the original building. The original building was a post-industrial space consisting of many fragmented spaces. These fragments were responded to through their transformation into new garden spaces.

Although adapted, the original building's industrial materiality was kept intact. The existing plaster damage was celebrated rather than completely demoed. The historical reference brings greater reverence to the space itself furthering the respect from local users. This celebration

allows users to connect to the surrounding environment and have a greater sense of place and creates an open dialogue between the old and new.

A connection to the greater city is created through the visual connection to the exterior landscape. While new vegetated space is introduced, the skylights and clerestories provide views of the sky and exterior vegetation giving the users an oasis still within the known contextual environment.



fig. 1.44



fig. 1.45

BIOPHILIC DESIGN

The use of natural materials brings warmth to the space while connecting the users to the surrounding landscape. Intermingling elements of vegetation gives a calm and relaxing effect especially in rooms designated for yoga and meditation.

Natural light from above paired with white walls and ceilings make the space feel light and airy while brightening the relatively small spaces. Glazing is placed at both eye level as well as in clerestories bringing both direct and indirect lighting. Placing glazing alongside other buildings, creating a courtyard, also varies the level privacy and diffusion of light.

The landscaped spaces were also designed in sustainable fashion in that they require little maintenance and store rainwater.



fig. 1.46

While the placement of skylights, clerestories, and large curtain walls bring natural light to the space creating a bright and airy environment, these also provide a sense of security.

COMFORT + SAFETY

Views were strategically formed between spaces to allow for high visibility while remaining in fragments. The entrance can be seen from the gallery space, garden from the gallery, and yoga studios beyond that.

The use of natural materials in general

promote a greater sense of comfortability. As yoga can be a self conscious activity, it is important for the space to feel welcoming, inclusive, and safe for all users.

Secured locker spaces are privatized and consist of primarily warm, wood materials bringing a sense of comfort to the space.

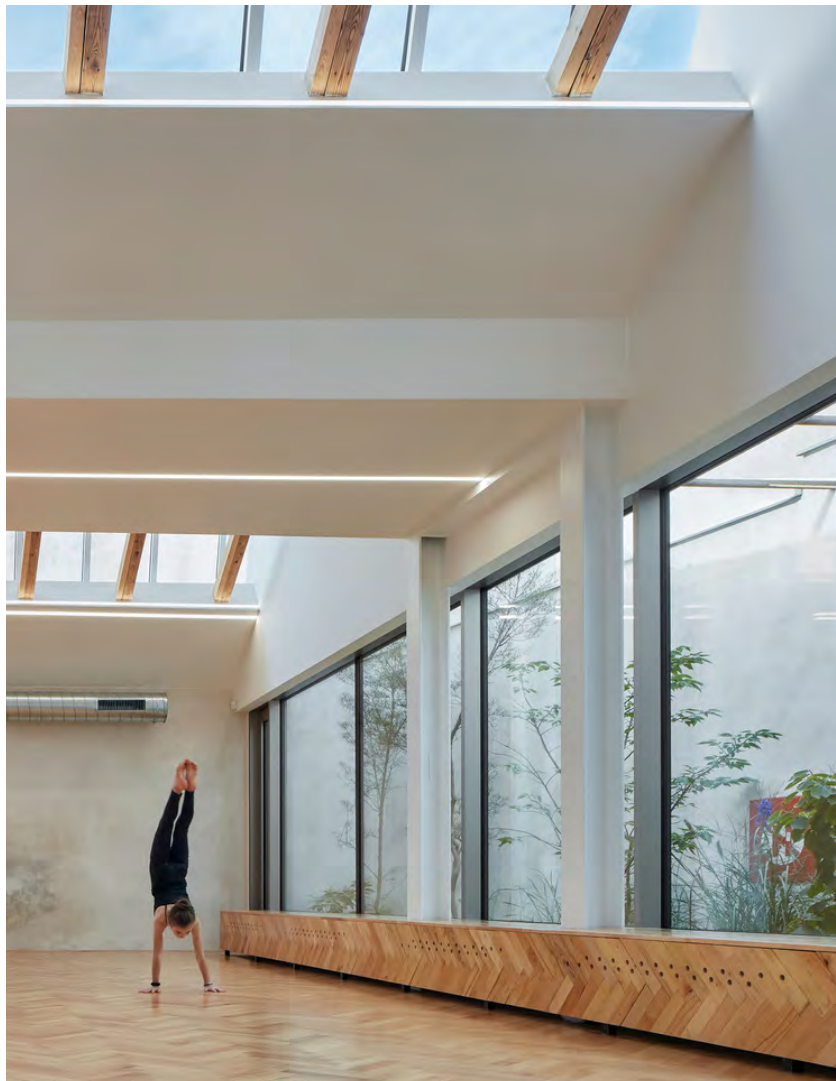


fig. 1.47

While the placement of skylights, clerestories, and large curtain walls bring natural light to the space creating a bright and airy environment, these also provide a sense of security. Skylights and clerestories are placed so that users can only see the exterior natural environment, the sky and trees and expansive curtain walls only

face primarily enclosed vegetated spaces. This allows the practice of yoga to remain private to only those participating in the studio.



fig. 1.48

SOCIALIZATION

In the transition of the building programming, pre-existing pillars were demolished during construction to enlarge the space and therefore create more space for interaction and allow for a high occupancy.

Although the program types are not typically thought of as largely social atmospheres, the expansion of both the yoga studios and gallery space allow for interaction to happen. Even on a mere visual level, being in the presence of others prompts the idea of community.

BEDALES SCHOOL OF ART + DESIGN

education

Known by the school as a “creative hub,” the building design reflects the campus ethos and centered around a large, existing oak tree, a sense of place is created and enhanced. Maximized teaching space and collaboration, the building contains a multitude of mixed media art studios while incorporating a large amount of independent student work space. In addition to connecting to the surrounding environment through placement and spatial organization, the building uses an extensive amount of natural materials and is lit by a series of skylights.

DESIGNERS FEILDEN CLEGG BRADLEY ARCHITECTS

LOCATION PETERSFIELD, UNITED KINGDOM

DATE 2016

SIZE 15, 489 SF



fig. 1.49



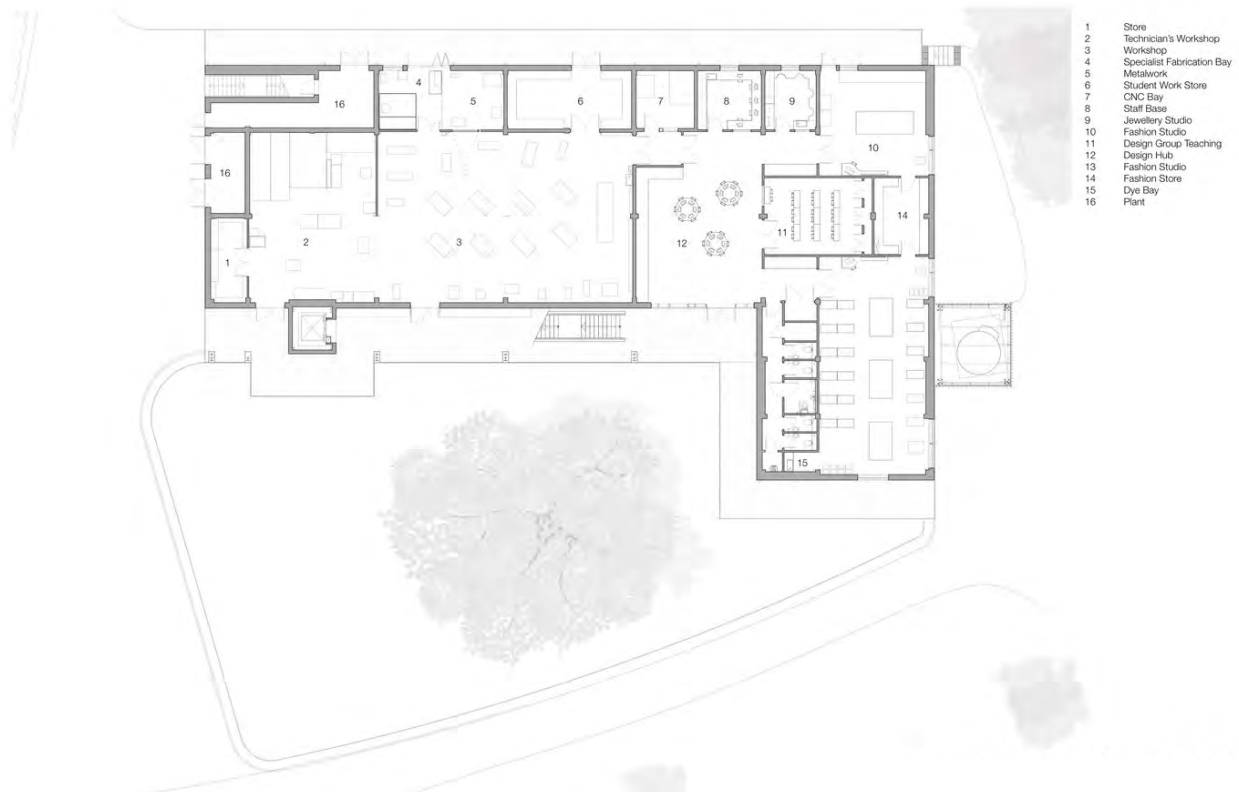


fig. 1.50



fig. 1.51

SENSE OF BELONGING + PLACE

Constructed around a large, 300 year old oak tree, the building has historical reverence on campus. The Badley foundation has considered creative arts at the heart of the school since its beginning in 1893 so naturally, its placement near the tree signifies the importance of the ideas being taught in the design school. Although the building is not necessarily centralized around the tree, its presence dominates the site. Views to the exterior allow for a reminder to the historic reference.

In addition to the tree, the gabled roof design blends with the existing barn spaces that are utilized for outdoor teaching.

Speaking to the interior of the building, open studios emphasis both space for teaching as well as collaboration. With this emphasis on learning, this gives students a feeling of belonging as the design of the spaces recognizes the value of their design education.



fig. 1.52



Section A-A

fig. 1.53

BIOPHILIC DESIGN

Natural materials are predominately used and remain in their original state drawing users into the interior spaces. These materials are also expressed within the interior and bring a sense of warmth. While these materials are inherently neutral in color tone, this allows the art created within the space to pop.

Art studios are oriented to the north to capture daylighting through skylights and glazing at eye level. This along with the height of the spaces makes them feel bright and airy.

Circulation to the different spaces is only through exterior stairs. This encourages movement outdoors that ultimately prompts users to interact with and gain inspiration from the natural landscape.



fig. 1.54

While many of these studio spaces are open concept, the individual work spaces and pin-up partitions are movable, not only giving more flexibility of space, but also providing options to create spatial barriers.

COMFORT + SAFETY

Warm daylighting reduces the need for artificial lighting creating a more uplifting environment for students to create art.

More individualized studio spaces contain large tables for one user with pin-up space directly connected. This brings greater comfort to the students as they are able to have control and customization over

their space. While many of these studio spaces are open concept, the individual work spaces and pin-up partitions are movable, not only giving more flexibility of space, but also providing options to create spatial barriers. These can allow a student the option to create in a more privatized manner and for teacher



fig. 1.55

student communications become more personalized.

A combination of stools and chairs with backs are also placed in all the studios giving users seating options.



fig. 1.56

SOCIALIZATION

Larger studio spaces include shared table spaces that prompt collaboration between students. Not only are students able to collaborate in a group fashion, but by working individually in the presence of other students, they are able to learn from each other and gain feedback directly during the creating process.

The spatial layout of built space also places emphasis on socialization with tool centered workshop spaces are enclosed and organized along the building edges.

Through the layout and furniture used within, studios accommodate for varied group sizes.

PARSLEY HEALTH'S NYC FLAGSHIP CENTER

wellness center

Designed for a startup company that takes an alternative approach to health-care, the design of the interior reflects this natural focus on the user. Through bright white washed walls and the inclusion of program atypical to a health-care atmosphere, the space becomes a more comfortable environment.

DESIGNERS ALDA LY ARCHITECTURE

LOCATION NEW YORK CITY, NY

DATE 2019

SIZE 5,500 SF



fig. 1.57





fig. 1.58

SENSE OF BELONGING + PLACE

Not only were the architect's tasked to design a space that brings a sense of belonging to users, but the design also needed to reflect the Parsley brand and goal in reflecting a "holistic, preventative approach to healthcare" (McKnight, 2019).

While the company does not take insurance, it offers a monthly membership policy totaling \$1,800 per year. Focusing on improving lifestyle, the clinic provides five doctor visits and five sessions with a health coach per year. This approach to healthcare is able to create genuine relationships between patients and doctors while encouraging community support and learning opportunities.

A sense of belonging and place is established for users through the interior programming provided. A private lounge, pantry, and dining area for members makes them feel prioritized.

Within the exam rooms, ribbed glass alls the space to feel spacious and connects

to the surrounding corridor. This allows users to feel connected to each other while their care remains private.



fig. 1.59

BIOPHILIC DESIGN

While in a urban environment where window space and exterior landscape views are minimal, the lighting is designed to positively affect circadian rhythms. Placement along norther and eastern sides maximizes daylight and natural ventilation.

Interior plant life within the entry sequence draws users into the space and creates a connection to nature while in a multi-story building.

Furthermore, the use of natural materials bring a sense of comfort and relaxation. The reception includes a plant niche wall backdrop and incorporates natural quartz and white oak into the reception desk. Maple flooring original to the existing building was kept and refinished.

While natural materials were emphasized, the site does not offer any exterior views to vegetated spaces. Views to the exterior are always encouraged, and within an urban context, especially with New York with its historic character, buildings can offer a different kind of relaxing view.



fig. 1.60

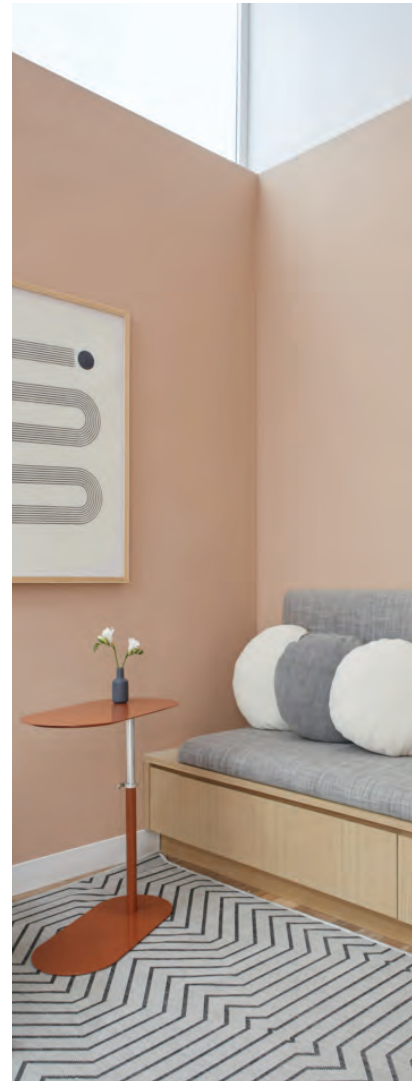


fig. 1.61

COMFORT + SAFETY

The concept reflects the combination of wellness and medicine practices highlighting the idea of comfort for users. Emphasis on bright, ambient lighting within the corridors ensures safe navigation for users and is intensified through the use of white paint.

The plan clusters patient rooms consisting of exam rooms and testing labs, around the main corridor creating more general privacy to patients while maximizing the open gathering spaces.

Within the exam rooms, earthy materials like natural wood and calming, muted



fig. 1.62

color tones are implemented. In using patterned rugs on top of hardwood both in exam rooms and in lounge spaces, a relaxed atmosphere reminiscent of the home is reflected.

A variety of furniture is provided in the spaces to give users a choice based on

their seating preference. This user control can calm a user especially within an exam room.



fig. 1.63

SOCIALIZATION

Lounge and collaboration spaces contain flexible and easily movable furniture to prompt greater levels of interaction. By allowing for transformation of space, varying levels of privacy in conversation are able to take place. These spaces can be utilized by staff and patients prompting greater interaction between the two.

The member kitchen places emphasis on a natural white oak dining table drawing users to socialize in a place of relaxation while having access to coffee, tea, or kombucha. This space also offers cooking classes which encourage members to come together and create.



fig. 1.64

CONCLUSION

As stated, these precedent reviews and analyses were conducted in order to gain interior insight in fulfilling the desired goals and objectives established. Looking to design a clinic or center for art therapy, studies of artistic and therapeutic spaces were analyzed. Overall, insight was gained on spatial organization, color and materiality, lighting, and biophilic design. By looking through the lens of sense of belonging and place, biophilic design, comfort and safety, and socialization, this review looked at key spatial and atmospheric qualities.

SENSE OF BELONGING + PLACE

Draw on a historical context of the site and building to create a sense of place

Prioritize the user experience in program and spatial organization to ensure comfortability

Encourage patient-therapist or learner-teacher relationships in the design of creating spaces



fig. 1.65

BIOPHILIC DESIGN

Views to the natural environment or vegetation need to be intentional

Natural lighting at all levels brightens a space and provides a more relaxing atmosphere. White painted walls reflect light allowing spaces to appear even more lit.

Natural materials and earth-toned colors can bring a user at ease while bringing warmth to a space.

COMFORT + SAFETY

Orient elements of display for intentional views that encourage interaction and collaboration

Include flexible and movable furniture accounting for multiple group sizes and seating preferences

Incorporate smaller, more intimate gathering spaces throughout for private socialization or consultation

SOCIALIZATION

Centralized, large gathering tables or islands place emphasis on interactions

Overlapping interior and exterior spaces creates opportunities to socialize

Collaborative tables and flexible furniture give users control while accounting for different seating preferences

1.3 SITE + CONTEXTUAL STUDY

site, adjacencies, + demographics

NATIONAL + REGIONAL TRANSPORTATION HISTORY + EXISTING BUILDING ENVIRONMENT

After conducting research through a literature review and precedent studies on the topics of occupational stress in young adults and expressive art therapy, research was done to determine site selection. Starting broadly with the United States at a national level, employment and top cities for young adult professionals were sought out. From these cities, Chicago, IL was chosen, specifically looking into the Historic Motor Row District with its rooted programmatic and architectural history.

RESEARCH SCOPE

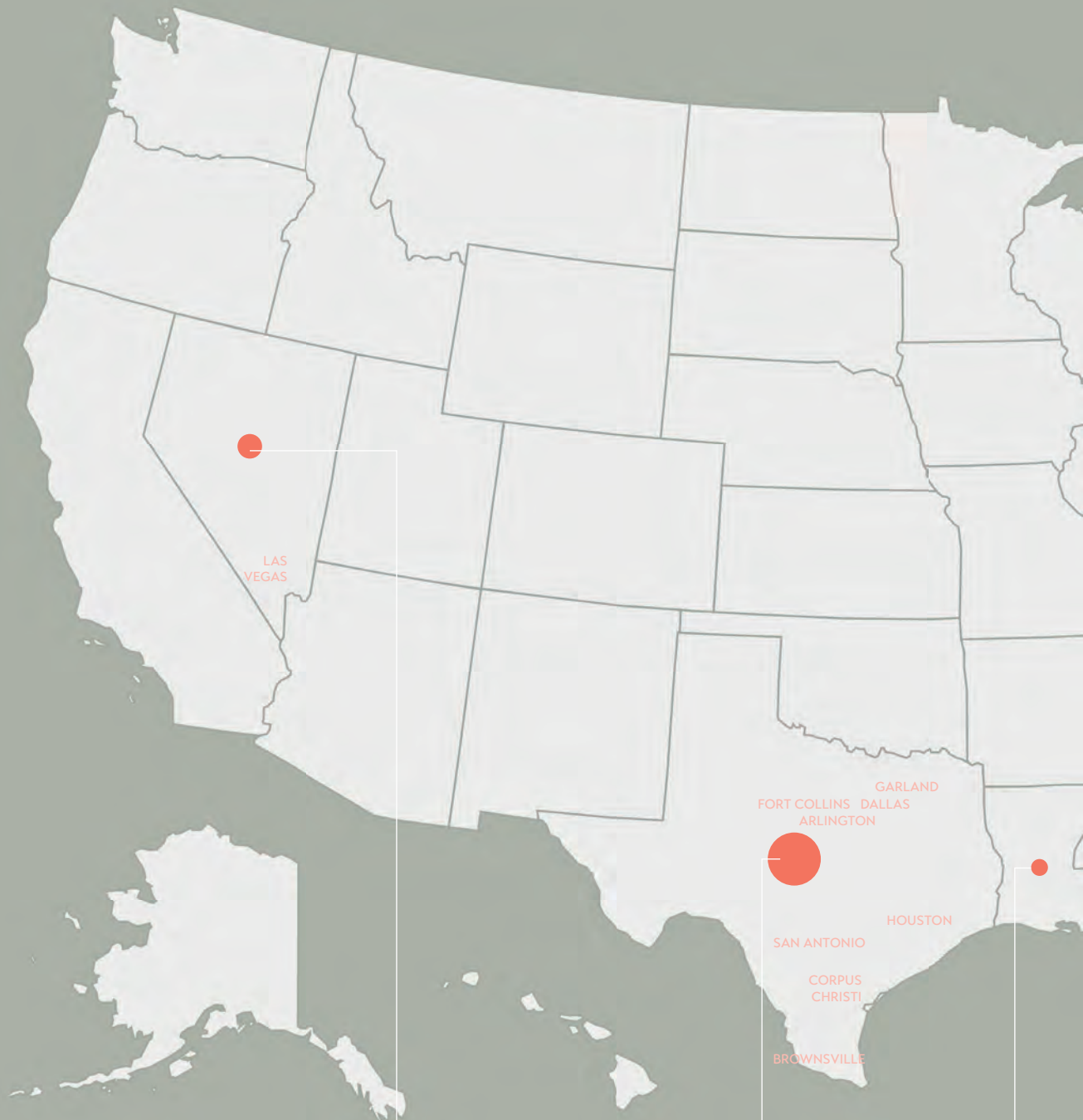
young adults
occupational stress
employment
transportation
art + diversity



fig. 1.66

OCCUPATIONAL STRESS IN THE UNITED STATES

national overview of high employee stress



west

#01 NEVADA

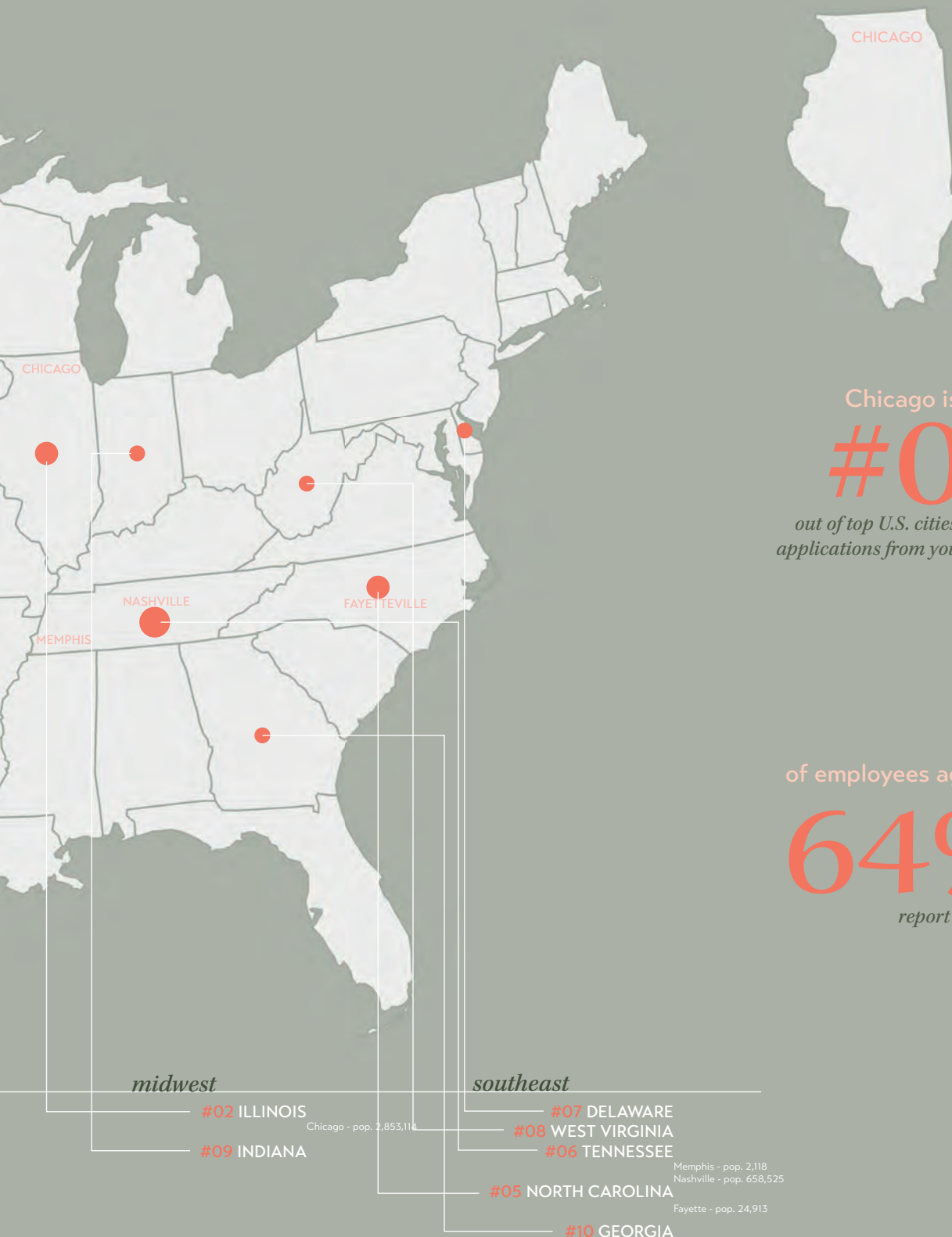
Las Vegas - pop. 646,843

south

#03 TEXAS

Houston - pop. 2,378,146
Arlington - pop. 390,399
Dallas - pop. 1,400,337
Corpus Christi - pop. 317,615
Fort Worth - pop. 916,885
San Antonio - pop. 1,579,504
Garland - pop. 235,293
Brownsville - pop. 189,987

#04 LOUISIANA



ranked as a top 20 city in regards to high levels of work related stress

Chicago is ranked
#02
out of top U.S. cities to receive applications from young college graduates

of employees age 15-29
64%
report high levels of stress

midwest

southeast

CHICAGO, ILLINOIS

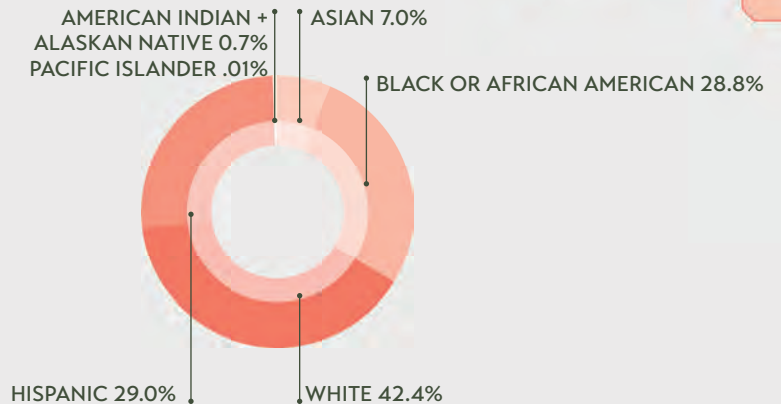
the melting pot of arts + culture

Chicago, IL is one of the largest city in the United States with a population of 2,716,450 people, placed third behind New York and Los Angeles. The city is known for its diversity with ranked #07 out of 228 cities across the nation. With this diversity comes a unique culture celebrated through the arts with a multitude of music and film festival, parades, a variety of art galleries and professional dance companies.



ETHNICITY + RACE

The Chicago population is primarily White and Black or African American ethnicities. Known for diversity, the city ranks #07 out of 228 as one of the most diverse cities in America.

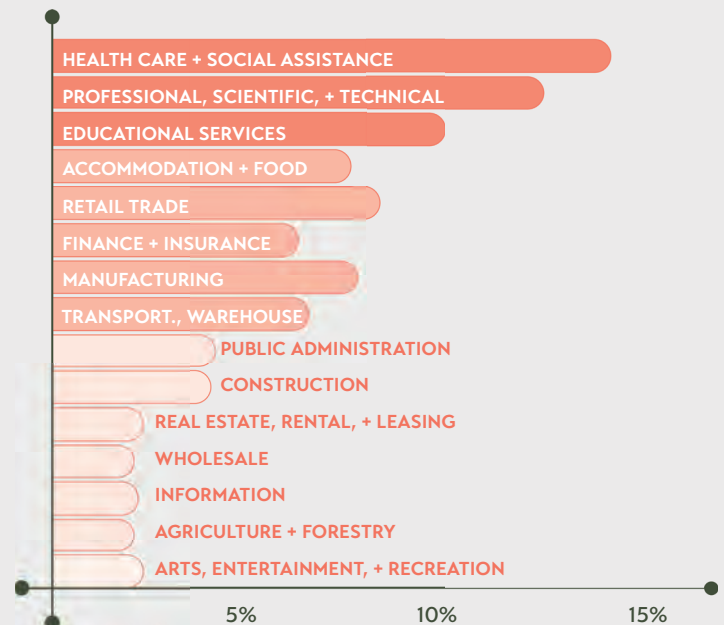


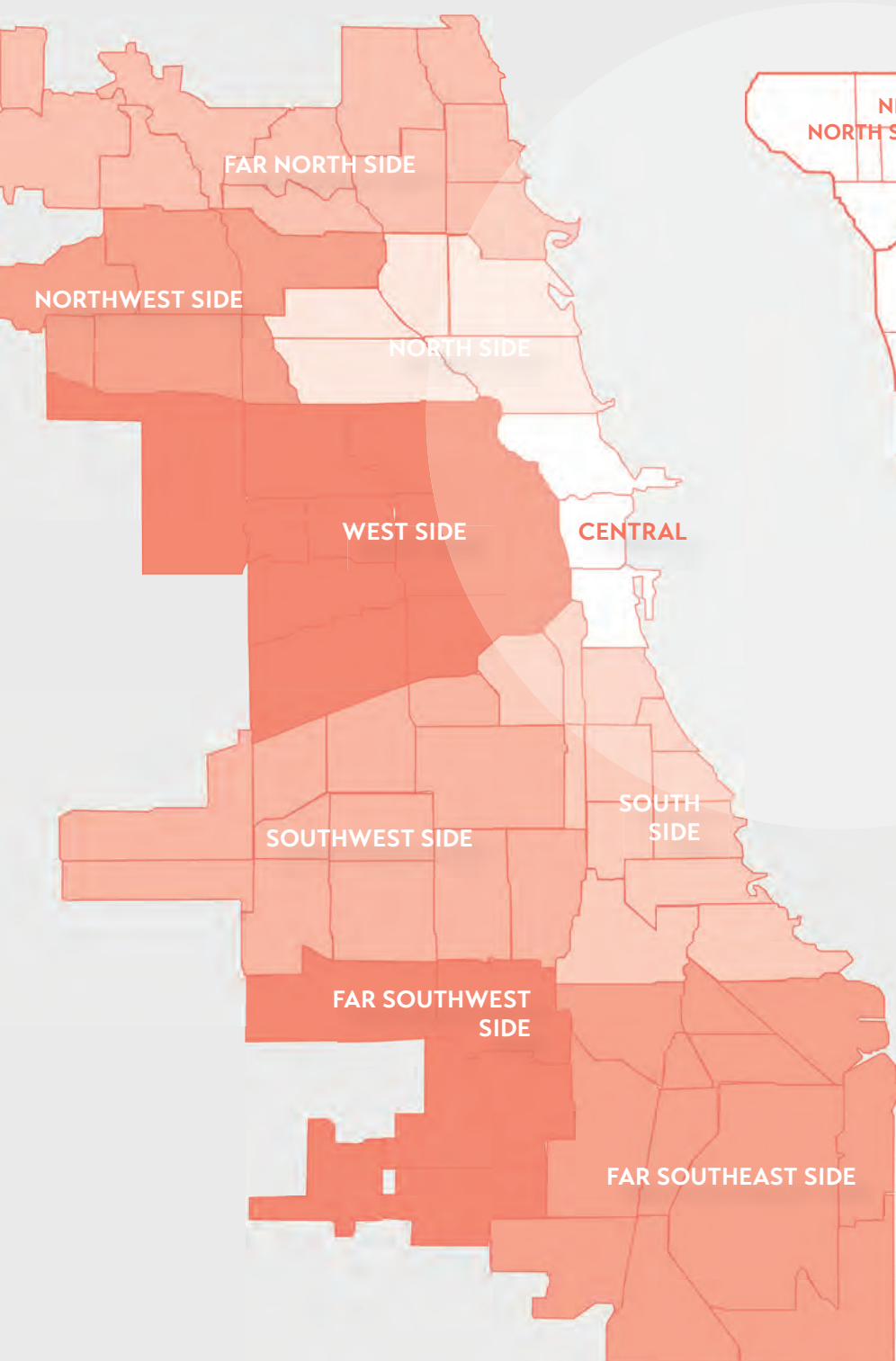
OCCUPATIONS + EMPLOYMENT

The most common categories of employment are Healthcare + Social Assistance (192,358 people), Professional, Scientific, + Technical Services (172,649 people), and Educational Services (136,297 people)

employment increased

2.75% +
over the course of one year from
February 2022 - February 2023





REGIONS + COMMUNITY AREAS

Ranging far north and south, the city of Chicago is divided into regions, 77 community areas, and neighborhoods. Neighborhoods, unlike community areas, fluctuate and are dependent on personal opinion and perspective.

ranked out of 288 cities

#21

*best cities for
young professionals*

CHICAGO, ILLINOIS

the melting pot of arts + culture

EAST PILSEN

NEAR NO

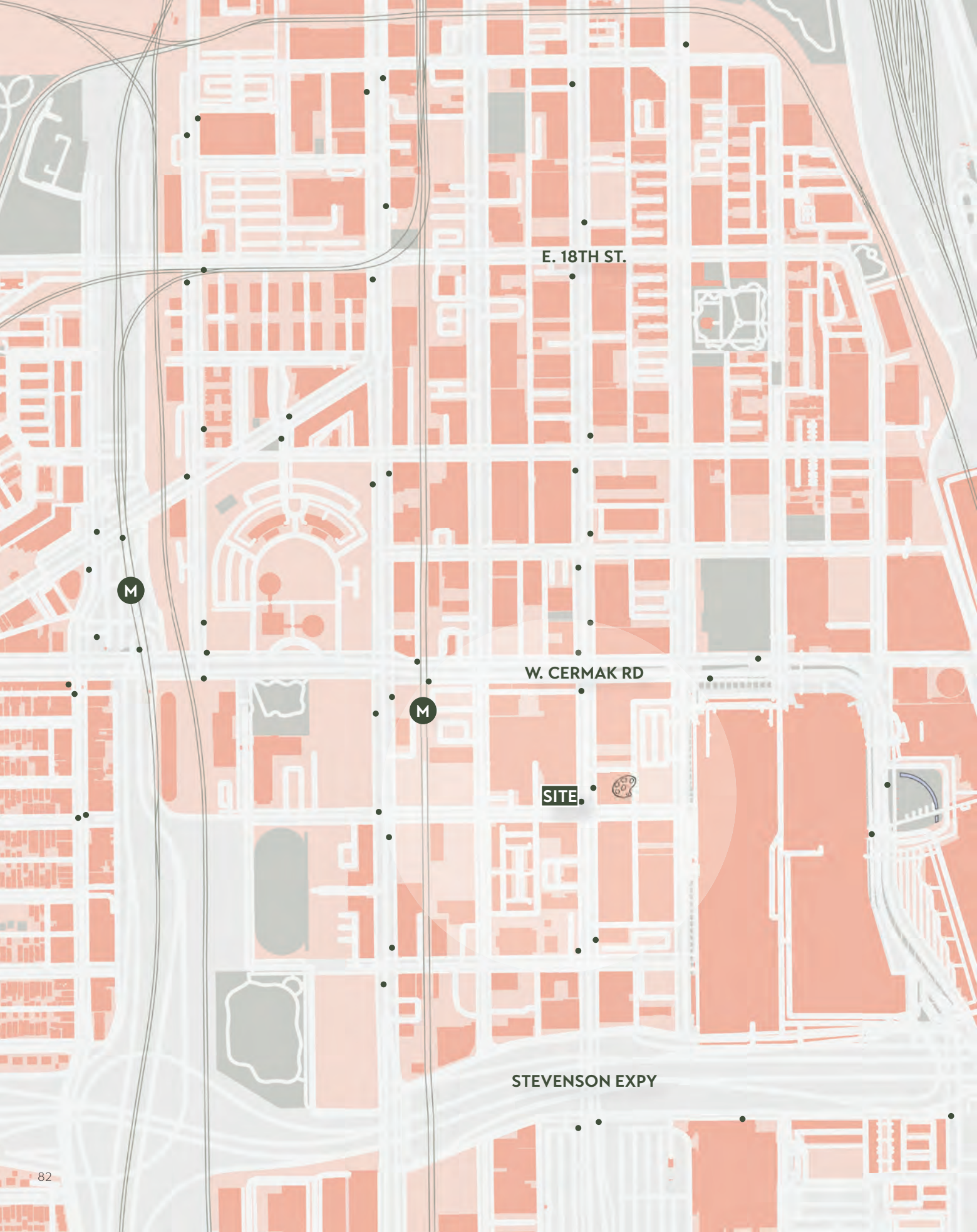
CHINATOWN

MOTOR

WORTH SIDE

PRAIRIE DISTRICT

WORTH ROW DISTRICT



E. 18TH ST.

W. CERMAK RD

SITE

STEVENSON EXPY

M

M

SITE ADJACENCIES

transportation

Chicago, IL has an extensive network of public transportation connecting residents to downtown and surrounding neighborhoods through the elevated "L" rail, and suburbs through the Metra. Within the Central Chicago community area, walkability in addition to public transit is highly utilized.

The building site lies within an area with a walk score of 94 meaning residents can complete daily errands without the need of a car. With a bike score of 83, biking is a convenient way to travel.

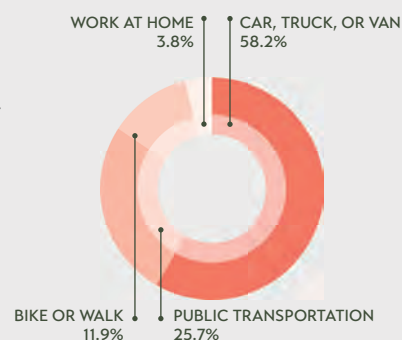
TRANSIT

The site lies in close proximity to a variety of transportation options. Located on a corner lot, there are two bus stops directly outside of the building, and the Cermak-McCormick metro stop is only a 10 minute walk from the site.

76
transit score

COMMUTE

Most residents within this area drive a personal vehicle to work. The second highest form of transportation is public by bus or metro. Most workers drive an average of 10-19 minutes to their place of work.



to downtown chicago



6 MIN



13 MIN

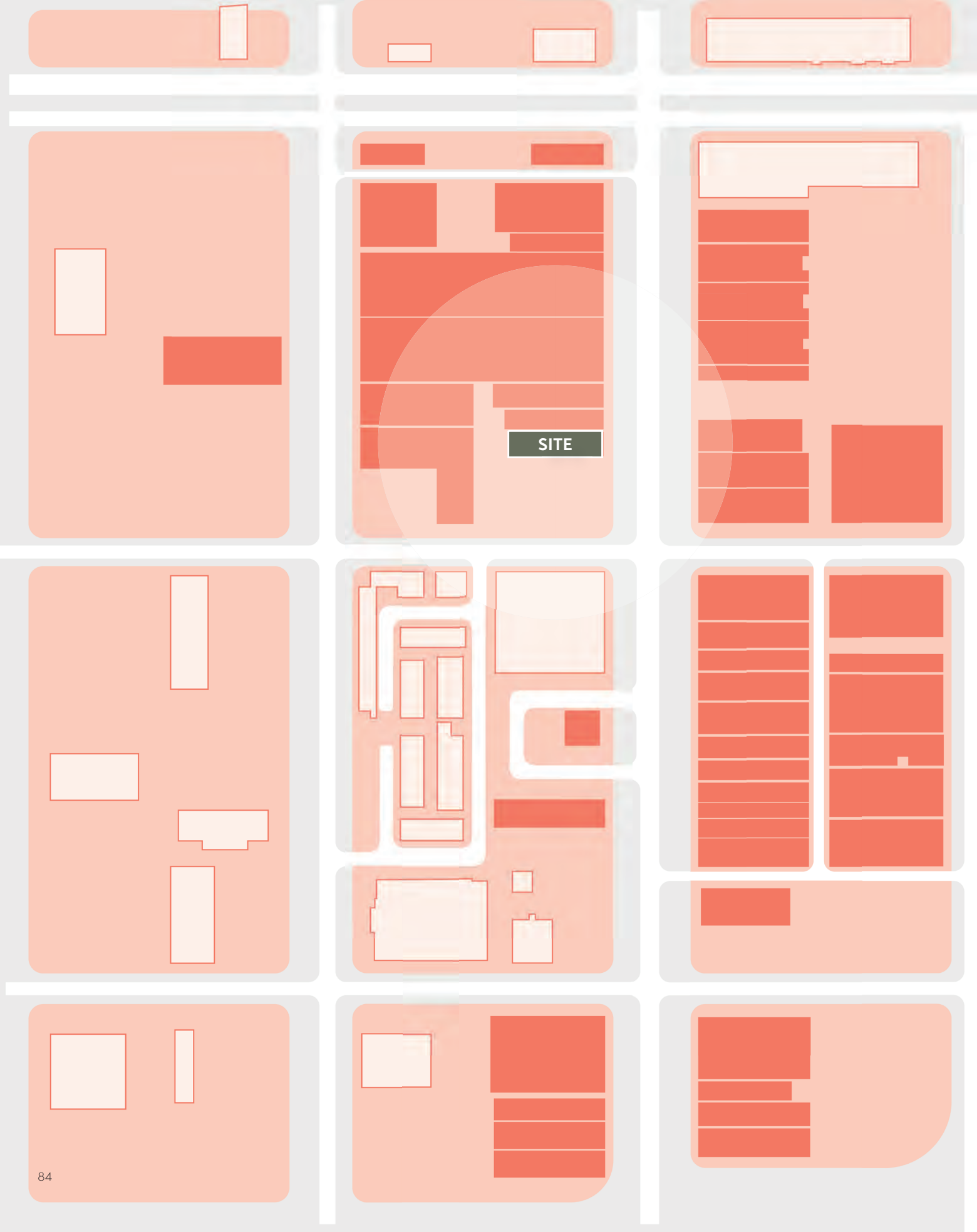


11 MIN

● BUS STOP

 METRO STATION

 ART GALLERY



SITE

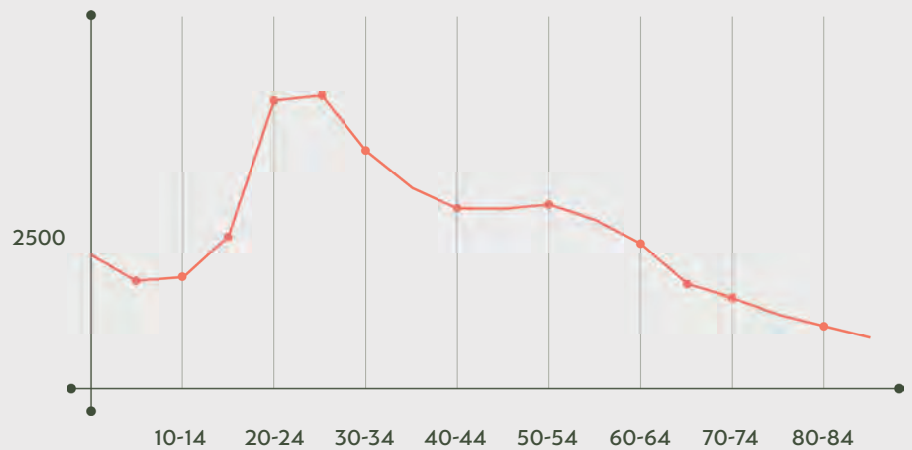
HISTORIC MOTOR ROW DISTRICT

history + zip code demographics

The chosen building site lies within the Historic Motor Row District. Between 1905-1936 this district was significant for housing the majority of automobile showrooms. Overtime, these buildings show the evolution of the architecture and interior layouts. Being within this district, the site is considered a registered landmark.

AGE RANGE

Within this zip code area, the primary population is young adults with a median age of 36 years old



INCOME

The 60616 zip code has a median household income of \$44,258 which is low compared to other nearby zip codes.

median household income

\$44,258

-  HISTORIC BUILDINGS
-  NEW CONSTRUCTION

EXISTING BUILDING

2248 south michigan ave.

Recognized as a historical landmark, the facade expresses beautiful detail that showcase the large curtain walls. While the rest of the building is composed of original brick similar to the surrounding buildings, the cream stone of the front facade contrasts, further drawing attention to the building. Adjacent to an empty corner lot, there is potential for expansion and master planning for greenspace on site.

ARCHITECT E.J. ORENSTEIN

LOCATION CHICAGO, IL

DATE 1912

SIZE 21,000 SF @7,000sf/level



fig. 1.67



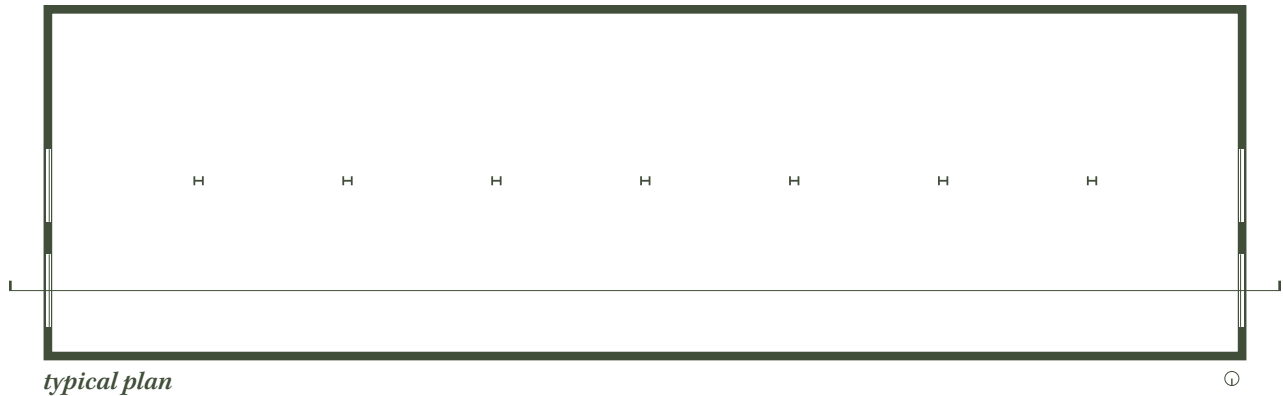


fig. 1.68

INTERIOR ANALYSIS

The structure of the building consists of a single, central column line with beams and webs placed along a grid. Although there are large curtain walls along both the front and back facade, the building is long and narrow posing a problem in access to natural light within the innermost center of the building. As there is no beam running along the center of the column line, this allows for the opportunity to manipulate the floor and roof planes to implement

a skylight system reaching each level of the building. The original brick remains exposed within the interior space serving as a historical connection to building and the greater city as a whole. The existing concrete floors serve as a strong base for introducing new materials. The existing stair is not currently to code, and although it may be considered an exception, a new stair system will be proposed to create safer and better connected circulation.



fig. 1.69



fig. 1.70



fig. 1.71



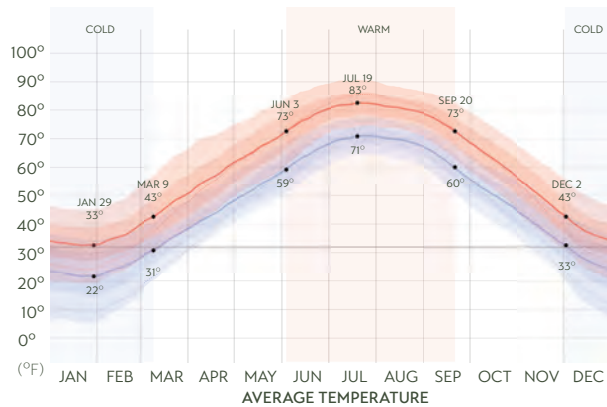
ENVIRONMENT

temperature + wind

Chicago, IL is classified as a continental climate with cold, snowy winters and generally warm summers. The city experiences all seasons with the spring and fall being more moderate in temperatures. As Chicago extends through both urban and rural environments, fluctuation in temperature and wind are especially noticeable. Within the urban downtown area, tall and condensed buildings along the Chicago River bring cavernous wind gusts and intensify cooler temperatures in the winter and warmer temperatures from the increased industrial activities, and the amount of buildings and people.

TEMPERATURE

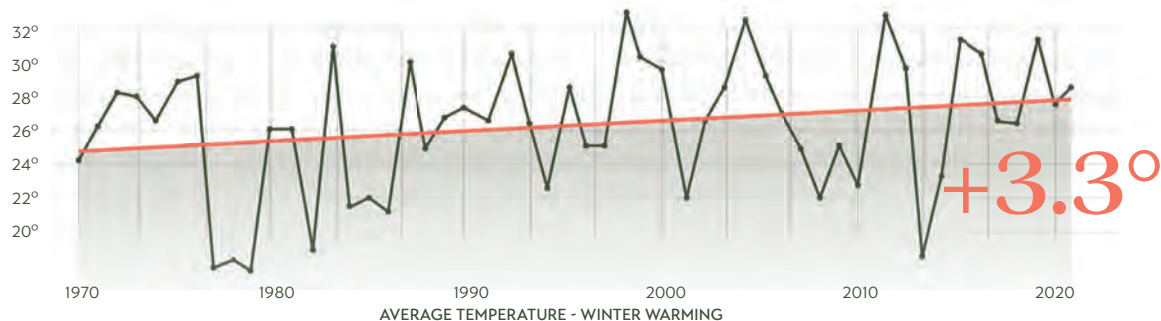
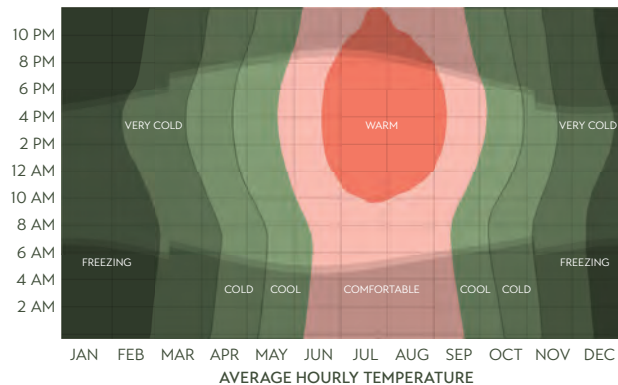
Experiencing all seasons, in the summer months, temperatures can reach above 80 degrees while winters are known to be freezing. Like most of the United States, temperatures have been on a steady rise due to global warming mellowing out the typical cold winters and increasing the heat index in the summer. Being in close proximity to Lake Michigan, its thermal mass moderates temperatures and brings cool breezes in the summer months.

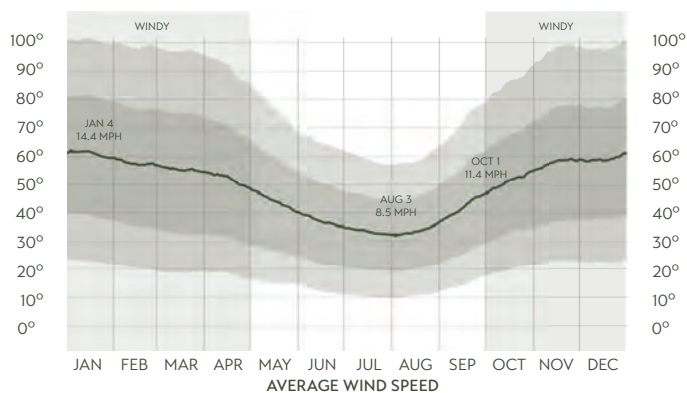


overall
temperatures have risen

1.5%

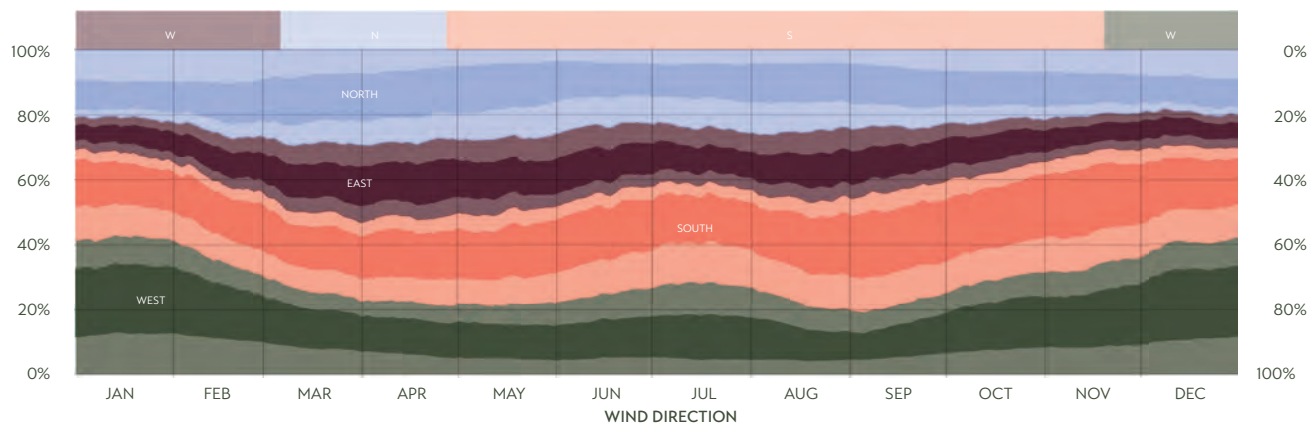
since the beginning of the 20th
century





WIND

Although classified “The Windy City,” this name is not in reference to the amount of wind or wind speed. This in fact refers to a long history of boastful politicians or “windbags.” That aside, Chicago does reach some high wind speeds especially in the colder seasons. These fluctuate between urban and rural environments with influencing average temperature as well.

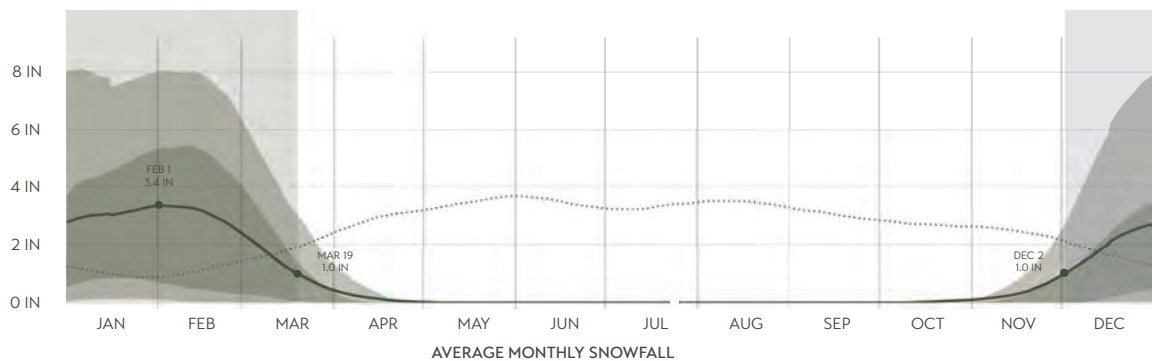
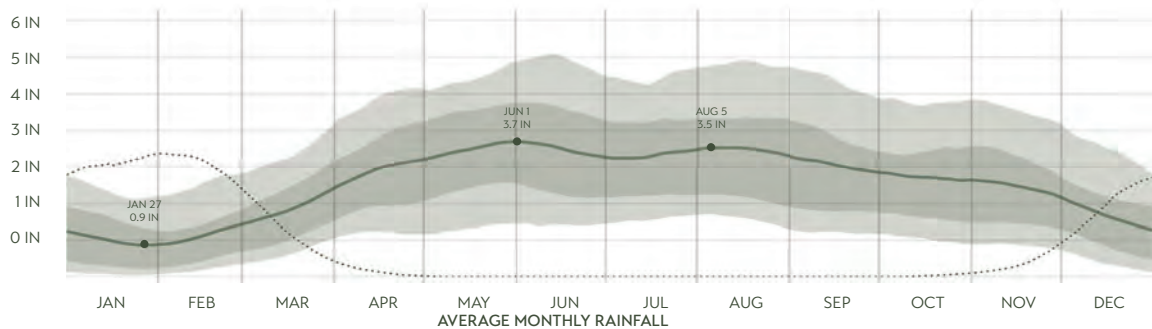


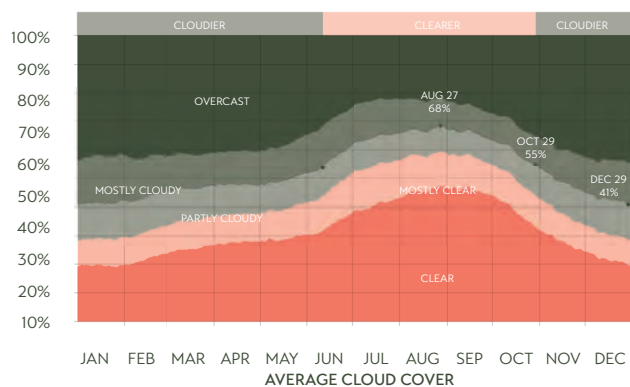
ENVIRONMENT

precipitation + sky

PRECIPITATION

Chicago's precipitation consists of both rain and snow. The wet season lasts for approximately seven months from the end of March to the end of October with June being the month receiving the most rainfall. Snow is common between the months of December and March with the city getting an average of 3.2 inches.

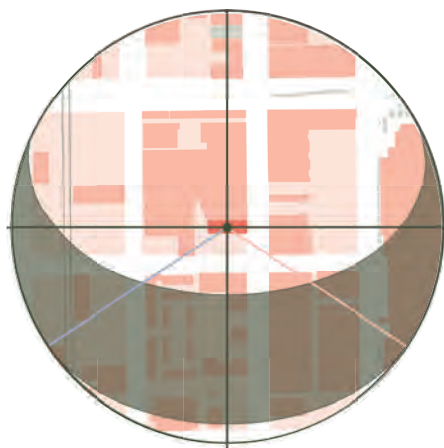




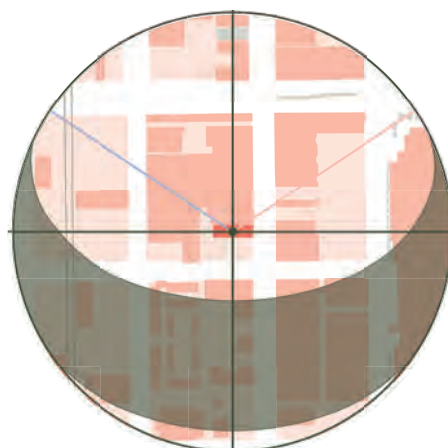
CLOUD COVER + SUN

Cloud cover percentages change significantly between seasons, with January being the most overcast (mostly cloudy 59% of the time) and August being the most clear (partly cloudy 67% of the time).

The chosen site aligns with the cardinal directions and is only directly bordered on its north side. As the building rests on a corner with an adjacent open lot to the South, paired with a primary sun direction from the South, this provides a unique opportunity to increase the amount of daylight in the interior space.



WINTER SOLSTICE



SUMMER SOLSTICE

02

SCHEMATIC DESIGN + DEVELOPMENT

INTERVIEWS
USER UNDERSTANDING
PROGRAMMATIC DEVELOPMENT
CONCEPTUAL DEVELOPMENT

2.1

INTERVIEWS

emphasis on spatial + atmospheric qualities

ANALYSIS

Interviews with both young adults and art therapists were conducted as there was a lack in information found through initial research within the literature review and precedent analysis. As the target user group, young adults were interviewed to gauge how they interacted or viewed art and to understand spatial and atmospheric comfortability in healthcare or therapeutic environments. Art therapists were interviewed for their expertise and direct experience in art therapy spaces currently. Their insights were given to access the needs, requirements, and insufficiencies to ultimately address and propose improvements within the final design.



fig. 2.1

INTERVIEW ANALYSIS

overview

An interview roadmap was developed to investigate the unique spatial and atmospheric preferences and requirements within the context of therapeutic design as it relates to art therapy. Interviews consisted of six young adults with a variety of occupations and eight art therapists practicing in differing types of environments ranging from psychiatric and clinical to home visits. Photos from a few art therapists were also obtained to visibly see problems or preferences and were used alongside the final proposal to support the design decisions. Analysis was then conducted resulting in four key themes of creating art, experiencing art, experiencing space, and organizing space.



PARTICIPANTS

6 YOUNG ADULTS *occupations*

- architect
- grocer
- missionary
- barista
- educator
- graduate student

8 ART THERAPISTS *locations*

- kansas city, ks
- topeka, ks
- waterville, oh
- cleveland, oh
- detroit, mi
- texas

KEY THEMES

CREATING ART



As the artwork and creative process in art therapy is emphasized spatial design must support all individual's preferences and needs. Levels of both privacy and collaboration need to be varied so as to strengthen patient-therapist relationships.

EXPERIENCING SPACE



To create a warm, welcoming, and inclusive environment, spatial organization, visuals, and elements placed in space should be considered as uncomfortable furniture, inadequate lighting, and difficult to clean materials can lead to negative experience.

EXPERIENCING ART

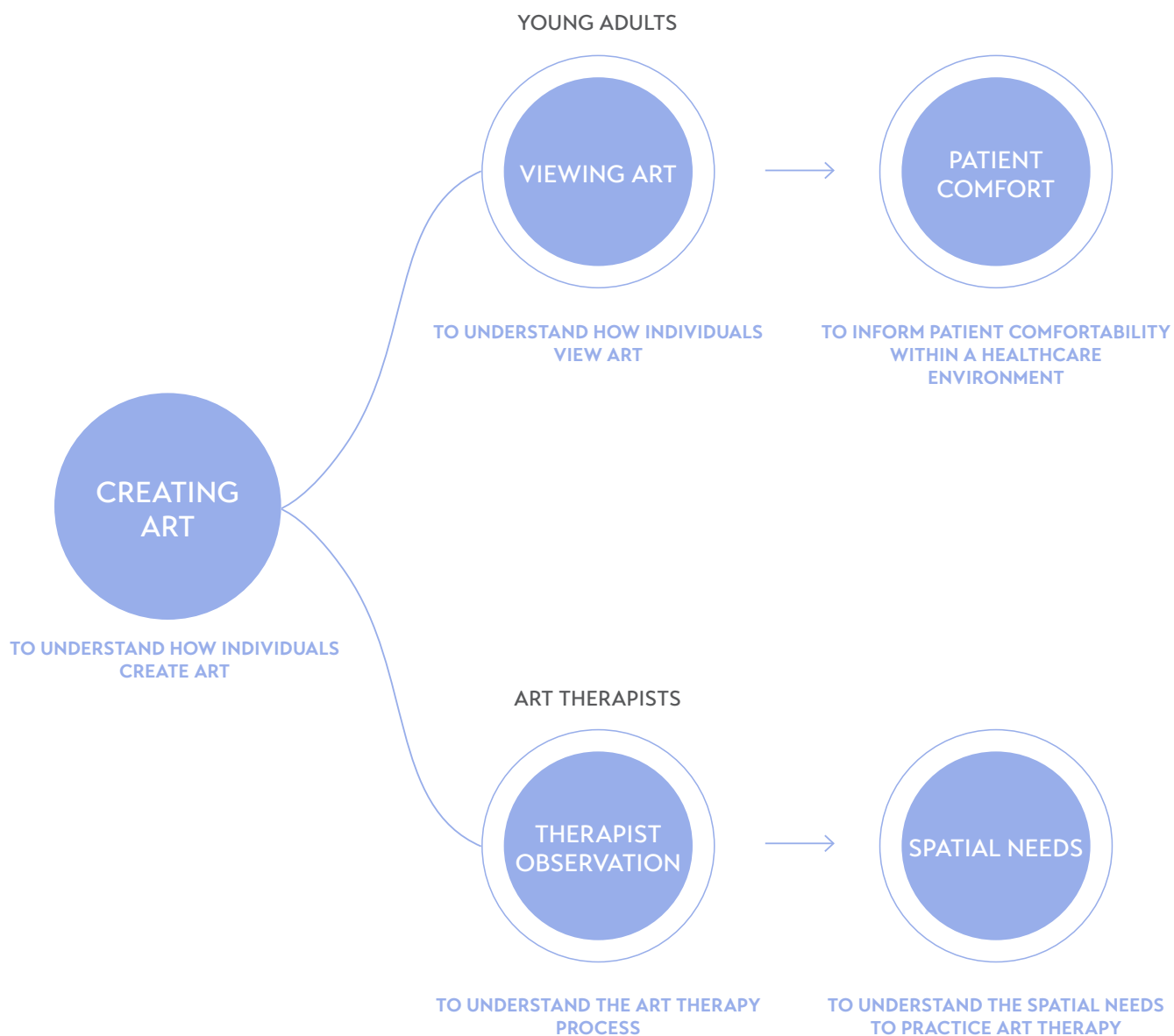


In a therapeutic environment, users benefit from art visuals that relax and calm. The exhibition experience can also serve as a way to draw community into the space. Sharing art is important as it validates the artist and viewers understand more about an individual.

ORGANIZING SPACE



To ensure each space properly and comfortably functions, spatial size should reflect the tasks at hand. Storage must accommodate all supplies and visibly considered.



INTERVIEW ANALYSIS

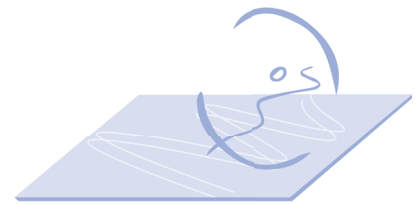
creating art

One of the key aspects emphasized in the initial research was the importance of patient-therapist relationships and the client-focused approach to the art therapy process. This was specifically recognized in the creating art theme as categories within highlighted ideas of fostering relationships and strengthening individuality.

COLLABORATION

Collaborative creating strengthens the relationships between patients and therapists as patients connect and mentor while inspiring and spurring creative energy. This environment provides opportunity to receive feedback and bounce ideas off of others creating a lively space through casual conversations.

Working individually near others also provides accountability and social interaction which art therapists found important for progression in therapy. As both young adults and therapists stated that shared spaces can feel intimidating, the furniture should be arranged in a group setting indicating safety while allowing space to retreat if needed.



PARTICIPANT 14 | YOUNG ADULT

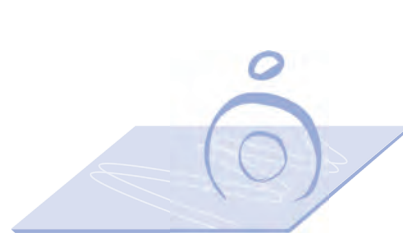
“Being in an environment where you can see other people’s work and then get their feedback on your work, or just like, the little conversations that happen in between is nice... I definitely think some engagement is nice.”

INDIVIDUALITY

In the practice of art therapy, it is recognized that many patients struggle with expressing their individuality or do not have an option to be autonomous. Spaces should then promote user choice, appropriate accessibility, and privacy when needed.

Individualized spaces allow control through task and manipulation of the environment by including layers and dimmable lighting in addition to curtains. By selecting adjustable furniture and offering variety, individuals are allowed to choose based on their own preference and comfortability.

Supported by the environment, art therapists further promote individualized creativity through their level of interaction, accessibility of materials and by giving the freedom to create loosely.



PARTICIPANT 11 | ART THERAPIST

“And so they walk in, and they become an artist... They can come in and choose where they sit... We want to empower them to make their own choices and do their own thing and have a little bit of free space themselves.”

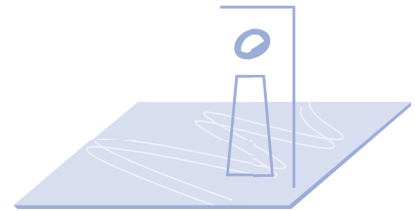
INTERVIEW ANALYSIS

creating art

PRIVACY

In a therapeutic environment and experience, it is essential to consider patient privacy as health matters are incredibly personal. The spatial approach should include variation in interaction with semi-enclosed or compressed space to wait for appointments, visually blocking areas with high levels of traffic. According to young adults, materials with warmer tones and the inclusion of area rugs relate space to a personal home environment which inherently gives a greater sense of comfortability.

Considering the personal process of development in therapy, individualized spaces should be provided within all create spaces to allow clients private options to explore their emotions.



PARTICIPANT 14 | YOUNG ADULT

"With healthcare I think comes like a lot of privacy. So, I think after that kind of immediate step in and kind of like welcome into the space, having a moment to seek privacy if you want is nice"

THERAPY + THERAPISTS

The process of art therapy relies on the relationship built between patient and client with a client focused approach. Therapists strive to create an environment that is judgment free and safe, builds intimacy and comfort, and encourages individual exploration of expression.

Within this process, therapists assess the need of control or expression which in turn affects materials and color choices in addition to artwork size. To promote exploration and so as to not intimidate, spatial setup and selected furniture should allow therapists to work simultaneously alongside clients. Accessories such as pinup or whiteboards allow therapists to be supportive by collaborating and working through ideas with patients.



PARTICIPANT 07 | ART THERAPIST

"I'm keeping my stuff surface and keeping them kind of at the forefront but keeping myself busy and my eyes diverted so that way, they feel like they can like explore a bit without like judgment."

INTERVIEW ANALYSIS

experiencing art

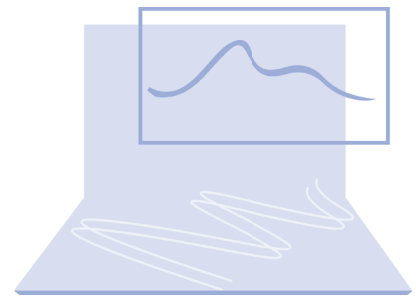
As this thesis topic revolves around self-expression, the interviews supported this, primarily seen in the experiencing art theme. Exhibition and the act of sharing one's work was expressed positively by young adults and further emphasized by art therapists as they explained their process. On both sides, it was important to provide a space and an opportunity to share artwork created.

EXHIBITING

Viewing art can bring greater relaxation, calm anxiety, and provide visual distraction proving necessary and important to the therapeutic environment. Providing gallery spaces that display client artwork can also draw community members into the studio space breaking down therapy stigma as viewing artwork can lead to greater understanding of an artist, discovery of new ideas, and allow for contemplation of details.

While some gallery experiences proved boring, uncomfortable, or overwhelming, the space must provide ample space to circulate allowing users to view art from a distance, up close, and from a seated position so as to encourage viewers to move at their own pace and to prevent overcrowding.

In addition to rotating exhibits of patient created work, permanent artwork should be placed in circulation and waiting areas to provide consistency while providing a break from high visual stimulation and socialization offering an opportunity for reset and respite. Both young adults and therapists pointed to landscape or abstracted artwork with pastel or muted colors as most calming and uplifting.



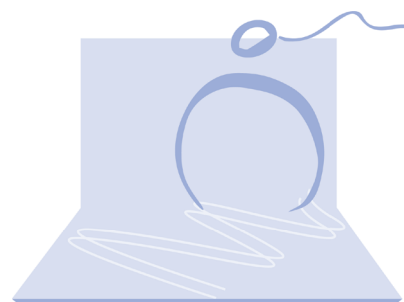
PARTICIPANT 14 | YOUNG ADULT

When asked what makes a museum relaxing, a young adult said, "I think one of it part of it is, like I said, like having that break from art viewing. And like when it's that like circulation space between places, or like that threshold between a door or like, time to look out the window and see what's happening outside. Like, I think those allow you to like reset kind of before you go and view more art. So like having those little breaks is nice."

SHARING

The process of sharing artwork that is created is beneficial to the therapy process as it gives opportunity for validation, approval, and appreciation from others. This instills proud and rewarding feelings in the individual building confidence and self-assurance.

Sharing artwork not only allows patients to express their individuality, but also prompts interaction and provides inspiration to others. Sharing work should be presented as an opportunity and option as some artwork can be trauma-based and personal bringing stress, insecurity, and vulnerability. This should be supported by providing exhibition space in therapy rooms, therapy offices, and varying degrees in public space. Overall, a safe, non-judgmental space should be created so comfortability is established.



PARTICIPANT 11 | ART THERAPIST

“Art for me is like a tool and it’s a tool for me to kind of express myself and I like sharing that with others so they can see they could do something like that too.”

PARTICIPANT 08 | ART THERAPIST

“The act of sharing artwork is almost like a form of art as well... I love it when people share my energy and they get as excited about artwork as I do.”

INTERVIEW ANALYSIS

experiencing space

While the manipulation and design of space was the main focus in the final proposal, these spatial influences were especially analyzed considering categories of atmosphere, lighting, materiality + color, and cleanability. These were implemented in the final design and translated to the design guidelines.

ATMOSPHERE

No one desires a therapeutic environment to be unwelcoming as this can deter individuals from seeking the proper therapy and care they need. The studio should then draw users into the space by showing investment and care, inclusivity, and warmth. Elements such as materials and furniture should complement one another and appear to match providing consistency and therefore stability. Sensory stimulation should be considered through scent, so as to not be reminiscent of a hospital which can be uncomfortable or cause anxiety, and auditorily through acoustic control to not cause greater stress.

Art therapists should personalize their office space through art and décor as it shows care and value of patients and can serve as a distraction and motivate. Impersonal spaces in turn were seen to discourage expression and creativity and appear uninviting and sterile.

The inclusion of plant-life was highly positive as it can enhance the visual experience and connect users to the natural environment. The liveliness of plants is also beneficial alongside the therapeutic process as it is related to therapy development showing growth.



"I think just like showing that they took the time to like make this a nice space. And like, put thought into the details, I think is really important. Because I think sometimes therapists can seem a little intimidating like, and you kind of forget that they're a real person as well... And so I think having those kinds of personal touches, like a cool pennant or like a, something that just shows that they have personality. I think it's refreshing."

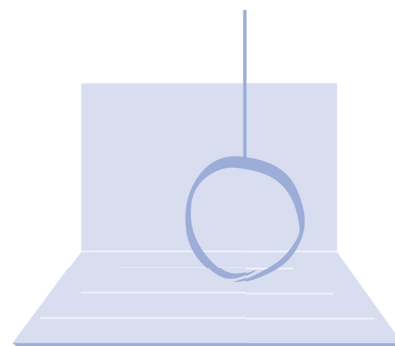
PARTICIPANT 06 | YOUNG ADULT

LIGHTING

Lighting is important to the creating process and can be used to enhance the atmosphere to instill greater comfort, relaxation, and liveliness. Bright illumination and balanced lighting signifies a welcoming and inviting environment increasing feelings of security and belonging.

Natural lighting is preferred for creating as it gives the best representation of true color. Windows within the space gives a connection to natural surroundings and provide visual comfort.

Artificial lighting, when used, should be balanced and color temperature should be considered so as to not cast unwanted shadows or skew colors. If not adequately ambient, artificial lights can appear harsh, cause glare, and make an environment feel sterile.



PARTICIPANT 04 | ART THERAPIST

“At work, I’ve been unhappy with the lighting because it has bright fluorescent lighting. Overhead is so harsh... I don’t think my clients like it either.”

PARTICIPANT 05 | YOUNG ADULT

“I’d prefer natural light because it’s like the actual color that it’s going to be seen as opposed to any of the color changes that can happen depending on the light bulbs that you have.”

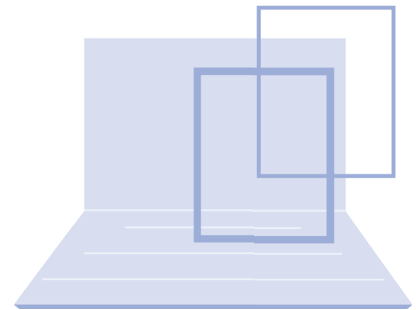
INTERVIEW ANALYSIS

experiencing space

MATERIALITY + COLOR

Materials chosen within the space should overall enhance the atmosphere creating a welcoming and warm environment. Earth and natural materials such as those historic to the building and warm wood tones promote higher comfortability through a connection to nature. Soft elements add visual comfort, imply safety reminiscent of the home, and absorb sound providing more acoustic privacy. Materials such a high piled carpet should be avoided as they appear dated and visually unappealing. On the other hand, patterned or decorative finishes in moderation can add to the liveliness of the environment.

Colors should be appropriate for the task and spatial program. Overall, it was agreed upon that beige and crisp whites appear bland and sterile that should be avoided. Muted, neutral tones bring needed warmth to environments to where privacy and comfortability are highly prioritized such as in consultations or individualized therapy. Color can be introduced to provide visual stimulation, provide inspiration to patients, and add fun energy to the space. Green and blue hues not only reference nature, but were highlighted to be inviting and make a space feel brighter.



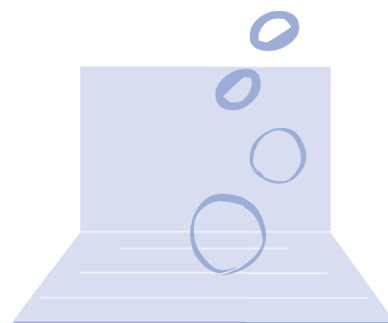
PARTICIPANT 08 | ART THERAPIST

In current spatial design an art therapist speaks to “Working with my team and the department to pick the different colors too, that will help reflect kind of natural and calming space... So part of that is being very trauma informed in those selections too, because the space that you’re in shows not only to the people that work there, that they care for you and that they don’t want, you know, they don’t want you to work in a space that’s just a dungeon.”

CLEANABILITY

As the art therapy environment encourages mess so as to explore material and not hinder creativity, the materials used and accessibility to cleaning supplies must be considered to provide ease and efficiency in the cleaning process. Carpet should be avoided in create spaces as it can easily stain and need vacuuming which restricts material usage. Wipeable finishes such as vinyl or bleach cleanable textiles, laminates, and those with stain resistance provide ease in the cleaning process removing the urgency to clean.

Not only was sink accessibility stressed by both young adults and therapists, but also sink quantity. To avoid cleaning disruption and annoyance, multiple sinks should be placed directly within create spaces removing the need for unwanted travel and invasion of personal space. In addition to sinks, access to trash should be provided for ease. By providing easy access to cleaning supplies, this allows patients to participate in the cleaning process which can act as a transition period and practice responsibility.



PARTICIPANT 03 | ART THERAPIST

“Any large sink easy to access, is super important for art because you kind of get limited if you don’t have access to a sink. There’s just certain things you can’t do or can’t do easily.”

INTERVIEW ANALYSIS

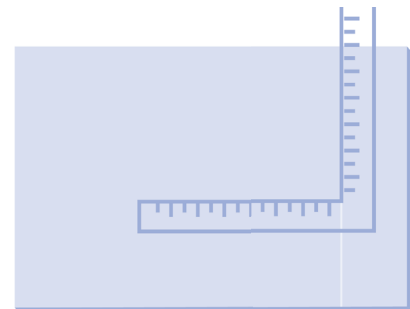
organizing space

It became apparent early in the interviews that space, and lack thereof, was an issue. The size and organization of the space itself and storage within was talked of in each interview. The analysis within the themes presented layouts and acknowledgment of accessibility of materials, supplies, and furniture within the space while considering these aspects in terms of efficiency and comfortability. Socialization and movement was also recognized in space allocation and amenities provided in the space.

SPATIAL SIZE

A 12' x 12' space is typically deemed enough by personal use, where the user can stand and move around easily. Space should not feel cramped and should accommodate personal spatial needs as well as possible accompaniment of family members or friends.

Enclosed, narrow rooms tend to feel tight, offensive, unsafe, and unkind. On the other hand, bigger spaces feel open, inviting, flexible, conducive to therapist movement and interaction. However, larger spaces need to be considered carefully as they might feel empty and overwhelming.



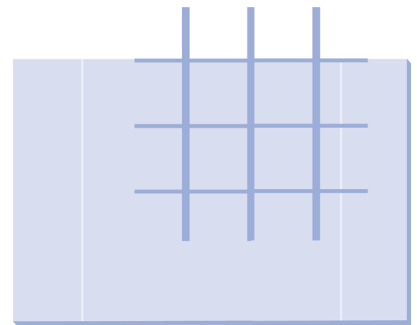
PARTICIPANT 10 | YOUNG ADULT

According to a young adult, the ideal scenario for a therapy space implies “you can just check in and then go sit on the couch, which is a lot better than walking into a little tiny room with a desk”

ORGANIZATION

An organized space is important in establishing a pleasant, inviting, and accessible atmosphere as opposed to causing confusion and stress. Greater visibility enhances the welcoming atmosphere, sense of comfort, and safety. Wayfinding ensures optimal spatial experience.

Smaller contained spaces feel individualized, private, and instill a sense of security and confidentiality. Larger open spaces, on the other hand, create a sense of freedom and comfort, while circulation might disrupt focus.



PARTICIPANT 04 | ART THERAPIST

"I do like to be organized, especially when it comes to art therapy, or when I'm at work, I like to have things set up in an organized way. Especially when you think about clients are working with a lot of times, they may be feeling kind of chaotic mentally, or they've got instability in their life. So when you think about the art space, it's like creating that predictability and stability within the environment."

INTERVIEW ANALYSIS

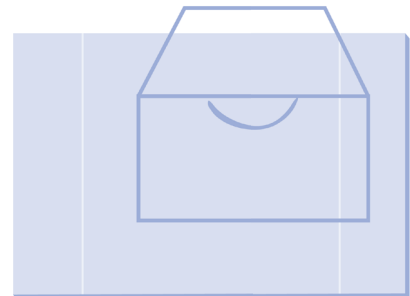
organizing space

STORAGE

Accessible, visible, flexible, and varied types of storage for art supplies in close proximity with proper labeling or color coding is highly valued especially for initiating art making and facilitating freedom of expression. This organization also minimizing visual clutter. It is important to consider the proximity of the sink and the cleaning process for supplies.

The ability to lay down and transport art supplies, e.g. with a rolling cart, increase accessibility and freedom of expression. This enables the patients to make art where they desire instead of a dedicated location.

Storage for art give the ability to take breaks and continue at another time. Stability, predictability, and sense of continuity are important.



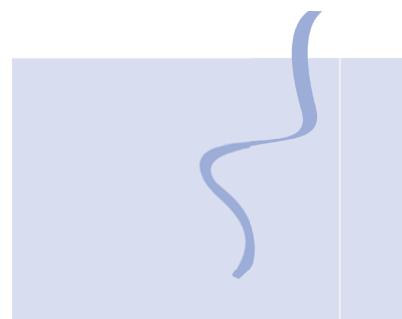
PARTICIPANT 12 | YOUNG ADULT

“Having an organized area for each individual medium makes it easier to clean up and put away when you’re done.”

FURNITURE

All furniture placed within the space should complement the surrounding environment and be appropriate for the task at hand. Materials and furniture type should be chosen so as to not deter mess while still showing value and care to patients. Further, comfort should be ensured through ergonomic choices and cushioned materials therefore allowing users greater focus. This is further supported by offering both soft and hard seating options will give users choice encouraging autonomy.

Flexibility within space can be accommodated with lightweight, stackable, and castor-based furniture options. Accessibility should be considered with adjustable-height tables and seating to not hinder the creating process for any individual and accommodate a variety of working positions. It is important that patients feel included and belonging within the environments, so hierarchy should be diminished by considering seating type and height and table shape and depth.



PARTICIPANT 09 | ART THERAPIST

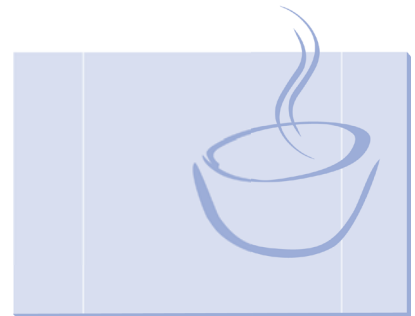
"I've found as a therapist, if you have access from both sides, either like behind the client or in front of them, like it gives more of that trusting feel. I can approach them from the front. There's that level of respect that I see with that."

INTERVIEW ANALYSIS

organizing space

SOCIALIZATION + AMENITIES

Community outreach and socialization was seen as positive and influential to the creative and therapy process as it builds connections between people and brings awareness to art therapy. The inclusion of a café within the building was stated to be beneficial to a healthcare environment to give a level of casualness that could distract, calm, and lead to greater relaxation and comfort for patients. Seen as a welcoming space that can serve as a third place to community members, it can encourage interactions and therefore stimulate connections between all users.



PARTICIPANT 06 | YOUNG ADULT

"It's something that you can do that distracts you while you're waiting...it could be a way to potentially draw people in for something other than the main purpose of the space,, and allow people to interact with people they wouldn't normally interact with"

2.2 USER UNDERSTANDING

patients, therapists, + community

IDENTIFICATION + PROFILES

User profiles were created considering the key stakeholders of patients, resident therapists, traveling therapists, and community members. These were developed early in the schematic process to think more deeply into experiences and personalities and how those can influence spatial preferences and needs. The target young adult user group was analyzed within the patient group, while a range of ages were given to other stakeholders.



fig. 2.2

JACK

therapy patient

Jack is introverted, especially in social environments, and enjoyed playing video games at home in his free time. As he sits all day at his work, he prioritizes ergonomic and comfortable furniture. He is interested in cultural and historical art and enjoys visiting galleries and exhibitions with casual environments for him to roam. He is looking to art therapy as he struggles with separating his personal and work life, but has minimal experience creating physical art.



AGE 23

GENDER + RACE MALE + WHITE

OCCUPATION COMPUTER ENGINEER

SPATIAL CONSIDERATIONS + PREFERENCES

private + inviting entrance

control in individual therapy rooms

ergonomic + comfortable furniture

CLAUDIA

therapy patient

Claudia has an extroverted personality, but does not always have confidence in her self image. She values organization and cleanliness, but finds difficulty in balancing her serving position with her schoolwork. At home, she enjoys painting in her studio apartment and prefers natural light although her space has minimal windows. She is seeking a personalized therapy experience in a casual environment and is interested in building her relationship with her therapist over coffee.



AGE 19

GENDER + RACE FEMALE + LATIN AMERICAN

OCCUPATION COLLEGE STUDENT AT UNIVERSITY
OF ILLINOIS CHICAGO + RESTAURANT
SERVER

SPATIAL CONSIDERATIONS + PREFERENCES

natural light in create spaces

individual materials + storage

easily cleanable surfaces

large table surfaces in dining

SILAS + ADA

group therapy patients

Silas and Ada are fairly extroverted friends, but are nervous to attend therapy individually. They feel a negative stereotype around receiving mental health services in their professions and work in highly collaborative environments. Silas uses a wheelchair due to a paralyzing accident, so he needs accessible options. Ada is looking for inspiration through art therapy and they both are hoping to work on expressing their own personal artistic flare.



AGES 22 + 24

GENDER + RACE BLACK + MALE, FEMALE + HISPANIC

OCCUPATIONS GRAPHIC DESIGNER + JOURNALIST

SPATIAL CONSIDERATIONS + PREFERENCES

wide circulation paths + accessible workshop space

comfortable atmosphere

large collaborative spaces

FELIX

permanent therapist

Felix is one of the permanent resident therapist at the studio. In his practice he specializes in leading the group therapy classes. Aside from teaching, he seeks out financial grants and assistance for the reduced or free art and therapy offerings along with sorting the material donations. Although he is a sociable person, he enjoys his personal time. He prioritizes the staff lounge and rooms to individually focus. He enjoys fine art painting and teaching drawing skills.



AGE 32

GENDER + RACE MALE + ASIAN - AMERICAN

OCCUPATION CERTIFIED ART THERAPIST
SPECIALIZING IN GROUP THERAPY

SPATIAL CONSIDERATIONS + PREFERENCES

kitchenette + staff lounge in close proximity to workshop

acoustic controlled focus rooms

adjustable task lighting

FLORENCE

visiting therapist

Florence has been practicing art therapy for half her life in a variety of spaces. She serves on local art boards advocating for the arts and often leads presentations and lectures at the studio educating people on the practice of art therapy. She appreciates the proximity of the elevators to her the other levels as she has difficulty in using stairs. In practice she specializes in working with introverted therapy patients.



AGE 62

GENDER + RACE FEMALE + CANADIAN

OCCUPATION CERTIFIED ART THERAPIST
SPECIALIZING IN INTROVERTED
PATIENTS

SPATIAL CONSIDERATIONS + PREFERENCES

flexibility of workshop + dedicated presentation space

views to the natural environment

easy elevator access + wide circulation paths

BEN

visiting therapist

Ben is another visiting therapist that appreciates having the studio space to serve both his individual patients and host group therapy sessions. He enjoys socializing with the permanent therapists in addition to the other visiting therapists and meeting new patients. He explores large-scale collage + mixed media and likes to experiment with digital components. He appreciates the studio offering tech equipment and space to explore in his free time.



AGE 34

GENDER + RACE MALE + WHITE

OCCUPATION CERTIFIED ART THERAPIST

SPATIAL CONSIDERATIONS + PREFERENCES

space to spread materials

tech lab in close proximity to workshop

casual, gathering space in staff lounge

JANE + PETER

community members

Jane and Peter are a married couple expecting their first child. They are friends with Ada and want to support her therapy journey. Highly extroverted, they thrive in social environments. Working to advocate for mental health support, they both attend exhibitions at the center and enjoy conversing with the artists and community.



AGES 25 + 26

GENDER + RACE MALE + WHITE, FEMALE + AUSTRALIAN

OCCUPATIONS FINANCIAL CONSULTANT + TEACHER

SPATIAL CONSIDERATIONS + PREFERENCES

large exhibition spaces with seating options

public lounges

NICHOLAS

community member

Nicholas is a local community member who volunteers with the Chicago Architecture Center to give walking tours of the area. Although social, he likes his quiet time. He likes conversing about his hobbies, art, and culture with new people he meets. He supports the artists at the studio by displaying their created art in his shop.



AGE 53

GENDER + RACE MALE + GERMAN

OCCUPATION LOCAL BOOK + COFFEE SHOP OWNER

SPATIAL CONSIDERATIONS + PREFERENCES

contrast and adequate wayfinding

historic reference in material

small lounge or gathering spaces

figs. 2.3+

2.3

CONCEPTUAL DEVELOPMENT

inspiration + visual imagery

INITIAL INSPIRATION CONCEPT STATEMENT DESIGN LANGUAGE

The concept was approached through the combination of word and image association. Key ideas from the initial research were expanded upon in terms of the art therapy and self-development process. Understanding the expression of art and definition of such through the lens of artists like Edvard Munch allowed the concept to recognize the essential layers to expression and emotion. Art and image were then compiled to support and reach the final collage and visual language that would translate into the final design highlighting therapeutic and artistic components. Art used throughout this book highlights the freeness of expression and hopes to tie each section to the overarching conceptual approach.

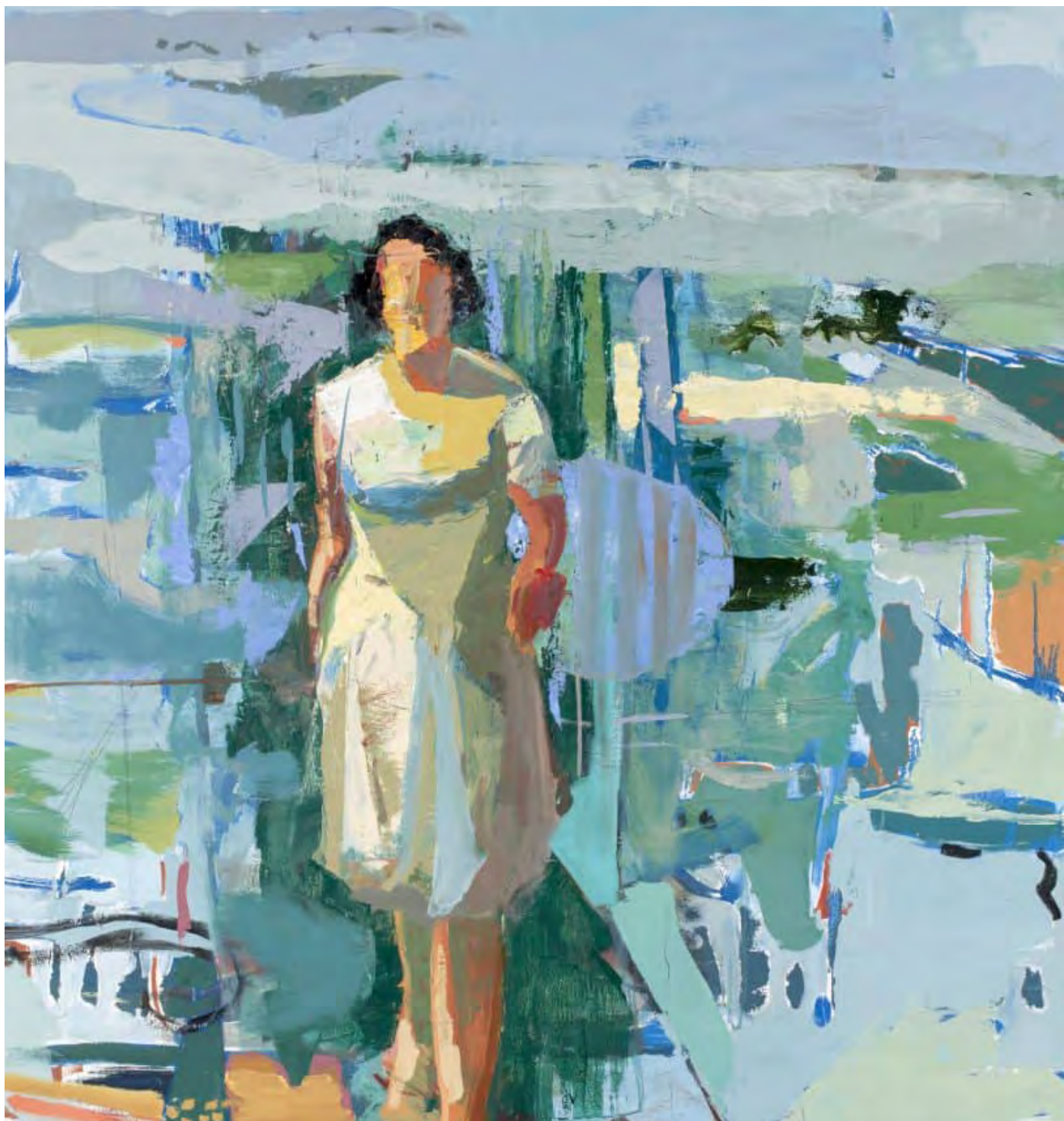


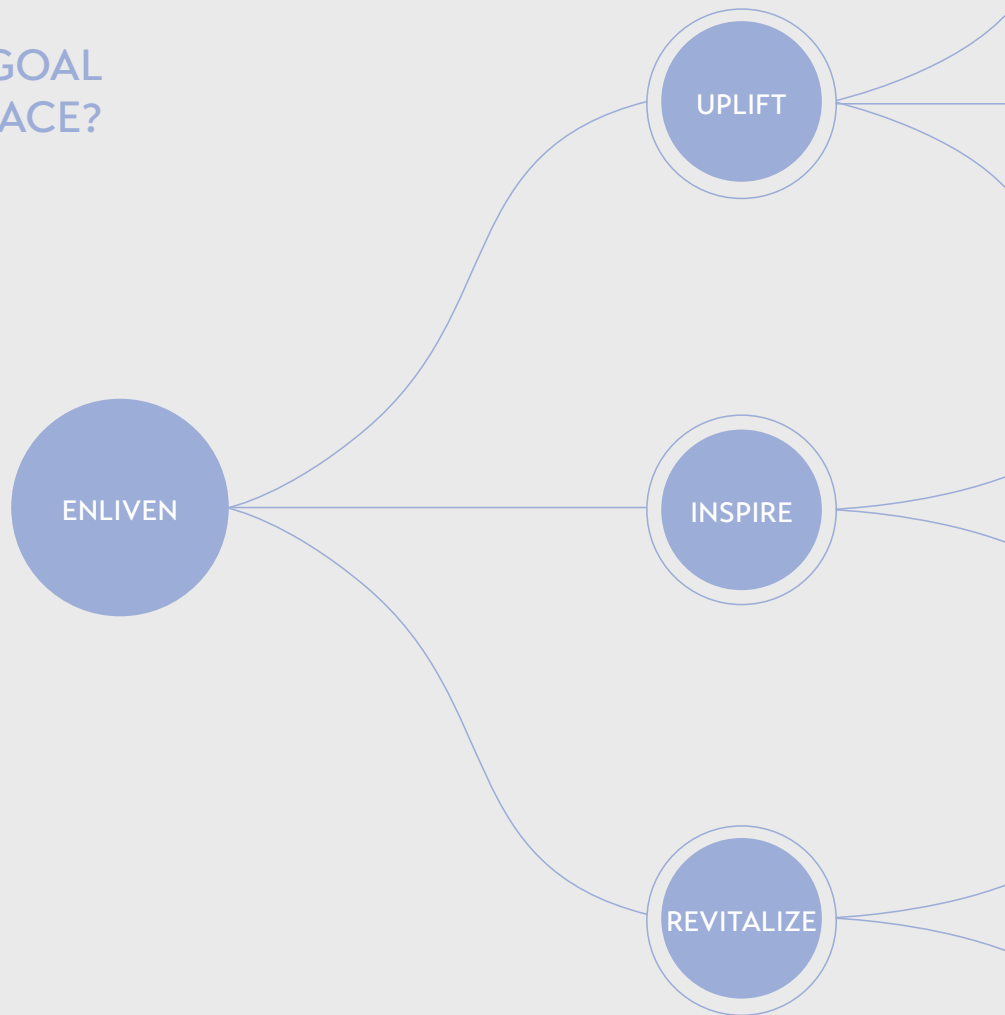
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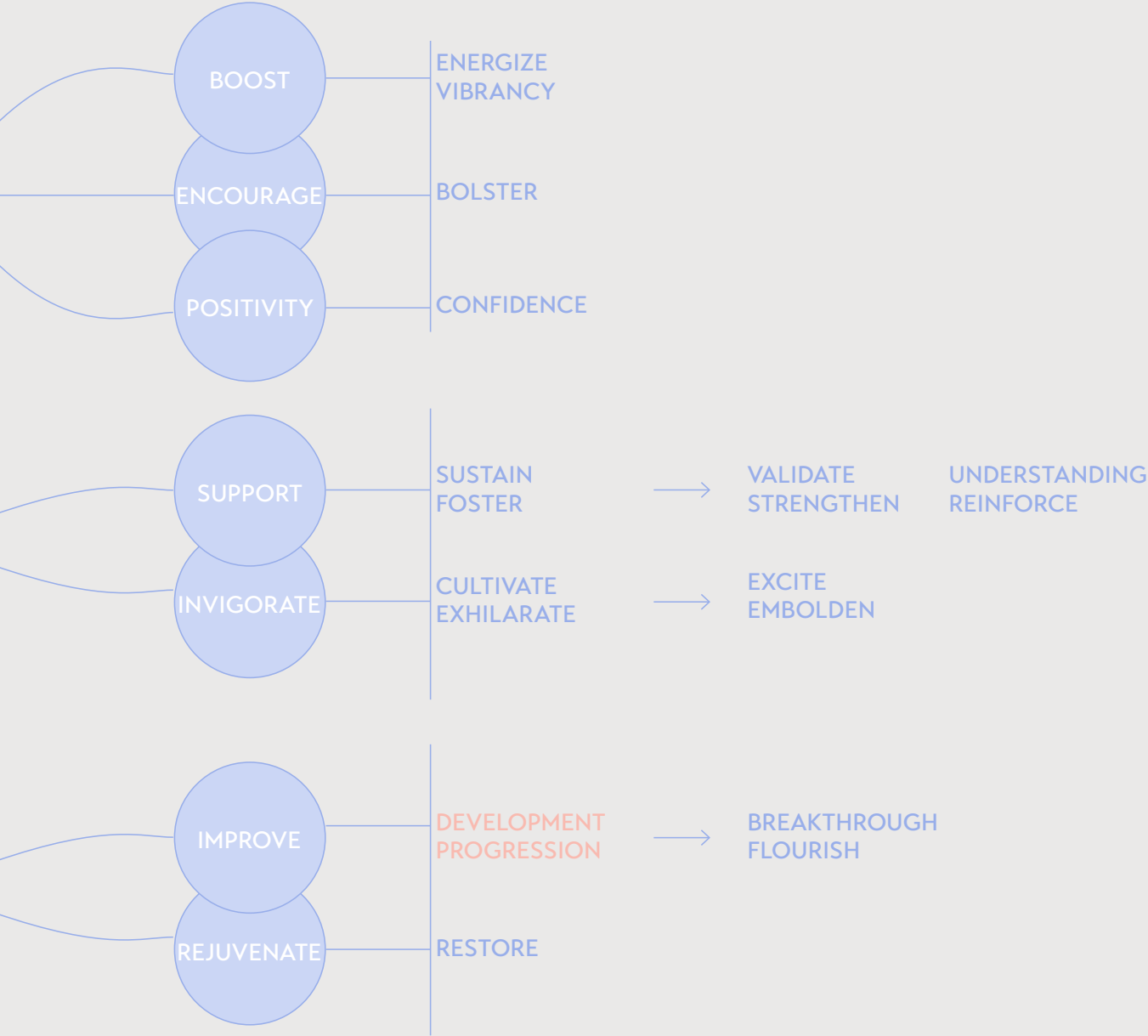
INITIAL INSPIRATION

goal

Initially, a list of words were written on trace seemingly with no correlation. Those were then placed into categories and more lists to eventually land on a flowing word map that focused on discovering the goal of the overall space.

WHAT IS THE GOAL
OF THIS SPACE?

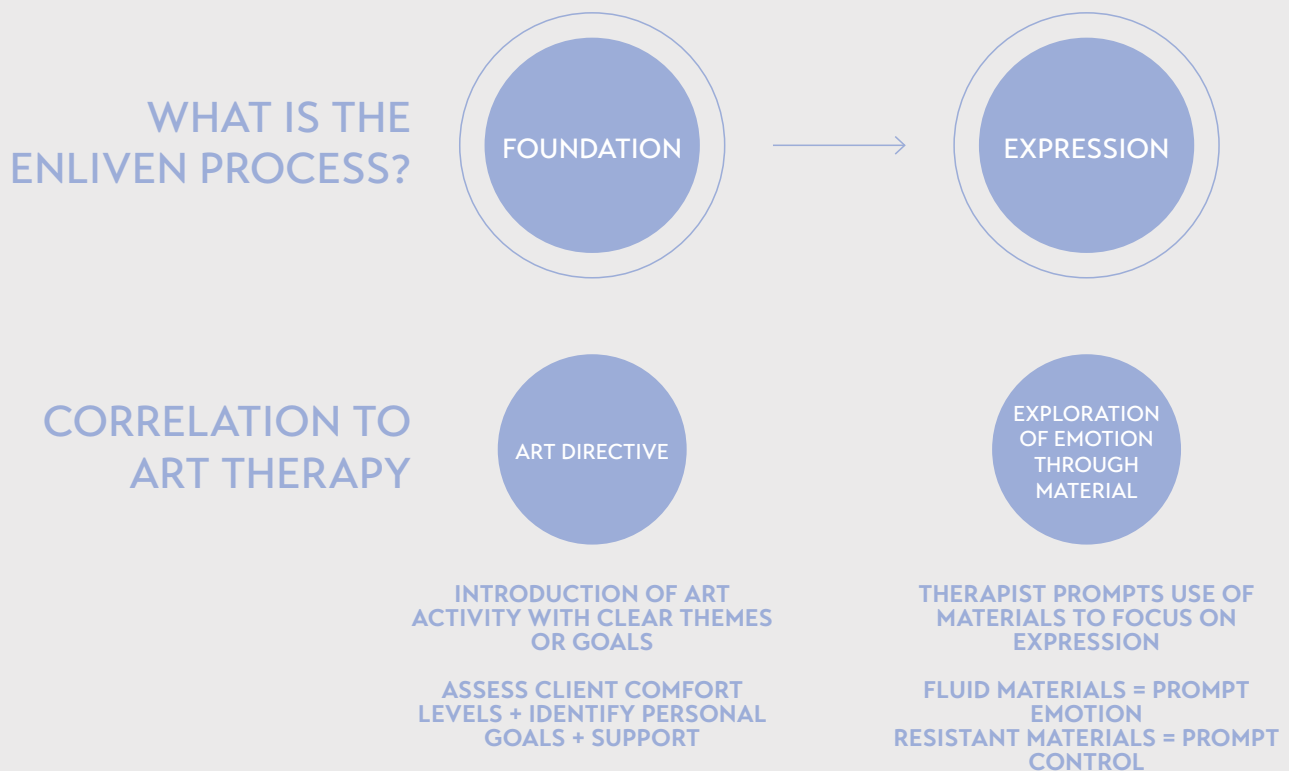


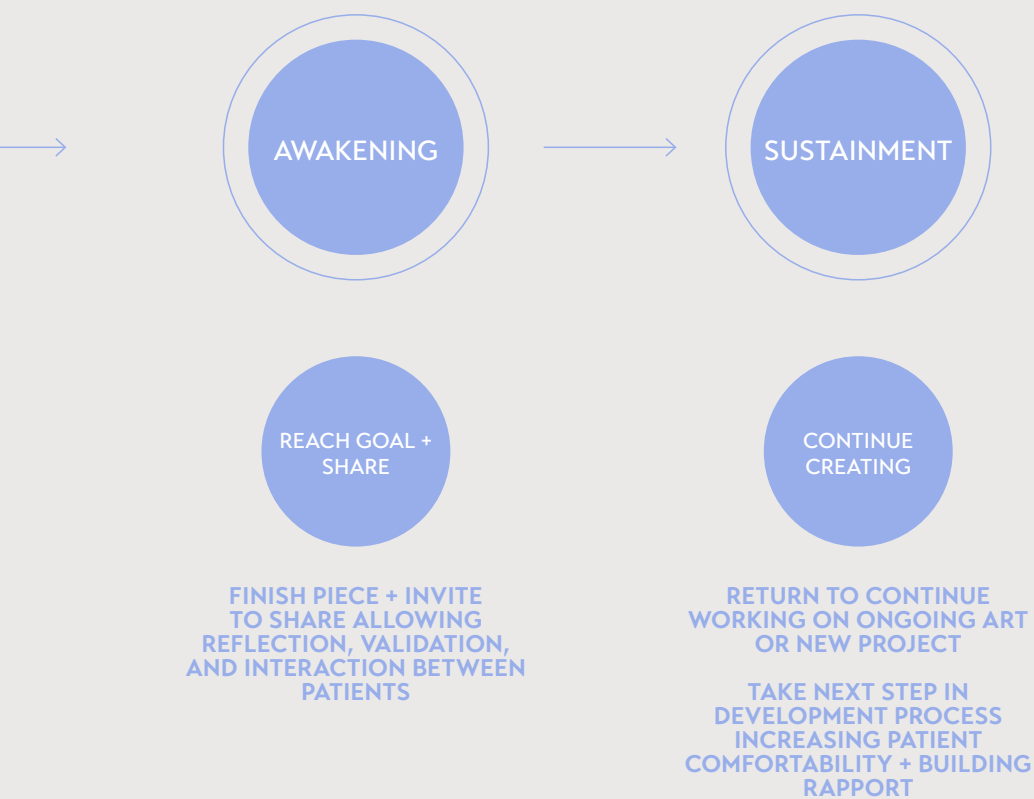


INITIAL INSPIRATION

development process

As the key word connecting expression and inspiration, enliven was then looked at in terms of a process. Key drivers of foundation, expression, awakening, and sustainment were then overlain with process components of art therapy. These correlations were explored to consistently develop the conceptual approach in line with the goal of the programmed space.





CONCEPT

written conceptual statement

ENLIVEN

awaken • uplift • sustain • revitalize

STATEMENT

The concept revolves around the idea of enlivenment or the idea of awakening and sustaining the creative energy alive in each individual. Self-expression is something everyone inherently has through their personality, mannerisms, interests, and enjoyments. Although creativity is present, one must have the confidence to express themselves authentically as well as communicate those ideas with clarity. In the practice of expressive art therapy, this confidence and communication is

developed through artistic creation. Art is defined as something that stimulates an individual's thoughts, emotions, beliefs, or ideas through the senses in activity or physical, creative output. The creative, therapy studio is driven by the development process and components; foundation, expression, awakening, and sustainment fully encompassed in the core concept of enliven.

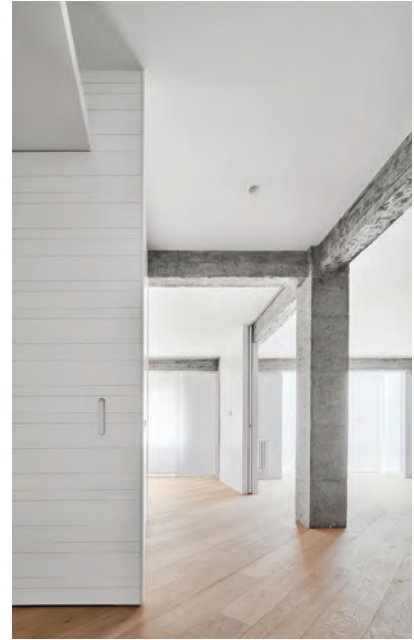
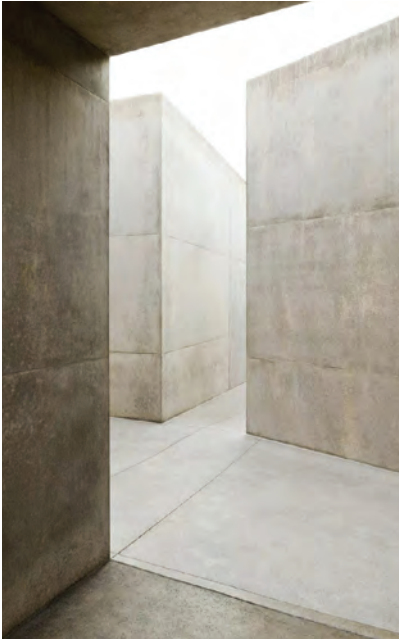


introduction to art therapy | BRUCE MOON

"Every paint streak, each chalk line, every slab of color - harmonious and dissonant [alike]- declare to the artist themselves, to the beholder of their work and to all human kind that 'I am, I am here and I have something to express'"

DESIGN LANGUAGE

inspiration imagery

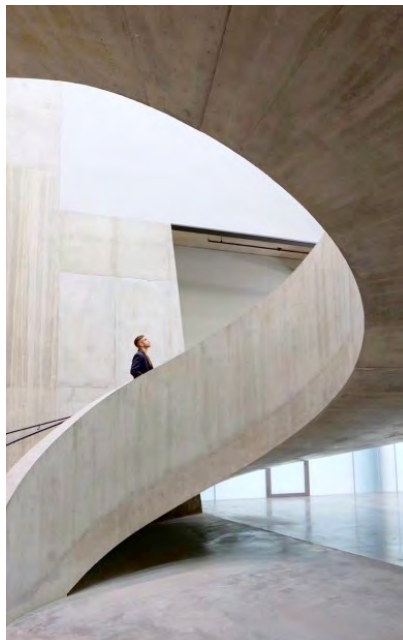


STRUCTURE

Structure is monolithic, orthogonal mass interlocking together forming a connected network that conveys the idea of protection while simultaneously offering the user choice. Extensions create visible separation that emphasizes privacy while complementing the fluctuation of space and movement of the user.

Establishing this rigid, framework creates a basis of support for patients that conveys foundation trust. Manipulation of this system gives users control to forge their own path physically through separation of space and level of privacy as well as figuratively in their therapy development.

FOUNDATION - PROTECTION
EXPRESSION - MANIPULATION

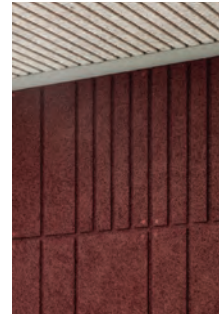
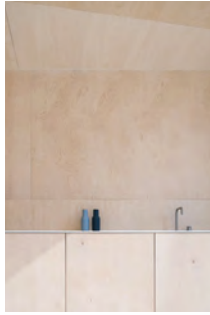
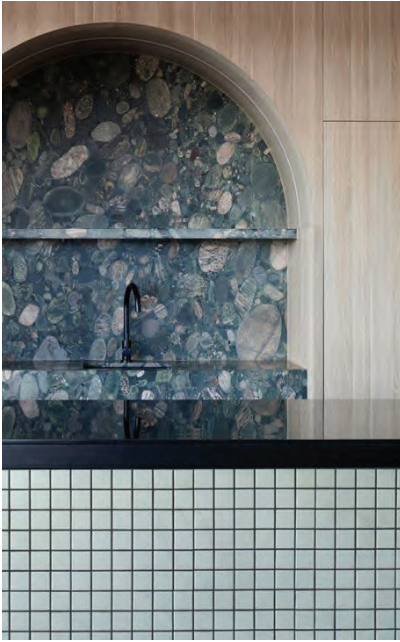


FORM

Within this foundational network, geometric planes form a frame to the fluidity of soft, curves promoting both predictability in organization and comfortability.

These transitions define entries and spatial movement allowing permission for users to express individuality with smooth forms and shapes opening and inviting users to explore creative spaces. Enclosures further highlight control and protection indicating higher levels of privacy.

FOUNDATION - FRAME
AWAKENING - DIRECTIONALITY

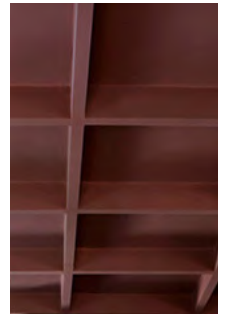
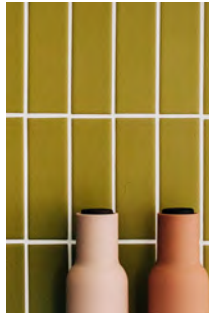


MATERIALITY

Materiality continues to build off the structural and formal ideas creating spatial definition with primary emphasis on visual interest through natural materials and texture. Unchanged materials of concrete and brick draw attention to historical context while conveying strength and predictability. Stone and the aesthetic of wood provide resiliency and durability promoting the longevity of not only the space, but the sustainment of development in users.

Highlighting proportion and soft, subtle textures corresponds to tranquility used in private space and places of refuge. Emphasized tactility further stimulates users encouraging exploration and experimentation. Within these, malleable materials, or those that allow manipulation, showcase the ever-changing development process while providing the user control.

FOUNDATION - PREDICTABILITY
SUSTAINMENT - DURABILITY

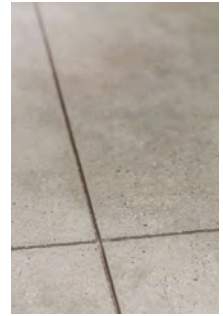
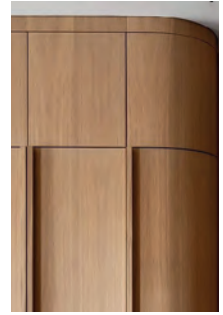
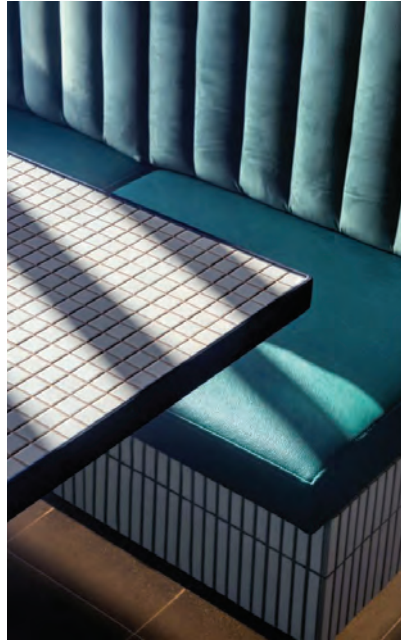


COLOR

The color palette established consists of complementary pairings of bright and dark, rich hues with earth tones neutrals - how these colors interact and are applied revolves around function and the intended emotions within space. Contemporary, vibrant color appears in collaborative and create spaces in details to spark inspiration while remaining against neutral, earth tones backdrops creating a "blank canvas" for patients' work to be emphasized.

Color washes of dark hues are used to calm within private spaces creating a tranquil effect while also providing further stability through directionality in transition space.

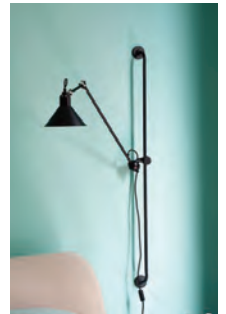
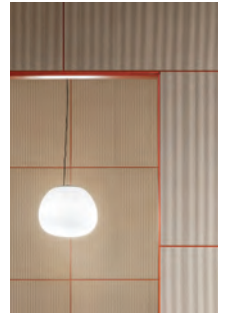
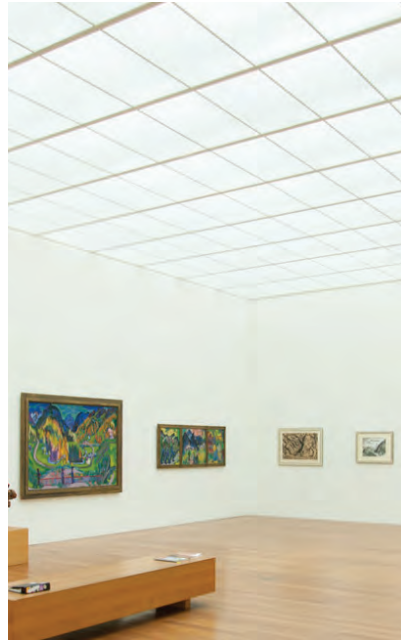
FOUNDATION - TRANQUILITY
AWAKENING - VIBRANCY



DETAILS + TEXTURES

Materiality and color culminate into details and textures that are utilized to distinguish experiences and enhance mood. No longer setting the basis for support, these hone into components reflecting awakening through vibrancy and add to the energy of the space. Sustainment aligns to proportioned patterns and repetition subtly used in each zone. Through texture, interaction and collaboration are encouraged throughout the entirety of the space while furthering comfortability corresponding to the level of privacy.

AWAKENING - VIBRANCY
SUSTAINMENT - REPETITION



LIGHTING

Light will directly translate to task and level of privacy or contemplation. The experience of natural light correlates to the degree of socialization and creation. Direct views to the exterior and sunlight will serve as inspiration while filtered and intentional diffusion will occur in more individual zones and exhibition spaces. Prioritizing creating a tranquil, comfortable environment as a whole, the majority of space will be bright, airy, and inviting with privatized, enclosed spaces remained subdued with the control to adjust lighting intensity.

EXPRESSION - CONTROL
AWAKENING - INTENSITY

2.4

PROGRAMMATIC DEVELOPMENT

spatial type + conceptual translation

PROGRAM MATRIX
PROGRAMMATIC BREAKDOWN
CONCEPTUAL DRIVERS
TRANSLATION

Research, interview analysis, and the conceptual approach were then all applied to the included program and organization of space. In the formation of these space, the existing building analysis and shape were referenced and pondered on how to approach artistically within the foundational framework.

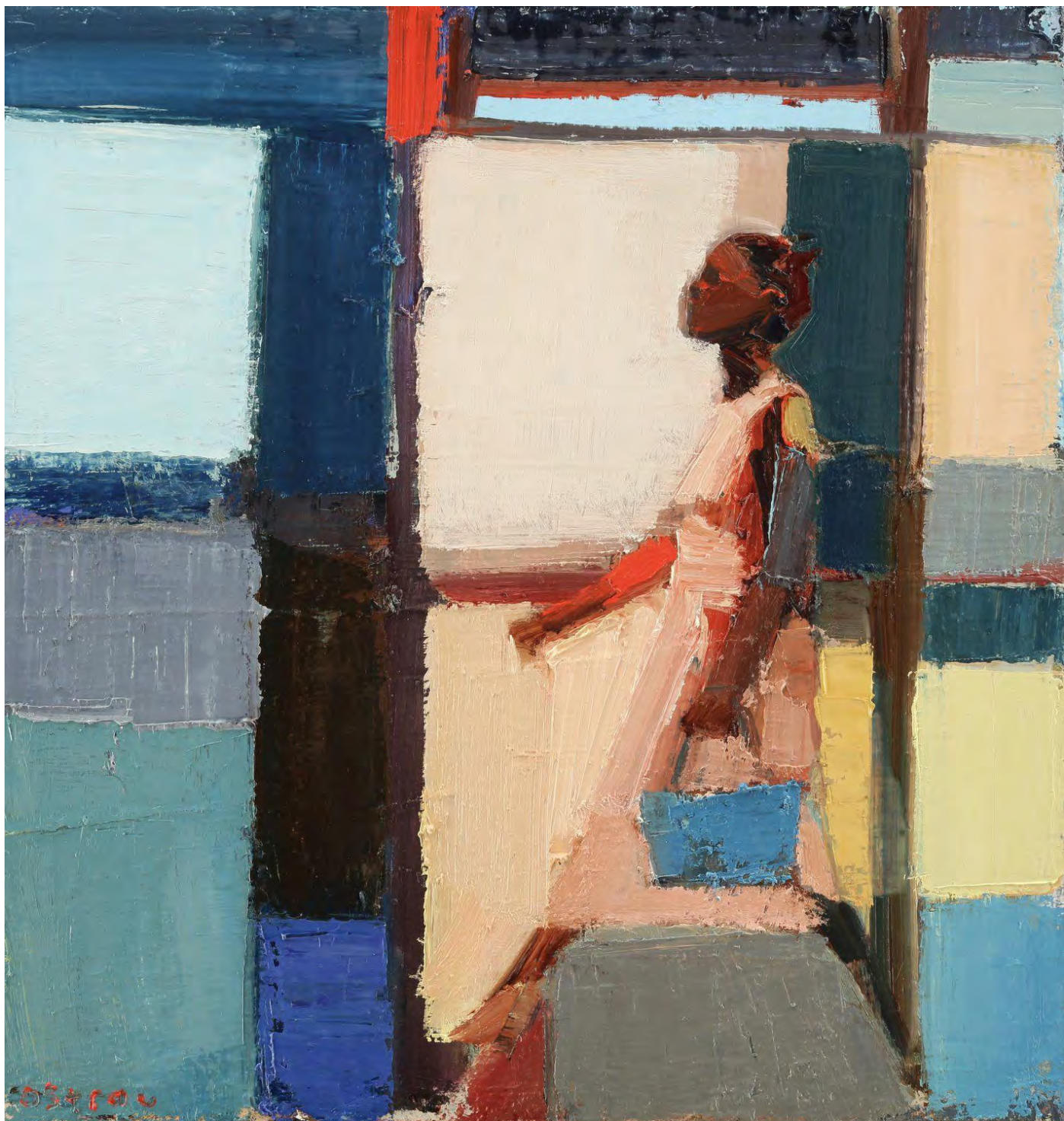


fig. 2.5

PROGRAM MATRIX

overview

Much of the building is dedicated to create and social spaces fostering the environments for artistic expression and collaborative influence on creative work and therapeutic development. A variety of exhibition spaces are provided within the central core and work to connect each floor. Program distribution then correlates to the privacy levels on each floor with the first floor as the most public and the third the most private.

privacy level



-  create spaces
-  social spaces
-  exhibition spaces
-  support spaces

	<i>space</i>	<i>activities</i>	<i>square footage</i>	<i>level</i>
	THERAPIST OFFICES	consultation, counseling, individual art therapy, therapist individual work	363	01-03
	THERAPY ROOMS	counseling, individual art therapy	1014	01-03
	FOCUS ROOMS	individual self-driven art, relaxation, heads down work	476	01-03
	WORKSHOP OPEN STUDIO	group therapy, art workshops	476	02-03
	MATERIAL STORAGE + DEMO	material storage and setup, art demonstration		02-03
	CLEANING STATION	art cleanup and cleaning supply storage		02-03
	TECH LAB	digital creation and exploration, printing, plotting	340	03
	PIN-UP EXHIBITION	informal art display, viewing art	399	01-03
	LARGE OPEN EXHIBITION	rotating semi-permanent display, viewing art	2870	01-03
	3D EXHIBITION	3D art display, viewing art	399	02-03
	CAFE	socializing, eating, drinking, informal art creation, working	4284	01
	BAR	drink making, eating, bar socializing	256	01
	PRIVATE DINING	semi-private dining, socializing	516	01
	LOUNGE	self driven art creation, relaxation, socializing	734	01
	SEMI-PRIVATE LOUNGE	semi-private relaxing and socializing	470	01
	PRESENTATION	presentations, lectures, flexible working	340	02
	WAITING LOUNGE	waiting for appointments, relaxing	470	02-03
	STAFF LOUNGE	dining, making food and drink, relaxing, socializing	470	03
	RECEPTION	answering phone, appointment check-in, appointment scheduling	179	01
	CAFE BACK OF HOUSE	cafe cleaning and storage	212	01
	MATERIAL STATION	self-driven art supply storage and cleaning	133	01
	STORAGE	storing extra materials and supplies, artwork storage	389	01-03
	PRINT/COPY STATION	printing, copying, preparing for therapy sessions	146	02-03
	MAIL + DONATIONS	package receiving, donation drop-off	73	01
	CUSTODIAL + MECHANICAL	cleaning storage, workshop laundry, elevator mechanical	155	01-03
	RESTROOMS		711	01-03

PROGRAMMATIC BREAKDOWN

overall adjacencies

Overall, the vertical circulation and free-flowing exhibition spaces link all three levels of the building. Separated into primarily social and create spaces with necessary support areas, each level contains aspects of each. The degree of privacy increases on each level.



CREATE

Create spaces are the main program focused on the patient and their development. These spaces inspire expression and emphasize comfort through varying levels of privacy and adjustability or control.

SOCIAL

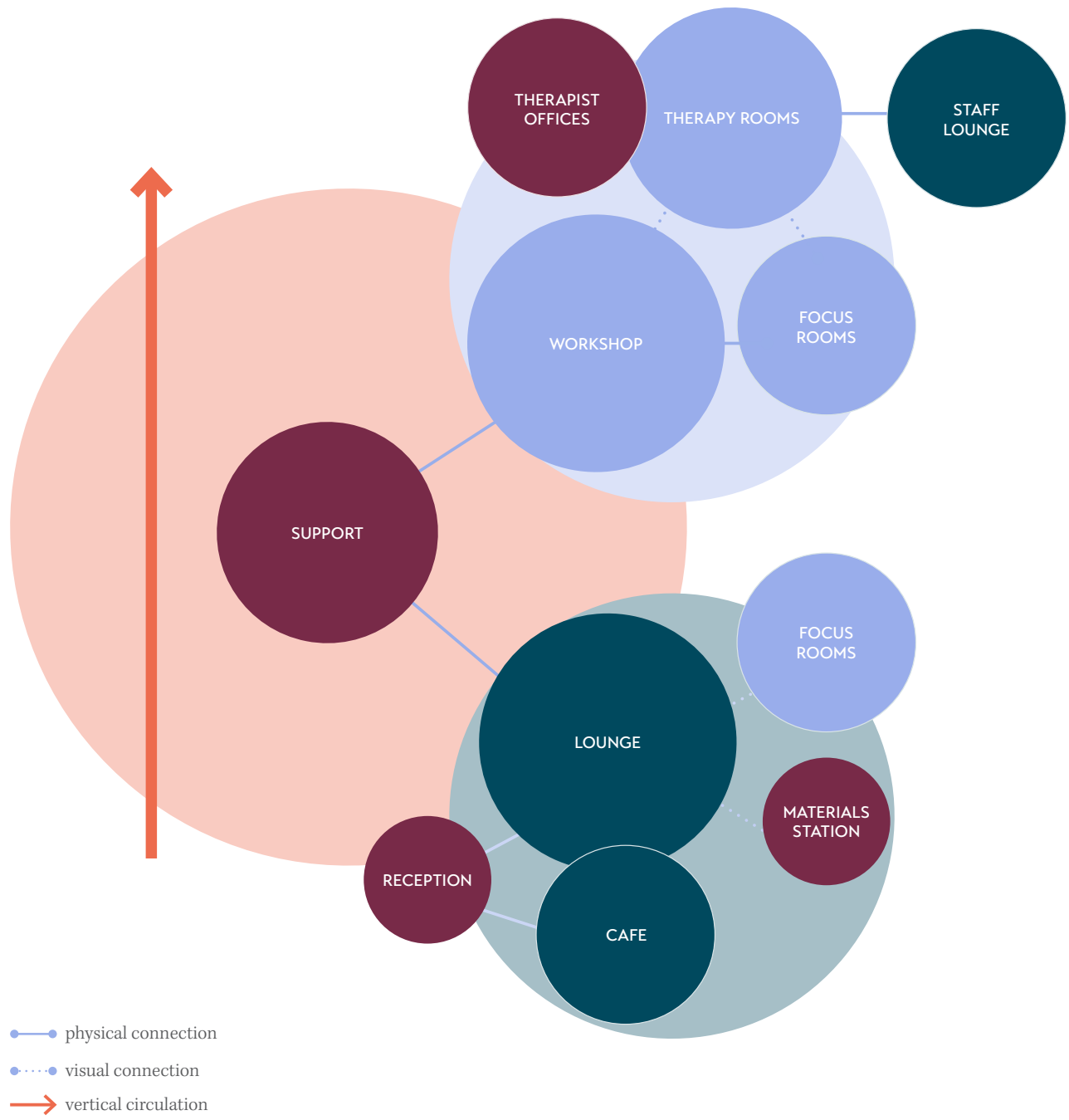
As primarily public and lively spaces, these remain open with multiple furniture types within to encourage collaboration and socialization amongst patients and therapists. Featured on each floor, the level of privacy corresponds to the allotted space and location.

EXHIBITION

Exhibit spaces become a visual interest and draw more emphasis on the display aspects of development. Combine with a monumental vertical circulation and centrally placed within the space further expresses their importance and prompts interaction.

SUPPORT

These spaces include required program such as restrooms, mechanical, custodial, and storage rooms along with spaces needed to support staff or administrative activity and self-driven patient activity.



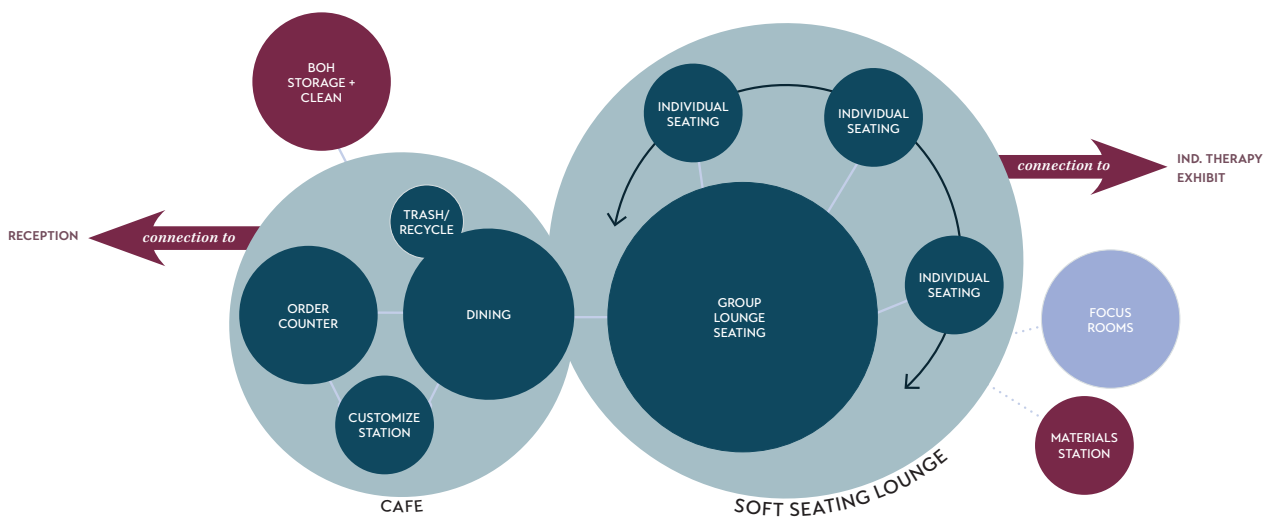
PROGRAMMATIC BREAKDOWN

social + create spaces

As previously recognized as the most dedication of space, social and create spaces were delved into deeper to understand the sub-spaces needed and adjacencies between each. The first level cafe and lounge were approached organized in terms of efficiency and privacy. Workshop spaces took into account the interview analysis recognizing the need of space for material and supply storage in addition to proximity to cleaning stations.

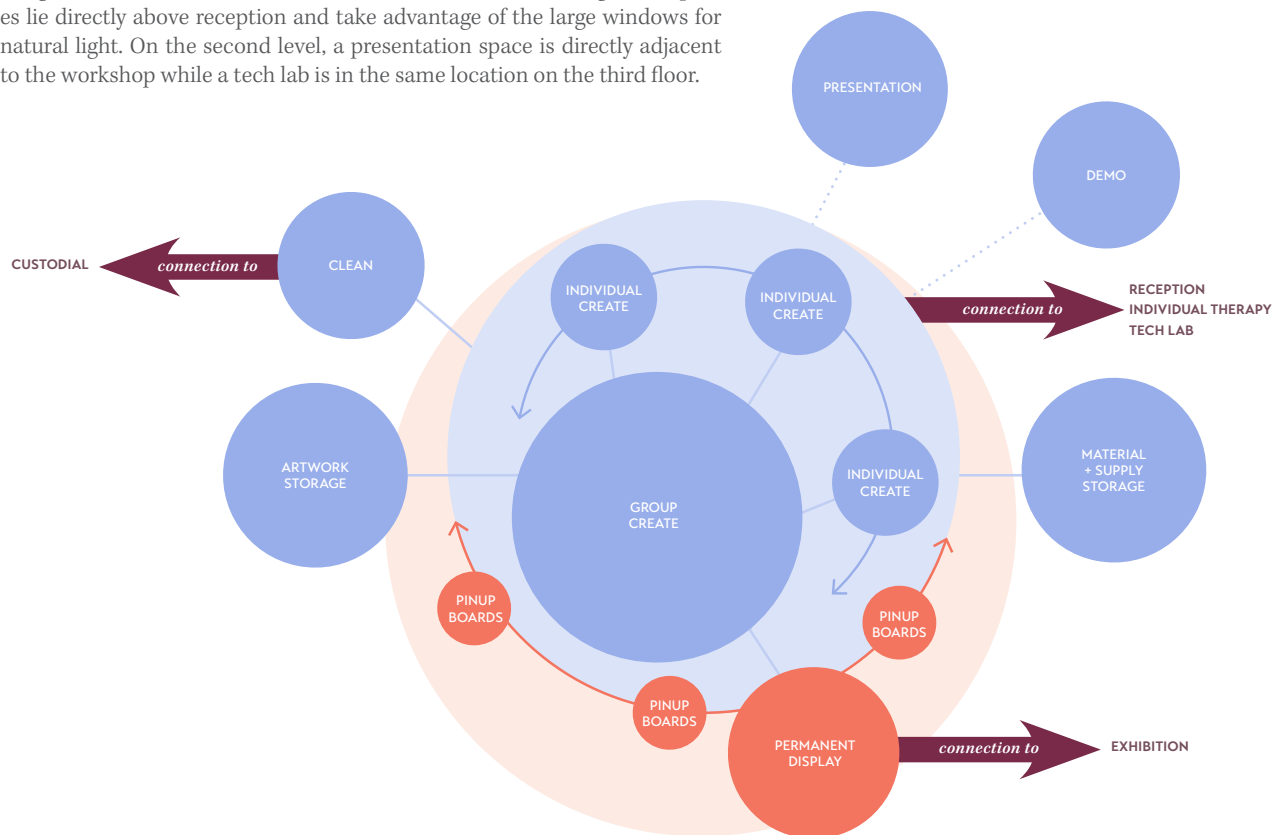
CAFE + LOUNGE

To create a more inviting entry and to draw community members into the building, a cafe is located on the first level alongside reception. Public seating is arranged within open space while semi-private built-in seating lies within the built forms. The dining experience seamlessly blends to the lounge and exhibit spaces with more private areas nearing the east end of the building including focus rooms and a private lounge for waiting



WORKSHOP

Zooming into the workshop, this space is multi-use and includes flexible seating for easy adjustment between individual therapy, group therapy, and community art classes. Adequate storage is provided for materials, artwork, and cleaning supplies and consolidated to provide more space for open creating without distraction. Located on the east end of the building, these spaces lie directly above reception and take advantage of the large windows for natural light. On the second level, a presentation space is directly adjacent to the workshop while a tech lab is in the same location on the third floor.



CONCEPTUAL DRIVERS

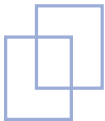
parti translation to zoning

Enliven captures the process of self-development through the aspects of foundation, expression, awakening, and sustainment. It recognizes the importance of each part to the greater process as a whole.

PARTI

The final parti captures the conceptual drivers of foundation, expression, awakening, and sustainment incorporating the abstract shapes of each. Angular lines introduce a conflict to the curvilinear brush strokes representing the inner conflicting thoughts and emotions we experience on the development path. These are validated showing these can co-exist with free-flowing paths.

FOUNDATION



Any process of development must begin with a foundational layer. This network recognizes the importance of collaborative patient-therapist relationships placing emphasis on protection, control, and comfortability.

AWAKENING



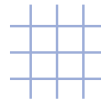
The idea of awakening revolves around inspiring and uplifting an individual to bring their creative energy to life; providing both a space and the encouragement to fill that space.

EXPRESSION

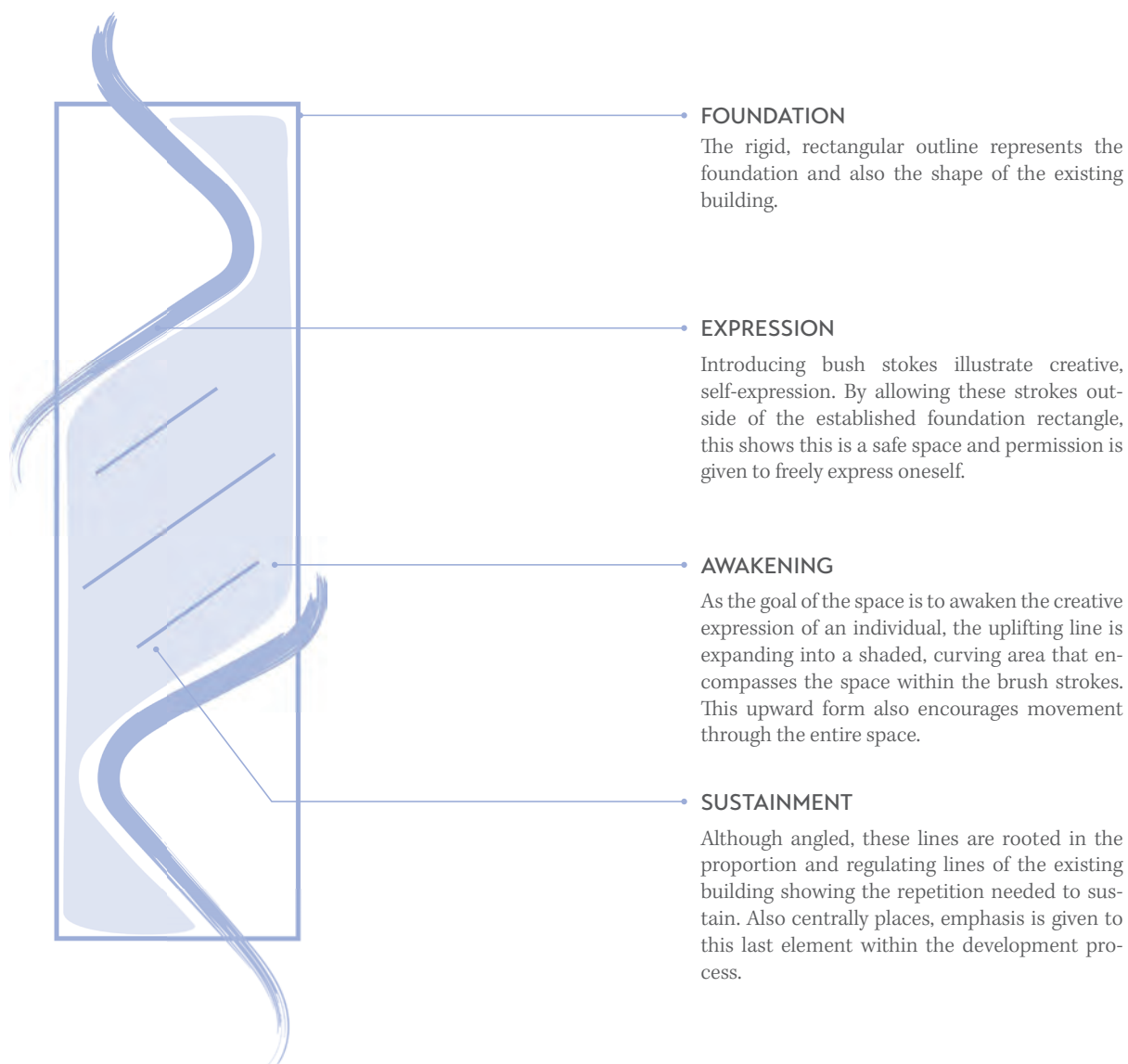


The act of visibly communicating an individual's authentic identity. Exhibiting confidence in one's self conveys personal belonging and comfortability. Furthermore, the exchange of expression provides validity and assurance in one's self-value.

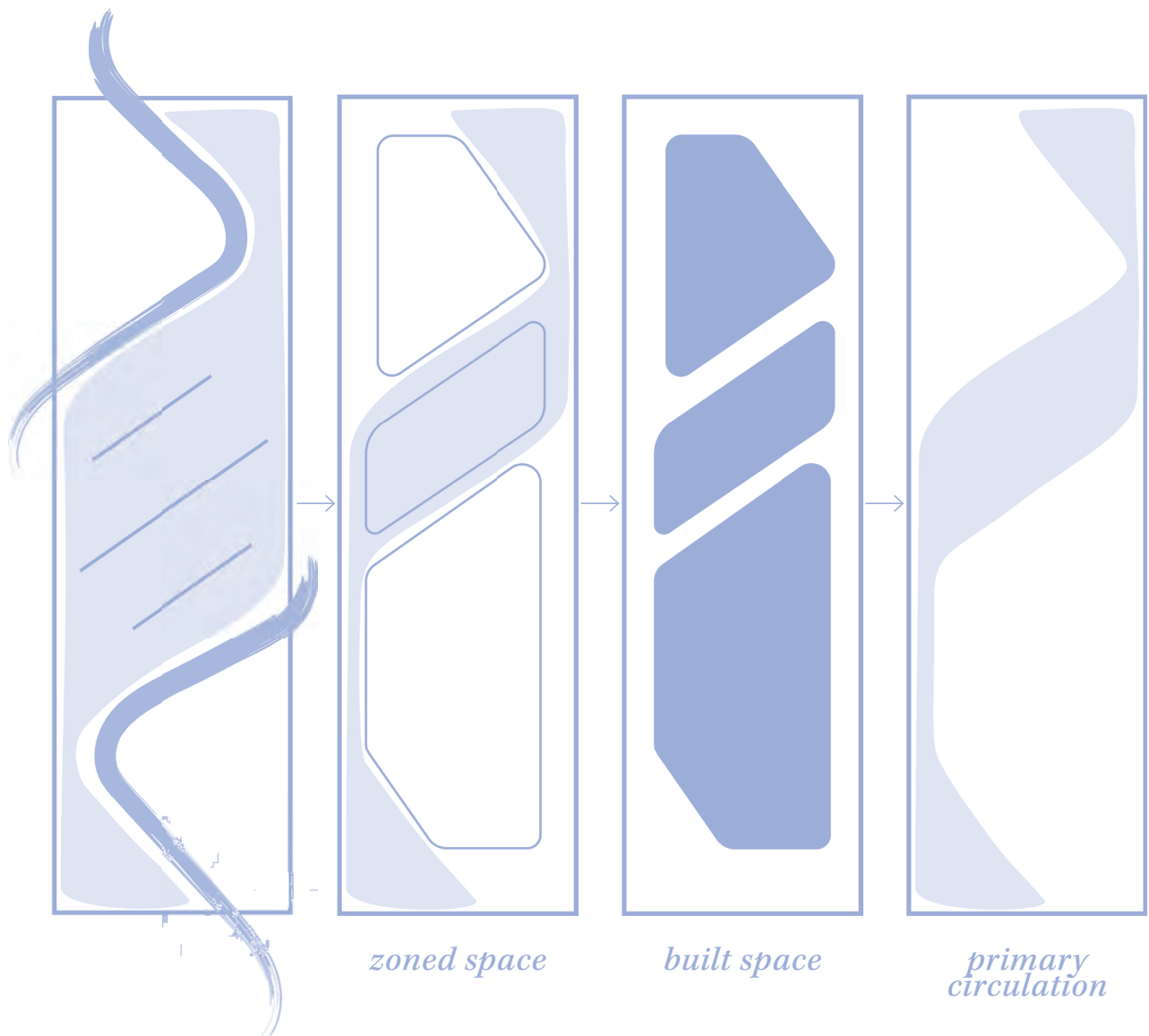
SUSTAINMENT



These spaces include required program such as restrooms, mechanical, custodial, and storage rooms along with spaces needed to support staff or administrative activity and self-driven patient activity.



Each element of the parti translates directly into the zones space of the building. The built space is refined to curvilinear shapes that reflect foundational triangles and rectangles. It is also placed off the exterior walls to allow circulation along the edges and to maximize the natural light directed into the space. The uninterrupted circulative flow creates an inviting and comfortable environment for users.



CREATE 21.07%

- Create spaces that are both self-driven (focus rooms) and therapist led (workshops + tech lab) are located on both east and west sides of the building utilizing the main access to natural light. Storage components to these spaces are prioritized in the build shapes while seating and tables flex within the open spaces.

EXHIBITION 17.47%

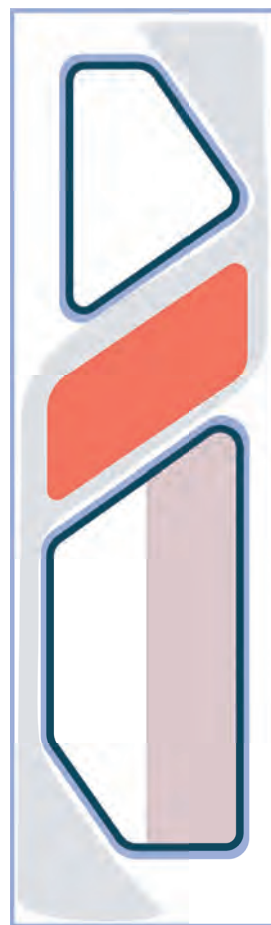
- Exhibition spaces bleed into the surrounding areas, but the primary exhibit spaces are paired with open to above cutouts bringing natural light into all three levels. Centrally places, these viewing spaces are experienced by all users and are seen from multiple spaces.

SOCIAL 33.67%

- Social areas are intermixed and alternated with create spaces dependent on the floor. Including lounges and the cafe primarily, and similar to create space, furniture is flexible within the open space, but organized to include varying level of privacy.

SUPPORT 10.40%

- Main required support spaces (restrooms, mechanical, custodial, and some storage) are confined to one half of the larger core and located near the forefront of the building for easy access. This spatial layout is repeated on each floor creating a support core.



*programmed
space*

03

FINAL DESIGN

BRAND INTERIOR

Each section's exploration and understanding came to an epitome with the implementation in the final design. The interior build-out and specifications serve as an example of the design guidelines developed from each component of the research process. While driving the decisions made, the design ultimately reflects my own unique design style.

3.1

BRAND

building purpose

BRAND BUILDING FUNCTION

Development of a brand for the space reflects the purpose of the building and works to draw people into the environment. This allowed me to utilize my graphic design skills and consider how brands influence the key stakeholders.



fig. 3.1

BRAND

a creative therapy studio

Choosing "HAVEN" as the name indicates that the space can be seen as a refuge and place of foundational support. By naming the space "a creative therapy studio," this associates therapy with tranquility and creative vibrancy. The logo was developed from the same forms and shapes of the conceptual drivers and parti, just manipulated in a different way. The logo is meant to show the brand and space encourages creative expression in an uplifting and positive environment.



COLOR

	#98aeea
	#ed6b4d
	#00495e
	#726d67 @10%

TYPEFACES

Kepler Std

ABCDEFGHIJKLMNOPQRSTUVWXYZ - modified
abcdefghijklmnopqrstuvwxyz

Transat Text

ABCDEFGHIJKLMNOPQRSTUVWXYZ



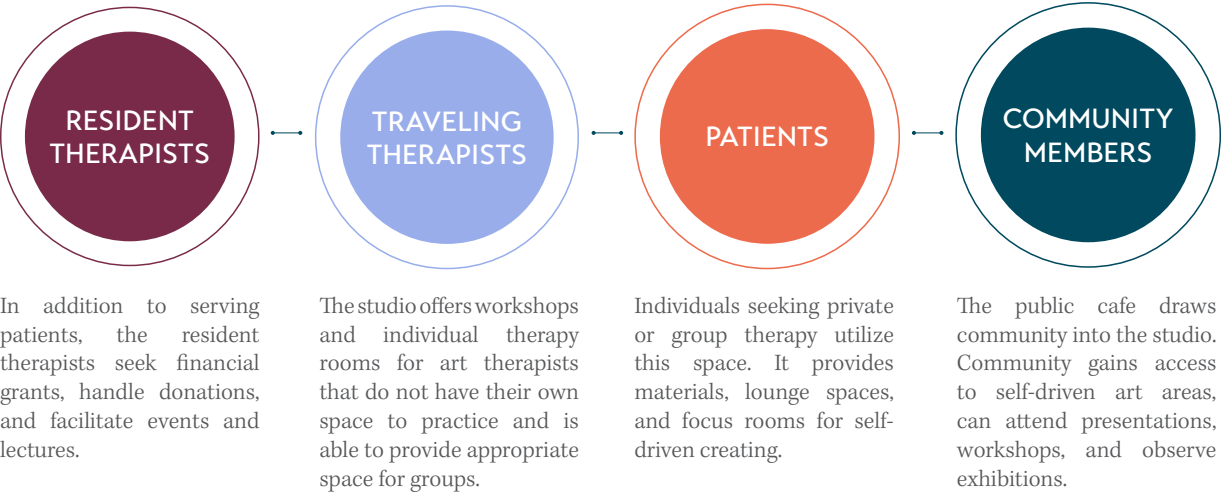


BUILDING FUNCTION

purpose

The creative studio serves as resource for art therapists, young adults, and community members. The space acts as a third place for community and breaks therapy stigma by encouraging socialization and connection. It offers a comfortable and safe environment for patients, space for therapists to practice, and workshops, presentations, and exhibition spaces to the greater community.

STAKEHOLDERS



SERVICES + AMENITIES



3.2

INTERIOR

design guidelines + finished spaces

SPACES
MATERIALS + FINISHES
FURNITURE

Finally, the ideas outlined in previous sections is reflected in the finished, interior building space. Spaces are shown alongside the specific design guidelines implemented while showing exploration through sketch. Photos provided by art therapists are also utilized to recognize their influence and improvement within my own design. Diagrams further emphasize design reasoning outlined clearly and concisely. Materials, finishes, and furniture specifications are included to highlight important features referenced in the initial research.



fig. 3.2

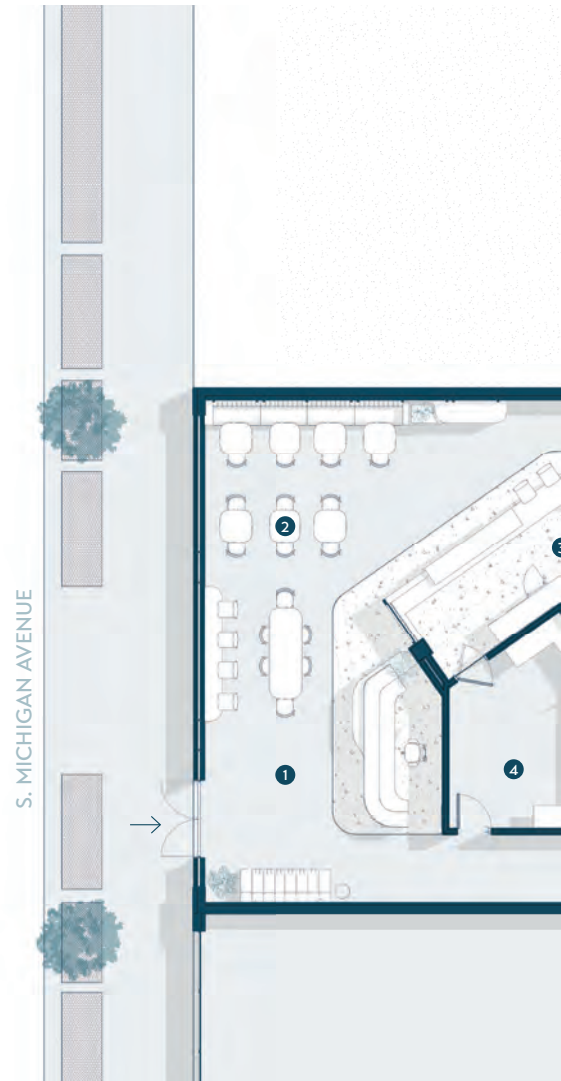
LEVEL 01

floor plan

The first floor plan depicts the relationship of the building to the surrounding streets with the main entrance placed on South Michigan Ave. A small parking lot was added in the alleyway behind the building to provide access to the back entrance primarily used by those working with the building.

KEY

- | | | |
|-----------------------|---------------------|------------------------|
| 1 RECEPTION | 7 PRIVATE DINING | 13 STORAGE |
| 2 CAFE | 8 RESTROOMS | 14 THERAPIST OFFICE |
| 3 BAR | 9 PIN-UP EXHIBITION | 15 THERAPY ROOMS |
| 4 CAFE BOH | 10 EXHIBITION | 16 FOCUS ROOMS |
| 5 ARTWORK STORAGE | 11 LOUNGE | 17 MAIL + DONATIONS |
| 6 ELEVATOR MECHANICAL | 12 MATERIAL STATION | 18 SEMI-PRIVATE LOUNGE |





RECEPTION

level 01

The reception desk is the first view upon entry into the building. It provides a warm welcome into the space and is meant to provide stability to users with clear indication of wayfinding and a familiar face to greet and direct. Users have the option to move into the public cafe or down a more secluded hallwayway to an interior stair and elevator. With visibility to both the reception and cafe from the exterior, the entry space welcomes both community and patients into the environment.

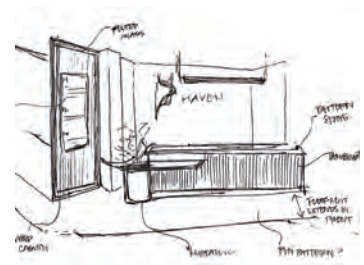


MATERIALS + FINISHES

To provide warmth and stability, natural and earth toned materials should be used to invite users into the environment especially at entry points.

participant 08 | ART THERAPIST

“One nice thing that we often forget that if we bring the nice things to everyone, then the whole space then gets elevated and then you have a consistency throughout the space, which is what I try to bring when I do therapy is if you have control of the space and you know where everything is and you feel comfortable in it, then that brings comfort and safety to others.”





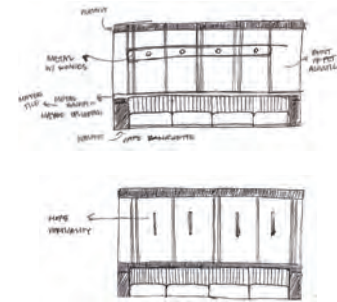
participant 08 | ART THERAPIST

"[I] work with my team and the department to pick the different colors too, that will help reflect a kind of natural and calming space."

CAFE

level 01

Recognized as an asset within interviews, the cafe is able to attract all types of users to the environment. Its inclusion can draw community members to the space and influence them to visit the galleries, take advantage of the create spaces, and ultimately learn more about the art therapy process working to break down therapy stigma.



MATERIALS + FINISHES

Bleach cleanable textiles and easily wipeable materials should be used in dining and create spaces to provide ease in all cleaning processes and ensure longevity of materials.

participant 06 | YOUNG ADULT

*“it’s something that you can do that **distracts** you while you’re waiting...it could be a way to potentially **draw people in** for something other than the main purpose of the space... and allow people to interact with people they wouldn’t normally interact with”*



Darker color washes flood the bar area creating a relaxing environment for users to order and offers another seating option. Each bar built throughout the building is placed at counter-height to be inclusive and provide access to those who may have disabilities to feel truly a part of the space and on the same level.



FURNITURE

Inclusivity should be at the forefront of furniture and millwork choices. Adjustable or multi-height pieces should be used to accommodate preferences and disabilities.



PRIVATE DINING

level 01

Around the corner from the more public cafe and lounge space, a private dining area includes a large gathering table that could be used for casual meetings and smaller pair seating for users wanting semi-enclosure. Contrasting from the darker colored walls, this space introduces a light wallcovering with subtle texture. Visually, this space cannot be seen from the public entry, but allows for views into the exhibition space.



SPATIAL ORGANIZATION

Varied levels of privacy should be provided for creation as well as a place for refuge in social or gathering environments.

participant 11 | YOUNG ADULT

*“With healthcare I think comes like a lot of privacy. So, I think after that kind of immediate step in and kind of like welcome into the space, having a **moment to seek privacy** if you want is nice.”*



SELF-DRIVEN ART LOUNGE

level 01

To encourage all individuals' creativity and provide art opportunities for those not seeking therapy, a self-driven art lounge provides a public space with access to materials and supplies. Alongside this area, permanent and pin-up exhibition walls allow for inspiration and give community members a view into the work done by art therapy patients raising awareness and validating the patients' work.



FURNITURE

In create spaces, furniture selections should be lightweight and include castors so as to easily rearrange space for the best spatial setup.

participant 11 | YOUNG ADULT

"Art for me is like a tool, and it's a tool for me to kind of express myself. I like sharing that with others so they can see they could do something like that too."



THERAPY ROOMS + PRIVATE OFFICES

level 01

Beginning on the first level, therapy rooms and private offices lie within the smaller built pod. There are two therapy rooms and one private office of a resident therapist on each level. As the privacy level increases on each level, and therapy rooms are bookable, therapists are able to choose the best room for their client. Rooms include choice in furniture, smaller pin-up space and ample storage. Within private offices, it is important to the patient-therapist relationship for therapists to show their personality within the decor and display in the space. Open shelving and pinup space gives this opportunity.

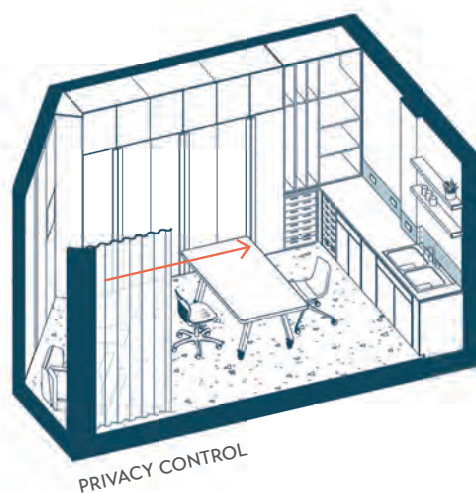
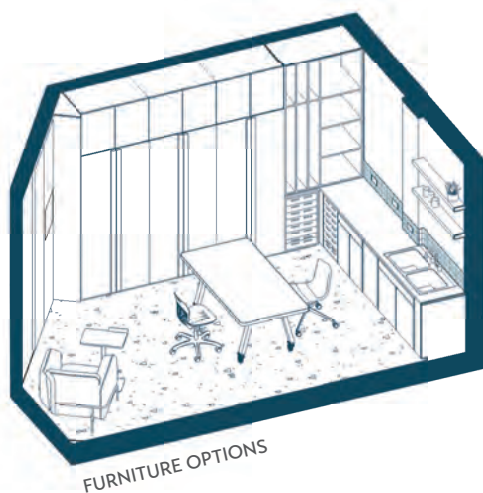


FURNITURE

Spaces where therapy sessions take place should incorporate both hard and lounge furniture options to allow patients to choose where they feel most comfortable.

participant 04 | ART THERAPIST | STUDIO





OPEN STORAGE

Open storage allows for visibility of materials. Narrow slotted storage gives appropriate depth for canvases.

CLEANABLE MATERIALS

Tile and stone backsplash extend along the counter making it easy to catch splatters. Stainless steel countertops and large sinks also promote ease in cleaning.

HIDDEN STORAGE

Tall closed door casework allows for deep storage and the opportunity to lock tools that are a safety concern. This allows the therapist to control what materials + supplies are visible so as to not distract clients.



SEMI-PRIVATE LOUNGE

level 01

As an extension of the self-driven art lounge, individual focus rooms and lounge lie around the corner, visually blocked by design to provide more privacy. A soft seating semi-private lounge gives space for waiting outside therapy rooms and offices in a secluded area for greater comfort. The focus rooms offer options dependent on creative work style with one being lighter with minimal pattern and another more muted including a larger, organic pattern. Both include control in lighting with dimmable options, cove, and accent lighting. A large curtain wall provides natural light and a small vegetation patch gives connection to the natural environment.



LIGHTING

When supplementing natural light with artificial, at multiple levels should be used to provide choice and balanced well-lit environments with color temperature similar to natural light. The space should provide an ambient, overhead layer with dimming capabilities or another layer of calming, soft lighting. Finally, adjustable task lighting should be given if needed.

participant 05 | YOUNG ADULT

"I'd prefer natural lighting because [the art] is like the actual color that it's going to be seen as opposed to any of the color changes that can happen depending on the light bulbs that you have."





SPATIAL ORGANIZATION

Spaces of refuge and respite should be provided for privacy and act as a place to wait for a therapy appointment. These environments should be located so as to have minimal traffic, and both visual and acoustic privacy.

participant 11 | YOUNG ADULT

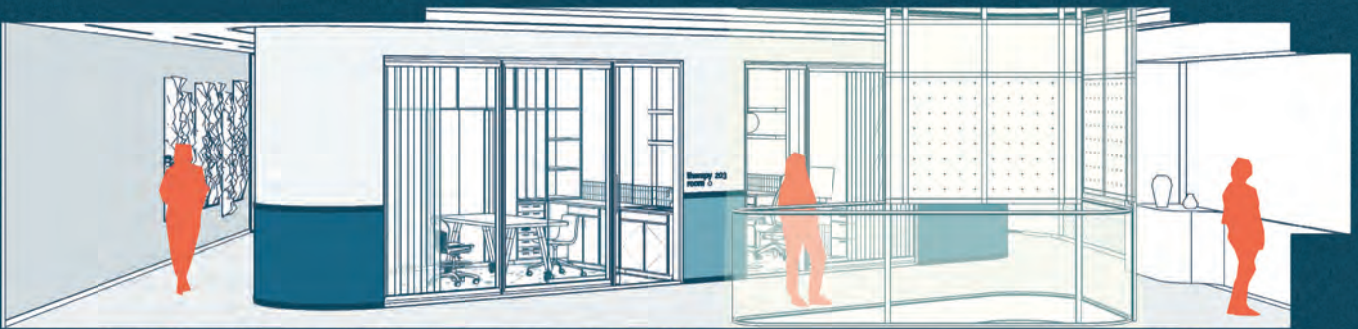
“Art for me is like a tool, and it’s a tool for me to kind of express myself. I like sharing that with others so they can see they could do something like that too.”



VERTICAL CONNECTION

south - north section perspective

As natural light was determined as the primary preference within interviews, a skylight was implemented to bring more natural light into the interior building. To further unite the floors, varying degrees of exhibition space are incorporated. Art can be seen between levels through openings in the floor plates driving exploration and discovery. As mentioned, the degree of privacy increased within each level with the self-driven art areas and material access on the most public, first level.



LEVEL 02

floor plan

Level two continues with two more therapy rooms and another private office and introduces the large workshop space dedicated to group therapy and art workshops. A presentation space lies just beyond the extended exhibition, central space. One exhibition wall provides built pedestals specifically for three dimensional artwork and leaves an open space for the potential to house portable pedestals.

KEY

- | | | |
|------------------------------------|------------------------|------------------------|
| ① WORKSHOP OPEN STUDIO | ⑦ PRESENTATION STORAGE | ⑬ THERAPY ROOMS |
| ② WORKSHOP CLEANING | ⑧ PRESENTATION | ⑭ THERAPIST OFFICE |
| ③ WORKSHOP MATERIAL STORAGE + DEMO | ⑨ RESTROOMS | ⑮ STORAGE |
| ④ MAINTENANCE + STORAGE | ⑩ PIN-UP EXHIBITION | ⑯ FOCUS ROOMS |
| ⑤ FOCUS ROOM - LARGE | ⑪ EXHIBITION | ⑰ PRINT + COPY STATION |
| ⑥ ARTWORK STORAGE | ⑫ 3D EXHIBITION | ⑱ WAITING LOUNGE |





PRESENTATION

level 02

To raise greater awareness for the practice of art therapy within the community and provide a dedicated education space, a presentation area includes flexible seating, storage, and a screen. This allows the studio an opportunity to invite art therapists and guest lecturers and provides them with a platform to speak on art and therapy topics. As many art therapists lead and demonstrate art activities during their presentations, table space is important to include. If there is a need for more chairs instead, a storage space lies directly adjacent and chairs are designed to be stacked to store.



SPATIAL ORGANIZATION

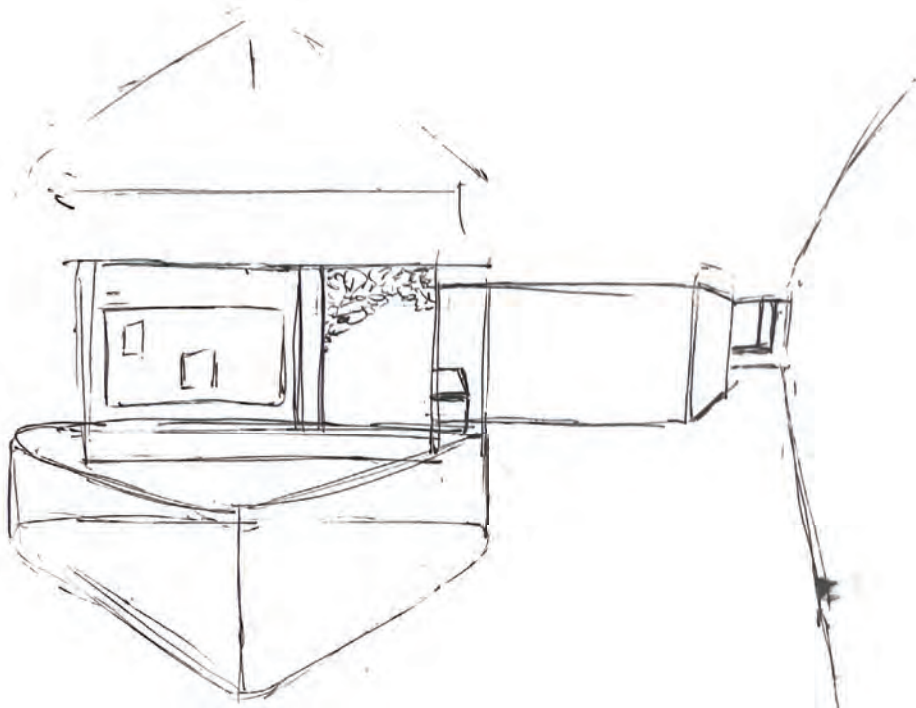
Circulation spaces should be intentionally created with at least five foot width to provide a moment of respite and breath between spaces. Relaxing permanent art and vegetation walls can be implemented to calm.

participant 14 | YOUNG ADULT

*“When it’s that like circulation space between places... I think those **allow you to like reset...** So having those little breaks is nice.”*



artwork examples | MARGARET JEANE
“morning desert light” + “antelope island”



WORKSHOPS

level 02

A large part of the building program on the second and third level consists of large workshop space. These spaces remain primarily light acting as a blank canvas for each individual's art. Brighter colors are introduced through details to spark inspiration. Separate storage, demo, and cleaning stations are provided in close proximity to the open studio spaces for ease in accessibility. In progress artwork storage can be housed on the drying racks and around the corner in flat drawers and large cabinets. Many outlets are also provided above lower cabinetry and hanging from the ceiling in the studio so that there is no limit to tools or art projects.



STORAGE

It is essential to provide dedicated and intentional storage directly within and immediately adjacent to create spaces. Closed and open storage solutions will allow control in the levels of visibility for materials and tools.

participant 12 | ART THERAPIST

*"Having an **organized area** for each individual medium makes it easier to clean up and put away when you're done."*

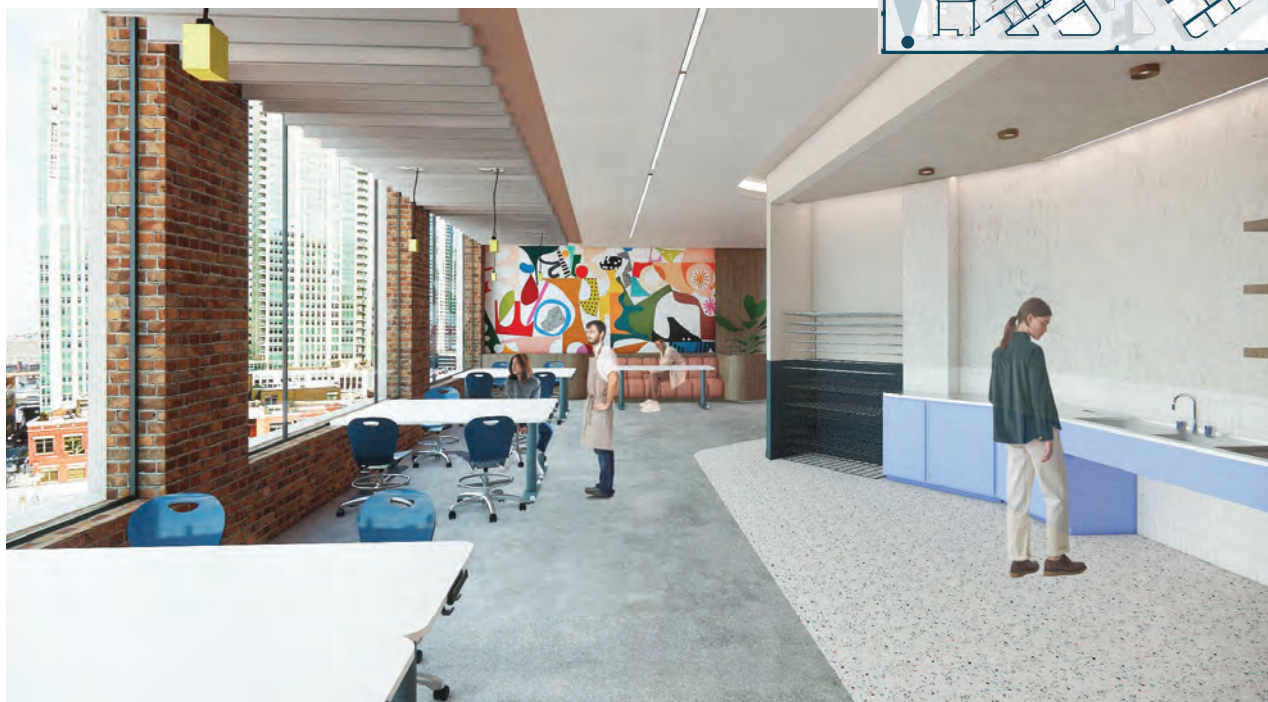




participant 09 | ART THERAPIST | studio



participant 04 | ART THERAPIST
studio



Furniture included in the space allows for up to twelve patients as this is the maximum amount of individuals a single art therapist is able to best assist while giving each individual the attention they need. Although designed for group therapy, this space can provide art workshops for the greater community to learn.

STORAGE

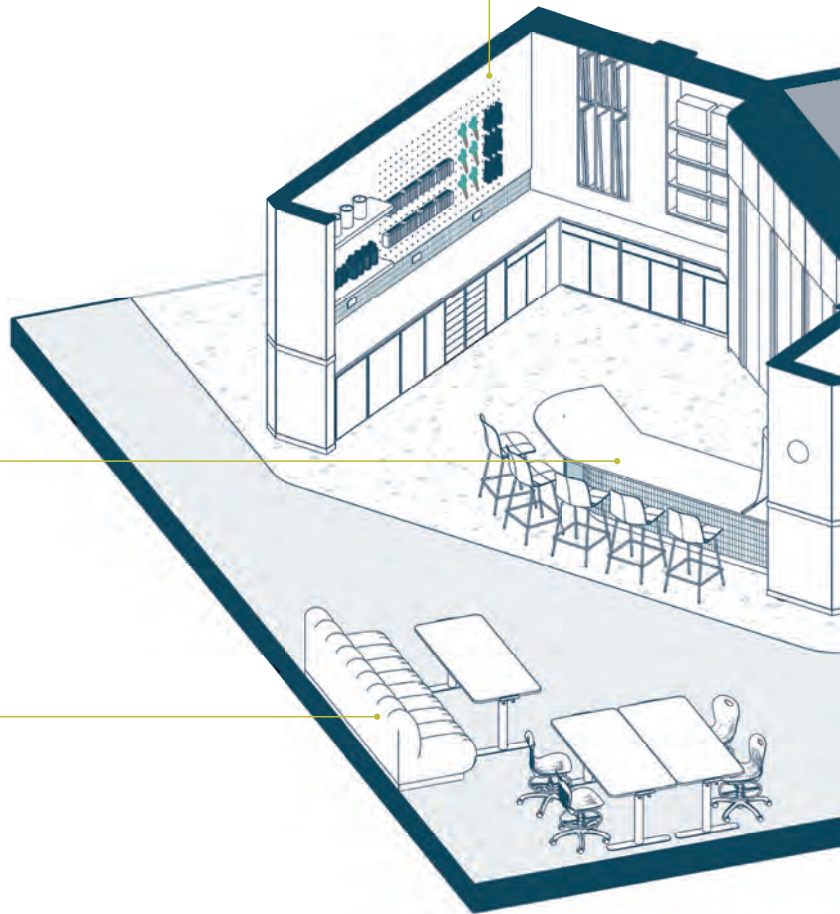
Large, dedicated space for material and supply storage provides adequate space for every type of material. Open storage provides visibility and gives patients and clients the freedom to access supplies. Closed storage can provide space for potentially unsafe tools, extra supplies, and distracting materials.

DEMO

A demonstration island connects the material storage to the open studio and provides an area to introduce a prompt and set out shared materials.

CHOICE IN SEATING

Providing a soft seating option gives users choice and ensures each individual is comfortable while creating.

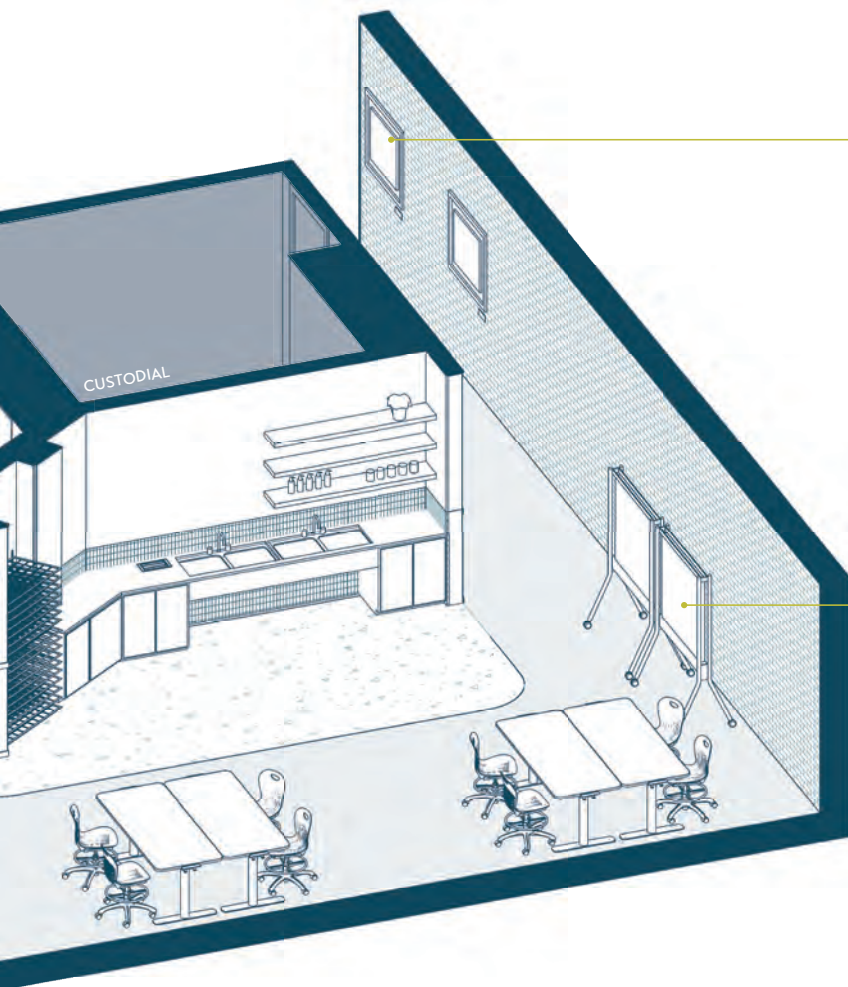




LARGE GROUP ART WORKSHOP



GROUP THERAPY



PERMANENT DISPLAY

Abstracted and muted landscape art is displayed permanently in circulation space to provide moments for respite.

FLEXIBLE FURNITURE

Portable pinup and exhibition boards along with tables and seating with castors allow for multiple configurations of the space.



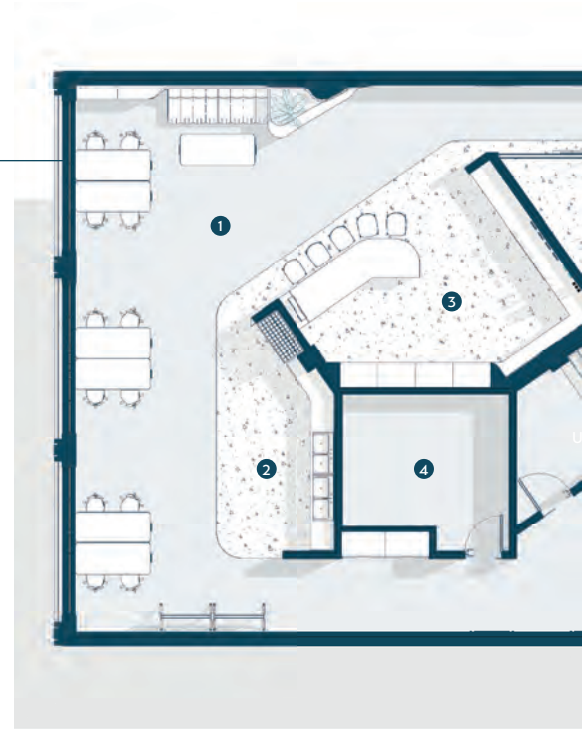
LEVEL 03

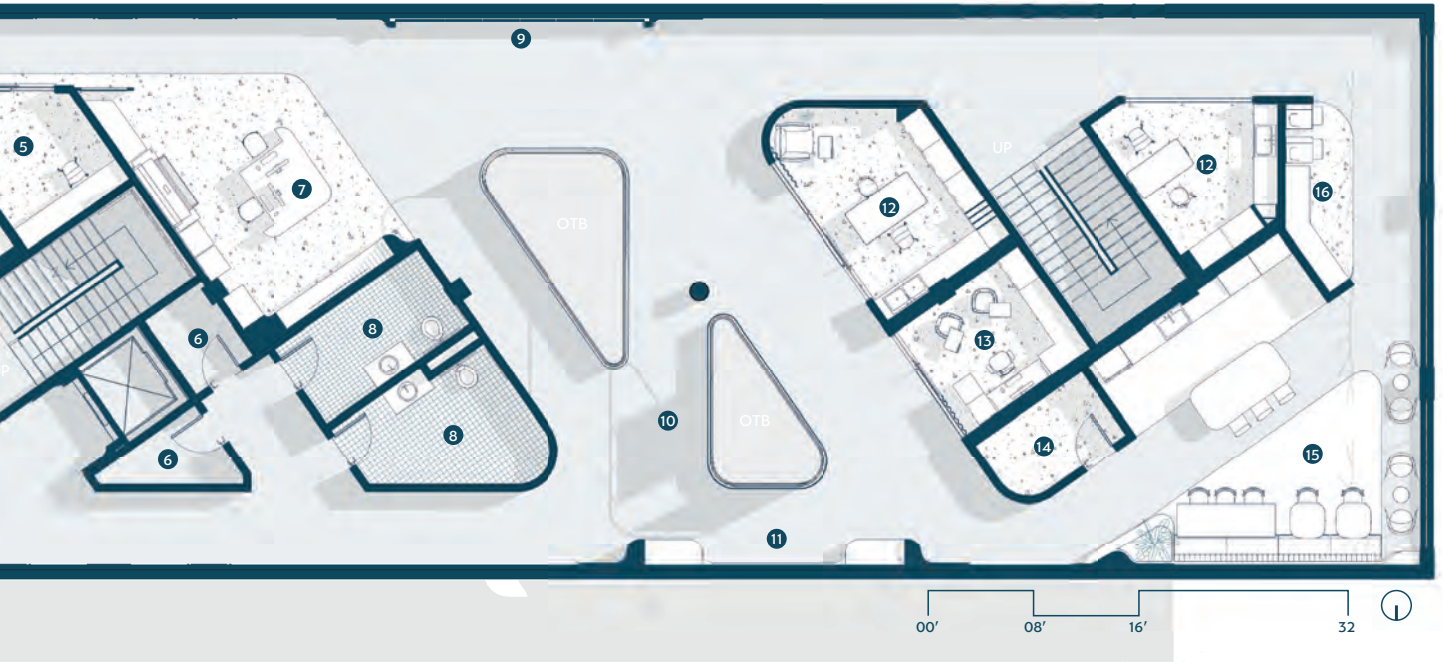
floor plan

As the most private, the third level includes quiet therapy rooms and a second workshop. New to this level, a tech lab gives opportunity for digital exploration. Additionally, a dedicated space for staff lies nestled in a corner on the back half of the building.

KEY

- | | | |
|------------------------------------|-------------------------|------------------------|
| ① WORKSHOP OPEN STUDIO | ⑦ TECH LAB | ⑬ THERAPIST OFFICE |
| ② WORKSHOP CLEANING | ⑧ RESTROOMS | ⑭ STORAGE |
| ③ WORKSHOP MATERIAL STORAGE + DEMO | ⑨ PIN-UP EXHIBITION | ⑮ STAFF LOUNGE |
| ④ MAINTENANCE + STORAGE | ⑩ EXHIBITION | ⑯ PRINT + COPY STATION |
| ⑤ FOCUS ROOM - LARGE | ⑪ 3D EXHIBITION + MURAL | |
| ⑥ ARTWORK STORAGE | ⑫ THERAPY ROOMS | |





TECHNOLOGY LAB

level 03

The technology lab provides the opportunity for digital artwork exploration and large scale printing and plotting. This can give technology access to those interested in learning digital tools. Desktops have the capability to connect to the screen for larger viewing and exploration. A plotter also gives therapists and artists the ability for large scale art projects.

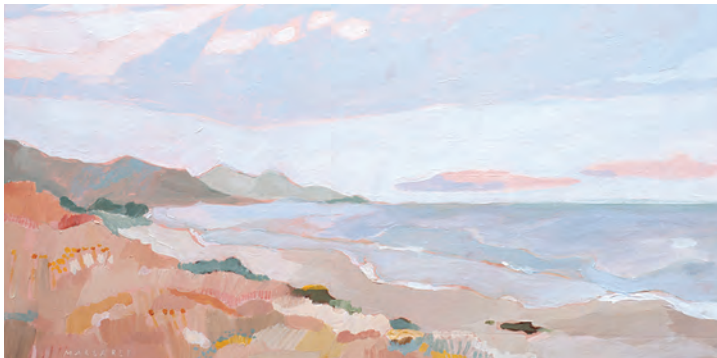


MATERIALS + FINISHES

To emphasize a connection to the natural environment and enhance the relaxing atmosphere, vegetation should be implemented in interior spaces through potted plants and integrated plant walls.

participant 08 | ART THERAPIST

*"We have people that have donated **plants** that they got when they were recovering from a brain injury.... So we'll give people plants to... improve their own living space and their creative space as well too."*



artwork examples | MARGARET JEANE

"coastline"

"morning view"

"ocean bluffs"

"looking out"

"layers of land"



STAFF LOUNGE

level 03

It is important to consider everyone, including those working within the building, when choosing the spatial program. While staff are encouraged to support the cafe on the first level, a fridge, microwaves, and storage are provided for personal use. This space not only gives access to a private area to work, but also promotes socialization with grouped seating and a large island. This allows creatives to share their own personal excitement and artistic energy which they encourage in their patients.



SPATIAL ORGANIZATION

A staff lounge should be incorporated for resident and traveling therapists, visiting presenters, and maintenance employees to relax and socialize with others. Inclusion of this space adds a private area for traveling therapists to work on their case work that is also directly adjacent to a print station.

participant 08 | ART THERAPIST

“The act of sharing artwork is almost like a form of art as well... I love it when people share my energy and they get as excited about artwork as I do.”





MATERIALS + FINISHES

dark washes + brights

Materials and finishes focus on cleanability while utilizing natural earth tones as a base to create a relaxing and comfortable space. Textiles and wall-covering reference organic materials and forms to draw subtle connection to the natural landscape. Colors remains monochromatic and tonal so as to not overwhelm while texture provides visual energy. This color palette is strategically implemented dependent on the spatial type.

GROUNDING DARK WASHES

Dark washes of color are introduced into the social spaces promoting a lively atmosphere while laying the foundation for a tranquil environment.

POLISHED CONCRETE | PRIMARY FLOORING

PAINT | sherwin-williams, dark night | PRIMARY SPACES + TRIM

PAINT | sherwin-williams, repose gray | PRIMARY SPACES

TEXTILE | luum, decoy, lure | DINING

TEXTILE | kvadrat, revive 1, 0414 | BANQUETTES

LAMINATE | wilsonart, uptown walnut | PRIMARY MILLWORK

BRONZE | wilsonart, light-oiled bronze | PRIMARY MILLWORK

QUARTZ | caesarstone, coastal grey | RECEPTION + BAR

PORCELAIN MOSAIC TILE | clay, karma | TILEBAR

TEXTILE | hbf, stardust 1070, labradorite 68 | PRIVATE LOUNGE

PAINT | sherwin-williams, hushed auburn | FOCUS ROOM

INSPIRING BRIGHTS

Neutral backdrops act as a blank canvas to allow for colored details to shine and inspire creativity.

TERRAZZO | european heritage, milano bianco | SECONDARY FLOOR

QUARTZ | caesarstone, bianco drift | PRIMARY BACKSPLASH

LAMINATE | formica, winter sky | THERAPY ROOMS + PRIVATE OFFICES

LAMINATE | laminart, classic teal | PRIMARY CASEWORK

LAMINATE | custom color: periwinkle | WORKSHOPS

POWDERCOAT PAINT | custom color: coral | WORKSHOP FURNITURE

TEXTILE | hbf, stardust 1070, carnelion 43 | WORKSHOP LOUNGE

ALL TEXTILES
BLEACH
CLEANABLE



FURNITURE

lounge + flexibility

Furniture reflects soft, organic curves naturally inviting individuals into spaces. Adjustable features are highlighted in both soft and hard furniture to give greater comfort. Swivel seating in waiting lounges provides opportunity for fidgeting to calm anxiety while adjustable height tables and seating in create spaces allows each individual control in their environment.

SOCIAL + DINING

Comfortable and hospitable furniture is placed in social and dining areas. Vertical details provide stability through repetition. Cleanability and comfort are emphasized in chosen finishes.

DAVIS | ariel, 05 matte black powdercoat, 20 clear walnut | DINING

DAVIS | riza tables, 05 matte black powdercoat | DINING

MARTIN BRATTRUD | las ondas with plinth | DINING

STYLEX | dela counter-height stool, black matte | BAR

HIGHTOWER | gimball lounge, low swivel | PRIVATE LOUNGE

DAVIS | vida side table, 05 matte black, 25 bronze | LOUNGE

MARTIN BRATTRUD | monterey | LOUNGE + WORKSHOP

LIGHTING COHESIVENESS

Decorative fixtures with rounded features are placed in fixed environments to emphasize places to socialize and gather while uplifting the atmosphere. Bronze detailing and diffused light shades unite surface fixtures while promoting a feeling of value through sophistication.

PENDANT | eureka, mika | GATHERING SPACES

WALL SCONCE | kuzco, gramercy | CAFE

WALL SCONCE | santa + cole, amigo | FOCUS ROOMS + STAIRWELLS

CREATE

Ergonomic and adjustable furniture allow for an individualized experience while providing flexibility.

MARTIN BRATTRUD | trestles table, stained wood | LOUNGE + THERAPY ROOMS

HIGHTOWER | kona height adjustable laptop table | LOUNGE, THERAPY ROOMS, + PRIVATE OFFICES

VIRCO | zuma series lab stool | LOUNGE, THERAPY ROOMS, + WORKSHOP



3.3 DESIGN GUIDELINES

considering space + atmosphere

spatial organization

- Circulation spaces should be intentionally created with at least 5' width to provide a moment of respite and breath between spaces. Relaxing permanent art and vegetation walls can be implemented to calm.

Spaces of refuge and respite should be provided for privacy and act as a place to wait for a therapy appointment. These environments should be located so as to have minimal traffic, and both visual and acoustic.

Varied levels of privacy should be provided for creation as well as a place for refuge in social or gathering environments.

A staff lounge should be incorporated for resident and traveling therapists, visiting presenters, and maintenance employees to relax and socialize with others. Inclusion of this space adds a private area for traveling therapists to work on their case work that is also directly adjacent to a print station.

lighting

- When supplementing natural light with artificial, at multiple levels should be used to provide choice and balanced, well-lit environments with color temperature similar to natural light.

The space should provide an ambient, overhead layer with dimming capabilities or another layer of calming, soft lighting. Finally, adjustable task lighting should be given if needed.

materials and finishes

- To provide warmth and stability, natural and earth tones materials should be used to invite users into the environment especially at entry points.

Bleach cleanable textiles and easily cleanable materials should be used in dining and create spaces to provide ease in all cleaning processes and ensure longevity of materials.

To emphasize a connection to the natural environment and enhance the relaxing atmosphere, vegetation should be implemented in interior spaces through potted plants and integrated plant walls.

furniture

- Inclusivity should be at the forefront of furniture and millwork choices. Adjustable or multi-height pieces should be used to accommodate preferences and disabilities.

Spaces where therapy sessions take place should incorporate both hard and lounge furniture options to allow patients to choose where they feel most comfortable.

In create spaces, furniture selections should be lightweight and include castors so as to easily rearrange space for the best spatial setup.

storage

- It is essential to provide dedicated and intentional storage directly within and immediately adjacent to create spaces.

Incorporating both closed and open storage solutions will allow control in the levels of visibility for materials and tools.

artist view | TISHK BARZANJI

“Art also possesses the power to be a healer and a force that drives us into our souls - allowing us to wander into something more profound”



04

APPENDIX

INTERVIEW ROADMAP
MID REVIEW
CODE REVIEW
REFERENCES

4.1 INTERVIEW ROADMAP

interview overview

YOUNG ADULTS ART THERAPISTS

To begin the interviews, young adults were asked their age and occupation while art therapists were asked their age and connection to or current position in art therapy. So as to familiarize users with the concept of the questions, art was defined as something that stimulates an individual's thoughts, emotions, beliefs, or ideas through the senses in activity or physical, creative output.

YOUNG ADULT INTERVIEW

creating art, viewing art, + patient comfortability

01 | Creating Art

To understand how individuals create art

01. Have you ever created art or participated in an art class?

- a. What type(s) of art?
- b. Can you describe the environment(s) you were in? Was it large or small?
- c. What type of surfaces or furniture were present?

02. Do you create art personally?

- a. What type(s) of art?
- b. Can you describe your typical spatial setup?
- c. How does this differ from other art environments?

03. Are there any elements (perhaps a sink, more table space, different furniture) that you would like to have in an art creation space that were/are not present or that you would like to improve? How so?

04. When creating art, do you like to be loose and messy or controlled and clean? Why?

05. Do you prefer to work individually or collaboratively when creating art?

- a. Do you like to create near others or bounce ideas off of others?
- b. Would you feel uncomfortable around others?

06. Do you like sharing your work with others? Why or Why not?

07. What kind of lighting do you prefer to work in?

a. Do you like to work near a window or natural light?

b. How do you feel about artificial lighting?

c. Does this change dependent on the type of art you are making?

08. What does your clean-up process look like after you are finished creating?

- a. Are there any specific tools or machines used?
- b. Where are materials and work stored and how are they organized?

02 | Viewing Art

To understand how individuals view art

09. Have you ever been to an art museum or exhibit?

- a. Did you feel calm or relaxed during the experience?
- b. What was the surrounding environment like that made you feel this way?

10. Do you remember a stressful time during which observing art helped you relax?

- a. Can you remember where this was?
- b. Do you remember the features of the work?

11. Have you ever viewed artwork created by a friend or someone close to you?

- a. Where did this experience(s) take place and how was the piece displayed?
- b. Were you able to understand more about the person or piece created?

12. How do you prefer to view art?

a. Do you enjoy sitting, standing, or having the opportunity to walk around?

b. Do you prefer to view from a distance, up close, or if available, have the opportunity to interact with the art?

13. Have you ever created artwork that has then been displayed?

- a. How did this make you feel?
- b. How was your piece displayed?
- c. Did you feel it was adequately displayed for the experience or situation? (in terms of staging, placement, lighting)

14. Do you have a favorite piece of art, artist, or artistic style?

- a. Why is it/are they your favorite?
- b. What feelings or thoughts does it/do they provoke?

15. Think about your workspace (at home or at an office). Do you like to surround yourself, or decorate, with artistic objects or images?

- a. Could you describe the objects or images?
- b. Why do you choose to place these objects in view?

03 | Patient Comfortability

To inform patient comfortability within a healthcare environment

16. After a stressful or difficult day of working, where do you want to retreat or escape?

a. What elements or qualities about the space are important or relaxing?

b. Does this space include natural elements such as plants or access to natural light?

17. Do you feel that you have work-life separation or balance?

a. If no, what is preventing this or why do you think this happens?

b. What physical or visual cues could create that separation?

18. Imagine you were visiting a healthcare environment. Perhaps a hospital, clinic, dentist, or counseling center. Would you prefer the entrance to be open and inviting, more private, or a combination?

a. What atmospheric and spatial qualities would you say make a space inviting?

19. Have you ever been to one of these healthcare environments and felt uncomfortable?

a. If yes, why? Was the atmosphere uninviting? Was the furniture uncomfortable? Did you have unpleasant service?

20. Picture you are now attending one of these healthcare appointments as a patient, would you prefer:

a. to go directly to your appointment or session room?

b. see or interact with others first?

c. and/or pass through a space to create or view art?

Would this answer change dependent on if this was a counseling or therapy appointment? How so?

21. Now, think about having a conversation with a healthcare professional in an individual appointment room. What do

you feel creates comfortability within this space?

a. What size would you like that room? What furniture would be in the room?

b. Are the walls painted a warm or cool color?

c. What would the lighting be like?

22. As a patient, would you enjoy or want additional amenities offered within the same spatial environment?

a. For example, a cafe or access to a kitchenette?

b. How would these impact or add to your experience?

ART THERAPIST INTERVIEW

creating art + therapist observation

01 | Creating Art

To understand how individuals create art

01. Do you create art or have you participated in any art classes personally?

- a. What type(s) of art?
- b. Can you describe the environment(s) you were in? Was it large or small?
- c. What type of surfaces were present?

02. Are there any elements (perhaps a sink, more table space, different furniture) that you would like to have in an art creation space that were/are not present or that you would like to improve? How so?

03. When creating art, do you like to be loose and messy or controlled and clean? Why?

04. Do you prefer to work individually or near others when creating art?

- a. Would you feel uncomfortable around others?
- b. Do you like to create collaboratively or bounce ideas off of others?

05. Do you like sharing your work with others? Why or why not?

06. What kind of lighting do you prefer to work in?

- a. Do you like to work near a window or natural light?
- b. What about artificial lighting?
- c. Does this change dependent on the type of art you are making?

07. What does the clean-up process look like after you are finished creating?

02 | Therapist Observation

To understand the art therapy process

08. How do you interact with a patient while they are creating art? Describe your process.

09. During a session, are you seated or standing?

a. Do you or the patient move around or change location/positions often?

10. Describe a group therapy session or group art activity?

- a. Do you lead or interact with participants?
- b. How do you foster collaboration? (eg. Verbally/through prompts, spatial setup, shared materials?)

11. Describe the spatial needs of the session space.

a. What are the most important aspects? (eg. furniture, storage, maintenance)

12. Describe the spatial needs of the creation space.

a. What are the most important aspects? (eg. furniture, storage, maintenance)
interchange with Q11 dependent on interpretation and see how/if they differ.

13. Do the spatial requirements change for individual or group sessions? How so?

14. What types of furniture specifically are used during a session and while creating art?

- a. Are there specific types of chairs or tables uses? Are these movable?
- b. Do you have a variety of options? (soft

vs. hard seating/lounge vs. desk)

c. Do you have any preferences or furniture requirements?

15. What does storage look like?

- a. What is being stored?
- b. If practicing, is there enough storage or the appropriate storage in your current space?

16. If practicing, is there anything about the spatial environment that you would improve or change?

4.2

MID REVIEW

critique

THERAPY ROOM VERTICAL CONNECTION

Select work is included from the mid review to show development into the final design. Therapy room diagrams and the section outlining the vertical connection between floors were improved for clarity. Within the presentation narrative, the art therapy process and building function were not adequately explained which resulted in more visual communication included in the final deliverables and presentation on these topics.



level 01

- | | | | | |
|-------------|-----------------------|---------------------|---------------------|-------------------------|
| 1 RECEPTION | 5 ARTWORK STORAGE | 9 PIN-UP EXHIBITION | 13 STORAGE | 17 PRINT + COPY STATION |
| 2 CAFE | 6 ELEVATOR MECHANICAL | 10 EXHIBITION | 14 THERAPIST OFFICE | 18 WAITING LOUNGE |
| 3 BAR | 7 PRIVATE DINING | 11 LOUNGE | 15 THERAPY ROOMS | |
| 4 CAFE BOH | 8 RESTROOMS | 12 MATERIAL STATION | 16 FOCUS ROOMS | |



level 02

- | | | | | |
|------------------------------------|------------------------|----------------------|---------------------|-------------------------|
| 1 WORKSHOP OPEN STUDIO | 5 FOCUS ROOM - LARGE | 9 RESTROOMS | 13 THERAPY ROOM | 17 PRINT + COPY STATION |
| 2 WORKSHOP CLEANING | 6 ARTWORK STORAGE | 10 PIN-UP EXHIBITION | 14 THERAPIST OFFICE | 18 WAITING LOUNGE |
| 3 WORKSHOP MATERIAL STORAGE + DEMO | 7 PRESENTATION STORAGE | 11 EXHIBITION | 15 STORAGE | |
| 4 MAINTENANCE + STORAGE | 8 PRESENTATION | 12 3D EXHIBITION | 16 FOCUS ROOMS | |



level 03

- | | | | |
|------------------------------------|----------------------|--------------------------|-------------------------|
| 1 WORKSHOP OPEN STUDIO | 5 FOCUS ROOM - LARGE | 9 PIN-UP EXHIBITION | 13 THERAPIST OFFICE |
| 2 WORKSHOP CLEANING | 6 ARTWORK STORAGE | 10 EXHIBITION | 14 STORAGE |
| 3 WORKSHOP MATERIAL STORAGE + DEMO | 7 TECH LAB | 11 3D EXHIBITION + MURAL | 15 STAFF LOUNGE |
| 4 MAINTENANCE + STORAGE | 8 RESTROOMS | 12 THERAPY ROOMS | 16 PRINT + COPY STATION |



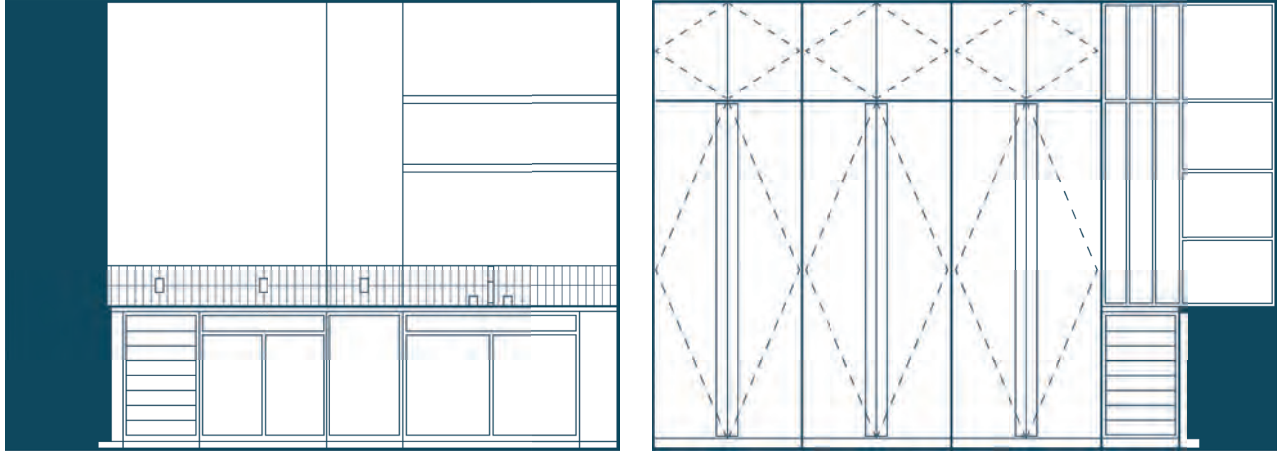
THERAPY ROOM

storage

participant 09 | ART THERAPIST | STORAGE



ELEVATIONS



VERTICAL CONNECTION

west - east section perspective



 CREATE

 EXHIBITION



4.3

CODE REVIEW

building code + accessibility

2021 INTERNATIONAL BUILDING CODE
2010 ADA STANDARDS FOR ACCESSIBLE DESIGN

2021 INTERNATIONAL BUILDING CODE

03 | Occupancy Classification + Use

301.1 General

The provisions of this chapter shall control the classification of all buildings and structures as to use and occupancy. Different classifications of occupancy and use represent varying levels of hazard and risk to building occupants and adjacent properties.

302.1 Occupancy Classification

Occupancy classification is the formal designation of the primary purpose of the building, structure or portion thereof. Structures shall be classified into one or more of the occupancy groups specified in this section based on the nature of the hazards and risks to building occupants generally associated with the intended purpose of the building or structure. An area, room or space that is intended to be occupied at different times for different purposes shall comply with all applicable requirements associated with such potential multipurpose.

Structures containing multiple occupancy groups shall comply with section 508. Where a structure is proposed for a purpose that is not specified in this section, such structures shall be classified in the occupancy it most nearly resembles based on the fire safety and relative hazard. Occupied roofs shall be classified in the group that the occupancy most nearly resembles, according to the fire safety and relative hazard. Occupied roofs shall be classified in the group that the occupancy most nearly resembles, according to the fire safety and relative hazard, and shall comply with Section 503.1.4.

1. Business (See Section 304): Group B
2. Assembly Group A-3 (See Section 303.4)

302.2 Use Designation

Occupancy groups contain subordinate

uses having similar hazards and risks to building occupants. Uses include, but are not limited to, those functional designations specified within the occupancy group destinations in Section 302.1. Certain uses require specific limitations and controls in accordance with the provisions of Chapter 4 and elsewhere in this code.

303.4 Use Designation

Assembly A-3 occupancy includes assembly uses intended for worship, recreation or amusement and other assembly uses not classified elsewhere in Group A including, but not limited to: art galleries, community halls, exhibition halls, museums, etc.

04 | Special Detailed Requirements Based on Occupancy + Use

419.1 Artificial Decorative Vegetation

Artificial decorative vegetation exceeding 6 feet in height and permanently installed outdoors within 5 feet of a building, or on the roof of a building, shall comply with Section 321.1 of the *International Fire Code*.

05 | General Building Heights + Areas

502.1 Address Identification

New and existing buildings shall be provided with approved address identification. The address identification shall be legible and placed in a position that is visible from the street or road fronting the property. Address identification characters shall contrast with their background. Address numbers shall be Arabic numbers or alphabetical letters. Numbers shall not be spelled out. Each character shall be a minimum of 4 inches high with a minimum stroke width of half an inch. Where required by the fire code official, address identification shall be provided in additional approved locations to facilitate emergency response. Where access is by means of a private road and the building address cannot be

viewed from the public way, a monument, pole or other approved sign or means shall be used to identify the structure. Address identification shall be maintained.

503.1 General

Unless otherwise specifically mentioned in Chapter 4 and this chapter, building height, number of stories and building area shall not exceed the limits specified in Sections 504 and 506 based on the type of construction as determined by Section 602 and the occupancies as determined by Section 302 except as modified hereafter. Building height, number of stories and building area provisions shall be applied independently. For the purposes of determining area limitations, height limitations and type of construction, each portion of a building separated by one or more fire walls complying with Section 706 shall be considered to be a separate building.

504.1 General

The height, in feet, and the number of stories of a building shall be determined based on the type of construction occupancy classification and whether there is an automatic sprinkler system installed throughout the building.

504.2 Mixed Occupancy

In a building containing mixed occupancies in accordance with Section 508, no individual occupancy shall exceed the height and number of story limits specified in this section for the applicable occupancies.

504.3 Height in Feet

The maximum height, in feet, of a building shall not exceed the limits specified in Table 504.3.

506.1 General

The floor area of a building shall be determined based on the type of construction, occupancy automatic

TABLE 504.3

OCCUPANCY CLASSIFICATION	see footnotes	TYPE OF CONSTRUCTION											
		TYPE I		TYPE II		TYPE III		TYPE IV				TYPE V	
		A	B	A	B	A	B	A	B	C	HT	A	B
A, B, E, F, M, S, U	NS ^b	UL	160	65	55	65	55	65	65	65	65	50	40
	S	UL	180	85	75	85	75	270	180	85	85	70	60
H-1, H-2, H-3, H-5	NS ^{c,d}	UL	160	65	55	65	55	120	90	65	65	50	40
	S												
H-4	NS ^{c,d}	UL	160	65	55	65	55	65	65	65	65	50	40
	S	UL	180	85	75	85	75	140	100	85	85	70	60
I-1 CONDITION 1, I-3	NS ^{d,e}	UL	160	65	55	65	55	65	65	65	65	50	40
	S	UL	180	85	75	180	75	180	120	85	85	70	60
I-1 CONDITION 2, I-2	NS ^{d,e,f}	UL	160	65	55	65	55	65	65	65	65	50	40
	S	UL	180	85									
I-4	NS ^{d,g}	UL	160	65	55	65	55	65	65	65	65	50	40
	S	UL	180	85	75	180	75	180	85	85	85	70	60
R ^h	NS ^d	UL	160	65	55	65	55	65	65	65	65	50	40
	S13D	60	60	60	60	60	60	60	60	60	60	50	40
	S13R	60	60	60	60	60	60	60	60	60	60	60	60
	S	UL	180	85	75	85	75	270	180	85	85	70	60

FOR SI: 1 foot = 304.8 mm.

UL = Unlimited; NS = Buildings not equipped throughout with an automatic sprinkler system; S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; S13R = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.1.2; S13D = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.3.

a. See Chapters 4 and 5 for specific exceptions to the allowable height in this chapter.

b. See Section 903.2 for the minimum thresholds for protection by an automatic sprinkler system for specific occupancies.

c. New Group II occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.5.

d. The NS value is only for use in evaluation of existing building height in accordance with the International Existing Building Code.

e. New Group I-1 and I-2 occupancies are required to be protected by automatic sprinkler system in accordance with Section 903.2.6. For new Group I-1 occupancies Condition 1, see Exception 1 of Section 903.2.6.

f. New and existing Group I-2 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6 and Section 1105.5 of the International Fire Code.

g. For new Group I-4 occupancies, see Exceptions 2 and 3 of Section 903.2.6.

h. New Group B occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.8.

sprinkler system installed throughout the building and the amount of building frontage on public way or open space.

506.1.1 Basements

Basements need not be included in the total allowable floor area of a building provided the total area of such basement does not exceed the area permitted for a one story above grade plane building.

06 | Types of Construction

602.1 General

Buildings and structures erected or to be erected, altered or extended in height or area shall be classified in one of the five construction types defined in

Sections 602.2 through 602.5. The building elements shall have a fire resistance rating not less than that specified in Table 601 and exterior walls shall have a fire-resistance rating not less than that specified in Table 602. Where required to have a fire-resistance rating by Table 601, Section 602 Construction Classification building elements shall comply with the applicable provisions of Section 703.2. The protection of openings, ducts and air transfer openings in building elements shall not be required unless required by other provisions of this code.

602.1.1 Minimum Requirements

A building or portion thereof shall not be required to conform to the details of a type of construction higher than that type

which meets the minimum requirements based on occupancy even though certain features of such a building actually conform to a higher type of construction.

602.2 Types I and II

Types I and II construction are those types of construction in which the building elements listed in Table 601 are of noncombustible materials, except as permitted in Section 603 and elsewhere in this code.

603.1 Allowable Materials

Combustible materials shall be permitted in buildings of Type I or II construction in the following applications and in accordance with sections 603.1.1 through 603.1.3.

TABLE 504.3

BUILDING ELEMENT	TYPE OF CONSTRUCTION											
	TYPE I		TYPE II		TYPE III		TYPE IV				TYPE V	
	A	B	A	B	A	B	A	B	C	HT	A	B
PRIMARY STRUCTURAL FRAME ^f (see Section 202)	3 ^{a,b}	2 ^{a,b,c}	1 ^{b,c}	0 ^c	1 ^{b,c}	0	3 ^a	2 ^a	2 ^a	HT	1 ^{b,c}	0
BEARING WALLS												
EXTERIOR ^{e,f}	3	2	1	0	2	2	3	2	2	2	1	0
INTERIOR	3 ^a	2 ^a	1	0	1	0	3	2	2	1/HT ^g	1	0
NON-BEARING WALLS + PARTITIONS interior	0	0	0	0	0	0	0	0	0	see section 2304.11.2	0	0
FLOOR CONSTRUCTION + ASSOCIATED SECONDARY STRUCTURAL MEMBERS	2	2	1	0	1	0	2	2	2	HT	1	0
FLOOR CONSTRUCTION + ASSOCIATED SECONDARY STRUCTURAL MEMBERS	1.5 ^b	1 ^{b,c}	1 ^{b,c}	0 ^c	1 ^{b,c}	0	1.5	1	1	HT	1 ^{b,c}	0

FOR SI: 1 foot = 304.8 mm.
^a Roof supports. Fire-resistance rating of primary structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.
^b Except in Group F-1, U/LM, and S-1 occupancies, fire protection of structural members in roof construction shall not be required, including protection of primary structural frame members, roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.
^c In all occupancies heavy timber complying with Section 2304.11 shall be allowed for roof construction, including primary structural frame members, where a 1-hour or less fire-resistance rating is required.
^d Not less than the fire-resistance rating required by other sections of this code.
^e Not less than the fire-resistance rating based on fire separation distance (see Table 705.5).
^f Not less than the fire-resistance rating as referenced in Section 704.30.
^g Heavy timber bearing walls supporting more than two floors or more than a floor and a roof shall have a fire resistance rating of not less than 1 hour.

1.Fire-retardant wood shall be permitted in:

1.1Nonbearing partitions where the required fire-resistance rating is 2 hours or less

1.2Nonbearing exterior walls where fire-resistance rated construction is not required.

1.3Roof construction, including girders, trusses, framing and decking

Exceptions:

1.In buildings of Type IA construction exceeding two stories above grade plane, fire-retardant treated wood is not permitted in roof construction where the vertical distance from the upper floor to

the roof is less than 20 feet

1.4Balconies, porches, decks and exterior stairways not used as required exits on building three stories or less above grade plane.

2.Thermal and acoustical insulation, other than foam plastics, having a flame spread index of not more than 25.

Exceptions:

1.Insulation placed between two layers of noncombustible materials without an intervening airspace shall be allowed to have a flame spread index of not more than 100.

2.Insulation installed between a finished floor and a solid decking without

intervening airspace shall be allowed to have a flame spread index of not more than 200.

3.Foam Plastics in accordance with Chapter 26

4.Roof coverings that have an A, B, or C classification.

5.Interior floor finish and floor covering materials installed in accordance with Section 804.

6.Millwork such as doors, door frames, window sashes and frames.

7. Interior Wall and ceiling finishes installed in accordance with Section 803.

8.Trim installed in accordance with Section 806.

9. Where not installed greater than 15 feet above grade, show windows nailing or furring strips and wooden bulkheads below show windows, including their frames, aprons, and show cases.

10. Finish flooring installed in accordance with Section 805.

11. Partitions dividing portion of stores, offices, or similar places occupied by one tenant only and that do not establish a corridor serving an occupant load of 30 or more shall be permitted to be constructed of fire retardant treated wood, 1-hour fire resistance rated construction of wood panels or similar light construction up to 6 feet in height.

12. Stages or platforms constructed in accordance with Sections 410.2 and 410.3, respectively.

13. Combustible exterior wall coverings, balconies and similar projections and bay or oriel windows in accordance with Chapter 14 and Section 705.2.3.1.

14. Blocking such as for handrails, millwork, cabinets, and window and door frames.

15. Light-transmitting plastics as permitted by Chapter 26.

16. Mastics and caulking materials applied to provide flexible seals between components of exterior wall construction.

17. Exterior plastic veneer installed in accordance with Section 2605.2

18. Nailing or furring strips as permitted by Section 803.15.

19. Heavy timber as permitted by Note c to Table 601 and Sections 602.4.4.4 and 705.2.3.1.

20. Aggregates, component materials and admixtures as permitted by Section 703.2.1.2.

21. Sprayed fire-resistant materials and intumescent and mastic fire-resistant

coatings, determined on the basis of fire resistance test in accordance with Section 703.2 and installed in accordance with Sections 1705.15 and 1705.16, respectively.

22. Materials used to protect penetrations in fire resistance rated assemblies in accordance with Section 714.

23. Materials used to protect joints in fire resistance rated assemblies in accordance with Section 715.

24. Materials allowed in the concealed spaces of buildings of Types I and II construction in accordance with Section 718.5.

25. Materials exposed with plenums complying with Section 602 of the International Mechanical Code.

26. Wall construction of freezers and coolers of less than 12,000 square feet, in size, lines on both sides with noncombustible materials and the building is protected throughout with automatic sprinklers system in accordance with Section 903.1.1.

27. Wood nailers for parapet flashing and roof cants.

07 | Fire + Smoke Protection Features

701.1 Scope

The provisions of this chapter shall govern the materials, systems and assemblies used for structural fire resistance and fire resistance-rated construction separation of adjacent spaces to safeguard against the spread of fire and smoke within a building and the spread of fire to or from buildings.

703 Fire Resistance Ratings + Fire Tests

703.1 Scope

Materials prescribed herein for fire resistance shall conform to the requirements of this chapter.

703.2 Fire-Resistance Ratings

The fire-resistance rating of building elements, components or assemblies shall be determined in accordance with the test procedures set forth in ASTM E119 or UL 263 or in accordance with Section 703.3. The fire resistance rating of penetrations and fire-resistant joint systems shall be determined in accordance Sections 714 and 715, respectively.

703.2.2 Combustible Components

Combustible aggregates are permitted in gypsum and Portland cement concrete mixtures for fire-resistance-rated construction. Any component material of admixture is permitted in assemblies if the resulting tested assembly meets the fire resistance test requirements of this code.

703.2.1.4 Supplemental Features

Where materials, systems or devices that have not been tested as part of a fire-resistance-rated assembly are incorporated into the building element, component or assembly, sufficient data shall be made available to the building official to show that the required fire resistance- rating is not reduced.

703.2.2 Analytical Methods

The application of any of the methods listed in this section shall be based on the fire exposure and acceptance criteria specified in ASTM E119 or UL263. The required fire resistance of a building element, component or assembly shall be permitted to be established by any of the following methods or procedures:

1. Fire-resistance designs documented in approved sources.

2. Prescriptive designs of fire-resistance building elements, components or assemblies as prescribed in Section 721.

3. Calculations in accordance with Section 722.4. Engineering analysis based on comparison of building element, component or assemblies designs having fire-resistance ratings as determined by

TABLE 716.1 (1)

FIRE TEST STANDARD	MARKING	DEFINITION OF MARKING
ASTM E119 OR UL 263	W	Meets wall assembly criteria
ASTM E119 OR UL 263	FC	Meets floor/ceiling criteria ^a
NFPA 257 OR UL 9	OH	Meets fire window assembly criteria including hose stream test
NFPA 252 OR UL 10B OR UL 10C	D	Meets fire door assembly criteria
	H	Meets fire door assembly hose stream test
	T	Meets 450°F temperature rise criteria for 30 minutes
	XXX	The time in minutes of the fire resistance or fire protection rating of the glazing assembly

FOR SI: °C = (°F) - 32/1.8
^a See Section 2409.1

the test procedures set forth in ASTM E119 or UL 263.5. Alternative protection methods allowed by Section 104.11.6. Fire-resistance designs certified by an approved agency.

703.3 Noncomputability Tests

The tests indicated in Sections 703.51 and 703.5.2 shall serve as criteria for acceptance of building materials as set forth in Sections 602.2, 602.3 and 602.4 in Types I, II, III and IV construction. The term “noncombustible” does not apply to the flame spread characteristic of interior finish or trim materials. A material shall not be classified as a noncombustible building construction material if it is subject to an increase in combustibility or flame spread beyond the limitations herein established through the effects of age, moisture, or other atmospheric conditions.

703.3 Noncombustible Materials

Materials required to be noncombustible shall be tested in accordance with ASTM E136. Alternately, materials required to be noncombustible shall be tested in accordance with ASTM E2652 using the acceptance criteria prescribed by ASTM E136.

Exception: Materials having a structural base of noncombustible material as determined in accordance with ASTM

E136, or with ASTM E2652 using the acceptance criteria prescribed by ASTM E136, with a surfacing of not more than 0.125 inch in thickness having a flame spread index not greater than 50 when tested in accordance with ASTM E84 or UL 723 shall be acceptable as noncombustible.

703.4 Fire-Resistance-Rated Glazing

Fire-resistance-rated glazing, when tested in accordance with ASTM E119 or UL 263 and complying with the requirements of Section 707, shall be permitted. Fire-resistance-rated glazing shall bear a label marked in accordance with Table 716.1(1) issued by an agency and shall be permanently identified on the glazing.

703.5 Marking and Identification

Where there is an accessible concealed floor, floor-ceiling or attic space, fire walls, fire barriers, fire partitions, smoke barriers and smoke partitions or any other wall required to have protected openings or penetrations shall be effectively and permanently identified with signs or stenciling in the concealed space. Such identification shall:

1. Be located within 15 feet of the end of each wall and at intervals not exceeding 30 feet measured horizontally along the wall or partition.
2. Include lettering not less than 3 inches in height with a minimum 3/8" stroke

in a contrasting color incorporating the suggested wording, “FIRE AND/OR SMOKE BARRIER- PROTECT ALL OPENINGS,” or other wording.

704 Fire-Resistance Rating of Structural Members

704.1 Requirements

The fire resistance ratings of structural members and assemblies shall comply with this section and the requirements for the type of construction as specified in Table 601. The fire resistance ratings shall be not less than the ratings required for the fire resistance rated assemblies supported by the structural members.

704.2 Column Protection

Where columns are required to have protection to achieve a fire-resistance rating, the entire column shall be provided individual encasement protection by protecting it on all sides for the full column height, including connections to other structural members, with materials having the required fire-resistance rating. Where the column extends through a ceiling, the encasement protection shall be continuous from the top of the foundation of floor/ceiling assembly below through the ceiling space to the top of the column. Exception: columns that meet the limitations of Section 704.4.1.

704.3 Protection of the Primary Structural

Frame other than Columns

Members of the primary structural frame other than columns that are required to have protection to achieve a fire resistance rating and support more than two floors or one floor and roof, or support a load-bearing wall or a non-loadbearing wall more than two stories high, shall be provided encasement protection by protecting them on all sides for the full length, including connections to other structural members, with materials having the required fire-resistance rating. Exception: individual encasement protection on all sides shall be permitted on all exposed sides provided that the extent of protection is in accordance with the required fire-resistance rating, as determined in Section 703.

704.4 Protection of Secondary Structural Members

Secondary members of that are required to have protection to achieve a fire resistance ratings shall be protected by individual encasement protection.

704.4.1 Light Frame Construction

Studs, columns and boundary elements that are integral element sin walls of light-frame construction and are located entirely between the top and bottom plates or tracks shall be permitted to have required fire-resistance ratings provided by the membrane protection provided for the wall.

704.4.2 Horizontal Assemblies

Horizontal assemblies are permitted to be protected with a membrane or ceiling where the membrane or ceiling provides the required fire-resistance rating and is installed in accordance with Section 711.

704.5 Truss Protection

The required thickness and construction of fire-resistance rated assemblies enclosing trusses shall be based on the results of full-scale tests or combinations

of tests on truss components or on approved calculations based on such tests that satisfactorily demonstrate that the assembly has the required fire resistance.

704.10 Exterior Structural Members

Load-bearing structural members located within the exterior walls or on the outside of a building or structure shall be provided with the highest fire-resistance rating as determined in accordance with the following:

1. As required by Table 601 for the type of building element based on the type of construction of the building
2. As required by Table 601 for the exterior bearing walls based on the type of construction
3. As required by Table 602 for exterior walls based on the fire separation distance.

704.13 Sprayed Fire-Resistant Materials

Sprayed fire-resistant materials shall comply with Sections 704.13.1 through 704.13.5.

706 Fire Walls

706.1 General

Fire walls shall be constructed in accordance with Sections 706.2 through 706.11. The extent and location of such fire walls shall provide a complete separation. Where a fire wall separates occupancies that are required to be separated by a fire barrier wall, the most restrictive requirements of each separation shall apply.

706.1.1 Party Walls

Any wall located on a lot line between adjacent buildings, which is used or adapted for joint service between the two buildings, shall be constructed as a fire wall in accordance with Section 706. Party walls shall be constructed without openings and shall create separate buildings.

706.2 Structural Stability

Fire walls shall be designed and constructed to allow collapse of the structure on either side without collapse of the wall under fire conditions. Fire walls designed and constructed in accordance with NFPA 221 shall be deemed to comply with this section.

706.3 Materials

Fire walls shall be of any approved noncombustible materials.

706.4 Fire-Resistance Rating

Fire walls shall have the fire-resistance rating of not less than the required by Table 706.4 Groups A & B should have fire resistance rating of 3 hours.

706.8 Openings.

Each opening through a fire wall shall be protected in accordance with Section 716 and shall not exceed 156 square feet. The aggregate width of openings at any floor level shall not exceed 25 percent of the length of the wall.

706.9 Penetrations

Penetrations of fire walls shall comply with Section 714.

Section 707 Fire Barriers

707.1 General

Fire barriers installed as required elsewhere in this code or the International Fire Code shall comply with this section.

707.2 Materials

Fire barriers shall be of materials permitted by the building type of construction.

707.3 Fire-Resistance Rating

The fire-resistance rating shall comply with this section.

707.3.2 Interior Exit Stairway and Ramp Construction.

TABLE 706.4

GROUP	FIRE-RESISTANCE RATING (HRS)
A, B, E, H-4, I, R-1, R-2, U	3 ^a
F-1, H-30, H-5, M, S-1	3
H-1, H-2	4 ^b
F-2, S-2, R-3, R-4	2

a. In Type II or V construction, walls shall be permitted to have a 2-hour fire-resistance rating.
b. For Group H-1, H-2, or H-3 buildings, also see Sections 415.7 and 415.8.

The fire-resistance rating of the fire barrier separating building areas from an interior exit stairway or map shall comply with Section 1023.1

707.3.3 Enclosures for Exit Access Stairways.

The fire-resistance rating of the fire barrier separating building areas from an exit access stairway or ramp shall comply with Section 713.4.

707.3.7 Enclosures for Exit Access Stairways

The fire barrier separating incidental uses from other spaces in the building shall have a fire-resistance rating of not less than that indicated in Table 509.

707.3.9 Separated Occupancies

Where the provisions of Section 508.4 are applicable, the fire barrier separating mixed occupancies shall have fire resistance rating of not less than that indicated in Table 508.4 based on the occupancies being separated.

707.3.10 Fire Areas.

The fire barriers, fire walls or horizontal assemblies, or combination thereof, separating a single occupancy into different fire areas shall have a fire resistance rating of not less than that indicated in Table 707.2.10. The fire barriers, fire walls, or horizontal assemblies, or combination thereof, separating fire areas of mixed occupancies shall have a fire-resistance rating of not less than the highest value indicated in Table 707.3.10 for the occupancies under

consideration. Occupancy Group A & B, fire resistance rating is 2 hours.

707.6 Openings

Openings in a fire barrier shall be protected in accordance with Section 716. Openings shall be limited to a maximum aggregate width of 25% of the length of the wall, and the maximum area of any single opening shall not exceed 156 square feet. Openings in enclosures for exit access stairways and ramps, interior exit stairways and ramps and exit passageways shall also comply with Sections 1019, 1023.4 and 1024.5, respectively.

08 | Interior Finishes

801.1 Scope

The provisions of this chapter shall govern the use of materials used as interior finishes, trim and decorative materials.

802 General

802.1 Interior Wall and Ceiling Finish.

The provisions of Section 803 shall limit the allowable fire performance and smoke development of interior wall and ceiling finish materials based on occupancy classification.

802.2 Interior Floor Finish

The provisions of Section 804 shall limit the allowable fire performance of interior floor finish materials based on occupancy classification.

802.3 Decorative Materials and Trim

Decorative materials and trim shall be restricted by combustibility, fire

performance or flame propagation performance criteria in accordance with Section 806

802.5 Application

Combustible materials shall be permitted to be used as finish for walls, ceilings, floors and other interior surfaces of buildings.

802.6 Windows.

Show windows in the exterior walls of the first story above grade plane shall be permitted to be of wood or of unprotected metal framing.

802.7 Foam Plastics

Foams plastics shall not be used as interior finish except as provided in. Section 803.4. Foam plastics shall not be used as interior trim except as provided in Section 806.5 or 2604.2. This section shall apply both to exposed foam plastics and to foam plastics used in conjunction with a textile or a vinyl facing or cover.

803 Wall and Ceiling Finishes

803.1 General

Interior wall and ceiling finish materials shall be classified for fire performance and smoke development in accordance with Section 803.1.1 or 803.1.2, except as shown in Sections 803.1.3 through 803.15. Materials tested in accordance with Section 803.1.1 shall not be required to be tested in accordance with Section 803.1.2.

803.1.1 Interior Wall and Ceiling Finish Materials Tested in Accordance with NFPA 28

Interior wall and ceiling finish materials shall be classified in accordance with NFPA 286 and comply with Section 803.1.1.1. Materials complying with Section 803.1.1.1 shall be considered to also comply with the requirements of Class A

803.1.1.1 Acceptance Criteria for NFPA 286

The interior finish shall comply with the following:

1. During the 40kW exposure, flames shall not spread to the ceiling
2. The Flame shall not spread to the outer extremity of the sample on any wall or ceiling
3. Flashover, as defined in NFPA 286 shall not occur
4. The peak heat release rate throughout the test shall not exceed 800 kW
5. The total smoke released throughout the test shall not exceed 1,000m²

803.1.2 Interior Wall and Ceiling Finish Materials Tested in Accordance with STM E84 or UL 723

Interior wall and ceiling finish materials shall be classified in accordance with ASTM E84 or UL 723. Such interior finish materials shall be grouped in the following classes in accordance with their flame spread and smoke-developed indices.

Class A = Flame spread index 0-25; smoke-developed index 0-450.

Class B = Flame spread index 26-75; smoke-developed index 0-450.

Class C = Flame spread index 76- 200; smoke-developed index 0-450.

Exception: Materials indicated in Sections 803.2 through 803.13 shall be tested as indicated in the corresponding sections.

803.2 Thickness Exemption

Materials having a thickness less than 0.036 inch applied directly to the surface of walls or ceilings shall not be required to be tested.

803.4 Foam Plastics.

Foam plastics shall not be used as interior finish except as provided in Section 2603.9. This section shall apply both to exposed foam plastics and to foam plastic used in

conjunction with a textile or vinyl facing or cover.

803.5 Textile Wall Coverings

Where used as interior wall finish materials, textile wall coverings, including materials having woven or nonwoven, napped, tufted, looped or similar surface and carpet and similar textile materials, shall be tested in the manner intended for use, using the product mounting system, including adhesive, and shall comply with the requirements of Section 803.1.1, 803.5.1 or 803.5.2

803.5.1 Room Corner Test or Textile Wall Coverings and Expanded Vinyl Wall Coverings

Textile wall coverings and expanded vinyl wall coverings shall meet the criteria of Section 803.5.1.1 when tested in the manner intended for use in accordance with the Method B protocol of NFPA 265 using the product-mounting system, including adhesive.

803.6 Textile Ceiling Coverings.

Where used as interior ceiling finish materials, textile ceiling coverings, including materials having woven or nonwoven, napped, tufted, looped or similar surface and carpet and similar textile materials, shall be tested in the manner intended for use, using the product-mounting system, including adhesive, and shall comply with the requirements of Section 803.1.1 or 803.5.2.

803.11 Laminated Products Factory Produced with a Wood Substrate

Laminated products factory produced with a wood substrate shall comply with one of the following:

1. The laminated product shall meet the criteria of Section 803.1.1.1 when tested in accordance with NFPA 286 using the product-mounting system, including adhesive, as described in Section 5.8 of NFPA

2. The laminated product shall have a Class A, B, or C flame spread index and smoke-developed index, based on the requirements of Table 803.13, in accordance with ASTM E84 or UL 723. Test specimen preparation and mounting shall be in accordance with ASTM E2579

803.14 Stability

Interior finish materials regulated by this chapter shall be applied or otherwise fastened in such a manner that such materials will not readily become detached where subjected to room temperatures of 200F for not less than 30 minutes.

803.15 Application of Interior Finish Materials to Fire-Resistance-Rated or Noncombustible Building Elements

Where interior finish materials are applied on walls, ceilings or structural elements required to have a fire resistance rating or to be of noncombustible construction, these finish materials shall comply with the provisions of this section.

803.15.1 Direct Attachment and Furred Construction

Where walls, ceilings, or structural elements are required by any provision in this code to be of fire resistance-rated or noncombustible construction, the interior finish material shall be applied directly against such construction or to furring strips not exceeding 1 ¾ inches, applied directly against surfaces.

803.15.2 Set-Out Construction

Where walls and ceilings are required to be of fire-resistance-rated or noncombustible construction and walls are set out or ceilings are dropped distances greater than specified in Section 803.15.1. Class A finish materials, in accordance with Section 803.1 or 803.1.2 shall be used.

803.15.3 Materials

An interior wall or ceiling finish material that is not more than ¼ inch thick shall

be applied directly onto the wall, ceiling, or structural element without the use of furring strips and shall not be suspended away from the building element to which that finish material is applied.

Exceptions:

1. Noncombustible interior finish materials
2. Materials that meet the requirements of Class A materials in accordance with Section 803.1.1 or 803.1.2 where the qualifying tests were made with the material furred out from the noncombustible backing shall be permitted to be used with furring strips.
3. Materials that meet the requirements of Class A materials in accordance with Section 803.1.1 or 803.1.2 where the qualifying tests were made with the material suspended away from the noncombustible backing shall be permitted to be used suspended away from the building element.

Section 804 Interior Floor Finish

804.1 General

Interior floor finish and floor covering materials shall comply with Sections 804.2 through 804.4.2. Exception: Floor finishes and coverings of a traditional type, such as wood, vinyl, linoleum or terrazzo, and resilient floor covering materials that are not comprised of fibers.

804.2 Classification

Interior floor finish and floor covering materials required by Section 804.4.2 to be of Class I or II materials shall be classified in accordance with ASTM E648 or NFPA 253. The classification referred to herein corresponds to the classifications determined by ASTM E648 NFPA 253 as follows: Class I, 0.45 watts/cm² or greater; Class II, 0.22 watts/cm² or greater.

804.3 Testing and Identification

Interior floor finish and floor covering materials shall be tested by an agency in accordance with ASTM E648 or NFPA 253 and identified by a hang tag or other suitable method so as to identify the manufacturer or supplier and style, and shall indicate the interior floor finish or floor covering classification in accordance with Section 804.2. Carpet-type floor coverings shall be tested as proposed for use, including underlayment. Test reports confirming the information provided in the manufacturer's product identification shall be furnished to the building official upon request.

804.4 Interior Floor Finish Requirements

Interior floor covering materials shall comply with Sections 804.4.1 and 804.4.2 and interior floor finish materials shall comply with Section 804.4.2.

Section 805 Combustible Materials in Types I and II Construction

805.1 Application

Combustible materials installed on or embedded in floors of buildings of Type I or II construction shall comply with Sections 805.1.1 through 805.1.3.

805.1.2 Wood Finish Flooring

Wood finish flooring is permitted to be attached directly to the embedded or fireblocked wood sleepers and shall be permitted where cemented directly to the top surface of fire resistance rated floor assemblies or directly to a wood subfloor attached to sleepers as provided for Section 805.1.1

Section 806 Decorative Materials and Trim

806.1 General

The following requirements shall apply to all occupancies:

1. Furnishings or decorative materials of an explosive or highly flammable

character shall not be used.

2. Fire-retardant coatings in existing buildings shall be maintained so as to retain the effectiveness of the treatment under service conditions encountered in actual use.

3. Furnishings or other objects shall not be placed to obstruct exits, access thereto, egress therefrom or visibility thereof.

4. The permissible amount of decorative vegetation and noncombustible decorative materials shall not be limited.

806.2 Combustible Decorative Materials

In groups A,B, E, I, M and R-1 and in dormitories in Group R-2, curtains, draperies, fabric hangings and similar combustible decorative materials suspended from walls or ceilings shall comply with Section 806.4 and shall not exceed 10 percent of the specific wall or ceiling area to which such materials are attached.

Fixed or movable walls and partitions, paneling, wall pads and crash pads applied structurally or - for decoration, acoustical correction, surface insulation or other purposes shall be considered to be interior finish, shall comply with Section 803 and shall not be considered to be decorative materials or furnishings.

806.3 Occupancy-Based Requirements

Occupancy-based requirements for combustible decorative materials, other than decorative vegetation, not complying with Section 806.4 shall comply with Sections 807.5.1 through 807.5.6 of the International Fire Code.

806.5 Foam Plastic

Foam plastic used as trim in any occupancy shall comply with Section 2604.2

806.7 Interior Trim

Material, other than foam plastic used as interior trim, shall have a minimum Class

C flame spread and smoke-developed index when tested in accordance with ASTM E84 or UL 723, as described in Section 803.1.2. Combustible trim, excluding handrails and guardrails, shall not exceed 10 percent of the specific wall or ceiling area to which it is attached.

806.8 Interior Floor-Wall Base

Interior floor-wall base that is 6 inches or less in height shall be tested in accordance with Section 804.2 and shall not be less than Class II. Where a Class I floor finish is required, the floor-wall base shall be Class 1. Exception: Interior trim materials that comply with Section 806.7.

806.9 Combustible Lockers

Where lockers constructed of combustible materials are used, the lockers shall be considered to be interior finish and shall comply with Section 803.

Exception: Lockers constructed entirely of wood and on combustible materials shall be permitted to be used wherever interior finish materials are required to meet a Class C classification in accordance with Section 803.1.2.

Section 807 Insulation

807.1 Insulation

Thermal and acoustical insulation shall comply with Section 720 Section 808 Acoustical Ceiling Systems.

808.1 Acoustical Ceiling Systems

The quality, design, fabrication, and erection of metal suspension systems for acoustical tile and lay-in panel ceilings in buildings or structures shall conform to generally accepted engineering.

practice, the provisions of this chapter and other applicable requirements of this code.

808.1.1 Materials and Installation

Acoustical materials complying with the

interior finish requirements of Section 803 shall be installed in accordance with the manufacturers recommendations and applicable provisions for applying interior finish.

808.1.1.1 Suspended Acoustical Ceilings

Suspended acoustical ceiling systems shall be installed in accordance with the provisions of ASTM C635 and ASTM C636.

808.1.1.2 Fire Resistance Rated Construction

Acoustical ceiling systems that are part of a fire-resistance-rated construction shall be installed in the same manner used in the assembly tested and shall comply with the provisions of Chapter 7.

09 | Fire Protection and Life Safety Systems

901 General

901.1 Scope

The provisions of this chapter shall specify where fire protection and life safety systems are required and shall apply to the design, installation and operation of fire protection systems.

901.2 Fire Protection Systems

Fire protection systems shall be installed, repaired, operated, and maintained in accordance with this code and the International Fire Code Any fire protection system for which an exception or reduction to the provisions of this code has been granted shall be considered to be a required system. 901.7 Fire areas. Where buildings, or portions thereof, are divided into fire areas so as not to exceed the limits established for requiring a fire protection system in accordance with this chapter, such fire areas shall be separated by fire walls constructed in accordance with Section 706. Fire barriers constructed in accordance with Section 707, or horizontal assemblies constructed in accordance with Section 711, or a combination thereof

having a fire-resistance rating of not less than that determined in accordance with Section 707.3.10.

901.6.1 Automatic Sprinkler Systems

Automatic sprinkler systems shall be monitored by an approved supervising station.

901.6.2.2 Smoke Control Systems

Where a fire alarm system is integrated with a smoke control system as outlined in Section 909, integrated testing shall comply with NFPA 4, with an integrated test performed prior to issuance of the certificate of occupancy and at intervals not exceeding 10 years, unless otherwise specified by an integrated system test plan prepared in accordance with NFPA 4. If an equipment failure is detected during integrated testing, a repeat of the integrated test shall not be required, except as necessary to verify operation of fire protection or life safety function that are initiated by equipment that was repaired or replaced.

901.6.3 Fire Alarm Systems

Fire alarm systems required by the provisions of Section 907.2 of this code and Section 907.2 and 907.9 of the International Fire Code shall be monitored by an approved supervising station in accordance with Section 907.6.6 of this code.

Section 903 Automatic Sprinkler

903.1 General

Automatic sprinkler systems shall comply with this section. 903.1.1 Alternative protection Alternative automatic fire-extinguishing systems complying with Section 904 shall be permitted instead of automatic sprinkler protection where recognized by the applicable standard and approved by the fire code official.

903.2 Where Required

TABLE 906.3 (1)

TYPE OF HAZARD	BASIC MINIMUM EXTINGUISHER RATING	MAXIMUM DISTANCE OF TRAVEL TO EXTINGUISHERS (FT)
LIGHT (LOW)	5-B	30
	10-B	50
ORDINARY (MODERATE)	10-B	30
	20-B	50
EXTRA (HIGH)	40-B	30
	80-B	50

FOR 5½: 1 inch = 25.4 MM, 1 Foot = 304.8 MM.
a. For requirements on water-soluble flammable liquids and alternative sizing criteria, see Section 5.5 of NFPA 10.

Approved automatic sprinkler systems in new buildings and structures shall be provided in the locations described in Sections 903.2.1 through 903.2.12.

903.2.1.2 Group A-2

An automatic sprinkler system shall be provided throughout stories containing Group A-2 occupancies and throughout all stories from the Group A-2 occupancy to and including the levels of exit discharge serving that occupancy where one of the following conditions exists:

1. The fire area exceeds 5,000 square feet (464 m²).
2. The fire area has an occupant load of 100 or more.
3. The fire area is located on a floor other than a level of exit discharge serving such occupancies.

903.2.1.3 Group A-3

An automatic sprinkler system shall be provided throughout stories containing Group A-3 occupancies and throughout all stories from the Group A-3 occupancy to and including the levels of exit discharge serving that occupancy where one of the following conditions exists:

1. The fire area exceeds 12,000 square feet (1115m²).
2. The fire area has an occupant load of 300 or more.

3. The fire area is located on a floor other than a level of exit discharge serving such occupancies.

903.2.11.5 Commercial Cooking Operations

An automatic sprinkler system shall be installed in commercial kitchen exhaust hood and duct systems where an automatic sprinkler system is used to comply with Section 904.

Section 906 Portable Fire Extinguishers

906.1 Where required

Portable fire extinguishers shall be installed in all of the following locations:

1. In group A, B, E, F, H, I, M, R-1, R-4, and S occupancies
2. Within 30 feet distance of travel from commercial cooking equipment

906.2 General Requirements

Portable fire extinguishers shall be selected and installed in accordance with this section and NFPA 10

906.3 Size and Distribution

The size and distribution of portable fire extinguishers shall be in accordance with Sections 906.3.1 through 906.3.4.

906.3.1 Class A Fire Hazards

The minimum sizes and distribution of

portable fire extinguishers for occupancies that involve primarily Class A fire hazards shall comply with Table 906.3(1).

906.4 Cooking Equipment Fires

Fire extinguishers for the protection of cooking equipment shall be of an approved type of compatible with the automatic fire-extinguishing system agent. Cooking equipment involving solid fuels or vegetable or

animal oils and fats shall be protected by Class K-rated portable extinguishers in accordance with Sections 906.1, Item 2, 906.4.2 of the International Fire Code, as applicable.

906.5 Conspicuous Location

Portable fire extinguishers shall be located in conspicuous locations where they will have ready access and be immediately available for use. These locations shall be along normal paths of travel, unless the fire code official determines that the hazard posed indicates the need for placement away from normal paths of travel.

906.6 Unobstructed and Unobscured

Portable fire extinguishers shall not be obstructed or obscured from view. In rooms or areas in which visual obstruction cannot be completely avoided, means shall be provided to indicate the locations of extinguishers.

906.8 Cabinets

Cabinets used to house portable fire extinguishers shall not be locked.

906.9 Extinguisher Installations

The installation of portable fire extinguishers shall be in accordance with Sections 906.9.1 through 906.9.3

906.9.1 Extinguishers Weighing 40 lbs or Less

Portable fire extinguishers having a gross weight not exceeding 40 pounds shall be installed so that their tops are not more than 5' above the floor.

906.9.2 Extinguishers Weighing More Than 40 lbs

Hand-held portable fire extinguishers having a gross weight exceeding 40 pounds shall be installed so that their tops are not more than 3.5 feet above the floor.

906.9.3 Floor Clearance

The clearance between the floor and the bottom of installed handheld portable fire extinguishers shall not be less than 4 inches.

Section 907 Fire Alarm and Detection System

907.1 General

This section covers the application, installation, performance and maintenance of fire alarm systems and their components.

907.1.1 Construction Documents

Construction documents for fire alarm systems shall be of sufficient clarity to indicate the location, nature and extend of the work proposed and show in detail that it will conform to the provisions of this code, the International Fire Code and relevant laws, ordinances, rules and regulations, as determined by the fire code official.

907.2.1 Group A

A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group A occupancies where the occupant load due to the assembly occupancy is 300 or more, or where the Group A occupant load is more than 100 persons above or below the lowest level of exit discharge. Group A occupancies not separated from one another in accordance with Section 707.3.10 shall be considered as a single occupancy for the purposes of applying this section. Portions of Group E occupancies occupied for assembly purposes shall be provided with a fire alarm system as required for the Group E occupancy. Exception: Manual fire alarm boxes are not required where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 and the occupant notification appliances will activate throughout the notification zones upon sprinkler water flow.

907.2.2 Group B

A manual fire alarm system shall be installed in Group B occupancies where one of the following conditions exists:

1. The combined Group B occupant load of all floors is 500 or more
2. The Group B occupant load is more than 100 persons above or below the lowest level of exit discharge

Exception: Manual fire alarm boxes are not required where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.1.1.1 and the occupant notification appliances with activate throughout the notification zones upon sprinkler water flow.

907.2.10.3 Installation Near Cooking Appliances

Smoke alarms shall not be installed in the following locations unless this would prevent placement of a smoke alarm in a

location required by Section 907.2.10.1 or 907.2.10.2

1. Ionization smoke alarms shall not be installed less than 20 feet horizontally from a permanently installed cooking appliance
2. Ionization smoke alarms with an alarm silencing switch shall not be installed less than 10 feet horizontally from a permanently installed cooking appliance
3. Photoelectric smoke alarms shall not be installed less than 6 feet horizontally from a permanently installed cooking appliance

907.3 Fire Safety Functions

Automatic fire detectors utilized for the purpose of performing fire safety functions shall be connected to the building's fire alarm control unit where a fire alarm system is required by Section 907.2. Detectors shall, upon actuation, perform the intended function and activate the alarm notification appliance or activate a visible and audible supervisory signal at a constantly attended location. In buildings not equipped with a fire alarm system. The automatic fire detector shall be powered by normal electrical service and, upon actuation, perform the intended function. The detectors shall be located in accordance with NFPA 72.

907.3.1 Dust Smoke Detectors

Smoke detectors installed in ducts shall be listed for the air velocity, temperature, and humidity present in the duct. Duct smoke detectors shall be connected to the building's fire alarm control until where a fire alarm system is required by Section 907.2. Activation of a duct smoke detector shall initiate a visible and audible supervisory signal at a constantly attended location and shall perform the intended fire safety function in accordance with this code and the International Mechanical Code. In facilities that are required to be monitored by a supervising station, duct smoke detectors shall report only as a

supervisory signal and not as a fire alarm. They shall not be used as a substitute for required open area detection. 907.3.3 Elevator emergency operation Automatic fire detectors installed for elevator operation shall be installed in accordance with the provisions of ASME A17.1/CSA B44 and NFPA 72.

907.3.3 Elevator Emergency Operation

Automatic fire detectors installed for elevator emergency operation shall be installed in accordance with the provisions of ASME A17.1/CSA B44 and NFPA 72.

907.5 Occupant Notification

Occupant notification by fire alarms shall be in accordance with Sections 907.5.1 through 907.5.2.3.3.

Upon activation, a fire alarm system shall initiate occupant notification and shall annunciate at the fire alarm control unit, or where allowed elsewhere by Section 907, at a constantly attended location.

907.5.2.1 Audible Alarms

Audible alarm notification appliances shall be provided and emit a distinctive sound that is not to be used for any purpose other than that of a fire alarm.

907.5.2.1.1 Average Sound Pressure

The audible alarm notification appliances shall provide a sound pressure level of 15 decibels (dBA) above the average ambient sound level or 5dBA above the maximum sound level having a duration of not less than 60 seconds, whichever is greater, in every occupiable space within the building.

907.5.2.1.2 Maximum Sound Pressure

The maximum sound pressure level for audible alarm notification appliances shall be 110 dBA at the minimum hearing distance from the audible appliance. Where the average ambient noise is greater than 95dBA, visible alarm

notification appliances shall be provided in accordance with NFPA 72 and audible alarm notification appliances shall not be required.

907.5.2.2 Emergency Voice/Alarm Communication Systems

Emergency voice/alarm communication systems required by this code shall be designed and installed in accordance with NFPA 72. The operation of any automatic fire detector, sprinkler waterflow device or manual fire alarm box shall automatically sound an alert tone followed by voice instruction giving approved information and directions for a general or staged evacuation in accordance with the building's fire safety and evacuation plans required by Section 404 of the International Fire Code. In high-rise buildings, the system shall operate on at least the alarming floor, the floor above and the floor below. Speakers shall be provided throughout the building by paging zones. At minimum, paging zones shall be provided as follows:

- 1.Elevator groups
- 2.Interior exit stairways
- 3.Each floor
- 4.Area of refuge as defined in Chapter 2

Section 915 Carbon Monoxide Detection

915.1 General

Carbon monoxide detection shall be installed in new buildings in accordance with Sections 915.1.1 through 915.6.

Carbon monoxide detection shall be installed in existing buildings in accordance with Chapter 11 of the International Fire Code.

915.4 Carbon Monoxide Alarms

Carbon monoxide alarms shall comply with Sections 915.4.1 through 915.4.4

915.4.1 Power Source

Carbon monoxide alarms shall receive their primary power from the building wiring where such wiring is served from a commercial source, and when primary power is interrupted, shall receive power from a battery. Wiring shall be permanent and without a disconnecting switch other than that is required for overcurrent protection.

915.6 Maintenance

Carbon monoxide alarms and carbon monoxide detection systems shall be maintained in accordance with the International Fire Code.

10 | Means of Egress

Section 1001 Administration

1001.1 General

Buildings or portions thereof shall be provided with a means of egress system as required by this chapter. The provisions of this chapter shall control the design, construction and arrangement of means of egress components required to provide an approved means of egress from structures and portions thereof.

1001.2 Minimum Requirements

It shall be unlawful to alter a building or number of exits or the minimum width or required capacity of the means of egress to less than required by this code.

Section 1002 Maintenance and Plans

1002.1 Maintenance

Means of egress shall be maintained in accordance with the International Fire Code.

1002.2 Fire Safety and Evacuation Plans

Fire safety and evacuation plans shall be provided for all occupancies and buildings where required by the International Fire Code. Such fire safety and evacuation plans shall comply with the applicable provisions of Sections 401.2 and 404 of the

International Fire Code.

Section 1003 General Means of Egress

1003.1 Applicability

Applicability. The general requirements specified in Sections 1003 through 1015 shall apply to all three elements of the means of egress system, in addition to those specific requirements for the exit access, the exit and the exit discharge detailed elsewhere in this chapter.

1003.2 Ceiling Height

The means of egress shall have a ceiling height of not less than 7 feet 6 inches

1. Sloped ceilings in accordance with Section 1207.2

3. Allowable projections in accordance with Section 1003.3

4. Stair headroom in accordance with Section 1011.3

5. Door height in accordance with Section 1010.1.1.

1003.3 Protruding Objects

Protruding objects on circulation paths shall comply with the requirements of Sections 1003.3.1 through 1003.3.4. 1003.3.2 Post-mounted objects A free-standing object mounted on a post or pylon shall not overhang that post or pylon more than 4 inches where the lowest point of the leading edge is more than 27 inches and less than 8 inches above the finished floor. Where a sign or other obstruction is mounted between posts or pylons and the clear distance between the posts or pylons is greater than 12 inches, the lowest edge of such sign or obstruction shall be 27 inches maximum or 8 inches minimum above the finished floor or ground.

Exception: these requirements shall not apply to sloping portions of handrails between the top and bottom riser of stairs and above the ramp run.

1003.3.3 Horizontal Projections

Objects with leading edges more than 27 inches and not more than 80 inches above the finished floor shall not project horizontally more than 4 inches into the circulation path. Exception: handrails are permitted to protrude 4 ½ inches from the wall or guard.

1003.3.4 Clear Width

Protruding objects shall not reduce the minimum clear width of accessible routes

1003.4 Slip-Resistant Surface

Circulation paths of the means of egress shall have slip-resistant surface and be securely attached.

1003.6 Means of Egress Continuity

The path of egress travel along a means of egress shall not be interrupted by a building element other than a means of egress component as specified in this chapter. Obstructions shall not be placed in the minimum width or required capacity of a means of egress component except projects permitted by this chapter. This minimum width or required capacity of a means of egress shall not be diminished along the path of egress travel.

1003.7 Elevators, Escalators and Moving Walks

Elevators, escalators, and moving walks shall not be used as a component of a required means of egress from any other part of the building.

Exception: Elevators used as an accessible means of egress in accordance with Section 1009.4.

Section 1004 Occupant Load

1004.1 Design Occupant Load

In determining means of egress requirements, the number of

occupants for whom means of egress

facilities are provided shall be determined in accordance with this section

1004.2 Cumulative Occupant Loads

Where the path of egress travel includes intervening rooms, areas or spaces, cumulative occupant loads shall be determined in accordance with this section.

1004.2.3 Adjacent Stories

Other than for the egress components designed for convergence in accordance with Section 1005.6, the occupant load from separate stories shall not be added.

1004.4 Multiple Occupancies

Where a building contains two or more occupancies, the means of egress requirements shall apply to each portion of the building based on the occupancy of that space. Where two or more occupancies utilize portions of the same means of egress system, those egress components shall meet the more stringent requirements of all occupancies that are served.

1004.5 Areas Without Fixed Seating

The number of occupants shall be computed at the rate of one occupant per unit of area as prescribed in Table 1004.5. For areas without fixed seating, the occupant load shall not be less than the number determined by dividing the floor area under consideration by the occupant load factor assigned to the function of the space as set forth in Table 1004.5. Where an intended function is not listed in Table 1004.5, the building official shall establish a function based on a listed function that most nearly resembles the intended function.

1004.7 Outdoor Areas

Yards, patios, occupied roofs, courts and similar outdoor areas accessible to and usable by the building occupants shall be provided with means of egress as required

TABLE 1004.5

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR ^a
Accessory storage areas, mechanical equipment room	300 gross
Agricultural building	300 gross
Aircraft hangers	500 gross
Airport terminal	
Baggage claim	20 gross
Baggage handling	300 gross
Concourse	100 gross
Waiting areas	15 gross
Assembly	
Gaming floors (keno, slots, etc.)	11 gross
Exhibit gallery and museum	30 net
Assembly with fixed seats	See Section 1004.6
Assembly without fixed seats	
Concentrated (chairs only-not fixed)	7 net
Standing space	5 net
Unconcentrates (tables and chairs)	15 net
Bowling centers, allow 5 persons for each lane including 15ft of runway	7 net
Business areas	150 gross
Concentrated business use areas	See Section 1004.8
Courtrooms -other than fixed seating areas	40 net
Day care	35 net
Dormitories	50 gross
Educational	
Classroom area	20 net
Shops and other vocational room areas	50 net
Exercise rooms	50 gross
Group H-5 fabrication and manufacturing areas	200 gross
Industrial areas	100 gross
Institutional areas	
Inpatient treatment areas	240 gross
Outpatient areas	100 gross
Sleeping areas	120 gross
Kitchens, commercial	200 gross
Library	
Reading rooms	50 net
Stack area	100 gross
Locker rooms	50 gross
Nail buildings - covered and open	See Section 402.8.2
Mercantile	60 gross
Storage stock, shipping areas	300 gross
Parking garages	200 gross
Residential	200 gross
Skating rinks, swimming pools	
Rink and pool	50 gross
Decks	15 gross
Stages and platforms	15 net
Warehouses	500 gross

For SI: 1 Foot = 304.8 MM, 1 Square Foot = 0.0929 M²
 a. Floor area in square feet per occupant.

by this chapter. The occupant load of such outdoor areas shall be assigned by the building official in accordance with the anticipated use. Where outdoor areas are to be used by persons in addition to the occupants of the building, and the path of egress travel from the outdoor areas passes through the building, means of egress requirements for the building shall be based on the sum of the occupant loads of the building plus the outdoor areas.

Section 1005 Means of Egress Sizing

1005.1 General

All portions of the means of egress system shall be sized in accordance with this section.

Exception: Aisles and aisle accessways in rooms or spaces used for assembly purposes complying with Section 1029.

1005.2 Minimum Width Based on Component

The minimum width, in inches (mm), of any means of egress components shall be not less than that specified for such component, elsewhere in this code.

1005.3 Required Capacity Based on Occupant Load

The required capacity, in inches (mm), of the means of egress for any room, area, space or story shall be not less in accordance with Sections 1005.3.1 and 1005.3.2.

1005.3.1 Stairways

The capacity, in inches, of means of egress stairways shall be calculated by multiplying the occupant load served by such stairways by a means of egress capacity factor of 0.3 inch per occupant. Where stairways serve more than one story, only the occupant load of each story considered individually shall be used in calculating the required capacity of the

stairways serving that story.

1005.3.2 Other Egress Components

The capacity, in inches, of means of egress components other than stairways shall be calculated by multiplying the occupant load served by such component by a means of egress capacity factor of 0.2 inch (5.1 mm) per occupant.

1005.4 Continuity

The minimum width or required capacity of the means of egress required from any story of a building shall not be reduced along the path of egress travel until arrival at the public way.

1005.7 Encroachment

Encroachments into the required means of egress width shall be in accordance with the provisions of this section.

1005.7.1 Doors

Doors, when fully opened, shall not reduce the required width by more than 7 inches (178 mm). Doors in any position shall not reduce the required width by more than one-half.

1005.7.2 Other Projections

Handrail projections shall be in accordance with the provisions of Section 1014.8. Other nonstructural projects such as similar decorative features shall be permitted to project into the required width not more than 1 ½ inches on each side.

Section 1006 Number of Exits and Exit Access Doorways

1006.1 General

The number of exits or exit access doorways required within the means of egress system shall comply with the provisions of Section 1006.2 for spaces, including mezzanines, and Section 1006.3 for stories.

1006.2 Egress from Spaces

Rooms, areas or spaces, including mezzanines, within a story or basement shall be provided with the number of exits or access to exits in accordance with this section.

1006.2.1 Egress Based on Occupant Load and Common Path of Egress Travel Distance

Two exits or exit access doorways from any space shall be provided where the design occupant load or the common path of egress travel distance exceeds the values listed in Table 1006.2.1.

1006.2.2.4 Electrical Rooms

The location and number of exit or exit access doorways shall be provided for electrical rooms in accordance with Section 110.26 of NFPA 70 for electrical equipment rated 1,000 volts or less, and Section 110.33 NFPA 70 for electrical equipment rated over 1,000 volts. Panic hardware shall be provided where required in accordance with Section 1010.2.9.2.

1006.3 Egress from Stories or Occupied Roofs

The means of egress system serving any story or occupied roof shall be provided with the number of separate and distinct exits or access to exits based on the aggregate occupant load served in accordance with this section. Where stairways serve more than one story, only the occupant load of each story considered individually shall be used in calculating the required number of exits or access to exits serving that story.

1006.3.2 Egress Based on Occupant Load

Each story and occupied roof shall have the minimum number of separate and distinct exits or access to exits, as specified in Table 1006.3.2. A single exit or access to a single exit shall be permitted in accordance with Section 1006.3.3. The required number of exits or exit access

TABLE 1006.2.1

OCCUPANCY	MAXIMUM OCCUPANT LOAD OF SPACE	MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE (FT)		
		WITHOUT SPRINKLER SYSTEM		WITH SPRINKLER SYSTEM
		OCCUPANT LOAD		
A ^c , E, M	49	OL ≤ 30	OL ≥ 30	
B	49	75	75	75 ^a
F	49	100	75	100 ^a
H-1, H-2, H-3	3	75	75	100 ^a
H-4, H-5	10	NP	NP	25 ^b
I-1, I-2 ^d , I-4	10	NP	NP	75 ^b
I-3	10	NP	NP	75 ^a
R-1	10	NP	NP	100 ^a
R-2	20	NP	NP	75 ^a
R-3 ^e	20	NP	NP	125 ^{a, g}
R-4 ^e	20	NP	NP	125 ^{a, g}
S ^f	29	100	75	100 ^a
U	49	100	75	75 ^a

FOR SI: 1 foot = 304.8 mm.

a. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.2.

b. Group H occupancies equipped throughout with an automatic sprinkler system in accordance with Section 903.2.5.

c. For a room or space used for assembly purposes having fixed seating, see Section 1030.8.

d. For the travel distance limitations in Group I-2, see Section 407.4.

e. The common path of egress travel distance shall only apply in a Group R-3 occupancy located in a mixed occupancy building.

f. The length of common path of egress travel distance in a Group S-2 open parking garage shall be not more than 100 feet.

g. For the travel distance limitations in Groups R-3 and R-4 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.3, see Section 1006.2.2.6.

stairways or ramps providing access to exits, from any story or occupied roof shall be maintained until arrival at the exit discharge or a public way.

Table 1006.3.2 Minimum number of exits or access to exits per story

Occupant Load per story: 1-500; minimum number of exits or access to exits from story: 2

Section 1007 Exit and Exit Access Doorway Configuration

1007.1 General

Exits, exit access doorways, and exit access stairways and ramps serving spaces, including individual building stories, shall be separated in accordance with the provisions of this section.

1007.1.1 Two Exits or Exit Access Doorways

Where two exits, exit access doorways,

exit access stairways or ramps, or any combination thereof, are required from any portion of the exit access, they shall be placed a distance apart equal to not less than one-half of the length of the maximum overall diagonal dimension of the building or area to be served measured in a straight line between them. Interlocking or scissor stairways shall be counted as one exit stairway.

1007.1.1.1 Measurement Point

The separation distance required in Section 1007.1.1 shall be measure in accordance with the following:

- 1.The separation distance to exit or exit access doorways shall be measured to any point along the width of the doorway
2. The separation distance to exit access stairways shall be measured to the closest riser.
3. The separation distance to exit access

ramps shall be measured to the start of the ramp run.

Section 1008 Means of Egress Illumination

1008.1 Means of Egress Illumination

Illumination shall be provided in the means of egress in accordance with Section

1008.2. Under Emergency Power

Means of egress illumination shall comply with Section 1008.3.

1008.2 Illumination Required

The means of egress serving a room or space shall always be illuminated at all times that the room or space is occupied

Exceptions:

- 2.Asisle accessways in Group A

1008.2.1 Illumination Level Under Normal Power

The means of egress illumination level shall not be less than 1 footcandle (11 lux) at the walking surface Section 1009 Accessible Means of Egress

1009.1 Accessible Means of Egress Required

Accessible means of egress shall comply with this section. Accessible spaces shall be provided with not less than one accessible means of egress. Where more than one means of egress are required by Section 1006.2 or 1006.3 from any accessible space, each accessible portion of the space shall be served by not less than two accessible means of egress.

1009.2 Continuity and Components

Each required accessible means of egress shall be continues to a public way and shall consist of one or more of the following components:

- 1.Accessible routes complying with Section 1104
2. Interior exit stairways complying with Sections 1009.3 and 1023
3. Exit access stairways complying with Sections 1009.3 and 1019.3 or 1019.4
4. Exterior exit stairways complying with Sections 1009.3 and 1027 and serving levels other than the level of exit discharge
- 5.Elevators complying with Section 1009.4
6. Platforms lifts complying with Section 1009.5
- 7.Horizontal exits complying with Section 1026
8. Ramps complying with Section 1012
9. Areas of refuge complying with Section 1009.6.
10. Exterior areas for assisted rescue complying with Section 1009.7 serving exits at the level of exit discharge.

1009.3 Stairways

In order to be considered part of an accessible means of egress, a stairway between stories shall comply with Sections 1009.3.1 through 1009.3.3

1009.3.1 Exit Access Stairways

Exit access stairways that connect levels in the same story are not permitted as part of an accessible means of egress

1009.3.2 Stairway Width

Stairways shall have a clear width of 48 inches between handrails minimum between handrails.

1009.3.3 Area of Refuge

Stairways shall either incorporate an area of refuge within an enlarged floor-level landing or shall be accessed from an area of refuge complying with Section 1009.6.

1009.4 Elevators

In order to be considered part of an accessible means of egress, an elevator shall comply with Sections 109.4.1 and 1009.4.2

1009.4.1 Standby Power

The elevator shall meet the emergency operation and signaling device requirements of Section 2.27 of ASME A17.1/CSA B44. Standby power shall be provided in accordance with Chapter 27 and Section 3003.

1009.6 Areas of Refuge

Every required area of refuge shall be accessible from the space it serves by an accessible means of egress.

1009.6.1 Travel Distance

The maximum travel distance from any accessible space to an area of refuge shall not exceed the exit access travel distance permitted for the occupancy in accordance with Section 1017.1.

1009.6.2 Stairway or Elevator Access

Every required area of refuge shall have direct access to a stairway complying with Sections 1009.3 and 1023 or an elevator complying with Section 1009.4.

1009.6 Areas of Refuge

Every required area of refuge shall be accessible from the space it serves by an accessible means of egress.

1009.6.1 Travel Distance

The maximum travel distance from any accessible space to an area of refuge shall not exceed the exit access travel distance permitted for the occupancy in accordance with Section 1017.1.

1009.6.2 Stairway or Elevator Access

Every required area of refuge shall have direct access to a stairway complying with Sections 1009.3 and 1023 or an elevator complying with Section 1009.4.

1009.6.3 Size

Each area of refuge shall be sized to accommodate one wheelchair space of 30 inches by 48 inches (762 mm by 1219 mm) for each 200 occupants or portion thereof, based on the occupant load of the area of refuge and areas served by the area of refuge. Such wheelchair spaces shall not reduce the means of egress minimum width or required capacity. Access to any of the required wheelchair spaces in an area of refuge shall not be obstructed by more than one adjoining wheelchair space.

1009.6.4 Separation

Each area of refuge shall be separated from the remainder of the story by a smoke barrier complying with Section 709 or a horizontal exit complying with Section 1026. Each area of refuge shall be designed to minimize the intrusion of smoke.

Exceptions:

1. Areas of refuge located within an enclosure for interior exit stairways

complying with Section 1023.

2. Areas of refuge in outdoor facilities where exit access is essentially open to the outside.

1009.9 Signage

Signage indicating special accessibility provisions shall be provided as shown:

1. Each door providing access to an area of refuge from an adjacent floor area shall be identified by a sign stating: AREA OF REFUGE.

2. Each door providing access to an exterior area for assisted rescue shall be identified by a sign stating: EXTERIOR AREA FOR ASSISTED RESCUE. Signage shall comply with the ICC A117.1 requirements for visual characters and include the International Symbol of Accessibility. Where exit sign illumination is required by Section 1013.3, the signs shall be illuminated. Additionally, visual characters, raised character and braille signage complying with ICC A117.1 shall be located at each door to an area of refuge and exterior area for assisted rescue in accordance with Section 1013.4.

1009.10 Directional Signage

Directional signage indicating the location of all other means of egress and which of those are accessible means of egress shall be provided at the following:

1. At exits serving a required accessible space but not providing an approved accessible means of egress.
2. At elevator landings.
3. Within areas of refuge.

Section 1010 Doors, Gates, and Turnstiles

1010.1 General

Doors in the means of egress shall comply with the requirements of Sections 1010.1 through 1010.3.4. Exterior exit doors shall comply with the requirements of Section

1022.2. Gates in the means of egress shall comply with the requirements of Sections 1010.4 and 1010.4.1. Turnstiles in the means of egress shall comply with the requirements of Sections 1010.5 through 1010.5.4. Doors, gates, and turnstiles provided for egress purposes in numbers greater than required by this code shall comply with the requirements of this section. Doors in the means of egress shall be readily distinguishable from the adjacent construction and finishes such that the doors are easily recognizable as doors. Mirrors or similar reflecting materials shall not be used on means of egress doors. Means of egress doors shall not be concealed by curtains, drapes, decorations or similar materials.

1010.1.1 Size of Doors

The required capacity of each door opening shall be sufficient for the occupant load thereof and shall provide a minimum clear width of 32 inches (813 mm). Clear openings of doorways with swinging doors shall be measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad). Where this section requires a minimum clear width of 32 inches (813 mm) and a door opening includes two door leaves without a mullion, one leaf shall provide a clear opening width of 32 inches (813 mm). The maximum width of a swinging door leaf shall be 48 inches (1219 mm) nominal. Means of egress doors in a Group I-2 occupancy used for the movement of beds shall provide a clear width not less than 41 1/2 inches (1054 mm). The minimum clear opening height of doors shall be not less than 80 inches (2032 mm).

3. Door openings to storage closets less than 10 square feet (0.93 m²) in area shall not be limited by the minimum width.

1010.1.1.1 Projections Into Clear Opening

There shall not be projections into the required clear width lower than 34 inches (864 mm) above the floor or ground.

Projections into the clear opening width between 34 inches (864 mm) and 80 inches (2032 mm) above the floor or ground shall not exceed 4 inches (102 mm).

Exception: Door closers and doorstops shall be permitted to be 78 inches (1980 mm) minimum above the floor. 1010.1.2.1 Direction of Swing Pivot or side-hinged swinging doors shall swing in the direction of egress travel where serving a room or area containing an occupant load of 50 or more persons or a Group H occupancy.

1010.1.3.2 Manual Horizontal Sliding Doors

Where a manual horizontal sliding door is required to latch, the latch or other mechanism shall prevent the door from rebounding into a partially open position when the door is closed.

1010.1.5 Landings at Doors

Landings shall have a width not less than the width of the stairway or the door, whichever is greater. Doors in the fully open position shall not reduce a required dimension by more than 7 inches (178 mm). Where a landing serves an occupant load of 50 or more, doors in any position shall not reduce the landing to less than one-half its required width. Landings shall have a length measured in the direction of travel of not less than 44 inches (1118 mm).

1010.1.7 Door Arrangement

Space between two doors in a series shall be 48 inches (1219 mm) minimum plus the width of a door swinging into the space. Doors in a series shall swing either in the same direction or away from the space between the doors.

Exceptions: The minimum distance between horizontal sliding power-operated doors in a series shall be 48 inches (1219 mm).

1010.2 Door Operations

Except as specifically permitted by this section, egress doors shall be readily openable from the egress side without the use of a key or special knowledge or effort.

1010.2.2 Hardware

Door handles, pulls, latches, locks and other operating devices on doors required to be accessible by Chapter 11 shall not require tight grasping, tight pinching or twisting of the wrist to operate.

1010.2.3 Hardware Height

Door handles, pull, latches, locks and other operating devices shall be installed 34 inches minimum and 48 inches maximum above the finished floor. Locks used only for security purposes and not used for normal operation are permitted at any height.

1010.2.7 Stairway Doors

Interior stairway means of egress doors shall be openable from both sides without the use of a key or special knowledge or effort.

Exceptions:

1. Stairway discharge doors shall be openable from the egress side and shall only be locked from the opposite side.
2. This section shall not apply to doors arranged in accordance with Section 403.5.3.
3. Stairway exit doors are permitted to be locked from the side opposite the egress side, provided that they are openable from the egress side and capable of being unlocked simultaneously without unlatching upon a signal from the fire command center, if present, or a signal by emergency personnel from a single location inside the main entrance to the building.
4. Stairway exit doors shall be openable from the egress side and shall only be locked from the opposite side in Group

B, F, M and S occupancies where the only interior access to the tenant space is from a single exit stairway where permitted in Section 1006.3.3

1010.2.9 Panic and Fire Exit Hardware

Swinging doors serving a Group H Occupancy and swinging doors serving rooms or spaces with an occupant load of 50 or more in a Group A or E occupancy shall not be provided with a latch or lock other than panic hardware or fire exit hardware.

Exceptions:

1. A main exit of a Group A occupancy shall be permitted to have locking devices in accordance with Section 1010.2.4, Item 3.
2. Doors provided with panic hardware or fire exit hardware and serving Group A or E occupancy shall be permitted to be electrically locked in accordance with Section 1010.2.11 or 1010.2.12.

Section 1011 Stairways

1011.1 General

Stairways serving occupied portions of a building shall comply with the requirements of Sections 1011.2 through 1011.13. Alternating tread devices shall comply with Section 1011.14. Ship's ladders shall comply with Section 1011.15. Ladders shall comply with Section 1011.16.

Exception: Within rooms or spaces used for assembly purposes, stepped aisles shall comply with Section 1029.

1011.2 Width and Capacity

The required capacity of stairways shall be determined as specified in Section 1005.1, but the minimum width shall be not less than 44 inches (1118 mm). See Section 1009.3 for accessible means of egress stairways.

Exceptions: Stairways serving an occupant load of less than 50 shall have a width of not less than 36 inches (914 mm).

1011.3 Headroom

Stairways shall have a headroom clearance of not less than 80 inches (2032 mm) measured vertically from a line connecting the edge of the nosings. Such headroom shall be continuous above the stairway to the point where the line intersects the landing below, one tread depth beyond the bottom riser. The minimum clearance shall be maintained the full width of the stairway and landing.

Exceptions: Spiral stairways complying with Section 1011.10 are permitted a 78-inch (1981 mm) headroom clearance.

1011.5 Stair Treads and Risers

Stair treads and risers shall comply with Sections 1011.5.1 through 1011.5.5.3.

1011.5.1 Dimension Reference Surfaces

For the purpose of this section, all dimensions are exclusive of carpets, rugs or runners.

1011.5.2 Riser Height and Tread Depth

Stair riser heights shall be 7 inches (178 mm) maximum and 4 inches (102 mm) minimum. The riser height shall be measured vertically between the nosings of adjacent treads. Rectangular tread depths shall be 11 inches (279 mm) minimum measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's nosing. Winder treads shall have a minimum tread depth of 11 inches (279 mm) between the vertical planes of the foremost projection of adjacent treads at the intersections with the walkline and a minimum tread depth of 10 inches (254 mm) within the clear width of the stair.

1011.5.4 Dimensional Uniformity

Stair treads and risers shall be of uniform size and shape. The tolerance between the largest and smallest riser height or between the largest and smallest tread depth shall not exceed 3/8 inch (9.5 mm)

in any flight of stairs. The greatest winder tread depth at the walkline within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm). 1011.5.5 Nosing and Riser Profile Nosings shall have a curvature or bevel of not less than 1/16 inch (1.6 mm) but not more than 9/16 inch (14.3 mm) from the foremost projection of the tread. Risers shall be solid and vertical or sloped under the tread above from the underside of the nosing above at an angle not more than 30 degrees (0.52 rad) from the vertical. 1011.5.5.1 Nosing Projection Size The leading edge (nosings) of treads shall project not more than 11/4 inches (32 mm) beyond the tread below.

1011.5.5.2 Nosing Projection Uniformity

Nosing projections of the leading edges shall be of uniform size, including the projections of the nosing's leading edge of the floor at the top of a flight.

1011.6 Stairway Landings

There shall be a floor or landing at the top and bottom of each stairway. The width of landings, measured perpendicularly to the direction of travel, shall be not less than the width of stairways served. Every landing shall have a minimum depth, measured parallel to the direction of travel, equal to the width of the stairway or 48 inches (1219 mm), whichever is less. Doors opening onto a landing shall not reduce the landing to less than one-half the required width. When fully open, the door shall not project more than 7 inches (178 mm) into a landing. Where wheelchair spaces are required on the stairway landing in accordance with Section 1009.6.3, the wheelchair space shall not be located in the required width of the landing and doors shall not swing over the wheelchair spaces.

Exception: Where stairways connect stepped aisles to cross aisles or concourses, stairway landings are not required at the transition between stairways and stepped aisles constructed in accordance with

Section 1029.

1011.7 Stairway Construction

Stairways shall be built of materials consistent with the types permitted for the type of construction of the building

Exceptions:

1. Wood handrails shall be permitted in all types of construction.
2. Interior exit stairways in accordance with Section 510.2

1011.7.3 Enclosures Under Interior Stairways

The walls and soffits within enclosed usable spaces under enclosed and unenclosed stairways shall be protected by 1-hour fire-resistance-rated construction or the fire-resistance rating of the stairway enclosure, whichever is greater. Access to the enclosed space shall not be directly from within the stairway enclosure.

1011.8 Vertical Rise

A flight of stairs shall not have a vertical rise greater than 12 feet (3658 mm) between floor levels or landings.

1011.11 Handrails

Flights of stairways shall have handrails on each side and shall comply with Section 1014. Where glass is used to provide the handrail, the handrail shall comply with Section 2407.

Section 1013 Exit Signs

1013.1 Where Required

Exits and exit access doors shall be marked by an approved exit sign readily visible from any direction of egress travel. The path of egress travel to exits and within exits shall be marked by readily visible exit signs to clearly indicate the direction of egress travel in cases where the exit or the path of egress travel is not immediately visible to the occupants. Intervening

means of egress doors within exits shall be marked by exit signs. Exit sign placement shall be such that any point in an exit access corridor or exit passageway is within 100 feet (30 480 mm) or the listed viewing distance of the sign, whichever is less, from the nearest visible exit sign.

Exceptions:

1. Exit signs are not required in rooms or areas that require only one exit or exit access.
2. Main exterior exit doors or gates that are obviously and clearly identifiable as exits need not have exit signs where approved by the building official.

1013.3 Illumination

Exit signs shall be internally or externally illuminated.

Exception: Tactile signs required by Section 1013.4 need not be provided with illumination.

1013.4 Raised Character and Braille Exit Signs

A sign stating EXIT in visual characters, raised characters and braille and complying with ICC A117.1 shall be provided adjacent to each door to an area of refuge, providing direct access to a stairway, an exterior area for assisted rescue, an exit stairway or ramp, an exit passageway and the exit discharge.

1013.5 Internally Illuminated Exit Signs

Electrically powered, self-luminous and photoluminescent exit signs shall be listed and labeled in accordance with UL 924 and shall be installed in accordance with the manufacturer's instructions and Chapter 27. Exit signs shall be illuminated at all times.

1013.6 Externally Illuminated Exit Signs

Externally illuminated exit signs shall comply with Sections 1013.6.1 through 1013.6.3.

1013.6.1 Graphics

Every exit sign and directional exit sign shall have plainly legible letters not less than 6 inches (152 mm) high with the principal strokes of the letters not less than 3/4 inch (19.1 mm) wide. The word "EXIT" shall have letters having a width not less than 2 inches (51 mm) wide, except the letter "I," and the minimum spacing between letters shall be not less than 3/8 inch (9.5 mm). Signs larger than the minimum established in this section shall have letter widths, strokes and spacing in proportion to their height. The word "EXIT" shall be in high contrast with the background and shall be clearly discernible when the means of exit sign illumination is or is not energized. If a chevron directional indicator is provided as part of the exit sign, the construction shall be such that the direction of the chevron directional indicator cannot be readily changed.

1013.6.2 Exit Sign Illumination

The face of an exit sign illuminated from an external source shall have an intensity of not less than 5 footcandles (54 lux).

Section 1014 Handrails

1014.2 Height

Handrail height, measured above stair tread nosings, or finish surface of ramp slope, shall be uniform, not less than 34 inches (864 mm) and not more than 38 inches (965 mm). Handrail height of alternating tread devices and ship's ladders, measured above tread nosings, shall be uniform, not less than 30 inches (762 mm) and not more than 34 inches (864 mm).

Exceptions:

1. Where handrail fittings or bendings are used to provide continuous transition between flights, the fittings or bendings shall be permitted to exceed the maximum height.

1014.3 Handrail Graspability

Required handrails shall comply with Section 1014.3.1 or shall provide equivalent graspability.

1014.3.1 Type I

Handrails with a circular cross section shall have an outside diameter of not less than 1 1/4 inches (32 mm) and not greater than 2 inches (51 mm). Where the handrail is not circular, it shall have a perimeter dimension of not less than 4 inches (102 mm) and not greater than 6 1/4 inches (160 mm) with a maximum cross-sectional dimension of 2 1/4 inches (57 mm) and minimum cross-sectional dimension of 1 inch (25 mm). Edges shall have a minimum radius of 0.01 inch (0.25 mm). 1014.3.2 Type II Handrails with a perimeter greater than 6 1/4 inches (160 mm) shall provide a graspable finger recess area on both sides of the profile. The finger recess shall begin within a distance of 3/4 inch (19 mm) measured vertically from the tallest portion of the profile and achieve a depth of not less than 5/16 inch (8 mm) within 7/8 inch (22 mm) below the widest portion of the profile. This required depth shall continue for not less than 3/8 inch (10 mm) to a level that is not less than 13/4 inches (45 mm) below the tallest portion of the profile. The width of the handrail above the recess shall be not less than 1 1/4 inches (32 mm) to not greater than 2 3/4 inches (70 mm). Edges shall have a minimum radius of 0.01 inch (0.25 mm).

1014.5 Fittings

Handrails shall not rotate within their fittings.

1014.6 Handrail Extensions

Handrails shall return to a wall, guard or the walking surface or shall be continuous to the handrail of an adjacent flight of stairs or ramp run. Where handrails are not continuous between flights, the handrails shall extend horizontally not less

than 12 inches (305 mm) beyond the top riser and continue to slope for the depth of one tread beyond the bottom riser. At ramps where handrails are not continuous between runs, the handrails shall extend horizontally above the landing 12 inches (305 mm) minimum beyond the top and bottom of ramp runs. The extensions of handrails shall be in the same direction of the flights of stairs at stairways and the ramp runs at ramps.

1014.7 Clearance

Clear space between a handrail and a wall or other surface shall be not less than 1 1/2 inches (38 mm). A handrail and a wall or other surface adjacent to the handrail shall be free of any sharp or abrasive elements.

1014.8 Projections

On ramps and on ramped aisles that are part of an accessible route, the clear width between handrails shall be 36 inches (914 mm) minimum. Projections into the required width of aisles, stairways and ramps at each side shall not exceed 4 1/2 inches (114 mm) at or below the handrail height. Projections into the required width shall not be limited above the minimum headroom height required in Section 1011.3. Projections due to intermediate handrails shall not constitute a reduction in the egress width. Where a pair of intermediate handrails are provided within the stairway width without a walking surface between the pair of intermediate handrails and the distance between the pair of intermediate handrails is greater than 6 inches (152 mm), the available egress width shall be reduced by the distance between the closest edges of each such intermediate pair of handrails that is greater than 6 inches (152 mm).

1014.9 Intermediate Handrails

Stairways shall have intermediate handrails located in such a manner that all portions of the stairway minimum width or required capacity are within 30 inches of a handrail. On monumental stairs,

handrails shall be located along the most direct path of egress travel.

Section 1015 Guards

1015.1 General

Guards shall comply with the provisions of Sections 1015.2 through 1015.7. Operable windows with sills located more than 72 inches above finished grade or other surface below shall comply with Section 1015.8.

1015.2 Where Required

Guards shall be located along open-sided walking surfaces, including mezzanines, equipment platforms, aisles, stairs, ramps, and landings that are located more than 30 inches measured vertically to the floor or grade below at any point within 36 inches horizontally to the edge of the open side. Guards shall be adequate in strength and attachment in accordance with Section 1607.9

1015.2.1 Glazing

Where glass is used to provide a guard or as a portion of the guard system, the guard shall comply with Section 2407. Where the glazing provided does not meet the strength and attachment requirements of Section 1607.9, complying guards shall be located along glazed sides of open-sided walking surfaces.

1015.3 Height

Required guards shall be not less than 42 inches high, measured vertically as follows:

- 1.From the adjacent walking surfaces.
- 2.On stairways and stepped aisles, from the line connecting the leading edges of the tread nosings.

1015.4 Opening Limitations

Required guards shall not have openings that allow passage of a sphere 4 inches in diameter from the walking surface to the

required guard height.

Section 1016 Exit Access

1016.1 General

The exit access shall comply with the applicable provisions of Sections 1003 through 1015. Exit access arrangement shall comply with Sections 1016 through 1021.

1016.2 Egress Through Intervening Spaces

Egress through intervening spaces shall comply with this section.

1.Exit access through an enclosed elevator lobby is permitted. Where access to two or more exits or exit access doorways is required in Section 1006.2.1, access to not less than one of the required exits shall be provided without travel through the enclosed elevator lobbies required by Section 3006. through an enclosed elevator lobby, the level of protection required for the enclosed elevator lobby is not required to be extended to the exit unless direct access to an exit is required by other sections of this code.

2.Egress from a room or space shall not pass through adjoining or intervening rooms or areas, except where such adjoining rooms or areas and the area served are accessory to one or the other, are not a Group H occupancy and provide a discernible path of egress travel to an exit.

3.An exit access shall not pass through a room that can be locked to prevent egress.

5.Egress shall not pass through kitchens, storage rooms, closets or spaces used for similar purposes.

Section 1017 Exit Travel Distance

1017.1 General

Travel distance within the exit access portion of the means of egress system shall be in accordance with this section.

1017.2 Limitations

Exit access travel distance shall not exceed the values given in Table 1017.2.

Occupancy A with sprinkler system has a travel distance of 250 feet. Occupancy B with sprinkler system has a travel distance of 300 feet.

1017.3 Measurement

Exit access travel distance shall be measured from the most remote point of each room, area or space along the natural and unobstructed path of horizontal and vertical egress travel to the entrance to an exit. Where more than one exit is required, exit access travel distance shall be measured to the nearest exit.

1017.3.1 Exit Access Stairways and Ramps

Travel distance on exit access stairways or ramps shall be included in the exit access travel distance measurement. The measurement along stairways shall be made on a plane parallel and tangent to the stair tread nosings in the center of the stair and landings. The measurement along ramps shall be made on the walking surface in the center of the ramp and landings.

Section 1019 Exit Access Stairways and Ramps

1019.1 General

Exit access stairways and ramps serving as an exit access component in a means of egress system shall comply with the requirements of this section. The number of stories connected by exit access stairways and ramps shall include basements, but not mezzanines.

1019.2 All Occupancies

Exit access stairways and ramps that serve floor levels within a single story are not required to be enclosed.

Section 1020 Corridors

TABLE 1017.2

OCCUPANCY	WITHOUT SPRINKLER SYSTEM (FT)	WITH SPRINKLER SYSTEM (FT)
A, E, F-1, M, R, S-1	200 ^e	200 ^b
I-1	Not Permitted	250 ^b
B	200	300 ^c
F-2, S-2, U	300	400 ^c
H-1	Not Permitted	75 ^d
H-2	Not Permitted	100 ^d
H-3	Not Permitted	150 ^d
H-4	Not Permitted	175 ^d
H-5	Not Permitted	200 ^c
I-2, I-3	Not Permitted	200 ^c
I-4	150	200 ^c

FOR SI: 1 Foot = 304.8 MM.
a. See the following sections for modifications to exit access travel distance requirements:
Section 402.8; For the distance limitation in malls.
Section 407.4; For the distance limitation in Group I-2.
Section 408.6.1 and 408.6.3; For the distance limitation in Group I-3.
Section 411.2; For the distance limitation in special amusement areas.
Section 412.8; For the distance limitations in aircraft manufacturing facilities.
Section 1006.2.2.2; For the distance limitation in refrigeration machinery rooms.
Section 1006.2.2.3; For the distance limitation in refrigerated rooms and spaces.
Section 1006.3.4; For buildings with one exit.

Section 1017.2.2; For increased distance limitation in Groups F-1 and S-1.
Section 1030.2; For increased limitation in assembly seating.
Section 3103.4; For temporary structures.
Section 3104.9; For pedestrian walkways.
b. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.2.
c. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.2.5.1.
d. Group R-3 and R-4 buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.3. See Section 903.2.8 for occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.3.

1020.1 General

Corridors serving as an exit access component in a means of egress system shall comply with the requirements of Sections 1020.2 through 1020.7.

1020.2 Construction

Corridors shall be fire-resistance rated in accordance with Table 1020.2. The corridor walls required to be fire resistance rated shall comply with Section 708 for fire partitions.

Table 1020.2 Corridor Fire-Resistance Rating

Occupancy A, Greater than 30, with a sprinkler system-0 hour required fire resistance rating

1020.3 Width and Capacity

The required capacity of corridors shall be determined as specified in Section 1005.1, but the minimum width shall be not less than that specified in Table 1020.2.

Minimum Corridor Width: Any facility not listed in this table: 44" Access to and

utilization of mechanical, plumbing or electrical systems or equipment: 24" With an occupant load of less than 50: 36"

1020.4 Obstruction

The minimum width or required capacity of corridors shall be unobstructed. Exception: Encroachments complying with Section 1005.7.

1020.5 Dead Ends

Where more than one exit or exit access doorway is required, the exit access shall be arranged such that dead-end corridors do not exceed 20 feet (6096 mm) in length.

Exceptions:

2. In occupancies in Groups B, E, F, I-1, M, R-1, R-2, S and U, where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, the length of the dead end corridors shall not exceed 50 feet (15240 mm).

3. A dead-end corridor shall not be limited in length where the length of the dead end corridor is less than 2.5 times the least

width of the dead-end corridor.

Section 1022 Exits

1022.1 General

Exits shall comply with Sections 1022 through 1027 and the applicable requirements of Sections

1003 through 1015. An exit shall not be used for any purpose that interferes with its function as a means of egress. Once a given level of exit protection is achieved, such level of protection shall not be reduced until arrival at the exit discharge. Exits shall be continuous from the point of entry into the exit to the exit discharge.

1022.2 Exterior Exit Doors

Buildings or structures used for human occupancy shall have not less than one exterior door that meets the requirements of Section 1010.1.1.

1022.2.1 Detailed Requirements

Exterior exit doors shall comply with the applicable requirements of Section 1010.1.

1022.2.2 Arrangement

Exterior exit doors shall lead directly to the exit discharge or the public way.

Section 1023 Interior Exit Stairways and Ramps

1023.1 General

Interior exit stairways and ramps serving as an exit component in a means of egress system shall comply with the requirements of this section. Interior exit stairways and ramps shall be enclosed and lead directly to the exterior of the building or shall be extended to the exterior of the building with an exit passageway conforming to the requirements of Section 1024, except as permitted in Section 1028.1. An interior exit stairway or ramp shall not be used for any purpose other than as a means of egress and a circulation path.

1023.3 Termination

Interior exit stairways and ramps shall terminate at an exit discharge or a public way.

Exception: A combination of interior exit stairways, interior exit ramps and exit passageways, constructed in accordance with Sections 1023.2, 1023.3.1 and 1024, respectively, and forming a continuous protected enclosure, shall be permitted to extend an interior exit stairway or ramp to the exit discharge or a public way.

1023.3.1 Extension

Where interior exit stairways and ramps are extended to an exit discharge or a public way by an exit passageway, the interior exit stairway and ramp shall be separated from the exit passageway by a fire barrier constructed in accordance with Section 707 or a horizontal assembly constructed in accordance with Section 711, or both. The fire-resistance rating shall be not less than that required for the interior exit stairway and ramp. A fire door assembly complying with Section 716 shall be installed in the fire barrier

to provide a means of egress from the interior exit stairway and ramp to the exit passageway. Openings in the fire barrier other than the fire door assembly are prohibited. Penetrations of the fire barrier are prohibited.

1023.4 Openings

Interior exit stairway and ramp opening protectives shall be in accordance with the requirements of Section 716. Openings in interior exit stairways and ramps other than unprotected exterior openings shall be limited to those required for exit access to the enclosure from normally occupied spaces and for egress from the enclosure. Elevators shall not open into interior exit stairways and ramps.

1023.5 Penetrations

Penetrations into or through interior exit stairways and ramps are prohibited except for the following: Equipment and ductwork necessary for independent ventilation or pressurization.

1. Fire protection systems.
2. Security systems.
3. Two-way communication systems.
4. Electrical raceway for fire department communication systems.
5. Electrical raceway serving the interior exit stairway and ramp and terminating at a steel box not exceeding 16 square inches (0.010 m²). Such penetrations shall be protected in accordance with Section 714. There shall not be penetrations or communication openings, whether protected or not, between adjacent interior exit stairways and ramps.

1023.9 Stairway Identification Signs

A sign shall be provided at each floor landing in an interior exit stairway and ramp connecting more than three stories designating the floor level, the terminus of the top and bottom of the interior exit

stairway and ramp and the identification of the stairway or ramp. The signage shall state the story of and direction to the exit discharge, and the availability of roof access from the interior exit stairway and ramp for the fire department. The sign shall be located 5 feet (1524 mm) above the floor landing in a position that is readily visible when the doors are in the open and closed positions. In addition to the stairway identification sign, a floor-level sign in visual characters, raised characters and braille complying with ICC A117.1 shall be located at each floor-level landing adjacent to the door leading from the interior exit stairway and ramp into the corridor to identify the floor level.

1023.9.1 Signage Requirements

Stairway identification signs shall comply with all of the following requirements:

1. The signs shall be a minimum size of 18 inches (457 mm) by 12 inches (305 mm).
2. The letters designating the identification of the interior exit stairway and ramp shall be not less than 11/2 inches (38 mm) in height.
3. The number designating the floor level shall be not less than 5 inches (127 mm) in height and located in the center of the sign.
4. Other lettering and numbers shall be not less than 1 inch (25 mm) in height.
5. Characters and their background shall have a nonglare finish. Characters shall contrast with their background, with either light characters on a dark background or dark characters on a light background.
6. Where signs required by Section 1023.9 are installed in the interior exit stairways and ramps of buildings subject to Section 1025, the signs shall be made of the same materials as required by Section 1025.4.

1023.10 Elevator Lobby Identification Signs

At landings in interior exit stairways where two or more doors lead to the floor level, any door with direct access to an enclosed elevator lobby shall be identified by signage located on the door or directly adjacent to the door stating "Elevator Lobby." Signage shall be in accordance with Section 1023.9.1, Items 4, 5 and 6.

Section 1028 Exit Discharge

1028.1 General

The exit discharge shall comply with Sections 1028 and 1029 and the applicable requirements of Sections 1003 through 1015.

1028.2 Exit Discharge

Exits shall discharge directly to the exterior of the building. The exit discharge shall be at grade or shall provide a direct path of egress travel to grade. The exit discharge shall not reenter a building. The combine use of Exceptions 1 and 2 shall not exceed 50 percent of the number and minimum width or required capacity of required exits.

Exceptions:

1. Not more than 50 percent of the number and minimum width or required capacity of interior exit stairways and ramps is permitted to egress through areas on the level of discharge provided that all of the following conditions are met:

1.1. Discharge of interior exit stairways and ramps shall be provided with a free and unobstructed path of travel to an exterior exit door and such exit is readily visible and identifiable from the point of termination of the enclosure.

1.2. The entire area of the level of exit discharge is separated from areas below by construction conforming to the fire resistance rating for the enclosure. 1.3. The egress path from the interior exit stairway and ramp on the level of exit discharge is protected throughout by an approved automatic sprinkler system. Portions of

the level of exit discharge with access to the egress path shall be either equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2, or separated from the egress path in accordance with the requirements for the enclosure of interior exit stairways or ramps. 1.4. Where a required interior exit stairway or ramp and an exit access stairway or ramp serve the same floor level and terminate at the same level of exit discharge, the termination of the exit access stairway or ramp and the exit discharge door of the interior exit stairway or ramp shall be separated by a distance of not less than 30 feet (9144 mm) or not less than one-fourth the length of the maximum overall diagonal dimension of the building, whichever is less. The distance shall be measured in a straight line between the exit discharge door from the interior exit stairway or ramp and the last tread of the exit access stairway or termination of slope of the exit access ramp.

2. Not more than 50 percent of the number and minimum width or required capacity of the interior exit stairways and ramps is permitted to egress through a vestibule provided that all of the following conditions are met: 2.1. The entire area of the vestibule is separated from areas below by construction conforming to the fire resistance rating of the interior exit stairway or ramp enclosure. 2.2. The depth from the exterior of the building is not greater than 10 feet (3048 mm) and the length is not greater than 30 feet (9144 mm). 2.3. The area is separated from the remainder of the level of exit discharge by a fire partition constructed in accordance with Section 708. Exception: The maximum transmitted temperature rise is not required. 2.4. The area is used only for means of egress and exits directly to the outside, shall not be required to discharge directly to the exterior of the building.

1028.3 Exit Discharge Width or Capacity

The minimum width or required capacity

of the exit discharge shall be not less than the minimum width or required capacity of the exits being served.

1028.4 Exit Discharge Components

Exit discharge components shall be sufficiently open to the exterior so as to minimize the accumulation of smoke and toxic gases. 1028.4 Egress Courts Egress courts serving as a portion of the exit discharge in the means of egress system shall comply with the requirements of Sections 1028.4.1 and 1028.4.2. 1028.4.1 Width or Capacity The required capacity of egress courts shall be determined as specified in Section 1005.1, but the minimum width shall be not less than 44 inches (1118 mm), except as specified herein. Egress courts serving Group R-3 and U occupancies shall be not less than 36 inches (914 mm) in width. The required capacity and width of egress courts shall be unobstructed to a height of 7 feet (2134 mm). The width of the egress court shall be not less than the required capacity. Exception: Encroachments complying with Section 1005.7. 1028.5 Access to a Public Way The exit discharge shall provide a direct and unobstructed access to a public way. Exception: Where access to a public way cannot be provided, a safe dispersal area shall be provided where all of the following are met:

1. The area shall be of a size to accommodate not less than 5 square feet (0.46 m²) for each person.

2. The area shall be located on the same lot not less than 50 feet (15 240 mm) away from the building requiring egress.

3. The area shall be permanently maintained and identified as a safe dispersal area.

4. The area shall be provided with a safe and unobstructed path of travel from the building.

Section 1030 Assembly

1030.1 General

A room or space used for assembly purposes that contains seats, tables, displays, equipment or other material shall comply with this section.

1030.2 Assembly Main Exit

A building, room or space used for assembly purposes that has an occupant load of greater than 300 and is provided with a main exit, that main exit shall be of sufficient capacity to accommodate not less than one-half of the occupant load, but such capacity shall be not less than the total required capacity of all means of egress leading to the exit. Where the building is classified as a Group A occupancy, the main exit shall front on not less than one street or an unoccupied space of not less than 10 feet (3048 mm) in width that adjoins a street or public way. In a building, room or space used for assembly purposes where there is not a well-defined main exit or where multiple main exits are provided, exits shall be permitted to be distributed around the perimeter of the building provided that the total capacity of egress is not less than 100 percent of the required capacity.

1030.3 Assembly Other Exits

In addition to having access to a main exit, each level in a building used for assembly purposes having an occupant load greater than 300 and provided with a main exit, shall be provided with additional means of egress that shall provide an egress capacity for not less than one half of the total occupant load served by that level and shall comply with Section 1007.1. In a building used for assembly purposes where there is not a well-defined main exit or where multiple main exits are provided, exits around the perimeter of the building, provided that the total width of egress is not less than 100 percent of the required width.

11 | Accessibility

Section 1101 General

1101.1 Scope

The provisions of this chapter shall control the design and construction of facilities for accessibility for individuals with disabilities.

Section 1102 Compliance

1102.1 Design

Buildings and facilities shall be designed and constructed to be accessible in accordance with this code and ICC A117.1.

Section 1103 Scoping Requirements

1103.1 Where Required

Sites, buildings, structures, facilities, elements, and spaces, temporary or permanent, shall be accessible to individuals with disabilities.

1103.2 General Exceptions

Sites, buildings, structures, facilities, elements and spaces shall be exempt from this chapter to the extent specified in this section.

1103.2.1 Specific Requirements

Accessibility is not required in buildings and facilities, or portions thereof, to the extent permitted by Sections 1104 through 1111.

1103.3.2.2 Employee Work Areas

Spaces and elements within employee work areas shall only be required to comply with Sections 907.5.2.3.1, 1009 and 1104.3.1 and shall be designed and constructed so that individuals with disabilities can approach, enter and exit the work area. Work areas, or portions of work areas, other than raised courtroom stations in accordance with Section 1109.4.1.1, that are less than 300 square feet in area and located 7 inches or more above or below the ground or finished floor where the change in elevation is essential to the

function of the spaces shall be exempt from all requirements.

1103.2.9 Equipment Spaces

Spaces frequented only by service personnel for maintenance, repair or occasional monitoring of equipment are not required to comply with this chapter.

Section 1104 Accessible Route

1104.3 Connected Spaces

Where a building or portion of a building is required to be accessible, at least one accessible route shall be provided to each portion of the building, to accessible building entrances connecting accessible pedestrian walkways and to the public way.

1104.3.1 Employee Work Areas

Common use circulation paths within employee work areas shall be accessible routes.

Exceptions:

1.Common use circulation paths, located within employee work areas that are less than 1,000 square feet (93 m²) in size and defined by permanently installed partitions, counters, casework or furnishings, shall not be required to be accessible routes.

2.Common use circulation paths, located within employee work areas, that are an integral component of equipment, shall not be required to be accessible routes.

3.Common use circulation paths, located within exterior employee work areas that are fully exposed to the weather, shall not be required to be accessible routes.

1104.4 Multistory Buildings and Facilities

At least one accessible route shall connect each accessible story, mezzanine and occupied roofs in multilevel buildings and facilities.

1104.5 Location

Accessible routes shall coincide with or be located in the same area as a general circulation path. Where the circulation path is interior, the accessible route shall be interior. Where only one accessible route is provided, the accessible route shall not pass through kitchens, storage rooms, restrooms, closets or similar spaces.

Section 1105 Accessible Entrances

1105.1 Public Entrances

In addition to accessible entrances required by Sections 1105.1.1 through 1105.1.7, at least 60 percent of all public entrances shall be accessible.

Exceptions:

An accessible entrance is not required to areas not required to be accessible. Loading and service entrances that are not the only entrance to a tenant space.

1105.1.1 Automatic Doors

In facilities with the occupancies and building occupant loads indicated in Table 1105.1.1, public entrances that are required to be accessible shall have one door be either a full power-operated door or a low-energy power-operated door. Where the public entrance includes a vestibule at least one door into and one door out of the vestibule shall meet the requirements of this section.

1106 Parking and Passenger Loading Facilities

1106.1 General

Parking shall comply with Sections 1106.2 through 1106.8. Passenger loading zones shall comply with Section 1106.9.

1106.2 Required

Where parking is provided, accessible parking spaces shall be provided in compliance with Table 1106.2, except

TABLE 1105.1.1	
OCCUPANCY	BUILDING OCCUPANT LOAD GREATER THAN
A-1, A-2, A-3, A-4	300
B, M, R-1	500
a. In mixed-use facilities where the total sum of the building occupant load is greater than those listed, the most restrictive building occupant load shall apply.	

as required by Sections 1106.3 through 1106.5. Where more than one parking facility is provided on a site, the number of parking spaces required to be accessible shall be calculated separately for each parking facility.

1106.7 Location

Accessible parking spaces shall be located on the shortest accessible route of travel from adjacent parking to an accessible building entrance. In parking facilities that do not serve a particular building, accessible parking spaces shall be located on the shortest route to an accessible pedestrian entrance to the parking facility. Where buildings have multiple accessible entrances with adjacent parking, accessible parking spaces shall be dispersed and located near the accessible entrances.

Section 1109 Special Occupancies

1109.1 General

In addition to the other requirements of this chapter, the requirements of Sections 1108.2 through 1108.4 shall apply to specific occupancies.

1109.2.9 Dining and Drinking Areas

In dining and drinking areas, all interior and exterior floor areas shall be accessible and be on an accessible route.

Exceptions:

1.An accessible route between accessible levels and stories above or below is not required where permitted by Section 1104.4, Exception 1.

2.An accessible route to dining and drinking areas in a mezzanine is not required, provided that the mezzanine

contains less than 25 percent of the total combined area for dining and drinking and the same services, and decor are provided in the accessible area.

4. Employee-only work areas shall comply with Sections 1103.2.2 and 1104.3.1.

1109.2.9.1 Dining Surfaces

Where dining surfaces for the consumption of food or drink are provided, at least 5 percent, but not less than one, of the dining surfaces for the seating and standing spaces shall be accessible and be distributed throughout the facility and located on a level accessed by an accessible route.

Section 1110 Other Features and Facilities

1109.1 General

Accessible building features and facilities shall be provided in accordance with Sections 1109.2 through 1109.15. Exception: Accessible units, Type A units and Type B units shall comply with Chapter 10 of ICC A117.1.

1110.2 Toilet and Bathing Facilities

Each toilet room and bathing room shall be accessible. Where a floor level is not required to be connected by an accessible route, the only toilet rooms or bathing rooms provided within the facility shall not be located on the inaccessible floor. Except as provided for in Sections 1109.2.2 and 1109.2.3, at least one of each type of fixture, element, control or dispenser in each accessible toilet room and bathing room shall be accessible.

1110.2.2 Water Closets Designed for Assisted Toileting

Water closets designed for assisted

TABLE 1106.2

TOTAL PARKING SPACES	REQUIRED MIN. # OF ACCESSIBLE SPACES
1-25	1
26-50	2
51-75	3
76-100	4
101-150	5
151-200	6
201-300	7
301-400	8
401-500	9
501-1000	2% of total
1001 and over	20, plus 1 for each 100, or fraction over 1000

toileting shall comply with Sections 1110.2.2.1 through 1110.2.2.6.

1110.2.2.1 Location

The centerline of the water closet shall be not less than 24 inches and not greater than 26 inches from one side of the required clearance.

1110.2.2.2 Clearance

Clearance around the water closet shall comply with Sections 1110.2.2.2.1 through 1110.2.2.2.3.

1110.2.2.2.1 Clearance Width

Clearance around a water closet shall be not less than 66 inches in width, measured perpendicularly from the side of the clearance that is not less than 24 inches and not greater than 26 inches from the water closet centerline.

1110.2.2.2.2 Clearance Depth

Clearance around the water closet shall be not less than 78 inches in depth, measured perpendicularly from the rear wall.

1110.2.2.2.3 Clearance Overlap

The required clearance around the water closet shall permit overlaps per ICC A117.1, Section 604.3.3.

1110.2.2.3 Height

The height of the water closet seats shall comply with ICC A117.1, Section 604.4

1110.2.2.4 Swing-up Grab Bars

Swing-up grab bars shall comply with ICC A117.1, Sections 609.2 and 609.8. Swings-up grab bars shall be provided on both sides of the water closet and shall comply with all of the following:

- 1.The centerline of the grab bar shall be not less than 14 inches and not greater than 16 inches from the centerline of the water closet.
- 2.The length of the grab bar is not less than 36 inches in length, measured from the rear wall to the end of the grab bar.
- 3.The top of the grab bar in the down position is not less than 30 inches and not greater than 34 inches above the floor.

1110.2.2.6 Dispensers

Toilet paper dispensers shall be mounted on at least one of the swing-up grab bars and the outlet of the dispenser shall be located not less than 24 inches and not greater than 36 inches from the rear wall.

1110.4 Kitchens and Kitchenettes

Where kitchens and kitchenettes are

provided in accessible spaces or rooms, they shall be accessible.

1110.5 Drinking Fountains

Where drinking fountains are provided on an exterior site, on a floor or within a secured area, the drinking fountains shall be provided in accordance with Sections 1109.5.1 and 1109.5.2.

1110.5.1 Minimum Number

Not fewer than two drinking fountains shall be provided. One drinking fountain shall comply with the requirements for people who use a wheelchair and one drinking fountain shall comply with the requirements for standing persons.

Exceptions:

A single drinking fountain with two separate spouts that complies with the requirements for people who use a wheelchair and standing persons shall be permitted to be substituted for two separate drinking fountains.

1110.6 Bottle-Filling Stations

Where bottle-filling stations are provided, they shall be accessible.

Exceptions: Bottle-filling stations over drinking fountains for standing persons are not required to be accessible, provided that bottle-filling stations are also located over the drinking fountains for persons using wheelchairs.

1110.7 Elevators

Passenger elevators on an accessible route shall be accessible and comply with Chapter 30.

1110.9 Storage

Where fixed or built-in storage elements such as cabinets, coat hooks, shelves, medicine cabinets, lockers, closets and drawers are provided in required accessible spaces, at least 5 percent, but not less than one of each type shall be

accessible.

1110.9.1 Equity

Accessible facilities and spaces shall be provided with the same storage elements as provided in the similar non-accessible facilities and spaces.

1110.9.2 Shelving and Display Units

Self-service shelves and display units shall be located on an accessible route. Such shelving and display units shall not be required to comply with reach-range provisions.

1110.11 Seating at Tables, Counters and Work Surfaces

Where seating or standing space at fixed or built-in tables, counters or work surfaces is provided in accessible spaces, at least 5 percent of the seating and standing spaces, but not less than one, shall be accessible.

Exception: Check-writing surfaces at check-out aisles not required to comply with Section 1109.12.2 are not required to be accessible.

1110.11.1 Dispersion

Accessible fixed or built-in seating at tables, counters or work surfaces shall be distributed throughout the space or facility containing such elements and located on a level accessed by an accessible route.

1110.13.3 Food Service Lines

Food service lines shall be accessible. Where self-service shelves are provided, at least 50 percent, but not less than one, of each type provided shall be accessible.

1110.13.4 Queue and Waiting Lines

Queue and waiting lines servicing accessible counters or check-out aisles shall be accessible.

1110.15 Controls, Operating Mechanism and Hardware

Controls, operating mechanism and hardware intended for operation by the occupant, including switches that control lighting and ventilation and electrical convenience outlets, in accessible spaces, along accessible routes or as parts of accessible elements shall be accessible.

Exceptions:

1. Operable parts that are intended for use only by service or maintenance personnel shall not be required to be accessible.

Section 1112 Signage

1112.1 Signs

Required accessible elements shall be identified by the International Symbol of Accessibility at the following locations.

1. Accessible parking spaces required by Section 1106.2

Exception: Where the total number of parking spaces provided is four or less, identification of accessible parking spaces is not required.

9. Accessible areas of refuge in accordance with Section 1009.9.

1112.2 Signs Identifying Toilet or Bathing Rooms

Signs required in Section 403.4 of the International Plumbing Code identifying toilet rooms and bathing rooms shall be visual characters, raised characters and braille complying with ICC A117.1. Where pictograms are provided as designations for toilet rooms and bathing rooms, the pictograms shall have visual characters raised characters and braille complying with ICC A117.1

1112.4 Other Signs

Signage indicating special accessibility provisions shall be provided as shown.

2. At each door to an area of refuge providing direct access to a stairway, exterior area for assisted rescue, exit

stairway, exit passageway or exit discharge, signage shall be provided in accordance with Section 1013.4.

3. At areas of refuge, signage shall be provided in accordance with Section 1009.11.

5. At two-way communication systems, signage shall be provided in accordance with Section 1009.8.2.

6. In interior exit stairways and ramps, floor level signage shall be provided in accordance with Section 1023.9.

12 | Interior Environment

Section 1201 General

1201.1 Scope

The provisions of this chapter shall govern ventilation, temperature control, lighting, yards and courts, sound transmission, room dimensions, surrounding materials and rodent proofing associated with the interior spaces of buildings.

Section 1202 Ventilation

1202.1 General

Buildings shall be provided with natural ventilation in accordance with Section 1202.5, or mechanical ventilation in accordance with the International Mechanical Code.

1202.4 Under-Floor Ventilation

The space between the bottom of the floor joists and the earth under any building except spaces occupied by basements or cellars shall be provided with ventilation in accordance with Section 1202.4.1, 1202.4.2 or 1202.4.3.

1202.4.1 Ventilation Openings

Ventilation openings through foundation walls shall be provided. The openings shall be placed so as to provide cross ventilation of the under-floor space. The net area of ventilation openings shall be

in accordance with Section 1202.4.1.1 or 1202.4.1.2. Ventilation openings shall be covered for their height and width with any of the following materials, provided that the least dimension of the covering shall be not greater than 1/4 inch (6.4 mm)

1202.5 Natural Ventilation

Natural ventilation of an occupied space shall be through windows, doors, louvers or other openings to the outdoors. The operating mechanism for such openings shall be provided with ready access so that the openings are readily controllable by the building occupants.

1202.5.1 Ventilation Area Required

The openable area of the openings to the outdoors shall be not less than 4 percent of the floor area being ventilated.

1202.5.2 Contaminants Exhausted

Contaminant sources in naturally ventilated spaces shall be removed in accordance with the International Mechanical Code and the International Fire Code.

1202.5.2.1 Bathrooms

Rooms containing bathtubs, showers, spas and similar bathing fixtures shall be mechanically ventilated in accordance with the International Mechanical Code.

Section 1203 Temperature Control

1203.1 Equipment and Systems

Interior spaces intended for human occupancy shall be provided with active or passive space heating systems capable of maintaining an indoor temperature of not less than 68°F (20°C) at a point 3 feet (914 mm) above the floor on the design heating day.

Section 1204 Lighting

1204.1 General

Every space intended for human

occupancy shall be provided with natural light by means of exterior glazed openings in accordance with Section 1204.2 or shall be provided with artificial light in accordance with Section 1204.3. Exterior glazed openings shall open directly onto a public way or onto a yard or court in accordance with Section 1205.

1204.2 Natural Light

The minimum net glazed area shall be not less than 8 percent of the floor area of the room served.

1204.2.1 Adjoining Spaces

For the purpose of natural lighting, any room is permitted to be considered as a portion of an adjoining room where one-half of the area of the common wall is open and unobstructed and provides an opening of not less than one tenth of the floor area of the interior room or 25 square feet (2.32 m²), whichever is greater.

1204.2 Natural Light

The minimum net glazed area shall be not less than 8 percent of the floor area of the room served.

1204.2.1 Adjoining Spaces

For the purpose of natural lighting, any room is permitted to be considered as a portion of an adjoining room where one-half of the area of the common wall is open and unobstructed and provides an opening of not less than one tenth of the floor area of the interior room or 25 square feet (2.32 m²), whichever is greater.

Exception: Openings required for natural light shall be permitted to open into a sunroom with thermal isolation or a patio cover where the common wall provides a glazed area of not less than one-tenth of the floor area of the interior room or 20 square feet (1.86 m²), whichever is greater.

1204.2.2 Exterior Openings

Exterior openings required by Section

1204.2 for natural light shall open directly onto a public way, yard or court, as set forth in Section 1205.

Exceptions:

1. Required exterior openings are permitted to open into a roofed porch where the porch meets all of the following criteria:

- 1.1. Abuts a public way, yard or court.
- 1.2. Has a ceiling height of not less than 7 feet (2134 mm).
- 1.3. Has a longer side at least 65 percent open and unobstructed.

2. Skylights are not required to open directly onto a public way, yard or court.

1204.3 Artificial Light

Artificial light shall be provided that is adequate to provide an average illumination of 10 footcandles (107 lux) over the area of the room at a height of 30 inches (762 mm) above the floor level.

1204.4 Stairway Illumination

Stairways within dwelling units and exterior stairways serving a dwelling unit shall have an illumination level on tread runs of not less than 1 footcandle (11 lux). Stairways in other occupancies shall be governed by Chapter 10.

1204.5 Emergency Egress Lighting

The means of egress shall be illuminated in accordance with Section 1008.1.

Section 1208 Interior Space Dimensions

1208.1 Minimum Room Widths

Habitable spaces, other than a kitchen, shall be not less than 7 feet (2134 mm) in any plan dimension. Kitchens shall have a clear passageway of not less than 3 feet (914 mm) between counter fronts and appliances or counter fronts and walls.

1208.2 Minimum Ceiling Heights

Occupiable spaces, habitable spaces and corridors shall have a ceiling height of not less than 7 feet 6 inches (2286 mm) above the finished floor. Bathrooms, toilet rooms, kitchens, storage rooms and laundry rooms shall have a ceiling height of not less than 7 feet (2134 mm) above the finished floor.

Exceptions:

2.If any room in a building has a sloped ceiling, the prescribed ceiling height for the room is required in one-half the area thereof. Any portion of the room measuring less than 5 feet (1524 mm) from the finished floor to the ceiling shall not be included in any computation of the minimum area thereof.

1208.2.1 Furred Ceiling

Any room with a furred ceiling shall be required to have the minimum ceiling height in two-third of the area thereof, but in no case shall the height of the furred ceiling be less than 7 feet.

Section 1210 Toilet and Bathroom Requirements

1210.1 Required Fixtures

The number and type of plumbing fixtures provided in any occupancy shall comply with Chapter 29.

1210.2 Finish Materials

Walls, floors and partitions in toilet and bathrooms shall comply with Sections 1209.2.1 through 1209.2.4.

1210.2.1 Floors and Wall Bases

In other than dwelling units, toilet, bathing and shower room floor finish materials shall have a smooth, hard, nonabsorbent surface. The intersections of such floors with walls shall have a smooth, hard, nonabsorbent vertical base that extends upward onto the walls not less than 4 inches (102 mm).

1210.2.2 Walls and Partitions

Walls and partitions within 2 feet (610 mm) of service sinks, urinals and water closets shall have a smooth, hard, nonabsorbent surface, to a height of not less than 4 feet (1219 mm) above the floor, and except for structural elements, the materials used in such walls shall be of a type that is not adversely affected by moisture.

1210.3 Privacy

Public restrooms shall be visually screened from outside entry or exit doorways to ensure user privacy within the restroom. This provision shall also apply where mirrors would compromise personal privacy. Privacy at water closets and urinals shall be provided in accordance with Sections 1210.3.1 and 1210.3.2

Exception: Visual screening shall not be required for single-occupant toilet rooms with a lockable door.

1210.3.1 Water Closet Compartment

Each water closet utilized by the public or employees shall occupy a separate compartment with walls or partitions and a door enclosing the fixtures to ensure privacy.

Exceptions:

1.Water closet compartments shall not be required in a single-occupant toilet room with a lockable door.

21 | Masonry

Section 2101 General

2101.1 Scope

This chapter shall govern the materials, design, construction and quality of masonry.

2101.2 Design Methods

Masonry shall comply with the provisions of TMS 402, TMS 403 or TMS 404 as well as applicable requirements of this chapter.

2101.2.1 Masonry Veneer

Masonry veneer shall comply with the provisions of Chapter 14.

Section 2103 Masonry Construction Materials

2103.1 Masonry Units

Concrete masonry units, clay or shale masonry units, stone masonry units, glass unit masonry and AAC masonry units shall comply with Article 2.3 of TMS 602. Architectural cast stone shall conform to ASTM C1364 and TMS 504. Adhered manufactured stone masonry veneer units shall conform to ASTM C1670.

Exception: Structural clay tile for nonstructural use in fireproofing of structural members and in wall furring shall not be required to meet the compressive strength specifications. The fire-resistance rating shall be determined in accordance with ASTM E119 or UL 263 and shall comply with the requirements of Table 602.

2103.2 Mortar

Mortar for masonry construction shall comply with Section 2103.2.1, 2103.2.2, 2103.2.3 or 2103.2.4.

2103.2.1 Masonry Mortar

Mortar for use in masonry construction shall conform to Articles 2.1 and 2.6 A of TMS 602.

2103.2.2 Surface-Bonding Mortar

Surface-bonding mortar shall comply with ASTM C887. Surface bonding of concrete masonry units shall comply with ASTM C946.

2103.2.3 Mortars for Ceramic Wall and Floor Tile

Portland cement mortars for installing ceramic wall and floor tile shall comply with ANSI A108.1A and ANSI A108.1B and be of the compositions indicated in Table 2103.2.3.

2103.2.3.3 Epoxy Mortar

Ceramic tile set and grouted with chemical-resistant epoxy shall comply with ANSI A118.3. Tile set and grouted with epoxy shall be installed in accordance with ANSI A108.6.

Section 2104 Construction

2104.1 Masonry Construction

Masonry construction shall comply with the requirements of Sections 2104.1.1 through 2104.1.3 and with the requirements of either TMS 602 or TMS 604.

22 | Steel

Section 2201 General

2201.1 Scope

The provisions of this chapter govern the quality, design, fabrication and erection of steel construction.

Section 2202 Identification of Steel for Structural Purposes

2202.1 General

Identification of structural steel elements shall be in accordance with AISC 360. Identification of cold-formed steel members shall be in accordance with AISI S100. Identification of cold formed steel light-frame construction shall also comply with the requirements contained in AISI S240 or AISI S220, as applicable. Other steel furnished for structural load-carrying purposes shall be properly identified for conformity to the ordered grade in accordance with the specified ASTM standard or other specification and the provisions of this chapter. Where the steel grade is not readily identifiable from marking and test records, the steel shall be tested to verify conformity to such standards.

Section 2203 Protection of Steel for Structural Purposes

2203.1 General

Painting of structural steel elements shall be in accordance with AISC 360. Painting of open web steel joists and joist girders shall be in accordance with SJI 200 and SJI 100. Individual structural members and assembled panels of cold-formed steel construction shall be protected against corrosion in accordance with the requirements contained in AISI S100. Protection of cold-formed steel light-frame construction shall be in accordance with AISI S240 or AISI S220, as applicable.

Section 2204 Connections

2204.1 Welding

The details of design, workmanship and technique for welding and qualification of welding personnel shall be in accordance with the specifications listed in Sections 2205, 2206, 2207, 2208, 2210 and 2211. For special inspection of welding, see Section 1705.2.

2204.2 Bolting

The design, installation and inspection of bolts shall be in accordance with the requirements of Sections 2205, 2206, 2207, 2210 and 2211. For special inspection of the installation of high strength bolts, see Section 1705.2.

Section 2205 Structural Steel

2205.1 General

The design, fabrication and erection of structural steel elements in buildings, structures and portions thereof shall be in accordance with AISC 360.

Section 2206 Composite Structural Steel and Concrete Structures

2206.1 General

Systems of structural steel elements acting compositely with reinforced concrete shall be designed in accordance with AISC 360 and ACI 318, excluding ACI 318 Chapter 14.

23 | Wood

Section 2301 General

2301.1 Scope

The provisions of this chapter shall govern the materials, design, construction and quality of wood members and their fasteners.

2301.2 Nominal Sizes

For the purposes of this chapter, where dimensions of lumber are specified, they shall be deemed to be nominal dimensions unless specifically designated as actual dimensions (see Section 2304.2).

Section 2302 Design Requirements

2302.1 General

The design of structural elements or systems, constructed partially or wholly of wood or wood-based products, shall be in accordance with one of the following methods: Allowable stress design in accordance with Sections 2304, 2305 and 2306.

1. Load and resistance factor design in accordance with Sections 2304, 2305 and 2307.

2. Conventional light-frame construction in accordance with Sections 2304 and 2308.

3. AWC WFCM in accordance with Section 2309.

4. The design and construction of log structures in accordance with the provisions of ICC 400.

Section 2303 Minimum Standards and Quality

2303.1 General

Structural sawn lumber; end-jointed lumber; prefabricated wood I-joists; structural glued-laminated timber; wood structural panels; fiberboard sheathing (where used structurally); hardboard

siding (where used structurally); particleboard; preservative-treated wood; structural log members; structural composite lumber; round timber poles and piles; fire-retardant-treated wood; hardwood plywood; wood trusses; joist hangers; nails; and staples shall conform to the applicable provisions of this section.

2303.1.3 Structural Glued-Laminated Timber

Glued-laminated timbers shall be manufactured and identified as required in ANSI/AITCA 190.1 and ASTM D3737.

2303.1.4 Structural Glued Cross-Laminated Timber

Cross-laminated timbers shall be manufactured and identified in accordance with ANSI/ APA PRG 320.

2303.1.5 Wood Structural Panels

Wood structural panels, where used structurally (including those used for siding, roof and wall sheathing, subflooring, diaphragms, and built-up members), shall conform to the requirements for their type in DOC PS 1, DOC PS 2 or ANSI/ APA PRP 210. Each panel or member shall be identified for grade, bond classification, and Performance Category by the trademarks of an approved testing and grading agency. The Performance Category value shall be used as the “nominal panel thickness” or “panel thickness” whenever referenced in this code. Wood structural panel components shall be designed and fabricated in accordance with the applicable standards listed in Section 2306.1 and identified by the trademarks of an approved testing and inspection agency indicating conformance to the applicable standard. In addition, wood structural panels where permanently exposed in outdoor applications shall be of exterior type, except that wood structural panel roof sheathing exposed to the outdoors on the underside is permitted to be Exposure 1 type.

2303.1.9 Preservative-Treated Wood

Lumber, timber, plywood, piles and poles supporting permanent structures required by Section 2304.12 to be preservative treated shall conform to AWPAC U1 and M4. Lumber and plywood used in permanent wood foundation systems shall conform to Chapter 18.

2303.2.6 Exposure to Weather, Damp or Wet Locations

Where fire-retardant-treated wood is exposed to weather, or damp or wet locations, it shall be identified as “Exterior” to indicate there is no increase in the listed flame spread index as defined in Section 2303.2 when subjected to ASTM D2898.

2303.2.7 Interior Applications

Interior fire-retardant-treated wood shall have moisture content of not over 28 percent when tested in accordance with ASTM D3201 procedures at 92-percent relative humidity. Interior fire retardant-treated wood shall be tested in accordance with Section 2303.2.5.1 or 2303.2.5.2. Interior fire-retardant-treated wood designated as Type A shall be tested in accordance with the provisions of this section.

2303.3 Hardwood and Plywood

Hardwood and decorative plywood shall be manufactured and identified as required in HPVA HP-1.

2304.7 Interior Paneling

Softwood wood structural panels used for interior paneling shall conform to the provisions of Chapter 8 and shall be installed in accordance with Table 2304.10.1. Panels shall comply with DOC PS 1, DOC PS 2 or ANSI/APA PRP 210. Prefinished hardboard paneling shall meet the requirements of ANSI A135.5. Hardwood plywood shall conform to HPVA HP-1.

2304.11.2 Partitions and Walls

Partitions and walls shall comply with Section 2304.11.2.1 or 2304.11.2.2.

2304.11.2.2 Interior Walls and Partitions

Interior walls and partitions shall be of solid wood construction formed by not less than two layers of 1-inch (25 mm) matched boards or laminated construction 4 inches (102 mm) thick, or of 1-hour fire resistance-rated construction.

2304.11.3 Floors

Floors shall be without concealed spaces. Wood floors shall be constructed in accordance with Section 2304.11.3.1 or 2304.11.3.2.

2304.12 Protection Against Decay and Termites

Wood shall be protected from decay and termites in accordance with the applicable provisions of Sections 2304.12.1 through 2304.12.7.

2304.12.1 Locations Requiring Waterborne Preservatives or Naturally Durable Wood

Wood used above ground in the locations specified in Sections 2304.12.1.1 through 2304.12.1.5, 2304.12.3 and 2304.12.5 shall be naturally durable wood or preservative treated wood using waterborne preservatives, in accordance with AWPAC U1 for above-ground use.

24 | Glass and Glazing

Section 2401 General

2401.1 Scope

The provisions of this chapter shall govern the materials, design, construction and quality of glass, light-transmitting ceramic and light-transmitting plastic panels for exterior and interior use in both vertical and sloped applications in buildings and structures.

Section 2403 General Requirements for Glass

2403.1 Identification

Each pane shall bear the manufacturer's mark, designating the type and thickness of the glass or glazing material. The identification shall not be omitted unless approved and an affidavit is furnished by the glazing contractor certifying that each light is glazed in accordance with approved construction documents that comply with the provisions of this chapter. Safety glazing shall be identified in accordance with Section 2406.3. Each pane of tempered glass, except tempered spandrel glass, shall be permanently identified by the manufacturer. The identification mark shall be acid etched, sand blasted, ceramic fired, laser etched, embossed or of a type that, once applied, cannot be removed without being destroyed. Tempered spandrel glass shall be provided with a removable paper marking by the manufacturer.

2403.2 Glass Supports

Where one or more sides of any pane of glass are not firmly supported, or are subjected to unusual load conditions, detailed construction documents, detailed shop drawings and analysis or test data ensuring safe performance for the specific installation shall be prepared by a registered design professional.

2403.3 Framing

To be considered firmly supported, the framing members for each individual pane of glass shall be designed so the deflection of the edge of the glass perpendicular to the glass pane shall not exceed 1/175 of the glass edge length where the glass edge length is not more than 13 feet 6 inches, or 1/240 of the glass edge length + ¼ inch where the glass edge length is greater than 13 feet 6 inches, when subjected to the larger of the positive or negative load where loads are combined as specified in Section 1605.

2403.4 Interior Glazed Areas

Where interior glazing is installed adjacent to a walking surface, the differential deflection of two adjacent unsupported edges shall be not greater than the thickness of the panels when a force of 50 pounds per linear foot (plf) (730 N/m) is applied horizontally to one panel at any point up to 42 inches (1067 mm) above the walking surface.

Section 2405 Sloped Glazing and Skylights

2405.1 Scope

This section applies to the installation of glass and other transparent, translucent or opaque glazing material installed at a slope more than 15 degrees (0.26 rad) from the vertical plane, including glazing materials in skylights, roofs and sloped walls.

2405.2 Allowable Glazing Materials and Limitations

Sloped glazing shall be any of the following materials, subject to the listed limitations.

1. For monolithic glazing systems, the glazing material of the single light or layer shall be laminated glass with a minimum 30-mil (0.76 mm) polyvinyl butyral (or equivalent) interlayer, wired glass, light transmitting plastic materials meeting the requirements of Section 2607, heat strengthened glass or fully tempered glass.

2. For multiple-layer glazing systems, each light or layer shall consist of any of the glazing materials specified in Item 1. Annealed glass is permitted to be used as specified in Exceptions 2 and 3 of Section 2405.3.

Laminated glass and plastic materials described in Items 1 and 2 shall not require the screening or height restrictions provided in Section 2405.3.

For additional requirements for plastic skylights, see Section 2610. Glass-block construction shall conform to the requirements of Section 2110.1.

2405.5 Unit Skylights and Tubular Daylighting Devices

Unit skylights and tubular daylighting devices shall be tested and labeled as complying with AAMA/WDMA/CSA 101/IS./A440. The label shall state the name of the manufacturer, the approved labeling agency, the product designation and the performance grade rating as specified in AAMA/WDMA/CSA 101/IS.2/ A440. Where the product manufacturer has chosen to have the performance grade of the skylight rated separately for positive and negative design pressure, then the label shall state both performance grade ratings as specified in AAMA/WDMA/CSA 101/IS.2/A440 and the skylight shall comply with Section 2405.5.2. Where the skylight is not rated separately for positive and negative pressure, then the performance grade rating shown on the label shall be the performance grade rating determined in accordance with AAMA/WDMA/CSA 101/IS.2/ A440 for both positive and negative design pressure and the skylight shall conform to Section 2405.5.1.

2406.4 Hazardous Locations

The locations specified in Sections 2406.4.1 through 2406.4.7 shall be considered to be specific hazardous locations requiring safety glazing materials.

2406.4.1 Glazing in Doors

Glazing in all fixed and operable panels of swinging, sliding and bifold doors shall be considered to be a hazardous location.

Exceptions:

1. Glazed openings of a size through which a 3-inch-diameter (76 mm) sphere is unable to pass.
2. Decorative glazing.
3. Glazing materials used as curved glazed panels in revolving doors.
4. Commercial refrigerated cabinet glazed

doors.

2406.4.2 Glazing Adjacent to Doors

Glazing in an individual fixed or operable panel adjacent to a door where the nearest vertical edge of the glazing is within a 24-inch (610 mm) arc of either vertical edge of the door in a closed position and where the bottom exposed edge of the glazing is less than 60 inches (1524 mm) above the walking surface shall be considered to be a hazardous location.

Exceptions:

1. Decorative glazing.
2. Where there is an intervening wall or other permanent barrier between the door and glazing.
3. Where access through the door is to a closet or storage area 3 feet (914 mm) or less in depth. Glazing in this application shall comply with Section 2406.4.3.

2406.4.3 Glazing in Windows

Glazing in an individual fixed or operable panel that meets all of the following conditions shall be considered to be a hazardous location: The exposed area of an individual pane is greater than 9 square feet (0.84 m²).

1. The bottom edge of the glazing is less than 18 inches (457 mm) above the floor.
2. The top edge of the glazing is greater than 36 inches (914 mm) above the floor.
3. One or more walking surface(s) are within 36 inches (914 mm), measured horizontally and in a straight line, of the plane of the glazing.

Exceptions: Decorative glazing.

1. Where a horizontal rail is installed on the accessible side(s) of the glazing 34 to 38 inches (864 to 965 mm) above the walking surface. The rail shall be capable of withstanding a horizontal load of 50 pounds per linear foot (730 N/m) without contacting the glass and be not less than

11/2 inches (38 mm) in cross-sectional height.

2. Outboard panes in insulating glass units or multiple glazing where the bottom exposed edge of the glass is 25 feet (7620 mm) or more above any grade, roof, walking surface or other horizontal or sloped (within 45 degrees of horizontal) (0.79 rad) surface adjacent to the glass exterior.

29 | Plumbing Systems

Section 2901

General 2901.1 Scope

The provisions of this chapter and the International Plumbing Code shall govern the design, construction, erection and installation of plumbing components, appliances, equipment and systems used in buildings and structures covered by this code. Toilet and bathing rooms shall be constructed in accordance with Section 1209. Private sewage disposal systems shall conform to the International Private Sewage Disposal Code. The International Fire Code, the International Property Maintenance Code and the International Plumbing Code shall govern the use and maintenance of plumbing components, appliances, equipment and systems. The International Existing Building Code and the International Plumbing Code shall govern the alteration, repair, relocation, replacement and addition of plumbing components, appliances, equipment and systems.

Section 2902 Minimum Plumbing Facilities

2902.1 Minimum Number of Fixtures

Plumbing fixtures shall be provided in the minimum number as shown in Table 2902.1 based on the actual use of the building or space. Uses not shown in Table 2902.1 shall be considered individually by the code official. The number of occupants shall be determined by this code.

Table 2902.1:

Business: Buildings for the transaction of business, professional services, other services involving merchandise, office buildings, banks, light industrial, ambulatory care and similar uses.

Water Closets: 1 per 25 for the first 50 and 1 per 50 for the remainder exceeding 50

Lavatories: 1 per 40 for the first 80 and 1 per 80 for the remainder exceeding 80

Drinking Fountains: 1 per 100

Other: 1 service sink

2902.1.1 Fixture Calculations

To determine the occupant load of each sex, the total occupant load shall be divided in half. To determine the required number of fixtures, the fixture ratio or ratios for each fixture type shall be applied to the occupant load of each sex in accordance with Table 2902.1. Fractional numbers resulting from applying the fixture ratios of Table 2902.1 shall be rounded up to the next whole number. For calculations involving multiple occupancies, such fractional numbers for each occupancy shall first be summed and then rounded up to the next whole number.

Exception:

1. The total occupant load shall not be required to be divided in half where approved statistical data indicate a distribution of the sexes of other than 50 percent of each sex.

2. Where multiple-user facilities are designed to serve all genders, the minimum fixture count shall be calculated 100 percent based on total occupant load. In such multiple-user facilities, each fixture type shall be in accordance with ICV A117.1 and each urinal that is provided shall be located in a stall.

3. Distribution of the sexes is not required where single-user water closets and

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bathing room fixtures are provided in accordance with Section 2902.1.2.

2902.1.2 Single-User Toilet Facility and Bathing Room Fixtures

The plumbing fixtures located in single user toilet facilities and bathing rooms, including family or assisted-use toilet and bathing rooms that are required by Section 1110.2.1, shall contribute toward the total number of required plumbing fixtures for a building or tenant space. Single-user toilet facilities and bathing rooms, and family or assisted-use toilet rooms and bathing rooms shall be identified as being available for use by all personas regardless of their sex.

The total number of fixtures shall be permitted to be based on the required number of separate facilities or based on the aggregate of any combination of single-user or separate facilities.

2902.1.3 Lavatory Distribution

Where two or more toilet rooms are provided for each sex, the required number of lavatories shall be distributed proportionately to the required number of water closets.

2902.3.1 Access

The route to the public toilet facilities required by Section 2902.3 shall not pass through kitchens, storage rooms or closets. Access to the required facilities shall be from within the building or from the exterior of the building. The public shall have access to the required toilet facilities at all times that the building is occupied.

2902.3.2 Prohibited Toilet Room Location

Toilet rooms shall not open directly into a room used for the preparation of food for service to the public.

2902.4 Signage

Required public facilities shall be provided

with signs that designate the sex as required by Section 2902.2. Signs shall be readily visible and located near the entrance to each toilet facility. Signs for accessible toilet facilities shall comply with Section 1111.

2902.4.1 Directional Signage

Directional signage indicating the route to the required public toilet facilities shall be posted in a lobby, corridor, aisle or similar space, such that the sign can be readily seen from the main entrance to the building or tenant space.

2902.5 Drinking Fountain Location

Drinking fountains shall not be required to be located in individual tenant spaces provided that public drinking fountains are located within a distance of travel of 500 feet (152 m) of the most remote location in the tenant space and not more than one story above or below the tenant space. Where the tenant space is in a covered or open mall, such distance shall not exceed 300 feet (91 440 mm). Drinking fountains shall be located on an accessible route.

2010 ADA Standards

03 | Building Blocks

301 General

301.1 Scope

The provisions of Chapter 3 shall apply where required by Chapter 2 or where referenced by a requirement in this document.

302 Floor or Ground Surfaces

302.1 General

Floor and ground surfaces shall be stable, firm, and slip resistant and shall comply with 302. Advisory 302.1 General. A stable surface is one that remains unchanged by contaminants or applied force, so that when the contaminant or force is removed, the surface returns to its original condition.

A firm surface resists deformation by either indentations or particles moving on its surface. A slip resistant surface provides sufficient frictional counterforce to the forces exerted in walking to permit safe ambulation.

302.2 Carpet

Carpet or carpet tile shall be securely attached and shall have a firm cushion, pad, or backing or no cushion or pad. Carpet or carpet tile shall have a level loop, textured loop, level cut pile, or level cut/uncut pile texture. Pile height shall be ½ inch (13 mm) maximum. Exposed edges of carpet shall be fastened to floor surfaces and shall have trim on the entire length of the exposed edge. Carpet edge trim shall comply with 303.

Advisory 302.2 Carpet

Carpets and permanently affixed mats can significantly increase the amount of force (roll resistance) needed to propel a wheelchair over a surface. The firmer the carpeting and backing, the lower the roll resistance. A pile thickness up to ½ inch (13 mm) (measured to the backing, cushion, or pad) is allowed, although a lower pile provides easier wheelchair maneuvering. If a backing, cushion or pad is used, it must be firm. Preferably, carpet pad should not be used because the soft padding increases roll resistance.

303 Changes in Level

303.1 General

Where changes in level are permitted in floor or ground surfaces, they shall comply with 303.

303.303.2 Vertical

Changes in level of ¼ inch (6.4 mm) high maximum shall be permitted to be vertical.

304 Turning Space

304.1 General

Turning space shall comply with 304.3.

304.2 Floor or Ground Surfaces

Floor or ground surfaces of a turning space shall comply with 302. Changes in level are not permitted.

EXCEPTION: Slopes not steeper than 1:48 shall be permitted.

304.3 Size

Turning space shall comply with 304.3.1 or 304.3.2.

304.3.1 Circular Space

The turning space shall be a space of 60 inches (1525 mm) diameter minimum. The space shall be permitted to include knee and toe clearance complying with 306

304.3.2 T-Shaped Space

The turning space shall be a T-shaped space within a 60 inch (1525 mm) square minimum with arms and base 36 inches (915 mm) wide minimum. Each arm of the T shall be clear of obstructions 12 inches (305 mm) minimum in each direction and the base shall be clear of obstructions 24 inches (610 mm) minimum. The space shall be permitted to include knee and toe clearance complying with 306 only at the end of either the base or one arm.

304.4 Door Swing

Doors shall be permitted to swing into turning spaces.

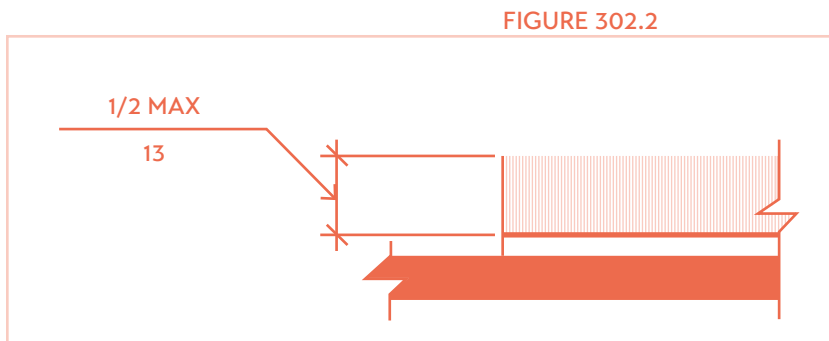
305 Clear Floor or Ground Space

305.1 General

Clear floor or ground space shall comply with 305.

305.2 Floor or Ground Surfaces

Floor or ground surfaces of a clear floor or ground space shall comply with 302. Changes in level are not permitted.



EXCEPTION: Slopes not steeper than 1:48 shall be permitted. 305.3 Size. The clear floor or ground space shall be 30 inches (760 mm) minimum by 48 inches (1220 mm) minimum.

305.3 Size

The clear floor or ground space shall be 30 inches minimum by 48 inches minimum.

305.4 Knee and Toe Clearance.

Unless otherwise specified, clear floor or ground space shall be permitted to include knee and toe clearance complying with 306.

305.5 Position

Unless otherwise specified, clear floor or ground space shall be positioned for either forward or parallel approach to an element.

305.6 Approach

One full unobstructed side of the clear floor or ground space shall adjoin an accessible route or adjoin another clear floor or ground space.

305.7 Maneuvering Clearance

Where a clear floor or ground space is located in an alcove or otherwise confined on all or part of three sides, additional maneuvering clearance shall be provided in accordance with 305.7.1 and 305.7.2.

306 Knee and Toe Clearance

306.1 General

Where space beneath an element is included as part of clear floor or ground space or turning space, the space shall comply with 306. Additional space shall not be prohibited beneath an element but shall not be considered as part of the clear floor or ground space or turning space.

Advisory 306.1 General

Clearances are measured in relation to the usable clear floor space, not necessarily to the vertical support for an element. When determining clearance under an object for required turning or maneuvering space, care should be taken to ensure the space is clear of any obstructions.

306.2 Toe Clearance

306.2.1 General

Space under an element between the finish floor or ground and 9 inches (230 mm) above the finish floor or ground shall be considered toe clearance and shall comply with 306.2.

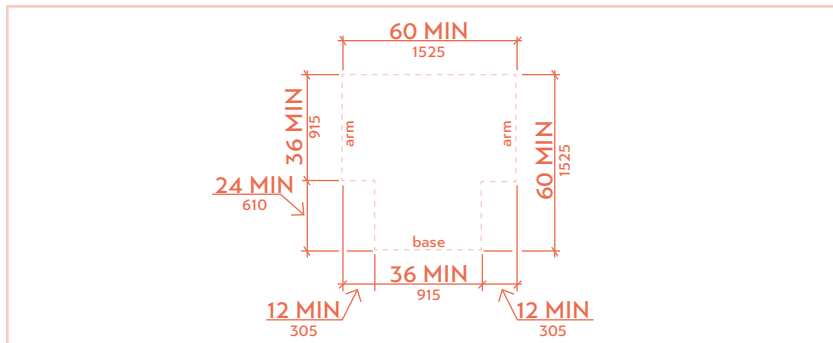
306.2.2 Maximum Depth

Toe clearance shall extend 25 inches (635 mm) maximum under an element.

306.2.3 Minimum Required Depth

Where toe clearance is required at an element as part of a clear floor space, the toe clearance shall extend 17 inches (430 mm) minimum under the element.

FIGURE 304.3.2

**306.2.4 Additional Clearance**

Space extending greater than 6 inches (150 mm) beyond the available knee clearance at 9 inches (230 mm) above the finish floor or ground shall not be considered toe clearance.

306.2.5 Width

Toe clearance shall be 30 inches (760 mm) wide minimum.

306.3 Knee Clearance**306.3.1 General**

Space under an element between 9 inches (230 mm) and 27 inches (685 mm) above the finish floor or ground shall be considered knee clearance and shall comply with 306.3.

306.3.2 Maximum Depth

Knee clearance shall extend 25 inches (635 mm) maximum under an element at 9 inches (230 mm) above the finish floor or ground.

306.3.3 Minimum Required Depth

Where knee clearance is required under an element as part of a clear floor space, the knee clearance shall be 11 inches (280 mm) deep minimum at 9 inches (230 mm) above the finish floor or ground, and 8 inches (205 mm) deep minimum at 27 inches (685 mm) above the finish floor or ground.

306.3.4 Clearance Reduction

Between 9 inches (230 mm) and 27 inches (685 mm) above the finish floor or ground, the knee clearance shall be permitted to reduce at a rate of 1 inch (25 mm) in depth for each 6 inches (150 mm) in height. 306.3.5 Width. Knee clearance shall be 30 inches (760 mm) wide minimum.

307 Protruding Objects**307.1 General**

Protruding objects shall comply with 307

Advisory 307.2 Protrusion Limits

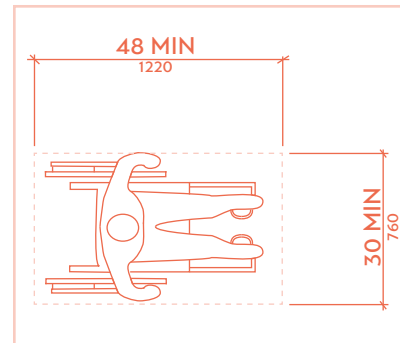
Objects with leading edges more than 27 inches (685 mm) and not more than 80 inches (2030 mm) above the finish floor or ground shall protrude 4 inches (100 mm) maximum horizontally into the circulation path. EXCEPTION: Handrails shall be permitted to protrude 4½ inches (115 mm) maximum

307.4 Vertical Clearance

Vertical clearance shall be 80 inches (2030 mm) high minimum. Guardrails or other barriers shall be provided where the vertical clearance is less than 80 inches (2030 mm) high. The leading edge of such guardrail or barrier shall be located 27 inches (685 mm) maximum above the finish floor or ground. EXCEPTION: Door closers and door stops shall be permitted to be 78 inches (1980 mm) minimum above the finish floor or ground.

307.5 Required Clear Width

FIGURE 305.3



Protruding objects shall not reduce the clear width required for accessible routes.

308.2 Forward Reach**308.2.1 Unobstructed**

Where a forward reach is unobstructed, the high forward reach shall be 48 inches (1220 mm) maximum and the low forward reach shall be 15 inches (380 mm) minimum above the finish floor or ground.

308.2.2 Obstructed High Reach

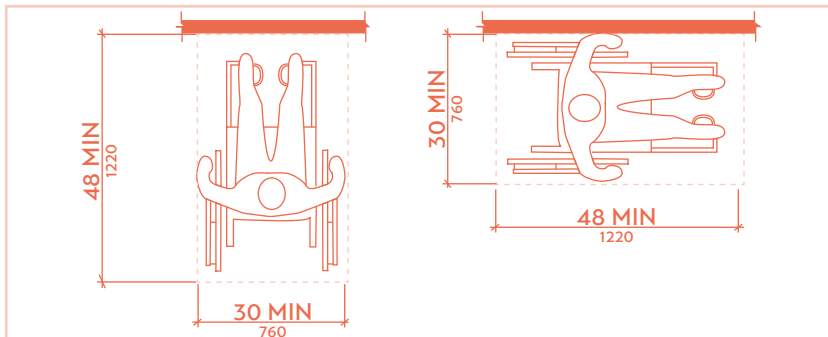
Where a high forward reach is over an obstruction, the clear floor space shall extend beneath the element for a distance not less than the required reach depth over the obstruction. The high forward reach shall be 48 inches (1220 mm) maximum where the reach depth is 20 inches (510 mm) maximum. Where the reach depth exceeds 20 inches (510 mm), the high forward reach shall be 44 inches (1120 mm) maximum and the reach depth shall be 25 inches (635 mm) maximum.

03 | Accessible Routes**Advisory 403.6 Handrails**

Handrails provided in elevator cabs and platform lifts are not required to comply with the requirements for handrails on walking surfaces.

404 Doors, Doorways and Gates**404.2 Manual Doors, Doorways, and Manual Gates**

FIGURE 305.5



Manual doors and doorways and manual gates intended for user passage shall comply with 404.2.

404.2.2 Double-Leaf Doors and Gates

At least one of the active leaves of doorways with two leaves shall comply with 404.2.3 and 404.2.4. 404.2.3 Clear Width. Door openings shall provide a clear width of 32 inches (815 mm) minimum. Clear openings of doorways with swinging doors shall be measured between the face of the door and the stop, with the door open 90 degrees.

At least one of the active leaves of doorways with two leaves shall comply with 404.2.3 and 404.2.4.

404.2.3 Clear Width

Door openings shall provide a clear width of 32 inches (815 mm) minimum. Clear openings of doorways with swinging doors shall be measured between the face of the door and the stop, with the door open 90 degrees. Openings more than 24 inches (610 mm) deep shall provide a clear opening of 36 inches (915 mm) minimum. There shall be no projections into the required clear opening width lower than 34 inches (865 mm) above the finish floor or ground. Projections into the clear opening width between 34 inches (865 mm) and 80 inches (2030 mm) above the finish floor or ground shall not exceed 4 inches (100 mm). EXCEPTIONS: 1. In alterations, a projection of 5/8 inch (16

mm) maximum into the required clear width shall be permitted for the latch side stop. 2. Door closers and door stops shall be permitted to be 78 inches (1980 mm) minimum above the finish floor or ground.

404.2.4 Maneuvering Clearances

Minimum maneuvering clearances at doors and gates shall comply with 404.2.4. Maneuvering clearances shall extend the full width of the doorway and the required latch side or hinge side clearance. EXCEPTION: Entry doors to hospital patient rooms shall not be required to provide the clearance beyond the latch side of the door.

404.2.4.1 Swinging Doors and Gates

Swinging doors and gates shall have maneuvering clearances complying with Table 404.2.4.1.

404.2.4.2 Doorways without Doors or Gates, Sliding Doors, and Folding Doors

Doorways less than 36 inches (915 mm) wide without doors or gates, sliding doors, or folding doors shall have maneuvering clearances complying with Table 404.2.4.2.

404.2.7 Door and Gate Hardware

Handles, pulls, latches, locks, and other operable parts on doors and gates shall comply with 309.4. Operable parts of such hardware shall be 34 inches (865 mm) minimum and 48 inches (1220 mm) maximum above the finish floor or ground. Where sliding doors are in the

fully open position, operating hardware shall be exposed and usable from both sides.

404.2.8 Closing Speed

Door and gate closing speed shall comply with 404.2.8.

404.2.8.1 Door Closers and Gate Closers

Door closers and gate closers shall be adjusted so that from an open position of 90 degrees, the time required to move the door to a position of 12 degrees from the latch is 5 seconds minimum.

404.2.8.2 Spring Hinges

Door and gate spring hinges shall be adjusted so that from the open position of 70 degrees, the door or gate shall move to the closed position in 1.5 seconds minimum.

404.2.9 Door and Gate Opening Force

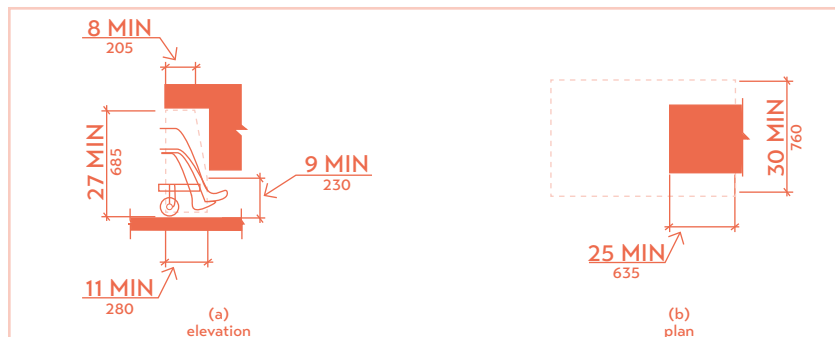
Fire doors shall have a minimum opening force allowable by the appropriate administrative authority. The force for pushing or pulling open a door or gate other than fire doors shall be as follows:

1. Interior hinged doors and gates: 5 pounds (22.2 N) maximum.
2. Sliding or folding doors: 5 pounds (22.2 N) maximum. These forces do not apply to the force required to retract latch bolts or disengage other devices that hold the door or gate in a closed position.

404.2.11 Vision Lights

Doors, gates, and side lights adjacent to doors or gates, containing one or more glazing panels that permit viewing through the panels shall have the bottom of at least one glazed panel located 43 inches (1090 mm) maximum above the finish floor. EXCEPTION: Vision lights with the lowest part more than 66 inches (1675 mm) from the finish floor or ground shall not be required to comply with 404.2.11

FIGURE 306.1



407 Elevators

407.1 General

Elevators shall comply with 407 and with ASME A17.1 (incorporated by reference, see “Referenced Standards” in Chapter 1). They shall be passenger elevators as classified by ASME A17.1. Elevator operation shall be automatic.

407.2.1 Call Controls

Where elevator call buttons or keypads are provided, they shall comply with 407.2.1 and 309.4. Call buttons shall be raised or flush.

EXCEPTION: Existing elevators shall be permitted to have recessed call buttons.

407.2.1.1 Height

Call buttons and keypads shall be located within one of the reach ranges specified in 308, measured to the centerline of the highest operable part. EXCEPTION: Existing call buttons and existing keypads shall be permitted to be located at 54 inches (1370 mm) maximum above the finish floor, measured to the centerline of the highest operable part.

407.2.1.2 Size

Call buttons shall be $\frac{3}{4}$ inch (19 mm) minimum in the smallest dimension. EXCEPTION: Existing elevator call buttons shall not be required to comply with 407.2.1.2

407.2.1.3 Clear Floor or Ground Space

A clear floor or ground space complying with 305 shall be provided at call controls.

407.2.1.4 Location

The call button that designates the up direction shall be located above the call button that designates the down direction.

407.2.1.5 Signals

Call buttons shall have visible signals to indicate when each call is registered and when each call is answered. EXCEPTIONS:

1. Destination-oriented elevators shall not be required to comply with 407.2.1.5 provided that visible and audible signals complying with 407.2.2 indicating which elevator car to enter are provided.

2. Existing elevators shall not be required to comply with 407.2.1.5

407.2.2.3 Audible Signals

Audible signals shall sound once for the up direction and twice for the down direction, or shall have verbal annunciators that indicate the direction of elevator car travel. Audible signals shall have frequency of 1500 Hz maximum. Verbal annunciators shall have a frequency of 300 Hz minimum and 3000 Hz maximum. The audible signal and verbal annunciator shall be 10 dB minimum above ambient, but shall not exceed 80 dB, measured at the hall call button.

407.2.2.4 Differentiation

Each destination-oriented elevator in a

bank of elevators shall have audible and visible means for differentiation.

407.2.3 Hoistway Signs

Signs at elevator hoistway entrances shall comply with 407.2.3.

407.2.3.1 Floor Designation

Floor designations complying with 703.2 and 703.4.1 shall be provided on both jambs of elevator hoistway entrances. Floor designations shall be provided in both tactile characters and braille. Tactile characters shall be 2 inches (51 mm) high minimum. A tactile star shall be provided on both jambs at the main entry level.

407.3 Elevator Door Requirements

Hoistway and car doors shall comply with 407.3.

407.3.1 Type

Elevator doors shall be the horizontal sliding type. Car gates shall be prohibited.

407.3.2 Operation

Elevator hoistway and car doors shall open and close automatically.

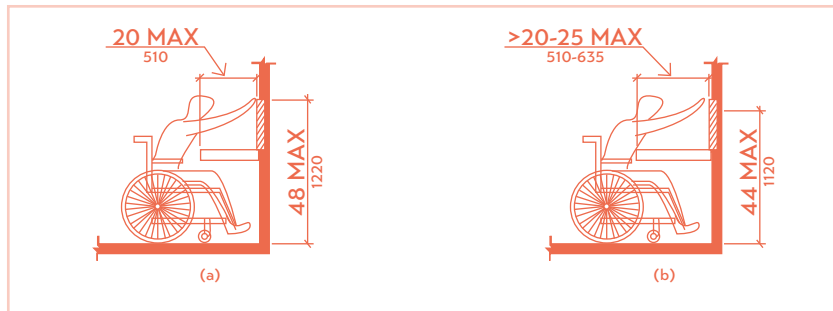
407.3.3 Reopening Device

Elevator doors shall be provided with a reopening device complying with 407.3.3 that shall stop and reopen a car door and hoistway door automatically if the door becomes obstructed by an object or person.

407.3.4 Door and Signal Timing

The minimum acceptable time from notification that a car is answering a call or notification of the car assigned at the means for the entry of destination information until the doors of that car start to close shall be calculated from the following equation: $T = D/(1.5 \text{ ft/s})$ or $T = D/(455 \text{ mm/s}) = 5 \text{ seconds minimum}$ where T equals the total time in seconds and D equals the distance (in feet or

FIGURE 308.2.2



millimeters) from the point in the lobby or corridor 60 inches (1525 mm) directly in front of the farthest call button controlling that car to the centerline of its hoistway door.

407.4 Elevator Car Requirements

Elevator cars shall comply with 407.4.

407.4.1 Car Dimensions

Inside dimensions of elevator cars and clear width of elevator doors shall comply with Table 407.4.1.

407.4.2 Floor Surfaces

Floor surfaces in elevator cars shall comply with 302 and 303.

407.4.3 Platform to Hoistway Clearance

The clearance between the car platform sill and the edge of any hoistway landing shall be 1¼ inch (32 mm) maximum.

407.4.4 Leveling

Each car shall be equipped with a self leveling feature that will automatically bring and maintain the car at floor landings within a tolerance of ½ inch (13 mm) under rated loading to zero loading conditions.

407.4.5 Illumination

The level of illumination at the car controls, platform, car threshold and car landing sill shall be 5 foot candles (54 lux) minimum.

407.4.6 Elevator Car Controls

Where provided, elevator car controls shall comply with 407.4.6 and 309.4.

407.4.6.2 Buttons

Car control buttons with floor designations shall comply with 407.4.6.2 and shall be raised or flush. EXCEPTION: In existing elevators, buttons shall be permitted to be recessed.

407.4.6.2.1 Size

Buttons shall be 3/4 inch (19 mm) minimum in their smallest dimension. 407.4.6.2.2 Arrangement. Buttons shall be arranged with numbers in ascending order. When two or more columns of buttons are provided they shall read from left to right.

407.4.6.3 Keypads

Car control keypads shall be in a standard telephone keypad arrangement and shall comply with 407.4.7.2.

407.4.6.4 Emergency Controls

Emergency controls shall comply with 407.4.6.4.

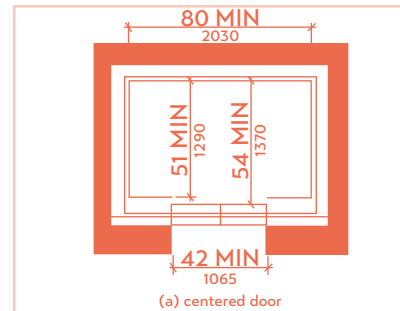
407.4.6.4.1 Height

Emergency control buttons shall have their centerlines 35 inches (890 mm) minimum above the finish floor.

407.4.6.4.2 Location

Emergency controls, including the emergency alarm, shall be grouped at the

FIGURE 407.4.1



bottom of the panel.

407.4.7 Designations and Indicators of Car Controls

Designations and indicators of car controls shall comply with 407.4.7.

407.4.7.1 Buttons

Car control buttons shall comply with 407.4.7.1.

407.4.7.1.1 Type

Control buttons shall be identified by tactile characters complying with 703.2

407.4.7.1.2 Location

Raised character and braille designations shall be placed immediately to the left of the control button to which the designations apply.

407.4.8 Car Position Indicators

Audible and visible car position indicators shall be provided in elevator cars.

407.4.8.1 Visible Indicators

Visible indicators shall comply with 407.4.8.1.4

407.4.8.1.1 Size

Characters shall be ½ inch (13 mm) high minimum.

407.4.8.1.2 Location

Indicators shall be located above the car control panel or above the door.

407.4.8.1.3 Floor Arrival

As the car passes a floor and when a car stops at a floor served by the elevator, the corresponding character shall illuminate. EXCEPTION: Destination-oriented elevators shall not be required to comply with 407.4.8.1.3 provided that the visible indicators extinguish when the call has been answered.

407.4.8.1.4 Destination Indicator

In destination-oriented elevators, a display shall be provided in the car with visible indicators to show car destinations.

407.4.8.2 Audible Indicators

Audible indicators shall comply with 407.4.8.2.

407.4.8.2.1 Signal Type

The signal shall be an automatic verbal annunciator which announces the floor at which the car is about to stop. EXCEPTION: For elevators other than destination-oriented elevators that have a rated speed of 200 feet per minute (1 m/s) or less, a non-verbal audible signal with a frequency of 1500 Hz maximum which sounds as the car passes or is about to stop at a floor served by the elevator shall be permitted.

407.4.8.2.2 Signal Level

The verbal annunciator shall be 10 dB minimum above ambient, but shall not exceed 80 dB, measured at the annunciator.

407.4.8.2.3 Frequency

The verbal annunciator shall have a frequency of 300 Hz minimum to 3000 Hz maximum. 407.4.9 Emergency Communication. Emergency two-way communication systems shall comply with 308. Tactile symbols and characters shall be provided adjacent to the device and shall comply with 703.2.

08 | Special Rooms, Spaces, + Elements

804 Kitchens and Kitchenettes

804.1 General

Kitchens and kitchenettes shall comply with 804.

804.2 Clearance

Where a pass through kitchen is provided clearances shall comply with 804.2.1. Where a U-Shaped kitchen is provided clearances shall comply with 804.2.2.

Exception: Spaces that do not provide a cooktop or conventional range shall not be required to copy with 804.2.

Advisory 804.2 Clearance

Clearances are measured from the furthest projecting face of all opposing base cabinets, counter tops, appliances, or walls, excluding hardware.

804.3.1 Clear Floor or Ground Spaces

A clear floor space complying with 305 positioned for a forward approach shall be provided. The clear floor or ground spaces shall be centered on the kitchen work surface and shall provide knee and toe clearance complying with 306.

Exception: Cabinetry shall be permitted under the kitchen work surface provided that all of the following conditions are met:

- a) The cabinetry can be removed without removal or replacement of the kitchen work surface
- b) The finish floor extends under the cabinetry
- c) The walls behind and surrounding the cabinetry are finished

804.3.2 Height

The kitchen work surface shall be 34 inches maximum above the finish floor or ground.

Exception: A counter that is adjustable to provide a kitchen work surface at variable heights, 29 inches minimum and 36 inches maximum, shall be permitted.

09 | Built-In Elements

901 General

901.1 Scope

The provisions of Chapter 9 shall apply where required by Chapter 2 or where referenced by a requirement in this document.

902 Dining Surfaces and Work Surfaces

902.1 General

Dining surfaces and work surfaces shall comply with 902.2 and 902.3.

Advisory 902.1 General

Dining surfaces include, but are not limited to, bars, tables, lunch counters, and booths. Examples of work surfaces include writing surfaces, study carrels, student laboratory stations, baby changing and other tables or fixtures for personal grooming, coupon counters, and where covered by the ABA scoping provisions, employee work stations.

902.2 Clear Floor or Ground Space

A clear floor space complying with 305 positioned for a forward approach shall be provided. Knee and toe clearance complying with 306 shall be provided.

902.3 Height

The tops of dining surfaces and work surfaces shall be 28 inches minimum and 34 inches maximum above finished floor or ground.

4.4

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written + imagery

WRITTEN REFERENCES
IMAGE REFERENCES

WRITTEN REFERENCES

literature review

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art + precedents

- Figure 0.1** Munch, E. (1900). View from Nordstrand [painting]. Wikimedia Commons. https://commons.wikimedia.org/wiki/File:Sunset,_Nordstrand.jpg.
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