

THE GENERATION Z WORKPLACE:

WELL-BEING AND PRODUCTIVITY FOR THE NEXT GENERATION

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ABSTRACT

This interior design practicum investigates how workplace well-being and productivity can be optimized for members of Generation Z, who were born after 1996 and represent 23% of the Canadian population (Statistics Canada, 2016). This practicum also explores the integration of Generation Z's values, characteristics, needs and preferences into the existing workforce, which includes members of the Baby Boomer Generation (born 1946-1964), Generation X (born 1965-1976), and Generation Y (born 1977-1995). Furthermore, this project explores how interior design strategies can facilitate organisational goals such as intergenerational knowledge transfer, succession planning, and training.

The investigations of Generation Z are theoretical, as their workplace needs and preferences are still unknown. By looking at sociological and psychological theory, market research data, and current workplace trends, it is possible to anticipate what the workplace may look like in the near future. Further investigations include contextual analysis, precedent analysis, and literature reviews on the environmental and psychological factors that affect workplace well-being and productivity. Each investigation provides valuable insights towards designing the Generation Z workplace.

The resulting design for the workplace of the future is located in one of Winnipeg, Manitoba's newest and most environmentally responsible buildings, Centrepont at 311 Portage Avenue. The building, which has attained a Gold certification from the Leadership in Energy and Environmental Design (LEED) Building Standard, was strategically chosen to help the proposed design achieve environmental sustainability goals. Specific human health and well-being goals are also implemented and measured against the criteria in the WELL Building Standard.

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CHAPTER 1: INTRODUCTION

1.1 RATIONALE

This practicum project has been developed as a response to the variety of factors that influence contemporary workplace design. These factors include generational values, characteristics, needs and preferences, real estate trends, well-being, productivity, sustainability, workstyles, and technology. Studying one of these factors on its own is not sufficient for gaining a holistic understanding of how individuals are affected by their workplace's built environment, which has led to the pursuit of combining all of the aforementioned factors into one project with the intent of creating design strategies that can be applied in real-world scenarios. While this interior design practicum project aims to satisfy the needs and preferences of each of the four generations present in the workplace, Generation Z receives heightened attention as the target demographic for the proposed design. As a generational cohort whose presence in the workplace will continue to increase throughout the next two decades, understanding the work-related needs and preferences of Generation Z will be a valuable area of knowledge for interior designers.

1.1.1 WHY GENERATION Z?

Generation Z, whose members were born during the period 1996-present, represent 23% of the Canadian population (Statistics Canada, 2016). The oldest members of this cohort turn 22 years old in 2018, the age at which the first 4-year degree post-secondary educated individuals begin to enter the workforce. Although their representation within the workplace is proportionally small in 2018, their share relative to older generations will continue to increase throughout the next two decades. As the first generational cohort that grew up in a post-digital era, their technology-related skills will be highly valued by organisations that operate within the information technology industry sector, such as the client for this project. These organisations will likely experience an accelerated rise in the proportion of Generation Z employees within their workforce.

Studying Generation Z in the context of workplace design presents interior design challenges and opportunities that would be absent if a study were to be done exclusively on the current workforce and workplace design. Instead of reacting to the known and well-

documented issues found in contemporary workplaces, looking into the near future allows for a higher degree of creative freedom while still being grounded in the reality of current issues, technologies and economics. Drastic changes rarely occur overnight, so it is possible to learn from the recent past and the present to predict future needs and preferences.

Although this practicum project focusses on Generation Z, it is vital that the needs and preferences of the older generations in the workforce are understood and addressed, since any changes made in the workplace should be considerate of all stakeholders. A theoretical framework is introduced in Chapter 2 in order to gain a better understanding of how generations are defined and characterised. Each of the four generations that are present in the workplace is discussed in greater detail in Chapter 3, providing guidelines for how interior design can facilitate a successful intergenerational workplace.

1.1.2 HOW WORKPLACE DESIGN AFFECTS INDIVIDUALS

Commercial interior design plays a vital role in the lives of Canadians because more than 60 per cent of the working population is employed in office-based occupations (Statistics Canada, 2011). For the members of the working population in office-based occupations, their workplace's ability to provide a healthy environment is an important factor for their personal health and well-being. Providing a healthy workplace is also in an employer's best interest because productivity losses that result from employee disengagement and absenteeism due to illness are costly negative outcomes that can result when a workplace is not optimally designed.

Real estate and organisations' commitment to decreasing overhead costs are often the strongest drivers of workplace design evolution. Between 2010 and 2013, the amount of space per worker in offices decreased from 225 square feet to 150 square feet, and the amount of space is projected to continue declining (CoreNet Global, 2013). This has been a result of a gradual office space planning shift from relatively large, private offices to an open-plan, shared office design

(Ashkanasy, Ayoko & Jehn, 2014; Kaarlela-Tuomalla, Helenius, Keskinen, & Hongisto, 2009). Some of the assumed benefits of open-plan offices include increased “cooperation, social relations, communication, feedback, solidarity and knowledge-sharing between workers” (Kaarlela-Tuomaala et al., 2009). However, research has shown that performance has been reduced by as much as 45% in open-plan offices, compared to conventional offices (Roelofsen, 2008).

This reduction in performance can largely be attributed to environmental and psychological factors being compromised in an effort to reduce workplace footprints. The environmental factors affecting performance in offices include: acoustics, air quality, cleanliness, interaction with nature, lighting, spatial comfort, and thermal comfort (Ashkanasy et al, 2014; Vischer, 2005). Psychological factors include environmental control, the perception of status, privacy, security, and territoriality (Ashkanasy et al, 2014; Vischer, 2005).

One of the most pronounced indicators of the decrease in well-being in offices is stress, which has increased by 10 per cent since 2001 (Colligan & Higgins, 2006). Stress can be caused when a perceived violation of control, status, privacy, security, and territoriality occurs (Colligan & Higgins, 2006; Vischer, 2005). Stress decreases the overall well-being of a person, with symptoms such as “heart disease, hypoadrenia, immunosuppression, and chronic pain” (Colligan & Higgins, 2006). These symptoms impact organizations by creating “hostility in the workplace, low morale, interpersonal conflict, increased benefit expenses, decreased productivity and increased absenteeism” (Colligan & Higgins, 2006).

This interior design practicum explores how the environmental and psychological needs of office workers can be fulfilled in such a way that stressors are minimized by implementing appropriate design strategies. Corporate real estate management goals will also be considered in order to make the proposed design strategies viable in real-world scenarios. The environmental and psychological factors that affect office-based workers will be discussed in greater detail in Chapter 4.

1.2 WELL-BEING, PRODUCTIVITY, AND SUSTAINABILITY

Along with corporate real estate management goals, it has become apparent that achieving environmental sustainability goals in the built environment has, in some cases, come at the expense of occupants' health and well-being. Large open spaces that allow for more efficient heating, cooling, ventilation systems, and increased access to daylight and views have resulted in decreased visual and acoustic privacy and increased speech intelligibility from nearby conversations. These changes in the workplace are contributing to lower productivity and higher levels of stress as occupants cope with the negative aspects of their physical work environment. Although the real estate management and environmental sustainability goals of organizations can present interior design challenges for achieving human health and well-being goals, this practicum project aims to present strategies that allow for all of these goals to be achieved simultaneously.

Well-being, productivity, and sustainability in the workplace are sometimes approached as separate topics, however, they are interconnected in a myriad of ways that make it difficult to study one without the others in the context of interior design. One example of how well-being, productivity, and sustainability are interconnected is how increasing the air quality and reducing the

concentration of volatile organic compounds (VOCs) in the air within the workplace has been shown to increase workers' cognitive function (Allen et al., 2015). In this example, increasing the well-being of occupants is correlated to an increase in productivity. To achieve this, interior designers must consider factors such as material and finish selections as well as natural and mechanical ventilation, all of which affect the overall sustainability of a project.

Therefore, optimizing the work environment by implementing appropriate interior design strategies in order to get the highest possible productivity from employees can be approached as a corporate strategy as well as a sustainability issue. Chapter 4 will discuss how the most common and relevant indoor environment quality (IEQ) parameters, including air quality, acoustics, lighting, ergonomics, and thermal comfort affect workplace well-being and productivity. Two relevant building rating systems, LEED and WELL, will also be discussed in Chapter 4, with key components of each being implemented in the proposed design.

1.3 CLIENT PROFILE

Since Generation Z is the target demographic for this practicum's proposed design, an industry sector with a low median employee age was chosen for the client. While median employee ages vary

throughout the information technology industry, companies such as Google, Facebook, LinkedIn, and Salesforce all have median employee ages under 30 years old (Statista, 2016). Although the client for this project is hypothetical, its corporate structure and products are based on information technology companies such as Squarespace and Slack.

MarkIT is a hypothetical information technology company that offers a variety of products and services to companies in the retail industry. Its software products allow companies to track inventory, process payments, and collect customer data both in physical retail locations and on their e-commerce websites. MarkIT also designs tailored websites for retailers who wish to take advantage of MarkIT's expertise in user experience design. Furthermore, MarkIT provides customer support services for its clients and their customers.

Of the three organizations that are analyzed in Chapter 5: Precedents, MarkIT is most similar to Squarespace (pp. 100-104). While Squarespace specializes in website hosting and design applications, it also offers a variety of e-commerce tools that are comparable to MarkIT's products. Similarities between the two companies include the embodiment of values that resonate

with Generation Z workers such as egalitarianism, transparency, knowledge-attainment and environmentalism. Interior design elements such as health-conscious amenities, spaces for informal social interactions among employees, and a variety of formal and informal workspaces are also present in the design of each company's office.

MarkIT has been growing steadily since it was founded in 2005 in Winnipeg, Manitoba. As a result of its steady growth, the company has outgrown its current office space and is planning to move into a leased space at 311 Portage Avenue. The space, which occupies three storeys, fulfills MarkIT's desire to be in a prominent location, is easily accessible by active and public transportation, as well as environmentally responsible through a LEED Gold certification for the building's core and shell. MarkIT strives to embody a corporate culture and image that emphasises social and environmental responsibility, especially since they recognize how important those values are to the public, their clients, and their employees. MarkIT envisions the design of their new headquarters as an opportunity to communicate their values and priorities to all of its stakeholders and the general public.

1.4 METHODOLOGY

The foundation for the design strategies applied in this project is developed from a theoretical framework, literature review, three precedent analyses, and a comprehensive design programme. The theoretical framework in Chapter 2 consists of three components: the *Theory of Generations*, the *Theory of Human Motivation*, and the *Theory of Intergenerational Value Change*. The literature review in Chapter 3 provides valuable insights regarding the characteristics, needs, values, and preferences of Generation Z as well as the other generational cohorts that are present in the workplace. Chapter 4 focusses on the environmental and psychological factors that affect workplace well-being and productivity, with overviews of the LEED Building Rating System and the WELL Building Rating System providing context for established and emerging real estate standards. Three relevant precedents are investigated in Chapter 5, with projects being selected based on their programme, occupant well-being and productivity, and work styles. A site and building analysis are included in Chapter 6 to provide geographic and physical context for the design phase of the project. Chapter

7 provides the design programme, user profiles, and the spatial, functional, atmospheric, and technological requirements for the proposed workplace design. Finally, Chapter 8 reveals the final workplace design that has been synthesized from the information presented in the previous chapters of this document.

1.5 ASSUMPTIONS

Due to the nature of projecting the workplace needs, preferences, and values of an entire generational cohort that has not yet entered the workforce, assumptions regarding Generation Z in the workplace have been made based on existing sociological, psychological, and market research. It is acknowledged, that even within a generational cohort, there are likely to be individual and cultural differences. While many organisations try to understand their employees by conducting personality tests such as the Myers-Briggs Type Indicator, this practicum project seeks to highlight the common characteristics and needs of each of the generations. Regarding workplace design, furniture manufacturers are leading the way by studying Generation Z and publishing white papers that are geared

towards companies that are looking to gain a competitive advantage by preparing for Generation Z before they arrive.

The client for this project is fictional but intended to represent a typical workplace environment that has a high proportion of Generation Z employees. Assumptions, informed by internet research of various information technology companies, have been made regarding the client organisation including the type of work that employees are performing along with the size and structure of the various departments within the client's organisation.

1.6 PROJECT GOALS AND DESIGN OBJECTIVES

The goals of this project include:

1. Implementing design strategies that assist in the process of integrating Generation Z into the existing workforce.
2. Implementing workplace design strategies that facilitate intergenerational knowledge transfer, succession planning, and training.
3. Implementing workplace design strategies that minimize employee stress and optimize well-being and productivity.
4. Implementing interior design elements that embody the values of Generation Z.

In order to achieve the project goals, the following research questions have been developed:

1. What are the differences and similarities between Generation Z and the other generations present in the workplace in terms of characteristics, values, preferences, and needs?
2. How can interior design strategies facilitate ways of working that promote knowledge sharing and collaboration across all levels of an organization?
3. How can interior design strategies ensure optimal well-being and productivity in the workplace?
4. How can interior design elements embody individually held values and communicate corporate values to employees and clients?

1.7 CHAPTER DESCRIPTIONS

Chapter 1: Introduction

Chapter 1 provides the rationale for selecting Generation Z and workplace design as the topic for this practicum project. This chapter also provides an overview of the document's main focus areas, the client selection criteria, research methodology, assumptions, project goals, and research questions.

Chapter 2: Theoretical Framework

Chapter 2 includes a comprehensive review and discussion of the theories that are used to define generational cohorts and why intergenerational value changes are occurring. The theoretical framework includes Karl Mannheim's *Theory of Generations*, Abraham Maslow's *Theory of Human Motivation*, and Ronald Inglehart's *Theory of Intergenerational Value Change*.

Chapter 3: Demographic Inquiry

Chapter 3 includes a literature review that defines and describes each of the generations that are present in the workplace: Generation Z, Generation Y, Generation X, and the Baby Boomer Generation. Each of the generations' values and characteristics is reviewed along with their workplace needs and preferences. This chapter also provides interior design strategies based on each generation's values, characteristics, needs, and preferences.

Chapter 4: Well-being, Productivity & Sustainability

Chapter 4 includes a literature review regarding the environmental and psychological factors that affect workplace well-being and productivity. This chapter also reviews specific LEED Building Rating System and WELL Building Standard credits that will be implemented in the proposed design.

Chapter 5: Precedent Analysis

Chapter 5 includes three precedent studies: Deloitte Montreal, Squarespace New York, and Slack New York. Each precedent's programmatic and atmospheric qualities are discussed and analyzed, producing interior design strategies to be implemented in the proposed design.

Chapter 6: Site and Building Analysis

Chapter 6 includes the site selection criteria, the site history of 311 Portage Avenue and 315 Portage Avenue, site analysis, and building analysis.

Chapter 7: Design Programme

Chapter 7 includes user profiles for the primary, secondary, and tertiary users, as well as the spatial requirements for all of the spaces that will be included in the proposed design.

Chapter 8: Design Proposal

Chapter 8 presents the design proposal for MarkIT's office. The proposed design is based on the synthesis of the theoretical framework and literature reviews which were discussed throughout this document.

Chapter 9: Conclusion

Chapter 9 provides a conclusion that summarizes the information that has been presented throughout this document and revisits the research questions that were presented in Chapter 1. This chapter also includes a personal reflection that looks back at the process of this interior design practicum project.

CHAPTER 2: THEORETICAL FRAMEWORK

2.1 OVERVIEW

The study of generations as a sociological phenomenon dates back to the late nineteenth century, when philosophers such as Wilhelm Dilthey began using the term 'generation' as units to "appraise intellectual movements by an intuitive process of re-enactment" (Mannheim, 1928/1952, p. 282). Building on the ideas of Dilthey and his contemporaries, the Hungarian sociologist Karl Mannheim (1928/1952) published *The Problem of Generations*. In his essay, Mannheim introduces the *Theory of Generations*, a set of guidelines used for defining generations.

Almost a century later, Mannheim's theory is still being cited in contemporary sociological research. For example, Milkman (2017) uses Mannheim's theory to define Millennials and the generations that came before them in order to make comparisons between them. In a different contemporary article, Mannheim's theory is provided as an example of 'social generations', which the authors use to compare different types of generational descriptors (Timonen & Conlon, 2014).

Abraham Maslow's *Hierarchy of Human Needs* is a framework for understanding psychological health and establishes the order in which humans approach need fulfilment (1954). Maslow's theory consists of eight categories that are fulfilled sequentially. The categories are physiological, safety, love and belonging, esteem, cognitive, aesthetic, self-actualization, and transcendence (See Figure 1). The theory helps to explain some of the changes in values between generations since need fulfilment at various stages will result in different workplace related priorities.

Some of the criticisms that Maslow's theory has received are that it is centred on Western culture and that it is gender biased (Cullen & Gotell, 2002; Yang, 2003). However, other researchers have found that the theory is supported in many countries and cultures and that it is relevant to both genders (Coy & Kovacs-Long, 2005; Davis-Sharts, 1986). Although Maslow's theory is controversial, it continues to be successfully applied in contemporary sociological and psychological research (Taormina & Gao, 2013).

More recently, the political scientist Ronald Inglehart observed intergenerational changes in values after the end of World War II and introduced two hypotheses in *The Silent Revolution: Changing Values and Political Styles Among Western Publics* (1977). The scarcity hypothesis is based on Abraham Maslow's *Hierarchy of Human Needs*, while the socialization hypothesis builds on Karl Mannheim's *Theory of Generations*. Together, the scarcity hypothesis and the socialization hypothesis form the framework for explaining post-materialism, a condition where the priorities of prosperous societies shift towards self-actualization (Inglehart, 1977). Inglehart continued to build on the hypotheses that he introduced in *The Silent Revolution*, publishing a follow-up book *Culture Shift in Advanced Industrial Society* (1990) in which he published more findings from the body of time-series surveys that were introduced in *The Silent Revolution*.

Mannheim, Maslow, and Inglehart's theories and hypotheses provide clarity for why generational cohorts have been defined as they are, and why intergenerational changes in values are occurring. In Chapter 3, the characteristics, values, needs, and preferences of each of the generations that are present in the workplace will be discussed.

2.2 Theory of Generations

According to Karl Mannheim, the study of generations "is one of the indispensable guides to an understanding of the structure of social and intellectual movements" (1928/1952, p. 286). Mannheim believed in the importance of studying generations and recognized that there were no existing guidelines that scientists could use to compare and replicate studies, so, in order to introduce scientific rigour to the sociological study of generations, Mannheim created a pair of guidelines that can be used for successfully defining generations. Together, the guidelines create the *Theory of Generations*, which is applied in this interior design practicum by informing how each of the generations that are present in the contemporary workplace is defined.

2.2.1 Social Location

Mannheim (1927/1952) wrote that one of the factors that define a generation is the social location of its members. By this, Mannheim means that the shared social class of individuals is important

because they will share common values and experiences, and they do not necessarily need to acknowledge each others' existence in order to share commonalities. By contrast, concrete groups exist when individuals with shared interests deliberately form groups such as families, tribes, or sects (Mannheim, 1927/1952). However, concrete groups can be affected when individuals make a conscious decision to leave the group, which undermines the cohesion of the group as a whole (Mannheim, 1927/1952). Although Mannheim acknowledged that individuals can leave social locations by rising or falling on the social scale "due to personal merit, personal effort, social upheaval, or mere chance," the social location will continue to exist without the individual (1927/1952, p. 289).

In the context of this design practicum, a concrete group is formed by the employees within a workplace. Due to shared interests and goals, each member has made a conscious decision to become a member of the group and may also choose to leave the group at will. On the other hand, members of one workplace share a social location with members of other workplaces even though they may not be aware of each other. The shared social location is a result of

similar values and experiences such as access to resources, socio-economic status, and education. Social location helps to explain why groups of people in similar professions tend to share values and experiences that are not directly related to their profession. Social location also helps to explain differences between members of a workplace who are employed in different positions, such as a maintenance person, an engineer, and an executive, that are unrelated to personal aspirations and intellectual capacity. However, social location on its own creates broadly defined static groups that are unlikely to evolve over time which is why a secondary factor, birth years, is required in order to define specific generations within a social location.

2.2.2 Birth Years

The biological cycle of birth, ageing, and death is Mannheim's the second guideline for defining generations. It is not enough that individuals share the same social location because the birth years of individuals also have an impact on their shared experiences (Mannheim, 1927/1952). For example, a young individual and

an elderly individual may share a social location, however, their experiences within that location might be very different because of how mental, spiritual, and physical changes affect the experiences of individuals as they age.

Given a shared social location and date of birth, Mannheim believed that individuals are predisposed to a “certain characteristic mode of thought and experience” (1927/1952, p. 291). Since society is made up of multiple classes, members of one class will share views that are not shared by members of another class. To illustrate this point, Mannheim used the example of clerics, knights, and monks, who would have had very different experiences during the Catholic Middle Ages. Although the clerics, knights, and monks all lived within the same society at the same time, they would be predisposed to a certain set of behaviours and approaches, and each of them would appropriate “only a fraction of the cultural heritage of his society, and that in the manner of his group” (Mannheim, 1927/1952, p. 291).

Contemporary society is not divided into the same class system that Mannheim has used to illustrate his point, however, the example of a maintenance person, an engineer, and an executive can be used to illustrate how individuals within one workplace may be predisposed to behaviours and approaches that relate to their chosen membership within a professional workplace environment.

Mannheim also considered why it is important to the study of generations that an individual can only belong to one generation during a specific period of time in history. When an individual is born, they begin to accumulate a set of experiences that turn into memories, forming the layers of their character. Once a foundational character has been formed throughout childhood, every new experience will be superimposed on the accumulated layers and the world will be experienced through a pre-existing world-view that informs the behavioural patterns of the individual (Mannheim, 1927/1952). Mannheim estimates that new experiences continue to form an individual’s world-view until around the age of 17, when the power of reflection is fully developed and behaviour can be predicted by past experiences (1927/1952). Childhood,

adolescence, and the transition into adulthood are different in contemporary western society than they would have been at the time of Mannheim's writing, so the idea that an individual's formative years end at the specific age of 17 may not translate directly to contemporary society. However, the idea that behavioural patterns of an individual, and that of a generation, are formed throughout childhood and adolescence within a shared set of years is still valuable to the study of generations.

In other words, Mannheim believes that generations are formed by groups of people in the same social class who were born around the same time, which causes individuals to share similar experiences during their formative years. Although social classes still exist today, they are no longer used to define generations in contemporary society. Instead, shared experiences such as wars, extended periods of economic prosperity or recession, technological advances, and events that affect individuals across socio-economic classes are used. Some recent examples are the 9/11 terrorist attacks, the rise of social media, and the recession following the 2008 real estate and stock market crash.

Beyond the previously introduced guidelines, Mannheim also discussed the cultural importance of continuously transitioning from one generation to another through the biological cycle of life and death. Introducing new generations into a society ensures that the society's culture continuously evolves and that previously accumulated culture is evaluated through 'fresh contact', which creates the opportunity for social change (Mannheim, 1927/1952). Mannheim theorized that in a hypothetical society where new generations are not introduced, an established culture would be perpetuated and social change would cease to exist due to the absence of new approaches. In reality, this hypothetical society is not possible in today's global society because events that occur in one geographic location affect individuals in other locations due to how quickly information spreads and how policies implemented in one country can result from events that have occurred elsewhere. An example of this is how the 9/11 terrorist attacks have informed trade and travel policies internationally, not just in the United States of America. Likewise, events such as this have the power to inform the worldviews of individuals globally, not just within the society where it occurred.

The death of generations plays an equally important role in the evolution of a society because it allows ideas to die or to be reinterpreted to fit new circumstances. If ideas remain useful as generations die and new generations are introduced, they will stay within the collective memory of a society through the transmission of knowledge from one generation to the next (Mannheim, 1927/1952). Examples of ideas that remain within the collective knowledge of society include language and scientific progress, which can be adapted and expanded by new generations to suit their needs. Examples of ideas that have died, or at least have lost their relevance, are that the earth is the centre of our solar system and that the earth is flat.

Finally, Mannheim discusses the transitions between generations, and how generations interact with one another. He theorizes that a new generation naturally tends to interact with the generation that is closest to them in age instead of interacting with the oldest generation. The intermediary generation acts in a mitigatory role to smooth the transition between new and old generations because their biological and ideological differences can be quite

stark (Mannheim, 1927/1952). However, once the generations are introduced to each other, the newer generation will often adapt itself to the older generation (Mannheim, 1927/1952). This development makes the older generation more receptive to being influenced by the new generation, resulting in a stronger social dynamic among all generations (Mannheim, 1927/1952).

To illustrate this theory, members of Generation Y (born 1977-1995) are naturally more likely to interact with members of Generation X (born 1965-1976) than Traditionalists or Baby Boomers (born before 1945; 1946-1964, respectively). In this example, Generation X plays the mitigatory role between Generation Y and the older generations, which often include an individual's parents and grandparents. Ideological differences between young and old generations can be drastic. However, as the young generation ages and falls into roles that have been previously held by the older generations, their biological and ideological differences can appear to be reduced, making it easier for the generations to be receptive of each other. This theory can be directly applied within the context of the workplace, where young and old generations often have polarizing

ideologies when a new generation is introduced. For example, one workplace difference between Baby Boomers and Generation Y is the preference for a hierarchical corporate structure compared to the preference for an egalitarian corporate structure. Generation X may be able to understand the benefits and limitations of each of these structural preferences and can help the young and old generations understand each other's' preferences in order to create a workplace environment that accommodates everyone.

One of the limitations of Mannheim's theory is that it promotes the illusion that every member within a generation shares all of the same values and characteristics, which can result in a 'one size fits all' approach to designing spaces for a specific target demographic. In reality, while individuals within a generation may have many shared experiences that inform their ideologies and behaviours, individual needs and preferences in the workplace are far more complicated. This is why designers must be committed to understanding the specific and unique needs of their clients, along with those of all of the stakeholders that will be affected by their design decisions.

The benefit of Mannheim's theory lies in its ability to help designers identify similarities and differences between different generations.

Almost a century after it was first published, Mannheim's *Theory of Generations* is still used to identify and categorize generations. Although Mannheim's theory is not always directly cited in contemporary writing, one author who paraphrases his theory defines a generation as "a group that shares both a particular span of birth years and a set of worldviews grounded in defining social or historical events that have occurred during the generation's formative development years (Cogin, 2011). In Chapter 3, when the characteristics, values, needs, and preferences of the four generations in the contemporary workplace are being discussed, Mannheim's theory will provide clarity for how the generations are defined and how they interact with one another.

2.3 Theory of Human Motivation

In the interest of understanding intergenerational differences, it is relevant to review Abraham Maslow's *Theory of Human Motivation*, also referred to as Maslow's *Hierarchy of Human Needs*. As one of the most influential psychologists throughout the twentieth century, Maslow sought to understand how humans achieve psychological health (Lester, 2013). In 1954, Maslow published *Motivation and Personality*, in which he "proposed a classification of basic needs into five categories: physiological, safety and security, belongingness, esteem, and self-actualization" (Lester, 2013, p. 15). In 1970, the second edition of *Motivation and Personality* was published which expanded the hierarchy into seven categories, adding cognitive and aesthetic needs to the original five (Maslow, 1987). An eighth category, transcendence, was introduced in Maslow's (1976) *The Farther Reaches of Human Nature*. As is illustrated in Figure 1, the eight categories of needs are fulfilled sequentially, and Maslow (1954) originally believed that humans naturally strive toward achieving self-actualization. He later amended this belief by placing transcendence at the

top of the hierarchy, since personal growth can extend beyond self-actualization (Maslow, 1976). His theory helps to explain intergenerational changes in values based on the stage of need fulfillment that different generations achieve during their formative years. This theory will then be combined with Mannheim's *Theory of Generations* to produce Ronald Inglehart's hypotheses in the following section.

2.3.1 Physiological Needs

Maslow (1954) defines physiological needs as those that enable humans to achieve homeostasis. In order to achieve homeostasis, an individual requires food, water, oxygen, a constant blood temperature, and the excretion of bodily waste. Achieving homeostasis requires that all of those conditions are constantly being met, and the body naturally indicates when specific nutrients, minerals, hormones, and vitamins are not being maintained at the proper levels. Sexual desire, sleep, and maternal behaviours are also commonly included within the physiological needs category (Maslow, 1954).

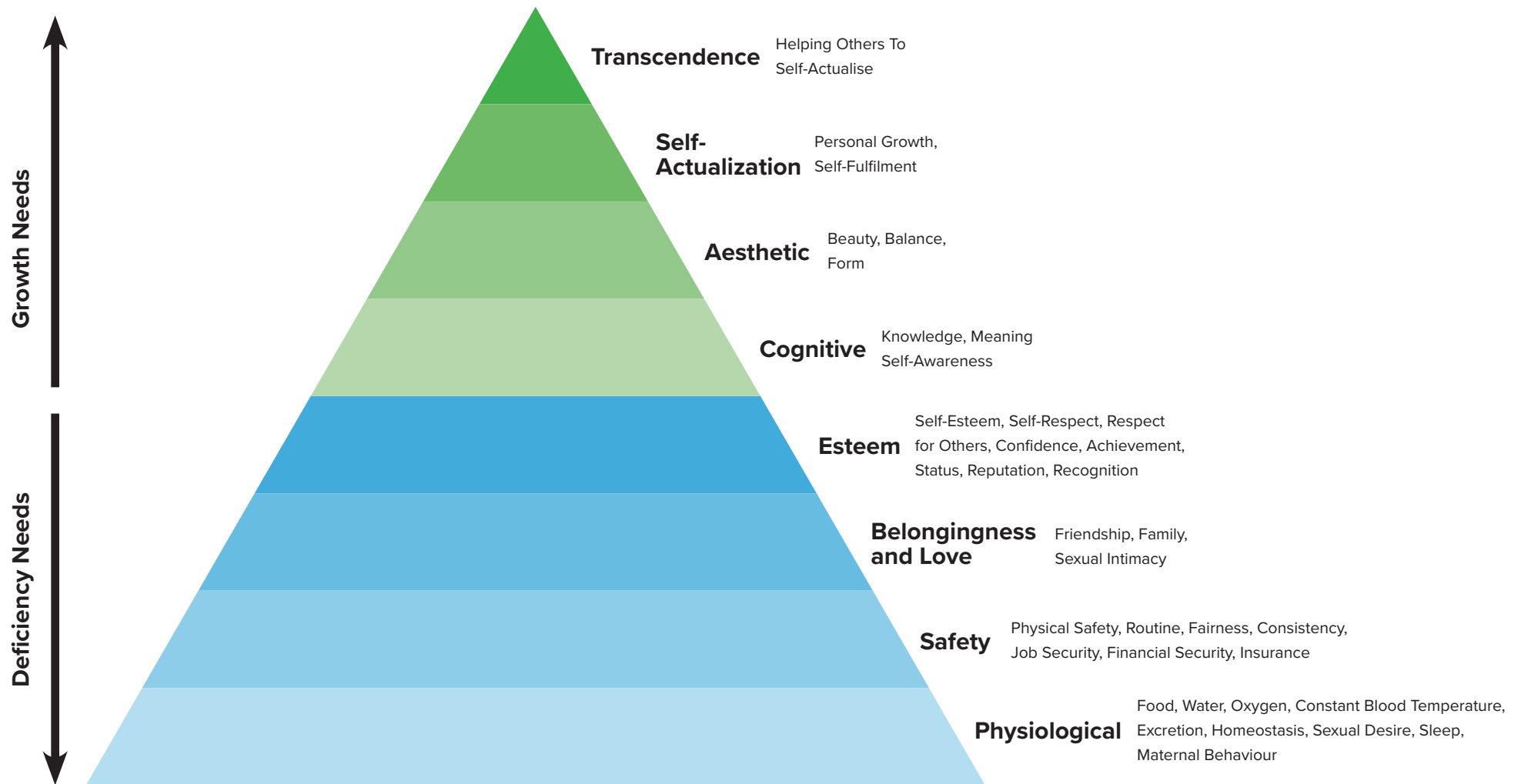


Figure 1. Maslow's hierarchy of human needs. (Based on Maslow, 1970 & Maslow, 1976).

If physiological needs are not being met, all other needs will become irrelevant and an individual will do everything in their power to fulfil their hunger (Maslow, 1954). Maslow emphasises that hunger is defined as an extreme state and should not be used to describe the appetite that most individuals feel in between regularly occurring meals. Maslow also explains that when physiological needs are being met on a consistent basis, individuals who are fulfilling higher needs will be able to tolerate deprivation for short periods of time instead of returning their focus to physiological needs.

In contemporary Canadian society, it is assumed that the physiological needs are being met for the majority of residents. While in reality there are groups of people who lack consistent access to nutritious food and potable water in Canada, the majority of individuals within the generations that are present in the workplace have had their physiological needs met throughout their entire lifetimes. By contrast, many members of the Traditionalist Generation who were born and raised in the Great Depression and World War 2 would not have had their physiological needs consistently met throughout their formative years due to factors

such as lack of access to resources and wartime food rationing. The failure of not having the physiological needs of this generation met within their formative years has undoubtedly affected the collective values and characteristics of the Traditionalist Generation, along with other factors such as the global events occurring at this time in Canada's history.

2.3.2 Safety Needs

Once the physiological needs have been fulfilled, an individual will begin focussing on safety needs. For infants and children, Maslow (1954) believes illnesses and physical punishment can have a lasting impact on their view of the world and can inhibit their ability to feel safe. Maslow also identifies uninterrupted routines, fairness, and consistency as important factors for fulfilling safety needs in children. When children whose safety needs are not being fulfilled are confronted with unfamiliar stimuli and situations, they often react in terror while children with fulfilled safety needs generally do not elicit similar reactions because they feel protected, and will only react fearfully in legitimately dangerous situations (Maslow, 1954).

For most adults, Maslow believes that physical safety becomes less important and other safety needs such as job security, financial security, and insurance become the focus.

As with physiological needs, the Traditionalist Generation and the generations that came before them would not have had their safety needs consistently met during periods of war even though battles were being fought overseas. However, specific demographic groups such as Japanese Canadians who were placed in internment camps during World War 2 and for several years after, had a far more drastic deprivation of safety needs. Another example of groups of Canadians that were historically deprived of safety needs includes the First Nations, Inuit, and Metis people that were enrolled in the residential school system and were mistreated in many other ways by the Canadian government and European-Canadians. The mistreatment of these groups during their formative years and throughout adulthood has influenced the values and characteristics of entire generations, which within the broader Canadian society has created drastic ideological and behavioural differences between the aforementioned groups and European-Canadians. Although this

practicum project does not dismiss the effects of safety needs not being met for the previously discussed groups, its scope is limited to the safety needs of the broader Canadian society.

For the generations present in the contemporary workplace, physical safety needs were met to varying degrees during their formative years. For Baby Boomers and Generation X, growing up during the Cold War presented global safety concerns that affected them in ways that Generations Y and Z are unfamiliar with. Likewise, experiencing the 9/11 terrorist attacks and growing up with heightened security risks during their formative years will affect Generation Z in ways that older generations may not be able to fully relate to since these events occurred later into their adult lives.

Similarly, growing up during the financial recessions of the 1980's, 1990's, and 2000's has affected the generational values and characteristics of Generations X, Y, and Z to a greater degree than Baby Boomers, even though Baby Boomers were directly affected by them, but grew up in the long period of post-war prosperity preceding the recessions. These examples also demonstrate

the complexity of safety needs, since different combinations and degrees of safety fulfilment will have different outcomes for each generational cohort.

2.3.3 Belonging and Love Needs

After an individual fulfils the physiological and safety needs, Maslow (1954) believes that the need for love, affection, and belonging will emerge and that a combination of friendships, family, and sexual intimacy become the most important aspects of an individual's life while they seek to fulfil their belongingness and love needs. Maslow emphasises that love needs involve both giving and receiving love and that sexual behaviour during this stage of fulfilment is determined by the need for love and affection rather than the physiological need for sex. This category of needs is often expressed in the workplace as individuals seek to fulfil their need for meaningful friendships and relationships.

Although belongingness and love needs are more difficult to apply to entire generations than physiological and safety needs, there is

evidence that this type of need fulfilment can affect the values and characteristics of a generation. For example, Generation X is often referred to as the 'latch-key' or 'forgotten' generation because of the reduced levels of adult supervision, rising divorce rates and increased maternal participation in the workplace during their formative years compared to older generations. On an individual level, lack of supervision, divorce rates, and parental absenteeism in the home do not necessarily equate to the belongingness and love needs being unfulfilled, however, they are family dynamics that differentiate Generation X's formative experiences from the other generations in the workplace.

2.3.4 Esteem Needs

According to Maslow (1954), the next step of fulfilment is an individual's need for self-esteem, self-respect, and the ability to respect others. Individuals at this stage of fulfilment will have "the desire for strength, for achievement, for adequacy, for mastery and competence, for confidence in the face of the world, and for independence and freedom" (Maslow, 1954, p. 90). Along with

the self-fulfilling needs, Maslow includes needs that are fulfilled by others, such as status, reputation, and recognition. When these needs have been fulfilled, individuals will feel confident and strong, while individuals will feel inferior and weak if esteem needs are thwarted (Maslow, 1954). For many individuals, the workplace is a natural environment for fulfilling esteem needs. Individuals who feel confident, strong, and recognized in the workplace will likely have a high degree of job satisfaction, therefore fulfilling esteem needs should be taken seriously as a corporate strategy for attracting and retaining employees.

As a factor that differentiates the formative experiences of the generations in the workplace, the esteem needs are generally viewed as being fulfilled to a greater extent in Generations Y and Z when compared to older generations. One example is how Generation Y is often referred to as the 'Me Generation' and is viewed by older generations to have received too many self-esteem boosting recognitions such as participation awards in their formative years. Although Generation Y is not at fault for how they were

raised, older generations in the workplace often perceive them as behaving in an entitled and overly confident manner which is not always reflected in actual levels of competence and achievement.

2.3.5 Cognitive Needs

The first stage of personal growth in Maslow's expanded model is the need for cognition (1970). Once all of the basic needs have been fulfilled, the human need to seek knowledge and understanding is the first step towards transcendence (Maslow, 1970). The cognitive need also encompasses curiosity, exploration, and the need to find meaning and predictability in life. As a generational characteristic, it is difficult to measure cognitive need fulfilment since relevant data mainly reports on formal education attainment levels. This method of measuring cognitive need fulfilment indicates that a higher proportion of Generation Y has pursued a post-secondary education than Baby Boomers and Generation X, which can be interpreted as signifying higher levels of cognitive need fulfilment in younger generations (Fry, Igielnik, & Patten, 2018).

In the workplace, cognitive need fulfilment can be addressed by providing employees with opportunities for knowledge attainment. Job-related training and mentorship relationships are examples of how companies can keep employees engaged at work since it embodies a commitment that mutually benefits all stakeholders. As a post-digital cohort, Generation Z is used to being able to access information freely so it is imperative that organisations take a structured approach to knowledge attainment in order for it to be effective.

2.3.6 Aesthetic Needs

The second stage of personal growth is the aesthetic need, which includes the desire to find beauty, balance and form (Maslow, 1970). While aesthetics are highly subjective and definitions of beauty are not universal, the need to find and create beauty signifies a high level of need fulfilment. Aesthetic need fulfilment can be promoted through interior design strategies by incorporating art, biophilic elements and access to views into the work environment. Research has shown that these strategies can improve workers' health and productivity so it is

also mutually beneficial for organisations to promote aesthetic need fulfilment for their employees.

2.3.7 Self-Actualization Needs

The third stage of personal growth is self-actualization, which Maslow (1954) believes happens when an individual is free to explore their individual definition of self-fulfilment. Maslow emphasises that every individual will have their own version of self-actualization, with his use of the term referring to “the tendency for him to become actualized in what he is potentially” (1954, p. 92). Some people will strive to become the best athletes, others to be artists, while others to become mothers. Although everyone's path to self-actualization is different, Maslow believes that fulfilling the need results in psychological health and a specific set of characteristics.

After completing a psychological health study with a group of college students, Maslow (1954) reported that self-actualized individuals were better at accepting facts and being able to detect when something is fake. He also found that these individuals were more spontaneous and attracted to the mysteries of the unknown, rather than frightened by them. Furthermore, Maslow found they were more accepting of themselves and others, being open about imperfections and faults, but not disgusted by them. Finally, Maslow's findings indicated they had good morals and were repulsed by artificialities, hypocrisy, and deception.

2.3.8 Transcendence Needs

The final stage, the need for transcendence, can be pursued only after all other needs have been fulfilled (Maslow, 1970). The need for transcendence has many parallels with self-actualization, however, individuals who are at this final stage are motivated by values that transcend beyond the personal self (Maslow, 1970). At its core, transcendence is the need to be of service to others and to help

others self-actualize (Maslow, 1970). In contemporary society, individuals may exhibit transcendence by acting on values such as equality and accessibility. By considering the needs of others and finding ways to help others fulfil lower needs in order to reach self-actualization, individuals transcend their own being and self-interest for the greater good of their community.

Although Maslow's findings have been criticized for lacking scientific rigour and for having a Western bias, a recent study found that Maslow was right about the hierarchy of human need fulfilment, even across different cultures (Hoffmann, 1988; Tay & Diener, 2011). This is not to say that all of Maslow's findings are accurate, and he himself acknowledged that there are exceptions to the hierarchy as a fixed order (Maslow, 1954). However, Maslow's work has greatly influenced scientists such as Ronald Inglehart, who used the Theory of Human Motivation to develop his own hypotheses about intergenerational value change.

2.4 Theory of Intergenerational Value Change

In the decades following the end of World War II, the political scientist Ronald Inglehart observed that the younger generations in Western countries were less materialistic than generations who had come of age before or during the war. Inglehart (1977) believed that the change was happening gradually but steadily and that the reason for the value change was a combination of prosperity and the absence of war. To account for the intergenerational value change, Inglehart proposed his *Theory of Intergenerational Value Change* that consists of the scarcity hypothesis and the socialization hypothesis.

The majority of data that Inglehart gathered and utilized to test and demonstrate his hypotheses originated from France, Great Britain, West Germany, Italy, Belgium, and the Netherlands. Although the prominence of post-materialistic values varies for each country depending on unique economic and security conditions, the hypotheses that will be presented in this section have been accepted to be statistically important variables in the analysis of

post-materialistic values (Inglehart, Basanez, Diez-Medrano, Halman, & Luijkx, 2004). Given the post-war economic and security-related similarities between Canada and the European countries that Inglehart surveyed, it is assumed that the patterns presented in this section are applicable to intergenerational value change in Canada.

2.4.1 The Scarcity Hypothesis

The scarcity hypothesis states that “an individual’s priorities reflect the socioeconomic environment: One places the greatest subjective value on those things that are in relatively short supply” (Inglehart, 1990, p. 68). This hypothesis is based on Abraham Maslow’s *Hierarchy of Human Needs*, which suggests that individuals must fulfil physiological and safety needs before they can begin focussing on social and self-actualization needs (Maslow, 1954). When individuals shift their focus towards social and self-actualization needs, their values change from materialistic to post-materialistic. In order to evaluate whether individuals have materialistic or post-materialistic values, Inglehart produced a set of statements that are shown in Figure 2 and asked survey participants to indicate which

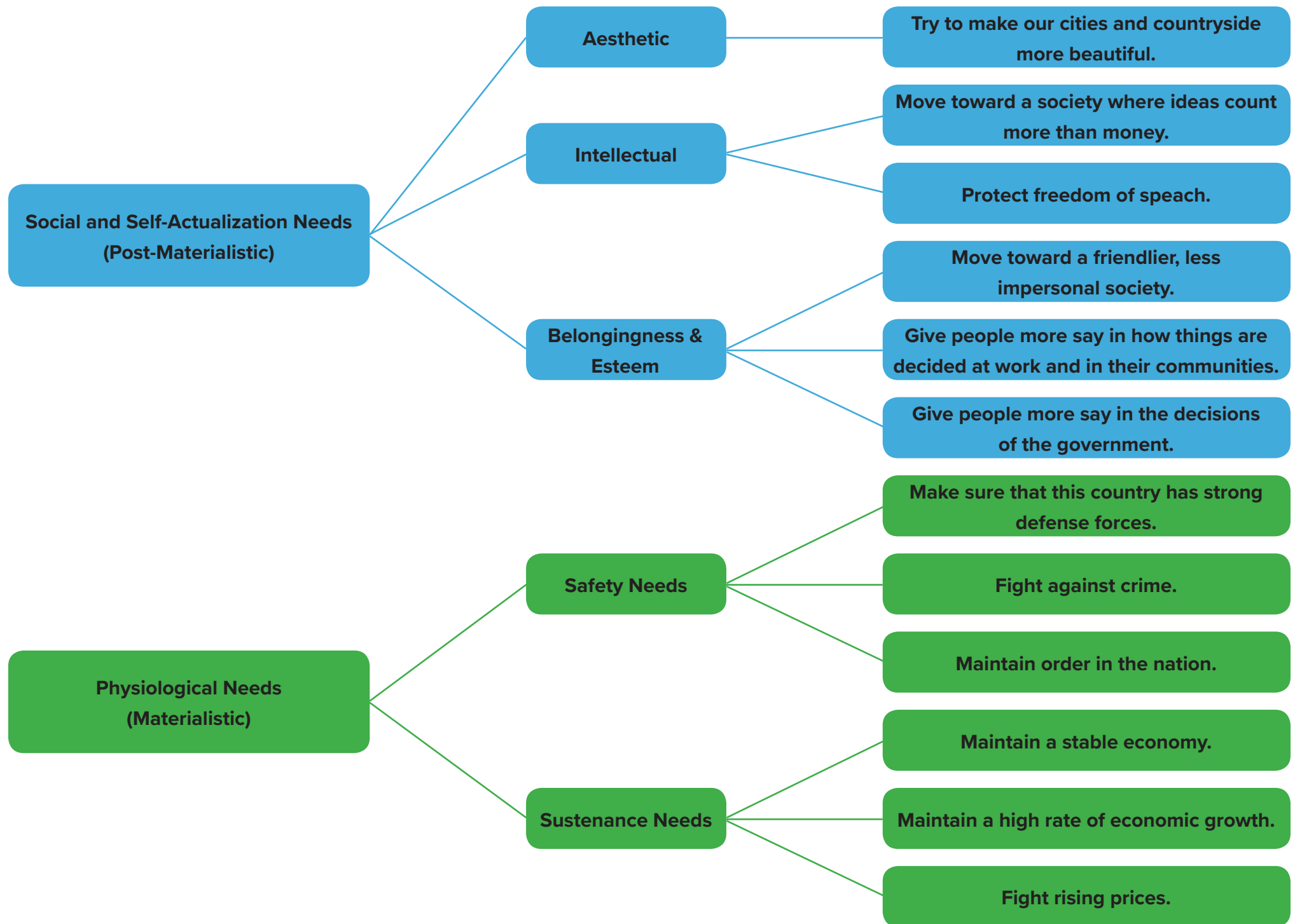


Figure 2. Values associated with materialism and post-materialism. (Based on Inglehart, 1990)

statements they personally considered to be the most important goals for their country.

As is shown in Figure 2, each of the statements communicates either materialistic or post-materialistic values. Upon completion of the initial survey in 1970, the results showed that a large proportion of individuals tended to choose exclusively materialistic values or post-materialistic values, resulting in groups of pure materialists and post-materialists (Inglehart, 1990). Survey respondents with mixed materialistic and post-materialistic responses are excluded from Inglehart’s analysis in order to show the relationship between the pure value groups more clearly. The 1970 survey results are shown in Figure 3, which also reveals that the first post-war generation had more post-materialistic members than materialistic members, with older respondents trending towards materialistic values.

The visible trend towards post-materialistic values in younger survey respondents shown in Figure 3 indicates that Inglehart’s scarcity hypothesis is true. In the prosperous post-World War II decades, Western generations were raised without being deprived

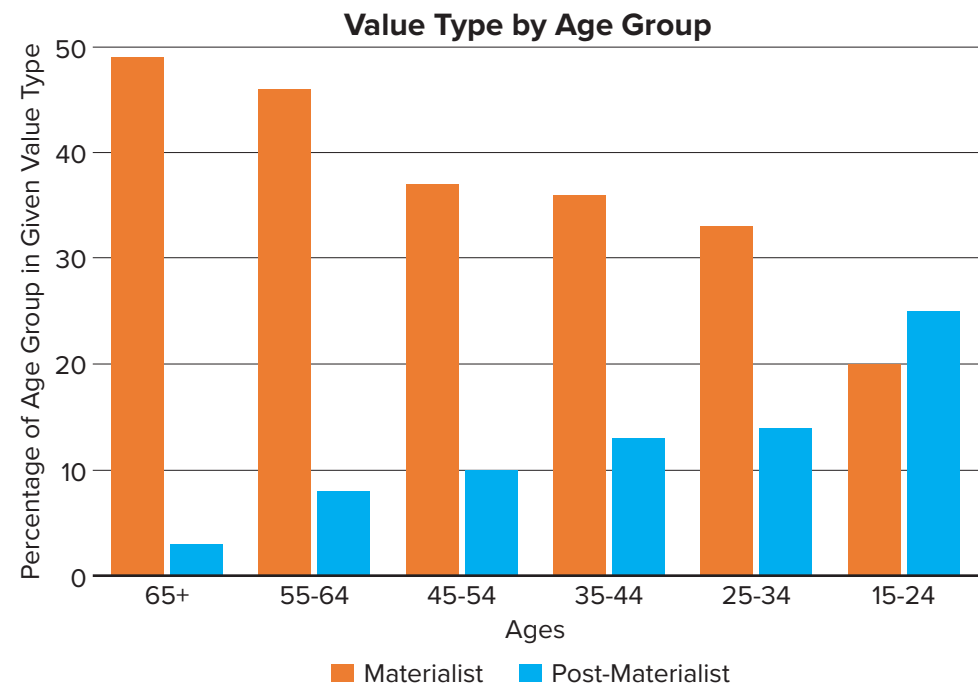


Figure 3. Value type by age group, among the combined publics of Britain, France, West Germany, Italy, Belgium, and the Netherlands in 1970. (Inglehart, 1990, p. 76).

of physiological and safety need fulfilment, which allowed them to focus on fulfilling social and self-actualization needs (Inglehart, 1977). The scarcity hypothesis predicts that short-term changes, or period effects, occur as a result of fluctuating economic situations and that periods of prosperity lead to a rise in post-materialistic values while periods of recession lead to a rise in materialistic values (Inglehart, 1990).

Although the scarcity hypothesis suggests that there is a clear relationship between economic prosperity and post-materialistic values, value change is more complex than the direct correlation between these factors. Individual perceptions of financial and physical security are subjective and may not necessarily reflect an individual's economic level because of other factors such as "cultural setting and social welfare institutions in which one is raised" (Inglehart, 1990, p. 68). Since these factors will also influence an individual's perception of their financial and physical safety, value change cannot be predicted by the scarcity hypothesis alone. Therefore, Inglehart insists that the socialization hypothesis must also be considered in the process of value change.

2.4.2 The Socialization Hypothesis

The socialization hypothesis states that "the relationship between socioeconomic environment and value priorities is not one of immediate adjustment: A substantial time lag is involved because, to a large extent, one's basic values reflect the conditions that prevailed during one's pre-adult years" (Inglehart, 1990, p. 68). This

hypothesis is based on Karl Mannheim's (1927/1952) Theory of Generations, which proposes that the worldview of a generation is shaped by shared events that occur during its formative years.

Inglehart's (1990) socialization hypothesis predicts that the economic trends during a generation's formative years will have a long-term effect on their values. In other words, generations raised during periods of prosperity will retain their post-materialistic values even during periods of recession in their adulthood. In a hypothetically continuously favourable economic environment, each new generation is less materialistic than the previous generation, resulting in the trend shown in Figure 4. Here, young cohorts replace old cohorts over time, resulting in a steady trend towards post-materialism. Inglehart (1997) recognized that although value changes will occur in individuals throughout their adult life, the probability of substantial changes diminishes after an individual reaches adulthood.

In addition to the hypotheses, Inglehart (1990) considers the possible impact of ageing effects on intergenerational value change.

He believed that ageing effects make individuals more materialistic as they age, even if they have post-materialist values at a young age. If this were the case, individuals would inevitably become just as materialistic as older generations, resulting in a cycle with no overall intergenerational change in values, which is illustrated in Figure 5.

If the hypotheses are true, Inglehart (1990) believed that value change would be characterized by a combination of short-term fluctuations in economic prosperity and long-term effects that

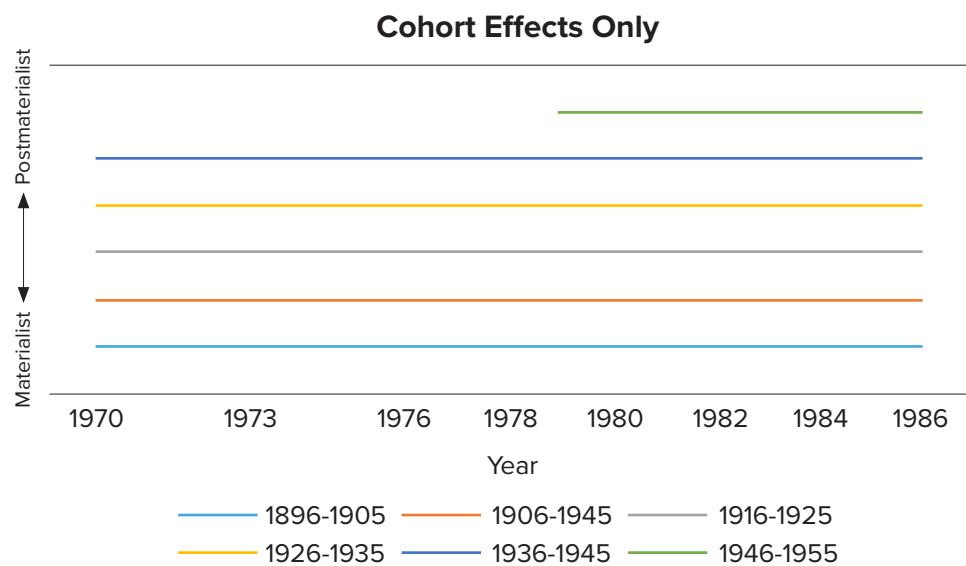


Figure 4. Cohort effects only. (Inglehart, 1990, p. 80).

reflect the conditions of generations during their formative years. Hypothetically, the combined effects would result in a trend towards post-materialism as young cohorts replace old cohorts, with temporary fluctuations correlating with economic recessions, as is shown in Figure 6.

To test his hypotheses, Inglehart conducted his survey at regular intervals between 1970 and 1988 in order to gauge whether individuals in specific age groups prioritized materialistic values or post-materialistic values over time. The results confirmed that

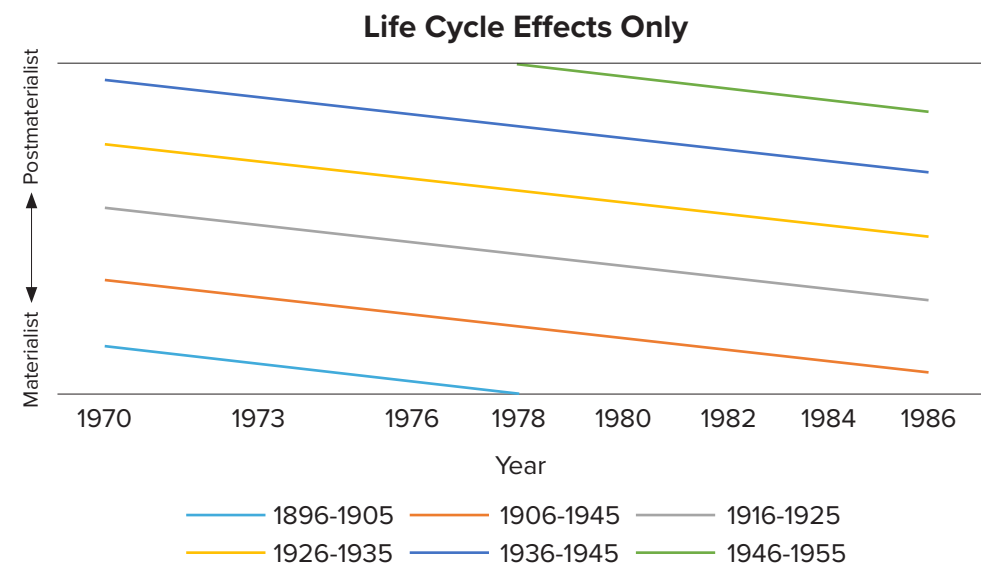


Figure 5. Life cycle effects only. (Inglehart, 1990, p. 81).

the hypotheses are correct, with each new generation having more post-materialistic values than the previous generation throughout the entire duration of the study (Inglehart, 1990). Due to the uninterrupted period of prosperity between the late 1940s and 1970, each generation was already less materialistic than the generation preceding it when the first surveys were conducted in 1970. However, the 1970s saw two economic crises, the first in 1975 and another one in 1979. Figure 7 shows the survey results throughout the entire data collection period and confirms the truth of Inglehart's hypotheses.

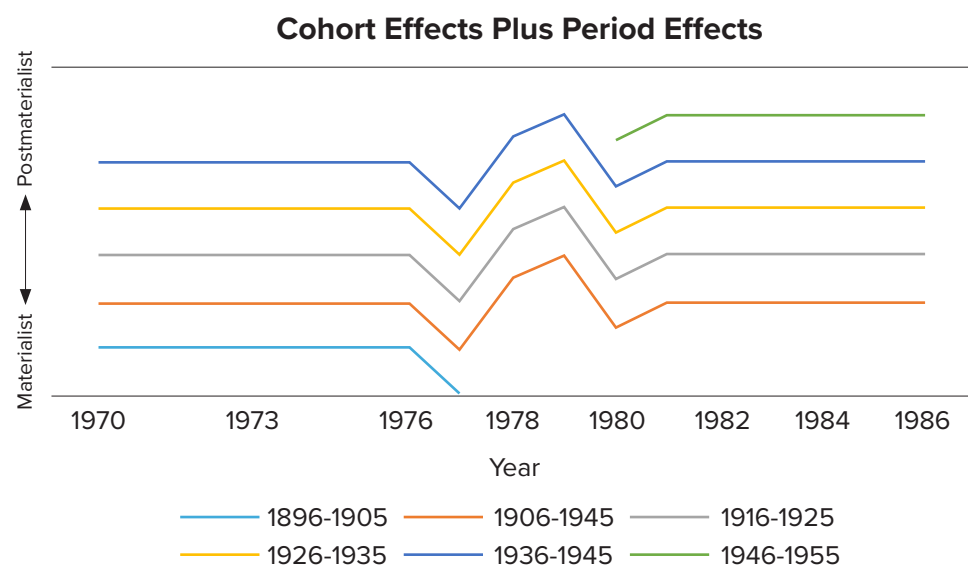


Figure 6. Cohort effects plus period effects. (Inglehart, 1990, p. 81).

As was expected, Inglehart's (1990) research indicated that generations who were raised during periods of recession became more materialistic. However, the tendency towards materialism was echoed by older generations during recession periods as well, so younger generations still remained less materialistic overall. After the recessions, post-materialistic values among the older generations who were raised during the extended period of prosperity returned to their pre-recession levels very quickly. By the mid-1980s, post-materialism among the older generations began to

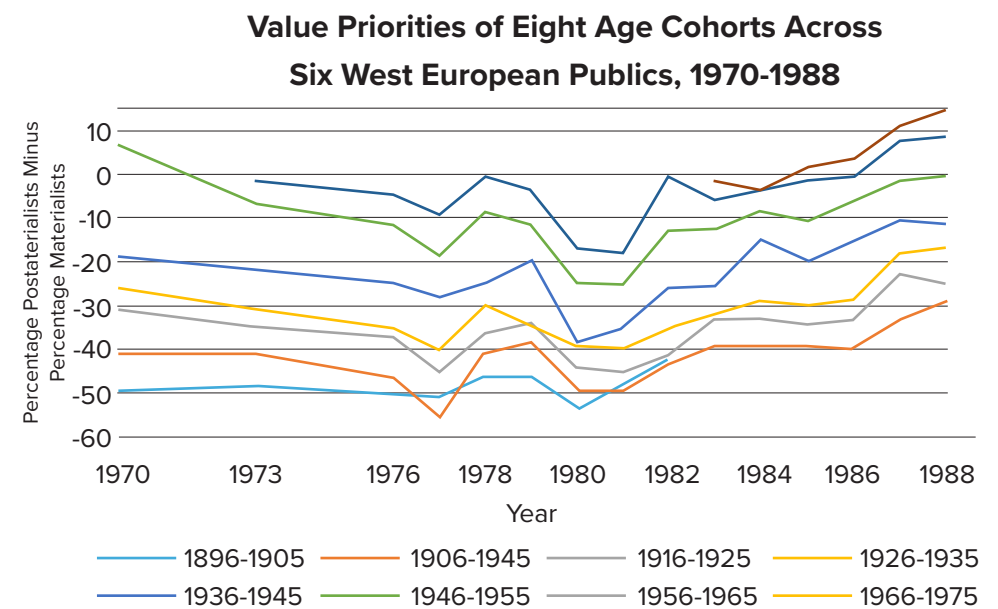


Figure 7. Value priorities of eight age cohorts across six western European publics, 1970-1988. (Inglehart, 1990, p. 85).

exceed the pre-recession levels, reflecting the long-term effects of having been raised during a period of prosperity.

On the other hand, Ingehart's (1990) research also found that post-materialism among the generation that was raised during the recessions did not recover as quickly, and only reached pre-recession levels at the end of the study in 1988. During the 18 year period of the study, post-materialistic values remained unchanged for the youngest group because their values were the same at the beginning and end, with an extended period of decline and a slow rise in the middle. The difference in the pace of value change towards post-materialism after the recessions between the younger and older generations verify that both of Inglehart's hypotheses were correct. However, ageing effects were absent since the older generations did not tend towards materialism, with the study showing that they were less materialistic after the 18 year period.

As a whole, the youngest generation was still less materialistic after the 18 year study period even though their return to post-materialistic values was far slower than that of the older generations. As the oldest generations die and new generations replace them, this results in a gradual trend towards post-materialism, even when

the newest generations do not become more post-materialistic during their lives because they were raised during a recession. It would take several generations of economic decline to reverse the trend towards post-materialism, which is why we do not see a permanent decline every time a new generation is raised during periods of scarcity.

In Western countries, where the periods of prosperity have greatly outnumbered the periods of scarcity in recent decades, the trend towards post-materialism has continued after the end of Inglehart's study period. This trend is relevant to this practicum project because the Theory of Generational Value Change can help interior designers anticipate the needs and preferences of the workforce based on value systems which can be derived from looking at current and historical socio-economic data.

2.5 Conclusion

Each of the theories that were discussed in this chapter provides the crucial building blocks for how we understand generations and the formation of their unique characteristics and values. While the theories of Mannheim and Maslow provide accurate observations

and descriptions of generational characteristics and motivators, their direct application to this interior design practicum is limited on their own.

By combining the theories of Mannheim and Maslow, Inglehart's Theory of Intergenerational Value Change gives interior designers the ability to make evidence-based decisions when designing for a generational cohort for which historical data is scarce. The importance of Inglehart's theory to the practice of interior design lies in how it predicts generational characteristics and preferences based on historical events. For this practicum project, the ability to predict future needs and preferences is crucial because the proposed design targets a demographic for which this type of data is not available.

Due to the relatively prosperous socio-economic environment in Canada during Generation Z's formative years, the trend towards post-materialism in younger generations that was described in Inglehart's theory is expected to continue. Evidence to support this trend is presented in Chapter 3: Demographic Inquiry, where the values, characteristics, needs and preferences of Generation Z are discussed.

As an implication for interior design, Generation Z's post-materialistic values will result in the prioritization of quality of life in the workplace. Just as importantly, a heightened sense of social and environmental responsibility are expected to be important factors that contribute to how members of Generation Z perceive the values embodied by their workplace and the extent to which they align with their own personally held values. This perception of value alignment is expected to be an important factor for attracting and retaining Generation Z employees due to the value change towards post-materialism and is specifically addressed in this project's proposed design.

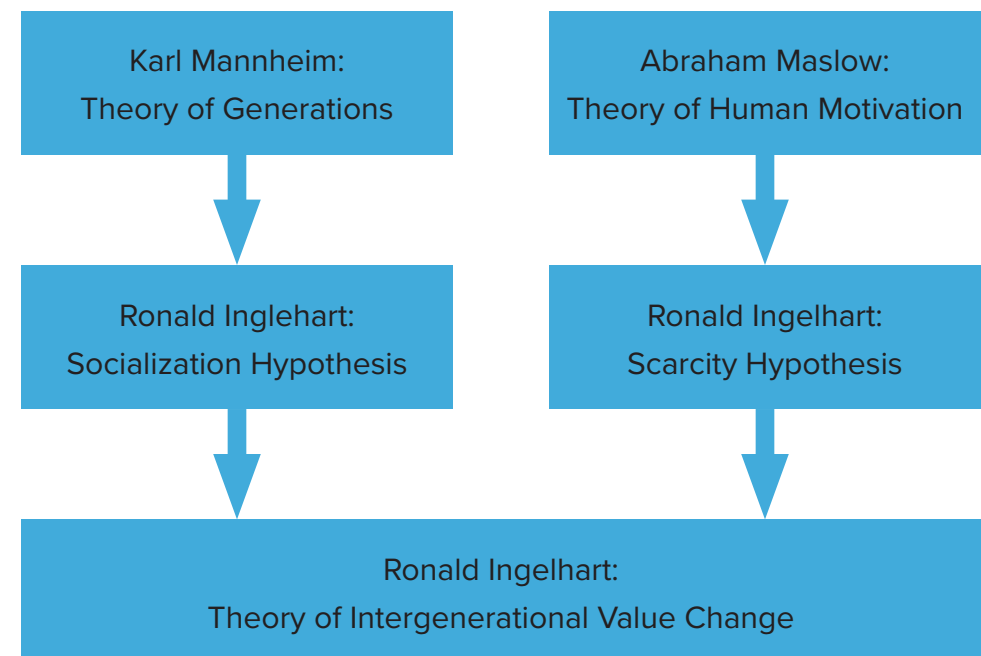


Figure 8. Theory progression.

POPULATION PROPORTIONS OF GENERATIONAL COHORTS IN CANADA - 2016

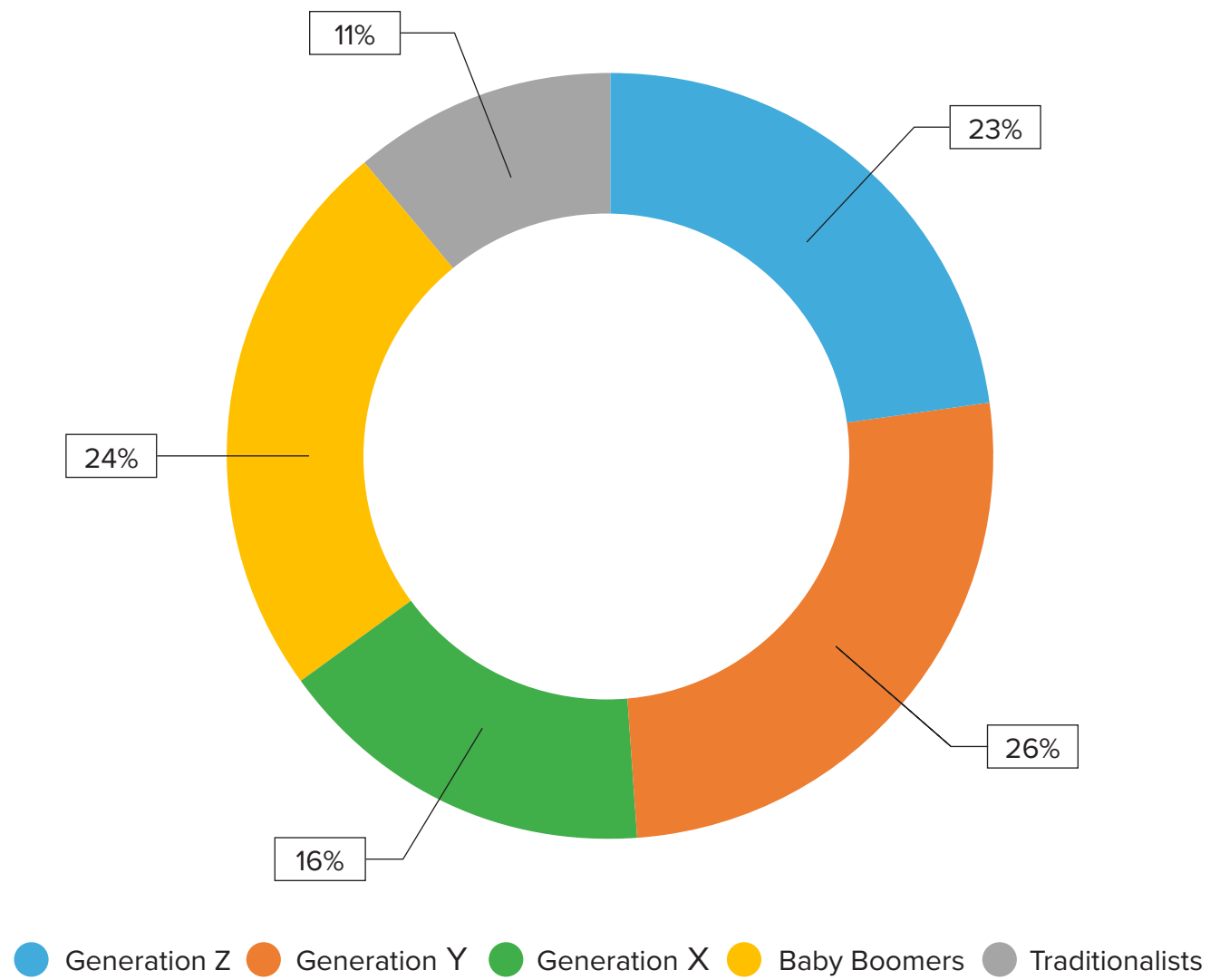


Figure 9. Population proportions of generational cohorts in Canada - 2016. (Based on Statistics Canada, 2016).

CHAPTER 3: DEMOGRAPHIC INQUIRY

3.1 Overview

Generations, or generational cohorts, are groups of people who are born around the same time and have a set of shared experiences in their formative years. Generational cohorts' birth years vary depending on the information source, although the majority of variations are within five years of each other. For this project, dates have been defined by The Center for Generational Kinetics, an organisation that specializes in researching the characteristics, preferences, and values of the generational cohorts in North America. The Center for Generational Kinetics (n.d.) provides the following dates for each generational cohort:

- Generation Z: Born 1996 to present
- Generation Y: Born 1977 to 1995
- Generation X: Born 1965-1976
- Baby Boomers: Born 1946 to 1964
- Traditionalists: Born 1945 and before

Traditionalists, who are currently 71 years of age or older, will not be included since the Canadian retirement age is 65 years. Although some Traditionalists are still active in the workforce, their presence is rapidly declining. The other four generations will be working together until at least 2029 when the youngest Baby Boomers reach the national age of retirement. Figure 1 shows the proportion of the Canadian population that was represented by each generational cohort in 2016.

Throughout this chapter, literature pertaining to each of the generations will be presented and discussed, specifically looking at characteristics, values, needs and preferences within the scope of workplace design. Design strategies coming from the reviewed literature will also be introduced to guide the design process of the project.

3.2 Generation Z

Members of Generation Z were born during or after 1996 and represented 23 per cent of the Canadian population in 2016 (Statistics Canada, 2016). They are the first generation that grew up in a post-digital era and are often referred to as ‘digital natives’ (FutureCast, 2017; Universum, 2015). The post-digital era is defined by the ease of access to information and constant connectivity to peers and brands through mobile devices such as smartphones, tablets and laptops. While hyper-connectivity in the post-digital era is not a singular event, it is a formative characteristic of Generation Z because it has shaped how this cohort expects products and media to be delivered to them.

Another formative event that defines Generation Z was the 9/11 terrorist attacks. While most members of Generation Z are too young to remember it or were born after this event, it has had a profound effect on their worldview. For Generation Z, the intergovernmental tensions, the continued war on terror, and heightened security for international travel that have resulted

from this event are normal, while older generations will remember a time before the terrorist attacks. The Great Recession that followed the 2008 market crash is also a formative event for Generation Z because it negatively affected the financial security of their parents and grandparents. The lasting effects of the Great Recession characterize Generation Z’s outlook on financial security and job security. Finally, unlike the older generations, most Canadian members of Generation Z do not remember a time before gay marriage was legalized which has given them a different understanding of equality and acceptance.

Due to their current age, workplace-specific research has not yet been conducted on Generation Z. However, marketing research firms and education institutions have conducted extensive research to gain insights into the characteristics, values, and workplace expectations of Generation Z. According to a survey conducted by Northeastern University (2014), more than half of high school students plan to finish a four-year post-secondary education before joining the workforce. Therefore, the oldest members of Generation Z with a post-secondary education will be beginning to enter the

workforce in 2018. The workplace design strategies developed through this project will aim to address the workplace needs and preferences of Generation Z from a theoretical and research-based approach, just as this generational cohort begins to gain a presence in the workforce.

3.2.1 Values and Characteristics

One of the most recognizable behavioural characteristics of Generation Z is how much of their time is spent communicating and consuming media on mobile devices. Shatto & Erwin (2016) report that members of Generation Z spend an average of nine hours per day on their cell phones, which has resulted in high expectations for constant access to information and a need for instant gratification. It is anticipated that Generation Z will bring these expectations to the workplace, resulting in the need for consistent and frequent feedback on their performance (Robert Half, 2015). Interior design strategies that aim to engage Generation Z through technological integration include providing mobile reservation systems for booking meeting rooms, locating coworkers and providing digital collaboration tools.

Their effortless ability to adapt to rapidly changing technology can also cause members of Generation Z to become easily frustrated when others are not able to adapt as quickly as them, which can cause tensions in intergenerational workplaces (Shatto & Erwin, 2016). Strategies such as reverse mentoring, where young employees share their skillset with older generations, can be put in place to bridge the technological skill gap (Meister & Willyerd, 2010). Interior design strategies that enable reverse mentoring include providing spaces for formal and informal interactions between employees.

Another defining characteristic of Generation Z is a relatively short attention span, which is estimated at eight seconds and is considerably less than the twelve second attention span of Generation Y (Shatto & Erwin, 2016). One of the benefits of a short attention span is that it can allow individuals to process information quickly, although the quality of information processing may be hindered by the inclination to multitask (Hope, 2016; Igel & Urquhart, 2012). Generation Z is used to multitasking across multiple devices, which can impair learning and cognitive

development and may ultimately lead to poor work performance (Hope, 2016; Knoll, 2014). In order to encourage extended periods of focused work and to combat the urge to multitask, it is suggested that spaces should be provided for employees to concentrate on tasks without disruptions, such as acoustically and/or visually isolated workstations (Knoll, 2014).

Survey data shows that members of Generation Z take their health more seriously than the other generations in the workplace. It has been reported that alcohol consumption, tobacco use, and drug use are lower among Generation Z compared to other generations (Vision Critical, 2016). Eating habits are also healthier, with Generation Z paying close attention to the nutrition and ingredients of the food they consume (Vision Critical, 2016). Since the majority of Generation Z believe that it is important for brands to align with their beliefs, it is likely that they will expect their employers to take an active role in providing healthy environments for them (Vision Critical, 2016). Interior design strategies that promote healthy lifestyles include providing gym facilities, meditation spaces, nap rooms, sit/stand desks, cafeterias that serve healthy food, providing

storage for food brought from home, and active transportation support such as bicycle storage.

Survey results also indicate that Generation Z cares about social issues such as human rights, racial equality, gender equality, and sexual orientation equality more than other generations (FutureCast, 2017; Vision Critical, 2016). Members of Generation Z align themselves with liberal values and will expect their workplaces to reflect their egalitarian values (FutureCast, 2017; Vision Critical, 2016). In order to embody these values, organisations should implement egalitarian workplace design strategies that do not give preferential treatment to individuals and groups, integrating design elements that embody the values of transparency and equality, and providing workspaces that are welcoming and accessible to everyone.

Surprisingly, Generation Z rates environmental issues as less important than other generations rate them (FutureCast, 2017). However, it is likely that this is because environmentally responsible behaviour is expected by this generation and has, therefore, become less important when compared to social issues (FutureCast,

2017). Members of this generational cohort will likely expect their employers to demonstrate that they share their values by behaving in an environmentally responsible manner (FutureCast, 2017). Interior design strategies that communicate environmental responsibility include specifying materials that are environmentally responsible and ethically source, providing recycling and composting options to divert waste from landfills, specifying energy-efficient fixtures and equipment, and providing transparent data that verifies the organisation's commitment to being environmentally responsible.

Other defining characteristics of Generation Z include “responsibility, determination, work ethic, dependability, money, intelligence and independence” (FutureCast, 2017, p. 9). They place a high level of importance on personal success and believe that success is a result of hard work (FutureCast, 2017). In fact, research indicates that Generation Z expects to work harder than previous generations in order to have satisfying careers (Robert Half, 2015). These are all favourable characteristics and employers can look forward to welcoming Generation Z as long as they provide work environments that allow them to thrive.

3.2.2 Workplace Needs and Preferences

More than any other generation, members of Generation Z care about making a positive impact in the world through their careers (Vision Critical, 2016). Research indicates that they also place a high value on authenticity, so organizations will need to ensure that their company culture aligns with their values (Robert Half, 2015). In order to appeal to Generation Z, it is recommended that organizations advertise a clear sense of purpose and allow employees to pursue personal initiatives (Universum, 2015).

According to survey results, collaboration in small groups is the preferred work style for Generation Z, followed by collaboration in large teams (Robert Half, 2015). These preferences are aligned with current workplace trends that place a high level of importance on collaboration between team members in open-plan configurations. Interestingly, only 7 per cent of Generation Z say that they would prefer working in off-site locations, regardless of whether they are working autonomously or collaboratively (Robert Half, 2015). Another surprising finding is that 45 per cent of surveyed members

of Generation Z say they would prefer to work in a private office rather than in an open-plan environment (Robert Half, 2015). This insight appears to conflict with Generation Z's preference to work collaboratively, and many organizations have found that open-plan workplace environments are the most successful for promoting collaboration. It is plausible that reported work environment preferences will change once members of Generation Z have more professional experience in the workplace. Interior design strategies that promote collaboration include providing a variety of spaces for different group sizes to work together, both formally and informally. In order to acknowledge Generation Z's preference for working in private offices, design strategies should also include providing acoustically and/or visually isolated workspaces for individuals to work without disruptions and to fulfil privacy needs.

Survey results indicate that members of Generation Z value honesty, integrity, and mentoring ability as the most important characteristics for their future bosses (Robert Half, 2015). This generation views high employee turnover as a sign that the management does not embody those values, and that top-down management techniques are inauthentic (Robert Half, 2015). Organizations can address these

values and concerns by creating environments that are transparent, egalitarian, and conducive to feedback and collaboration, and by providing spaces for peer-to-peer mentoring.

Echoing the high value that Generation Z places on social issues, they also expect that their workplace will provide equal opportunities for minorities and women (The Center for Generational Kinetics, & Dorsey, J., 2016). Workplace design can successfully embody these values by placing a high priority on accessibility, equality, transparency, and inclusion.

Finally, Generation Z is worried that their future jobs and workplaces will not reflect their personality and that development opportunities will not be made readily available to them (Universum, 2015). They also worry about not being taken seriously by other generations in the workplace, and that a multigenerational workforce will present challenges regarding "different work ethics, values, and expectations" (Robert Half, 2015, p 19). Workplace design strategies that address these fears include: providing environments that promote intergenerational mentoring, collaboration, and resource centres for work-related knowledge acquisition.

3.3 Generation Y

Members of Generation Y were born between 1977 and 1995 and represented 26 per cent of the Canadian Population in 2016 (Statistics Canada, 2016). In 2015, Generation Y became the largest generational cohort represented in the Canadian workforce as they complete post-secondary education and as Baby Boomers continue to retire. Since Generation Y will be the largest cohort in the workforce for the near future, their workplace needs and preferences will remain a high priority for organizations even as they prepare to welcome Generation Z.

Formative events for Generation Y include the 9/11 terrorist attacks, but unlike Generation Z, members of this generation were all old enough to remember the event and experienced the global geopolitical responses to it. The rapid evolution and consumer adoption of the internet and social media have also affected the values and characteristics of Generation Y, especially regarding multiculturalism and globalization. Finally, a cultural shift in North America toward refocusing on family relations resulted in millennials

being raised by what is often referred to as ‘helicopter parents’. This parenting style has resulted in generational characteristics such as having unrealistic expectations in the workplace because how they were treated and rewarded as children do not necessarily translate to the realities of adulthood.

3.3.1 Values and Characteristics

Similar to Generation Z, members of Generation Y are technologically savvy and accustomed to constant internet access through mobile devices. Unlike Generation Z, whose members were born into the digital era, members of Generation Y experienced the rapid pace of technological innovations while growing up and are eager to adopt new technologies to integrate into their lives (Kruger & Saayman, 2015). Although the technology-related skillset of Generation Y is seen as one of their best attributes, their eagerness for innovation and change in the workplace can come across as impulsive to their more experienced, older managers (Winter & Jackson, 2016). Interior design strategies that aim to engage Generation Y through technological integration include providing

mobile reservation systems for booking meeting rooms, locating coworkers and providing digital collaboration tools.

Unlike the older generations in the workforce, Generation Y places a lower value on high salaries and a higher value on work schedule flexibility (Brack & Kelly, 2012). Generation Y is known for being experience-oriented, with a strong focus on leisure, recreation, and socializing (FutureCast, 2017; Kruger & Saayman, 2015). Flexibility in their work schedules allows Generation Y to spend more time travelling, which is a high priority and considered necessary for maintaining work-life balance (Kruger & Saayman, 2015; Nishizaki, 2013). In order to attract and retain talented members of this generation, employers may consider providing the necessary infrastructure and policies to allow their employees to work remotely while still maintaining contact and supervision. Other interior design strategies that acknowledge Generation X's experience-oriented nature include providing lounges and activity spaces where employees can relax and socialize throughout the day.

Although Generation Y places a lot of value on experiences, research and survey data indicate that they are still drawn to brands that identify with their core values (Kruger & Saayman, 2015; Valentine & Powers, 2013). Generation Y embraces diversity and is supportive of social causes, prioritizing human rights issues above all other causes (Nishizaki, 2016; Valentine & Powers, 2013; Vision Critical, 2016). More than any other generation in the workforce, they are concerned about global warming and other environmental issues, LGBT rights, gender equality, and sexism (Vision Critical, 2016). Employers can increase their appeal to Generation Y by communicating a brand identity and corporate culture that values diversity and embodies a commitment to effect positive environmental and social change (Valentine & Powers, 2013, p. 598). Interior design strategies that communicate environmental responsibility include specifying materials that are environmentally responsible and ethically source, providing recycling and composting options to divert waste from landfills, specifying energy-efficient fixtures and equipment, and providing transparent data that verify the organisation's commitment to being environmentally responsible. Design strategies that communicate a commitment to

social issues include implementing design strategies that provide a safe, accessible, and welcoming work environment for everyone.

Other favourable characteristics of Generation Y include having respect for authority, being pragmatic, confident, self-reliant, tolerant, sophisticated, mature, service-oriented, and effective at multitasking (Kruger & Saayman, 2015; Nishizaki, 2013; Valentine & Powers, 2013; Young & Hinesly, 2012). Less favourable characteristics of Generation Y include perceived narcissism and entitlement, which can potentially create issues for employers (Laird, Harvey, & Lancaster, 2014; Lub, Bal, Blomme, & Schalk, 2016; Rosa & Hastings, 2016). These characteristics can lead to unrealistic expectations for promotion, resulting in high employee turnover when expectations are not fulfilled (Lub, Bal, Blomme, & Schalk, 2016; Winter & Jackson, 2016). In fact, members of Generation Y are twice as likely to leave a job within a year than members of Generation X and have an average tenure of just over three years, which is considerably lower than older individuals in the workforce (Laird, Harvey, & Lancaster, 2015). In order to attract Generation Y employees and retain them for longer periods of time, organisations

should ensure that their values are in line with those of Generation Y and that they are effectively communicated and implemented through corporate strategies.

3.3.2 Workplace Needs and Preferences

At work, members of Generation Y concentrate on career development, personal growth, and self-enhancement (Lub et al., 2016). Opportunities for skill and career development are highly valued, and coaching from superiors is an effective strategy to keep Generation Y engaged and satisfied. (Brack & Kelly, 2012; Lub et al., 2016). In times of high work demand, they are willing to accept work-life imbalance as long as their work is fulfilling and purposeful (Meister & Willyerd, 2010; Winter & Jackson, 2016). Interior design strategies that address these needs include providing resources such as libraries, classrooms, and seminar rooms. Organisations can also encourage intergenerational coaching by providing formal and informal spaces for peer-to-peer mentoring sessions.

Research findings show that Generation Y favours an egalitarian management style, preferably working directly with superiors who are willing to mentor them (Nishizaki, 2013). They are not fond of hierarchies, which reflects their concern for social issues such as gender and sexual orientation equality (VanMeter, Grisaffe, Chonko, & Roberts, 2013). Although they expect consistent assessments regarding their job performance, Generation Y prefers feedback from their peers, rather than through traditional top-down evaluations from management (Brack & Kelly, 2012; Laird, Harvey, & Lancaster, 2014). Interior design strategies can address these values and concerns by creating environments that are transparent, egalitarian, and conducive to feedback and collaboration, and by providing spaces for peer-to-peer mentoring.

According to research, collaboration is the preferred work style for Generation Y because they thrive in team-based projects that offer high degrees of interaction with their peers and superiors (Brack & Kelly, 2012; VanMeter et al., 2013). Generation Y is reportedly also capable and proficient at collaborating with team members from off-site locations such as their home and in coffee shops (Payton, 2015).

Virtual teams and collaboration from off-site locations are often not embraced by older generations, but organizations can implement appropriate infrastructure and policies to facilitate this type of teamwork while acknowledging the different work preferences in an intergenerational workplace. (Brack & Kelly, 2012; Payton, 2015). Interior design strategies that promote collaboration include providing a variety of spaces for different group sizes to work together, both formally and informally.

Generation Y expects that their workplaces will facilitate professional and personal needs, which reflects their willingness to accept work-life imbalance as long as they can still maintain their personal lives at work (Payton, 2015; Winter & Jackson, 2016). Non-traditional workplace designs that focus on employee experience are preferred and are often described as “cool, fun, flexible, and campus-like” (Payton, 2015, p. 60). Other characteristics that Generation Y looks for in the workplace include family-friendly policies and amenities, being culturally diverse, leadership that genuinely listens to new ideas, making a social difference, and participating in company events (Payton, 2015). Interior design strategies that embody these

values include providing spaces for social and leisure activities, networking events, and spaces where employees can privately attend to personal matters. In order to create a campus-like workplace environment, design elements that create destinations, landmarks, and zones should be incorporated.

Finally, reiterating the high value that Generation Y places on flexibility and mobility, they expect that their workplaces will promote a corporate culture that is accepting of their unique preferences (Payton, 2015). While this approach might risk alienating older generations who do not share Generation Y's preferences, strategies that "promote creativity, collaboration, shared leadership, ownership, and idea initiation in all employees" can ensure that every employee is supported by spaces and work styles that maximize satisfaction and productivity (Payton, 2015, p. 60).

3.4 Generation X

Members of Generation X were born between 1965 and 1976 and represented 16 per cent of the Canadian population in 2016 (Statistics Canada, 2016). Generation X is a relatively small cohort

compared to the other generations, due to a smaller range of birth years that has been assigned to them. A unique set of circumstances during their formative years, such as a rise in divorce rates and dual-career families, created a cohort that has become known as "the generation that raised itself with television as a babysitter and surrogate parent" (Kupperschmidt, 1998, p. 37).

Other factors such as economic issues in the 1980s and 1990s have contributed to producing a generational cohort with views towards work and careers that are quite different from the other generations in the workplace (Krahn and Galambos, 2013; Kupperschmidt, 1998; Lub et al., 2016). Although they are proportionally underrepresented in the workforce, Generation X is filling leadership roles that were previously held by retiring Baby Boomers, giving them leverage to create change within their organizations.

3.4.1 Values and Characteristics

Generation X entered the workforce while many corporations were downsizing, and experienced a highly competitive job market where jobs were being filled by experienced Baby Boomers or individuals

with post-secondary degrees (Kupperschmidt, 1998; Lub et al., 2016). Since job security was not guaranteed for many members of Generation X when they were beginning to build careers, they became focussed on remaining employable through continuous learning, rather than looking for long-term employment opportunities (Bogdanowicz & Bailey, 2002; Zopiatis, Krambia-Kapardis, & Varnavas, 2012). Due to these circumstances, Generation X places a high value on opportunities to learn and develop new skill sets through training programs that add value for potential employers. (Pekala, 2001; Tulgan, 1997; Zopiatis et al., 2012).

Generation X's emphasis on looking for self-growth opportunities has resulted in career paths that often include switching jobs as soon as learning opportunities are perceived to be exhausted, or if they are being offered a better salary at a new job (Bova & Kroth, 2001; Pekala, 2001). The tendency to job-hop has created the impression that Generation X is disloyal, although they tend to be loyal to supervisors and organizations that provide different opportunities for personal growth and advancement (Lub et al., 2016; Murphy, 2012; Zopiatis et al., 2012). Interior design strategies

that address these concerns include providing resources such as libraries, classrooms, seminar rooms, and spaces that encourage peer-to-peer mentoring.

According to research, Generation X values flexible work schedules and is more incentivised by gaining personal time and the ability to set their own work schedule than by money (Pekala, 2001; Zopiatis et al., 2012). They view work “as a means to support their leisure time,” and often have difficulty when the boundaries between their private life and work disappear (Lub et al., 2011, p. 556; Pekala, 2001, p. 36). Although they are reportedly very reliable for getting work done on time, members of Generation X expect to be able to leave work as soon as they finish their assigned tasks (Pakala, 2001; Zopiatis et al., 2012). While these values cannot be addressed through interior design strategies alone, providing the proper infrastructure to allow employees to work from off-site locations while still retaining communication and supervision can offer flexibility where it is deemed appropriate.

Compared to Baby Boomers, Generation X is more technologically literate and comfortable with change and diversity (Bova & Kroth, 2001; Lub et al., 2011; Zopiatis et al., 2012,). These characteristics are well suited for the leadership roles that many members of Generation X are beginning to fill within organizations, and their unique skill sets and experiences bridge the gap between Baby Boomers and the younger generations which make them assets within the multigenerational workforce.

3.4.2 Workplace Needs and Preferences

One of the characteristics that set Generation X apart from the other generations in the workforce is their preference to work alone (Zopiatis, Krambia-Kapardis, & Varnavas, 2012). They are independent and resourceful, which is believed to stem from the lack of parental supervision during their formative years (Bova & Kroth, 2001; Kupperschmidt, 1998). For many organizations that rely on productive collaboration between employees, this preference can lead to issues if appropriate strategies are not enforced. In order to maintain job satisfaction for Generation X employees,

design strategies can include providing spaces where individuals can work autonomously while remaining accessible to their coworkers. Individual workstations should be supported by spaces where teams can come together when tasks require collaboration. Allowing employees to express their individual identity by displaying personal items can also help towards making Generation X more comfortable in collaborative settings (Karp, Sirias, & Arnold, 1999)

Furthermore, Generation X does not like to be micromanaged, responding more favourably to management styles that emphasise coaching and constructive feedback as well as recognition for achieving good results (Tulgan, 1997; Zopiatis et al., 2012). Recognition is important to Generation X, who expect it to be based solely on merit, not seniority (Zopiatis et al., 2012). Interior design strategies that address these needs include providing spaces for peer-to-peer mentoring and a means by which to publicly recognize good job performance.

Generation X's preference for continuous learning can be accommodated by a variety of spaces that support skill development

(Bova & Kroth, 2001; Mensik; 2007). Examples of learning spaces include resource centres, libraries, mentoring and coaching spaces, and classrooms. As was previously discussed, Generation X is more loyal to organizations that provide opportunities for personal growth and advancement, so providing the necessary tools and facilities to fill those needs can be an effective way to retain talented employees (Lub, Bal, Blomme, & Schalk, 2016; Murphy, 2012; Zopiatis et al., 2012)

Generation X also places a high value on being able to access amenities such as gyms and child care facilities in the workplace (Bova & Kroth, 2001). These amenities are convenient, save time, and help employees maintain work-life balance, which organizations can leverage to attract talented Generation X employees since they are more incentivized by time than by money (Pekala, 2001).

3.5 Baby Boomers

Baby Boomers were born between 1946 and 1964 and represented 24 per cent of the Canadian population in 2016 (Statistics Canada,

2016). This generational cohort is similar in size to Generation Y, but their presence in the workforce is declining. Its oldest members have already reached the national retirement age and the rest will continue to retire throughout the next two decades. Having grown up in a prosperous post-war economy, Baby Boomers are characterised by higher levels of optimism and entered the workforce at a time when opportunities for career development were plentiful (Leiter, Jackson, & Shaughnessy, 2009). Other factors that influenced Baby Boomers during their formative years include “civil rights and women’s movements, the Vietnam War, the assassinations of John F. Kennedy and Martin Luther King, and Watergate” (Murphy, 2012, p. 554; Twenge, Campbell, Hoffman, & Lance, 2010, p. 1120).

3.5.1 Values and Characteristics

Although Baby Boomers entered the workforce during economically prosperous times, their generational cohort was very large, which meant that the market for good jobs was also highly competitive (Gursoy, Chi, & Karadag, 2013; Hall & Richter, 1990).

Competitiveness for good jobs meant that individuals became accustomed to regularly working overtime in an effort to stand out (Gursoy et al., 2013; Hall & Richter, 1990). The strong work ethic of Baby Boomers is a favourable characteristic, but the workaholic mentality has had negative implications for work-life and work-family balance (Hall & Richter, 1990). Baby Boomers' expectation for younger generations to pay their dues by working long hours can also become an issue in the workplace since younger generations often view working extended hours as working hard instead of smart (Cogin, 2012; Pekala, 2001; Zopiatis et al., 2012). Baby Boomers also view hard work as the necessary means towards gaining rewards and recognition, which they place a high value on especially when given to them by their superiors in public settings (Leiter, Jackson, Shaughnessy, 2009; Pekala, 2001; Zopiatis et al., 2012). Financial and material rewards are also highly valued by Baby Boomers since they believe in the importance of status symbols to advertise their success to peers (Cogin, 2012; Lub et al., 2016; Zopiatis et al., 2012). While it is important to consider Baby Boomers' need for recognition and status symbols, a more egalitarian work environment is

preferred by all of the younger generations. Therefore it is likely not in the best interest of organisations to place too much importance on them. However, strategies may include providing a means by which to recognize individuals who are making exceptional contributions within the organisation.

In addition to material rewards and status, Baby Boomers are motivated by opportunities to make a difference in their organisation (Murphy, 2012; Zopiatis et al., 2012). Known for valuing loyalty, Baby Boomers tend to stay with the same company for long periods of time and are willing to work their way up the corporate ladder as long as their work is challenging and they can see the positive impact their role has within the workplace (Cogin, 2012; Zopiatis et al., 2012). At the same time, they are resistant to change and "feel betrayed by downsizing, re-engineering and restructuring" because they believe that they will be able to fix the situation if given the opportunity (Zopiatis et al., 2012). In order to keep Baby Boomers engaged and feel that their work is meaningful, organisations should implement strategies for promoting mentoring opportunities and

intergenerational knowledge transfer. Interior design strategies that address this include providing spaces for peer-to-peer mentoring and for sharing knowledge in larger groups.

When compared to the other generations in the workforce, Baby Boomers are less concerned about salary, having an impact, amount of vacation days, and work culture (Vision Critical, 2016). Although it was previously discussed that Baby Boomers value financial success and being able to see their direct impact within their organisation, it is logical that the younger generations are more concerned about these factors since they are at earlier stages in their careers. Baby Boomers are reportedly also less concerned about human rights issues, animal rights issues, volunteering, global warming and other environmental issues, donating money, LGBT rights, and aboriginal issues than the other generations in the workforce (Vision Critical, 2016). Since these findings are comparative, it does not mean that Baby Boomers are unconcerned by those issues, only that they place higher values on other things.

3.5.2 Workplace Needs and Preferences

Baby Boomers value teamwork and are excellent at collaborating and mentoring in face-to-face settings (Cogin, 2012; Ferri-Reed, 2013; Pekala, 2001). However, their preference for traditional hierarchical organisational structures means that collaboration entails walking between private offices instead of working in more egalitarian workplace configurations (Cogin, 2012; Ferri-Reed, 2013). They also view working from off-site locations and telecommuting as being unproductive and believe that only employees in senior positions should be offered these arrangements (Cogin, 2012). This may be because Baby Boomers are resistant to change or that they are not technologically literate enough to work productively in virtual teams, but it could also be a product of Baby Boomers' lack of faith in the work ethic of younger employees (Cogin, 2012). Since the trend towards higher density workstations means that Baby Boomers are less likely to be given private offices, it is crucial that organisations implement appropriate change management strategies that promote the positive aspects of communicating and collaborating in open-plan settings. However, it is also important

to acknowledge that some members of this generational cohort will have difficulty adjusting to unfamiliar workstyles in the late stages of their career. Interior design strategies that address these issues include providing spaces for employees to gain privacy and increasing Baby Boomers' perceptions of space ownership by providing a means by which they can personalize the spaces they regularly work in.

According to research, the preferred management style of Baby Boomers is micromanagement, which is contradictory to their preference for wanting to receive feedback only on an annual basis (Zopiatis et al., 2012). This preference is likely the difference between how Baby Boomers want to be managed, and how they manage others. Although this does not necessarily mean that Baby Boomers want to micromanage others, they might find participatory management styles too difficult in practice, especially if they lack confidence in the work ethic of younger generations (Cogin, 2012; Zopiatis et al., 2012). The value they place in mentoring younger generations might also be a factor in their management preferences (Cogin, 2012; Wong, Gardiner, Lang, & Coulon, 2008).

Again, it is crucial that organisations implement appropriate change management strategies so that Baby Boomers can learn the benefits of participatory management styles without being made to feel that their preferred management styles are incorrect. It is important for individuals and organisations to recognize the value of Baby Boomers' knowledge, and appropriate steps must be taken to ensure that their knowledge is passed to other members of the organisation before they retire.

3.6 Interior Design Strategies

Table 1: Summary of generational values, characteristics, needs, and preferences with interior design strategies.

VALUES, NEEDS, CHARACTERISTICS, AND PREFERENCES	INTERIOR DESIGN STRATEGIES
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GENERATION Z

Digital Natives/Technologically Savvy	<ul style="list-style-type: none"> • Providing a degree of technological integration, such as being able to reserve meeting rooms and locating coworkers on smart devices. • Implementing workplace technologies such as digital collaboration tools to engage Generation Z.
Short Attention Span	<ul style="list-style-type: none"> • Providing spaces that reduce distractions for focussed work.
Health Concious	<ul style="list-style-type: none"> • Providing space for bicycle storage. • Providing gym facilities with changing rooms and showers. • Promoting a healthy lifestyle by providing sit/stand desks, ergonomic furniture.
Healthy Eating Habits	<ul style="list-style-type: none"> • Providing healthy snack/meal options. • Providing storage for food brought from home.
Egalitarian	<ul style="list-style-type: none"> • Implementing a workplace design strategy that does not give preference or special treatment to groups of people within the organisation. • Integrating design elements that communicate transparency and equality.
Social Awareness	<ul style="list-style-type: none"> • Providing workspaces that are accessible to everyone, regardless of disability, age, or gender.
Environmentally Responsible	<ul style="list-style-type: none"> • Using materials that are environmentally responsible and ethically sourced. • Providing recycling and composting options to divert waste from landfills. • Specifying energy efficient lighting, appliances, and equipment. • Specifying water-efficient fixtures. • Providing a means by which employees can access data that verifies the organization's commitment to being environmentally responsible.

VALUES, NEEDS, CHARACTERISTICS, AND PREFERENCES	INTERIOR DESIGN STRATEGIES
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Collaboration in Small/Large Groups

- Providing spaces that are properly outfitted for collaboration in various group sizes for formal and informal collaboration sessions.

Private Office

- Providing workstations that offer employees privacy and the ability to personalize, while still remaining egalitarian.

Mentoring Ability in Management

- Providing spaces for peer-to-peer mentoring or in small groups.

Workplace Reflects Personality

- Integrating design elements that communicate a strong identity that is relatable to Generation Z.

Career Development Opportunities

- Providing a resource/library/information centre.
- Providing classroom/seminar spaces.

GENERATION Y

Technologically Savvy

- Providing a high degree of technological integration, such as being able to reserve meeting rooms and locating coworkers on smart devices.
- Implementing workplace technologies such as digital collaboration tools to engage Generation Y.

Work Schedule Flexibility

- Providing the proper infrastructure to allow employees to work from off-site location while still retaining communication and supervision.

Experience-Oriented

- Providing lounge and activity spaces where employees can relax throughout the workday.

Social Awareness

- Providing workspaces that are accessible to everyone, regardless of disability, age, or gender.

Environmental Responsibility

- Specifying materials that are environmentally responsible and ethically sourced.
 - Providing recycling and composting options to divert waste from landfills.
 - Specifying energy efficient lighting, appliances, and equipment.
 - Specifying water-efficient fixtures.
 - Providing data that verifies the organization's commitment to being environmentally responsible.
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DEMOGRAPHIC INQUIRY

VALUES, NEEDS, CHARACTERISTICS, AND PREFERENCES

INTERIOR DESIGN STRATEGIES

Career Development Opportunities	<ul style="list-style-type: none">• Providing a resource/library/information centre.• Providing classroom/seminar spaces.
Mentoring	<ul style="list-style-type: none">• Providing spaces for one-on-one mentoring or in small groups.
Egalitarian Management Style	<ul style="list-style-type: none">• Implementing a workplace design strategy that does not give preference or special treatment to groups of people within the organisation.• Integrating design elements that communicate transparency and equality.
Collaboration	<ul style="list-style-type: none">• Providing spaces that are properly outfitted for collaboration in various group sizes for formal and informal collaboration sessions.• Providing the infrastructure to allow employees to work and collaborate remotely.
Non-Traditional Workplace Design	<ul style="list-style-type: none">• Implementing workplace design strategies that provide opportunities for leisure and social activities.• Implementing a workplace design approach that makes the workplace feel like a campus with destinations, landmarks, and zones.• Providing a child care centre.
Company Events	<ul style="list-style-type: none">• Providing spaces that can be used to host social and networking events.

Generation X

Continuous Learning/ Career Development	<ul style="list-style-type: none">• Providing a resource/library/information centre.• Providing classroom/seminar spaces.
Flexible Work Schedule	<ul style="list-style-type: none">• Providing the proper infrastructure to allow employees to work from off-site location while still retaining communication and supervision.

**VALUES, NEEDS, CHARACTERISTICS,
AND PREFERENCES**

INTERIOR DESIGN STRATEGIES

Prefer to Work Alone	<ul style="list-style-type: none"> • Providing spaces where employees can work autonomously while still remaining accessible to coworkers. • Providing workstation-adjacent spaces for collaboration when needed. • Providing workstations that offer employees privacy and the ability to personalize.
Coaching/Mentoring	<ul style="list-style-type: none"> • Providing spaces for peer-to-peer mentoring or in small groups.
Amenities	<ul style="list-style-type: none"> • Providing a child care centre. • Providing gym facilities with changing rooms and showers. • Providing lounge and activity spaces where employees can relax throughout the workday.
Baby Boomers	
Collaboration	<ul style="list-style-type: none"> • Providing spaces that are properly outfitted for collaboration in various group sizes for formal and informal collaboration sessions.
Private Office	<ul style="list-style-type: none"> • Providing workstations that offer employees privacy and the ability to personalize.
Recognition	<ul style="list-style-type: none"> • Providing a means by which to recognize individuals who are making exceptional contributions within the organization.
Micromanagement Style	<ul style="list-style-type: none"> • Ensuring a close proximity between the workstations of management and other members of their team.
Mentoring	<ul style="list-style-type: none"> • Providing spaces for peer-to-peer mentoring or in small groups
Resistant to Change	<ul style="list-style-type: none"> • Support for existing ways of working.
Traditional Hierarchical Organizational Structure	<ul style="list-style-type: none"> • Providing some 'perks' to management, such as larger workstations.

CHAPTER 4: WELL-BEING, PRODUCTIVITY, STRESS, AND SUSTAINABILITY

4.1 Overview

The greatest asset of any organisation is its employees. Therefore, it is imperative that organisations provide workplaces that promote well-being in order for employees to work productively. Organisations also have a responsibility to be considerate of the community and shared physical environment that they operate in. Adopting environmentally and socially sustainable corporate strategies not only ensures that these responsibilities are being fulfilled, they also communicate a favourable corporate image within the organisation and the broader community.

4.2 Well-Being and Productivity: Environmental Factors

The relationship between environmental factors and how they affect well-being and productivity is complex, but there is a growing body of research that interior designers can access in order to make informed design decisions. Workers who occupy unhealthy buildings experience health symptoms that result in absenteeism, which is the simplest measurement of lost productivity.

Other methods of measuring productivity include collecting data through self-reported metrics such as occupant surveys or measuring cognitive function in controlled lab environments. The environmental factors that are relevant to this project will be discussed in the following sections.

4.2.1 Indoor Air Quality and Ventilation

Air quality is the degree to which the ambient air is free of pollutants such as volatile organic compounds (VOCs) and high concentrations of carbon dioxide (CO₂). Poor air quality can result in respiratory problems, infections, and discomfort, which affect occupant well-being and productivity. In an office environment, VOCs can come from many sources such as paints, finishes, adhesives, furniture upholstery, floor coverings, wall coverings, cleaning products, office supplies, and tobacco smoke. In order to reduce the presence of VOCs in the ambient air, materials, finishes, and supplies with no- or low-VOC content should be specified by designers and building managers.

Increasing the rate at which fresh outside air is brought into a space also dilutes the concentration of VOCs and CO₂. The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) and the American National Standards Institute (ANSI) have created standards to ensure that ventilation systems are designed and operated to bring acceptable amounts of fresh air into occupied interior spaces (ASHRAE/ANSI, 2013). ASHRAE recommends ventilation rates that maintain a CO₂ concentration below 1000 parts per million (ppm) and a VOC concentration below 160 µg/m³ (ASHRAE/ANSI, 2013). However, research shows that increasing ventilation rates above the acceptable minimum requirements can produce significant productivity gains.

A 2015 study testing the correlation between VOC and CO₂ concentrations in the air and cognitive function found that cognitive function increased by 61 per cent when the presence of VOCs was decreased to a level well below the acceptable minimum requirement (Allen et al., 2015). The same study also found that doubling the ventilation rate from 20 l/s to 40 l/s decreased the

concentration of CO₂ by 45 per cent and increased cognitive function by 101 per cent (Allen et al., 2015).

Other researchers have found similar results, such as an 11 per cent gain in productivity resulting from increased outside air rates and reduced levels of pollutants (Loftness, Hartkopf, & Gurtekin, 2003). In another study, Park and Yoon (2011) found that reducing the presence of VOCs in the air by increasing ventilation rates resulted in an 8 per cent performance improvement. Similarly, poor air quality has been shown to reduce performance by as much as 10 per cent (Wargorcki et al., 2006).

Since the scope of this project does not include specifying mechanical ventilation systems or producing a building operations manual, it strives to high standards for indoor air quality through pollution source control. Paints, finishes, furniture upholstery, floor coverings, and wall coverings that contain no- or low-VOC content are specified in order to ensure that the ambient air contains as few VOCs and pollutants as possible.

4.2.2 Thermal Comfort

Thermal comfort is a complex indoor environment quality parameter that is comprised of air temperature, surface temperatures, air speed and humidity. Thermal comfort is also highly subjective, since it is dependent on an individual's "perception of thermal comfort depends on their metabolic rate, clothing, and personal preference" (World Green Building Council, 2014). Due to the variance between individual occupants' preferred thermal comfort parameters, it is not plausible for designers and building managers to set specific temperatures, humidity, and airspeeds that will provide an optimal work environment for every occupant, but instead strive for a conditioned environment where at least 80 per cent of the occupants are satisfied.

The Canadian Standards Association (CSA) and ASHRAE have created standards for maintaining acceptable air temperature, air speed, and humidity. The CSA (2016) recommends a summertime temperature range of 23-26°C and a wintertime temperature range of 20-23.5°C. ASHRAE (2013) recommends an airspeed range of

0.1-0.2 meters per second (m/s) and a humidity range between 30-70 per cent. For the purpose of this project, it will be assumed that the standards discussed here will be applied correctly since it is not within the scope of this project to create an operations manual for the client.

When all of the standards are properly implemented, the well-being and productivity of occupants should theoretically not be compromised. However, research indicates that occupants become less productive when temperatures rise or fall outside of the recommended ranges. One study found that occupants experienced a 10% reduction in productivity at both 15°C and 30°C (Wargorcki et al., 2006). Another study found that cooler temperatures resulted in a 4 per cent productivity loss while warmer temperatures resulted in a 6% productivity loss (Lan, Wargorcki, Wyon, & Lion, 2011).

Another factor that has been found to improve occupants' productivity is personal control over their environment. Studies have found that when occupants were allowed to control the temperature

in their work environment, their logical thinking performance increased by 3 per cent, their typing performance increased by 7 per cent, and their overall productivity increased by 3 per cent (Carnegie Mellon, 2004; Wyon, 1996). This type of control is often only applicable to individual enclosed workstations such as private offices and is far more difficult to implement in shared offices or open plan workstations.

However, technology and design strategies can provide individuals with some degree of personal control in work environments that they share with others. For example, an individual could theoretically input their preferred thermal comfort parameters in a smartphone application or a wearable item such as a smartwatch that is synced with a building's heating, cooling, and air conditioning (HVAC) system. The same system could track the individual's movement throughout the building and when they occupy different spaces, it would tell the HVAC system to adjust the temperature based on the occupant's preferences. In shared spaces, the integrated HVAC system could calculate an average for all of the occupants in the space and adjust the temperature as occupants

enter and exit a space. In a fully integrated system, this type of information could also be attached to individuals and groups when they book meeting rooms, team rooms, classrooms, or other spaces in the building so that thermal comfort parameters can be adjusted to occupants' preferences without the occupants physically being required to access a thermostat. The same system might also store individuals' preferences for other indoor environment quality parameters such as lighting levels.

Other design strategies that are more directly related to the role of interior design include providing storage space to keep clothing items such as sweaters. Providing snack areas where occupants can get hot or cold beverages can also improve their perception of thermal comfort during Winnipeg's hot summer and cold winter months.

4.2.3 Daylighting and Lighting

Light serves many functions in the workplace. Its most basic function is that it allows occupants to see the task that they are

performing, but it also “affects many other aspects of well-being, including comfort, communication, mood, health, safety and aesthetics” (World Green Building Council, 2014). Lighting is also one of the elements within a building’s design where interior designers can contribute their expertise to ensure the best possible outcome for occupants.

As with the other indoor environment quality factors, there are standards for office lighting to ensure that tasks are being performed with adequate light conditions. The Illuminating Engineering Society of North America (IESNA) recommends that light levels in offices be maintained at 300-750 lux at the height of 30 inches above the finished floor (IESNA, 1993). Different types of spaces within the office environment each have their own recommendations, with 300 lux for conference rooms, 300-500 lux for computer workstations, and 750 lux for drawing boards (IESNA, 1993). Other spaces such as corridors, water closets, and dining areas have recommendations below 300 lux since work tasks are generally not being performed there.

Another factor to be considered when creating a lighting design strategy is glare, which results when light sources and task surfaces are improperly positioned in relation to each other. For example, an overhead fixture should not emit light at an angle that will cause visual discomfort by being reflected by a computer monitor directly into the occupants’ eyes because the brightness of light fixture will make it difficult to see what is displayed on the monitor. When placed next to windows, workstations should be positioned so that the occupant is facing in the direction parallel to the window so that the incoming natural light does not cause glare.

The reflectance value of different surfaces within the workplace is also important when creating a lighting design strategy. Ceilings should have a reflectance value of 60-80 per cent in order to promote an even spread of ambient light from both artificial and natural light sources (IESNA, 1993). Ceilings with a high reflectance value also help natural light coming through windows to penetrate deeper into a building’s interior. Walls should have a reflectance value of 40-70 per cent, which also promotes the even spread of ambient light while reducing the probability of glare (IESNA,

1993). Floors should have a reflectance value of 20-40 per cent since light that is reflected off of the floor will not help to illuminate task surfaces and since light reflecting off the floor surface can be distracting (IESNA, 1993).

Although all of the previously mentioned standards can be implemented correctly with the use of artificial light, it is neither energy efficient or in the best interest of occupants to do so. Research shows that natural light has a meaningful impact on human health and well-being, and should always be considered when creating lighting design strategies. One study found that office occupants with windows “received 173% more white light exposure during work hours, and slept an average of 46 minutes more per night” than office workers without windows (Cheung, 2013). The same study also found that workers without windows reported more physical problems and “poorer outcomes on measures of overall sleep quality, sleep efficiency, sleep disturbances and daytime dysfunction” (Cheung, 2013). A different study found that providing employees with access to daylight and views reduced sick leave by 6.5 per cent, which suggests that access to daylight is a necessary

factor for maintaining the health and well-being of building occupants (Elzeyadi, 2011).

In order to promote health and well-being through access to daylight for as many occupants as possible, space planning strategies should prioritize the placement of regularly occupied workstations next to windows. Lighting design strategies should also take advantage of natural daylight to decrease the amount of artificial light that is needed to meet the standard lighting requirements. These strategies include shading systems to control the amount of light entering the space, which can be operated manually but preferably through an automated system that can adjust itself to balance energy efficiency and light level needs. This type of system would also require that individual light fixtures or groups of light fixtures can be dimmed or turned off in order for the system to adapt to changing natural light conditions and space occupancy. Light fixtures should be installed in such a way that users have control over preferred light levels with task lighting also being provided where appropriate.

4.2.4 Noise and Acoustics

Noise is often the indoor environment quality factor that office workers are the most dissatisfied with, especially in contemporary open plan offices. Noise coming from external sources such as passing traffic and emergency vehicles, and internal sources such as speech, telephones, and office equipment can all be distractions that lead to decreased productivity. Unwanted noise also affects the health and well-being of building occupants by causing stress (Shepherd, Welch, Dirks, & McBride, 2013).

Noise is commonly measured in decibels (dB) or balanced noise criterion (NCB). For design purposes, each of the methods works well although noise criterion is used more often because it allows for more detailed analysis of sound frequencies. While decibels only measure the total sound pressure sensed by the human ear, balanced noise criterion measures the relative loudness of a space with a range of frequencies. In offices, ANSI recommends an NCB rating of 30-35 for private offices, 25-40 for shared and open plan offices, and 25-30 in meeting rooms (ANSI, 2008).

Acceptable noise levels are always given in ranges because not enough ambient noise can be just as disruptive as too much. When spaces are too quiet, speech privacy is decreased while speech intelligibility increases. Therefore, spaces are often designed to be insulated from external noise and white noise machines are installed in order to mask noises from office equipment, HVAC systems, and speech within the space.

One study found that even low levels of speech intelligibility can decrease task performance by up to 3 per cent (Jahncke et al., 2013). This is not an alarming performance decrease on its own, but when compounded with other acoustic issues in a space can contribute to a larger performance loss. Another study found similar results, with cognitive performance being “significantly impaired by untreated and highly intelligible background speech” (Schlittmeier, Hellbruck, Thaden, & Vorlander, 2008, p. 731).

A study that focused on the health effects of working in environments with high noise levels found that employee absenteeism increased when noise levels were higher than the

recommended levels (Fried, Malemed, & Ben-David, 2002). More notably, many employees required more than four days at a time to recover from the stress that was caused by high noise levels and that more complex jobs tasks resulted in longer absences, which accounts for a large loss in productivity (Fried et al., 2002). Another study found that although noise levels may not cause stress on their own, high noise levels coupled with other factors that cause job strain can amplify issues for employees because they are combatting stressors as well as disruptions from high noise levels (Leather, Beale, & Sullivan, 2002). Furthermore, another study found that different types of background noise accounted for as much as a 66% drop in performance (Banbury & Berry, 1998).

Given that speech privacy, speech intelligibility, and high noise levels are the main sources of dissatisfaction and health concerns in the office environment, interior design strategies should focus on eliminating distractions caused by disruptive noise sources. Strategies to combat noise disturbances include acoustically isolating workspaces from activities that are occurring in adjacent spaces and providing acoustically insulated spaces for individual

focused work. A general acoustic strategy for controlling sound between spaces include specifying sound absorbent materials for upholstery, systems furniture panels, wall coverings, flooring, and ceiling products so that disruptive noise is absorbed, blocked, and controlled. Where ambient noise levels are too low in open area workspaces, white noise machines should be installed so that speech privacy is preserved and speech intelligibility is minimized. In open-plan shared workspaces, keeping partitions low can also help to reduce noise levels because space occupants are acutely aware of how much noise they are making since they are also visible to others.

Another acoustic strategy is to establish visual cues throughout the office floor plan that differentiate 'loud' and 'quiet' spaces. Lighting, furniture, materials, and colour palettes can all be used to create different ambiances within the workplace. While many people prefer to work without visual and acoustic distractions, some people prefer working in high energy areas so it is important to provide workspaces with a variety of activity and noise levels to suit different environmental preferences.

4.2.5 Interior Layout and Active Design

It is the interior designer's job to ensure that the physical layout of an office incorporates all of the necessary spaces for workers to complete tasks efficiently and effectively. However, simply providing all of the necessary spaces does not guarantee that the result will be a healthy and productive workplace because "the way the interior of an office is configured has a profound impact on concentration, collaboration, confidentiality and creativity" (World Green Building Council, 2014, p. 34).

One of the most frequently discussed office layout factors is the increasing density and openness of workspaces. In North America, the amount of space provided per office worker has been steadily decreasing for several decades (CoreNet Global, 2013). While this trend can be largely attributed to increasing real estate costs, it is also widely accepted that higher workplace densities in open-plan configurations promote 'cooperation, social relations, communication, feedback, solidarity and knowledge-sharing between workers' (Kaarlela-Tuomaala et al., 2009). However,

higher workplace densities can also negatively affect well-being and productivity due to factors such as loss of privacy and increased noise distractions. Since it is not plausible that office real estate trends will reverse, interior designers must find ways to mitigate the negative impacts of increased workplace density.

One of the ways that interior design can help to mitigate noise distractions is to provide acoustically insulated and accessible spaces where workers can go to answer phone calls and to conduct short meetings. This strategy works best when all of the employees in a high-density workplace have been provided with proper etiquette guidance so that the provided spaces are used for their intended purpose, and that distracting noise sources are minimized in shared office spaces. Another strategy is to provide spaces where employees can retreat to when they need to carry out tasks that require high levels of concentration. These spaces should not only be acoustically insulated, they should also be designed in such a way that visual distractions are minimized. Groups of employees should also have the option to access spaces that minimize acoustic and visual distractions for high-quality collaboration sessions.

While it is important to provide an optimized configuration of workspaces, it is also important to incorporate spaces that do not directly serve work-related functions. Spaces such as lounges, bars, and cafes “help to drive a cross-pollination of ideas, employee engagement and foster a sense of community, which can serve to strengthen a company’s culture”. (World Green Building Council, 2014, p. 36). These types of spaces are not always included in an office’s layout due to space constraints, but when they are combined with the right corporate policies they can be beneficial by promoting informal interactions and knowledge sharing between employees who may not otherwise regularly interact with each other. These types of spaces can also be important factors for improving overall workplace satisfaction.

Finally, workplace layouts should promote movement around the office throughout the work day. While some movement will happen naturally as workers go to meetings and seek out other employees for collaboration purposes, other elements can further promote physical activity. Attractive stairways with adjacent informal social and meeting spaces can become hubs of activity while

simultaneously decreasing elevator usage for vertical circulation within the office. Central break areas also encourage workers to leave their workstation to retrieve a snack or a beverage while increasing the probability for informal collaboration and knowledge sharing. Providing amenities such as gym facilities and activity lounges also encourages employees to take breaks from work to participate in physical activities.

4.2.6 Views and Biophilia

Providing views to the outdoors and fostering connections between nature and humans are important workplace design strategies that affect the well-being of office occupants. While providing views to the outdoors shares much of the same criteria as providing access to daylight, it is not always easy to provide high-quality views that incorporate nature within urban settings. Therefore, it is important to provide views and also incorporate biophilic elements throughout the workplace so that the connection between nature and humans is maintained.

Research shows that workers who have access to views of nature report better health results than workers whose views consist of only built elements (Kaplan, 1992). Other research has found that workers with views outside consistently performed tasks more efficiently than workers without views and that workers with views remained focused on their tasks for longer periods of time (Heschong Mahone Group, 2003). However, whether the view outside incorporates natural elements or not it remains important that a view is provided. For office workers who spend much of their day looking at documents and screens, long distance views “allow the eyes to adjust and re-focus, which reduces fatigue, headaches and the effects of eye strain in the long term” (World Green Building Council, 2014, p. 40). In urban settings, outside views also help to create psychological connections between groups of people from within a safe space (Kellert, 2005)

Incorporating biophilic elements into workplace design has been shown to provide many health benefits. For example, visual connections with nature can reduce stress, and improve mood and self-esteem (Kahn et al., 2008; Barton & Pretty, 2010). Elements

such as indoor plantings have also been shown to improve air quality, employee productivity, and concentration (Van Dartmont & Berge, 2001). Even non-visual connections with nature such as hearing nature sounds can promote both physiological and psychological restoration (Alvarsson, Wiens, & Nilsson, 2010).

Biophilic design strategies include incorporating potted plants, plant walls, and water features throughout the workplace. Art that has biophilic elements such as fractal geometries and natural scenes should also be incorporated throughout the workplace. Furthermore, interior designers can specify natural materials for structural elements and finishes rather than synthetic materials in order to increase the number of biophilic elements in a design. Finally, designers can create design features that incorporate natural shapes, forms, and colours in order to mimic nature and create abstract connections between the built environment and nature.

4.2.7 Interior Design Strategies

Table 2. Interior design strategies related to environmental factors.

CATEGORY	INTERIOR DESIGN STRATEGIES
Indoor Air Quality and Ventilation	<ul style="list-style-type: none"> • Specifying paints, finishes, furniture upholstery, floor coverings, and wall coverings that contain no- or low-VOC content. • Ensuring that all occupied spaces have the appropriate HVAC components to fulfil standard ventilation requirements.
Thermal Comfort	<ul style="list-style-type: none"> • Providing storage space to keep clothing items such as sweaters. • Providing snack areas where occupants can get hot or cold beverages. • Ensuring that all occupied spaces have the appropriate HVAC components to fulfil standard thermal comfort requirements. • Implementing an HVAC system that allows for some user control over temperature.
Daylighting and Lighting	<ul style="list-style-type: none"> • Positioning workstations and light fixtures to minimize glare. • Specifying floor, wall, and ceiling finishes with appropriate reflectance values. • Positioning all regularly occupied workstations within a reasonable proximity to windows. • Providing a window shading system. • Implementing a lighting system that allows for some user control over light levels.
Noise and Acoustics	<ul style="list-style-type: none"> • Providing acoustically insulated spaces for individuals and groups to do focused work. • Acoustically separating workspaces from adjacent areas. • Specifying sound absorbent materials for upholstery, systems furniture panels, wall covering, flooring, and ceiling products where appropriate. • Creating visual cues that differentiate ‘loud’ and ‘quiet’ spaces. • Providing workspaces with varying noise and energy levels to satisfy different environmental preferences.

CATEGORY	INTERIOR DESIGN STRATEGIES
Interior Layout and Active Design	<ul style="list-style-type: none"> • Providing different types of workspaces so that occupants can choose the type of environment that they prefer to work in depending on current tasks. Some examples include spaces for quiet concentration or creative interaction. • Providing accessible spaces for workers to answer phone calls and conduct short meetings to minimize noise distractions. • Providing spaces that are not directly work-related, such as social or breakout spaces. • Implementing space planning strategies that promote movement around the office throughout the day. • Providing amenities such as gym facilities and activity lounges.
Views and Biophilia	<ul style="list-style-type: none"> • Positioning all regularly occupied workstations within a reasonable proximity to windows that offer views. • Incorporating art features throughout the workplace. • Providing biophilic elements such as potted plants, plant walls, and water features to create a connection between the workplace and nature. • Incorporating design features that mimic natural shapes, forms, and colours. • Specifying natural materials for structural elements and finishes.

4.3 Well-being and Productivity: Psychological Factors

It is more difficult to measure the impact of psychological factors on workplace well-being and productivity than it is to measure the impact of the physical factors that were discussed in Section 4.2. Nonetheless, there are relationships between the built environment and the psychological well-being of a space's occupants that should not be ignored when designing spaces that aim to optimize well-being and productivity. Some of the most common psychological factors that affect office workers will be discussed in this section.

4.3.1 Environmental Control

Organisations make many decisions on behalf of their employees. Generally, the organisation has identified and provided an appropriate configuration of spaces, furniture and equipment for its employees so that instead of spending time and energy sourcing the tools that are required to perform tasks, employees can spend the majority of their time doing productive work. While this arrangement

is necessary in order for an organisation to operate effectively and efficiently, not allowing employees to have any environmental control can have negative psychological outcomes (Radmacher & Sheridan, 1995). Therefore, it is important for designers and organisations to identify appropriate areas where workers can control environmental factors.

One study found that when workers were able to control the temperature at their workstation, cognitive performance increased by 3 per cent and typing performance increased by 7 per cent (Wyonn, 1996). Similarly, another study found that control over temperature increased productivity by 3 per cent (Loftness, Hartkopf, & Gurtekin, 2003). While the outcomes from these studies show that controlling the environment in order to increase personal comfort has positive outcomes, other studies show that environmental control can also have a positive psychological effect. For example, a study where workers were given adjustable air supply devices for their workstation reported greater satisfaction with air quality, even though ventilation rates stayed the same (Kaczmarczyk, Melikov,

Bolashikov, Nikolaev, & Fanger, 2006). Another study found that personal control over light levels resulted in improved satisfaction and mood (Newsham & Veitch, 2001).

While some outcomes of environmental control result in physical changes in the environment, other forms of environmental control have a more psychological effect. When workers have no control over their environment, they “feel weak and defenceless, and motivated to act territorially to redeem their situation” (Vischer, 2005, p. 115). Therefore, Vischer argues that it is important to find ways by which to empower employees to take more control over their workspace and that by doing so will result in positive psychological outcomes for workers, which will ultimately be beneficial for employers (Vischer, 2005).

Organisational and interior design strategies include allowing for control over environmental factors such as temperature, lighting, airflow, and white noise levels. While this is difficult to do in open plan and shared workspaces, some of the strategies that were discussed in the previous acoustics and lighting sections are

applicable here. Another strategy to give employees more control is to allow them to choose where they work. Within an office, this is achieved by providing different types of work environments so that employees can choose a workspace that suits their personal needs and preferences, as opposed to being given assigned workstations. Organisations may also choose to allow employees to work remotely, which gives employees even greater control over their work environment. Although this strategy allows for high levels of environmental control it may not be suitable for all positions within an organisation, depending on organisational goals and work styles.

Another organisational strategy to empower employees is including them in the decision-making process when planning changes within the workplace. The amount of participation may vary depending on the type of change, but taking employees’ ideas and opinions into consideration will have positive outcomes if employees feel like they have some control over change in the workplace. Examples include giving employees options regarding proposed workstations, seating, material choices, and amenities.

4.3.2 Perception of Status

Traditionally, organisations and their workplaces have been structured in a way that shows clear hierarchical distinctions between different positions. As employees receive promotions and work their way up the corporate ladder they are often given perks such as larger offices in more preferable locations, such as the coveted corner office that offers the best views. In fact, the environmental psychologist Jacqueline Vischer suggests that traditional status markers are preferred in workplace environments so that people “know where they stand” due to the law of status congruency (2005, p. 62). She also writes that when senior management utilizes traditional status markers, the rest of the employees in the organisation will as well. This implies that reducing or removing status markers can be done successfully as long as everyone is on board and that it is reflected by corporate policy. Finally, Vischer goes on to write that a more functional meaning of space as a tool for work can be achieved once the symbolic meaning of space at work is no longer endorsed by corporate policy (2005, p. 62).

Aside from sociological and psychological reasons, organisational structures and promotion benefits are changing for a variety of reasons. One reason is that as organisations increase the workstation density in their offices there is less space for private offices, even for executives. Another reason is that as research increasingly shows the health and productivity benefits of daylighting and views, the most preferable locations in the office are being allocated for shared and open plan layouts so that the most people can benefit. A third reason is that the younger generations in the workplace value equality and egalitarian organisational structures more than hierarchical structures so it is becoming less acceptable to treat people in different positions unequally (Robert Half, 2015). Finally, younger generations place a higher value on schedule flexibility and vacation time as promotion benefits than the older generations, so it is not in an organisation’s best interest to maintain traditional spatial status markers when resources can be allocated elsewhere (Robert Half, 2015).

However, even though status is becoming less visible in an office’s design, it still plays an important role in how people perceive

themselves and others at work. Status is embedded into our society, and “virtually every type of human social grouping is characterized by a status-based rank ordering of group members” (Anderson, John, Keltner, & Kring, 2001). At work, status is defined as “an employee’s relative standing in an organization as characterized by the respect, prominence, and prestige he or she possesses in the eyes of other organizational members” (Djurdjevic et al., 2017, p. 1125). Other aspects of status include social consensus, power, reputation, and popularity (Djurdjevic et al., 2017).

While there is a large amount of published research regarding status as a social construct in the workplace, its effect on well-being and productivity is unclear. However, research does suggest that employees with higher status “tended to wield more interpersonal influence, perform their jobs better, be treated more fairly by supervisors, and be happier with their jobs than those with lower levels of status” (Djurdjevic et al., 2017, p. 1140). Other research has found that people in stigmatized workplace groups such as minorities, women, and non-college educated people place a higher value on respect as a status marker than non-stigmatized

groups and that stigmatized groups showed a stronger relationship between respectful treatment and job satisfaction (Henry, 2011).

Given that organisations and younger generations are moving towards a more egalitarian organisational structure, interior design strategies should embody those values by providing spaces that do not show preferential treatment for different groups of people within the workplace. While some people may be uncomfortable with the loss of visible status markers within the workplace, the construct of status can still stay intact through job titles, vacation time, salaries, power, respect, and responsibilities. An egalitarian workplace design will also help to empower people in stigmatized groups who have lower levels of perceived status by giving them the same access to resources and workspace arrangements as those with more status.

4.3.3 Privacy

In the workplace, privacy is assessed at two levels, functional and psychological. Functional privacy is “related to separateness

and freedom from distractions in order to concentrate,” while psychological privacy is associated with exclusivity, status, and environmental control (Vischer, 2005, p. 94). Because privacy in the workplace is closely tied to traditional status markers such as private offices, psychological privacy is decreasing for the same reasons that visible status markers are. In an organisational structure where managers and executives work with other employees in shared and open plan workspaces, psychological privacy is sacrificed by high-status individuals in favour of promoting interaction and collaboration between all team members. The other employees in this scenario are gaining valuable resources and connections while maintaining the same levels of privacy they are already accustomed to.

Privacy is neither preferred or required for work tasks that require collaboration and access to team members, but lack of privacy when it is needed can cause discomfort and dissatisfaction (Vischer, 2005). While it is accepted that psychological privacy cannot be maintained at all times within an egalitarian workplace design, spaces should be provided so that individuals and groups can work

privately when required. Interior design strategies that allow for privacy needs to be fulfilled include providing phone booths to make phone calls, team rooms for groups to work without distractions, and isolated spaces for individuals to perform tasks that require high levels of concentration. It is also advisable that all workers are given proper etiquette guidance regarding privacy so that they are aware of when coworkers should not be disturbed and when they can expect to have their own privacy respected.

Other privacy concerns in the workplace include access to personal computers, files, and documents, both physically and digitally. Especially where confidential information is concerned, organisations must ensure that they maintain the trust of their employees by protecting their privacy. Interior design strategies that can help maintain this type of privacy include designing secure spaces with restricted access for filing purposes, as well as providing employees who regularly deal with confidential information secure workspaces with restricted access.

Privacy is also important for clients who visit an organisation's office for meetings and presentations. Information that is shared between an organisation and its client(s) must remain private in order to maintain mutual trust. Some interior design strategies that help to address this issue include products such as Designtex's Casper Cloaking Technology, which is a window film that obscures light coming from LED sources. Products such as this can be used on glazed meeting room walls to maintain data privacy while remaining visually transparent. Other products such as 3M's screen privacy filters can be applied to meeting room screens, phones, and computer monitors to maintain data privacy on an individual level.

4.3.4 Security

The psychological need for security is closely related to privacy, although there are some additional factors to be considered when discussing security in the workplace. For example, workers should feel assured that security measures are in place to prevent unwanted individuals from entering the workplace. Ultimately, employees should feel safe and secure in their workplace so that

they can focus on doing productive work. Interior design strategies that enhance security include creating access points that can only be passed with appropriate identification devices. In most office buildings, elevator access to tenant floors is only available to individuals with the right identifications. Within an office building, additional security measures can be put in place for areas that contain highly confidential information such as personal files or sensitive equipment such as electronic server systems.

On an individual level, psychological security can be far more complex because factors such as surveillance and protection of personal information are not tied to physical locations. These factors cannot be sufficiently addressed with interior design strategies alone because corporate management strategies will ultimately decide the level of data and information security that is given to employees. However, all of the strategies that were discussed in the privacy section can be applied here to help fulfil the various security needs of office employees.

4.3.5 Territoriality

Territorial behaviour in the workplace manifests itself in two ways. The first is to create boundaries between private space and public space, and the second is to display markers to project personal identity and to indicate ownership of space (Vischer, 2005). Both types of territorial behaviour should be considered when designing a workplace in order to avoid negative behavioural outcomes.

Separating private space from public space is closely tied to the psychological need for privacy. However, territoriality is more specifically related to the need to feel ownership of a space and the means by which access into that space is regulated. Intrusions into a space, both auditory and physical, can cause defensive behaviour such as invoking confidentiality and demanding privacy (Vischer, 2005). Design strategies that can help individuals and groups maintain territory include creating clear boundaries between private spaces and the public spaces around them. While the boundaries do not necessarily need to be physical partitions, they should indicate when an individual is entering a private space and

that appropriate social behaviours that have been established by the individuals who occupy that space are respected.

A practical example would be creating a boundary between the workspace of one department within an organisation and an adjacent social space. The boundary can be established through a combination of physical barriers and visual cues so that individuals are aware of the separation of space. The department that regularly occupies the space can create its own set of acceptable behaviour rules that should be respected within its boundaries, and while people from outside the department are welcome to enter the space to access coworkers and resources, regular occupants can expect unwanted behaviour to be minimal. Furthermore, individuals who are part of the department but regularly work in other spaces throughout the office can still feel ownership of that space.

The other type of territoriality, personalization of space, is closely related to the need for environmental control. Although other types of environmental control have been previously discussed, territoriality is specifically related to space ownership because

“people are motivated to mark and defend spaces that they occupy, and the outcome of these complex feelings and behaviours is a feeling of ownership” (Vischer, 2005, p. 67). In the office environment, occupants often display personal items on their workstation to mark their territory and to project information about themselves to other people. While this type of behaviour should be encouraged in order to increase personal attachment to an employee’s occupied space and to their organisation, it is not always possible to have many personal items on a workstation in organisations where employees move around the office throughout the day and do not have an assigned workstation. A design strategy that addresses this issue is the same one that was already discussed in this section, where groups of people and departments are given ownership of a space and individuals are allowed to personalize it in whichever way they democratically see fit. Another design strategy is to provide storage spaces for individuals to keep some personal items that they can choose to keep on workstations as they move around the office throughout the day.

4.3.6 Interior Design Strategies

Table 3. Interior design strategies related to psychological factors.

CATEGORY	INTERIOR DESIGN STRATEGIES
Environmental Control	<ul style="list-style-type: none"> • Allowing for control over environmental factors such as temperature, lighting, airflow, and white noise levels. • Providing a range of workspaces so that employees can choose a workspace that suits their personal needs and preferences. • Providing appropriate technologies that allow employees who are working remotely to communicate with office employees effectively. • Asking employees to participate in the decision-making process when changes are being made within the organisation.
Perception of Status	<ul style="list-style-type: none"> • Implementing an egalitarian workplace layout design. • Providing resources and amenities for all employees regardless of position and status. • Implementing design strategies that embody the values of equality and inclusion.
Privacy	<ul style="list-style-type: none"> • Providing a variety of private spaces for groups and individuals to work without distractions. • Providing secure spaces with restricted access for storing confidential information. • Providing secure spaces with restricted access for groups and individuals who regularly work with confidential information. • Specifying materials such as Designtex’s Casper Cloaking Technology to protect data privacy in meeting rooms.
Security	<ul style="list-style-type: none"> • Implementing security measures such as access points that require identification devices in order for individuals to enter different spaces. • Providing secure spaces with restricted access for storing confidential information. • Providing secure spaces with restricted access for groups and individuals who regularly work with confidential information.
Territoriality	<ul style="list-style-type: none"> • Implementing design elements that create boundaries between private and public spaces. • Implementing design strategies that create a sense of space ownership for individuals and groups. • Implementing design strategies that allow for the personalization of space by allowing occupants to display markers. • Providing storage space for individuals to keep personal items that they may wish to display.

4.4 Stress

By definition, stress is the body's response to demands or threats, both physiological and psychological, and the body's response to them. Stress can result from many sources and situations, including all of the physical and psychological factors that were discussed in the previous two sections. When an individual has to spend time and energy, and experiences discomfort, to deal with stressors such as excess noise and lack of privacy, it affects their overall health and wellbeing in a negative way. Long-term exposure to stressors cause symptoms such as "unstable blood pressure, increased cholesterol levels, muscle tension, diabetes, hypertension, ulcers, headaches, substance abuse, and clinical depression" (Colligan & Higgins, 2006, p. 93).

Research suggests that work-related stress has increased by 10 per cent since 2001 and that stress-related disorders claim "nearly 10 per cent of the earnings from businesses" (Dyck, 2001; Cryer, McCraty, & Childre, 2003). Since stress has been "shown to lower productivity, increase absenteeism, and create pervasive patterns of dysfunction in the workplace," it is in an organisation's best interest to minimize stressors (Anderson & Pulich, 2001). While not all stressors can be illuminated through interior design strategies, it is

imperative to the long-term well-being of employees that all of the physical and psychological factors that have been discussed in this chapter are addressed and taken seriously.

4.5 Sustainability

Sustainability is an issue that is rightfully driving many real estate and design decisions in the office building typology. While sustainability is often addressed as an environmental issue, it has more recently also been applied to how the built environment affects the long-term health and wellbeing of people. The following two sections review and establish interior design strategies that are borrowed from two building rating systems that promote sustainable real estate and building practices. The Leadership in Energy and Environmental Design (LEED) Building Rating System is primarily focused on environmental sustainability while the WELL Building Rating System focuses on human health and well-being.

4.5.1 LEED Building Rating System

The Canada Green Building Council (CAGBC) aims to “lead and accelerate the transformation to high-performing, healthy green buildings, homes and communities throughout Canada” (Canada Green Building Council, n.d.). The CAGBC provides the LEED Green Building Rating System for different project types including new construction, core and shell, commercial interiors, existing buildings, homes, and neighbourhoods. Each rating system consists of prerequisites and optional credits which are tallied once a construction project is complete, at which point the project can be awarded LEED certification. LEED-certified projects can be awarded green, silver, gold, or platinum certification depending on how many credits were achieved.

311 Portage Avenue, in which this interior design practicum project is located, was awarded LEED Gold Certification for Core and Shell (Canada Green Building Council, 2017). LEED certification was one of the main site selection criteria for this project, making this building a good fit. Even though the Core and Shell are LEED Certified, an

additional certification can be obtained for the interior of a tenant’s space within the building using the LEED for Commercial Interiors rating system.

Although this project is not seeking official LEED certification, the credits serve as benchmarks that ensure sustainability is being considered throughout the design process. Credits that are not within the scope of this project’s objectives or that cannot be effectively communicated through interior design strategies will not be discussed or reviewed in this document. The applicable credits that will be considered for this practicum project are listed below and can be viewed in greater detail in the LEED Canada Green Building System for Commercial Interiors (Canada Green Building Council, 2006). Some of the listed credits, although applicable to this project, cannot be sufficiently demonstrated within this document and are, therefore, not be given a credit achievement design strategy.

Table 4. Overview of LEED Building Rating System credits.

CREDIT NUMBER	CREDIT NAME	CREDIT INTENT	CREDIT ACHIEVEMENT DESIGN STRATEGY
SS3.1 (p. 20)	Alternative Transportation, Public Transportation Access	Reduce pollution and land development impacts from automobile use.	Selecting a building within 400 metres of two or more public or campus bus lines usable by tenant occupants.
SS3.2 (p. 21)	Alternative Transportation, Bicycle Storage & Changing Rooms	Reduce pollution and land development impacts from automobile use.	Providing secure bicycle storage with changing/shower facilities for 5% or more of tenant occupants.
WE1.2 (p. 24)	Water Efficiency, 30% Reduction	Maximize water efficiency within tenant spaces to reduce the burden on municipal water supply and wastewater systems.	Specifying water closets, urinals, showerheads, and faucets that in aggregate use 30% less potable water than the baseline.
MR4.2 (p. 52)	Recycled Content, 20%	Increase demand for building products that incorporate recycled content materials, therefore reducing impacts resulting from extraction and processing of virgin materials.	Use materials, including furniture and furnishings, with recycled content such that they constitute at least 20% of the total value of the materials in the project.
MR7 (p. 57)	Certified Wood	Encourage environmentally responsible forest management.	Use a minimum of 50% wood products that are certified in accordance with the Forest Stewardship Council's Principles and Criteria.

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CREDIT NAME	CREDIT NUMBER	CREDIT INTENT	CREDIT ACHIEVEMENT DESIGN STRATEGY
EQ2 (p. 66)	Increased Ventilation	Provide additional air ventilation to improve indoor air quality for improved occupant comfort, well-being and productivity.	
EQ4.1-4.4 (pp. 71-76)	Low-Emitting Materials	Reduce the quantity of indoor air contaminants that are odorous, potentially irritating and/or harmful to the comfort and well-being of installers and occupants.	Specifying adhesives, sealants, paints, coatings, carpet systems, composite wood, laminate adhesives, systems furniture and seating with no- or low-VOC content.
EQ6.1 (p. 79)	Controllability of Systems, Lighting	Provide a high level of lighting system control for individual occupants, and specific groups of multi-occupant spaces to promote the productivity, comfort and well-being of building occupants.	Providing lighting controls to enable adjustments to suit individual task needs and preferences.
EQ6.2 (p. 80)	Controllability of Systems, Temperature and Ventilation	Provide a high level of thermal and ventilation control for individual occupants, and specific groups of multi-occupant spaces to promote the productivity, comfort and well-being of building occupants.	Providing thermal and ventilation controls to enable adjustments to suit individual needs and preferences.

CREDIT NUMBER	CREDIT NAME	CREDIT INTENT	CREDIT ACHIEVEMENT DESIGN STRATEGY
EQ7.2 (p. 82)	Thermal Comfort, Monitoring	Provide a thermally comfortable environment that supports the productivity and well-being of tenant space occupants.	Provide a permanent monitoring system and process for corrective action to ensure performance to the desired comfort criteria.
EQ8.2 (p. 85)	Daylight and Views, Daylight 90% of Spaces	Provide the occupants with a connection between indoor spaces and the outdoors through the introduction of daylight and views into the regularly occupied areas of the tenant space.	For at least 90% of all regularly occupied areas, achieve a minimum Daylight Factor of 2%.
EQ8.3 (p. 86)	Daylight and Views, Views for 90% of Seated Spaces	Provide the occupants with a connection between indoor spaces and the outdoors through the introduction of daylight and views into the regularly occupied areas of the tenant space.	Achieve direct line of sight to the outdoor environment for building occupants in 90% of all regularly occupied spaces.

4.5.2 WELL Building Rating System

The WELL Building Standard educates designers about how the built environment affects the different systems within the human body, including the cardiovascular, digestive, endocrine, immune, integumentary, muscular, nervous, reproductive, respiratory, skeletal, and urinary systems (International WELL Building Institute, 2017). For new and existing interiors, the WELL Building Standard consists of 36 preconditions and 62 optimizations for a total of 98 possible credits. The credits are distributed among seven categories: air, water, nourishment, light, fitness, comfort, and mind (International WELL Building Institute, 2017).

Although this project is not seeking official WELL certification, the credits serve as benchmarks that ensure occupant well-being is

being considered throughout the design process. Credits that are not within the scope of this project's objectives or that cannot be effectively communicated through interior design strategies will not be discussed or reviewed in this document. The applicable credits that will be considered for this practicum project are listed below and can be viewed in greater detail in The WELL Building Standard (International WELL Building Institute, 2017). Some of the listed credits, although applicable to this project, cannot be sufficiently demonstrated within this document and are, therefore, not given a credit achievement design strategy

Table 5. Overview of WELL Building Standard credits.

CREDIT NUMBER	CREDIT NAME	CREDIT INTENT	CREDIT ACHIEVEMENT DESIGN STRATEGY
8 (p. 35)	Healthy Entrance	Installing methods to help prevent pollutants from entering a building.	N/A – The building’s entrance is not within the scope of this project.
15 (p. 44)	Increased Ventilation	Supplying rates of fresh air that are 30 per cent higher than typically provided.	
26 (p. 57)	Enhanced Material Safety	To minimize the impact of hazardous building material ingredients on indoor air quality and protect the health of manufacturing and maintenance workers.	At least 25% of all furnishings, built-in furniture, interior finishes, and finish materials meet requirements set out by the Living Building Challenge, Cradle to Cradle, or GreenScreen.
18 (p. 47)	Air Quality Monitoring and Feedback	To monitor and effectively remediate indoor air quality issues and inform building managers and occupants of the quality of the indoor environment.	A real-time display of temperature, humidity, carbon dioxide concentration, particle count, and ozone concentration is made available for every 10,000 square feet of regularly occupied space.
28 (p. 59)	Cleanable Environment	To reduce occupant exposure to pathogens on high-touch surfaces.	High-touch and non-porous surfaces are smooth, free of defects, finished to maintain smooth welds and joints, and free of crevices and other hard-to-reach places. Only removable carpet tiles or hard surfaces used for floor coverings.
37 (p. 72)	Drinking Water Promotion	To promote the consumption of water by making high-quality drinking water easily accessible to occupants.	At least one water dispenser is located within 100 feet of all parts of regularly occupied floor space.
50 (p. 89)	Food Storage	To encourage the consumption of fresh foods by providing sufficient cold food storage to occupants.	Total refrigerator volume of 0.7 cubic feet per occupant is provided. For 300 occupants, this requires 210 cubic feet of refrigerator space.

WELL-BEING, PRODUCTIVITY, STRESS, AND SUSTAINABILITY

CREDIT NUMBER	CREDIT NAME	CREDIT INTENT	CREDIT ACHIEVEMENT DESIGN STRATEGY
52 (p. 91)	Mindful Eating	To encourage mindful eating behaviours and socialization by providing communal eating spaces.	Eating spaces are provided for at least 25% of total employees at a given time and contain a refrigerator, food reheating device, dishwasher, storage, and eating utensils. For 300 occupants, this requires an eating space with 75 seats.
53 (p. 95)	Visual Lighting Design	To establish light levels for basic visual performance through task and ambient lighting.	
54 (p. 96)	Circadian Lighting Design	To promote lighting environments for circadian health.	
55 (p. 97)	Electric Light Glare Control	To set limits on glare based on measures of luminous intensity, or luminance per area of light source.	
56 (p. 99)	Solar Glare Control	To avoid glare from the sun by blocking or reflecting direct sunlight away from occupants.	Interior windows have shading or blinds that are controllable by the occupants.
57 (p. 100)	Low-Glare Workstation Design	To minimize visual discomfort by situating computer monitors in a way that avoids glare and luminance contrast.	Overhead luminaires are not aimed directly at computer screens and screens located within 15 feet of windows are oriented within a 20-degree angle perpendicular to the nearest window.
59 (p. 101)	Surface Design	To set parameters for the reflective quality of surfaces to control the overall light intensity within a space.	

CREDIT NUMBER	CREDIT NAME	CREDIT INTENT	CREDIT ACHIEVEMENT DESIGN STRATEGY
60 (p. 102)	Automated Shading and Dimming Controls	To require automated control systems to ensure that window shades are effectively utilized to block glare from sunlight and that lighting controls are employed to limit artificial light output when sunlight meets designated light levels.	
61 (p. 104)	Right to Light	To promote exposure to daylight and views of varying distances by limiting the distance workstations can be from a window or atrium.	75% of regularly occupied space is within 25 feet of view windows, 75% of workstations are within 25 feet of an atrium or view windows, and 95% of all workstations are within 41 feet of an atrium or a view window.
64 (p. 110)	Interior Fitness Circulation	To encourage intermittent bouts of physical activity and reduce sedentary behaviour through accessible, safe, and visually appealing stairs, entryways, and corridors.	An attractive stairway with a minimum width of 56 inches between handrails is located within 25 feet of the lobby's edge.
68 (p. 115)	Physical Activity Spaces	To promote physical activity through complimentary access to on-site indoor and local outdoor physical activity spaces.	Providing a dedicated exercise space of at least 500 square feet.
69 (p. 116)	Active Transportation Support	To promote daily physical activity through the provision of on-site support for active commuting.	Providing at least 3 showers, 60 lockers, and storage for at least 15 bicycles.
70 (p. 115)	Fitness Equipment	To require the provision of exercise equipment in the building that supports cardiorespiratory and muscle-strengthening exercise.	Providing 3 or more pieces of cardio exercise equipment and 3 or more pieces of muscle-strengthening exercise equipment.
71 (p. 118)	Active Furnishings	To reduce sedentary behaviour by making active workstations readily available to occupants.	Providing at least 9 treadmill desks and providing adjustable height desks for 60% of workstations.

WELL-BEING, PRODUCTIVITY, STRESS, AND SUSTAINABILITY

CREDIT NUMBER	CREDIT NAME	CREDIT INTENT	CREDIT ACHIEVEMENT DESIGN STRATEGY
72 (p. 122)	Accessible Design	To promote equity by providing buildings that are accessible and usable by people of all physical abilities.	Complying with local accessible design standards.
73 (p. 123)	Ergonomics: Visual and Physical	To reduce physical strain and maximize ergonomic comfort and safety.	Providing computer screens that are adjustable, providing sit-stand desks, and providing adjustable chairs.
75 (p. 123)	Internally Generated Noise	To reduce distractions and enable speech privacy without impairing collaboration.	Providing loud and quiet zones and ensuring that workstations and meeting rooms meet acoustic requirements.
76 (p. 124)	Thermal Comfort	Using best practices to ensure a sufficient level of comfort for the majority of occupants.	
79 (p. 127)	Sound Masking	To mitigate uncomfortable acoustic disruptions and increase speech privacy by providing low background noise through the use of sound masking.	
80 (p. 128)	Sound Reducing Surfaces	Requiring spaces to incorporate absorptive surfaces in order to reduce unwanted noise reverberation.	
81 (p. 129)	Sound Barriers	To increase acoustic comfort by reducing sound transmission from adjacent spaces through construction detailing that exceeds standard practice.	

CREDIT NUMBER	CREDIT NAME	CREDIT INTENT	CREDIT ACHIEVEMENT DESIGN STRATEGY
82 (p. 132)	Individual Thermal Comfort	To maximize and personalize thermal comfort among all occupants.	
84 (p. 138)	Health and Wellness Awareness	To promote a deeper understanding of factors that impact health and wellness.	Providing a digital and/or physical library of resources that focus on mental and physical health and contains at least 15 book titles or magazine subscriptions.
87 (p. 141)	Beauty and Design 1	To thoughtfully create unique and culturally-rich spaces.	The project contains features or public art that celebrates culture, spirit, and place.
88 (p. 142)	Biophilia 1 - Qualitative	To nurture the innate human-nature connection within the project.	Incorporating nature through environmental elements, lighting, or space layouts.
89 (p. 143)	Adaptable Spaces	To reduce distractions, mitigate stress and enable focused work by integrating a stimuli management program within the building.	Providing enclosable quiet zone for individuals or small groups to work in, providing at least 375 square feet of designated quiet spaces for relaxation or contemplation, and providing at least 4 sleep pods or hammocks for naps.
99 (p. 154)	Beauty and Design 2	To promote occupant comfort and spatial familiarity by designing spacious, familiar and aesthetically appealing spaces.	Incorporating artwork in all entrances and lobbies, and in regularly occupied spaces greater than 300 square feet. Incorporating way-finding elements with colour, artwork, or unifying design components for grouped zones.
100 (p. 156)	Biophilia 2 - Quantitative	To support occupant emotional and psychological well-being by including the natural environment in interior and exterior design.	At least 200 square feet of each floor are covered by potted plants and each floor has a green wall measuring at least 400 square feet

CHAPTER 5: PRECEDENT ANALYSIS

5.1 Overview

This chapter examines three precedents that have been selected based on their relevance to this interior design practicum project's typology and intended user demographics. Each of the precedents are corporate offices located in North America and are analyzed to identify programmatic and/or atmospheric features which inform design strategies for MarkIT's headquarters. The three selected precedents are Deloitte's headquarters in Montreal, Squarespace's headquarters in New York City, and Slack's headquarters in New York City.

5.2 Precedent 1: Deloitte Montreal

Architect: B+H Architects & Kohn Pedersen Fox Associates (KPF)

Interior Design: Arney Fender Katsalidis (AFK)

Size: 160,000 ft²

Completion: 2015

As the anchor tenant of Deloitte Tower in Montreal, Deloitte was able to collaborate closely with the building's developer and construction team to ensure that their office's design was seamlessly integrated into the building's architecture and maximized the usable floor space (Arney Fender Katsalidis, n.d.). Deloitte's office, which occupies seven storeys of the 26 storey tower and is the home base for 1,200 employees, is certified LEED Gold while the tower is certified LEED Platinum.

This project was selected as a precedent because of its innovative use of technology, forward-thinking work style strategies, and its emphasis on environmental sustainability. As a multidisciplinary professional services firm, Deloitte's employees perform a wide range of work tasks that created the need for many different types of workspaces. Deloitte also wanted their office to be a marketing tool for the company, attracting business and talent while providing an environment that fosters relationships between their staff and clients.

PRECEDENT ANALYSIS

Figure 10 shows the architect's intent for views to the outside to be maximized for Deloitte's employees while keeping in mind that direct sunlight coming through the south façade will need to be taken into consideration. This condition is similar to that of 311 Portage Avenue, which also has a fully glazed south façade. Figure 11 shows how a central feature in the building acts as the figurative heart of the office. This feature will connect each of the seven floors

to each other, becoming a space for informal meetings to naturally occur. Figure 12 shows the architect's vision for the floor plans to be zoned into distinct sections that each have specific roles. The flex and open zones where most of the employees will be working are given the highest priority for access to daylight and views, while offices are located around the central core.

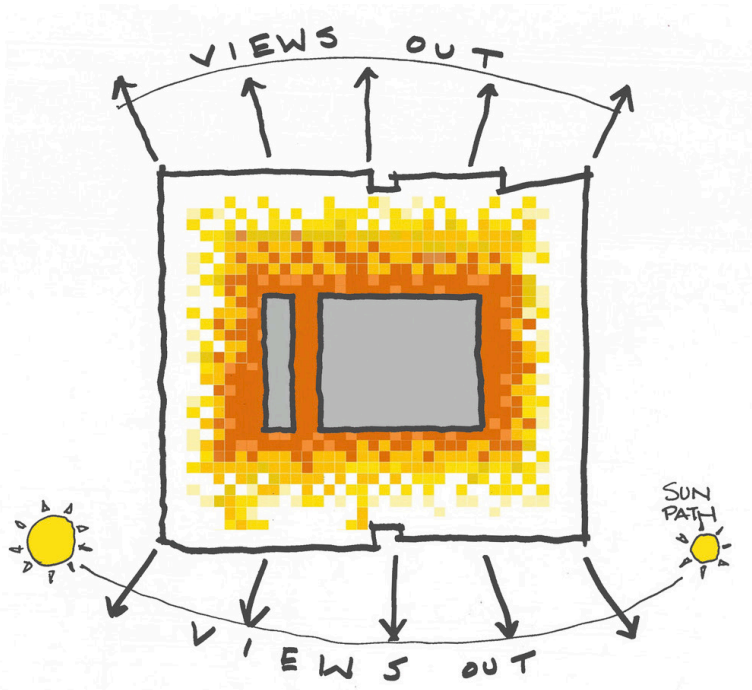


Figure 10. Sketch diagram of views out from the building's interior with sun path. (Arney Fender Katsalidis, n.d.f.)

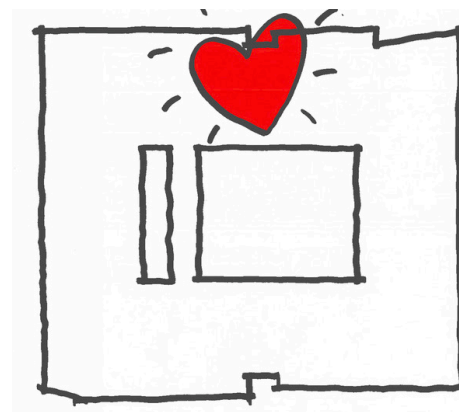


Figure 11. Sketch diagram showing the designers' intent for a central feature to be the heart of the office. (Arney Fender Katsalidis, n.d.h)

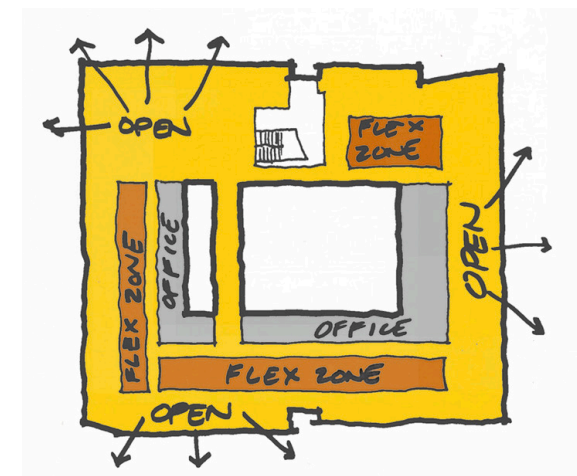


Figure 12. Sketch diagram of spatial zones. (Arney Fender Katsalidis, n.d.g)

5.2.1 Programmatic Characteristics

Figure 13 shows a floor plan that is populated by a variety of workstations, offices, and collaboration spaces. The sketch in Figure 12 is directly translated into the floor plan, with the spaces that were labelled as ‘open’ becoming workstations, and the spaces that were labelled as ‘flex’ becoming collaboration spaces that support the tasks of Deloitte’s employees throughout the day. Private offices are located around the central core, breaking the hierarchy that is often seen in corporate offices, which has traditionally placed private offices around the perimeter.

Figure 14 shows another floor plan which consists of a variety of conference, meeting, and collaboration spaces. The variety ensures that employees can find spaces that are tailored to support specific tasks. This floor is the main entrance lobby for Deloitte’s office, with a reception area being located to the west of the central staircase. Clients likely only visit this floor, meeting with Deloitte employees in the conference and meeting rooms.

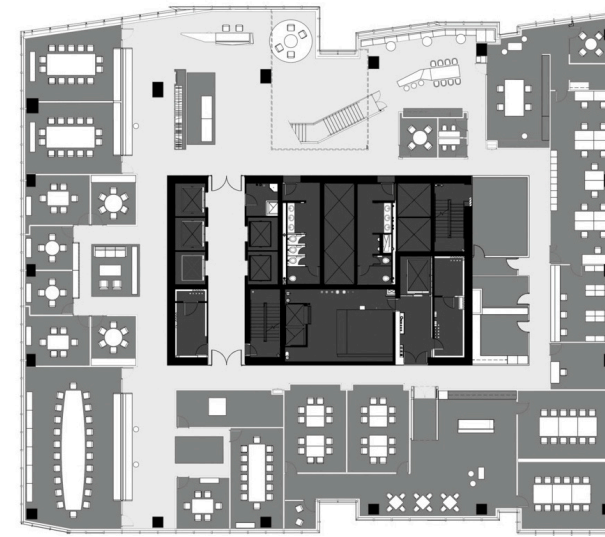


Figure 13. Level 1 floor plan of Deloitte Montreal.
(Arney Fender Katsalidis, n.d.b)

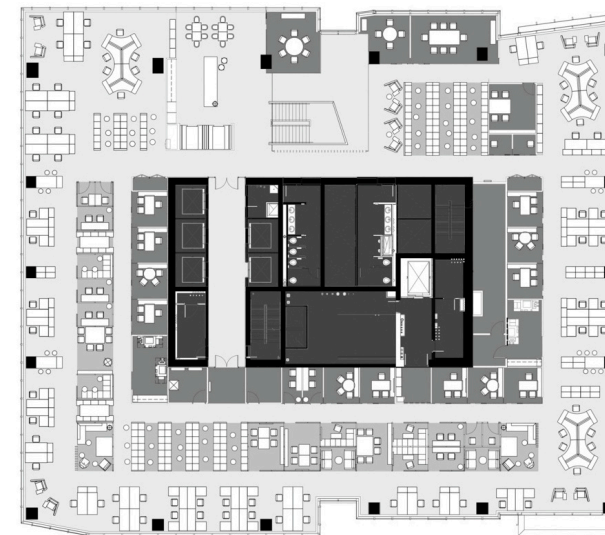


Figure 14. Level 5 floor plan of Deloitte Montreal.
(Arney Fender Katsalidis, n.d.c)

Deloitte's Montreal office boasts 18 different types of workspaces, 90 per cent of which are unassigned (Arney Fender Katsalidis, n.d.a; Kobylar, 2015). By creating a workplace that consists mainly of unassigned workspaces, Deloitte is able to increase their utilization rates since many of their employees regularly work at clients' sites or from home (Kobylar, 2015). In order to make unassigned workspaces and co-workers easy to locate, Deloitte has fully integrated technology into employees' experience of the office, enabling workers to book specific workstations and meeting rooms and to locate each other with mobile devices (Kobylar, 2015).

Deloitte has also invested in providing a variety of amenities for their employees throughout the office, all of which embody the values and characteristics that are important for attracting members of Generation Z. Communal and social spaces, lounges, cafes, bistros, outdoor green space, and a wellness centre enhance the well-being of employees in the office and create opportunities for informal social and professional interactions (ArchDaily, 2015). Another strategy that Deloitte has used to encourage informal interactions is

the placement of meeting spaces adjacent to the central staircase that connects each of the office's floors (Kobylar, 2015).

5.2.2 Atmospheric Characteristics

In addition to the wide variety of programmatic characteristics, Deloitte's Montreal office also features several atmospheric characteristics that are relevant to this practicum project. One of the most prominent characteristics of the space involves the atrium with the central staircase that connects each of the floors in the office, which can be seen in Figures 15 and 16. The staircase acts as a visually unifying element throughout the office, with Deloitte's signature green colour used on its treads. Each of the staircase's landings features spaces for socializing and collaboration such as cafés and lounges. These spaces are all furnished and painted in distinct colours, which enables them to become wayfinding mechanisms in the large office.

Figures 17 and 18 show two types of informal work/lounge spaces, each with their own aesthetic and material palette. Since Deloitte



Figure 15. Photograph of the Deloitte Montreal lobby.
(Brittain, 2015c)



Figure 16. Photograph of the atrium-adjacent dining and socializing spaces. (Brittain, 2015b)

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offers a wide variety of services, it is expected that their workforce is quite diverse. In order to reflect this diversity, different spaces throughout the office use materiality to appeal to different age groups and personalities. Figure 17 shows a space that features bright colours, patterns, and feels quite informal while Figure 18 shows a space that features a more toned down, sophisticated material and colour palette that feels relatively formal. Although the space in figure 18 feels more sophisticated, it does not feel pretentious and is still very inviting.

Figures 19 and 20 show two types of workspaces that are regularly used by Deloitte's employees. The informal collaboration space is bright and laid-back with movable furniture that can accommodate different work scenarios. Similar to the space shown in Figure 17, this space feels quite energetic and encourages social activities. The flex workspace in Figure 20 uses wood to create a warmer, more sophisticated space that is quite similar to the palette seen in Figure 18. The difference between soft and hard floor surfaces throughout the office also implies that the designers intend for some spaces to be loud and others to be quiet.

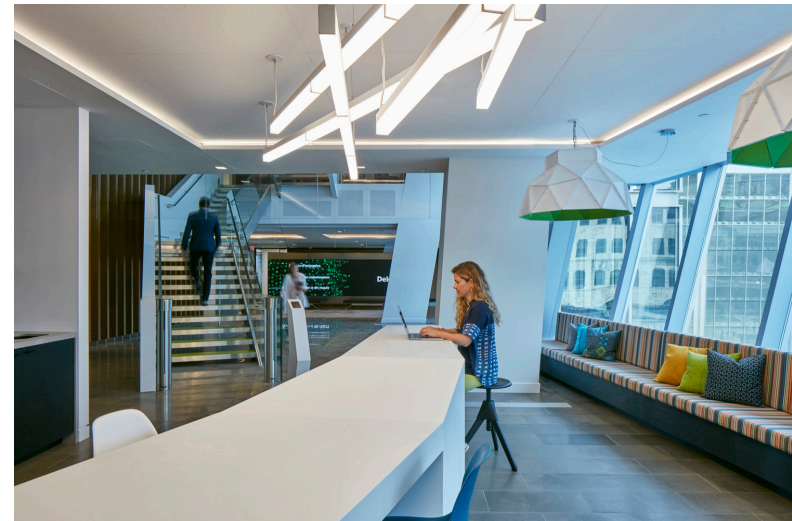


Figure 17. Photograph looking into the Deloitte Montreal lobby from an informal work area. (Brittain, 2015d)



Figure 18. Photograph of a lounge area. (Brittain, 2015d)



Figure 19. Photograph of an informal collaboration space.

(Arney Fender Katsalidis, n.d.e)



Figure 20. Photograph of flex workspaces and meeting spaces.

(Arney Fender Katsalidis, n.d.d)

The designers of Deloitte's office use their signature green throughout the space, reinforcing their identity to employees and clients alike. The many sustainable features and materials used throughout the project also ensure that the space's users are made aware of Deloitte's values and commitment to creating a healthy environment for their employees. The programmatic and spatial characteristics of this precedent align very closely with this practicum project's design objectives and will inform the design strategies for MarkIT's headquarters.

5.2.3 Summary and Interior Design Strategies

The design of Deloitte's Montreal office provides several programmatic and atmospheric characteristics that are relevant to this practicum project. The floor plans, which place regularly occupied workstations around the perimeter, ensuring that access to views and daylight are prioritized for the majority of Deloitte's employees. This strategy, which will also be implemented in this practicum project, is closely aligned with the goals of the WELL Building Rating System and will benefit the well-being of the

employees who regularly occupy these spaces. The floorplans are also divided into distinctly zoned sections that reflect specific work tasks and work styles, another strategy which will be implemented in this project. Furthermore, the majority of workstations in Deloitte's office are unassigned, which increases utilization rates and also aligns with an egalitarian workplace design strategy (see Table 6).

The designers of Deloitte's office have also given a lot of thought to both the clients' experience when visiting the office, as well as employees' experience. Clients arrive at the office's main lobby and are greeted by a welcoming reception area. From there, navigation is simple since all of the spaces that clients will likely need to use are located on that same level. This strategy also gives Deloitte the opportunity to create a unique atmosphere on that floor which has been specifically tailored to how they wish to be perceived by their clients. For employees, Deloitte demonstrates a commitment to their health and well-being by providing a range of amenities within the office, including lounges, cafes, bistros, outdoor green space, and a wellness centre.

Another feature that this project will draw from is the use of a central atrium and stairway to create hubs for informal social and professional interactions. By using various colour and material palettes in the spaces surrounding each stairway landing, Deloitte has created landmarks that serve as destinations for employees while at the same time creating a visual connection across the seven floors of their office. Deloitte has also used materiality and colour to create atmospherically unique spaces that appeal to different personalities throughout the workplace. Colour has also been used as a branding opportunity, with Deloitte's signature green appearing throughout the office.

While Deloitte's workforce is diverse, many of the design strategies that were implemented in the design of its headquarters speak directly to the values and preferences of younger generations. Post-materialistic values such as egalitarianism, environmentalism, and quality of life are clearly communicated and embodied by this precedent's design.

Table 6. Overview of Deloitte Montreal's features and interior design strategies.

FEATURES	INTERIOR DESIGN STRATEGIES
<ul style="list-style-type: none"> Regularly occupied workstations are located around the building's perimeter. 	<ul style="list-style-type: none"> Prioritizing access to daylight and views outside for all regularly occupied spaces.
<ul style="list-style-type: none"> Distinctly zoned sections reflect specific work tasks and work styles. 18 types of workspaces. 	<ul style="list-style-type: none"> Offering a wide variety of workspaces that are tailored for specific tasks and group sizes, and making them easy to access/navigate by creating distinct zones.
<ul style="list-style-type: none"> Increasing workstation utilization rates by designating the majority of them as unassigned. 	<ul style="list-style-type: none"> Considering unassigned workstations as a space saving technique. Considering unassigned workstations as an egalitarian design strategy.
<ul style="list-style-type: none"> Work zones are characterized by different colour and material palettes 	<ul style="list-style-type: none"> Considering colour and material palettes as a way to create different spatial characteristics throughout the floorplan. Considering colour as a branding opportunity.
<ul style="list-style-type: none"> Atrium and stairway create hubs for informal social and professional interactions. Atrium and stairways create a visual connection across the 7 floors of Deloitte's office. 	<ul style="list-style-type: none"> Creating a central feature that visually connects the three floors of MarkIT's office and encourages spontaneous interactions between employees. Creating landmarks by using various colour and material palettes to differentiate similar spaces on each floor.
<ul style="list-style-type: none"> Designated floor for visiting clients. 	<ul style="list-style-type: none"> Considering public/private separations within the office that informs visitor circulation. Creating an atmosphere that has been specifically tailored to the client experience.
<ul style="list-style-type: none"> Providing café's, bistros, and a wellness centre. 	<ul style="list-style-type: none"> Providing a range of amenities that enhance employees' health and well-being.

5.3 Precedent 2: Squarespace New York City

Architect: A+I

Size: 98,000 ft²

Completed: 2016

This project was selected as a precedent because Squarespace and MarkIT are both information technology companies that employ similar demographics and share programmatic characteristics. Squarespace, an information technology company that creates website templates for individuals and companies, wanted to bring employees working in four locations throughout New York City together under one roof (Haworth, 2016). To achieve this goal, a historic building that was once a printing house in Manhattan's SoHo neighbourhood was completely gutted and renovated, opening in 2016 after almost two years of construction (Zeitoun, 2016).

5.3.1 Programmatic Features

Figures 21-24 show the wide variety of spaces that Squarespace provides for its employees. One of the project's intentions was to "spread out the spaces where people do their work, their thinking, their collaborating and their socializing" (Folger, 2016). This intention is evident in the office's design, which shows that employees are encouraged to utilize different areas of the office depending on the type of work they are doing and what their preferred work styles are.

All of the designated workstations in Squarespace's office are in open plan configurations, which is common for information technology companies. These workstations are supported by break-out collaboration and meeting spaces where project teams can gather and collaborate with each other. Some of the group collaboration spaces are open and informal while others are in enclosed rooms that are more appropriate for focused meetings and brainstorming sessions. The informal collaboration spaces are placed throughout the office while the meeting rooms are located in the building's core so that employees can easily access them from anywhere.



Figure 21. Photograph of Squarespace's various workspace types. (Biernat, 2016f)



Figure 22. Photograph of Squarespace's cafe. Source from <http://www.magdabiernat.com/commercial/index.php/office/squarespace/>



Figure 23. Photograph of a lounge space in Squarespace's office. Source from <http://www.magdabiernat.com/commercial/index.php/office/squarespace/>



Figure 24. Photograph of a seating area adjacent to an atrium in Squarespace's office. Source from <http://www.magdabiernat.com/commercial/index.php/office/squarespace/>

It is noteworthy to mention that none of the workstations in Squarespace's office are enclosed, which embodies an egalitarian corporate structure where managers and executives are easily accessible. Professional and social interactions between departments are viewed as necessary components for innovation, and the many lounge areas throughout the office create a welcoming, residential aesthetic. In addition to the lounges, Squarespace's office includes a large café, a resource area, and a rooftop terrace that invites employees to take their work outside when the weather permits.

5.3.2 Atmospheric Characteristics

One of the most notable features of Squarespace's office design is its refined colour and material palette, which reflects the company's elegant and sophisticated products. Polished concrete floors, blackened wood, and white paint are used throughout, with dark walnut wood used as an accent material that introduces warmth and depth to the space. Small trees and potted plants take advantage of the abundant natural daylight coming in through the building's large windows and add splashes of vivid colour throughout the interior spaces. The plants also provide a necessary contrast with the office's otherwise stark, minimalist material and colour palette.



Figure 25. Photograph of a sky lit lounge space with indoor plants. Source from <http://www.magdabiernat.com/commercial/index.php/office/squarespace/>

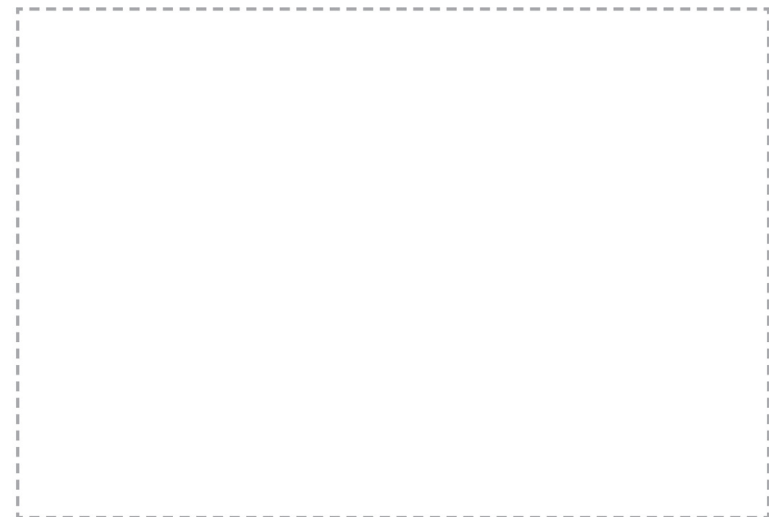


Figure 26. Photograph of a resource area in Squarespace's headquarters. Source from <http://www.magdabiernat.com/commercial/index.php/office/squarespace/>

The exceptionally high ceilings in Squarespace's office create many opportunities for the vertical development of wall surfaces while allowing daylight to penetrate deep into the building's interior. In some places, the blackened wood slats accentuate the ceiling's height, while large artworks placed on other wall surfaces create a gallery-like atmosphere. Wide staircases connect the different levels of the office both visually and functionally, creating opportunities for spontaneous interactions between employees as they circulate throughout the office.

The design of Squarespace's office successfully embodies the company's brand identity while providing a workplace that is inviting and comfortable. The hard structural materials are balanced by soft furniture, plants, and daylight to create high quality-spaces that are sophisticated yet unpretentious.

5.3.3 Summary and Interior Design Strategies

The design of Squarespace's office provides several programmatic and atmospheric characteristics that are relevant to this practicum project. The floor plans feature a variety of spaces for employees to work, including open-plan workstations, lounges, and break-out spaces for meetings and collaboration. The spaces range

from formal to informal, providing employees with different options depending on their current tasks. None of the workstations in Squarespace's office are enclosed, which embodies an egalitarian corporate structure and ensures that managers and executives are easily accessible to all employees, regardless of their rank within the organisation. Workspaces are supplemented with amenities such as a café, lounges, and a rooftop terrace, which can be used for work as well as for social activities throughout the day. A resource centre promotes learning and skill development, which is highly valued by several of the generations in the workforce.

Squarespace's office has a strong visual identity which has been created by using a refined material and colour palette. Polished concrete, blackened wood, and white paint are used throughout, with accents of dark walnut. The refined palette creates a link between the product that Squarespace creates and the physical space in which it is created. Squarespace's office also features biophilic elements such as trees and shrubs which take advantage of the abundant natural light. Biophilic elements create a connection with nature and have been shown to increase the well-being of building occupants, resulting in a workplace that resonates with members of Generation Z.

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Table 7. Overview of Squarespace New York's features and interior design strategies.

FEATURES	INTERIOR DESIGN STRATEGIES
<ul style="list-style-type: none">• Spreading out the spaces where people do their work, their thinking, their collaborating and their socializing.	<ul style="list-style-type: none">• Offering a wide variety of choice for employees to work in environments that are specifically tailored to achieve different goals.
<ul style="list-style-type: none">• No enclosed workstations.• An egalitarian corporate structure where managers and executives are easily accessible	<ul style="list-style-type: none">• Considering how managers' and executives' workspaces can be more accessible to employees while being considerate of their unique workplace needs and requirements.
<ul style="list-style-type: none">• Amenities include a café, lounges, and a rooftop terrace	<ul style="list-style-type: none">• Providing a range of amenities that enhance employees' health and well-being.
<ul style="list-style-type: none">• Resource centre	<ul style="list-style-type: none">• Providing spaces that promote learning and skill development.
<ul style="list-style-type: none">• Colour and material palette is a clear reflection of the company's brand and product.	<ul style="list-style-type: none">• Creating a strong identity through the use of materiality and colour.
<ul style="list-style-type: none">• Creating a connection to nature by placing plants and greenery throughout the office.	<ul style="list-style-type: none">• Utilizing a similar strategy to create a connection with nature.

5.4 Precedent 3: Slack New York City

Architect: Snøhetta

Size: 12,000 ft²

Completed: 2016

Slack, a rapidly growing workplace software company, hired Snøhetta to retrofit the top floor of a historic late 19th-century building in Lower Manhattan. This project was selected as a precedent in order to illustrate how a workplace with a relatively small square footage per employee can accommodate a variety of work styles and collaboration spaces while still embodying the energetic and dynamic identity of an internet start-up company. 75 employees work in Slack's 12,000 square foot New York office, which equals 160 square feet per employee. This is considerably less than the floor area per employee in the previous two precedents, which is evident from the abundance of large, open spaces and amenities in Deloitte and Squarespace's offices.

5.4.1 Programmatic Characteristics

Figure 27 shows the floorplan of Slack's New York office, which consists of 75 open plan workstations and a variety of support spaces. A common complaint of open plan office occupants is the lack of acoustic privacy, which Snøhetta has responded to by providing five single occupancy and four double occupancy phone booths. In addition to providing privacy for occupants, these small rooms encourage employees to make phone calls and conduct short meetings in places where their conversations will not be disruptive to other employees. For larger meetings and group collaboration sessions, a variety of meeting rooms have also been provided along a central corridor that is directly adjacent to the workstations. The meeting rooms adjacent to the workstations have been offset from each other to create additional informal seating and workspaces.

Another programmatic feature that serves as an example of efficient space utilization is the 'all hands' area with stepped bleachers and movable furniture where all of the office's employees can gather

PRECEDENT ANALYSIS



Figure 27. The floor plan of Slack's New York office. (Snøhetta, n.d.)

for important meetings. The all-hands area is adjacent to the café and pantry so it can also function as a lunchroom, combining two functions that often have their own dedicated spaces into one multipurpose area. Additionally, Slack's office provides bicycle storage spaces, which encourages employees to be physically active and to use active transportation for their commute to work. A nap room is also provided, which encourages psychological well-being by allowing employees to take breaks in a dedicated space where they will not be disturbed.

Judging from the handful of key amenities that are included in their office's design, it is evident that Slack is committed to providing a workplace that promotes health and well-being for its employees. Further demonstration of this commitment is the location of the open plan workstations, which are located along the building's perimeter and prioritize access to natural daylight and views to the outside from regularly occupied workstations. Access to daylight and views are widely acknowledged as being important factors for physical and psychological well-being and will be addressed through the design of this practicum project.

5.4.2 Atmospheric Characteristics

The most notable features in Slack's office are the series of skylights that are placed at regular intervals throughout the space. These skylights, two of which are shown in Figures 28 and 29, create several important atmospheric characteristics. The first is that they bring natural light into the building's interior and allow plants to grow throughout the office. The second, and arguably more important characteristic in this particular setting is that they create a series of expanded volumes that break up the otherwise flat ceilings. Although the ceiling height throughout Slack's office is generous, the skylights create visual interest by introducing variable heights and peaks that respond to the landscape of the office's urban location. The expanded vertical volumes also help to create the illusion of spaciousness even though most of the spaces in Slack's office are compact when viewed on the floor plan.

Figures 30-33 show the uniform material and colour palette used throughout Slack's office. The bright colours, angled light fixtures and angled plywood panels subtly reference slack's brand identity



Figure 28. Photograph of Slack's multipurpose space. (Grimm, 2016d)



Figure 29. Photograph of an informal meeting space in Slack's office. (Grimm, 2016b)



Figure 30. Photograph of the reception area in Slack's office.
(Grimm, 2016f)



Figure 32. Photograph of the cafe in Slack's office. (Grimm, 2016e)



Figure 31. Photograph of a sky lit corridor in Slack's office.
(Grimm, 2016a)



Figure 33. Photograph of an open plan work space in Slack's office
(Grimm, 2016c)

and logo, a multi-coloured hashtag symbol. Plywood is used for the reception desk, bleachers, and the café's built-in bench and table, which is economically and environmentally responsible since the rapidly growing company may need to relocate its headquarters in a few years if they keep growing at their current rate. Most of the office's other furniture, fixtures and equipment can be reused or recycled if the company moved to a different location.

The final atmospheric characteristic of Slack's office that is relevant to this practicum project is the use of plants and tinted glass to create visual privacy. The plants, which are all bamboo, offer a connection to nature which is a benefit on its own, but they also double as screens between otherwise visually and spatially open spaces. The strategically placed plants are paired with tinted glass that is opaque at seated eye level and is used to enclose the meeting spaces in the office. In order to allow for the passage of light, the glass partitions transition to full transparency towards the ceiling, which is an innovative solution to allow daylight into the space while retaining visual privacy.

5.4.3 Summary and Interior Design Strategies

The design of Slack's office provides several programmatic and atmospheric characteristics that are relevant to this practicum

project. As with the other precedents, Slack has placed all of the regularly occupied workstations next to windows. A notable difference between Slack's office and the previous two is that Slack has provided a workstation for each employee, instead of implementing a distributed work strategy. However, Slack's office does have some space-saving design features, such as the multipurpose 'all-hands' meeting area that serves a double function as a dining/social space.

Due to the relatively small size of Slack's office and the close proximity of all of the open-plan workstations to each other, the designers have provided nine phone booths so that phone calls and short meetings do not disrupt other employees. This is a useful strategy whenever acoustics are a concern, even in larger offices. Slack's office also provides a variety of meeting rooms next to the workstations in order for groups of employees to meet and collaborate in private settings. Other amenities that Slack has provided its employees include a nap room and bicycle storage, both of which serve important functions for the health and well-being of their employees. All of these features will be implemented in the design of MarkIT's office.

As with the other precedents, Slack has created a strong visual identity in its office. Wood is used throughout, with the colours

that appear in Slack’s logo being used as accents. Since Slack is a rapidly growing start-up company, the designers have used economically and environmentally responsible materials because the company will likely outgrow this space within a few years. While this is a good strategy, leasing a larger office space would provide more opportunities for long-term growth within the same space.

In order to create visual interest throughout the office, the designers use varying ceiling heights and volumes, as well as skylights so that the relatively small space is broken into many unique areas. The designers have also used a combination of strategically placed plants and tinted glass to create visual privacy while still allowing for the passage of light.

Table 8. Overview of Slack New York’s features and interior design strategies.

FEATURES	INTERIOR DESIGN STRATEGIES
<ul style="list-style-type: none"> • Provided phone booths. • Provided a nap room. • Provided bicycle storage. 	<ul style="list-style-type: none"> • Offering similar amenities that enhance physical and psychological well-being.
<ul style="list-style-type: none"> • Maximizing space utilization by creating multipurpose spaces. 	<ul style="list-style-type: none"> • Considering how spaces can be used for different functions throughout the day.
<ul style="list-style-type: none"> • Using varying ceiling heights, volumes, and light to create visual interest. 	<ul style="list-style-type: none"> • Utilizing a similar strategy to create visual interest.
<ul style="list-style-type: none"> • Using economically and environmentally responsible materials. 	<ul style="list-style-type: none"> • Considering the intended lifespan of the office’s interior design and making choices accordingly.
<ul style="list-style-type: none"> • Innovative use of plants and tinted glass for visual privacy. 	<ul style="list-style-type: none"> • Utilizing a similar strategy to create visual privacy while allowing for the passage of light.

CHAPTER 6: SITE AND BUILDING ANALYSIS

6.1 Overview

This chapter examines the site's history, location, climate, and the building in which MarkIT's new headquarters will be designed.

MarkIT believes that the site and its location should align with its values of environmental and social responsibility, and intends for the finished project to be a physical representation of its corporate identity.

6.2 Site Selection Criteria

311 Portage Avenue was chosen as the site for MarkIT's new Winnipeg headquarters based on the following criteria:

1. The site should be in a location that is easily accessible by public and active transportation.
2. The site should be in a prominent location in order to raise MarkIT's profile to potential clients and to increase public awareness of the company.
3. Proximity to dining, shopping, and entertainment options to encourage employees to explore their workplace's neighbourhood, feel connected to the community, and contribute to Winnipeg's urban renewal efforts.
4. The site should be in a sustainable development to reflect MarkIT's corporate values of environmental and social responsibility. MarkIT is also committed to providing its employees with a healthy workplace environment.
5. The site should be large enough for MarkIT's workforce, which is currently just under 300 employees. Proximity to additional leasable space is also important so that MarkIT can plan for growth without needing to consider relocating.

6.3 Site History

Centrepoint was constructed in 2014 on a site with a rich history that dates back more than one hundred years. Historically, the site consisted of three separate addresses, 311 Portage Avenue, 315 Portage Avenue, and 310 Donald Street. Information regarding

the 310 Donald Street address is sparse, although it has been documented that since 1951 it has been the home of a car dealership, a billiards room and bowling alley, a florist, office spaces, and retail outlets. The following sections will focus on the Portage Avenue addresses which have been better documented and both have rich histories.

6.3.1 311 Portage Avenue History

The Clarendon Hotel, which was built in 1883 at 311 Portage Avenue, was one of early Winnipeg's landmark buildings (City of Winnipeg Historical Buildings Committee, 1999, p. 1). As can be seen in figure 34, the Clarendon Hotel was a five-storey structure built in the Second Empire style, with a mansard roof and corner turret (City of Winnipeg, Historical Buildings Committee, 1999, p. 1). At the time, the hotel was one of the only significant buildings that were located outside of the Exchange District, which is located several city blocks North-East of the site (City of Winnipeg Historical Buildings Committee, 1999).

By the late 1910s, the Clarendon Hotel was showing signs of ageing and had fallen into disrepair (City of Winnipeg Historical Buildings Committee, 1999). Luckily for the nearby property owners who were concerned about their property values being affected by the hotel, the Clarendon was attained by a new owner who had plans to redevelop the site. By the summer of 1920, the Clarendon Hotel was demolished and a far less grand, two storey building replaced it



Figure 34. The Clarendon Hotel, Portage Avenue at Donald Street, cs. 1905. (City of Winnipeg Historical Buildings Committee, 1999)

within a year (City of Winnipeg Historical Buildings Committee, 1999). Figure 35 shows the architect's plans for part of the new building's façade, which was designed in the Tudor style (City of Winnipeg Historical Buildings Committee, 1999). The new structure was also not a hotel, instead consisting of ground-floor retail and a large

restaurant on its second storey (City of Winnipeg Historical Buildings Committee, 1999).

The new structure's Tudor style identity did not last very long though, because, on February 27, 1923, the building caught fire (City

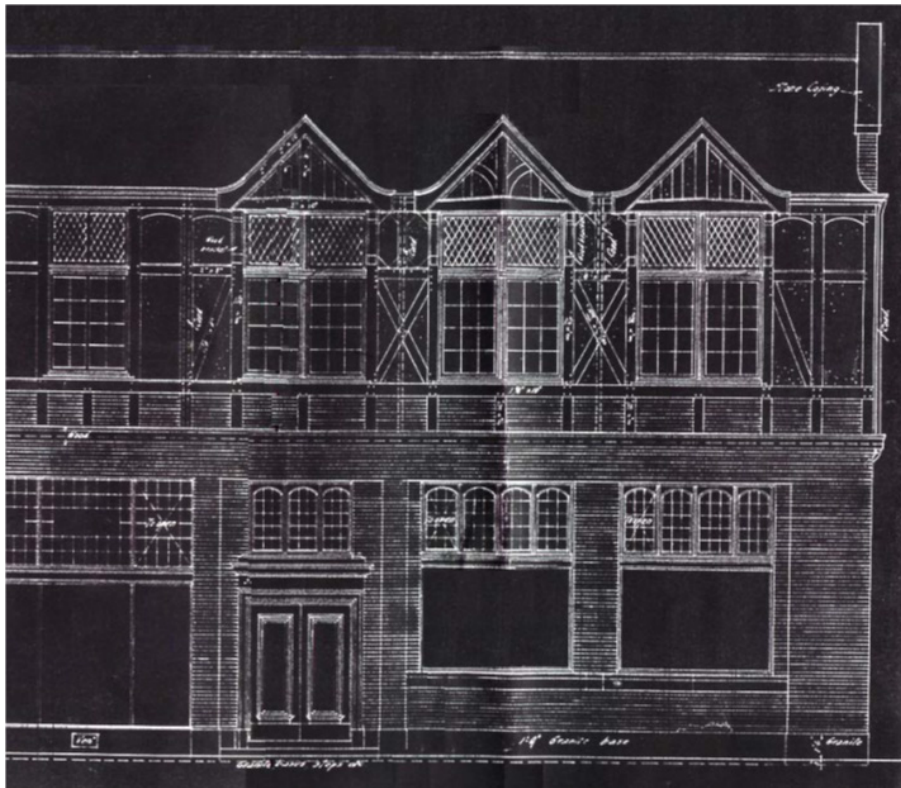


Figure 35. Architect's plans for the new Clarendon Block - part of the Donald Street facade. (City of Winnipeg Historical Buildings Committee, 1999).



Figure 36. Portage Avenue looking east, ca. 1928. (City of Winnipeg Historical Buildings Committee, 1999).

of Winnipeg Historical Buildings Committee, 1999). The interior of the Clarendon Block was entirely destroyed while the exterior remained intact but sustained significant fire damage. (City of Winnipeg Historical Buildings Committee, 1999). The structure was repaired in 1923 without the Tudor style detailing, with the architects opting for a simplified design that flattened the building's roof, and the "second floor half-timbering was stuccoed over and many of the windows were replaced by single-panel elements" (City of Winnipeg



Figure 37. Clarendon Hotel, 311 Portage Avenue. (Peterson, 1998)

Historical Buildings Committee, 1999, p. 3). Figure 36 shows the building's in its Portage Avenue context, with its new flattened roof and simplified detailing.

The building's identity was once again altered in 1930, with a renovation that further simplified the exterior detailing and reduced the size of the second-floor windows (City of Winnipeg Historical Buildings Committee, 1999). The new, flattened facade can be seen in Figure 37, and have been described as a reduced Italianate-style, which was popular in Canada at the time (City of Winnipeg Historical Buildings Committee, 1999). This version of the building remained intact for almost one hundred years until it was finally demolished to make way for the site's current structure, Centrepoint at 311 Portage and the Alt Hotel.

6.3.2 315 Portage Avenue History

During the early 1900s, Portage Avenue became the central shopping district in Winnipeg (City of Winnipeg Historical Buildings Committee, 1990). The opening of an Eaton's retail outlet in 1905

saw land values along Portage Avenue rapidly increase, and by the end of the decade, there were several high-profile retailers and corporate offices located on the blocks surrounding Eaton's (City of Winnipeg Historical Buildings Committee, 1990). In 1920, the Canadian Bank of Commerce opened a branch location at 311 Portage Avenue, directly across the street from Eaton's. The Bank of Commerce occupied an existing building, however, architectural

changes were made to transform the façade of the existing structure into a Classical Revival building façade (City of Winnipeg Historical Buildings Committee, 1990). Figures 36 and 37 show the Canadian Bank of Commerce building with its neighbouring Clarendon Hotel, and Figure 38 shows the architect's plans alongside a photograph of the new façade (City of Winnipeg Historical Buildings Committee, 1990).

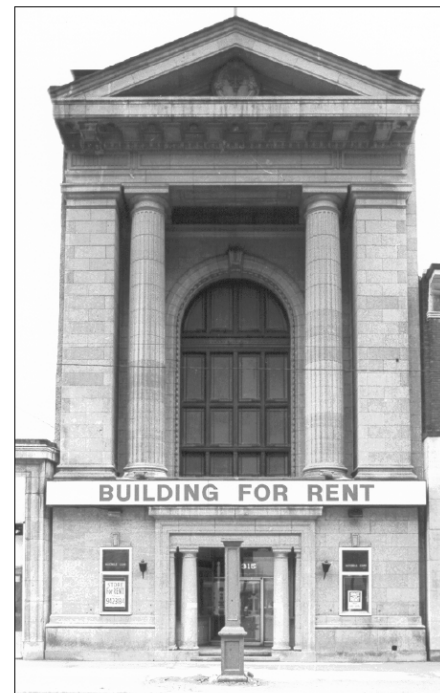
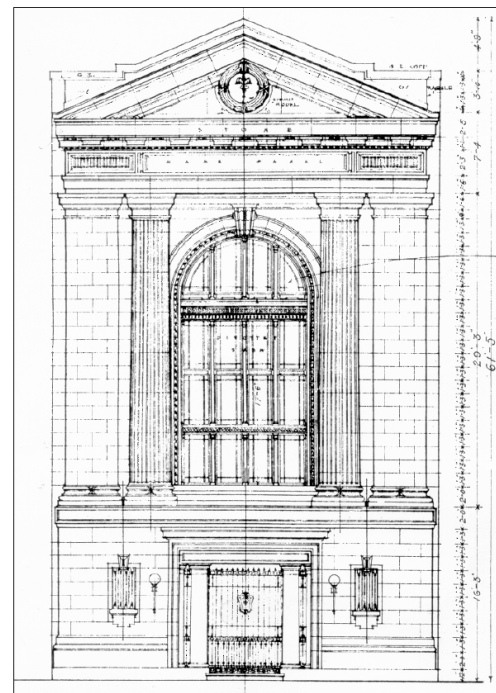


Figure 38. The architect's plans of the 315 Portage Avenue facade alongside a photograph of the facade, dates unknown. (City of Winnipeg Historical Buildings Committee, 1990).

The structure to which the Canadian Bank of Commerce's façade was added was originally built in 1906 and was known as the Kennedy Block (City of Winnipeg Historical Buildings Committee, 1990). The Kennedy Block was a three-story brick building that had retail shops on the main level and offices on the two upper storeys, and the structure was designed to hold the extra weight of extra storeys if it became necessary to expand the building in the future (City of Winnipeg Historical Buildings Committee, 1990). Most of the building's interior remained the same after the Canadian Bank of Commerce purchased part of it in 1919, but the façade was redesigned by Toronto architect Victor Daniel Horsburgh (City of Winnipeg Historical Buildings Committee, 1990).

The Classical Revival style of the new façade was popular in North America at the time and represented a more subdued version of the French Beaux-Arts style (City of Winnipeg Historical Buildings Committee, 1990). Classical Revival buildings were usually smaller and more modestly ornamented than the institutional buildings that were designed in the Beaux-Arts style, although they shared several common characteristics (City of Winnipeg Historical

Buildings Committee, 1990). Shown in Figure 38, the Canadian Bank of Commerce's façade has all of the common characteristics of Classical Revival buildings, including a "massive stone foundation supporting smooth or polished stone columns, pedimented porticoes and colossal pilasters" (City of Winnipeg Historical Buildings Committee, 1990, p. 2). Tyndall stone, a regional type of limestone, was used for the entire façade including the pair of 9-meter tall Doric columns (City of Winnipeg Historical Buildings Committee, 1990).

The Canadian Bank of Commerce, which later became the Canadian Imperial Bank of Commerce (CIBC) after a merger with the Imperial Bank of Canada in 1961, was the sole tenant of the building for almost 40 years (City of Winnipeg Historical Buildings Committee, 1990). After the Canadian Bank of Commerce vacated the building in 1959 it remained vacant for ten years until Mitchell-Copp Limited, a jewellery company, moved into the building and turned it back to a retail space (City of Winnipeg Historical Buildings Committee, 1990). In 1981, Mitchell-Copp Limited moved across the street into the Eaton Place shopping centre and the building was once again

left vacant (City of Winnipeg Historical Buildings Committee, 1990). The building became the home of some short-term tenants such as Comic World, who ended up occupying the building between 1985 and 1988, but it was often empty in the decades preceding its demolition (City of Winnipeg Historical Buildings Committee, 1990). In 2011, the City of Winnipeg approved the demolition of both 311 Portage Avenue and 315 Portage Avenue to make way for the mixed-used Centrepoint development (Manitoba Historical Society, 2016). The Classical Revival façade of 315 Portage Avenue, which was a municipally-designated historic site, was preserved and incorporated into the south façade of the new Centrepoint development (Manitoba Historical Society, 2016). Figure 39 shows the original 1920 façade in its current context.



Figure 39. Photograph of the preserved Canadian Bank of Commerce facade in its current state, integrated into the south facade of Centrepoint.

6.4 Site Analysis

6.4.1 Site Context and Inventory

Centrepont is located in downtown Winnipeg's Sports Hospitality Entertainment District (SHED). The development is across the street from the MTS Centre, which regularly attracts thousands of fans and spectators to sports, music, and theatrical events. The Winnipeg Jets, which returned to Winnipeg in 2011, and the opening of the Canadian Museum for Human Rights in 2014 have brought renewed focus to the area, spurring a number of new developments including Centrepont, which is a mixed-use development that includes office space, restaurants, and a hotel. Figure 40 shows the location of the SHED's major attractions as well as the Canadian Museum for Human Rights which is adjacent to the Forks, a historic site and tourist attraction at the intersection of the Red and Assiniboine Rivers. Centrepont is also within walking distance of Winnipeg's historic Exchange District, which is home to many of Winnipeg's most popular restaurants and nightlife venues. Residential buildings are scattered throughout the downtown area, with two new

developments under construction in the SHED and a third mixed-use development that is scheduled to break ground this year.

Centrepont currently has two addresses, 311 Portage Avenue and 310 Donald Street. Upon completion of Centrepont's residential tower, a third address on Hargrave Street will also come into effect. The ALT Hotel and two restaurants are accessed from Donald Street, while the office space that will become MarkIT's new headquarters is accessed from Portage Avenue. To avoid confusion throughout the remainder of this document, Centrepont refers to the entire development while 311 Portage Avenue refers specifically to the office's address within the Centrepont development.

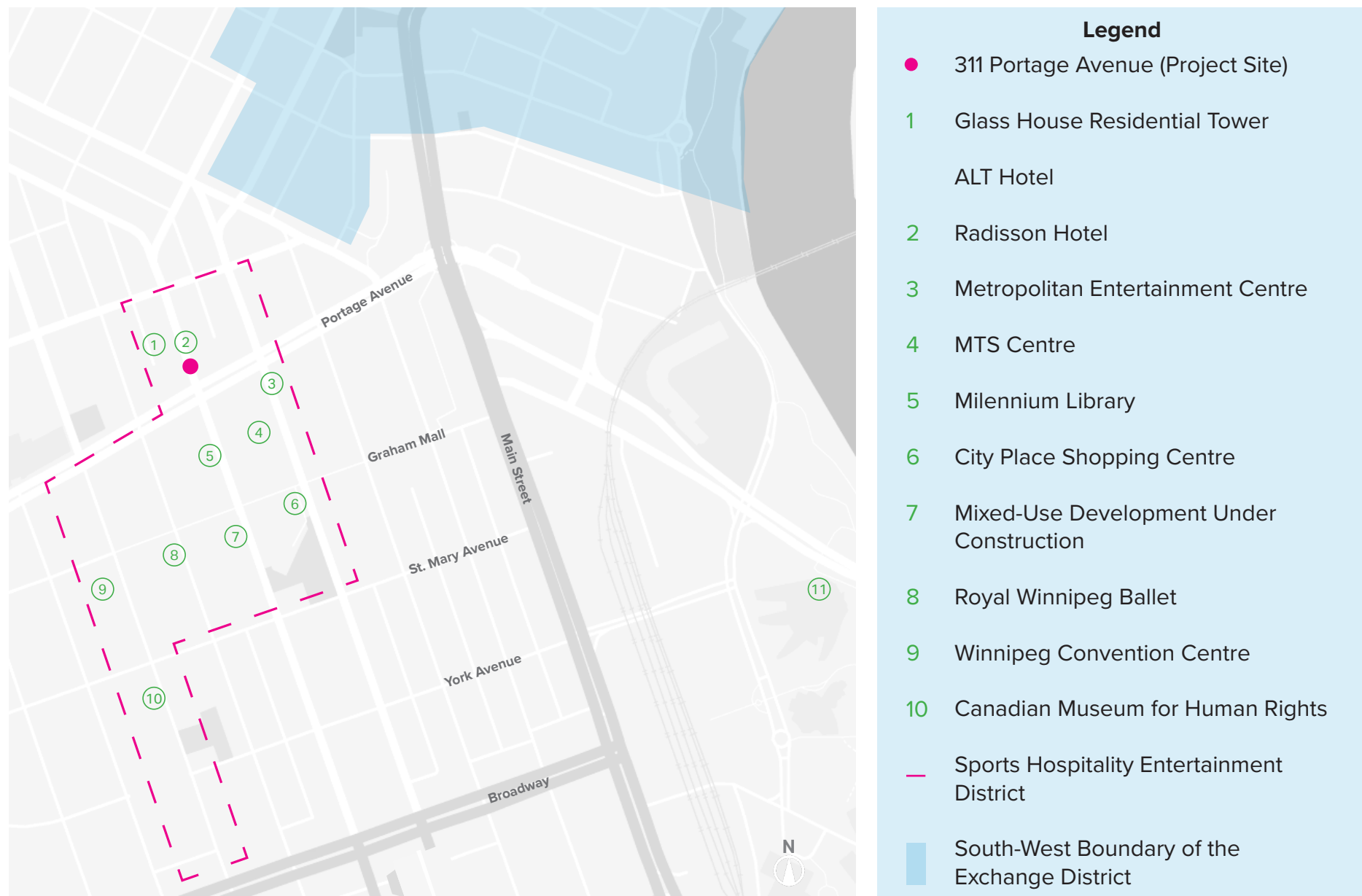


Figure 40. 311 Portage Avenue in its downtown Winnipeg context with prominent venue locations.

Downtown Winnipeg offers an abundance of dining, retail, recreation, and leisure activities. Figure 16 shows the locations and venue types for all of the activities and amenities within a five-minute walking distance of the project's site. It is intended that the location of the project's site will encourage employees to explore, enjoy, and become part of the community in the neighbourhood in which they work.

The site's proximity to fitness centres and green spaces is also shown in Figure 41 and is relevant to the project because the design aims to meet the requirements for as many WELL Building Standard

credits as possible. The WELL Building Standard's Physical Activity Spaces credit requires that a designated exercise space is provided within the building, and that the building owner or employer offers complimentary access to a gym, playing field or swimming pool within 800 meters walking distance of the space (International WELL Building Institute, 2016, p. 113). Figure 41 shows that five fitness centres are located within 400 meters walking distance of the project's site which fulfils half of the credit's requirements. Designated exercise space will also be provided within the building in order to achieve this credit.

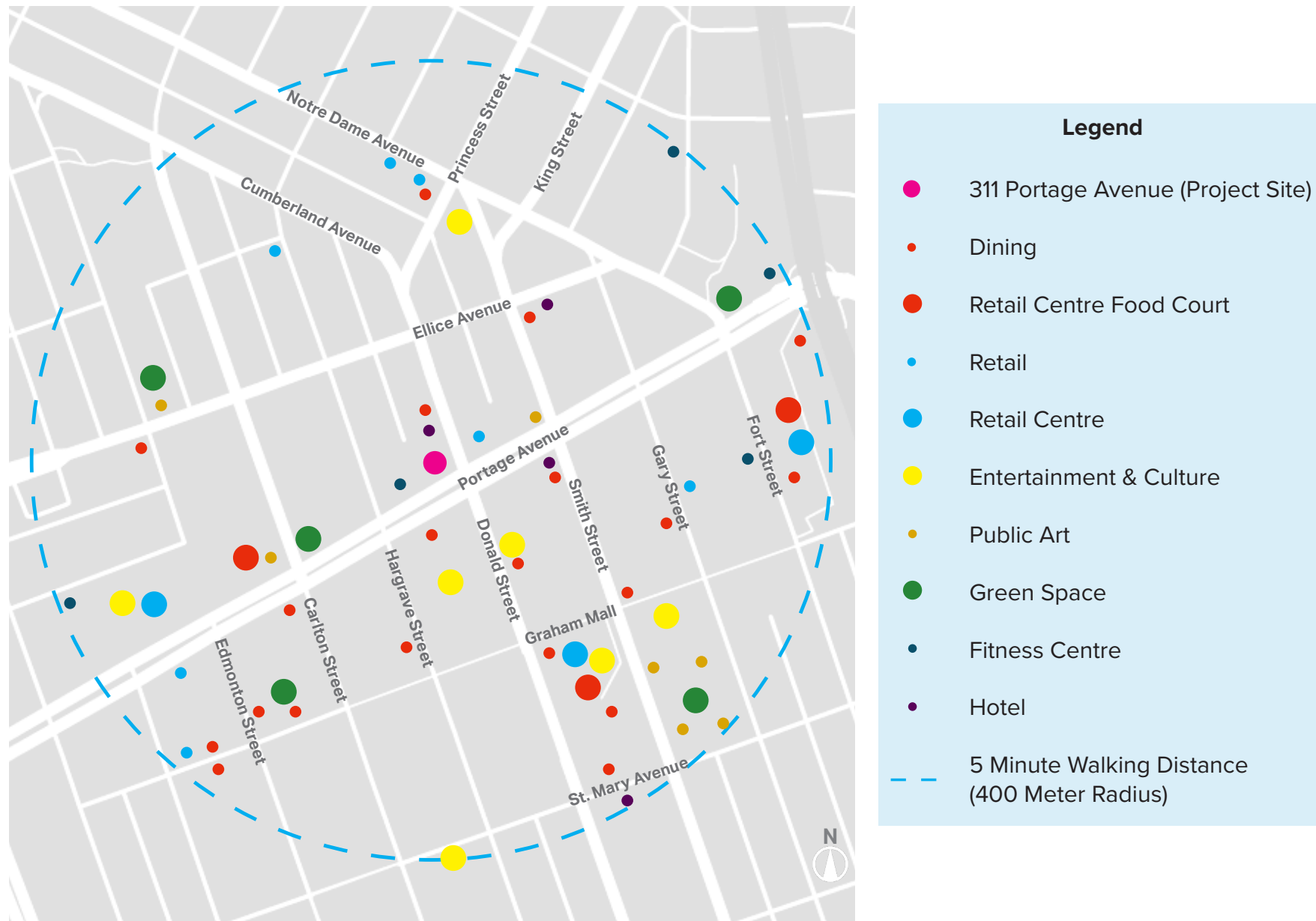


Figure 41. Dining, retail, entertainment, culture, public art, green spaces, and hotels within a five minute walking distance from the project site.

6.4.2 Circulation

Downtown Winnipeg supports 69,000 jobs, most of which are filled by employees who commute to work from other parts of the city (Downtown Winnipeg Market Research, n.d.). The many parking lots and parkades shown in Figure 42 imply that many of the commuters arrive to work in private vehicles, however, 47.2 per cent of downtown office workers travel to work by bus (Downtown Winnipeg Market Research, n.d.). Using public transportation to commute to work is very easy, with 59 of Winnipeg's bus routes connecting downtown to other parts of the city (Downtown Winnipeg Market Research). Walk Score, a website that rates the walkability and public transportation system of cities, neighbourhoods, and specific addresses, gives 311 Portage Avenue a 92/100 score for public transportation (Walk Score, n.d.)

Dedicated bicycle lanes that connect downtown Winnipeg to other parts of the city encourage commuters to use active modes of

transportation. Figure 42 only shows bicycle routes that have a dedicated lane for cyclists, but other types of routes such as bicycle boulevards where cyclists share the street with vehicles in low-speed traffic also exist in the downtown area. On average, 6,200 cyclists commute downtown on weekdays which indicates that almost 10% of downtown jobs are reached by bicycle (Downtown Winnipeg Market Research, n.d.).

An extensive network of second level and underground walkways promote pedestrian traffic throughout downtown Winnipeg. Although broad pedestrian sidewalks exist alongside vehicular streets throughout most of the downtown area, Winnipeg's long and harsh winters require climate-controlled pedestrian corridors in order to promote active transportation year-round. Walk Score gives 311 Portage Avenue a walkability rating of 98/100, indicating how easy it is to get around the area on foot.



Figure 42. Downtown Winnipeg circulation and transportation options.

6.4.3 Views

The importance of access to views of the outdoor environment has been widely cited as being important for the well-being of building occupants. Building standards such as LEED have specific credits that encourage companies to provide their employees with views from the majority of regularly occupied interior spaces. 311 Portage Avenue has glazing along its entire south- and east-facing façades, making panoramic views of downtown Winnipeg available to the building's occupants. Keeping sightlines to the outdoor environment available to the occupants of 311 Portage Avenue will be a major consideration for the design development of MarkIT's office.



Figure 43. View facing east from 311 Portage Avenue.



Figure 44. View facing south from 311 Portage Avenue.



Figure 45. View facing west from 311 Portage Avenue.



Figure 46. View facing north from 311 Portage Avenue.

6.4.4 Climate and Site Conditions

Winnipeg has one of the most extreme temperature ranges in the world, with temperatures often exceeding 30 degrees Celcius in the summer months and dipping below -30 degrees Celcius in the winter. Winnipeg's high latitude means that for the six months between the spring and fall equinoxes, the sun's azimuth never surpasses 40 degrees above the horizon, resulting in direct sunlight

reaching deep into buildings with glazing on their east-, south-, and west-facing facades. Although natural daylighting strategies can take advantage of this condition, direct sunlight coming through 311 Portage Avenue's fully glazed south façade will need to be controlled since it can become a source of glare, eye strain, and solar heat gain. Figure 47 shows the solar path diagram for 311 Portage Avenue, which will inform the daylighting and space planning strategies for MarkIT's office.



Figure 47. Solar path diagram for 311 Portage Avenue.

6.5 Building Analysis

6.5.1 Building History

Centrepoint was completed in 2014 and consists of a 5-storey mixed-use podium with a tower that rises 13 storeys. The building was designed by Stantec Architecture Ltd., and Stantec Consulting Ltd. provided engineering services and environmental consulting for the project. Currently, the podium's tenants are The Merchant Kitchen, Brown's Socialhouse, iQmetrix, and Stantec while the 156 room ALT Hotel occupies the entire tower. The three storeys currently occupied by Stantec will be converted into MarkIT's headquarters for this practicum.

6.5.2 Exterior Existing Conditions

The south-facing façade of 311 Portage Avenue features a curtain wall with floor-to-ceiling glazing that offers direct views into its interior from the street below. The transparency and flat aesthetic of the contemporary façade is strikingly contrasted by the Tyndall Stone façade of the Canadian Bank of Commerce that was restored

and integrated into the new building. As can be seen in Figure 48, the curtain wall's mullions are arranged in a grid pattern that references the proportions of the Doric columns in the historic façade. Starting on the second storey, the eastern half of the south façade cantilevers over the sidewalk below and aligns with the face of the historic façade in plan view. The entire south façade is framed by a border of metal panels that are currently painted bright yellow, the colour that the building's anchor tenant Stantec uses for its corporate identity.

The east façade has a decidedly heavier aesthetic, with bands of reflective glazing set into matte dark grey metal cladding. Horizontal lines from the south façade continue onto the east façade while the vertical lines are offset from each other, creating a visually interesting pattern that departs from the standard grid. As can be seen in figure 49, the strong horizontal and vertical elements create a harmonious balance and are not in competition with each other. Instead, the horizontal elements draw the eye towards the south façade while the vertical elements draw the eye upwards to the tower.

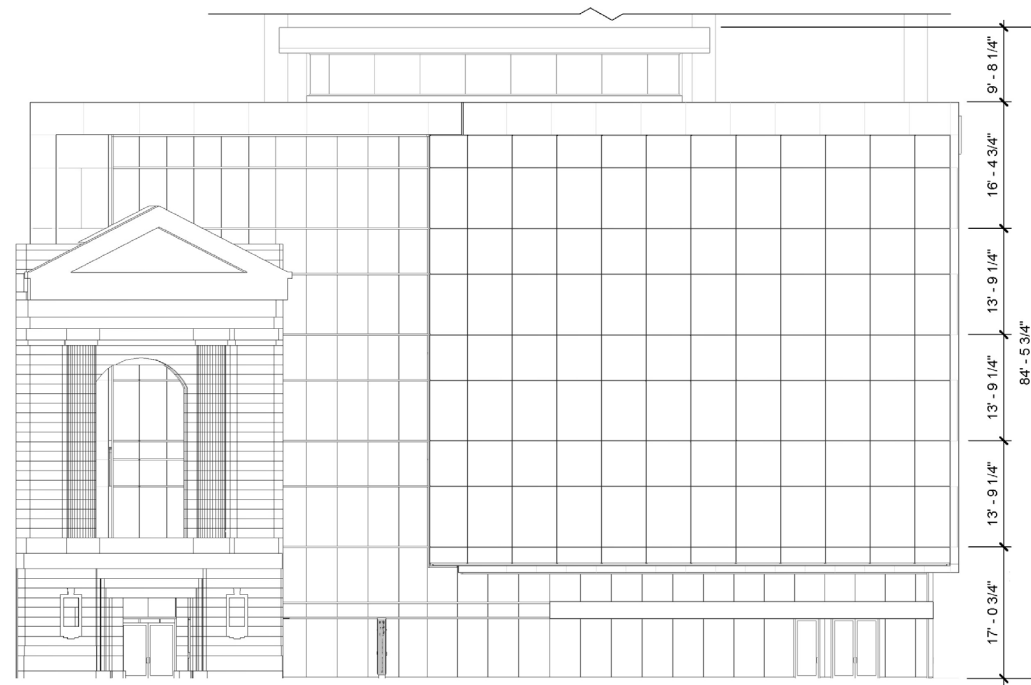


Figure 48. CentrepoinTE south elevation without the ALT Hotel tower.



Figure 49. CentrepoinTE east elevation without the ALT Hotel tower.

6.5.3 Interior Existing Conditions

Figures 50 through 52 show the floorplans for the three storeys that will be developed for this project. Each of the storeys has 20,000 square feet of usable floor space, bringing the total amount of space that will be developed to 60,000 square feet. All of the building's heating, ventilation, air conditioning (HVAC) systems are contained in a central core, which also contains two fire rated stairwells and elevator shafts that service the hotel tower above. The elevators in the central core are not accessible from the three storeys that are being developed for this project.

For the purpose of this project, only the core, shell, structural columns and spaces that are essential to the building's operation will be kept while the rest of the existing architectural elements will be demolished. The location of the plumbing walls that service the current tenant's washrooms and showers will also be kept in place. The other essential elements that will be kept in place are the fire-rated stairwell, elevators, electrical rooms, utility rooms, and data rooms that are located on the west side of the building since their relocation would incur unnecessary expenses.

The location of clerestory windows on the fifth floor is noted on each of the floorplans, and sections of the floorplates on the fourth and fifth floors are currently void in order to allow natural daylight to reach the centre of the building. The fifth floor has a void below the north and south clerestory windows while the fourth floor only has a void beneath the north windows.

As was discussed in the previous section, the south façade consists of a glazed curtain wall that brings in daylight and offers views of downtown Winnipeg to the building occupants. The east façade is glazed from the floor structure up to eight feet on each storey, as are three sections of the north half of the west façade. The north façade does not have any openings since another building is located directly next to the project's site on that side.

The floor-to-floor height of each storey is 13' – 9 ¼" (4200 mm), with the floor structure, HVAC, data, and communications systems occupying 3' – 9 ¼" (1150 mm). This creates a maximum floor-to-ceiling height of exactly 10' – 0" (3050) for finished ceilings, although it is possible to increase it if the ceiling is left exposed.

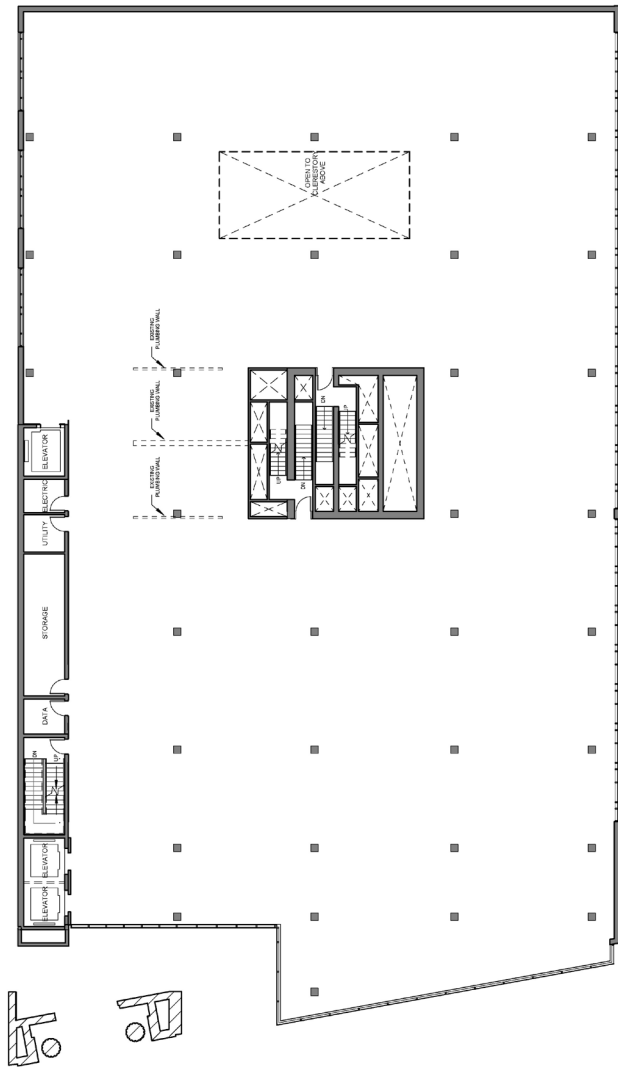


Figure 50. Level 3 floor plan.

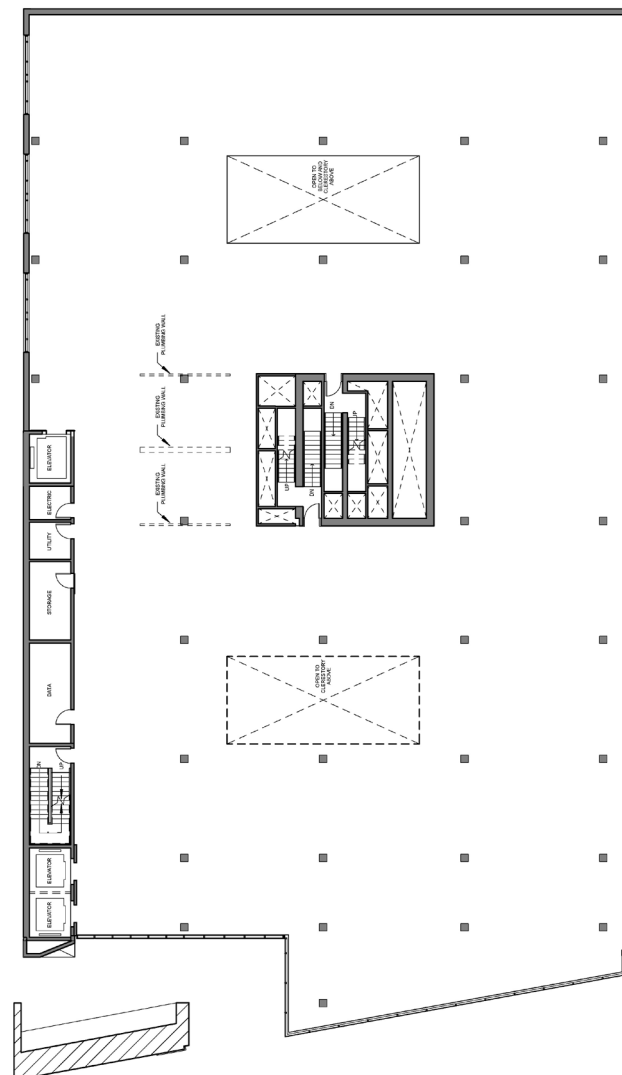


Figure 51. Level 4 floor plan.

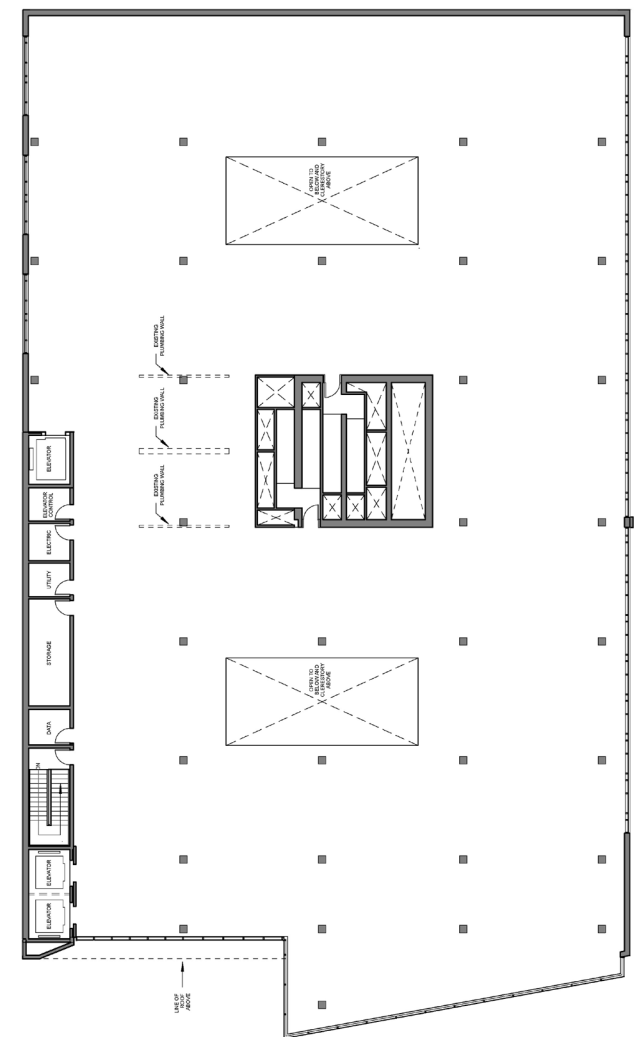


Figure 52. Level 5 floor plan.



Figure 53. MarkIT's logo.

CHAPTER 7: DESIGN PROGRAMME

7.1 Overview

The design programme chapter provides an in-depth look at all of the project's programming requirements. First, an overview of the client and their corporate structure will be provided, followed by all of the user profiles. User profiles are categorized into three groups: primary, secondary, and tertiary. Each of the user groups will be given a description, a list of the activities that they do at work, and a list of their work-related needs. Next, the functional requirements for the project will be provided, which consists of the programmatic and spatial requirements for all of the spaces/activity areas that are included in this project. Each activity area is given a description and its requirements for furniture, fixtures, and equipment, technological requirements, colour and material requirements, preferred atmospheric qualities, as well as a square footage requirement. This information will be used as a guideline to inform the design of MarkIT's office.

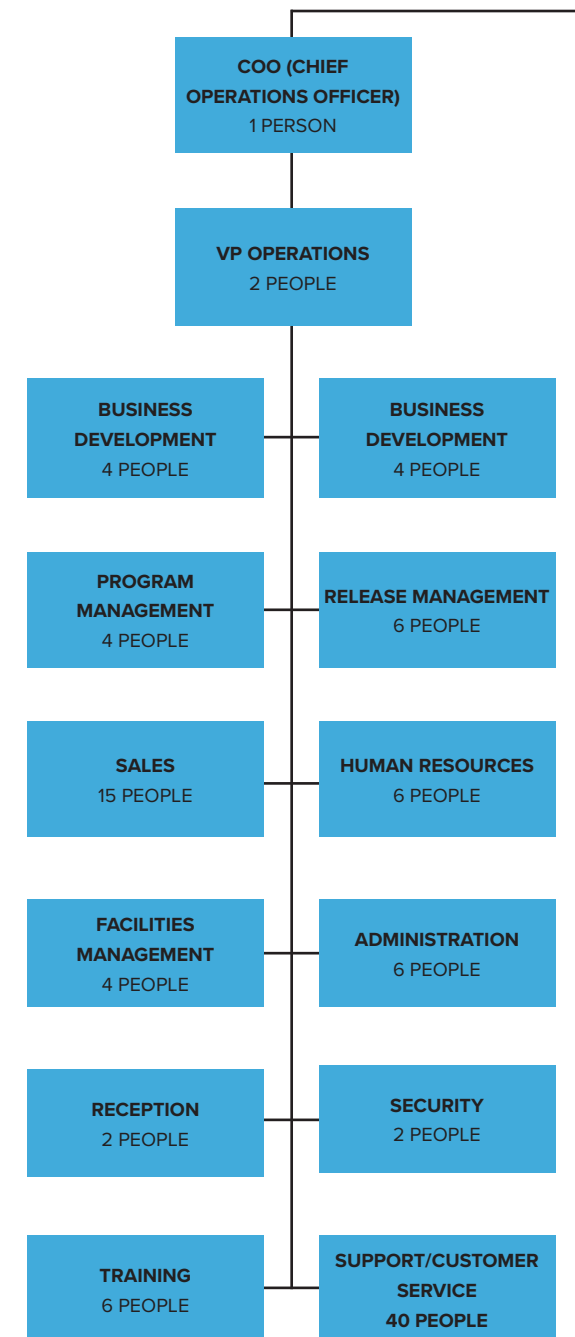
7.2 Client Profile and Corporate Structure

MarkIT is an information technology company that offers a variety of products and services to companies in the retail industry and serves as the client for this project. Its software products allow companies to track inventory, process payments, and collect customer data both in physical retail locations and on their e-commerce websites. MarkIT also designs tailor-made websites for retailers who wish to take advantage of their expertise in user experience design. MarkIT also provides customer support services for its clients and their customers.

MarkIT's corporate structure, shown in Figure 54, consists of five departments: operations, engineering, marketing, business management, and information technology/training. Within each department, there are multiple jobs, all of which contribute to the success of the company.

DESIGN PROGRAMME

MarkIT has been growing steadily since it was founded. As a result of its steady growth, the company has outgrown its current office space and is planning to move into a leased space at 311 Portage Avenue. The space, which occupies three storeys, fulfills MarkIT's desire to be in a prominent location, is easily accessible by active and public transportation, as well as environmentally responsible through an anticipated LEED Silver certification for the building. MarkIT strives to embody a corporate culture and image that emphasises social and environmental responsibility, especially since they recognize how important those values are to the public, their clients, and their employees. MarkIT envisions the design of their new headquarters as an opportunity to communicate their values and priorities to all of its stakeholders and the general public.



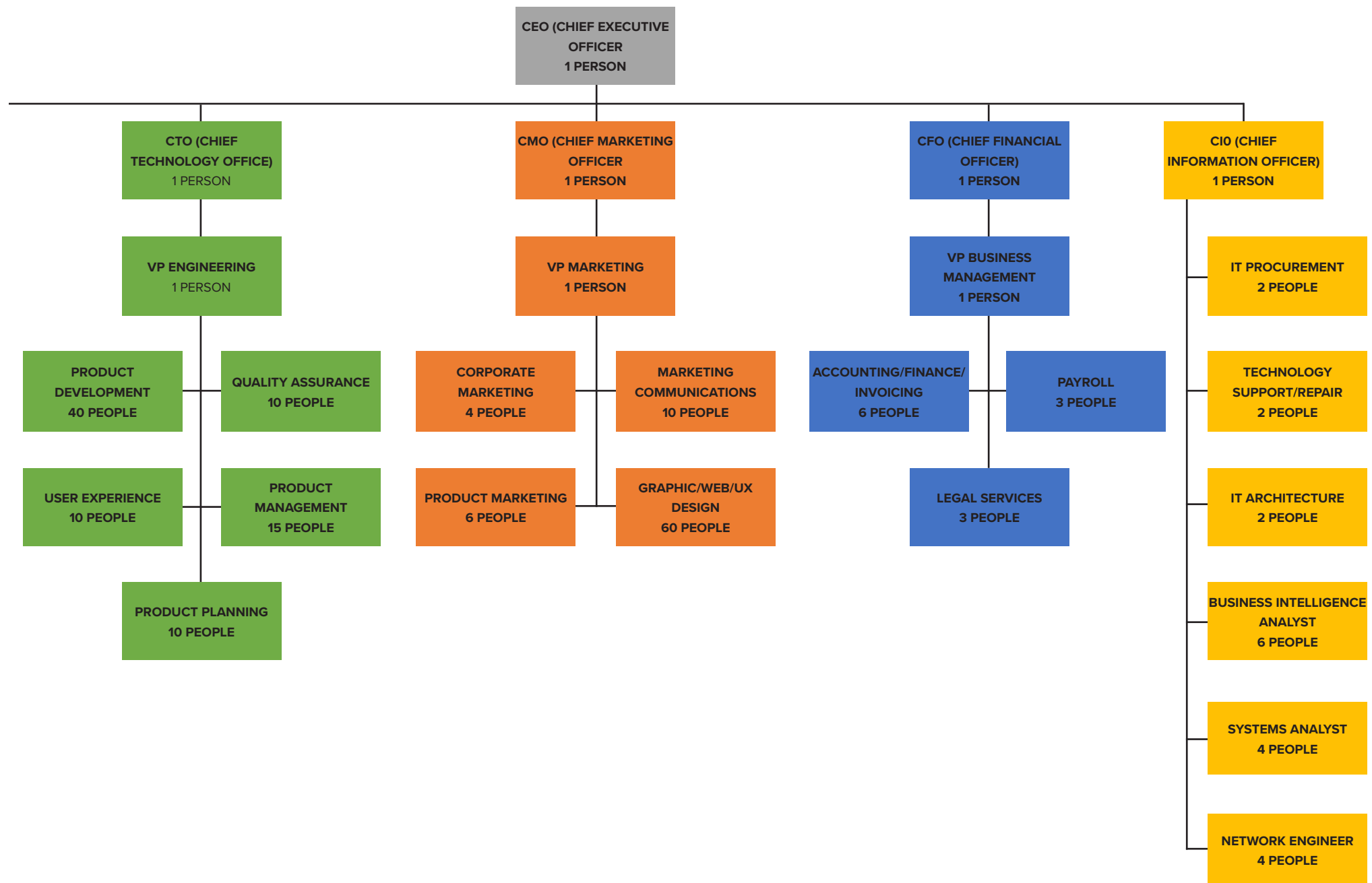


Figure 54. MarkIT's corporate structure.

7.3 User Profiles

The workplace design users have been placed into three categories: primary, secondary, and tertiary. Primary users are the people that occupy the space most of the time, mainly MarkIT’s employees.

Secondary users occupy the space on a regular basis for relatively short periods of time and do not have positions within the company.

This group includes clients, potential clients, potential employees, and members of the general public who are attending an event that is being hosted by MarkIT. Tertiary users do not occupy the

7.3.1 Primary Users

Table 9. Primary user profiles.

USER/ROLE	DESCRIPTION	ACTIVITIES
Chief Executive Officer (CEO)	<ul style="list-style-type: none"> • Makes high-level decisions regarding business strategy, policies, investments, company growth, hiring guidelines, operations, marketing. • Presides over the day-to-day operations of the company. • Plans and oversees product development. • Maintaining client relationships and attracting new clients. 	<ul style="list-style-type: none"> • Meeting with executives, department leaders, clients, and potential clients (on-site) • Meeting with clients and potential clients (off-site) • Reviewing reports • Individual tasks • Teamwork
Chief Operations Officer (COO)	<ul style="list-style-type: none"> • Designing and implementing business strategies, plans, and procedures. • Establishing policies that promote company culture and vision. • Oversees operations of the company and the work of other executives. 	<ul style="list-style-type: none"> • Meeting with executives and department leaders • Reviewing reports • Individual tasks • Teamwork
Chief Technology Officer (CTO)	<ul style="list-style-type: none"> • Manages research and development. • Monitors technology and social trends that could impact the company. • Communicates the company’s technology strategy to management and employees. • Maintains current information about technology standards and compliance regulations. 	<ul style="list-style-type: none"> • Meeting with executives and engineering department leaders • Reviewing reports • Individual tasks • Teamwork

space for long periods of time and are also not directly employed by MarkIT. This group includes kitchen staff, maintenance personnel, delivery personnel, and equipment maintenance personnel.

It is also relevant to note that user profiles often include psychological needs. However, they are not included here since they were discussed in Chapter 4. This section will primarily focus on the task performance space requirements for each user group.

BEHAVIOURAL NEEDS

NUMBER OF USERS

-
- | | |
|---|---|
| <ul style="list-style-type: none"> • On-site meetings – formal spaces with acoustic and visual privacy for confidentiality and reduced distractions • Off-site meetings – spaces that accommodate video conferencing • Reviewing reports - spaces with acoustic and visual privacy for confidentiality and reduced distractions • Individual tasks – assigned workstation within the executive suite for confidentiality purposes and high quantity of information possessed • Teamwork – formal and informal collaboration spaces | 1 |
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| <ul style="list-style-type: none"> • Meetings – formal spaces with acoustic and visual privacy for confidentiality and reduced distractions • Reviewing reports - spaces with acoustic and visual privacy for confidentiality and reduced distractions • Individual tasks – assigned workstation within the executive suite for confidentiality purposes and high quantity of information possessed and a high quantity of information possessed • Teamwork – formal and informal collaboration spaces | 1 |
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| <ul style="list-style-type: none"> • Meetings – formal spaces with acoustic and visual privacy for confidentiality and reduced distractions • Reviewing reports - spaces with acoustic and visual privacy for confidentiality and reduced distractions • Individual tasks – assigned workstation within the executive suite for confidentiality purposes and high quantity of information possessed • Teamwork – formal and informal collaboration spaces | 1 |
|---|---|
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DESIGN PROGRAMME

USER/ROLE	DESCRIPTION	ACTIVITIES
Chief Marketing Officer (CMO)	<ul style="list-style-type: none"> Directing market research efforts of the company. Guides a unified approach to customer service and distribution that meets market demands. Defines marketing strategies to support the company's overall strategies and objectives. 	<ul style="list-style-type: none"> Meeting with executives and marketing + design department leaders Reviewing reports Individual tasks Teamwork
Chief Financial Officer (CFO)	<ul style="list-style-type: none"> Accountable for the administrative, financial, and risk management operations of the company. Develops a financial and operational strategy. Oversees and reviews financial information, reports financial results to the executive board. Oversees employee benefit plans. Ensures that the company complies with all legal and regulatory requirements. 	<ul style="list-style-type: none"> Meeting with executives and business management department leaders Reviewing reports Individual tasks Teamwork
Chief Information Officer (CIO)	<ul style="list-style-type: none"> Setting objectives and strategies for the IT department Selecting and implementing suitable technology to streamline all internal operations and help optimize their strategic benefits. Designing and customizing technological systems and platforms to improve customer experience. 	<ul style="list-style-type: none"> Meeting with executives and information technology department leaders Reviewing reports Individual tasks Teamwork
VP Operations	<ul style="list-style-type: none"> Directly supervises the day-to-day of the operations department which includes business development, distribution, program management, release management, sales, support/customer service, human resources, facilities management, administration, and security. Reports to COO. 	<ul style="list-style-type: none"> Meeting with executives Meeting with operations department staff Reviewing reports Individual tasks Teamwork

BEHAVIOURAL NEEDS**NUMBER OF USERS**

- Meetings – formal spaces with acoustic and visual privacy for confidentiality and reduced distractions
- Reviewing reports - spaces with acoustic and visual privacy for confidentiality and reduced distractions
- Individual tasks – assigned workstation within the executive suite for confidentiality purposes and high quantity of information possessed
- Teamwork – formal and informal collaboration spaces

1

- Meetings – formal spaces with acoustic and visual privacy for confidentiality and reduced distractions
- Reviewing reports - spaces with acoustic and visual privacy for confidentiality and reduced distractions
- Individual tasks – assigned workstation within the executive suite for confidentiality purposes and high quantity of information possessed
- Teamwork – formal and informal collaboration spaces

1

- Meetings – formal spaces with acoustic and visual privacy for confidentiality and reduced distractions
- Reviewing reports - spaces with acoustic and visual privacy for confidentiality and reduced distractions
- Individual tasks – assigned workstation for confidentiality purposes and high quantity of information possessed
- Teamwork – formal and informal collaboration spaces

1

- Meeting with executives – formal spaces with acoustic and visual privacy for confidentiality and reduced distractions
- Meeting with staff – formal and informal meeting spaces
- Reviewing reports - spaces with acoustic and visual privacy for confidentiality and reduced distractions
- Individual tasks – assigned workstation within the operations department due to the high quantity of information possessed
- Teamwork – formal and informal spaces that accommodate collaboration

1

DESIGN PROGRAMME

USER/ROLE	DESCRIPTION	ACTIVITIES
Business Development	<ul style="list-style-type: none">• Looks for new clients by networking, cold calling, or advertising to generate interest from potential clients.• Plans persuasive approaches and pitches to convince potential clients to do business with the company.	<ul style="list-style-type: none">• Meetings (on-site)• Meetings (off-site)• Individual tasks• Teamwork
Distribution	<ul style="list-style-type: none">• Manages the product distribution to clients, including proprietary technology and equipment that clients need to properly implement the company's software solutions.	<ul style="list-style-type: none">• Meetings (on-site)• Meetings (off-site)• Individual tasks• Teamwork
Program Management	<ul style="list-style-type: none">• Formulating, organizing and monitoring inter-connected projects.• Lead and evaluate project managers and other staff.• Develop and control deadlines, budgets and activities.• Prepare performance reports for the executive board.	<ul style="list-style-type: none">• Meetings• Individual tasks• Teamwork
Release Management	<ul style="list-style-type: none">• Negotiates, plans and manages all release activities.• Conducts product release readiness reviews and milestone reviews.• Researches new software development and management technologies.	<ul style="list-style-type: none">• Meetings• Individual tasks• Teamwork

BEHAVIOURAL NEEDS**NUMBER OF USERS**

<ul style="list-style-type: none"> • On-site meetings – formal and informal meeting spaces • Off-site meetings – spaces that accommodate video conferencing • Individual tasks – unassigned workstations within the operations department when proximity to other operations department staff is necessary • Individual tasks – informal workspaces throughout the office • Teamwork – formal and informal spaces that accommodate collaboration 	4
<ul style="list-style-type: none"> • On-site meetings – formal and informal meeting spaces • Off-site meetings – spaces that accommodate video conferencing • Individual tasks – unassigned workstations within the operations department when proximity to other operations department staff is necessary • Individual tasks – informal workspaces throughout the office • Teamwork – formal and informal spaces that accommodate collaboration 	4
<ul style="list-style-type: none"> • Meetings - formal and informal meeting spaces • Individual tasks – unassigned workstations within the operations department when proximity to other operations department staff is necessary • Individual tasks – informal workspaces throughout the office • Teamwork – formal and informal spaces that accommodate collaboration 	4
<ul style="list-style-type: none"> • Meetings - formal and informal meeting spaces • Individual tasks – unassigned workstations within the operations department when proximity to other operations department staff is necessary • Individual tasks – informal workspaces throughout the office • Teamwork – formal and informal spaces that accommodate collaboration 	6

DESIGN PROGRAMME

USER/ROLE	DESCRIPTION	ACTIVITIES
Sales	<ul style="list-style-type: none">• Preparing and delivering customer presentations and demonstrations of software.• Marketing and promoting the company's portfolio of products by designing sales literature and through attending industry events.• Developing effective sales plans.	<ul style="list-style-type: none">• Meetings (on-site)• Meetings (off-site)• Presentations• Individual Tasks• Teamwork
Human Resources	<ul style="list-style-type: none">• Create, manage, lead and evaluate training programs.• Recruit, interview and place potential employees.• Resolve issues between management and employees.• Advise managers on policies such as equal employment opportunity and sexual harassment.• Direct disciplinary procedures.	<ul style="list-style-type: none">• Meetings• Presentations• Interviews• Individual Tasks• Teamwork
Administration	<ul style="list-style-type: none">• Handling external and internal communication.• Organizing, arranging and coordinating meetings.• Make travel arrangements for company staff and visiting clients.• Ordering and stocking office supplies.• Management of office equipment.• Organizing and coordinating library.• Preparing and clearing meeting rooms.• Coordinating food services staff.• Miscellaneous tasks.	<ul style="list-style-type: none">• Meetings• Individual Tasks
Reception	<ul style="list-style-type: none">• Welcoming and directing visitors, clients, and potential employees to the appropriate areas within the office.• Answering and referring inquiries.• Maintains employee and department directories.• Monitors visitor logbook and issues visitor badges.	<ul style="list-style-type: none">• Individual Tasks

BEHAVIOURAL NEEDS	NUMBER OF USERS
<ul style="list-style-type: none"> • On-site meetings – formal and informal meeting spaces • Off-site meetings – spaces that accommodate video conferencing • Presentations - formal spaces with acoustic and visual privacy for confidentiality and reduced distractions • Individual tasks – unassigned workstations within the operations department when proximity to other operations department staff is necessary • Individual tasks – informal workspaces throughout the office • Teamwork – formal and informal spaces that accommodate collaboration 	15
<ul style="list-style-type: none"> • Meetings - formal and informal meeting spaces • Presentations – classroom/seminar space for presentations to new and current employees • Interviews - formal spaces with acoustic and visual privacy for confidentiality • Individual tasks – unassigned workstations within the operations department when proximity to other operations department staff is necessary • Individual tasks – informal workspaces throughout the office • Teamwork – formal and informal spaces that accommodate collaboration 	6
<ul style="list-style-type: none"> • Meetings - formal and informal meeting spaces • Individual tasks – unassigned workstations within the operations department when proximity to other operations department staff is necessary • Individual tasks – informal workspaces throughout the office • Individual tasks – access to service rooms and storage rooms to retrieve supplies and stock for required tasks 	6
<ul style="list-style-type: none"> • Individual tasks – assigned workstation at the reception desk • Individual tasks – proximity to filing room • Individual tasks – proximity to security staff 	2

DESIGN PROGRAMME

USER/ROLE	DESCRIPTION	ACTIVITIES
Security	<ul style="list-style-type: none"> • Maintain and update all employee clearances. • Issue employee and visitor clearance badges. • Conduct preliminary background checks for potential employees. • Brief and train employees regarding security protocol. • Monitor and review access records for high-security spaces within the office. 	<ul style="list-style-type: none"> • Individual Tasks • Presentations
Mail Clerk	<ul style="list-style-type: none"> • Sorting and distributing incoming mail by department, location and category. • Keeping records of sent and received mail. • Preparing envelopes and packages. • Track mailroom supplies. 	<ul style="list-style-type: none"> • Individual Tasks
Training	<ul style="list-style-type: none"> • Mapping out training plans, designing and developing training programs. • Choosing appropriate training methods per case, may include simulations, mentoring, on the job training, professional development classes etc. • Marketing available training opportunities to employees and providing necessary information. • Coordinating and conducting training sessions for new and existing employees. 	<ul style="list-style-type: none"> • Meetings • Individual Tasks • Training
Support/Customer Service	<ul style="list-style-type: none"> • Resolves product or service problems. • Attracts potential customers by answering product and service questions • Maintains customer records. • Maintains financial accounts by processes customer adjustments. 	<ul style="list-style-type: none"> • Meetings • Individual Tasks • Training
Facilities Manager	<ul style="list-style-type: none"> • Responsible for building maintenance, cleaning, catering and vending, health and safety, security, space management, and utilities and communications infrastructure. • Planning for future development in line with strategic business objectives. • Managing and leading change to ensure minimum disruption to core activities. 	<ul style="list-style-type: none"> • Meetings • Individual Tasks

BEHAVIOURAL NEEDS	NUMBER OF USERS
<ul style="list-style-type: none"> • Individual tasks – assigned workstation in the security office • Individual tasks – proximity to filing room • Presentations – classroom/seminar space for presentations to new and current employees 	2
<ul style="list-style-type: none"> • Individual tasks – assigned workstation in the mail room 	1
<ul style="list-style-type: none"> • Meetings - formal and informal meeting spaces • Individual tasks – unassigned workstations within the operations department when proximity to other operations department staff is necessary • Individual tasks – informal workspaces throughout the office • Training - classroom/seminar space for training sessions 	6
<ul style="list-style-type: none"> • Meetings - formal and informal meeting spaces • Individual tasks – unassigned workstations within the support/customer service department • Training - classroom/seminar space for training sessions 	40
<ul style="list-style-type: none"> • Meetings - formal and informal meeting spaces • Individual tasks – unassigned workstations within the operations department when proximity to other operations department staff is necessary • Individual tasks – informal workspaces throughout the office 	2

DESIGN PROGRAMME

USER/ROLE	DESCRIPTION	ACTIVITIES
VP Engineering	<ul style="list-style-type: none">• Directly supervises the day-to-day operations of the engineering department which includes product development, quality assurance, user experience, product management, and product planning.• Reports to CTO.	<ul style="list-style-type: none">• Meeting with executives• Meeting with engineering department staff• Reviewing reports• Individual tasks• Teamwork
Product Engineer	<ul style="list-style-type: none">• Work with product management in defining the product vision.• Evolve the existing software system applications and architecture.• Design, develop and manage new product ideas.• Develops software solutions by studying information needs, conferring with users, studying systems flow, data usage, and work processes, investigating problem areas, following the software development lifecycle.	<ul style="list-style-type: none">• Meetings• Individual Tasks• Teamwork
Quality Assurance Engineer	<ul style="list-style-type: none">• Monitors every phase of the software development process to ensure design quality, making sure that the software adheres to the standards set by the company.• Make sure products work before they are released to clients.• Developing and implementing upgrades and fixes for existing products.	<ul style="list-style-type: none">• Meetings• Individual Tasks• Teamwork
User Experience Designer	<ul style="list-style-type: none">• Translate concepts into wireframes and mockups that lead to intuitive user experience.• Facilitates clients' product visions by researching, conceiving, and mocking up user experiences for digital products.• Identify design problems and devise elegant solutions.• Collaborate with other team members and stakeholders.	<ul style="list-style-type: none">• Meetings• Individual Tasks• Teamwork

BEHAVIOURAL NEEDS**NUMBER OF USERS**

-
- Meeting with executives – formal spaces with acoustic and visual privacy for confidentiality and reduced distractions 1
 - Meeting with staff – formal and informal meeting spaces
 - Reviewing reports - spaces with acoustic and visual privacy for confidentiality and reduced distractions
 - Individual tasks – assigned workstation within the engineering department due to the high quantity of information possessed
 - Teamwork – formal and informal spaces that accommodate collaboration
-

- Meetings - formal and informal meeting spaces 40
 - Individual tasks – unassigned workstations within the engineering department when proximity to other engineering department staff is necessary
 - Individual tasks – informal workspaces throughout the office
 - Teamwork – formal and informal spaces that accommodate collaboration
-

- Meetings - formal and informal meeting spaces 10
 - Individual tasks – unassigned workstations within the engineering department when proximity to other engineering department staff is necessary
 - Individual tasks – informal workspaces throughout the office
 - Teamwork – formal and informal spaces that accommodate collaboration
-

- Meetings - formal and informal meeting spaces 10
 - Individual tasks – unassigned workstations within the engineering department when proximity to other engineering department staff is necessary
 - Individual tasks – informal workspaces throughout the office
 - Teamwork – formal and informal spaces that accommodate collaboration
-

DESIGN PROGRAMME

USER/ROLE	DESCRIPTION	ACTIVITIES
Product Management	<ul style="list-style-type: none">• Determines customers' needs and desires by specifying the research needed to obtain market information.• Recommends the nature and scope of present and future products, appraising new product ideas.• Works with sales team to develop product sales strategies.	<ul style="list-style-type: none">• Meetings• Individual Tasks• Teamwork
Product Planner/ Research Analyst	<ul style="list-style-type: none">• Coordinating production workflow for one or multiple products.• Research markets to determine interest and demand in particular products.• Analyzes statistical data about trends, demographics, and buying habits from sources such as market studies, literature reviews, and focus groups.• Projecting costs, demand, and revenue for potential products.	<ul style="list-style-type: none">• Meetings• Individual Tasks• Teamwork
VP Marketing & Design	<ul style="list-style-type: none">• Directly supervises the day-to-day operations of the marketing and design department which includes corporate marketing, marketing communications, product marketing, and graphic/web/UX design.• Reports to CMO.	<ul style="list-style-type: none">• Meeting with executives• Meeting with marketing department staff• Reviewing reports• Individual tasks• Teamwork
Corporate Marketing	<ul style="list-style-type: none">• Determining how to reach the company's desired customers and deciding what kinds of advertising and messaging tactics will appeal to them.• Build and manage the company's social media profiles and presence.• Monitor and engage in relevant social discussions about the company.• Connect with influential media outlets and journalists to place stories about company news and other initiatives.• Assist with event planning.	<ul style="list-style-type: none">• Meetings• Individual Tasks• Teamwork

BEHAVIOURAL NEEDS**NUMBER OF USERS**

<ul style="list-style-type: none"> • Meetings - formal and informal meeting spaces • Individual tasks – unassigned workstations within the engineering department when proximity to other engineering department staff is necessary • Individual tasks – informal workspaces throughout the office • Teamwork – formal and informal spaces that accommodate collaboration 	15
<ul style="list-style-type: none"> • Meetings - formal and informal meeting spaces • Individual tasks – unassigned workstations within the engineering department when proximity to other engineering department staff is necessary • Individual tasks – informal workspaces throughout the office • Teamwork – formal and informal spaces that accommodate collaboration 	10
<ul style="list-style-type: none"> • Meeting with executives – formal spaces with acoustic and visual privacy for confidentiality and reduced distractions • Meeting with staff – formal and informal meeting spaces • Reviewing reports - spaces with acoustic and visual privacy for confidentiality and reduced distractions • Individual tasks – assigned workstation within the marketing and design department due to the high quantity of information possessed • Teamwork – formal and informal spaces that accommodate collaboration 	1
<ul style="list-style-type: none"> • Meetings - formal and informal meeting spaces • Individual tasks – unassigned workstations within the marketing and design department when proximity to other marketing and design department staff is necessary • Individual tasks – informal workspaces throughout the office • Teamwork – formal and informal spaces that accommodate collaboration 	4

DESIGN PROGRAMME

USER/ROLE	DESCRIPTION	ACTIVITIES
Marketing Communications	<ul style="list-style-type: none"> Creates communications programs that effectively describe and promote the organization and its products including graphics, brochures, company and product fact sheets, logos, or other promotional products. Research and develop content for publication. Prepare presentations geared towards employees. 	<ul style="list-style-type: none"> Meetings Individual Tasks Teamwork
Product Marketing	<ul style="list-style-type: none"> Develop product positioning and messaging that differentiates your products in the market. Communicate the value proposition of the products to the sales team and develop the sales tools that support the selling process of products. Develop the strategy and manage the marketing programs that drive demand for the company's products. 	<ul style="list-style-type: none"> Meetings Individual Tasks Teamwork
Graphic/Web/UX Design	<ul style="list-style-type: none"> Collaborate with clients, product engineers, and user experience designers to create the visual interface of the company's products. Help bring new ideas for design and content creation to the team using their expertise and eye for great design. Develop and implement front-end web code and design standards for writing clean, semantic code. Mockup revamped or brand new site pages and product interfaces and present to senior management. 	<ul style="list-style-type: none"> Meetings Individual Tasks Teamwork
VP Business Management	<ul style="list-style-type: none"> Directly supervises the day-to-day operations of the business management department which includes accounting/finance/invoicing, payroll, and legal services Reports to CFO 	<ul style="list-style-type: none"> Meeting with executives Meeting with business management department staff Reviewing reports Individual tasks Teamwork

BEHAVIOURAL NEEDS**NUMBER OF USERS**

<ul style="list-style-type: none"> • Meetings - formal and informal meeting spaces • Individual tasks – unassigned workstations within the marketing and design department when proximity to other marketing and design department staff is necessary • Individual tasks – informal workspaces throughout the office • Teamwork – formal and informal spaces that accommodate collaboration 	10
<ul style="list-style-type: none"> • Meetings - formal and informal meeting spaces • Individual tasks – unassigned workstations within the marketing and design department when proximity to other marketing and design department staff is necessary • Individual tasks – informal workspaces throughout the office • Teamwork – formal and informal spaces that accommodate collaboration 	6
<ul style="list-style-type: none"> • Meetings - formal and informal meeting spaces • Individual tasks – unassigned workstations within the marketing and design department when proximity to other marketing and design department staff is necessary • Individual tasks – informal workspaces throughout the office • Teamwork – formal and informal spaces that accommodate collaboration 	60
<ul style="list-style-type: none"> • Meeting with executives – formal spaces with acoustic and visual privacy for confidentiality and reduced distractions • Meeting with staff – formal and informal meeting spaces • Reviewing reports - spaces with acoustic and visual privacy for confidentiality and reduced distractions • Individual tasks – assigned workstation within the business management department due to the high quantity of information possessed • Teamwork – formal and informal spaces that accommodate collaboration 	1

DESIGN PROGRAMME

USER/ROLE	DESCRIPTION	ACTIVITIES
Accounting/Finance/ Invoicing	<ul style="list-style-type: none"> • Month and end-year reports, accounts payable/receivable, cash receipts, general ledger, utilities, treasure, budgeting, cash forecasting, revenue and expenditure variance analysis, capital assets reconciliations, check runs • Monitor and analyze accounting data and produce financial reports and statements. • Enforce proper accounting methods, policies and principles • Coordinate and complete annual audits 	<ul style="list-style-type: none"> • Meetings • Individual Tasks
Payroll Clerk	<ul style="list-style-type: none"> • Collecting timekeeping information, incorporating a variety of deductions into a payroll period, and issuing pay and pay-related information to employees. • Process garnishment requests, employee advances and paybacks • Calculate and deposit payroll taxes, employment verifications, and issue annual tax forms to employees. 	<ul style="list-style-type: none"> • Meetings • Individual Tasks
Legal Services	<ul style="list-style-type: none"> • Ensures the legality of commercial transactions • Develops company policy and position on legal issues. • Researching, anticipating and guarding the company against legal risks. • Represents the company in legal proceedings. • Drafts and administers all contracts. • Negotiates deals and attends company meetings. 	<ul style="list-style-type: none"> • Meetings • Individual Tasks
IT Procurement	<ul style="list-style-type: none"> • Negotiate with external IT equipment vendors to secure advantageous terms. • Approve the ordering of all necessary IT equipment • Track and report key functional metrics to reduce expenses and improve effectiveness. 	<ul style="list-style-type: none"> • Meetings (on-site) • Meetings (off-site) • Individual Tasks
Technology Support/ Repair	<ul style="list-style-type: none"> • Installing and configuring computer hardware operating systems and applications • Monitoring and maintaining computer systems and networks • Talking staff through problems to help set up systems or resolve issues. • Replacing parts as required. 	<ul style="list-style-type: none"> • Meetings • Individual Tasks

BEHAVIOURAL NEEDS**NUMBER OF USERS**

- Meetings - formal and informal meeting spaces
- Individual tasks – assigned workstation within the business management department due to the high quantity of confidential information possessed

6

-
- Meetings - formal and informal meeting spaces
 - Individual tasks – assigned workstation within the business management department due to the high quantity of confidential information possessed

3

-
- Meetings - formal and informal meeting spaces
 - Individual tasks – assigned workstation within the business management department due to the high quantity of confidential information possessed

3

-
- On-site meetings – formal and informal meeting spaces
 - Off-site meetings – spaces that accommodate video conferencing
 - Individual tasks – unassigned workstations within the information technology department
 - Individual tasks – informal workspaces throughout the office

2

-
- Meetings - formal and informal meeting spaces
 - Individual tasks – assigned workstation at the IT Walk-Up desk.
-

2

DESIGN PROGRAMME

USER/ROLE	DESCRIPTION	ACTIVITIES
IT Architecture	<ul style="list-style-type: none">• Design and maintain computer networks.• Advising on technical solutions and the alignment of business and technology• Preparing and distributing architectural vision, goals, standards, and structure.• Identifying technical risks and problems.• Monitoring conformance to design standards	<ul style="list-style-type: none">• Meetings• Individual Tasks• Teamwork
Business Intelligence Analyst	<ul style="list-style-type: none">• Analyze technology trends to identify markets for future product development or to improve sales of existing products.• Designing data analysis and reporting solutions• Analysing data from internal and external sources	<ul style="list-style-type: none">• Meetings• Individual Tasks• Teamwork
Systems Analyst	<ul style="list-style-type: none">• Investigate and analyse business problems and design information systems that provide solutions	<ul style="list-style-type: none">• Meetings• Individual Tasks• Teamwork
Network Engineer	<ul style="list-style-type: none">• Monitoring network engineering performance and ensuring availability and reliability.• Configuring and installing network devices and services.• Performing network maintenance and system upgrades	<ul style="list-style-type: none">• Meetings• Individual Tasks• Teamwork
Total		

BEHAVIOURAL NEEDS**NUMBER OF USERS**

<ul style="list-style-type: none"> • Meetings - formal and informal meeting spaces • Individual tasks – unassigned workstations within the information technology department • Individual tasks – informal workspaces throughout the office • Teamwork – formal and informal spaces that accommodate collaboration 	2
<ul style="list-style-type: none"> • Meetings - formal and informal meeting spaces • Individual tasks – unassigned workstations within the information technology department • Individual tasks – informal workspaces throughout the office • Teamwork – formal and informal spaces that accommodate collaboration 	6
<ul style="list-style-type: none"> • Meetings - formal and informal meeting spaces • Individual tasks – unassigned workstations within the information technology department • Individual tasks – informal workspaces throughout the office • Teamwork – formal and informal spaces that accommodate collaboration 	4
<ul style="list-style-type: none"> • Meetings - formal and informal meeting spaces • Individual tasks – unassigned workstations within the information technology department • Individual tasks – informal workspaces throughout the office • Teamwork – formal and informal spaces that accommodate collaboration 	4
	307

7.3.2 Secondary Users

Table 10. Secondary user profiles

USER	DESCRIPTION	ACTIVITIES	BEHAVIOURAL NEEDS
Clients	<ul style="list-style-type: none"> Companies who are currently using MarkIT's products and services. 	<ul style="list-style-type: none"> Meetings Presentations Training 	<ul style="list-style-type: none"> Meetings and presentations - formal meeting spaces with acoustic and visual privacy for confidentiality and reduced distractions Presentations – product demonstration space Training - classroom/seminar space for training sessions
Potential Clients	<ul style="list-style-type: none"> Companies who are considering using MarkIT's products and services 	<ul style="list-style-type: none"> Meetings Presentations 	<ul style="list-style-type: none"> Meetings and presentations - formal meeting spaces with acoustic and visual privacy for confidentiality and reduced distractions Presentations – product demonstration space
Potential Employees	<ul style="list-style-type: none"> Job applicants who wish to be employed by MarkIT. 	<ul style="list-style-type: none"> Interview 	<ul style="list-style-type: none"> Interview - formal spaces with acoustic and visual privacy for confidentiality and reduced distractions
Public	<ul style="list-style-type: none"> Members of the general public who are visiting MarkIT's office for an event. 	<ul style="list-style-type: none"> Attending events 	<ul style="list-style-type: none"> Attending events – spaces that accommodate various types of social and cultural events

7.3.3 Tertiary Users

Table 11. Tertiary User Profiles

USER	DESCRIPTION	ACTIVITIES	BEHAVIOURAL NEEDS
Kitchen Staff	<ul style="list-style-type: none"> Prepare meals and snacks for MarkIT's employees 	<ul style="list-style-type: none"> Cooking 	<ul style="list-style-type: none"> A commercial kitchen Food storage Servery
Maintenance Personnel	<ul style="list-style-type: none"> General cleaning and maintenance of MarkIT's office. 	<ul style="list-style-type: none"> Cleaning 	<ul style="list-style-type: none"> Access to maintenance rooms and entire office Access to service elevator
Delivery Personnel Equipment	<ul style="list-style-type: none"> Delivering and picking up mail items. 	<ul style="list-style-type: none"> Delivering 	<ul style="list-style-type: none"> Access to mail room Access to service elevator
Maintenance Personnel	<ul style="list-style-type: none"> Maintaining and repairing equipment. 	<ul style="list-style-type: none"> Maintenance & Repairing 	<ul style="list-style-type: none"> Access to maintenance rooms Access to service elevator

7.4 Spatial Requirements

This section lists each of the spaces that are included in the proposed design and provides information regarding maximum

occupancy, square footage, furniture, fixtures, equipment, electrical and technological requirements, colour and material requirements,

7.4.1 Level 3

Table 12. Level 3 spatial requirements

ACTIVITY/SPACE	DESCRIPTION	MAX. OCCUPANTS	TOTAL AREA	FURNITURE/FIXTURES/EQUIPMENT
Elevator Landing	<ul style="list-style-type: none"> Space where building occupants and visitors get on and off the elevator Where visitors are received for special events 		380 SF	<ul style="list-style-type: none"> Planters Retractable reception desk for events
Coat Room	<ul style="list-style-type: none"> Storage for employee and visitors' coats and personal items 		300 SF	<ul style="list-style-type: none"> Open storage for coats Lockable storage for personal items Bench seating Recycling and waste receptacles
Lounge	<ul style="list-style-type: none"> An open common area for socializing Work/touchdown space for individual and group work that does not require high levels of concentration or privacy 	20	620 SF	<ul style="list-style-type: none"> Lounge seating Occasional tables Stackable chairs Work-height tables Planters Recycling and waste receptacles Gallery-type ceiling tracks for hanging art

and atmospheric qualities. The spatial requirements for the proposed design have been synthesised from the literature review

and precedent studies to produce a workplace that is uniquely suited to the values and characteristics of Generation Z.

ELECTRICAL/TECHNOLOGY REQUIREMENTS

- Large format digital display

COLOUR/MATERIAL REQUIREMENTS

- Durable and easily cleanable flooring material
- Accent colour references client’s logo

ATMOSPHERIC QUALITIES

- Bright
- Welcoming
- Open
- Clean
- Access to views

- Durable and easily cleanable flooring material
- Durable surfaces
- Neutral colours

- Bright
- Clean
- Secure

- Work-height tables are power-ready
- Mobile power hubs
- Track lighting

- Sound-absorbent flooring material
- Durable upholstery
- Durable surface materials
- Bright accent colours

- Bright
- Welcoming
- Open
- Energetic
- Access to views

DESIGN PROGRAMME

ACTIVITY/SPACE	DESCRIPTION	MAX. OCCUPANTS	TOTAL AREA	FURNITURE/FIXTURES/EQUIPMENT
Community Space	<ul style="list-style-type: none"> Multipurpose space for hosting events and exhibitions Multipurpose space for creative activities such as painting, drawing, and making crafts 	20	760 SF	<ul style="list-style-type: none"> Built-in storage for equipment and supplies Mobile storage for supplies Stackable chairs Work-height tables Faucet Sink Recycling and waste receptacles Gallery-type ceiling tracks for hanging art Operable partitions
Activity Lounge + Bar	<ul style="list-style-type: none"> A common area for socializing and playing games Place where employees can access refreshments and snacks Kitchen is equipped for catering functions 	22	1,730 SF	<ul style="list-style-type: none"> Lounge seating Occasional tables Booth seating with tables Counter-height stools Pool table Foosball table Arcade games Refrigerator 5 x under-counter refrigerator Faucet Sink Dishwasher Food warming trays Storage for glassware Typical beverage bar equipment Composting, waste, and recycling receptacles

ELECTRICAL/TECHNOLOGY REQUIREMENTS

- Retractable projection screen
- Projector
- Track lighting

COLOUR/MATERIAL REQUIREMENTS

- Durable and easily cleanable flooring material
- Durable surfaces
-

ATMOSPHERIC QUALITIES

- Bright
- Clean
- Organized

-
- Television monitors
 - Speakers

- Sound-absorbent flooring material
- Durable upholstery
- Durable surfaces
- Bright accent colours

- Welcoming
 - Intimate
 - Energetic
 - Access to views
-

DESIGN PROGRAMME

ACTIVITY/SPACE	DESCRIPTION	MAX. OCCUPANTS	TOTAL AREA	FURNITURE/FIXTURES/EQUIPMENT
Bicycle Storage	<ul style="list-style-type: none">A space for storing bicycles		335 SF	<ul style="list-style-type: none">Bicycle storage racksEquipment for fixing and maintaining bicyclesBench seatingWaste receptacles
Work Booths	<ul style="list-style-type: none">Work/touchdown space for individual and group work that does not require high levels of concentration or privacy	12	100 SF	<ul style="list-style-type: none">Booth seatingWork-height tablesPlanter
Filing Room	<ul style="list-style-type: none">Secure storage for files that are confidential or are not regularly access		150 SF	<ul style="list-style-type: none">High-density storage systemRecycling receptacle
Copy Room	<ul style="list-style-type: none">Making photocopies and printing documents		70 SF	<ul style="list-style-type: none">Recycling receptacleStorage for paper products and ink cartridges
Office Supplies	<ul style="list-style-type: none">Space where employees can access office supplies		190 SF	<ul style="list-style-type: none">Shelving for office suppliesWaste receptacle

ELECTRICAL/TECHNOLOGY REQUIREMENTS**COLOUR/MATERIAL REQUIREMENTS****ATMOSPHERIC QUALITIES**

- Button-activated door opener

- Durable and easily cleanable flooring material
- Durable surfaces

- Clean
- Organized

- Work-height tables are power-ready

- Durable upholstery
- Durable surfaces

- Welcoming

- Secure entry with access card reader
- Paper shredder

- Durable surfaces

- Secure

- Print/copy machines
- Paper shredder

- Durable surfaces

- Clean
- Organized

- Durable surfaces

- Clean
- Organized

DESIGN PROGRAMME

ACTIVITY/SPACE	DESCRIPTION	MAX. OCCUPANTS	TOTAL AREA	FURNITURE/FIXTURES/EQUIPMENT
Medium Meeting Room	<ul style="list-style-type: none"> Supports private meetings, conference calls, and group work sessions for up to 4 people 	4	150 SF	<ul style="list-style-type: none"> 66" x 60" D-shape stool-height table with attached totem 4 x ergonomic collaborative stool Recycling receptacle Writable wall surface
Small Meeting Room	<ul style="list-style-type: none"> Supports private meetings, conference calls, and mentoring sessions for 2 people 	2	90 SF	<ul style="list-style-type: none"> 48" x 48" D-shape desk-height table with attached totem 2 x ergonomic task chair Recycling receptacle Writable wall surface
Respite Room x 2	<ul style="list-style-type: none"> A private space for short naps, breaks, or reflection 	1 x 2	140	<ul style="list-style-type: none"> Twin size bed Occasional table Lounge chair with headrest Adjustable task lamp
Treadmill Desk Zone	<ul style="list-style-type: none"> A space for getting physical activity while working 	4	230 SF	<ul style="list-style-type: none"> 4 x treadmill desks with work surfaces

ELECTRICAL/TECHNOLOGY REQUIREMENTS	COLOUR/MATERIAL REQUIREMENTS	ATMOSPHERIC QUALITIES
<ul style="list-style-type: none"> • Totem-mounted monitor shroud • 2 x 42” shroud-mounted monitors • Shroud-mounted high definition video camera for video conferencing • Table has built-in laptop-to-monitor screen sharing technology • Table is power-ready • Electronic room scheduling system 	<ul style="list-style-type: none"> • Sound-absorbent flooring and ceiling materials • Durable surfaces and upholstery 	<ul style="list-style-type: none"> • Welcoming • Comfortable
<ul style="list-style-type: none"> • Totem-mounted monitor shroud • 1 x 42” shroud-mounted monitor • Shroud-mounted high definition video camera for video conferencing • Table has built-in laptop-to-monitor screen sharing technology • Table is power-ready • Electronic room scheduling system 	<ul style="list-style-type: none"> • Sound-absorbent flooring and ceiling materials • Durable surfaces and upholstery 	<ul style="list-style-type: none"> • Welcoming • Comfortable
<ul style="list-style-type: none"> • Table is power-ready • Electronic room scheduling system 	<ul style="list-style-type: none"> • Soft, durable materials 	<ul style="list-style-type: none"> • Quiet • Calm • Relaxing • Secure • Private
<ul style="list-style-type: none"> • Work surfaces are power-ready 	<ul style="list-style-type: none"> • Durable surfaces • Sound-absorbent wall and flooring materials 	<ul style="list-style-type: none"> • Open • Welcoming

DESIGN PROGRAMME

ACTIVITY/SPACE	DESCRIPTION	MAX. OCCUPANTS	TOTAL AREA	FURNITURE/FIXTURES/EQUIPMENT
Maintenance Room	<ul style="list-style-type: none"> Storage for cleaning supplies and equipment 		130 SF	<ul style="list-style-type: none"> Mop sink Shelving for storing cleaning supplies
Men's W/C	<ul style="list-style-type: none"> Provide washroom facilities for occupants 	6	400 SF	<ul style="list-style-type: none"> 2 x urinal 3 x standard water closet stall 1 x universal water closet stall 4 x lavatory 4 x soap dispenser 2 x electrical hand dryer 1 x paper tower dispenser with waste receptacle Mirrors Bench Surface for placing personal items
Women's W/C	<ul style="list-style-type: none"> Provide washroom facilities for occupants 	6	400 SF	<ul style="list-style-type: none"> 5 x standard water closet stall 1 x universal water closet stall 4 x lavatory 4 x soap dispenser 2 x electrical hand dryer 1 x paper tower dispenser with waste receptacle Mirrors Bench Surface for placing personal items

ELECTRICAL/TECHNOLOGY REQUIREMENTS**COLOUR/MATERIAL REQUIREMENTS****ATMOSPHERIC QUALITIES**

	<ul style="list-style-type: none"> • Durable surfaces 	<ul style="list-style-type: none"> • Organized • Clean
<ul style="list-style-type: none"> • Faucets, soap dispensers, hand dryers, and towel dispensers are automatic • Button-activated door opener 	<ul style="list-style-type: none"> • Durable and easily cleanable surfaces • Antibacterial paints and finishes • Neutral colours 	<ul style="list-style-type: none"> • Bright • Clean • Private

<ul style="list-style-type: none"> • Faucets, soap dispensers, hand dryers, and towel dispensers are automatic • Button-activated door opener 	<ul style="list-style-type: none"> • Durable and easily cleanable surfaces • Antibacterial paints and finishes • Neutral colours 	<ul style="list-style-type: none"> • Bright • Clean • Private
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DESIGN PROGRAMME

ACTIVITY/SPACE	DESCRIPTION	MAX. OCCUPANTS	TOTAL AREA	FURNITURE/FIXTURES/EQUIPMENT
Break Area	<ul style="list-style-type: none"> Common space for socializing, taking breaks, or working Place where employees can access refreshments and snacks 	10	415 SF	<ul style="list-style-type: none"> Faucet Sink Refrigerator 5 x under counter refrigerator Microwave Storage for utensils, glassware etc. Waste, recycling, and compost receptacles 96" x 48" bar-height table 6 x bar stools Lounge seating Occasional tables
Work Lounge	<ul style="list-style-type: none"> Common work/ touchdown space for individual work with a variety of privacy levels 	10	1,040 SF	<ul style="list-style-type: none"> 6 x lounge chairs 6 x adjustable floor lamp Occasional tables 4 x privacy lounge pod with reclining seat, footrest, work surface, and storage Planters Side tables with storage for reading material
Medium Conference Room	<ul style="list-style-type: none"> Supports private meetings and conference calls in a formal setting for up to 8 people 	8	375 SF	<ul style="list-style-type: none"> 120" x 60" conference table 6 x ergonomic task chair Storage for supplies Recycling receptacle Writable wall surface

ELECTRICAL/TECHNOLOGY REQUIREMENTS

- Bar-height table is power-ready
- Movable power hubs for lounge seating

COLOUR/MATERIAL REQUIREMENTS

- Durable and easily cleanable surfaces and upholstery
- Durable and easily cleanable flooring material
- Bright accent colours

ATMOSPHERIC QUALITIES

- Bright
- Clean
- Open
- Welcoming
- Calm

- 6 x movable power hub for lounge chairs
- Privacy lounge pods are power ready
- Privacy lounge pods have task lamps

- Durable and easily cleanable surfaces and upholstery
- Sound absorbent flooring material
- Bright accent colours

- Bright
- Welcoming
- Calm

- Wall-mounted monitor shroud
- 2 x 65" shroud-mounted monitors
- Shroud-mounted high definition video camera for video conferencing
- Wireless laptop-to-monitor screen sharing technology
- Conference table is power-ready
- Electronic room scheduling system

- Sound-absorbent flooring and ceiling materials
- Durable surfaces and upholstery

- Formal
- Welcoming
- Access to views
- Private

DESIGN PROGRAMME

ACTIVITY/SPACE	DESCRIPTION	MAX. OCCUPANTS	TOTAL AREA	FURNITURE/FIXTURES/EQUIPMENT
Design Neighbourhood	<ul style="list-style-type: none"> Supports individual and collaborative work 	32	2,880 SF	<ul style="list-style-type: none"> 32 x 58" x 29" height-adjustable desk 32 x ergonomic task chair 32 x under-table storage caddy 30" high fabric divider panels with 18" glass screen dividers mounted on top Filing cabinets Waste and recycling receptacles Writable wall surfaces Lounge seating Occasional tables Mobile active seating 2 x 1 person phone booth (lounge chair with work surface, bench, and task light) 2 x 3 person phone booth (lounge seating, occasional table, wall-mounted monitor) Planters
Customer Support Neighbourhood	<ul style="list-style-type: none"> Supports individual and collaborative work 	40	2,400 SF	<ul style="list-style-type: none"> 40 x 58" x 29" height-adjustable desk 32 x ergonomic task chair 32 x under-table storage caddy 30" high fabric divider panels with 18" glass screen dividers mounted on top Desk-mounted fabric divider screens Filing cabinets Waste and recycling receptacles Writable wall surfaces Lounge seating Occasional table 1 x 1 person phone booth (lounge chair with work surface, bench, and task light) Planters

ELECTRICAL/TECHNOLOGY REQUIREMENTS

- Height-adjustable desks are power- and data-ready
- Height-adjustable desks have attached adjustable monitor
- Occasional tables are power-ready

COLOUR/MATERIAL REQUIREMENTS

- Durable and easily cleanable surfaces and upholstery
- Sound-absorbent flooring and ceiling materials

ATMOSPHERIC QUALITIES

- Bright
- Open
- Welcoming
- Organized
- Access to views
- Comfortable

-
- Height-adjustable desks are power- and data-ready
 - Height-adjustable desks have attached adjustable monitor
 - Occasional tables are power-ready

- Durable and easily cleanable surfaces and upholstery
- Sound-absorbent flooring and ceiling materials

- Bright
- Welcoming
- Organized
- Access to views
- Comfortable

DESIGN PROGRAMME

ACTIVITY/SPACE	DESCRIPTION	MAX. OCCUPANTS	TOTAL AREA	FURNITURE/FIXTURES/EQUIPMENT
Meditation Room	<ul style="list-style-type: none"> A space for meditation and reflection 	6	310 SF	<ul style="list-style-type: none"> Roll-out floor mats
Fitness Centre	<ul style="list-style-type: none"> A space for maintaining physical well-being by doing physical activities 	12	1,620 SF	<ul style="list-style-type: none"> Weight-lifting equipment Cardiovascular exercise equipment Roll-out mats Exercise balls Mirrors Towel dispensers Water dispenser Waste receptacles Shelves for storing personal items and towels Benches Planters
Men's Changing Room + Showers	<ul style="list-style-type: none"> Provides changing and shower facilities for occupants who use the fitness centre or use active transportation 	3	300 SF	<ul style="list-style-type: none"> Laundry basket for used towels 2 x standard shower room (shower stall, folding seat, shelves) 1 x universal shower room (ADA compliant shower, folding seat, shelves)
Women's Changing Room + Showers	<ul style="list-style-type: none"> Provides changing and shower facilities for occupants who use the fitness centre or use active transportation 	3	300 SF	<ul style="list-style-type: none"> Laundry basket for used towels 2 x standard shower room (shower stall, folding seat, shelves) 1 x universal shower room (ADA compliant shower, folding seat, shelves)

ELECTRICAL/TECHNOLOGY REQUIREMENTS

- Speakers

COLOUR/MATERIAL REQUIREMENTS

- Neutral colours

ATMOSPHERIC QUALITIES

- Calm
- Relaxing
- Private

-
- Speakers
 - Wall-mounted monitors

- Durable and easily cleanable surfaces
- Antibacterial paints and finishes
- Durable flooring material

- Welcoming
- Energetic
- Bright

-
- Durable and easily cleanable surfaces
 - Antibacterial paints and finishes
 - Neutral colours

- Bright
- Clean
- Private

-
- Durable and easily cleanable surfaces
 - Antibacterial paints and finishes
 - Neutral colours

- Bright
 - Clean
 - Private
-

DESIGN PROGRAMME

ACTIVITY/SPACE	DESCRIPTION	MAX. OCCUPANTS	TOTAL AREA	FURNITURE/FIXTURES/EQUIPMENT
Electrical Room	<ul style="list-style-type: none">• Service room for electrical equipment		60 SF	<ul style="list-style-type: none">• Electrical equipment
Utility Room	<ul style="list-style-type: none">• Service room for building utilities		70 SF	<ul style="list-style-type: none">• Utility equipment
Storage Room	<ul style="list-style-type: none">• Storage for furniture, equipment, office supplies		265 SF	<ul style="list-style-type: none">• Shelving
Data Room	<ul style="list-style-type: none">• Service room for data equipment		70 SF	<ul style="list-style-type: none">• Data equipment
Circulation	<ul style="list-style-type: none">• Provides necessary movement between spaces		5,120 SF	<ul style="list-style-type: none">• Way-finding devices• Water dispensers
Total			21,400 SF	

ELECTRICAL/TECHNOLOGY REQUIREMENTS	COLOUR/MATERIAL REQUIREMENTS	ATMOSPHERIC QUALITIES
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- Electrical equipment to be installed to standard specifications
- Secure entry with access card reader

- Durable flooring material

- Secure

- Secure entry with access card reader

- Durable flooring material

- Secure

- Secure entry with access card reader
- Data equipment to be installed to standard specifications

- Durable flooring material

- Secure

- Secure entry with access card reader
- Information display monitors

- Durable flooring material

- Secure

- Durable flooring material
- Some accent colours

- Clean
- Bright

DESIGN PROGRAMME

7.4.2 Level 4

Table 13. Level 4 spatial requirements.

ACTIVITY/SPACE	DESCRIPTION	MAX. OCCUPANTS	TOTAL AREA	FURNITURE/FIXTURES/EQUIPMENT
Elevator Landing	<ul style="list-style-type: none"> Space where building occupants and visitors get on and off the elevator 		245 SF	<ul style="list-style-type: none"> Planters
Café	<ul style="list-style-type: none"> Space for eating and socializing Work/touchdown space for individual and group work that does not require high levels of privacy or concentration 	82	2,040 SF	<ul style="list-style-type: none"> Tables (round, square, and bar-height) Chairs (stackable desk-height and bar-height) Bench seating Waste, recycling, and compost receptacles Beverage vending machine Snack vending machine Planters
Food Service	<ul style="list-style-type: none"> Space where the kitchen staff places prepared food and where employees access it 		380 SF	<ul style="list-style-type: none"> Counter-height surfaces for serving food Storage for food service items (utensils, plates, napkins etc.) Heat lamps
Kitchen	<ul style="list-style-type: none"> Space where the kitchen staff prepares food 		350 SF	<ul style="list-style-type: none"> Commercial stove Commercial oven Commercial dishwasher Sink Faucet Food preparation surfaces Storage shelving

ELECTRICAL/TECHNOLOGY REQUIREMENTS	COLOUR/MATERIAL REQUIREMENTS	ATMOSPHERIC QUALITIES
<ul style="list-style-type: none"> Large format digital display 	<ul style="list-style-type: none"> Durable and easily cleanable flooring material Accent colour references client's logo 	<ul style="list-style-type: none"> Bright Welcoming Open Clean Access to views
	<ul style="list-style-type: none"> Durable and easily cleanable flooring material Sound-absorbent flooring material Durable upholstery and surface materials Accent colour reference client's logo 	<ul style="list-style-type: none"> Bright Welcoming Open Clean Access to views
	<ul style="list-style-type: none"> Durable surfaces Durable and easily cleanable flooring materials Antibacterial paints and finishes 	<ul style="list-style-type: none"> Bright Clean Organized
	<ul style="list-style-type: none"> Durable surfaces Durable and easily cleanable flooring materials Antibacterial paints and finishes 	<ul style="list-style-type: none"> Bright Clean Organized

DESIGN PROGRAMME

ACTIVITY/SPACE	DESCRIPTION	MAX. OCCUPANTS	TOTAL AREA	FURNITURE/FIXTURES/EQUIPMENT
Kitchen Office	<ul style="list-style-type: none"> Private space where the kitchen manager does administrative work 	2	100 SF	<ul style="list-style-type: none"> 29" x 58" height adjustable desk Ergonomic task chair Guest chair Lateral file Storage shelving
Pantry	<ul style="list-style-type: none"> Space for food storage 		220 SF	<ul style="list-style-type: none"> 2 x refrigerator Storage shelving for dry goods and equipment
Cold Storage	<ul style="list-style-type: none"> Refrigerated space for food storage 		90 SF	<ul style="list-style-type: none"> Storage shelving for food
Coat Room	<ul style="list-style-type: none"> Storage for employee and visitors' coats and personal items 		420 SF	<ul style="list-style-type: none"> Open storage for coats Lockable storage for personal items Bench seating Recycling and waste receptacles
Filing Room	<ul style="list-style-type: none"> Secure storage for files that are confidential or are not regularly access 		190 SF	<ul style="list-style-type: none"> High-density storage system Recycling receptacle
Copy Room	<ul style="list-style-type: none"> Making photocopies and printing documents 		60 SF	<ul style="list-style-type: none"> Recycling receptacle Storage for paper products and ink cartridges

ELECTRICAL/TECHNOLOGY REQUIREMENTS	COLOUR/MATERIAL REQUIREMENTS	ATMOSPHERIC QUALITIES
<ul style="list-style-type: none"> • Desk is data- and power-ready • Desk has attached adjustable monitor 	<ul style="list-style-type: none"> • Durable and easily cleanable surfaces and upholstery • Sound-absorbent flooring and ceiling materials 	<ul style="list-style-type: none"> • Bright • Welcoming • Organized • Comfortable
	<ul style="list-style-type: none"> • Durable surfaces • Durable and easily cleanable flooring materials • Antibacterial paints and finishes 	<ul style="list-style-type: none"> • Bright • Clean • Organized
	<ul style="list-style-type: none"> • Durable surfaces • Durable and easily cleanable flooring materials • Antibacterial paints and finishes 	<ul style="list-style-type: none"> • Bright • Clean • Organized
	<ul style="list-style-type: none"> • Durable and easily cleanable flooring material • Durable surfaces • Neutral colours 	<ul style="list-style-type: none"> • Bright • Clean • secure
<ul style="list-style-type: none"> • Secure entry with access card reader • Paper shredder 	<ul style="list-style-type: none"> • Durable surfaces 	<ul style="list-style-type: none"> • Secure
<ul style="list-style-type: none"> • Print/copy machines • Paper shredder 	<ul style="list-style-type: none"> • Durable surfaces 	<ul style="list-style-type: none"> • Clean • Organized

DESIGN PROGRAMME

ACTIVITY/SPACE	DESCRIPTION	MAX. OCCUPANTS	TOTAL AREA	FURNITURE/FIXTURES/EQUIPMENT
Office Supplies	<ul style="list-style-type: none"> Space where employees can access office supplies 		105 SF	<ul style="list-style-type: none"> Shelving for office supplies Waste receptacle
Work Lounge	<ul style="list-style-type: none"> Semi-private work/ touchdown space for group and individual work 	9	500 SF	<ul style="list-style-type: none"> 1 x 4 person meeting pod (2 chairs, 1 bench seat, 1 occasional table) 1 x 2 person meeting pod (2 seats, 1 table) 3 x 1 person pod (seat, work surface) Planters Waste and recycling receptacles
Small Meeting Room	<ul style="list-style-type: none"> Supports private meetings, conference calls, and mentoring sessions for 2 people 	2	120 SF	<ul style="list-style-type: none"> 48" x 48" D-shape desk-height table with attached totem 2 x ergonomic task chair Recycling receptacle Writable wall surface
Medium Meeting Room x 2	<ul style="list-style-type: none"> Supports private meetings, conference calls, and group work sessions for up to 4 people 	4	190 SF	<ul style="list-style-type: none"> 66" x 60" D-shape stool-height table with attached totem 4 x ergonomic collaborative stool Recycling receptacle Writable wall surface

ELECTRICAL/TECHNOLOGY REQUIREMENTS	COLOUR/MATERIAL REQUIREMENTS	ATMOSPHERIC QUALITIES
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	<ul style="list-style-type: none"> • Durable surfaces 	<ul style="list-style-type: none"> • Clean • Organized
<ul style="list-style-type: none"> • All pods are power-ready 	<ul style="list-style-type: none"> • Sound-absorbent flooring material • Durable upholstery • Durable surface materials • Bright accent colours 	<ul style="list-style-type: none"> • Bright • Welcoming • Open • Energetic • Access to views
<ul style="list-style-type: none"> • Totem-mounted monitor shroud • 1 x 42" shroud-mounted monitor • Shroud-mounted high definition video camera for video conferencing • Table has built-in laptop-to-monitor screen sharing technology • Table is power-ready • Electronic room scheduling system 	<ul style="list-style-type: none"> • Sound-absorbent flooring and ceiling materials • Durable surfaces and upholstery 	<ul style="list-style-type: none"> • Welcoming • Comfortable
<ul style="list-style-type: none"> • Totem-mounted monitor shroud • 2 x 42" shroud-mounted monitors • Shroud-mounted high definition video camera for video conferencing • Table has built-in laptop-to-monitor screen sharing technology • Table is power-ready • Electronic room scheduling system 	<ul style="list-style-type: none"> • Sound-absorbent flooring and ceiling materials • Durable surfaces and upholstery 	<ul style="list-style-type: none"> • Welcoming • Comfortable

DESIGN PROGRAMME

ACTIVITY/SPACE	DESCRIPTION	MAX. OCCUPANTS	TOTAL AREA	FURNITURE/FIXTURES/EQUIPMENT
Large Conference Room	<ul style="list-style-type: none"> Supports private meetings and conference calls in a formal setting for up to 8 people 	10	480 SF	<ul style="list-style-type: none"> 168" x 60" conference table 10 x ergonomic task chair Storage for supplies Recycling receptacle Writable wall surface
Engineering Neighbourhood South	<ul style="list-style-type: none"> Supports individual and collaborative work 	16	1,135 SF	<ul style="list-style-type: none"> 16 x 58" x 29" height-adjustable desk 16 x ergonomic task chair 16 x under-table storage caddy 30" high fabric divider panels with 18" glass screen dividers mounted on top Filing cabinets Waste and recycling receptacles Tackable wall surfaces Writable wall surfaces Lounge seating Occasional tables 1 x 1 person phone booth (lounge chair with work surface, bench, and task light) 1 x 3 person phone booth (lounge seating, occasional table, wall-mounted monitor) Planters

ELECTRICAL/TECHNOLOGY REQUIREMENTS

- 2 x Wall-mounted monitor shroud
- 4 x 65" shroud-mounted monitors
- Shroud-mounted high definition video camera for video conferencing
- Wireless laptop-to-monitor screen sharing technology
- Conference table is power-ready
- Electronic room scheduling system

COLOUR/MATERIAL REQUIREMENTS

- Sound-absorbent flooring and ceiling materials
- Durable surfaces and upholstery

ATMOSPHERIC QUALITIES

- Formal
- Welcoming
- Access to views
- Private

- Height-adjustable desks are power- and data-ready
- Height-adjustable desks have attached adjustable monitor
- Occasional table is power-ready

- Durable and easily cleanable surfaces and upholstery
- Sound-absorbent flooring and ceiling materials

- Bright
- Open
- Welcoming
- Organized
- Access to views
- Comfortable

DESIGN PROGRAMME

ACTIVITY/SPACE	DESCRIPTION	MAX. OCCUPANTS	TOTAL AREA	FURNITURE/FIXTURES/EQUIPMENT
Team Room x 4	<ul style="list-style-type: none"> Supports collaborative work for project teams 	8 X 4	2,015 SF	<ul style="list-style-type: none"> 4 x 84" x 30" tables 8 x ergonomic task chairs 4 x high-density storage units Mobile easel with whiteboards and tack boards Waste and recycling receptacles Writable and tackable wall surfaces Planters
Engineering Neighbourhood North	<ul style="list-style-type: none"> Supports individual and collaborative work 	24	1,695 SF	<ul style="list-style-type: none"> 24 x 58" x 29" height-adjustable desk 24 x ergonomic task chair 24 x under-table storage caddy 30" high fabric divider panels with 18" glass screen dividers mounted on top Filing cabinets Waste and recycling receptacles Tackable wall surfaces Writable wall surfaces Lounge seating Occasional tables Mobile active seating 1 x 1 person phone booth (lounge chair with work surface, bench, and task light) 1 x 3 person phone booth (lounge seating, occasional table, wall-mounted monitor) Planters

ELECTRICAL/TECHNOLOGY REQUIREMENTS

- Wall-mounted monitor shroud
- 2 x 65" shroud-mounted monitors
- Wireless laptop-to-monitor screen sharing technology
- Tables are power-ready
- Electronic room scheduling system

COLOUR/MATERIAL REQUIREMENTS

- Durable and easily cleanable surfaces and upholstery
- Sound-absorbent flooring and ceiling materials

ATMOSPHERIC QUALITIES

- Bright
- Welcoming
- Organized
- Access to views
- Comfortable

-
- Height-adjustable desks are power- and data-ready
 - Height-adjustable desks have attached adjustable monitor
 - Occasional tables are power-ready

- Durable and easily cleanable surfaces and upholstery
- Sound-absorbent flooring and ceiling materials

- Bright
 - Open
 - Welcoming
 - Organized
 - Access to views
 - Comfortable
-

DESIGN PROGRAMME

ACTIVITY/SPACE	DESCRIPTION	MAX. OCCUPANTS	TOTAL AREA	FURNITURE/FIXTURES/EQUIPMENT
Large Meeting Room	<ul style="list-style-type: none"> Supports private meetings, conference calls, and group work sessions for up to 8 people 	8	350 SF	<ul style="list-style-type: none"> 2 x 72" x 60" stool-height tables 8 x collaborative stools Recycling receptacle Writable wall surface
Respite Room x 2	<ul style="list-style-type: none"> A private space for short naps, breaks, or reflection 	1 X 2	220 SF	<ul style="list-style-type: none"> Twin size bed Occasional table Lounge chair with headrest Adjustable task lamp
Library	<ul style="list-style-type: none"> Provides access to periodicals, books, and reference materials Private space for individual work that requires high levels of concentration 	11	625 SF	<ul style="list-style-type: none"> Seating (lounge and desk-height) Tables (occasional and desk-height) Storage shelving for reading material planters
Webinar Room	<ul style="list-style-type: none"> Supports group learning activities such as webinars 	10	320 SF	<ul style="list-style-type: none"> Seating (lounge and counter-height) 54" round occasional table)

ELECTRICAL/TECHNOLOGY REQUIREMENTS	COLOUR/MATERIAL REQUIREMENTS	ATMOSPHERIC QUALITIES
<ul style="list-style-type: none"> • 2 x Wall-mounted monitor shroud • 4 x 65" shroud-mounted monitors • Shroud-mounted high definition video camera for video conferencing • Tables have built-in laptop-to-monitor screen sharing technology • Tables are power-ready • Electronic room scheduling system 	<ul style="list-style-type: none"> • Sound-absorbent flooring and ceiling materials • Durable surfaces and upholstery 	<ul style="list-style-type: none"> • Welcoming • Comfortable
<ul style="list-style-type: none"> • Table is power-ready • Electronic room scheduling system 	<ul style="list-style-type: none"> • Soft, durable materials 	<ul style="list-style-type: none"> • Quiet • Calm • Relaxing • Secure • Private
<ul style="list-style-type: none"> • Tables are power-ready 	<ul style="list-style-type: none"> • Durable and easily cleanable surfaces and upholstery • Sound-absorbent flooring and ceiling materials • Neutral colours 	<ul style="list-style-type: none"> • Quiet • Calm • Relaxing • Private
<ul style="list-style-type: none"> • Wall-mounted monitor shroud • x 65" shroud-mounted monitor • Shroud-mounted high definition video camera for video conferencing • Tables have built-in laptop-to-monitor screen sharing technology • Tables are power-ready • Electronic room scheduling system 	<ul style="list-style-type: none"> • Durable and easily cleanable surfaces and upholstery • Sound-absorbent flooring and ceiling materials • Neutral colours 	<ul style="list-style-type: none"> • Quiet • Calm • Relaxing • Private

DESIGN PROGRAMME

ACTIVITY/SPACE	DESCRIPTION	MAX. OCCUPANTS	TOTAL AREA	FURNITURE/FIXTURES/EQUIPMENT
Marketing Neighbourhood	<ul style="list-style-type: none"> Supports individual and collaborative work 	12	1,070 SF	<ul style="list-style-type: none"> 12 x 58" x 29" height-adjustable desk 12 x ergonomic task chair 12 x under-table storage caddy 30" high fabric divider panels with 18" glass screen dividers mounted on top Waste and recycling receptacles Tackable wall surfaces Writable wall surfaces Mobile active seating 1 x 1 person phone booth (lounge chair with work surface, bench, and task light) 1 x 3 person phone booth (lounge seating, occasional table, wall-mounted monitor) Planters Storage for marketing materials
Proofing Room	<ul style="list-style-type: none"> A space for observing printed marketing material under controlled light conditions 		170 SF	<ul style="list-style-type: none"> 144" x 48" work surface Storage shelving 2 x collaborative stool
Printing Room	<ul style="list-style-type: none"> For test-printing small and large format marketing material 		85 SF	<ul style="list-style-type: none"> Printers (1 regular and 1 wide-format) Storage shelving for printing supplies

ELECTRICAL/TECHNOLOGY REQUIREMENTS

- Height-adjustable desks are power- and data-ready
- Height-adjustable desks have attached adjustable monitor

COLOUR/MATERIAL REQUIREMENTS

- Durable and easily cleanable surfaces and upholstery
- Sound-absorbent flooring and ceiling materials

ATMOSPHERIC QUALITIES

- Bright
- Open
- Welcoming
- Organized
- Access to views
- Comfortable

- Colour-adjustable lights
- Secure entry with access card reader

- Durable surfaces

- Clean
- Organized

- Secure entry with access card reader

- Durable surfaces

- Clean
- Organized

DESIGN PROGRAMME

ACTIVITY/SPACE	DESCRIPTION	MAX. OCCUPANTS	TOTAL AREA	FURNITURE/FIXTURES/EQUIPMENT
Men's W/C	<ul style="list-style-type: none"> Provides washroom facilities for occupants 		400 SF	<ul style="list-style-type: none"> 2 x urinal 3 x standard water closet stall 1 x universal water closet stall 4 x lavatory 4 x soap dispenser 2 x electrical hand dryer 1 x paper tower dispenser with waste receptacle Mirrors Bench Surface for placing personal items
Women's W/C	<ul style="list-style-type: none"> Provides washroom facilities for occupants 		400 SF	<ul style="list-style-type: none"> 5 x standard water closet stall 1 x universal water closet stall 4 x lavatory 4 x soap dispenser 2 x electrical hand dryer 1 x paper tower dispenser with waste receptacle Mirrors Bench Surface for placing personal items
Treadmill Desks	<ul style="list-style-type: none"> A space for getting physical activity while working 	4	275 SF	<ul style="list-style-type: none"> 4 x treadmill desks with work surfaces

ELECTRICAL/TECHNOLOGY REQUIREMENTS

- Faucets, soap dispensers, hand dryers, and towel dispensers are automatic
- Button-activated door opener

COLOUR/MATERIAL REQUIREMENTS

- Durable and easily cleanable surfaces
- Antibacterial paints and finishes
- Neutral colours

ATMOSPHERIC QUALITIES

- Bright
- Clean
- Private

- Faucets, soap dispensers, hand dryers, and towel dispensers are automatic
- Button-activated door opener

- Durable and easily cleanable surfaces
- Antibacterial paints and finishes
- Neutral colours

- Bright
- Clean
- Private

- Work surfaces are power-ready

- Durable surfaces
- Sound-absorbent wall and flooring materials

- Open
- Welcoming

DESIGN PROGRAMME

ACTIVITY/SPACE	DESCRIPTION	MAX. OCCUPANTS	TOTAL AREA	FURNITURE/FIXTURES/EQUIPMENT
Break Area + Work Lounge	<ul style="list-style-type: none"> Common space for socializing, taking breaks, or working Place where employees can access refreshments and snacks Work/touchdown space for individual and group work that does not require high levels of privacy or concentration 	18	750 SF	<ul style="list-style-type: none"> Faucet Sink Refrigerator 5 x under counter refrigerator Microwave Storage for utensils, glassware etc. Waste, recycling, and compost receptacles 96" x 48" bar-height table 2 x 96" x 24" bar-height table 12 x bar stools Lounge seating Occasional tables Planters
Electrical Room	<ul style="list-style-type: none"> Service room for electrical equipment 		55 SF	<ul style="list-style-type: none"> Electrical equipment
Circulation	<ul style="list-style-type: none"> Provides necessary movement between spaces 		5,630 SF	<ul style="list-style-type: none"> Way-finding devices Water dispensers
Total Floor Area			20,100 SF	

ELECTRICAL/TECHNOLOGY REQUIREMENTS

- Bar-height tables are power-ready
- Movable power hubs for lounge seating

COLOUR/MATERIAL REQUIREMENTS

- Durable and easily cleanable surfaces and upholstery
- Durable and easily cleanable flooring material
- Bright accent colours

ATMOSPHERIC QUALITIES

- Bright
- Clean
- Open
- Welcoming
- Energetic

- Electrical equipment to be installed to standard specifications
- Secure entry with access card reader

- Durable flooring material

- Secure

- Information display monitors

- Durable flooring material
- Some accent colours

- Clean
- Bright

DESIGN PROGRAMME

7.4.3 Level 5

Table 14. Level 5 spatial requirements.

ACTIVITY/SPACE	DESCRIPTION	MAX. OCCUPANTS	TOTAL AREA	FURNITURE/FIXTURES/EQUIPMENT
Elevator Landing + Reception	<ul style="list-style-type: none"> Space where building occupants and visitors get on and off the elevator Entry area where employees, clients, and potential employees are received 		750	<ul style="list-style-type: none"> Planters Reception desk 2 x ergonomic task chair
Lounge	<ul style="list-style-type: none"> An open common area for socializing Work/touchdown space for individual and group work that does not require high levels of concentration or privacy 		870 SF	<ul style="list-style-type: none"> Lounge seating Occasional tables Stackable chairs Work-height tables Planters Recycling and waste receptacles Gallery-type ceiling tracks for hanging art Water dispenser
Work Lounge	<ul style="list-style-type: none"> Semi-private space for group and individual work 	12	500 SF	<ul style="list-style-type: none"> 1 x 4 person meeting pod (2 chairs, 1 bench seat, 1 occasional table) 1 x 2 person meeting pod (2 seats, 1 table) 3 x 1 person pod (seat, work surface) Planters Waste and recycling receptacles

ELECTRICAL/TECHNOLOGY REQUIREMENTS

- Large format digital display
- Desktop computers
- printer

COLOUR/MATERIAL REQUIREMENTS

- Durable and easily cleanable flooring material
- Accent colour references client's logo

ATMOSPHERIC QUALITIES

- Bright
- Welcoming
- Open
- Clean
- Access to views

- Work-height tables are power-ready
- Mobile power hubs

- Sound-absorbent flooring material
- Durable upholstery
- Durable surface materials
- Bright accent colours

- Bright
- Welcoming
- Open
- Energetic
- Access to views

- All pods are power-ready

- Sound-absorbent flooring material
- Durable upholstery
- Durable surface materials
- Bright accent colours

- Bright
- Welcoming
- Open
- Energetic
- Access to views

DESIGN PROGRAMME

ACTIVITY/SPACE	DESCRIPTION	MAX. OCCUPANTS	TOTAL AREA	FURNITURE/FIXTURES/EQUIPMENT
Large Conference Room	<ul style="list-style-type: none"> Supports private meetings and conference calls in a formal setting for up to 10 people 	10	470 SF	<ul style="list-style-type: none"> 168" x 60" conference table 10 x ergonomic task chair Storage for supplies Recycling receptacle Writable wall surface
Client Conference Room	<ul style="list-style-type: none"> Supports private meetings, presentations, and conference calls in a formal setting for up to 18 people 	18	750 SF	<ul style="list-style-type: none"> 288" x 60" conference table 18 x ergonomic task chair Storage for supplies Recycling receptacle
Product Demonstration Space	<ul style="list-style-type: none"> A space for demonstrating the company's products in a mock-up retail setting. 		400 SF	<ul style="list-style-type: none"> Display units with merchandise Point-of-sale system
Coat + Locker Room	<ul style="list-style-type: none"> Storage for employee and visitors' coats and personal items 		300 SF	<ul style="list-style-type: none"> Open storage for coats Lockable storage for personal items Bench seating Recycling and waste receptacles

ELECTRICAL/TECHNOLOGY REQUIREMENTS	COLOUR/MATERIAL REQUIREMENTS	ATMOSPHERIC QUALITIES
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- 2 x Wall-mounted monitor shroud
- 4 x 65" shroud-mounted monitors
- Shroud-mounted high definition video camera for video conferencing
- Wireless laptop-to-monitor screen sharing technology
- Conference table is power-ready
- Electronic room scheduling system

- Sound-absorbent flooring and ceiling materials
- Durable surfaces and upholstery

- Formal
- Welcoming
- Access to views
- Private

- 2 x Wall-mounted monitor shroud
- 4 x 65" shroud-mounted monitors
- Shroud-mounted high definition video camera for video conferencing
- Wireless laptop-to-monitor screen sharing technology
- Conference table is power-ready
- Electronic room scheduling system

- Sound-absorbent flooring and ceiling materials
- Durable surfaces and upholstery

- Formal
- Welcoming
- Access to views
- Private

- Requirements vary depending on product being demonstrated

- Sound-absorbent flooring material
- Durable surface materials

- Bright
- Welcoming
- Open

- Durable and easily cleanable flooring material
- Durable surfaces
- Neutral colours

- Bright
- Clean
- Secure

DESIGN PROGRAMME

ACTIVITY/SPACE	DESCRIPTION	MAX. OCCUPANTS	TOTAL AREA	FURNITURE/FIXTURES/EQUIPMENT
Security Office	<ul style="list-style-type: none"> Where employees and visitors receive security clearance badges Work space for security staff 	3	200 SF	<ul style="list-style-type: none"> 2 x 30" x 60" height-adjustable desk 2 x ergonomic task chair 1 x guest chair Lateral files Waste receptacle Storage shelving
Filing Room	<ul style="list-style-type: none"> Secure storage for files that are confidential or are not regularly access 		150 SF	<ul style="list-style-type: none"> High-density storage system Recycling receptacle
Copy Room	<ul style="list-style-type: none"> Making photocopies and printing documents 		70 SF	<ul style="list-style-type: none"> Recycling receptacle Storage for paper products and ink cartridges
Office Supplies	<ul style="list-style-type: none"> Space where employees can access office supplies 		100 SF	<ul style="list-style-type: none"> Shelving for office supplies Waste receptacle
Small Meeting Room	<ul style="list-style-type: none"> Supports private meetings, conference calls, and mentoring sessions for 2 people 	2	115 SF	<ul style="list-style-type: none"> 48" x 48" D-shape desk-height table with attached totem 2 x ergonomic task chair Recycling receptacle Writable wall surface
Treadmill Desks	<ul style="list-style-type: none"> A space for getting physical activity while working 	2	140 SF	<ul style="list-style-type: none"> 2 x treadmill desks with work surfaces

ELECTRICAL/TECHNOLOGY REQUIREMENTS	COLOUR/MATERIAL REQUIREMENTS	ATMOSPHERIC QUALITIES
------------------------------------	------------------------------	-----------------------

- | | | |
|--|---|---|
| <ul style="list-style-type: none"> Secure entry with access card reader Equipment for making access cards Electronic monitoring equipment | <ul style="list-style-type: none"> Sound-absorbent flooring and ceiling materials Durable surfaces and upholstery | <ul style="list-style-type: none"> Bright Clean Secure |
|--|---|---|
-

- | | | |
|--|--|--|
| <ul style="list-style-type: none"> Secure entry with access card reader Paper shredder | <ul style="list-style-type: none"> Durable surfaces | <ul style="list-style-type: none"> Secure |
|--|--|--|
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- | | | |
|---|--|--|
| <ul style="list-style-type: none"> Print/copy machines Paper shredder | <ul style="list-style-type: none"> Durable surfaces | <ul style="list-style-type: none"> Clean Organized |
|---|--|--|
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- | | | |
|--|--|--|
| | <ul style="list-style-type: none"> Durable surfaces | <ul style="list-style-type: none"> Clean Organized |
|--|--|--|
-

- | | | |
|---|---|--|
| <ul style="list-style-type: none"> Totem-mounted monitor shroud 42" shroud-mounted monitor Shroud-mounted high definition video camera for video conferencing Table has built-in laptop-to-monitor screen sharing technology Table is power-ready Electronic room scheduling system | <ul style="list-style-type: none"> Sound-absorbent flooring and ceiling materials Durable surfaces and upholstery | <ul style="list-style-type: none"> Welcoming Comfortable |
|---|---|--|
-

- | | | |
|---|---|---|
| <ul style="list-style-type: none"> Work surfaces are power-ready | <ul style="list-style-type: none"> Durable surfaces Sound-absorbent wall and flooring materials | <ul style="list-style-type: none"> Open Welcoming |
|---|---|---|
-

DESIGN PROGRAMME

ACTIVITY/SPACE	DESCRIPTION	MAX. OCCUPANTS	TOTAL AREA	FURNITURE/FIXTURES/EQUIPMENT
Executive Suite	<ul style="list-style-type: none"> A shared, private work space for company executives 	6	1,000 SF	<ul style="list-style-type: none"> 6 x 58" x 29" height-adjustable desk 6 x ergonomic task chair 6 x high-density storage unit 30" high fabric divider panels with 18" glass screen dividers mounted on top 96" x 48" bar-height table 6 x collaborative stool Lounge chairs Occasional table Tackable wall surfaces Writable wall surfaces Planters Storage for reports and other documents Lateral files 1 x 1 person phone booth (lounge chair with work surface, bench, and task light) Waste and recycling receptacles
Work Booths	<ul style="list-style-type: none"> Work space for individual and group work that does not require high levels of concentration or privacy 	9	355 SF	<ul style="list-style-type: none"> Booth seating Work-height tables Planter

ELECTRICAL/TECHNOLOGY REQUIREMENTS

- Height-adjustable desks are power- and data-ready
- Height-adjustable desks have attached adjustable monitors
- Wall-mounted monitor shroud
- 2 x 65" shroud-mounted monitors
- Bar-height table is power-ready
- Secure entry with access card reader

COLOUR/MATERIAL REQUIREMENTS

- Durable and easily cleanable surfaces and upholstery
- Sound-absorbent flooring and ceiling materials

ATMOSPHERIC QUALITIES

- Bright
- Welcoming
- Organized
- Access to views
- Comfortable
- Secure

-
- Work-height tables are power-ready

- Sound-absorbent flooring and ceiling materials
- Durable surfaces and upholstery

- Bright
 - Open
 - Welcoming
-

DESIGN PROGRAMME

ACTIVITY/SPACE	DESCRIPTION	MAX. OCCUPANTS	TOTAL AREA	FURNITURE/FIXTURES/EQUIPMENT
Business Management + Operations Neighbourhood	<ul style="list-style-type: none"> Supports individual and collaborative work 	32	2,740 SF	<ul style="list-style-type: none"> 32 x 58" x 29" height-adjustable desk 32 x ergonomic task chair 32 x under-table storage caddy 30" high fabric divider panels with 18" glass screen dividers mounted on top Lateral files Waste and recycling receptacles Tackable wall surfaces Writable wall surfaces Lounge seating Occasional tables Mobile active seating 2 x 1 person phone booth (lounge chair with work surface, bench, and task light) 2 x 3 person phone booth (lounge seating, occasional table, wall-mounted monitor) Planters
Touchdown Zone	<ul style="list-style-type: none"> A work/touchdown space with a variety of individual and group work situations in an open setting, with various levels of privacy 	20	1,030 SF	<ul style="list-style-type: none"> 1 x 3 person meeting space (bar-height table, stools, monitor) 1 x 4 person meeting space (bar-height table, stools, monitor) 1 x 2 person meeting space (table, task chairs, monitor) 4 x 1 person work stations (height adjustable desk, task chair) 4 x personal work pod (reclining seat, work surface, footrest, task lamp) Lounge seating

ELECTRICAL/TECHNOLOGY REQUIREMENTS

- Height-adjustable desks are power- and data-ready
- Height-adjustable desks have attached adjustable monitor
- Occasional tables are power-ready
- Secure entry with access card reader

COLOUR/MATERIAL REQUIREMENTS

- Durable and easily cleanable surfaces and upholstery
- Sound-absorbent flooring and ceiling materials

ATMOSPHERIC QUALITIES

- Bright
- Welcoming
- Organized
- Access to views
- Comfortable
- Secure

- All tables are power-ready
- All meeting tables have built-in laptop-to-monitor screen sharing technology
- Meeting spaces have electronic room scheduling system

- Sound-absorbent flooring and ceiling materials
- Durable surfaces and upholstery

- Welcoming
- Comfortable

DESIGN PROGRAMME

ACTIVITY/SPACE	DESCRIPTION	MAX. OCCUPANTS	TOTAL AREA	FURNITURE/FIXTURES/EQUIPMENT
Large Meeting Room	<ul style="list-style-type: none"> Supports private meetings, conference calls, and group work sessions for up to 8 people 	8	520 SF	<ul style="list-style-type: none"> 2 x 72" x 60" stool-height tables 8 x collaborative stools Recycling receptacle Writable wall surface
Mail Room	<ul style="list-style-type: none"> A Space for processing incoming and outgoing mail Space where employees can access work-related mail 	2	415 SF	<ul style="list-style-type: none"> Counter height work surface Storage shelving for mail supplies Mail boxes for all employees
IT Walk-UP	<ul style="list-style-type: none"> A space where employees can troubleshoot technology-related issues with technology specialists A space where employees can access technical equipment 	4	180 SF	<ul style="list-style-type: none"> Bar-height work surface 2 x ergonomic task chair 2 x bar-height stool Storage shelving for electronic equipment
IT Storage + Maintenance	<ul style="list-style-type: none"> A space where technical equipment is stored and repaired 	1	190 SF	<ul style="list-style-type: none"> Storage shelving for electronic equipment 1 x 58" x 29" height-adjustable desk 1 x ergonomic task chair Bar-height work surface

ELECTRICAL/TECHNOLOGY REQUIREMENTS

- 2 x Wall-mounted monitor shroud
- 4 x 65" shroud-mounted monitors
- Shroud-mounted high definition video camera for video conferencing
- Tables have built-in laptop-to-monitor screen sharing technology
- Tables are power-ready
- Electronic room scheduling system

COLOUR/MATERIAL REQUIREMENTS

- Sound-absorbent flooring and ceiling materials
- Durable surfaces and upholstery

ATMOSPHERIC QUALITIES

- Welcoming
- Comfortable

- Desk-top computer
- Scanner for documenting incoming and outgoing mail

- Sound-absorbent flooring and ceiling materials
- Durable surfaces and upholstery

- Bright
- Open
- Welcoming
- Organized

- 1 x table-mounted monitor with laptop-to-monitor screen sharing technology

- Sound-absorbent flooring and ceiling materials
- Durable surfaces and upholstery

- Bright
- Open
- Welcoming
- Organized

- Necessary equipment for repairing and maintaining electronic devices
- Desk is power- and data-ready
- Secure entry with access card reader

- Sound-absorbent flooring and ceiling materials
- Durable surfaces and upholstery

- Bright
- Welcoming
- Organized
- Secure

DESIGN PROGRAMME

ACTIVITY/SPACE	DESCRIPTION	MAX. OCCUPANTS	TOTAL AREA	FURNITURE/FIXTURES/EQUIPMENT
IT Neighbourhood	<ul style="list-style-type: none"> Supports individual and collaborative work 	12	1000 SF	<ul style="list-style-type: none"> 12 x 58" x 29" height-adjustable desk 12 x ergonomic task chair 12 x under-table storage caddy 30" high fabric divider panels with 18" glass screen dividers mounted on top Lateral files Waste and recycling receptacles Tackable wall surfaces Writable wall surfaces Mobile active seating 1 x 1 person phone booth (lounge chair with work surface, bench, and task light) 1 x 3 person phone booth (lounge seating, occasional table, wall-mounted monitor) Planters
Classroom Storage	<ul style="list-style-type: none"> Storage for classroom furniture and equipment 		225 SF	<ul style="list-style-type: none"> Storage for classroom furniture and equipment
Classroom	<ul style="list-style-type: none"> A space for training sessions and seminars 	24	1,255 SF	<ul style="list-style-type: none"> 12 x 84" x 30" mobile tables 25 x ergonomic task chair Mobile teaching station Writable and tackable wall surfaces Storage for classroom supplies

ELECTRICAL/TECHNOLOGY REQUIREMENTS

- Height-adjustable desks are power- and data-ready
- Height-adjustable desks have attached adjustable monitor
- Secure entry with access card reader

COLOUR/MATERIAL REQUIREMENTS

- Durable and easily cleanable surfaces and upholstery
- Sound-absorbent flooring and ceiling materials

ATMOSPHERIC QUALITIES

- Bright
- Welcoming
- Organized
- Access to views
- Comfortable
- Secure

- Durable flooring material
- Durable surfaces

- Clean
- Organized
- Secure

- Mobile monitors with built-in laptop-to-screen sharing technology
- Projector
- Retractable projection screen
- Tables are power-ready
- Mobile power hubs

- Durable and easily cleanable surfaces and upholstery
- Durable and easily cleanable flooring material

- Bright
- Clean
- Organized
- Welcoming

DESIGN PROGRAMME

ACTIVITY/SPACE	DESCRIPTION	MAX. OCCUPANTS	TOTAL AREA	FURNITURE/FIXTURES/EQUIPMENT
Break Area + Work Lounge	<ul style="list-style-type: none"> • Common space for socializing, taking breaks, or working • Place where employees can access refreshments and snacks • Work/touchdown space for individual and group work that does not require high levels of privacy or concentration 	20	900 SF	<ul style="list-style-type: none"> • Faucet • Sink • Refrigerator • 5 x under counter refrigerator • Microwave • Storage for utensils, glassware etc. • Waste, recycling, and compost receptacles • 96" x 48" bar-height table • 2 x 96" x 24" bar-height table • 10 x bar stools • Lounge seating • Occasional tables • Planters
Men's W/C	<ul style="list-style-type: none"> • Provides washroom facilities for occupants 		400 SF	<ul style="list-style-type: none"> • 2 x urinal • 3 x standard water closet stall • 1 x universal water closet stall • 4 x lavatory • 4 x soap dispenser • 2 x electrical hand dryer • 1 x paper tower dispenser with waste receptacle • Mirrors • Bench • Surface for placing personal items

ELECTRICAL/TECHNOLOGY REQUIREMENTS

- Bar-height table is power-ready
- Mobile power hubs for lounge seating

COLOUR/MATERIAL REQUIREMENTS

- Durable and easily cleanable surfaces and upholstery
- Durable and easily cleanable flooring material
- Bright accent colours

ATMOSPHERIC QUALITIES

- Bright
- Clean
- Open
- Welcoming
- Energetic

-
- Faucets, soap dispensers, hand dryers, and towel dispensers are automatic
 - Button-activated door opener

- Durable and easily cleanable surfaces
- Antibacterial paints and finishes
- Neutral colours

- Bright
 - Clean
 - Private
-

DESIGN PROGRAMME

ACTIVITY/SPACE	DESCRIPTION	MAX. OCCUPANTS	TOTAL AREA	FURNITURE/FIXTURES/EQUIPMENT
Women's W/C	<ul style="list-style-type: none"> Provides washroom facilities for occupants 		400 SF	<ul style="list-style-type: none"> 5 x standard water closet stall 1 x universal water closet stall 4 x lavatory 4 x soap dispenser 2 x electrical hand dryer 1 x paper tower dispenser with waste receptacle Mirrors Bench Surface for placing personal items
Elevator Control Room	<ul style="list-style-type: none"> Service room for elevator controls 		60 SF	<ul style="list-style-type: none"> Elevator control equipment
Electrical + Data Room	<ul style="list-style-type: none"> Service room for electrical and data equipment. 		120 SF	<ul style="list-style-type: none"> Electrical and data equipment
Utility Room	<ul style="list-style-type: none"> Service room for building utilities 		60 SF	<ul style="list-style-type: none"> Utility equipment
Storage + Maintenance Room	<ul style="list-style-type: none"> Storage for furniture, equipment, office supplies, and cleaning supplies 		215 SF	<ul style="list-style-type: none"> Mop sink Shelving
Circulation	<ul style="list-style-type: none"> Provides movement between spaces 		4,220 SF	<ul style="list-style-type: none"> Way-finding devices Water dispensers
Total Floor Area			20,100 SF	

ELECTRICAL/TECHNOLOGY REQUIREMENTS	COLOUR/MATERIAL REQUIREMENTS	ATMOSPHERIC QUALITIES
<ul style="list-style-type: none"> Faucets, soap dispensers, hand dryers, and towel dispensers are automatic Button-activated door opener 	<ul style="list-style-type: none"> Durable and easily cleanable surfaces Antibacterial paints and finishes Neutral colours 	<ul style="list-style-type: none"> Bright Clean Private
<ul style="list-style-type: none"> Elevator equipment to be installed to standard specifications Secure entry with access card reader 	<ul style="list-style-type: none"> Durable flooring material 	<ul style="list-style-type: none"> Secure
<ul style="list-style-type: none"> Electrical and data equipment to be installed to standard specifications Secure entry with access card reader 	<ul style="list-style-type: none"> Durable flooring material 	<ul style="list-style-type: none"> Secure
<ul style="list-style-type: none"> Secure entry with access card reader 	<ul style="list-style-type: none"> Durable flooring material Durable surfaces 	<ul style="list-style-type: none"> Secure Clean Organized Secure
<ul style="list-style-type: none"> Information display monitors 	<ul style="list-style-type: none"> Durable flooring material Some accent colours 	<ul style="list-style-type: none"> Clean Bright

CHAPTER 8: DESIGN PROPOSAL

8.1 Overview

This chapter presents the design proposal for MarkIT's office headquarters which is located at 311 Portage Avenue, Winnipeg, Manitoba. The proposed design, which occupies 60,000 square feet spread over three storeys of the building, is based on the synthesis of the theoretical framework, literature reviews, and precedent studies that were discussed throughout this document. Cumulatively, the research has informed the proposed design which intends to create a workplace that embodies the values of Generation Z and addresses the environmental and psychological factors that affect well-being and productivity. The proposed design also addresses the needs and preferences of the other generational cohorts in the workplace in order to promote corporate strategies

for facilitating intergenerational knowledge transfer and succession planning in an inclusive environment. Throughout this chapter, I will present the proposed workplace design and how the project's goals have been achieved through research-based design strategies.

8.1.1 Spatial Organization

The proposed design has been organized based on programmatic needs and the intent to optimize the well-being of the building's occupants. As is shown in Figure 54, regularly occupied work and communal spaces have been given priority to access natural light and views while spaces that are not regularly occupied are located at the building's core and along the portion of the building's west side that does not have windows.

The most public spaces are located along the south-facing façade, adjacent to the two elevators that provide access to the office from the ground floor lobby. As is shown in Figure 55, two atria provide vertical circulation between the three floors of the office and the adjacent spaces are programmed as social hubs and informal workspaces. In a distributed work model, these spaces are intended to provide a variety of settings to promote spontaneous interaction between employees and facilitate both collaborative and individual work.

Each department has been provided with traditional open-plan workspaces that act as home bases for employees. Workstations within most of the departments are not reserved since employees are encouraged to utilize the variety of spaces that are provided throughout the office which have been tailored to facilitate different work modes. While employees are encouraged to utilize all of the spaces throughout the office, the departmental home bases are intended to address some of the psychological factors that affect well-being and productivity..

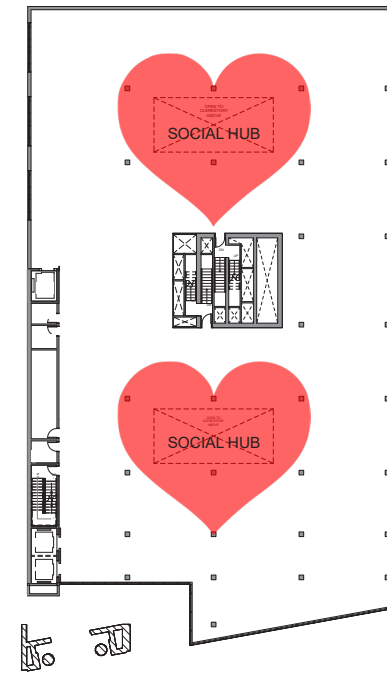


Figure 55. Programming conceptual diagram.

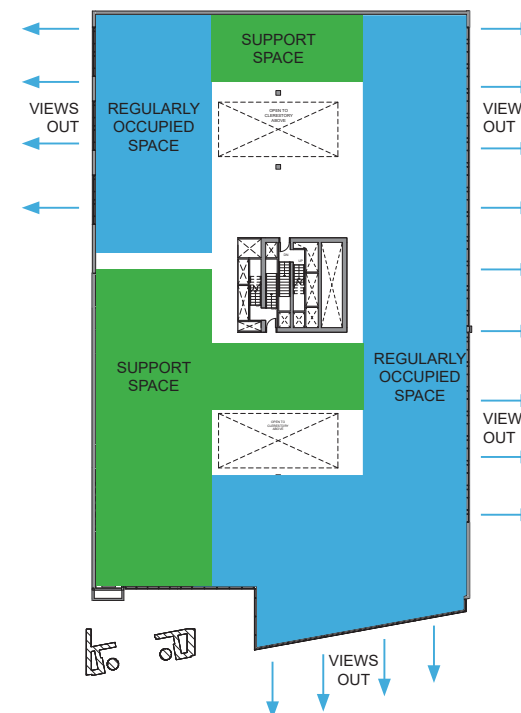


Figure 56. Spatial organization conceptual diagram.

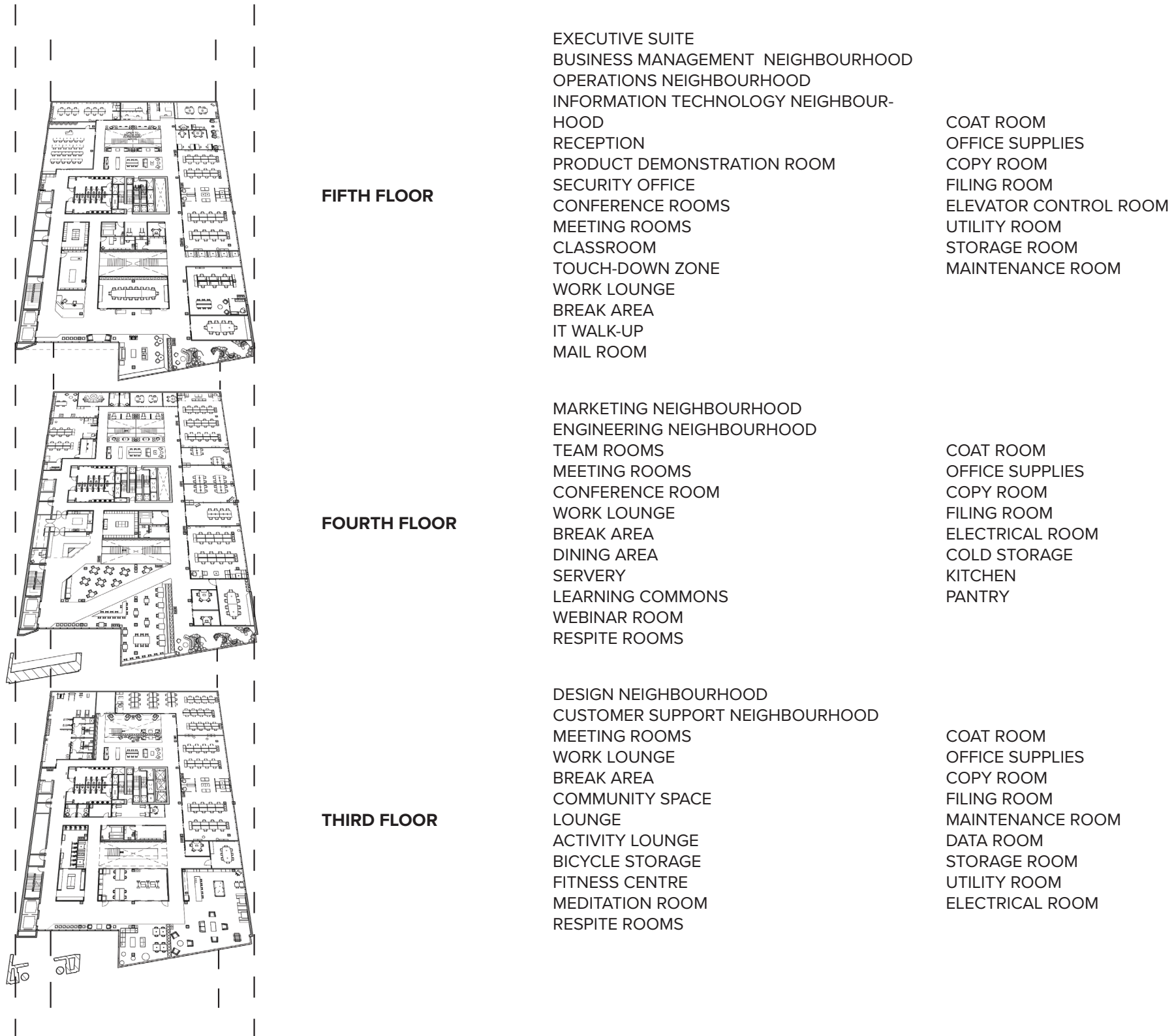


Figure 57. Stacked floor plans with spatial break-down of each floor.

8.1.2 Distributed Work Model

This practicum project implements a distributed work model where employees work in a variety of settings throughout the office instead of having assigned seating for each employee. These spaces include traditional workstations, individual and group focus spaces, formal and informal collaboration spaces, and spaces that promote spontaneous social interaction. A distributed work model allows organisations to increase space utilization rates while giving employees more choice regarding where they work.

In a study produced by Knoll (2011), the average ratio of employees per desk in a distributed work model is 2.3:1. The ratio of employees per desk in this practicum project is considerably lower at 1.5:1. This means that the client can grow its workforce by over 100 employees before needing to acquire more space or alter the design. Table 15 shows the ratio of employees per desk for each of the design’s designated work areas and the number of employees each area could grow by to reach the industry average of 2.3 employees per desk. Some positions such as executives, support/customer service, reception, mail clerk, and technology support/repair have 1:1 ratios

since each employee needs their own workstation. While some of these positions will not need to expand with the growth of the client’s organisation, the support/customer service department does. For this department, the client could potentially adopt a flexible schedule system or allow employees to work remotely in order to accommodate growth. The positions with a required 1:1 employees per desk ratio are not be included in Table 15’s calculations.

Table 15. Distributed work model potential company growth calculation.

	# of Proposed Employees	# of Proposed Workstations	Ratio of Employees/ Workstation	Potential Employee Total (2.3:1)
Organization Total	307	210	1.5:1	
Roles with Required 1:1 ratio	54	54	1:1	54
Total minus roles with required 1:1 ratio	253	156	1.6:1	
2.3:1 ratio with amount of proposed workstations		156	2.3:1	359
Potential Employee Total				413

8.1.3 Security Features

As a technology company located in downtown Winnipeg, security measures are in place to ensure that the company's technology and intellectual property are secure and that employees working in the office feel safe. In order to access MarkIT's office floors, all visitors and employees must enter through the building's Portage Avenue entrance where a security guard is located to monitor people coming into and leaving the building and to look out for potentially suspicious behaviour. In the elevators, employees must scan their identity cards to access the third and fourth floors, while the fifth floor is accessible to everyone since there is full-time reception staff located at the elevator landing on that floor. Visitors and clients who access the fifth floor without identity badges sign in and out with the reception staff, and are given temporary security clearance cards for the duration of their visit, and are always escorted by MarkIT employees within the office. A security office is located near the reception area on the fifth floor to process and track visitor information as well as to process security clearances for employees.

In order to embody MarkIT's corporate values of transparency and accessibility, the majority of spaces within the office can be accessed by all employees without requiring a special security clearance. Exceptions apply for spaces that contain highly confidential information or valuable equipment. Work neighbourhoods that require special security clearance and identity card scans for entry include the executive suite, the operations and business management neighbourhood, as well as the information technology neighbourhood. Other spaces that require special security clearance are the data, utility, electrical, and elevator control rooms, storage and maintenance rooms, as well as filing rooms. All other spaces do not require security clearance by employees.

In order to give employees an additional sense of privacy and security in the workplace, an innovative new product called Casper Cloaking Technology by Designtex has been implemented throughout the office. This technology is a transparent film that is applied on glazing and blocks light coming from LED monitors, so while many of the walls throughout the office are fully glazed from floor to ceiling, occupants within these spaces are assured that their

work remains private from passers-by. This technology is applied on the fully glazed walls enclosing work neighbourhoods, meeting rooms, and conference rooms. Other products such as 3M's Screen Privacy Filter are applied to workstation monitors, personal laptops, and smart phones if employees need additional digital privacy and security.

8.1.4 Technological Integration

As an innovative technology company, MarkIT believes that its office should integrate technology wherever it is appropriate and improves employees' experiences in the office. At the heart of this is an application that MarkIT has developed specifically for its employees and that can be accessed from employees' smartphones and laptop computers. Some of its features are listed below:

- Booking meeting rooms, conference rooms, workstations, and respite rooms.
- Locating and communicating with coworkers.
- Placing food orders to the kitchen for lunch and meetings.
- Setting up a personal environmental preference profile for temperature and lighting, which is used to automatically adjust temperature and lighting in work neighbourhoods, team rooms, meeting rooms, and conference rooms.
- Accessing personal files through an Employee Self Service portal.
- Accessing information related to office indoor environment quality, such as temperature, humidity, carbon dioxide concentration, particle count, and ozone concentration. This information is also available on displays throughout the office in order to fulfil one of the WELL Building Standard credits that were reviewed in Section 4.5.2.

- Accessing information related to the sustainability goals of the office, such as electricity usage and water usage. This information is intended to promote mindful usage of resources.

Another technological feature in MarkIT's office is the integrated lighting and shading system. Regularly occupied spaces such as work neighbourhoods, team rooms, meeting rooms, conference rooms, and other spaces that are located adjacent to exterior windows are outfitted with sensors that measure light levels and can automatically adjust window shades to optimize the amount of natural light entering a space. This system also adjusts artificial lights to create a balance between ambient artificial light and natural light, giving preference to natural light in order to reduce energy usage and to improve occupant well-being.

8.2 Level 3

The third floor of 311 Portage is the lower-most of the three floors in MarkIT's office. As a response to Generation Z's health- and wellbeing-related values, this floor contains several features and amenities that promote active lifestyles and psychological wellbeing. These features include bicycle storage, a fitness centre with changing rooms and showers, a meditation room, respite rooms, and treadmill desks. In order to promote social activities and informal mentoring opportunities, this floor also features an activity lounge/bar and a multipurpose space for creative endeavours, work events, and community events.

Two work neighbourhoods are located on this floor, one for the design staff in the marketing department, and one for the customer support staff in the operations department. Three meeting rooms, a filing room, a copy room, a supply room, and two work lounges support the work-related activities of employees on this floor. Touch-down spaces are located adjacent to each of the two atrium stairways.



Figure 58. Level 3 rendered floor plan - south.



Figure 59. Level 3 rendered floor plan - north.

8.2.1 Community Space

Located near the elevator landing on the third floor, the community space serves as a flexible space where employees can explore their creativity and where the company can host a variety of functions such as art exhibits, lectures, and community markets. During work hours, employees can use this space to create art in a variety of mediums such as painting, drawing, and origami. The west wall features built-in storage for supplies, as well as a sink and faucet for easy clean up after creative activities. The rest of the furniture is mobile so that the space can be reconfigured to accommodate various activities and group sizes.

The north and south sides of the room are enclosed by movable partitions so that the space can be opened up for larger functions

such as art exhibits and lectures. To facilitate a variety of functions, the ceiling of this space is equipped with gallery-style tracks for lighting and hanging artwork. Larger events can also make use of the corridor and lounge on the south side of the community space, which are equipped with the same type of ceiling. For events such as lectures, retractable projection screens on the east side of the community space and the corridor can be lowered from the ceiling, and stackable furniture can be retrieved from the nearby storage room. The adjacent coat room provides visitors with storage for coats and personal items and a retractable surface can be lowered from the ceiling in the corridor to serve as a temporary reception desk during events.

This space embodies several of Generation Z's values and characteristics that were discussed in Chapter 3: Demographic



Figure 60. Activity lounge and entrance corridor south elevation.

Inquiry. Examples include how the space reflects personality since employees are invited to explore and express their personality here. Creative activities can also help individuals with a short attention span to regain focus by offering a productive outlet for energy throughout the day. Other individuals may benefit from participating

in creative activities by being in a cognitively unstructured space which can lead to new ways of approaching work-related tasks. Teams can also utilize the space as a less conventional venue for team-building exercises and brainstorming sessions.

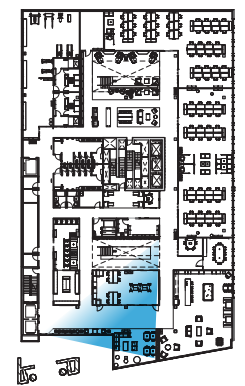


Figure 61. View of the community space from the work lounge.



Figure 62. View of the corridor during office hours.



Figure 63. View of the corridor with lecture event set-up.

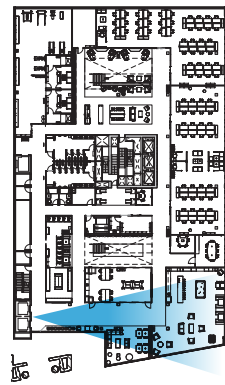


Figure 64. View of the corridor with market event set-up.

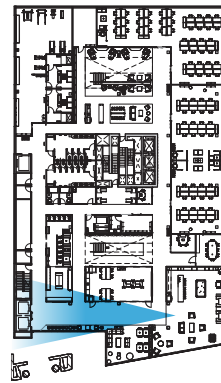


Figure 65. View of the corridor and elevator landing with art exhibit set-up.

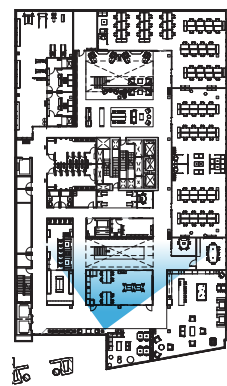


Figure 66. View of the community space.

Just as importantly, the community space embodies post-materialistic values and plays a vital role in different categories of need fulfillment, particularly the growth needs. For cognitive needs, the community space can contribute to helping individuals explore self-awareness and meaning in a novel workplace environment that incorporates artistic creation, artistic appreciation, and knowledge attainment. Aesthetic needs are fulfilled through art creation, visiting exhibits, and appreciating the views outside that overlook a vibrant urban neighbourhood. This space can also promote self-actualization by allowing employees to explore and participate in activities that are of interest to them and may otherwise not be part of their work routine. Finally, the space's function as a community hub helps to fulfil the transcendence need in a myriad of ways. Events such as markets and exhibits can be positive catalysts for the community by creating opportunities for social networking and by helping to promote neighbourhood unity. Distributing the food that is grown on the south atrium green wall also fulfills the need for individuals to help others by allowing them to make a positive contribution to underserved members of the surrounding community.

8.2.2 Activity Lounge and Bar

The activity lounge and bar is intended to be a space for employees to socialize after work and also functions as an informal workspace throughout the day. As a corporate strategy, this space promotes networking and social connections between employees who may not otherwise work together. These social connections promote knowledge-sharing between employees that may evolve into mentoring relationships, both of which are important factors for this project's goal of promoting intergenerational knowledge transfer.

The space incorporates lounge furniture, a pool table, a foosball table, an arcade-style game, and monitors for broadcasting sports and entertainment media. Built-in shelving stores the pool cues, glassware, and snacks. The lounge also has a kitchen with refrigerators, warming drawers, a dishwasher, a sink with a faucet, and taps that are connected to refrigerated kegs under the counter. The additional kitchen equipment allows food and beverages to be served during events that are being hosted in the nearby community space.

Aesthetically, the space is intended to have a private club look and feel to attract members of the older generations who may be more reluctant than young employees to stay at the office after work to relax and socialize. The dark wood and coffered ceiling detail give the space a refined appearance, while the inclusion of games is a

signal that this space is intended to be more energetic and noisy than other spaces in the office.

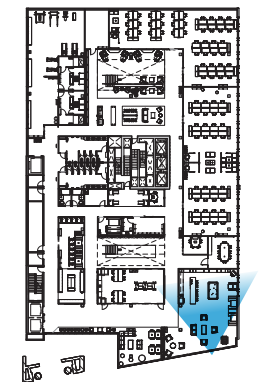


Figure 67. View of the activity lounge/bar.

8.2.3 Break Area and Work Lounge

Located adjacent to the north atrium and stairwell, the break area is intended to be a space for spontaneous interactions between employees while the work lounge functions as an informal workspace. Employees working in the nearby customer support neighbourhood and design neighbourhood will use this space to retrieve snacks and beverages throughout the day, mingling with employees who choose to work in the work lounge.

Compared to the break areas located on the fourth and fifth floors, this space has a quieter and calmer feel which is achieved through colour and material selections as well as lighting. The west wall at the foot of the stairs contains a water feature which introduces a secondary biophilic element to the space, along with the planters that are present throughout the office. The calm atmosphere of this space corresponds with the nearby meditation room and fitness centre, completing the overall physical and psychological wellness theme of the third floor.



Figure 68. Work lounge north elevation.



Figure 69. Work lounge south elevation.



Figure 70. Work lounge west elevation.

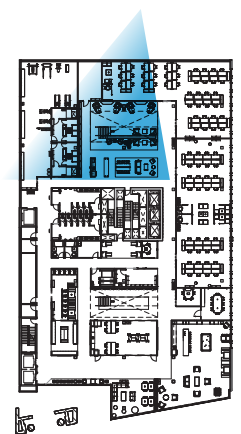


Figure 71. View of the third floor break area and work lounge.



Figure 72. View of the north stairwell, work lounge, and customer support neighbourhood.

8.2.4 Work Neighbourhoods

Each department within MarkIT's office has its own neighbourhood that functions as a home base for employees. However, since the proposed design implements a distributed work model, workstations within the neighbourhoods are not permanently reserved since there are fewer workstations available than employees. This model encourages employees to utilize the variety of formal and informal work settings available throughout the office, which promotes interdepartmental collaboration while recognizing that a variety of work settings are required for different tasks.

All of the work neighbourhoods are laid out and furnished similarly. Workstations are arranged in a traditional benching format and consist of a height adjustable desk, a task chair, a storage caddy for personal items, as well as technological equipment such as computer monitors, data connections, and power receptacles. Employees are each given personal laptops by the company so they can simply plug into any workstation in the office. Filing cabinets are located at the foot of each row of desks for storing files that are

regularly accessed by employees within a department, while highly confidential or infrequently accessed files are stored in the nearby filing room.

Each neighbourhood contains at least one of two types of modular booths. The first type is single-occupancy and can be used by employees to make and take phone calls without disrupting co-workers as well as to complete work tasks that require high levels of concentration without being disrupted. The second type can accommodate up to three people for quick meetings or brainstorming sessions without disrupting co-workers. All non-glazed walls are finished with a magnetic whiteboard paint, providing employees with analogue collaboration tools so that meeting rooms do not need to be booked for collaboration sessions that do not require other technological equipment. Shelving is also provided on the non-glazed walls to store office supplies and can also be used by employees to display personal items, promoting a sense of ownership of the work neighbourhood space

Each neighbourhood is enclosed by a wall of double-layered glazing, which is a design decision that has been made for several reasons. The first reason is for acoustics so that employees working in the neighbourhoods are not disrupted by noises originating from nearby social and informal workspaces. The second reason is that some departments require enclosures for confidentiality purposes, so in order to avoid enclosures being viewed as status symbols, all departmental neighbourhoods are enclosed to

maintain an egalitarian design strategy. The third reason is that the neighbourhoods are intended to feel like a home within the office, so the enclosures function as a clear boundary between semi-private and public spaces to maintain a sense of security and privacy that is not available in many of the other spaces throughout the office. While the walls are a physical boundary, they are fully glazed which embodies the corporate value of transparency and allows natural light to pass through to the adjacent spaces.



Figure 73. Typical work neighbourhood west elevation.

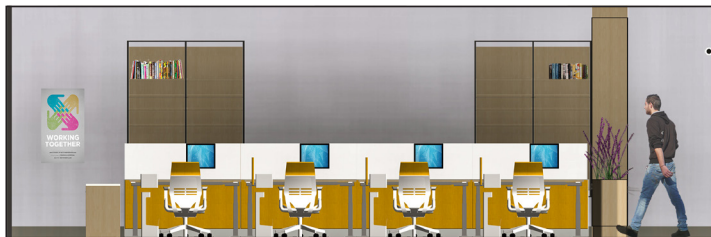


Figure 74. Typical work neighbourhood north elevation.



Figure 75. Typical modular booth interior elevations.



Figure 76. Typical view of a work neighbourhood.



Figure 77. View of the third floor design neighbourhood with an alternative layout.

8.2.5 Fitness Centre

The fitness centre responds to the health-conscious values of Generation Z and fulfils the WELL Building Standard's Physical Activity Spaces and Fitness Equipment credits. A variety of strength training and cardiovascular exercise equipment is provided, and employees are encouraged to use this amenity in order to maintain a healthy lifestyle. The fitness centre also contains changing rooms and showers that can be used by employees who commute to work using active transportation.

5.2.6 Meditation Room

The meditation room is intended to be used as a space where employees can completely disconnect from technology and work-related stress. This space responds to the short attention span of Generation Z and helps employees who feel overstimulated in the work environment to regain focus throughout the day.

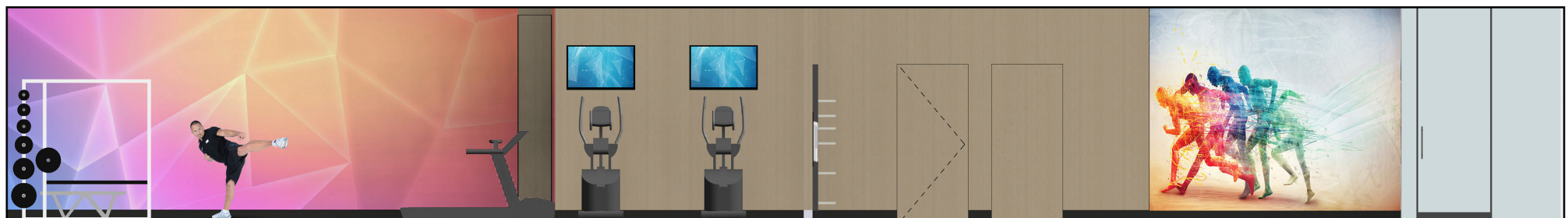


Figure 78. Fitness centre east elevation.

8.2.7 Bicycle Storage

Bicycle storage is provided for employees in order to promote active transportation as a way to commute to and from the office. The storage room accommodates up to 22 bicycles and fulfills the WELL Building Standard's Active Transportation Support credit. Active transportation commuters can utilize the changing rooms and showers located in the nearby fitness centre to refresh before beginning their workday. Athletic apparel and equipment such as bicycle helmets can be stored in the adjacent coat room.

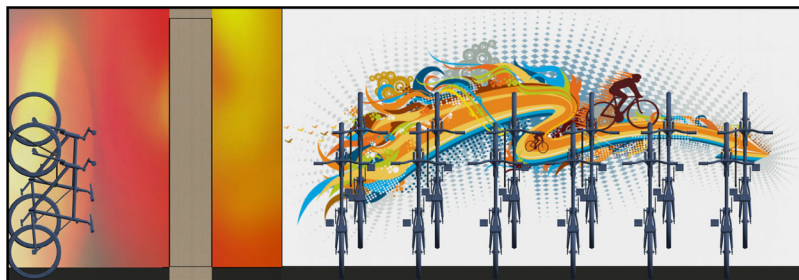


Figure 79. Bicycle storage east elevation.

8.2.8 Respite Rooms

The respite rooms are intended to be used for short naps or as spaces where employees can regenerate their focus during the workday. Each respite room is furnished with a twin size bed for napping, a table, and a lounge chair for activities such as reading. The respite rooms also fulfil the Well Building Standard's Adaptable Spaces credit. There are two respite rooms located on the third floor and two located on the fourth floor.

8.2.9 South Atrium

The south atrium features an expansive green wall on its north side that spans the height of all three floors of MarkIT's office. Natural daylight that enters the atrium through clerestory windows above the fifth floor provides light for the plants to flourish, and space is provided between the green wall and the stairs so that a mobile scissor lift can enter the space to provide access to the green wall for maintenance. A key feature of the green wall is the production of produce. Employees can choose to help maintain the plants or to distribute to produce to neighbourhood residents in the regularly occurring market that takes place in the adjacent community space. This feature embodies several of Generation Z's values, including being health conscious, socially aware, and environmentally responsible. Furthermore, helping others contributes to the fulfilment of the highest need category of transcendence.

The atrium stairway and green wall fulfil several of the WELL Building Standard credits. The Interior Fitness Circulation credit is achieved by providing a stairway with a minimum width of 56 inches between handrails within 25 feet of the lobby's edge while the Biophilia 2 credit is achieved by incorporating at least 400 square feet of green wall per floor. Both of the Beauty and Design credits are also fulfilled by the incorporation of an artfully designed amenity space.

The office's largest gathering spaces, which include the dining area on the fourth floor and the multipurpose space on the third floor, are located adjacent to the south atrium so it is intended to accommodate a high amount of traffic throughout the day. Touch-down spaces are located at the stairway landings on the third and fifth floors, contributing to the atrium and its adjacent spaces functioning as a social hub.



Figure 80. South atrium north elevation.



Figure 81. View of the south atrium on the third floor.

8.3 Level 4

The middle floor conveniently contains the office's largest gathering space, the dining area, in a centralized location. This floor also features a learning commons, which responds to Generation Z's need for career development opportunities in the workplace. Four team rooms, which are occupied by project teams consisting of employees from multiple departments for various periods of time, are also located on this floor.

Three work neighbourhoods are located on the fourth floor, one for the marketing department and two for the engineering department. Four meeting rooms, a conference room, a filing room, a copy room, a supply room, and a work lounge support the work-related activities of employees on this floor. A break area and touch-down space are located adjacent to the north atrium.

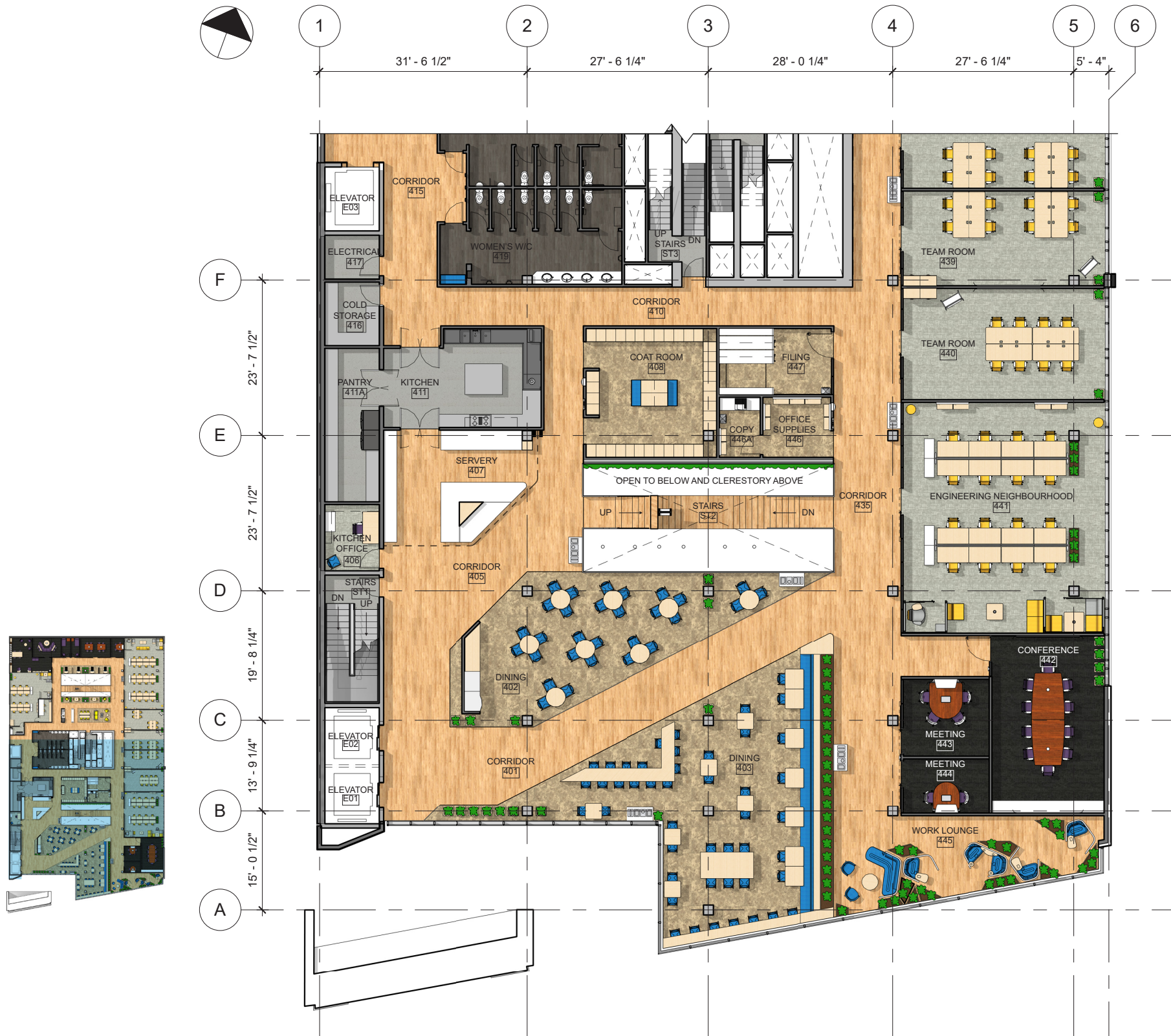


Figure 82. Level 4 rendered floor plan - south.



Figure 83. Level 4 rendered floor plan - north.

8.3.1 Dining Area

The dining area is the largest gathering place for MarkIT's employees in the office and fulfils the WELL Building Standard's Mindful Eating credit. Its primary function is to accommodate a large number of employees at lunchtime, but also functions as an informal work and meeting space throughout the day. Its location along the southern façade of the building offers views of downtown Winnipeg and the abundance of natural daylight create an inviting and uplifting atmosphere. The dining room also offers an unobstructed view of the green wall in the south atrium, creating connections with nature within the office's urban environment.

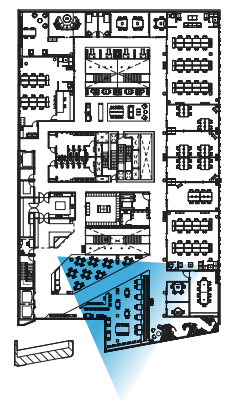
Food is prepared in the nearby kitchen and is served in the servery. In order to minimize food waste, employees are asked to make meal selections in advance through the mobile application that can be accessed from their smartphone. Employees can also bring their own food from home, which can be stored and reheated in one of

the break areas located on each floor adjacent to the north atrium. The kitchen also prepares healthy snacks that are made available in the dining area and each of the break areas throughout the day. The kitchen also prepares food items that can be served during meetings.

Aesthetically, the dining area is intended to have a warm and welcoming feeling which is achieved through furniture and material selections. The warm wood tones complement the upholstery in the company's signature blue colour, while the custom ceiling panels and lighting offer a unique and dynamic element. A variety of seating arrangements accommodate different group sizes, posture preferences and visit durations, ensuring that the dining area meets the changing needs of employees throughout the day.



Figure 84. View of the dining area facing south-east.



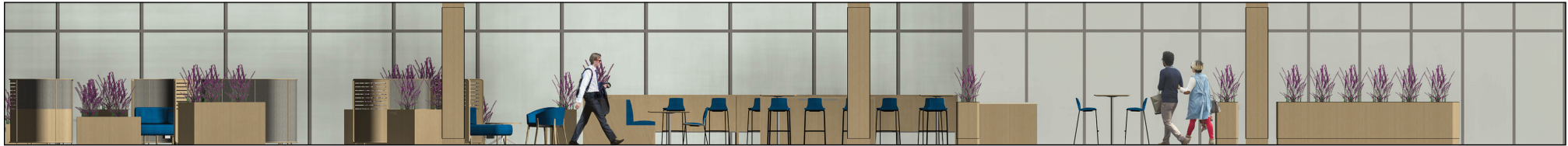


Figure 85. Dining area and work lounge south elevation.

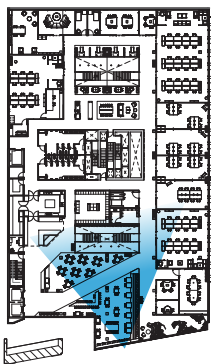


Figure 86. View of the dining area facing north.

8.3.2 Break Area

The fourth-floor break area is similar to the break areas on the other floors, acting as a social hub and gathering place for employees throughout the day. Aesthetically, it is the most minimalist of the three break areas and features a simple colour and material palette, and a less ornamental floating ceiling element. As in

the other break areas, the ceiling element is intentionally lowered to create a more intimate feeling than the surrounding spaces. This space also fulfils the WELL Building Standard's Food Storage and Drinking Water Promotion credits.



Figure 87. View of the fourth floor break area.

8.3.3 Learning Commons and Webinar Room

Generation Z places a high value on career development opportunities, so the learning commons and webinar room play an important role in accommodating a variety of needs related to learning and knowledge gathering. Shelving on the south wall contains a variety of electronic devices such as tablets and e-readers that are pre-loaded with learning modules for employees to take mini-courses related to different roles within the company. These tablets can be used in the learning commons or taken out of the room to be used elsewhere. The west wall features physical periodicals and books that pertain to a variety of topics that are relevant to different roles within the company. In order to fulfil the Health and Wellness Awareness credit in the WELL Building Standard, the library also contains a collection of books and periodicals related to mental and physical health.

The webinar room is specifically intended to be used by individuals and small groups of up to eight people to participate in learning activities such as webinars. Rather than booking a meeting room or the classroom, this space is outfitted with everything that is required to view webinars and other digital media and to share ideas among participants during learning sessions.



Figure 88. Learning commons south elevation.



Figure 89. Learning commons west elevation.



Figure 90. Webinar room north elevation.

8.3.4 Team Rooms

There are four team rooms located on the fourth floor which are intended to be used for the duration of product development projects that require employees from different departments to collaborate for extended periods of time. In order to facilitate the changing needs of teams throughout the duration of a project and to accommodate different project types over time, each of the team rooms is outfitted with mobile furniture so that the room can be reconfigured as needed. Each room contains two large monitors for sharing information digitally, storage for project-related files and prototypes, and their walls are painted with a magnetic whiteboard paint to accommodate brainstorming sessions and to document project progress.



Figure 91. Typical team room elevation.

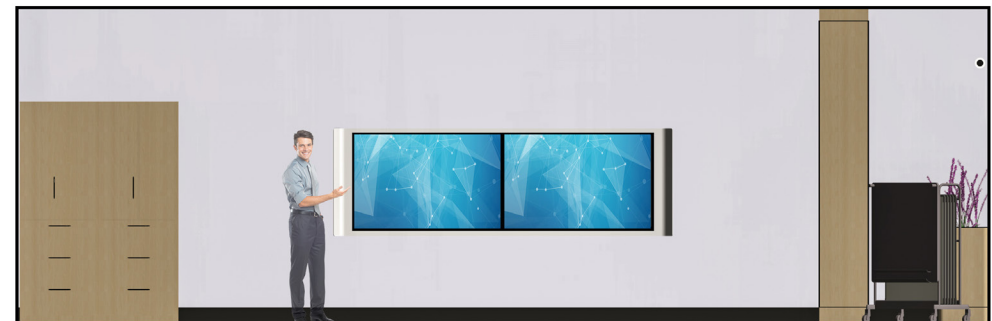


Figure 92. Typical team room elevation.

8.3.5 Meeting Rooms

Meeting rooms are located throughout each of the three floors of MarkIT's office and come in small, medium, and large sizes. Meeting rooms are intended for working meetings that require active participation for brainstorming and other project-related goals. Each meeting room contains monitors for sharing digital information, white-board painted walls for analogue idea generation and meeting documentation, and high definition video cameras for collaboration with employees and/or clients who are off-site.

Small meeting rooms are intended to be occupied by up to two individuals. Possible uses for the small meeting rooms include peer-to-peer mentoring sessions, performance reviews or feedback sessions between an employee and their supervisor, or interviewing potential employees. If an employee is working off-site, this size of meeting room can be utilized by coworkers to communicate effectively through its high-definition video conferencing capabilities.



Figure 93. Typical elevation of a small meeting room.

Medium meeting rooms are intended to be occupied by up to four individuals. This size of meeting room is perfect for small groups to collaborate for relatively short periods of time and is furnished similarly to the other meeting room sizes. The bar-height table and stool chairs are intended to promote active collaboration methods, with meeting participants utilizing the wall space for idea generation and sharing. Possible uses for the medium meeting room include collaboration sessions between members of multiple project teams and group mentoring sessions.

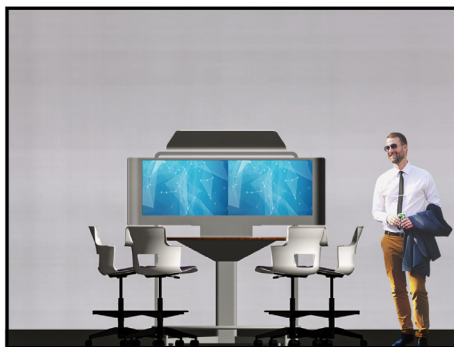


Figure 94. Typical elevation of a medium meeting room.

Large meeting rooms are intended to be occupied by up to eight individuals. This size of meeting room is perfect for large groups to collaborate for relatively short periods of time and is furnished similarly to the other meeting room sizes. As with the medium size meeting room, the bar-height table and stool chairs are intended to promote active collaboration methods, with meeting participants utilizing the wall space for idea generation and sharing. Seating is split into two groups so that the meeting room can be utilized by a single group that can be reconfigured into two smaller groups for a variety of collaboration settings. Possible uses for the large meeting rooms may include collaboration sessions between members of multiple projects teams and for working sessions between executives and project team members

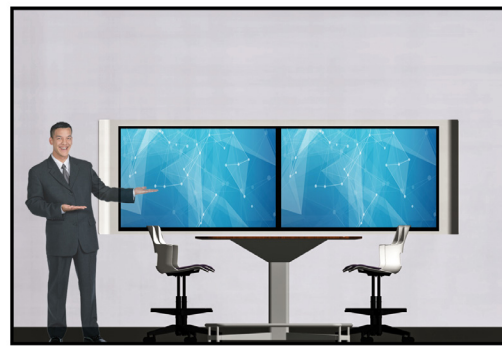


Figure 95. Typical elevation of a large meeting room.



Figure 96. Typical elevation of a large meeting room.

8.4 Level 5

The top floor of MarkIT's office primarily consists of the spaces that are regularly utilized by visiting clients, the executive team work neighbourhood, as well as the departments that require the most communication with the executive team. By locating the client experience on the office's top floor, the company communicates to its clients that they respected and valued. The client experience includes the reception area, a lounge, a client conference room, a product demonstration room, and a classroom.

Three work neighbourhoods are located on the fifth floor; one for the executive team, one for the operations and business

management departments, and one for the information technology department. These three work neighbourhoods are also the only ones that require a special security clearance in order to enter them, so locating them on the same floor as the reception area and security office is a strategic design move.

Support spaces on the fifth floor include a mail room, an IT walk-up centre, two meeting rooms, a conference room, a filing room, a copy room, a supply room, and a work lounge. A break area is located adjacent to the north atrium, as well as a touch-down zone that consists of various individual and informal collaboration spaces.

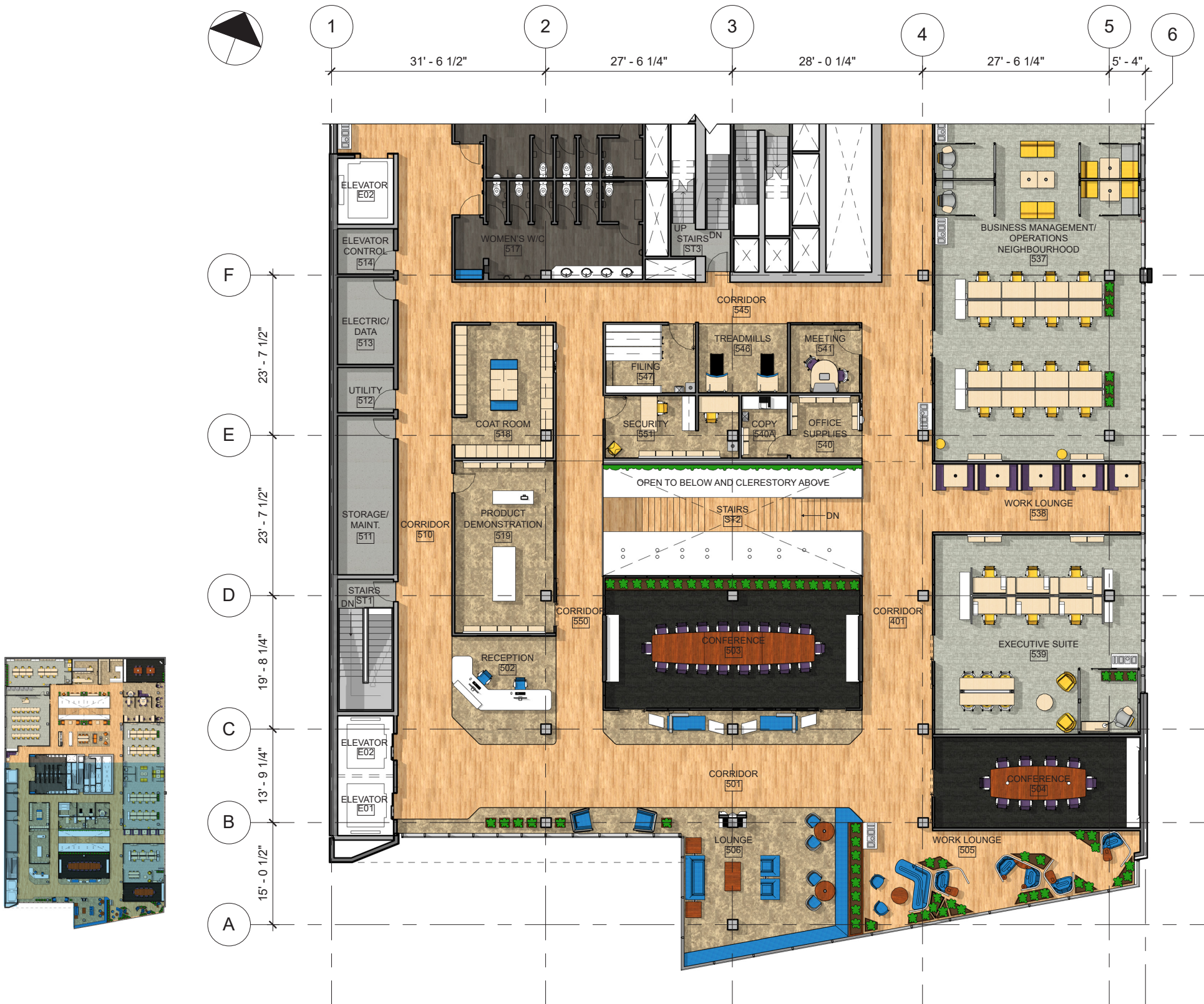


Figure 97. Level 5 rendered floor plan - south.



Figure 98. Level 5 rendered floor plan - north.

8.4.1 Reception Area and Lounge

The reception area is the first space that clients and visitors see when entering MarkIT's office. As such, MarkIT's corporate identity is communicated through the abundant use of the company's signature blue colour, as well as monitors that display the company's logo, values, and brand messages. Dark wood accents combined with contemporary design elements and furnishings give the space a semi-formal feel while still embodying the young and energetic personality of the company.

The adjacent lounge functions as a gathering area for clients and company executives to socialize before and after meetings, as well as a waiting area for other visitors and potential employees. This space features shelving for the company's product literature, as well as display space for awards and recognitions that the company has received. A prominently featured filtered water dispenser also communicates the company's environmentally responsible values.



Figure 99. View of the reception area.



Figure 100. Fifth floor elevator landing, lounge, and work lounge south elevation.

8.4.2 Client Conference Room

The client conference room is intended to be a space where company executives meet with current and potential clients to present MarkIT's products. With seating for up to eighteen individuals, this is the largest conference room in the office and clients are offered the best views, with the atrium and green wall to the north and views of Winnipeg's downtown to the south. Since this space is primarily intended for presentations, furnishings consist

of a large table, comfortable task chairs, and monitors at each end of the room to display digital media. Client privacy is taken into consideration by having the glazed walls of the conference room applied with a cloaking film that blocks the light from the displays, ensuring that presentations and meetings are kept private in the otherwise open and transparent office.



Figure 101. Client conference room north elevation.

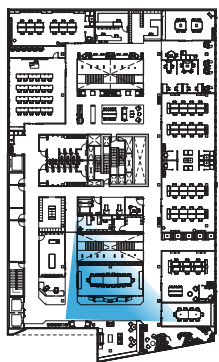


Figure 102. View of the client conference room from the reception area.

8.4.3 Product Demonstration Space

The product demonstration space is a mock-up retail environment where MarkIT can showcase its products to current and potential clients. The space is furnished with shelving and display surfaces for MarkIT-branded items, large digital monitors to display product-related information, and a point-of-sale system to complete the experience. The aesthetic of this space is kept minimalist to keep attention focused on the company's product offerings.

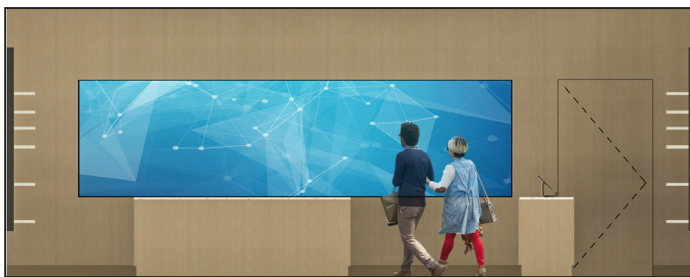


Figure 103. Product demonstration space west elevation.



Figure 104. Product demonstration space north elevation.

8.4.4 Conference Rooms

Conference rooms are located on each floor of MarkIT's office and accommodate up to 10 individuals. Unlike meeting rooms, conference rooms are intended to be used for more formal meetings that consist of presentations rather than collaboration sessions. Each conference room is furnished with a large table, task chairs, and monitors for displaying digital media.

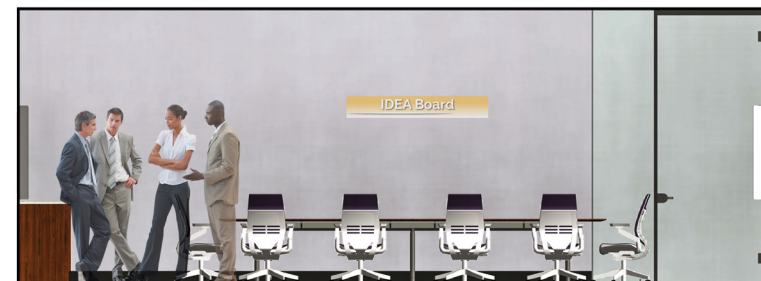


Figure 105. Typical conference room elevation.

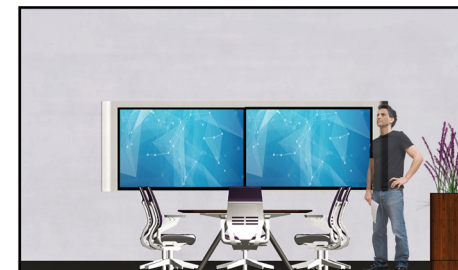


Figure 106. Typical conference room elevation.

8.4.5 Classroom

The classroom is intended to be a space where MarkIT can conduct education sessions for its employees and clients. For internal purposes, the classroom can be used to train new and existing employees, conduct meetings that require the presence of all individuals within a department, and for general information sessions. For clients, the space can be used to educate representatives about current and upcoming product offerings within a controlled environment.



Figure 107. Classroom north elevation.

All of the furniture in the classroom is mobile so that the space can be reconfigured to accommodate a variety of scenarios such as a traditional lecture format or group collaboration sessions. Mobile monitors with laptop-to-screen sharing technology are also available to facilitate collaboration sessions for multiple small groups at the same time. The room is otherwise furnished with a retractable projection screen and a projector, and its east and west walls are finished with a magnetic white-board paint to facilitate analogue collaboration.

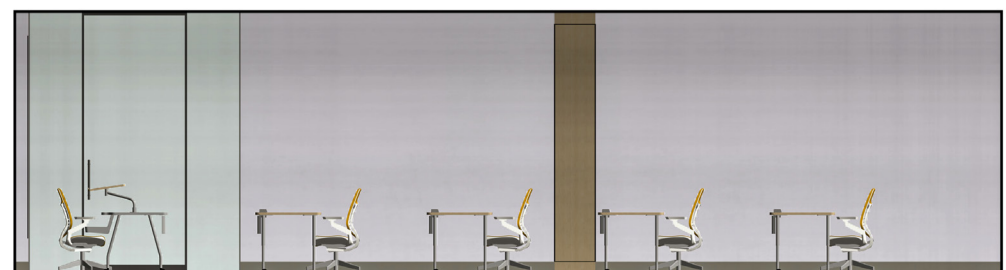


Figure 108. Classroom east elevation.

8.4.6 Executive Neighbourhood

The executive neighbourhood is similar to the other work neighbourhoods in order to maintain an egalitarian design strategy. However, unlike the other work neighbourhoods, each of the six executives is given a permanently assigned workstation. Workstations are arranged in a traditional benching format and consist of a height-adjustable desk, a task chair, a high-density storage unit, as well technological equipment such as computer monitors, data connections, and power receptacles.



Figure 109. Executive neighbourhood north elevation.

Other furnishings in the executive neighbourhood include a single-occupancy modular booth that can be used to make and take phone calls without disrupting coworkers as well as to complete work tasks that require high levels of concentration without being disrupted. A bar-height table with six stools is provided along with a large format touch-screen monitor for collaboration sessions, and the walls are otherwise finished with a magnetic white-board paint for analogue idea-generation and documentation. Shelving is provided to store office supplies and can be used to display personal items, promoting a sense of ownership. Two lounge chairs are also provided for tasks such as reviewing documents.

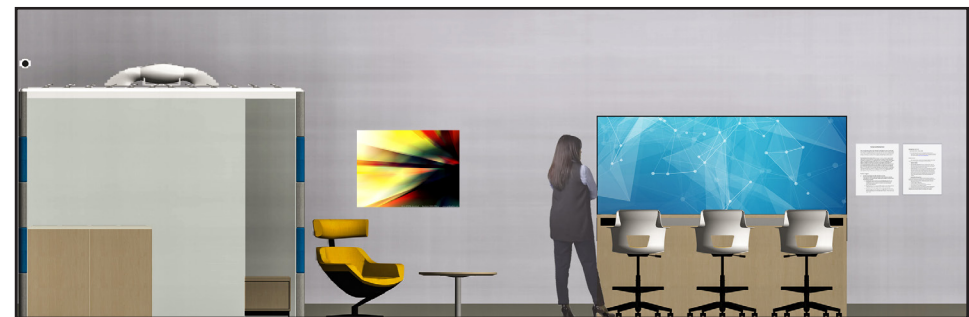


Figure 110. Executive neighbourhood south elevation.

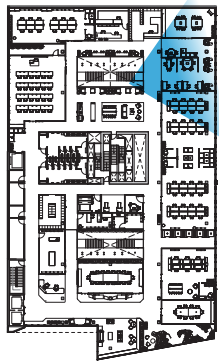


Figure 111. View of the touch-down zone.

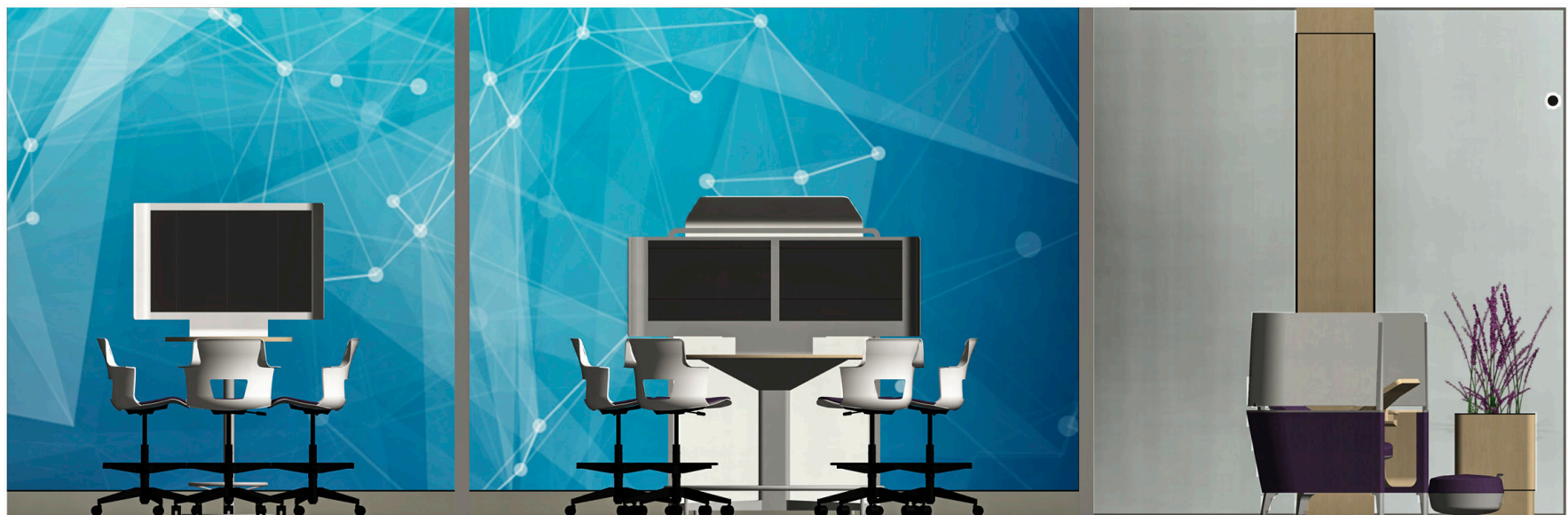


Figure 112. Touch-down zone north elevation.

8.4.7 Touch-Down Zone

The touch-down zone is intended to be a space that accommodates a variety of needs in an informal setting. Individual workstations, lounge pods, and several group settings are provided for individuals and small groups who prefer to work in a public, high-energy environment. Its location near the break area, IT walk-up centre, mail room, and a meeting room ensure that this space will be highly utilized as an in-between work space as employees shift between different work modes throughout the day.

8.4.8 Break Area

The fifth floor break area is similar to the break areas on the other floors, acting as a social hub and gathering place for employees throughout the day. Its location near the classroom, the IT walk-up centre, the mailroom, and the touch-down zone places this break area at the centre of a highly active part of the office. As in the other break areas, the ceiling element is intentionally lowered to create a more intimate feeling than the surrounding spaces.

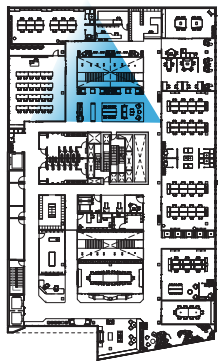


Figure 113. View of the fifth floor break area.

CHAPTER 9: CONCLUSION

9.1 Discussion

The contemporary workplace is constantly evolving due to a variety of factors such as technological advances, emerging workstyles, real estate trends, environmental sustainability goals and cultural shifts. While change is expected and often embraced by organizations trying to improve productivity and efficiencies, research data shows that work-related stress has increased in recent years (Colligan & Higgins, 2006). This evidence suggests that workplaces are being designed in a way that compromises the environmental and psychological factors that affect well-being, presenting an opportunity for this issue to be investigated from an interior design perspective.

The focus on Generation Z as the target demographic for the proposed design is one of the unique features that differentiates this practicum from other workplace-related projects. As a cohort that is currently beginning to enter the workplace for the first time, the design strategies and insights presented in this practicum are highly relevant to the field of interior design. Since research regarding Generation Z's workplace-related needs and preferences is still quite scarce, the theoretical framework that was developed for this project

became a key component for informing the interior design strategies that were incorporated into the proposed design.

Of the three theories that form this practicum's theoretical framework, Ronald Inglehart's Theory of Intergeneration Value Change had the greatest influence on the proposed design. The revelation that younger generations are becoming more post-materialistic and that the tendency toward post-materialism can be accurately described and predicted based on socio-economic trends was incredibly useful for the development of interior design strategies intended to anticipate Generation Z's workplace needs and preferences. Post-materialistic values were exhibited in the proposed design by incorporating interior design elements and amenities that improve workers' quality of life through experience rather than materialistic rewards. Examples include the meditation space, the atrium green wall, the fitness centre, the community space and numerous lounges.

A common feature of the interior design elements that embody post-materialism is that they are all shared amenities since social equity and accessibility are highly valued by post-materialistic

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individuals, as is the promotion of social interaction for creating a more personal work environment. The absence of status symbols in the proposed design, such as private offices, is also an important post-materialistic design strategy because it communicates equality and egalitarianism as corporate values.

Many of the post-materialistic elements that were incorporated in the proposed design also directly align with the fulfilment of environmental and psychological factors affecting wellbeing and productivity. For example, incorporating biophilic elements improves workers' wellbeing while simultaneously embodying the post-materialistic value of living and working in an aesthetically pleasing environment. Another example is how the absence of status symbols can have positive psychological outcomes while also embodying the post-materialistic value of equality. While these commonalities may suggest that optimal workplace well-being and productivity can be achieved through the fulfilment of environmental and psychological factors alone, this practicum asserts that the perceived alignment of personally held values and corporate values plays an important role in promoting well-being. As Generation Z gains prominence in the workforce it is likely that corporations will be expected to clearly communicate post-materialistic values in order to competitively attract and retain the best talent.

I believe that the most important contribution that this practicum project makes for the interior design profession is the application of theory in the design process. In practice, theoretical explorations are often not within the scope of work performed by designers due to budget and time constraints, so providing resources such as this can be valuable tools. The discussion of post-materialistic values and the implications they have for designing for Generation Z is particularly significant at this moment in time since it is a relatively untested market and the research contained in this document provides a perspective that may otherwise be overlooked.

In summation, the proposed design synthesized all of the theory and research findings to produce a workplace that has been tailored to the values, needs, and preferences of Generation Z while remaining inclusive of the other generations in the workplace. Values that are vital for organisations to attract and retain members of Generation Z, such as egalitarianism, social awareness, environmental responsibility, and health consciousness were implemented as guiding principles for developing the interior design strategies for the proposed design. The proposed design also strives to facilitate collaboration, mentorship opportunities, and career development opportunities since they are highly valued by all of the generations in the workplace.

9.3 Research Questions

In Chapter 1 I identified four research questions that guided my research and design direction. These questions are revisited here with discussions regarding how they have been realized.

1. What are the differences and similarities between Generation Z and the other generations present in the workplace in terms of characteristics, values, workplace preferences, and workplace needs?

There are several key differences between each of the generations in the workplace that can generally be explained by the trend towards post-materialism. As generations become more post-materialistic, a higher value is being placed on quality of life, which needs to be addressed in the workplace if companies hope to attract and retain members of Generation Z. Values and characteristics such as egalitarianism, social awareness, environmental responsibility, and health consciousness are the most pronounced in the youngest generations, while traditional hierarchical organizational structures, the need for public recognition, and traditional status symbols are most pronounced in the older generations. The proposed design addressed post-materialistic values by creating a workplace that provides opportunities and amenities intended to enhance employees'

quality of life. Amenities such as the community space, lounge spaces, respite rooms, meditation room, fitness room, and cafeteria expand the role of the physical workplace environment beyond what is required for successful day-to-day business operations. By providing these amenities, corporations can communicate an understanding of how important post-materialistic values are to Generation Z and that they are invested in the wellbeing of their workforce.

Key similarities between each of the generations include a willingness to collaborate and placing a high value on mentorship opportunities and career development opportunities. Corporate design strategies should highlight these similarities to help employees from different generational cohorts focus on shared values rather than differences. These shared values can also be utilized to promote intergenerational knowledge transfer and can aid in succession planning.

2. How can interior design strategies facilitate ways of working that promote knowledge sharing and collaboration across all levels of an organization?

More than anything else, the promotion of knowledge sharing and collaboration is achieved through the provision of formal

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and informal social and meeting spaces throughout the proposed design. The distributed work model offers employees the option to move about freely throughout the day, so providing opportunities for spontaneous interaction is a strategy that utilizes employee movement in a natural and constructive way. The egalitarian strategy of removing status symbols and traditional hierarchies also means that employees are encouraged to approach and collaborate with individuals based on task-based needs rather than traditional ranking within the organisation. The placement of acoustically private meeting booths within work neighbourhoods and support spaces throughout the office also makes it easy for groups to work together without losing momentum as they search for meeting spaces.

Another strategy is in how technology is allowing for a higher degree of flexibility in terms of where and how people work. Technology is enabling workers to become more mobile, which is reflected in workplace design strategies shifting away from providing traditional owned workstations for each employee, to providing a variety of work spaces throughout the offices that suit different work needs and preferences. This strategy was implemented in the proposed design through a distributed work model and acknowledges that the needs of employees change depending on the type of task being performed, and that personal work environment preferences require a broad range of private and public spaces for individuals and groups.

3. How can interior design strategies ensure optimal well-being and productivity in the workplace?

Environmental and psychological factors affect well-being and productivity to a large degree, especially considering how much time people spend in the workplace. The literature review in Chapter 4 provided a large volume of evidence to support this claim and interior design strategies were implemented in this project's proposed design to ensure that environmental and psychological wellbeing were optimized. The trend towards post-materialism will also contribute to sustained focus on how workplace design can contribute to maintaining a high quality of life.

One example that is intended to promote well-being and productivity is how each work neighbourhood is enclosed by a wall of double-layered glazing, which is a design decision that has been made for several reasons. The first reason is for acoustics so that employees working in the neighbourhoods are not disrupted by noises originating from nearby social and informal workspaces, a common issue in open-plan offices. The second reason is that some departments require enclosures for confidentiality purposes, so in order to avoid enclosures being viewed as status symbols, all departmental neighbourhoods are enclosed to maintain an egalitarian design strategy. The third reason is that the neighbourhoods are intended to feel like a home within the office,

so the enclosures function as a clear boundary between semi-private and public spaces to maintain a sense of security and privacy that is not available in many of the other spaces throughout the office. While the walls are a physical boundary, they are fully glazed which embodies the corporate value of transparency and allows natural light to pass through to the adjacent spaces.

4. How can interior design elements embody individually held values and communicate corporate values to employees and clients?

Interior design elements and strategies can be utilized as effective communication tools in a variety of ways. Specifically for this project, it was important that the values of Generation Z were embodied through the proposed design of MarkIT's office. One example is how egalitarianism is communicated throughout the proposed design by creating spaces that are highly accessible and do not feature elements such as status symbols that indicate preferential treatment for specific groups and individuals. Another example is how the proposed design communicates a commitment to its employees' wellbeing by providing a range of features and amenities such as the fitness centre, meditation room, and respite rooms. More subtly, corporate values such as openness and transparency are communicated through spatial planning strategies and material choices.

9.5 Reflection

This project was developed and completed over the course of two and a half years and has provided me with many learning opportunities along the way. As an interior designer, this project has reaffirmed my belief that interior design has the power to enhance the lives of the people who occupy spaces that have been thoughtfully and meaningfully designed. The broad range of theory and research that was ultimately synthesized into the proposed design showed me that design inspiration can come from unlikely sources, and that a research-led design process can shape a design project in unexpected ways. Finally, I am grateful that this project has fueled my curiosity and passion for workplace design, and I look forward to beginning a career that will allow me to positively affect the lives of many people.

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APPENDIX A: LIFE SAFETY REQUIREMENTS

The National Building Code of Canada 2015 (NBCC 2015) was reviewed and analyzed in order to ensure occupant safety for all users of MarkIT's office, and to ensure that the office's design is compliant with Canada's building bylaws and accessibility standards (National Research Council of Canada, 2015).

Part 3: Fire Protection, Occupant Safety and Accessibility

3.1. General

3.1.2. Classification of Buildings or Parts of Buildings by Major Occupancy

3.1.2.1. Classification of Buildings

The proposed office is intended for use by one major occupancy. According to Table 3.1.2.1. the facility's major occupancy classification is Group D: Business and personal services occupancies.

3.1.17. Occupant Load

3.1.17.1 Occupant Load Determination

The occupant load for each floor within the proposed office, based on Table 3.1.17.1., are as follows:

Level 3

Business and personal services uses: offices

21430 ft² (1991 m²) / 100 ft² (9.3m²)/person = 214 maximum occupants

Level 4

Business and personal services uses: offices

20020 ft² (1860 m²) / 100 ft² (9.3m²)/person = 200 maximum occupants

Level 5

Business and personal services uses: offices

20020 ft² (1860 m²) / 100 ft² (9.3m²)/person = 200 maximum occupants

LIFE SAFETY REQUIREMENTS

3.2. Building Fire Safety

3.2.2.55. Group D, Any Height, Any Area, Sprinklered

A building classified as Group D shall conform to the following:

- a) Be of non-combustible construction
- b) Sprinklered throughout
- c) Floor assemblies shall have a fire-resistance rating not less than 1 h
- d) Loadbearing walls, columns and arches shall have a fire-resistance rating not less than that required for the supported assembly.

3.2.4. Fire Alarm and Detection Systems

3.2.4.1 Determination of Requirement for a Fire Alarm System

Since the proposed office has an automatic sprinkler system installed, the building requires the installation of a fire alarm system.

3.2.4.3. Types of Fire Alarm Systems

Since the proposed office is not a Group B or Group F occupancy, the fire alarm system shall be a single- or 2-stage system.

3.2.4.10 Fire Detectors

Fire detectors are not required within the proposed office since it is sprinklered throughout.

3.2.4.11 Smoke Detectors

Smoke detectors are not required within the proposed office since none of the requirements are applicable.

3.2.7. Lighting and Emergency Power System

3.2.7.3. Emergency Lighting

Emergency lighting shall be provided to an average level of illumination not less than 10 lx at floor or tread level in

- a) Exits
- b) Principal routes providing access to exit in open floor areas and in service rooms
- c) Open areas and service rooms

3.2.7.4. Emergency Power for Lighting

Since the proposed office is a Group D major occupancy, up to 6 storeys, and sprinklered, an emergency power supply shall be provided to maintain the emergency lighting required by this Subsection from a power source such as batteries or generators that will continue to supply power in the event that the regular power supply to the building is interrupted, and so designed and installed that upon failure of the regular power it will assume the electrical load automatically for a period of 1 h.

3.2.7.8. Emergency Power for Fire Alarm Systems

Since the proposed office is a Group D major occupancy, up to 6 storeys, and sprinklered, fire alarm systems shall be provided with an emergency power supply that is supplied by a generator, batteries, or a combination thereof; The emergency power supply shall be capable of providing supervisory power for not less than 24 h and immediately following that period, emergency power under full load for not less than 1 h; The emergency power supply shall be designed so that, in the event of a failure of the normal power source, there is an immediate automatic transfer to emergency power with no loss of information.

3.3. Safety Within Floor Areas

3.3.1.5. Egress Doorways

According to Table 3.3.1.5.-B Egress in Floor Area Sprinklered Throughout, a minimum of 2 egress doorways must be located so that one doorway could provide egress from the room or suite if the room is greater than 300 m² (3229 ft²). The doorways are required to be placed at a distance from one another equal to or greater than one third of the maximum overall diagonal dimension of the area to be served, measured as the shortest distance that smoke would have to travel between the nearest required egress doors.

3.3.1.9. Corridors

The minimum width of a public corridor shall be 1100 mm (44 in).

Obstructions located within 1980 mm (78 in) of the floor shall not project more than 100 mm (4 in) horizontally into an exit passageway or a public corridor in a manner that would create a hazard for a person with a visual disability traveling adjacent to the walls. However, the horizontal projection of an obstruction is permitted to be more than 100 mm (4 in) provided the clearance between the obstruction and the floor is less than 680 mm (27 in)

Dead-end corridors are not permitted to be more than 6 m (20 ft) long.

3.3.1.13. Doors and Door Hardware

Door release hardware shall be openable with not more than one releasing operation.

Door release hardware shall be installed not more than 1200 mm (48 in) above the finished floor.

3.3.1.19 Transparent Doors and Panels

A glass or transparent door shall be designed and constructed so that the existence and position of the door is readily apparent, by attaching visually contrasting hardware, bars or other permanent fixtures to it.

The visibility of fully glazed transparent doors, sidelights and panels shall be enhanced through the inclusion of mullions, markings or other elements that:

- a) Are visually contrasting,
- b) Are at least 50 mm (2 in) high,
- c) Extend the full width of the door, sidelight or panel, and
- d) Are located between 1350 mm (53 in) and 1500 mm (59 in) above the floor.

Where vision glass is provided in doors or transparent sidelights, the lowest edge of the glass shall be no higher than 900 mm (35 in) above floor level.

A glass door shall be constructed of tempered or laminated safety glass, or wired safety glass.

3.4. Exits

3.4.2. Number and Location of Exits from Floor Areas

3.4.2.1. Minimum Number of Exits

Every floor area intended for occupancy shall be served by at least 2 exits.

3.4.2.3. Distance between Exits

The least distance between 2 exits from a floor area shall be one half the maximum diagonal dimension of the floor area, but need not be more than 9 m (30 ft) for a floor area having a public corridor or one half the maximum diagonal dimension of the floor area, but not less than 9 m (30 ft) for all other floor areas.

3.4.2.5. Location of Exits

If more than one exit is required from a floor area, the exits shall be located so that the travel distance to at least one exit shall be not more than 40 m (131 ft).

3.4.3. Width and Height of Exits

3.4.3.2. Exit Width

The minimum aggregate required width of exits serving floor areas intended for business and personal services occupancies shall be determined by multiplying the occupant load of the area served by 8 mm per person. In the case of the proposed office, this results in 8 mm multiplied by 214 (max floor area occupancy) = 1712 mm (67 in) aggregate exit width.

If more than one exit is required, every exit shall be considered as contributing no more than one half of the required exit width, with a minimum exit width of 1100 mm (44 in).

3.4.3.4. Headroom Clearance

Every exit shall have a clear height over the clear width of the exit of not less than 2050 mm (81 in) and the headroom clearance for doorways shall be not less than 2030 mm (79 in).

3.4.4 Fire Separation of Exits

3.4.4.1. Fire-Resistance Rating of Exit Separations

The fire-resistance rating of exit separations at the proposed office is 2 hr for each exit.

3.7. Health Requirements

3.7.2. Plumbing Facilities

3.7.2.2. Water Closets

According to Table 3.7.2.2.-B Water Closets for a Business and Personal Services Occupancy, the proposed office requires 3 water closets plus 1 for each additional increment of 50 persons of each sex in excess of 50.

Level 3 of the proposed office has a maximum occupant load per gender of 100, which requires 4 water closets per gender.

Level 4 of the proposed office has a maximum occupant load per gender of 100, which requires 4 water closets per gender.

Level 5 of the proposed office has a maximum occupant load per gender of 107, which requires 4 water closets per gender.

Two thirds of water closets can be substituted with urinals in male washrooms, providing more than two water closets are required. For the proposed office, 2 of the 4 water closets in each of the male washrooms can be substituted with urinals.

3.7.2.3. Lavatories

1) At least one lavatory shall be provided in a room containing one or 2 water closets or urinals, and at least one additional lavatory shall be provided for each additional 2 water closets or urinals.

Level 3, Level 4, and Level 5 of the proposed office each require 4 water closets per gender, which requires 2 lavatories per gender washroom.

2) Wash fountains in circular form are permitted to be provided in lieu of lavatories required by Sentence (1) provided each 500 mm (20 in) of circumference is considered to be the equivalent of one lavatory.

3) Any shelf or projection above a lavatory shall be located so that it will not be a hazard.

4) Lavatories required by Sentence (1) shall be equipped with faucets that

a) Operate automatically, or

b) Have a manual control that

i) Complies with Clause 3.8.3.8.(1)(b),

ii) Does not require the application of continuous force to maintain water flow, and

iii) Where metered, provides at least 10 s of water flow.

3.8. Accessibility

3.8.2. Application

3.8.2.8. Plumbing Facilities

At least one water-closet stall or enclosure in a washroom required to be barrier-free shall comply with Subsection 3.8.3.

Where urinals are provided in a barrier-free washroom, at least one urinal shall comply with Subsection 3.8.3.

A barrier-free washroom shall be provided with a lavatory that complies with Subsection 3.8.3.

Where mirrors are provided in a barrier-free washroom, at least one mirror shall comply with Subsection 3.8.3.

Where drinking fountains are provided, at least one shall comply with Subsection 3.8.3.

Where showers are provided in a building, at least one shower stall in each group of showers shall comply with Subsection 3.8.3.

3.8.3. Design

3.8.3.2. Barrier-Free Path of Travel

The unobstructed width of a barrier-free path of travel shall be not less than 920 mm (36 in).

Interior and exterior surfaces that are within a barrier-free path of travel shall:

- a) Have no opening that will permit the passage of a sphere more than 13 mm (1/2 in) in diameter,
- b) Have any elongated openings oriented approximately perpendicular to the direction of travel,
- c) Be stable, firm and slip-resistant,
- d) Have a cross slope no steeper than 1 in 50,
- e) Be beveled at a maximum slope of 1 in 2 at changes in level between 6 mm (1/4 in) and 13 mm (1/2 in), and
- f) Be provided with sloped floors or ramps at changes in level more than 13 mm (1/2 in).

The width of a barrier-free path of travel that is more than 30 m (100 ft) long shall be increased to not less than 1500 mm (60 in) for a length of 1500 mm (60 in) at intervals not exceeding 30 m (100 ft).

3.8.3.6. Doorways and Doors

Every doorway that is located in a barrier-free path of travel shall have a clear width not less than 800 mm (32 in) when the door is in the open position.

Power door operators shall activate automatically or through the use of controls that

- a) Are located in a barrier-free path of travel,
- b) Are marked with the International Symbol of Access,
- c) Are located clear of the door swing and no more than 1500 mm (60 in) from the door swing,
- d) Comply with Subclause 3.8.3.8.(1)(a)(ii): Are operable from a height between 150 mm (6 in) and 300 mm (12 in) as well as between 900 mm (36 in) and 1100 mm (44 in) above the floor, and
- e) Are operable by touching or approaching any part of their surface with a fist, arm or foot,

3.8.3.8. Controls

Controls described in the this section shall

- a) where located in or adjacent to a barrier-free path of travel, and unless otherwise stated,
 - i) be mounted 400 mm (16 in) to 1200 mm (48 in) above the floor,
 - ii) be adjacent to and centered on either the length or the width of a clear floor space of 1350 (54 in) mm by 800 mm (32 in), and
- b) be operable
 - i) with one hand in a slosed fist position, without requiring thigh graspin, pinching with fingers, or twisting of the wrist, and
 - ii) unless otherwise stated, with a force not more than 22 N.

3.8.3.10. Drinking Fountains

Where drinking fountains are provided, at least one drinking fountain shall

- a) Be located along a barrier-free path of travel,
- b) Have a minimum clear floor space of 800 mm (32 in) by 1350 mm (54 in) in front of it,

- c) Where it has frontal access, provide a knee clearance not less than
 - i) 760 mm (30 in) wide,
 - ii) 735 (29 in) mm high at the front edge,
 - iii) 685 mm (27 in) high at a point 200 mm (8 in) back from the front edge,
 - iv) 230 mm (9 in) high over the distance from a point 280 mm (11 in) to a point 430 mm (17 in) back from the front edge,
- d) Have a spout that
 - i) Is located near the front of the unit, at a height between 750 mm (30 in) and 915 mm (36 in) above the floor, and
 - ii) Directs water flow in a trajectory that is nearly parallel to the front of the unit, at a height not less than 100 mm (4 in), and
- e) Be equipped with controls that activate automatically or are located either on the front or on both sides of it and are operable with one hand in a closed fist position, without requiring tight grasping, pinching with fingers, or twisting of the wrist, and with a force not more than 22 N.

3.8.3.11. Water-Closet Stalls

At least one water-closet stall or enclosure in a washroom required to be barrier-free shall

- a) Be not less than 1500 mm (59 in) wide by 1500 mm (59 in) deep,
- b) Have a clear floor space of 1500 mm (59 in) by 1500 mm (59 in) in front of the accessible stall,
- c) Be equipped with a door that
 - i) Can be latched from the inside with a mechanism conforming to Clause 3.8.3.8.(1)(b)
 - ii) Is aligned with either the transfer space adjacent to the water closet or with a clear floor space not less than 1500 mm (59 in) by 1500 mm (59 in) within the stall,
 - iii) Provides a clear opening not less than 850 (33 in) mm wide when it is open,
 - iv) Is self-closing so that, when at rest, the door is ajar by not more than 50 mm (2 in) beyond the jamb,
 - v) Swings outward, unless there is sufficient floor space within the stall for the door to swing inward in addition to a clear floor space of at least 800 mm (32 in) by 1350 mm (53 in),

LIFE SAFETY REQUIREMENTS

- vi) Where the door swings outward, is provided with a horizontal, D-shaped, visually contrasting door pull not less than 140 mm (6 in) long located on the inside such that its midpoint is 200 mm (8 in) to 300 mm (12 in) from the hinged side of the door and 800 mm (32 in) to 1000 mm (40 in) above the floor,
- d) Have a water closet located so that the distance between the centre line of the fixture and the wall on one side is 460 mm (18 in) to 480 mm (19 in),
- e) Be equipped with an L-shaped grab bar that
 - i) Is mounted on the side wall closest to the water closet,
 - ii) Has horizontal and vertical components not less than 760 mm (30 in) long mounted with the horizontal component 750 mm (30 in) to 850 mm (33 in) above the floor and the vertical component 150 mm (6 in) in front of the water closet,
- f) Be equipped with either one grab bar at least 600 mm (24 in) long and centred over the water closet, or two grab bars at least 300 mm (12 in) long and located either side of the flush valve, that
 - i) Are mounted on the rear wall, and
 - ii) Are mounted at the same height as the grab bar on the side wall or 100 mm (4 in) above the top of the attached water tank, if applicable,
- g) Be equipped with a coat hook mounted not more than 1200 mm (47 in) above the floor on a side wall and projecting not more than 50 mm (2 in) from the wall, and
- h) Be equipped with a toilet paper dispenser mounted on the side wall closest to the water closet such that
 - i) The bottom of the dispenser is 600 mm (24 in) to 800 mm (32 in) above the floor, and
 - ii) The closest edge of the dispenser is 300 mm (12 in) from the front of the water closet.

3.8.3.12. Universal Washrooms

Every regularly occupied storey that is accessed by a barrier-free path of travel shall

- a) Have a universal washroom that is served by a barrier-free path of travel,
- b) Have a door complying with Article 3.8.3.6. that

- i) Has a latch-operating mechanism located 900 mm (35 in) to 1000 mm (39 in) above the floor that complies with Clause 3.8.2.8.(1) (b) and is capable of being locked from the inside, and released from the outside in case of emergency, and
- ii) If it is an outward swinging door that is not self-closing, has a door pull not less than 140 mm (6 in) long located on the inside so that its midpoint is not less than 200 mm (8 in) and not more than 300 mm (12 in) from the hinged side of the door and not less than 900 mm (35 in) and not more than 1000 mm (39 in) above the floor,
- c) Have one lavatory conforming to Article 3.8.3.15.
- d) Have one water closet conforming to Article 3.8.3.13. and clause 3.8.3.11.(1)(d), with a clear floor space at least 900 mm wide that is parallel and adjacent to the open side of the water closet,
- e) Have grab bars conforming to Clauses 3.8.3.11.(1)(e) and (f),
- f) Have a coat hook conforming to Clause 3.8.3.11.(1)(g),
- g) Have a toilet paper dispenser conforming to Clause 3.8.3.11.(1)(b),
- h) Unless a counter is provided, have a shelf located not more than 1200 mm (47 in) above the floor, and
- i) Be designed to permit a wheelchair to turn in an open space not less than 150 mm (6 in) in diameter.

3.8.3.13. Water Closets

A water closet for a person with physical disabilities shall

- a) Be equipped with a seat located 430 mm (17 in) to 460 mm (18 in) above the floor,
- b) Flush automatically or be equipped with a flushing control that
 - i) Is located 500 mm (20 in) to 900 mm (35 in) above the floor,
 - ii) Is located no more than 350 mm (14 in) from the transfer side, and
 - iii) Complies with Clause 3.8.3.8.(1)(b),
- c) Be equipped with a seatlid or other back support, and
- d) Where it has a tank, have a security attached tank top.

3.8.3.14.

Where urinals are provided in a barrier-free washroom, at least one urinal shall

LIFE SAFETY REQUIREMENTS

- a) Be wall-mounted, with the opening of the basin located not more than 430 mm (17 in) above the floor,
- b) Be adjacent to an accessible route,
- c) Have a clear width of approach of 800 mm (32 in) centred on the urinal and unobstructed by privacy screens,
- d) Have no step in front of it,
- e) Have a flush control that
 - i) Is automatic, or
 - ii) Complies with Clause 3.8.3.8.(1)(b) and is located 900 mm (35 in) to 1100 mm (43 in) above the floor, and
- f) Have a vertically mounted grab bar installed on each side that
 - i) Complies with Article 3.7.2.8.,
 - ii) Is not less than 600 mm (24 in) long, with its centre line 100 mm (4 in) above the floor, and
 - iii) Is located not more than 380 mm (15 in) from the centre line of the urinal.

3.8.3.15. Lavatories and Mirrors

A barrier-free washroom shall be provided with a lavatory that shall

- a) Be equipped with faucets complying with Sentence 3.7.2.3.(4),
- b) Be located so that the distance between the centre line of the lavatory and any side wall is not less than 460 mm,
- c) Have a rim height not more than 865 mm (34 in) above the floor,
- d) Have a clearance beneath the lavatory not less than
 - i) 760 mm (30 in) wide,
 - ii) 735 (29 in) mm high at the front edge,
 - iii) 685 mm (27 in) high at a point 200 mm (8 in) back from the front edge, and
 - iv) 230 mm (9 in) high over the distance from a point 280 mm (11 in) to a point 430 mm (17 in) back from the front edge,
- e) Have insulated water supply and drain pipes where these pipes are exposed,

- f) Have a soap dispenser that
 - i) Is automatic, or
 - ii) Complies with Clause 3.8.3.8.(1)(b) and is located not more than 1100 mm (43 in) above the floor, within 500 mm (20 in) from the front of the lavatory, and
 - iii) Have a towel dispenser or other hand-drying equipment located close to the lavatory, not more than 1200 (47 in) mm above the floor in an area that is accessible to persons in wheelchairs.

Where mirrors are provided in a barrier-free washroom, at least one mirror shall be

- a) Mounted with their bottom edge not more than 1000 mm (39 in) above the floor, or
- b) Fixed in an inclined position so as to be usable by a person in a wheelchair.

3.8.3.16. Showers

Where showers are provided in a building, at least one shower stall in each group of showers shall

- a) Be not less than 1500 mm (59 in) wide and 900 mm (35 in) deep,
- b) Have a clear floor space at the entrance to the shower that is not less than 900 mm (35 in) deep and the same width as the shower, except that fixtures are permitted to project into that space provided they do not restrict access to the shower,
- c) Have no doors or curtains that obstruct the controls or the clear floor space at the entrance to the shower,
- d) Have a slip-resistant floor surface
- e) Have a threshold not more than 13 mm (1/2 in) higher than the finished floor, and where it is higher than 6 mm (1/4 in), beveled to a slope no steeper than 1 in 2,
- f) Have 2 grab bars that
 - i) Conform to Sentence 3.7.2.8.(1),
 - ii) One of which is not less than 1000 mm (39 in) long and located vertically on the side wall 50 mm (2 in) to 80 mm (3 in) from the adjacent clear floor space, with its lower end 600 mm (24 in) to 650 mm (26 in) above the floor, and

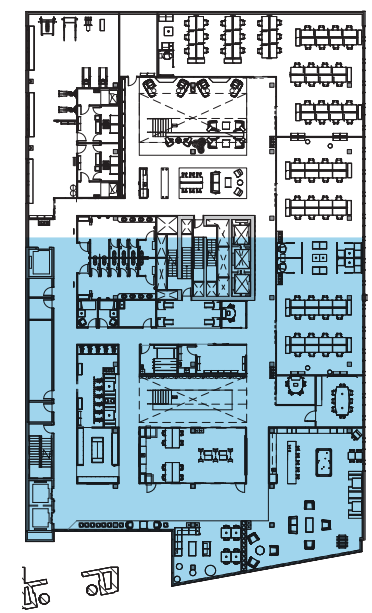
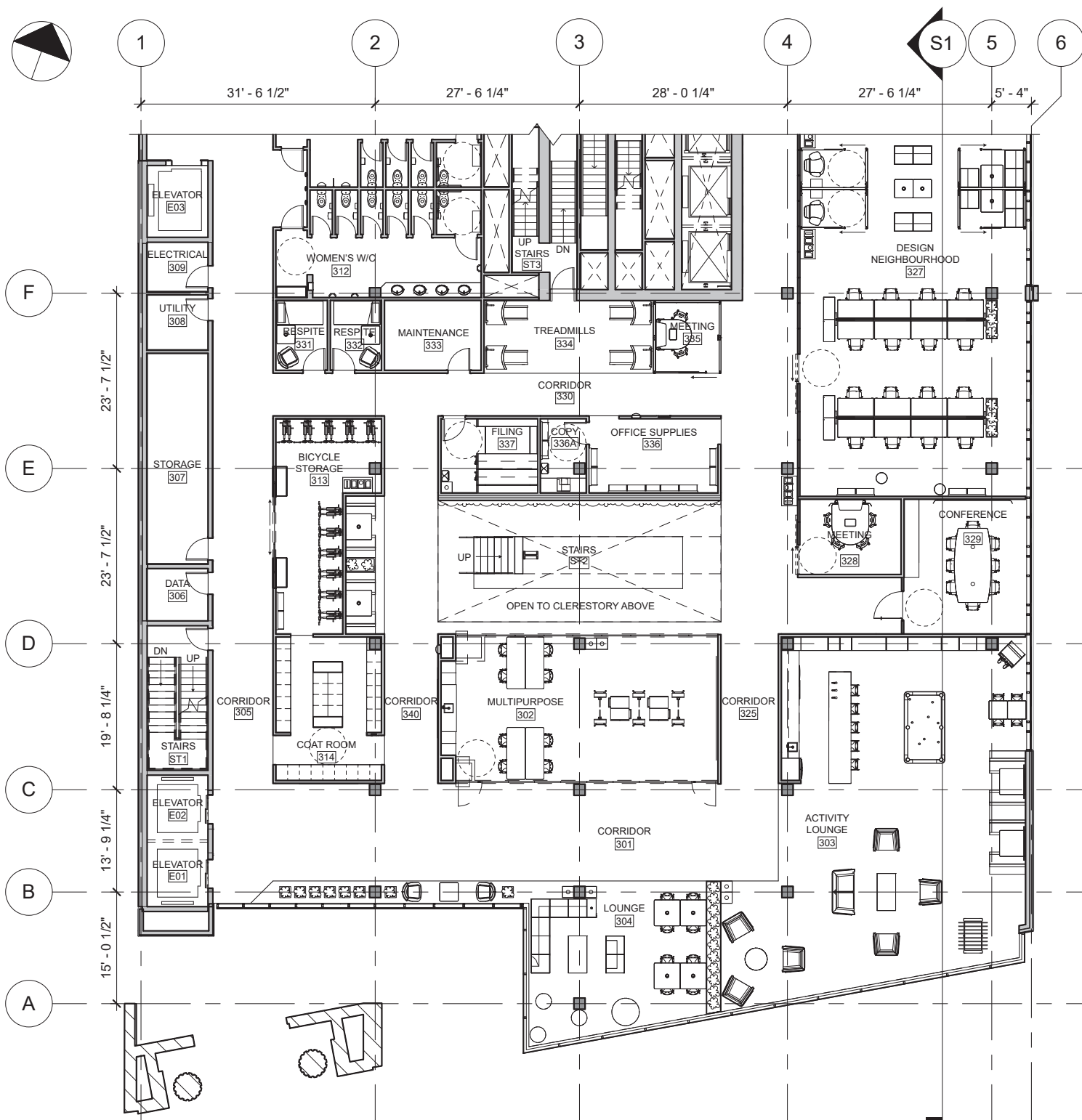
- iii) One of which is L-shaped and located on the wall opposite the entrance to the shower, with a horizontal member not less than 1000 mm (39 in) long mounted 750 mm (30 in) to 870 mm (34 in) above the floor and a vertical member not less than 750 mm (30 in) long mounted 400 mm (16 in) to 500 mm (20 in) from the side wall on which the other vertical grab bar is mounted,
- g) Have a hinged seat that is not spring-loaded or a fixed seat with a smooth, slip-resistant surface and no rough edges, the seat being
 - i) No less than 450 mm (18 in) wide and 400 mm (16 in) deep,
 - ii) Mounted on the same side wall as the vertical grab bar, at 460 mm (18 in) to 480 mm (19 in) above the floor, and
 - iii) Designed to carry a minimum load of 1.3 kN,
- h) Have a pressure-equalizing or thermostatic-mixing valve and other controls that
 - i) Comply with Clause 3.8.3.8.(1)(b),
 - ii) Are mounted on the wall opposite the entrance to the shower at not more than 1200 mm (47 in) above the floor and within reach of the seat,
- i) Have a hand-held shower head with not less than 1800 mm (71 in) of flexible hose located so that it
 - i) Can be reached from a seated position,
 - ii) Can be used in a fixed position at a height of 1200 mm (47 in) and 2030 mm (80 in), and
 - iii) Does not obstruct the use of the grab bars, and
- j) Have recessed soap holders that can be reached from the seated position.

3.8.3.21. Spaces in Seating Area

Spaces designated for wheelchair use shall be

- a) Clear and level, or level with removable seats,
- b) Not less than 900 mm (35 in) wide and 1525 mm (60 in) long to permit a wheelchair to enter from a side approach and 1220 mm (48 in) long where the wheelchair enters from the front or rear of the space,
- c) Arranged so that at least 2 designated spaces are side by side,
- d) Located adjoining a barrier-free path of travel without infringing on egress from any row of seating or any aisle requirements,
- e) Situated as part of the designated seating plan, to provide a choice of viewing location and a clear view of the event taking place.

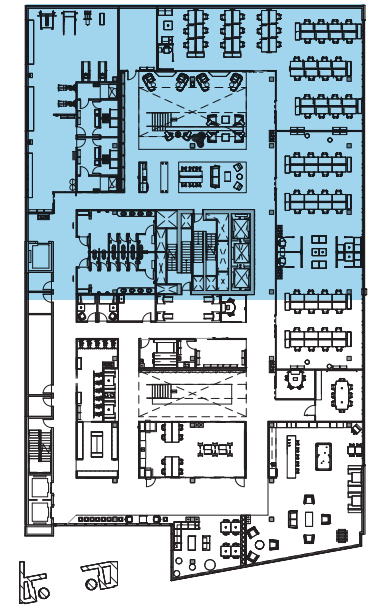
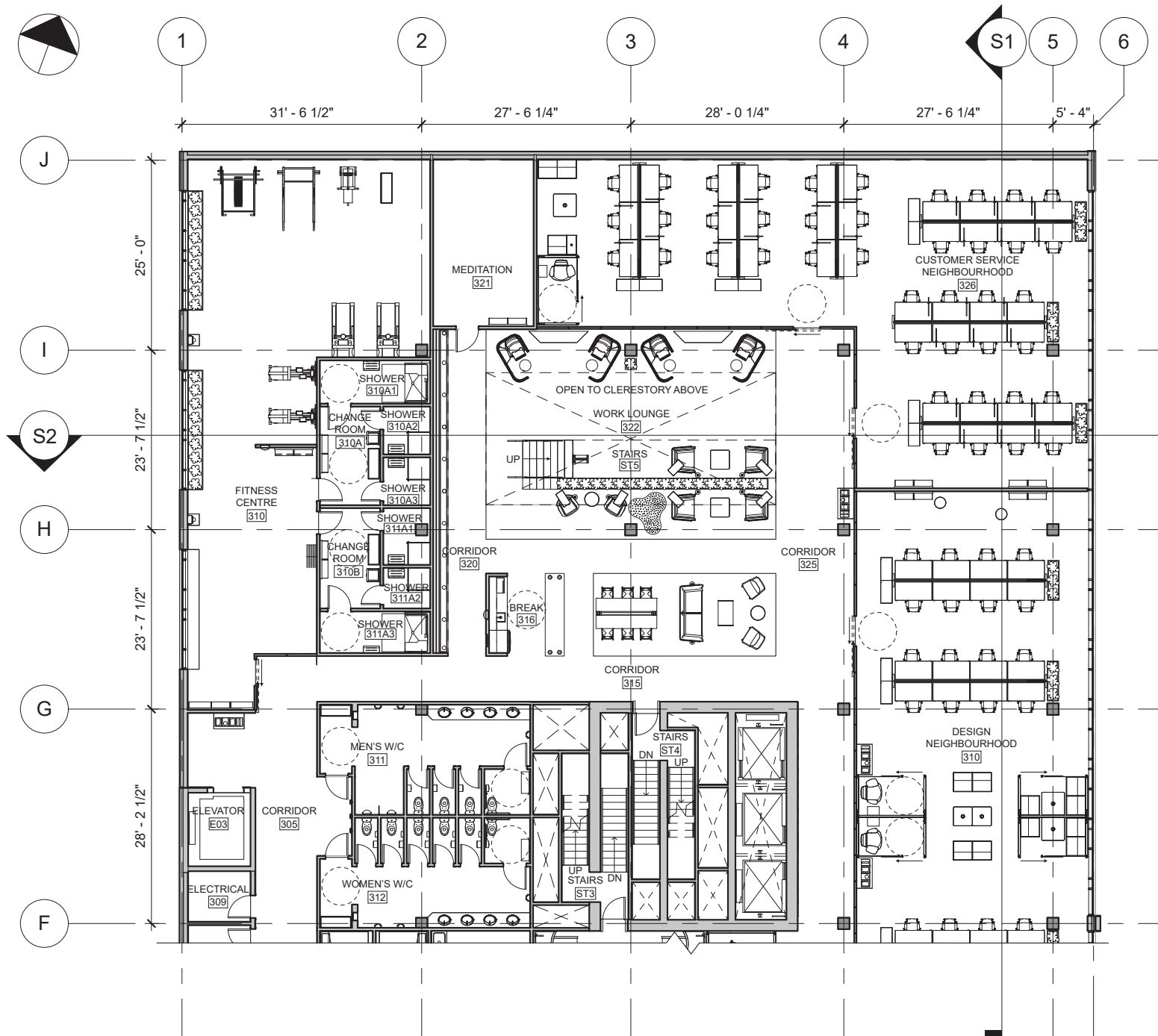
APPENDIX B: BUILDING PLANS AND SECTIONS



LEVEL 3 FLOOR PLAN - SOUTH

N.T.S.

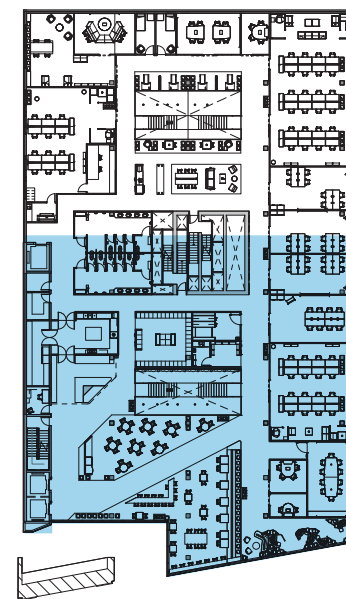
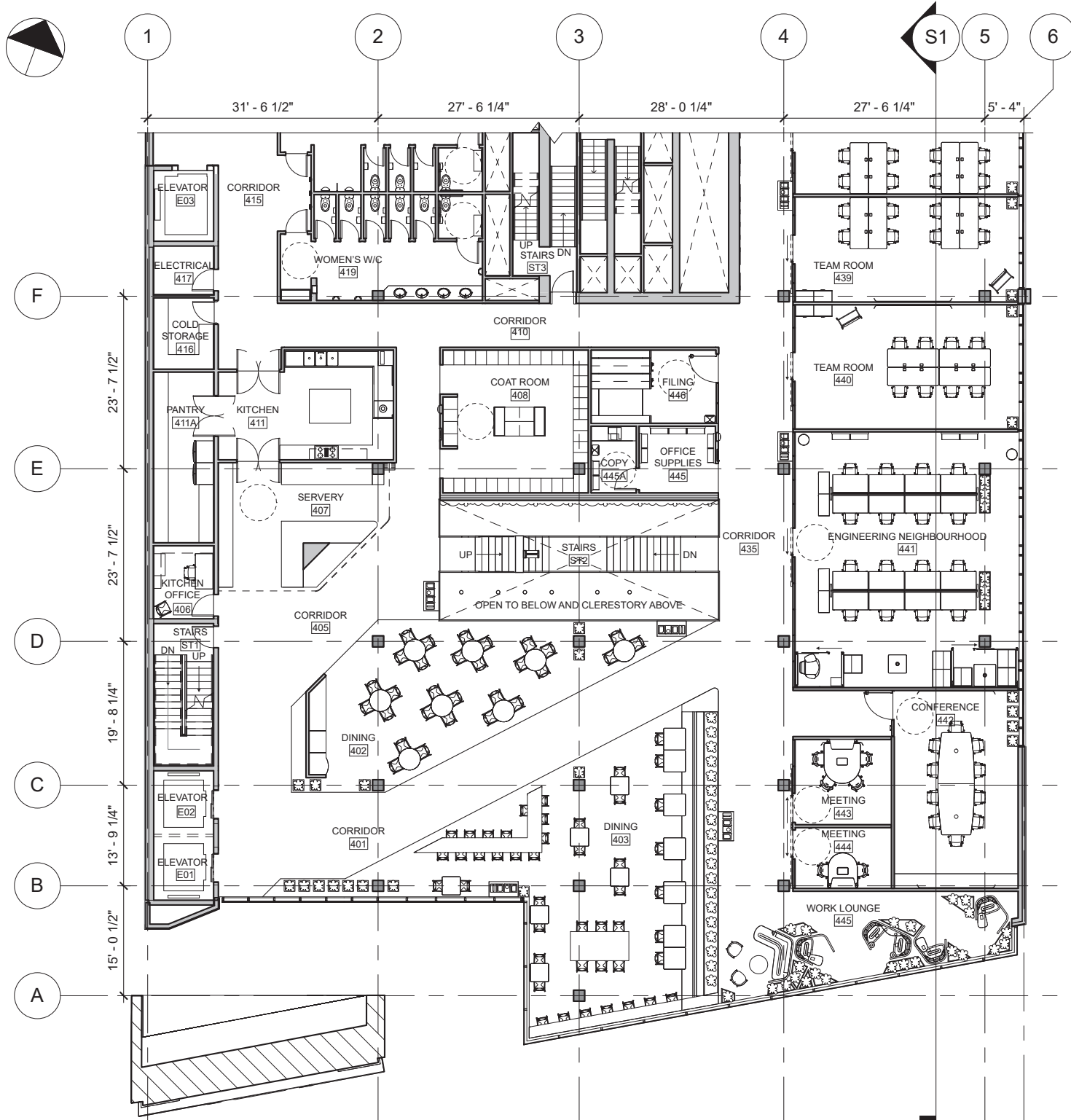
Figure 114. Level 3 floor plan - south.



LEVEL 3 FLOOR PLAN - NORTH

N.T.S.

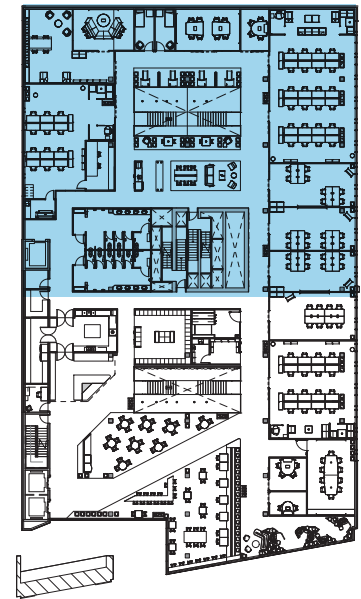
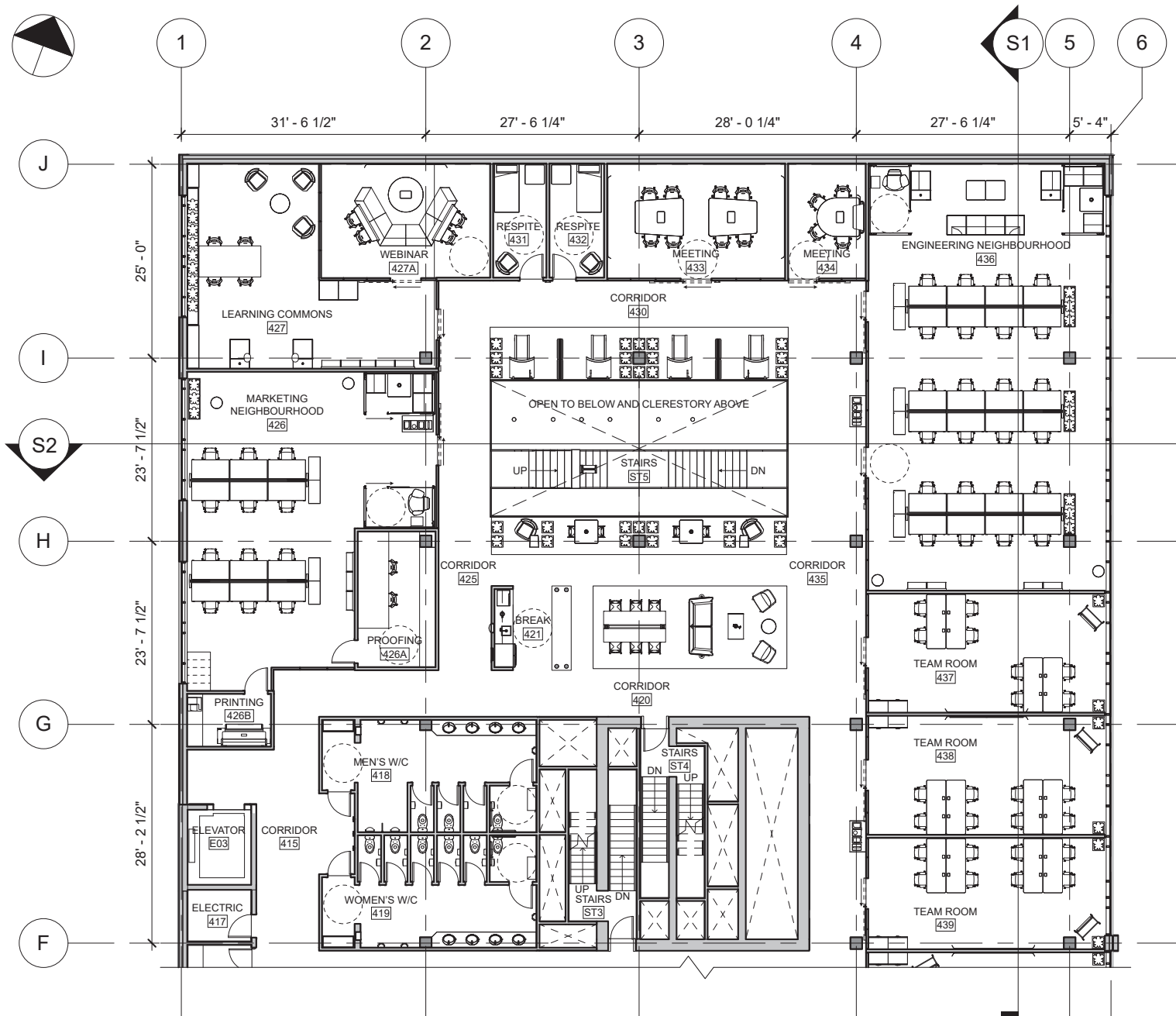
Figure 115. Level 3 floor plan - north.



LEVEL 4 FLOOR PLAN - SOUTH

N.T.S.

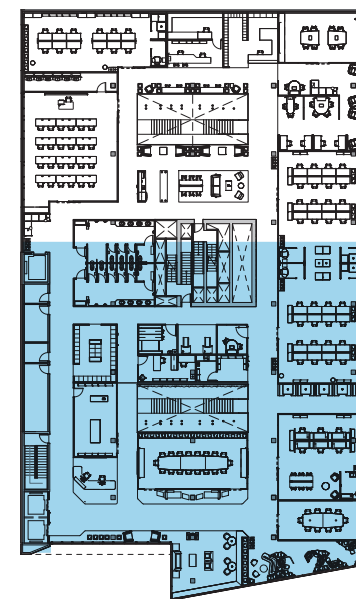
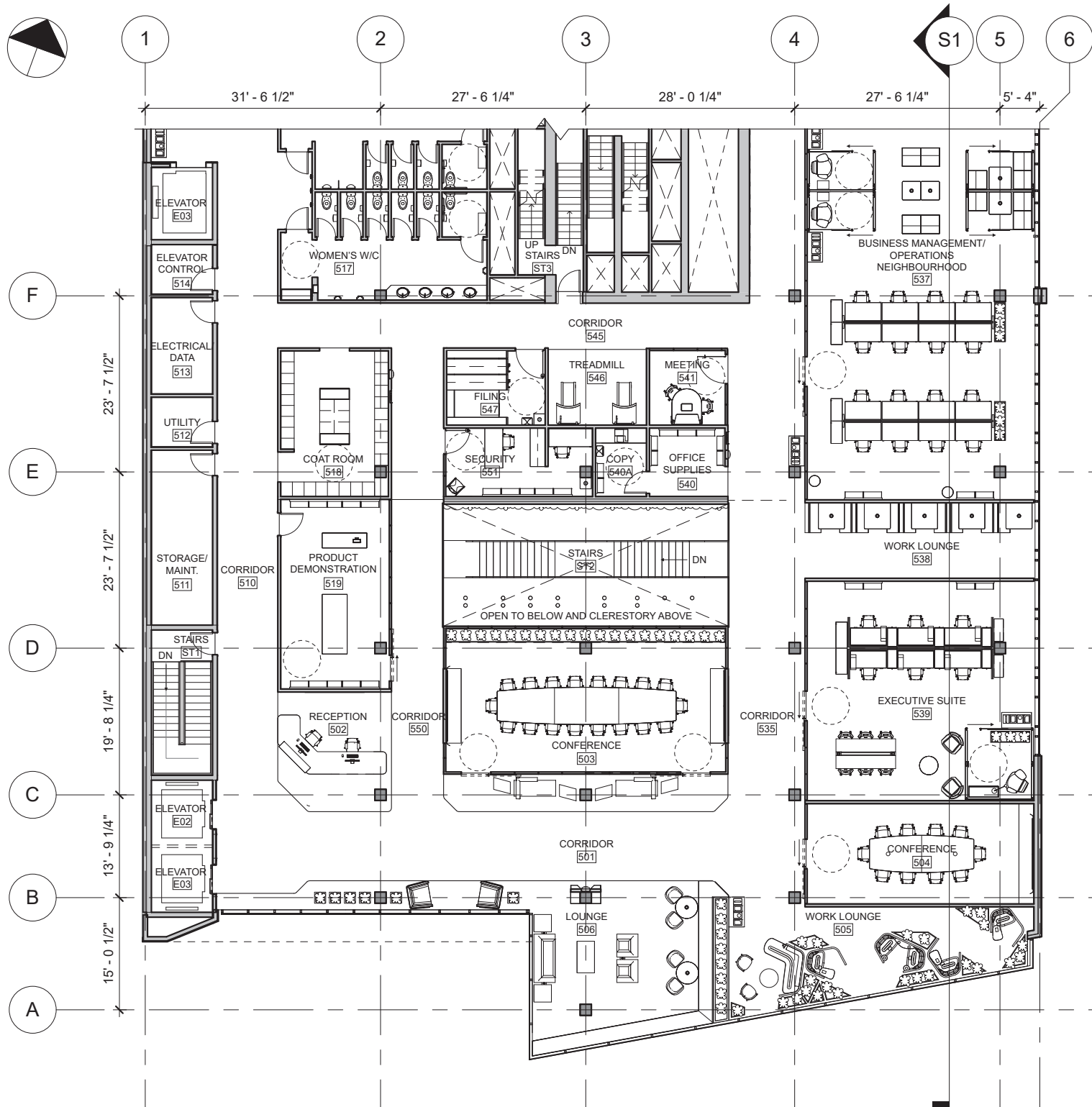
Figure 116. Level 4 floor plan - south.



LEVEL 4 FLOOR PLAN - NORTH

N.T.S.

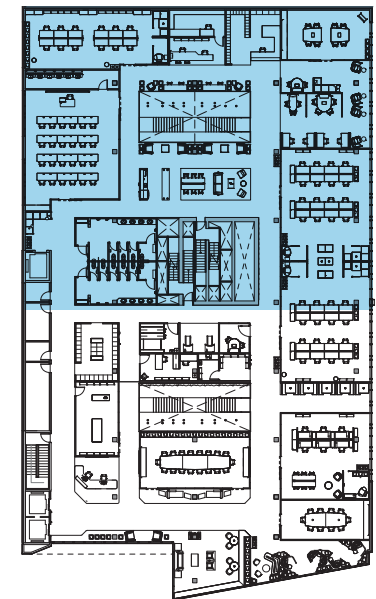
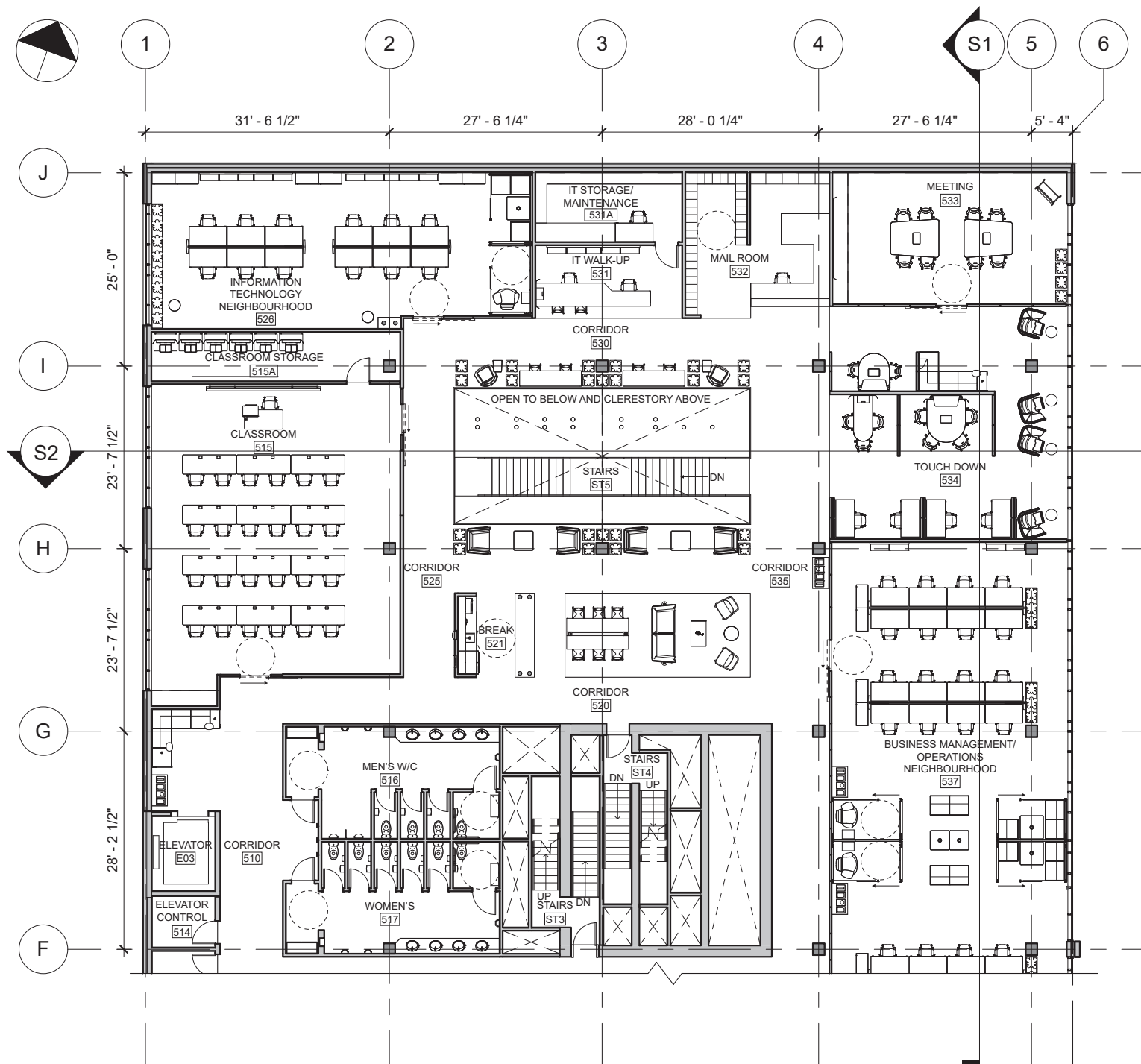
Figure 117. Level 4 floor plan - north.



LEVEL 5 FLOOR PLAN - SOUTH

N.T.S.

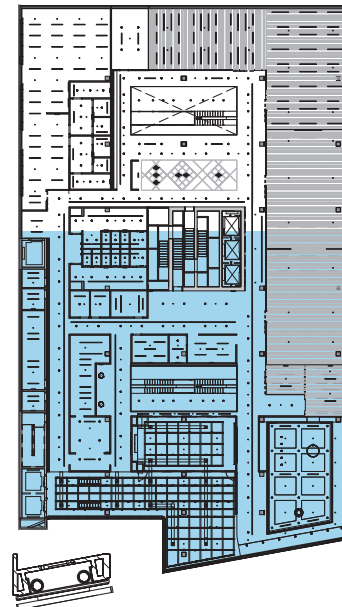
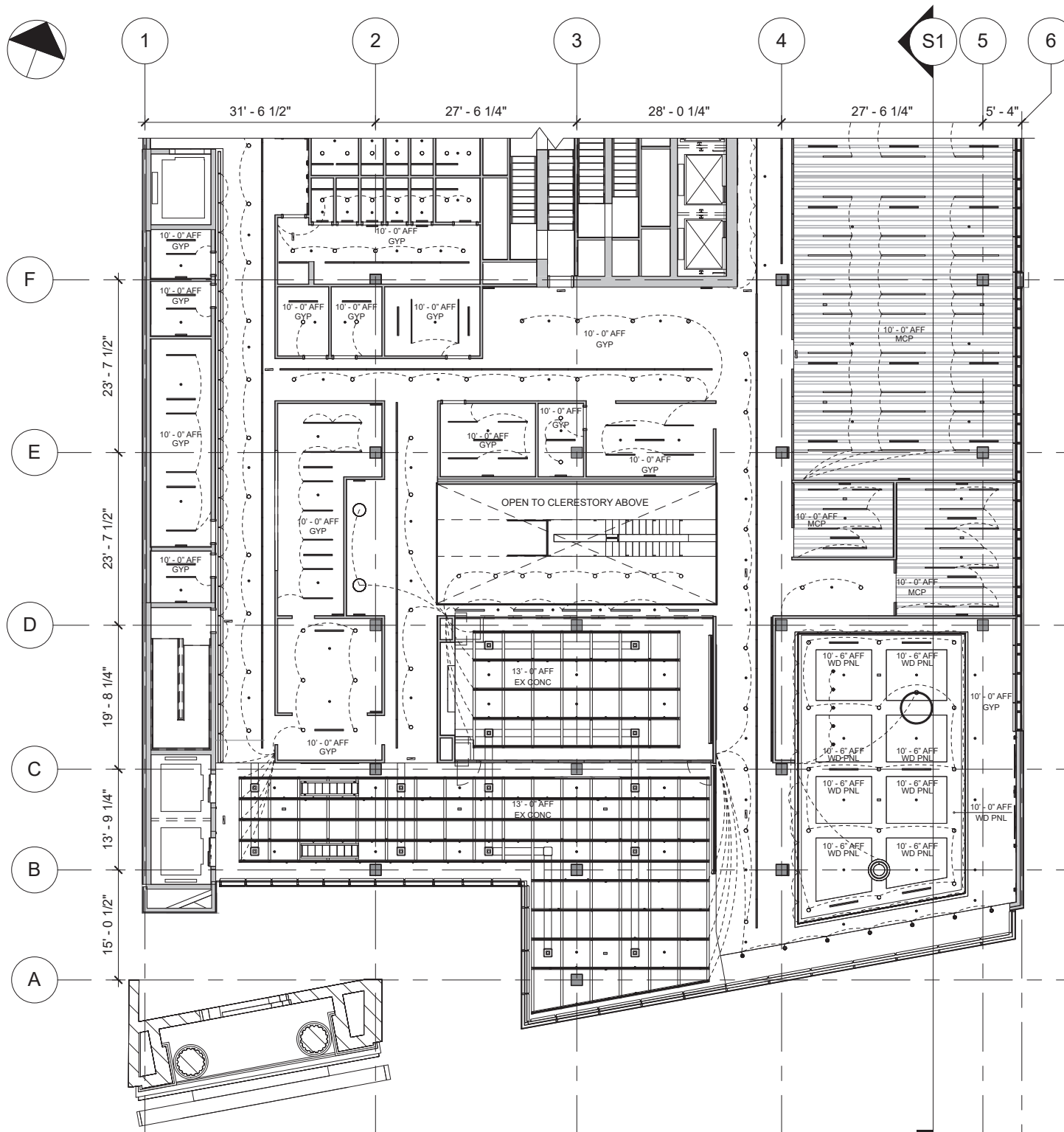
Figure 118. Level 5 floor plan - south.



LEVEL 5 FLOOR PLAN - NORTH

N.T.S.

Figure 119. Level 5 floor plan - north.



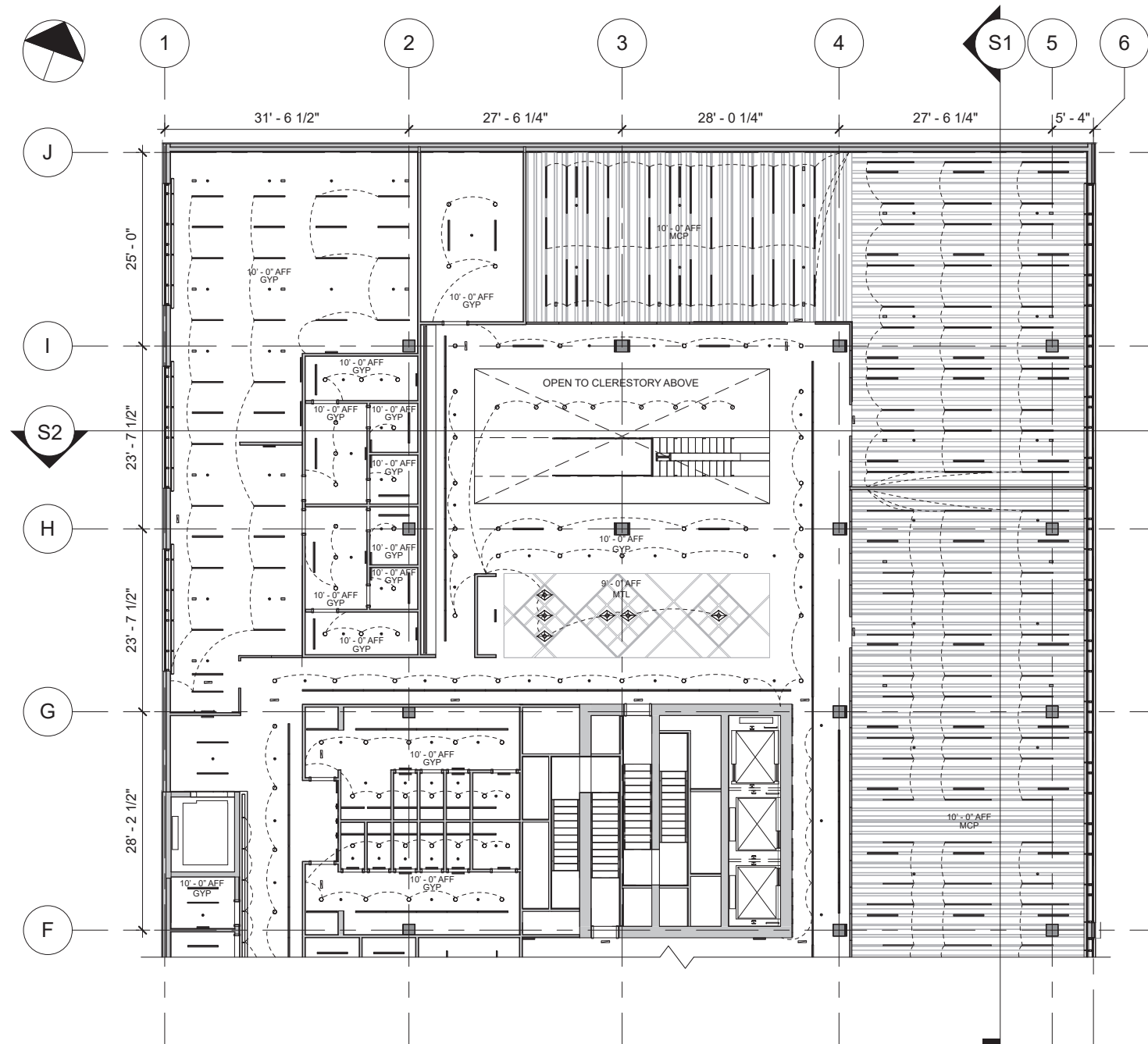
LEGEND

- 6" RECESSED DIRECT LED
- 24" RECESSED DIRECT LED
- 48" RECESSED DIRECT LED
- 72" RECESSED DIRECT LED
- RECESSED MULTIHEAD DIRECT LED
- 48" DIRECT PENDANT LED
- 4" ROUND PENDANT LED
- 6" ROUND PENDANT LED
- △ CUSTOM TRIANGULAR DIRECT LED
- 22" SQUARE PENDANT LED
- 23" ROUND PENDANT LED
- ◇ 24" SAIL SHAPE PENDANT LED
- 24" ROUND PENDANT LED
- 36" ROUND PENDANT LED
- 54" ROUND PENDANT LED
- 72" ROUND PENDANT LED
- 2" ROUND TRACK LIGHT LED
- 48" LINEAR AIR DIFFUSER
- 12" SQUARE AIR DIFFUSER
- 16" LINEAR AIR RETURN
- RECESSED SPRINKLER
- CEILING MOUNTED EXIT SIGN LED
- LIGHT AND OCCUPANCY SENSOR

LEVEL 3 REFLECTED CEILING PLAN - SOUTH

N.T.S.

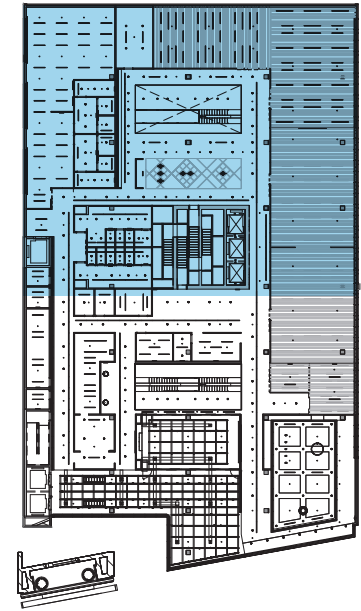
Figure 120. Level 3 reflected ceiling plan - south.



LEVEL 3 REFLECTED CEILING PLAN - NORTH

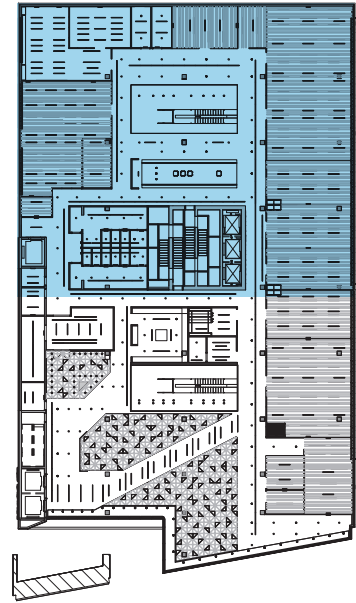
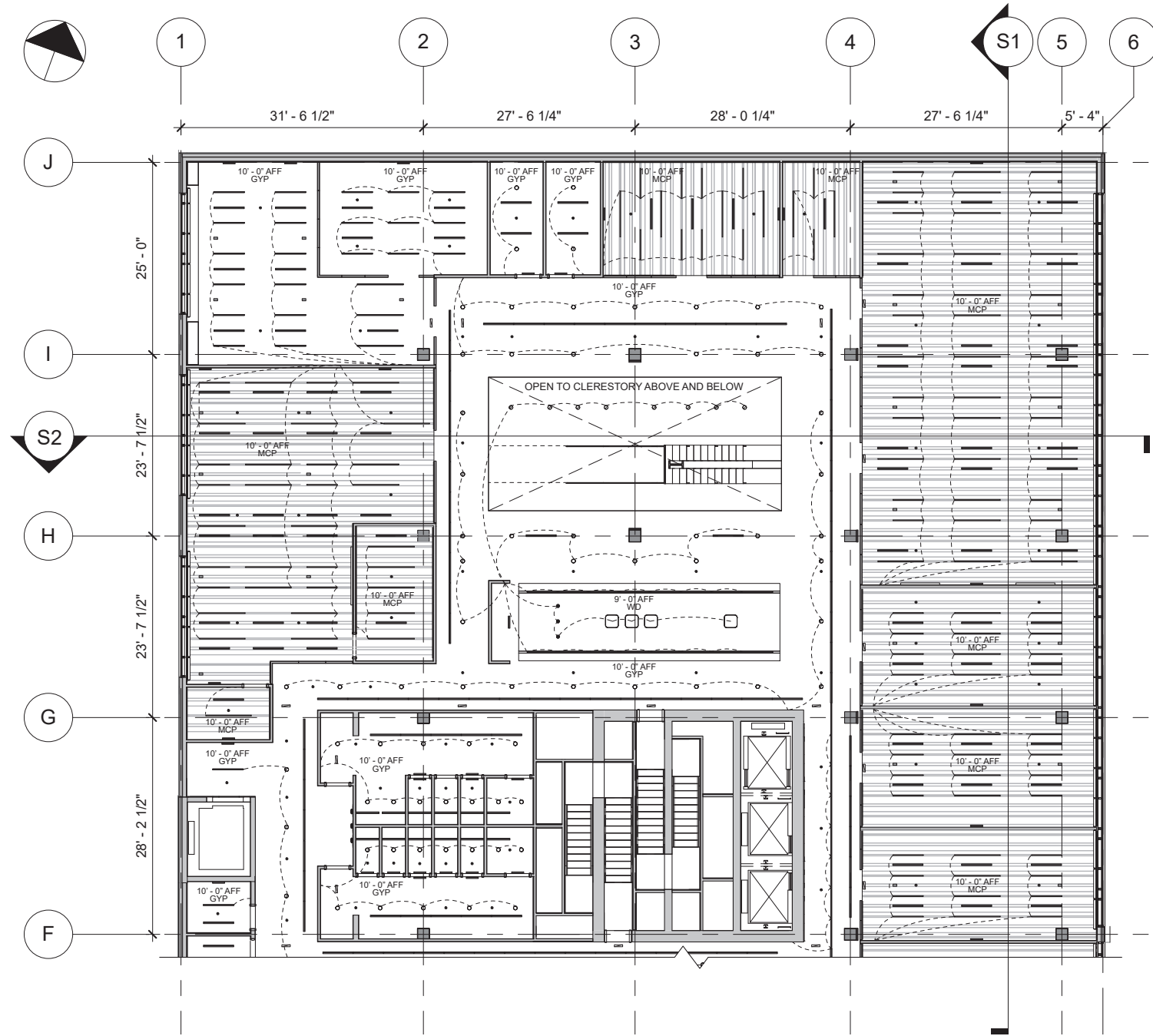
N.T.S.

Figure 121. Level 3 reflected ceiling plan - north.



LEGEND

- 6" RECESSED DIRECT LED
- 24" RECESSED DIRECT LED
- 48" RECESSED DIRECT LED
- 72" RECESSED DIRECT LED
- RECESSED MULTIHEAD DIRECT LED
- 48" DIRECT PENDANT LED
- 4" ROUND PENDANT LED
- 6" ROUND PENDANT LED
- △ CUSTOM TRIANGULAR DIRECT LED
- 22" SQUARE PENDANT LED
- 23" ROUND PENDANT LED
- ◇ 24" SAIL SHAPE PENDANT LED
- ⊙ 24" ROUND PENDANT LED
- ⊙ 36" ROUND PENDANT LED
- ⊙ 54" ROUND PENDANT LED
- ⊙ 72" ROUND PENDANT LED
- 2" ROUND TRACK LIGHT LED
- 48" LINEAR AIR DIFFUSUER
- 12" SQUARE AIR DIFFUSER
- 16" LINEAR AIR RETURN
- RECESSED SPRINKLER
- CEILING MOUNTED EXIT SIGN LED
- LIGHT AND OCCUPANCY SENSOR



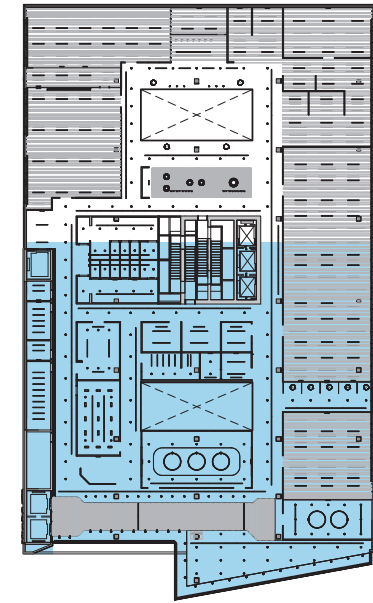
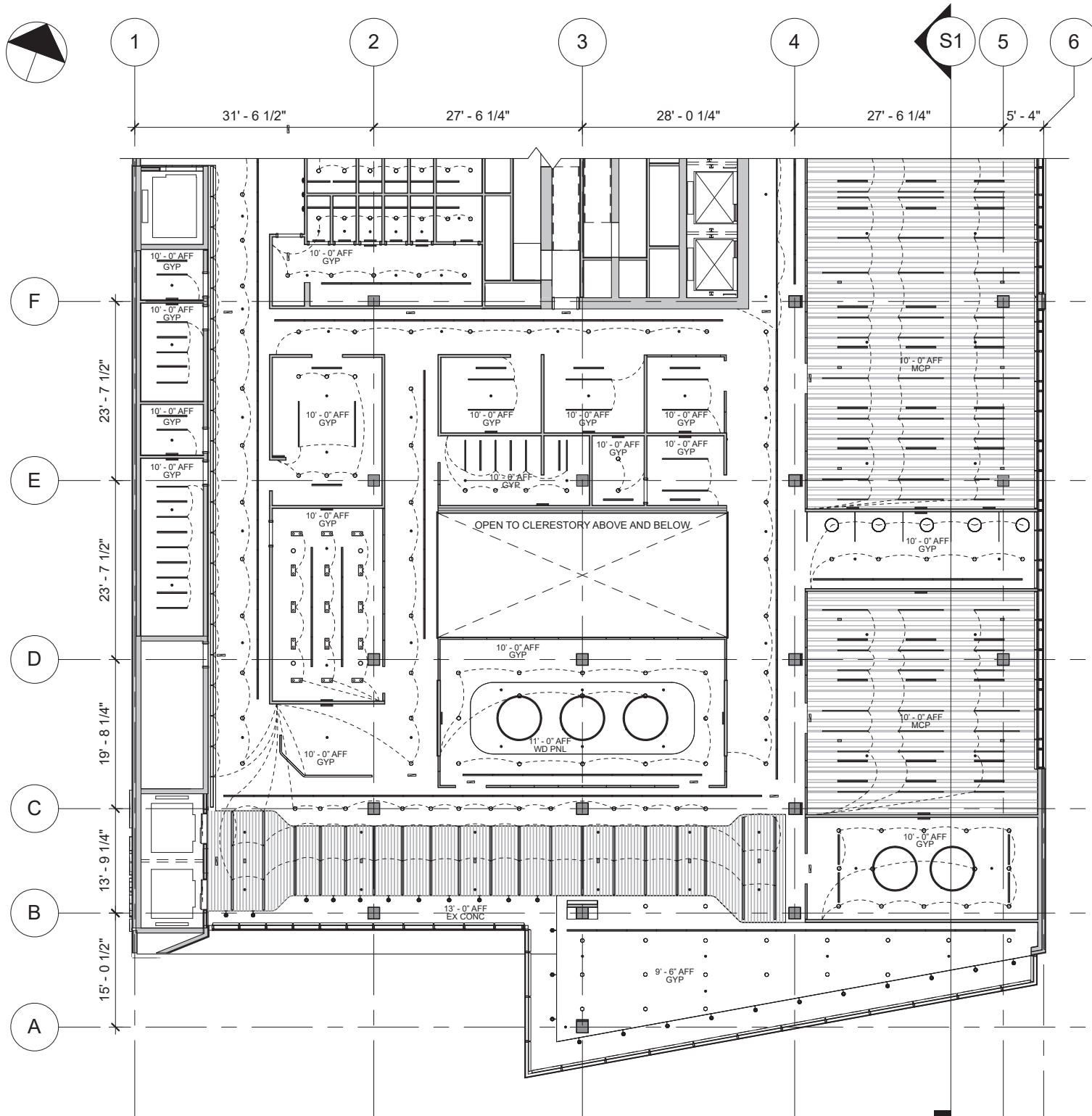
LEGEND

- 6" RECESSED DIRECT LED
- 24" RECESSED DIRECT LED
- 48" RECESSED DIRECT LED
- 72" RECESSED DIRECT LED
- RECESSED MULTIHEAD DIRECT LED
- 48" DIRECT PENDANT LED
- 4" ROUND PENDANT LED
- 6" ROUND PENDANT LED
- △ CUSTOM TRIANGULAR DIRECT LED
- 22" SQUARE PENDANT LED
- 23" ROUND PENDANT LED
- ◇ 24" SAIL SHAPE PENDANT LED
- 24" ROUND PENDANT LED
- 36" ROUND PENDANT LED
- 54" ROUND PENDANT LED
- 72" ROUND PENDANT LED
- 2" ROUND TRACK LIGHT LED
- 48" LINEAR AIR DIFFUSER
- 12" SQUARE AIR DIFFUSER
- 16" LINEAR AIR RETURN
- RECESSED SPRINKLER
- CEILING MOUNTED EXIT SIGN LED
- LIGHT AND OCCUPANCY SENSOR

LEVEL 4 REFLECTED CEILING PLAN - NORTH

N.T.S.

Figure 123. Level 4 reflected ceiling plan - north.



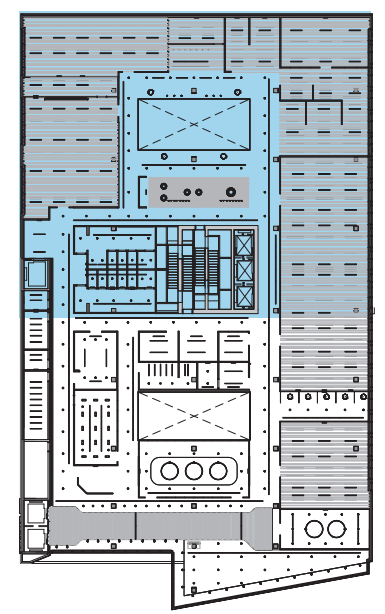
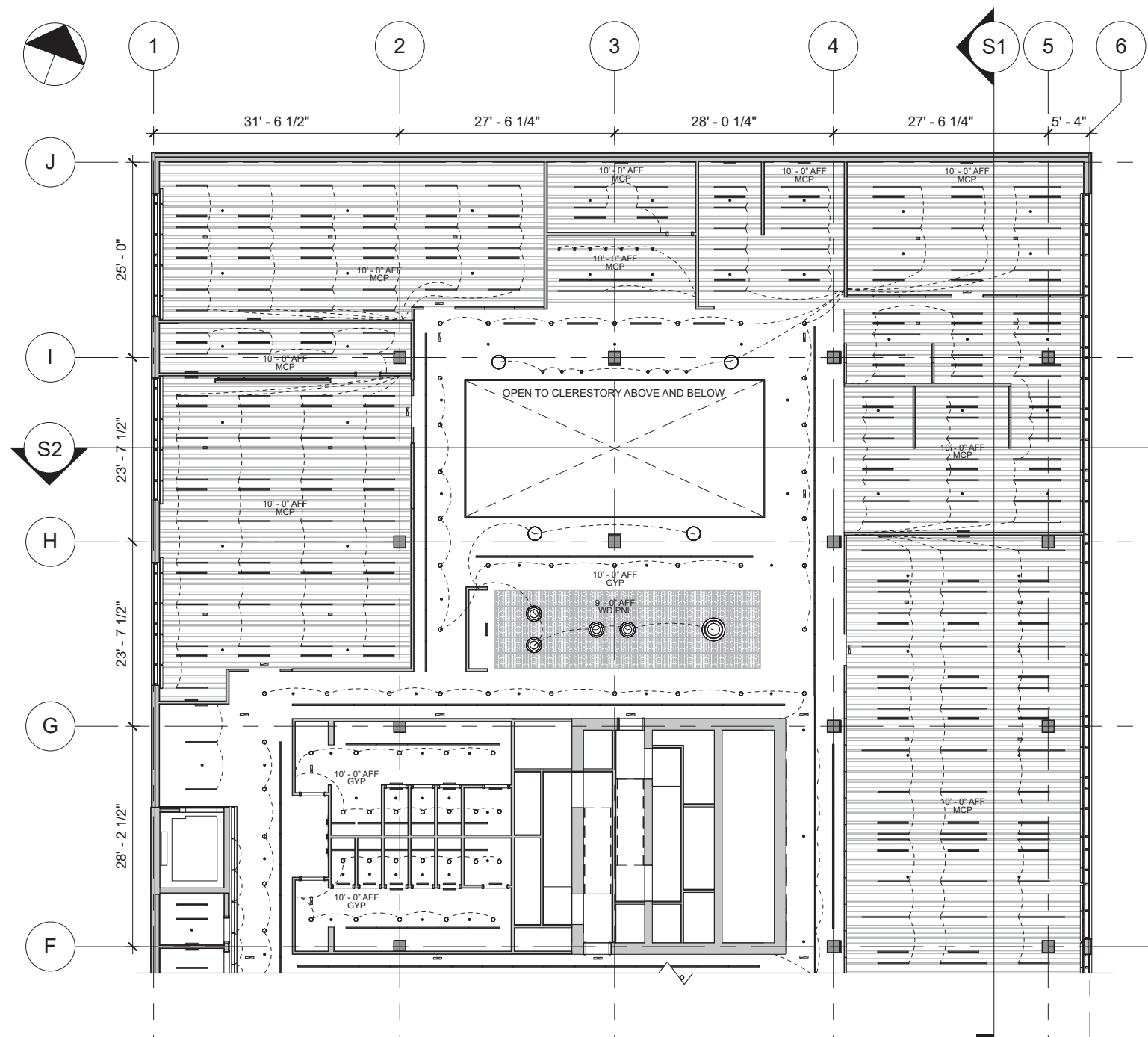
LEGEND

- 6" RECESSED DIRECT LED
- 24" RECESSED DIRECT LED
- 48" RECESSED DIRECT LED
- 72" RECESSED DIRECT LED
- RECESSED MULTIHEAD DIRECT LED
- 48" DIRECT PENDANT LED
- 4" ROUND PENDANT LED
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- △ CUSTOM TRIANGULAR DIRECT LED
- 22" SQUARE PENDANT LED
- 23" ROUND PENDANT LED
- ◇ 24" SAIL SHAPE PENDANT LED
- 24" ROUND PENDANT LED
- 36" ROUND PENDANT LED
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- 72" ROUND PENDANT LED
- 2" ROUND TRACK LIGHT LED
- 48" LINEAR AIR DIFFUSER
- 12" SQUARE AIR DIFFUSER
- 16" LINEAR AIR RETURN
- RECESSED SPRINKLER
- CEILING MOUNTED EXIT SIGN LED
- LIGHT AND OCCUPANCY SENSOR

LEVEL 5 REFLECTED CEILING PLAN - SOUTH

N.T.S.

Figure 124. Level 5 reflected ceiling plan - south.



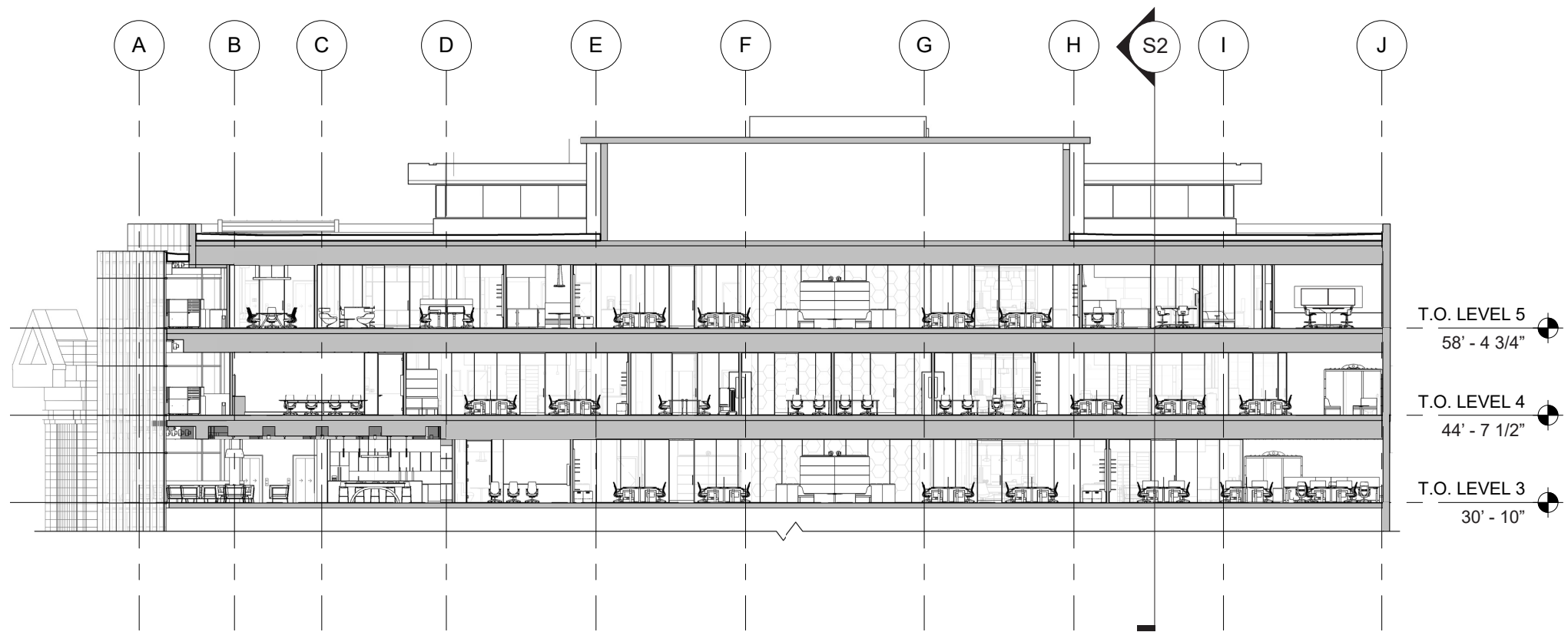
LEGEND

- 6" RECESSED DIRECT LED
- ▭ 24" RECESSED DIRECT LED
- ▭ 48" RECESSED DIRECT LED
- ▭ 72" RECESSED DIRECT LED
- ▭ RECESSED MULTIHEAD DIRECT LED
- ▭ 48" DIRECT PENDANT LED
- 4" ROUND PENDANT LED
- 6" ROUND PENDANT LED
- ▴ CUSTOM TRIANGULAR DIRECT LED
- 22" SQUARE PENDANT LED
- 23" ROUND PENDANT LED
- ◊ 24" SAIL SHAPE PENDANT LED
- 24" ROUND PENDANT LED
- 36" ROUND PENDANT LED
- 54" ROUND PENDANT LED
- 72" ROUND PENDANT LED
- 2" ROUND TRACK LIGHT LED
- ▭ 48" LINEAR AIR DIFFISUER
- ▭ 12" SQUARE AIR DIFFUSER
- ▭ 16" LINEAR AIR RETURN
- RECESSED SPRINKLER
- ▭ CEILING MOUNTED EXIT SIGN LED
- ▭ LIGHT AND OCCUPANCY SENSOR

LEVEL 5 REFLECTED CEILING PLAN - NORTH

N.T.S.

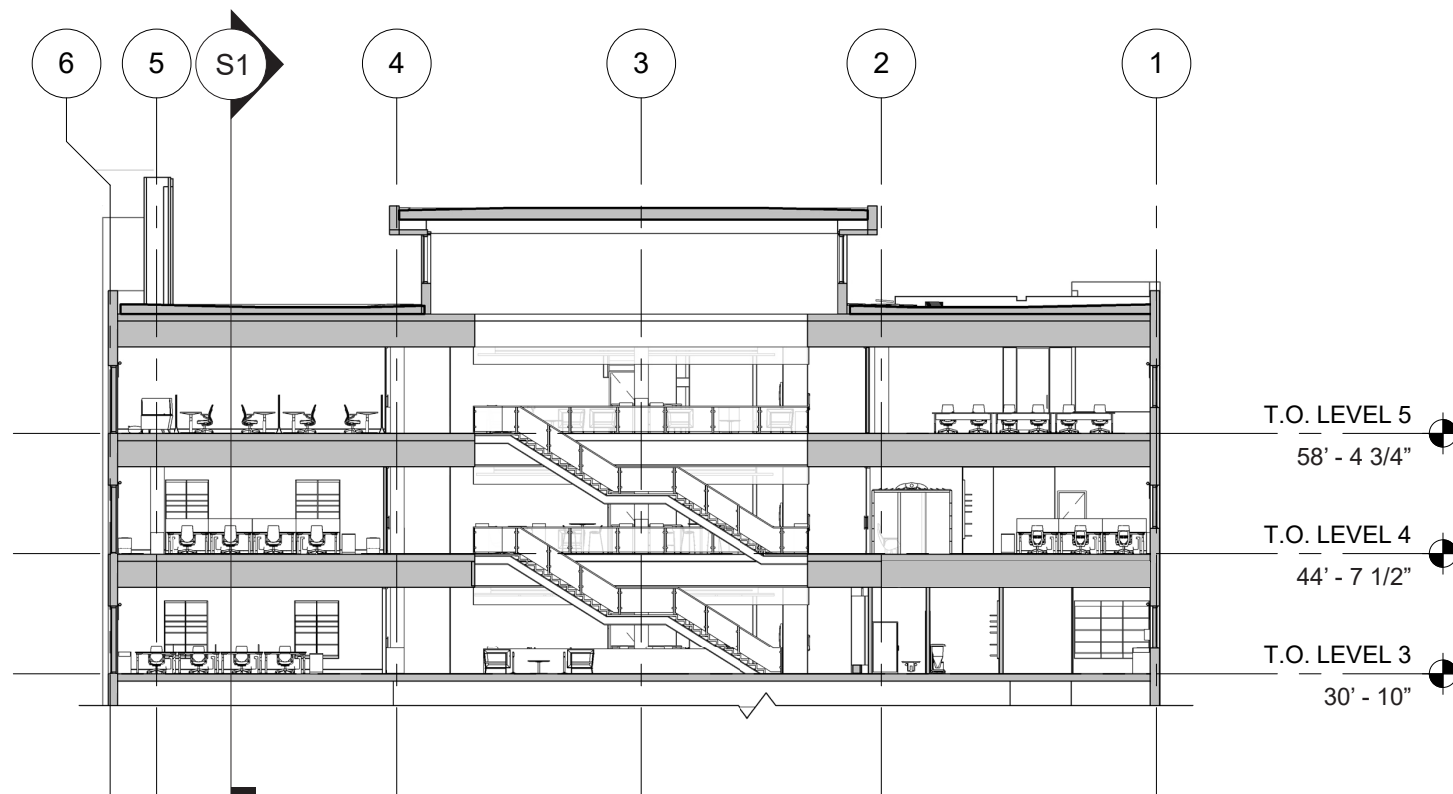
Figure 125. Level 5 reflected ceiling plan - north.



SOUTH-NORTH BUILDING SECTION

N.T.S.

Figure 126. South-north building section.

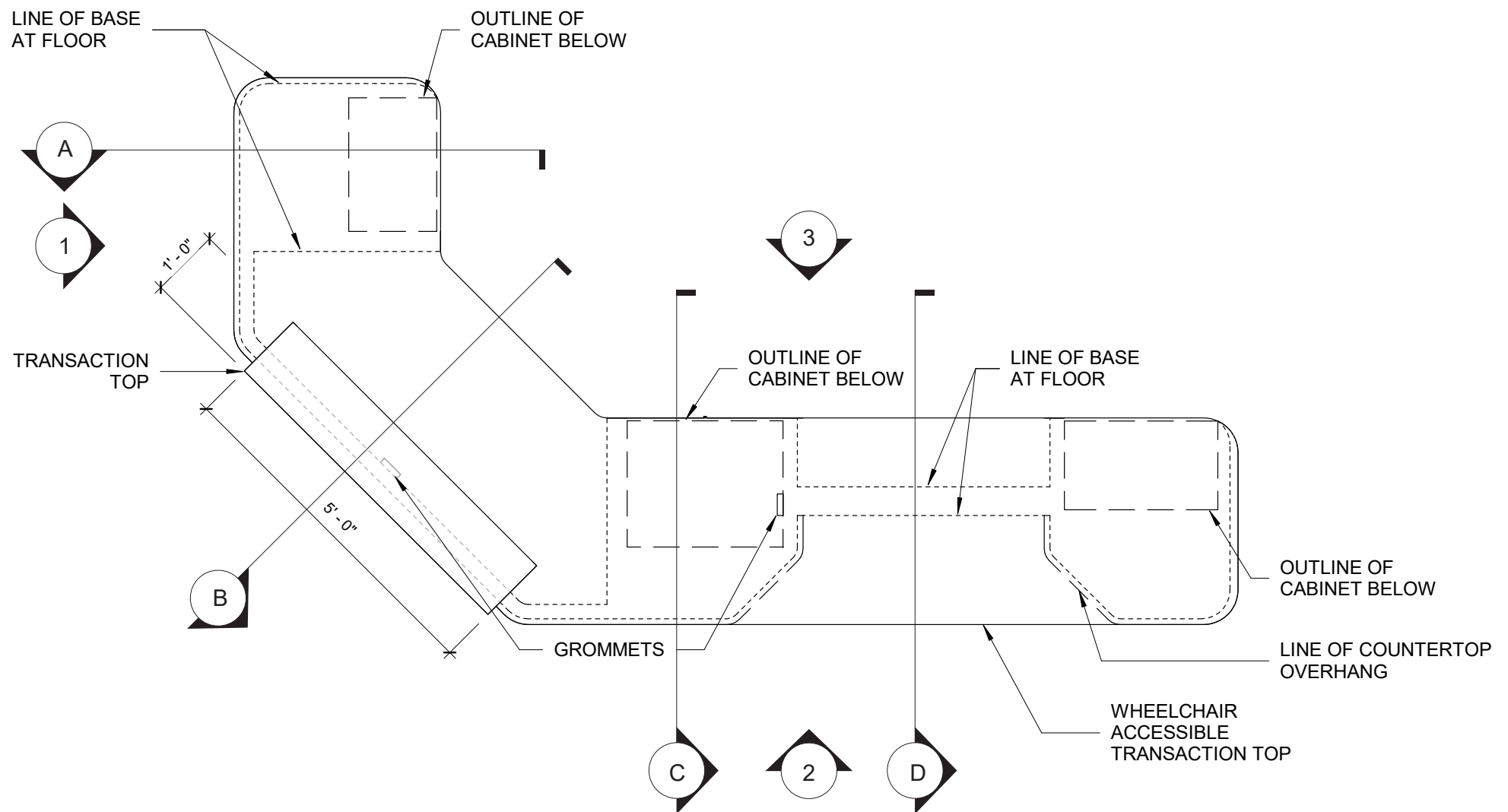


WEST-EAST BUILDING SECTION

N.T.S.

Figure 127. West-east building section.

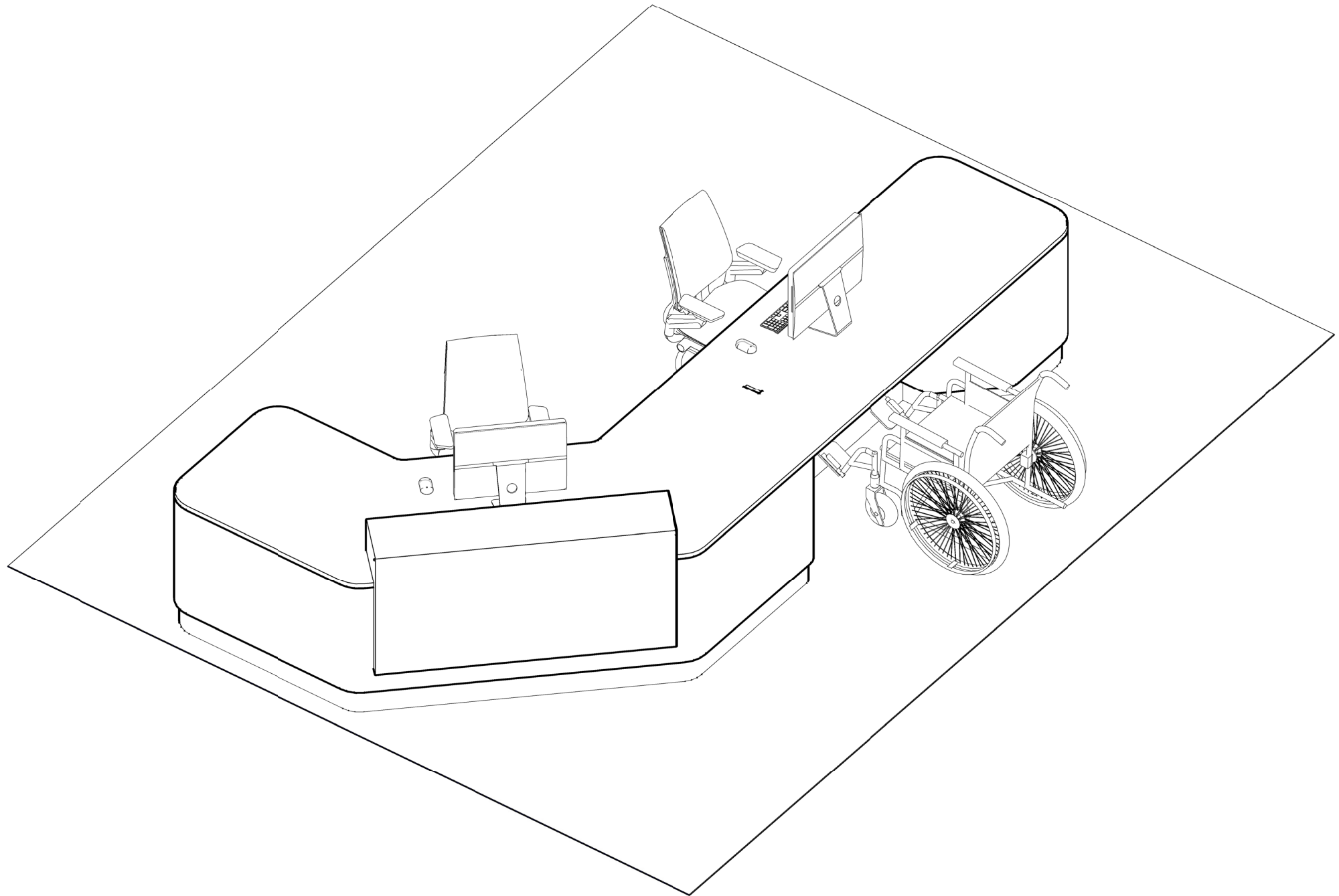
APPENDIX C: DETAIL DRAWINGS



RECEPTION DESK ENLARGED PLAN

$1/2'' = 1'-0''$

Figure 128. Reception desk enlarged plan.

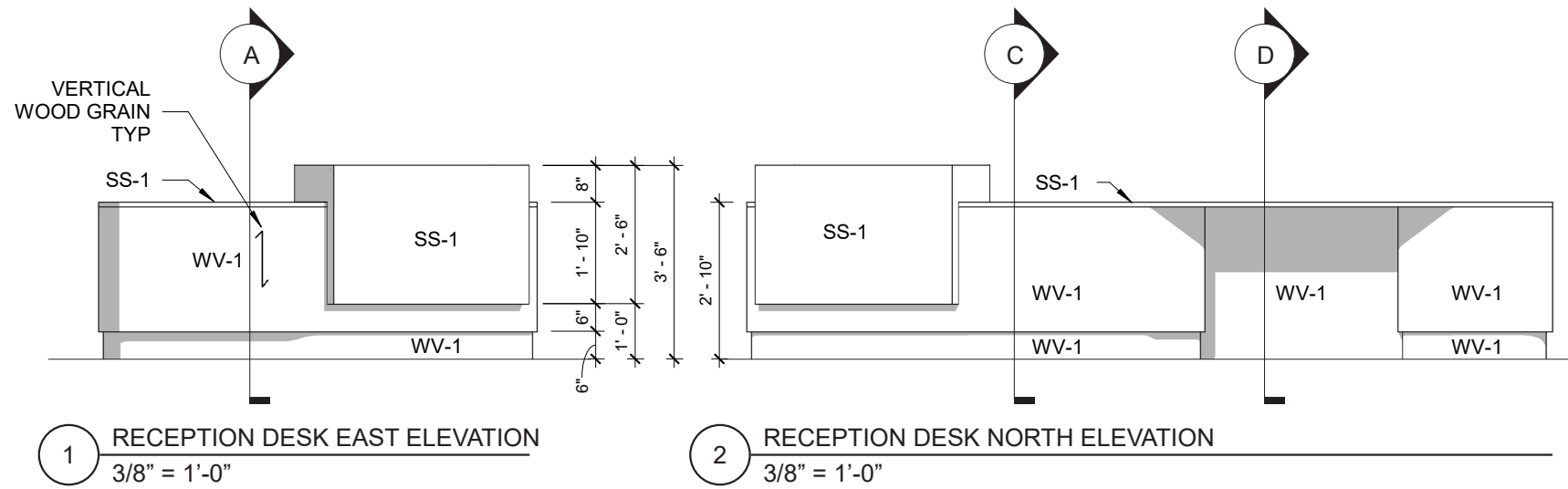


RECEPTION DESK AXONOMETRIC VIEW

NTS

Figure 129. Reception desk axonometric view.

DETAIL DRAWINGS



ABBREVIATIONS

PLAM	PLASTIC LAMINATE
PLY	PLYWOOD
SS	SOLID SURFACE
ST	SLATE TILE
WD	WOOD
WV	WOOD VENEER

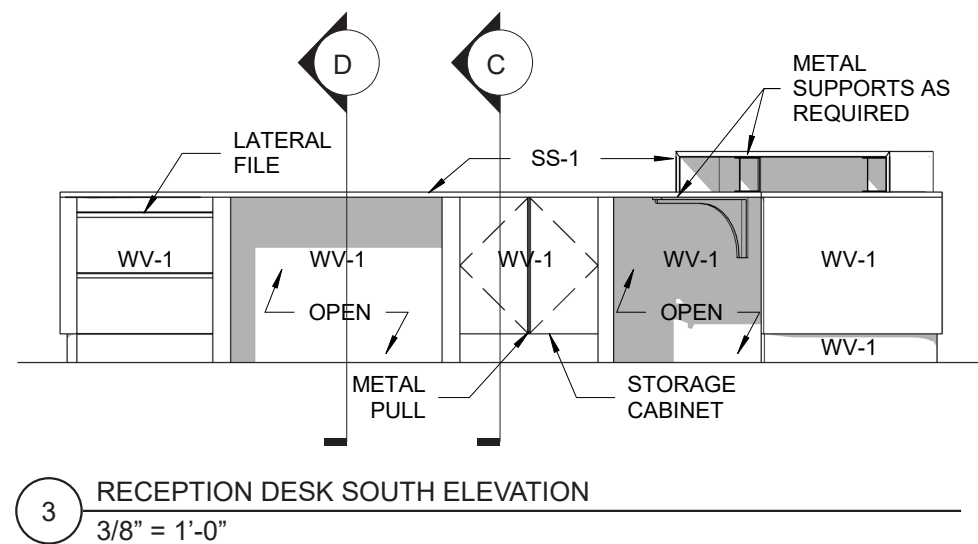


Figure 130. Reception desk elevations.

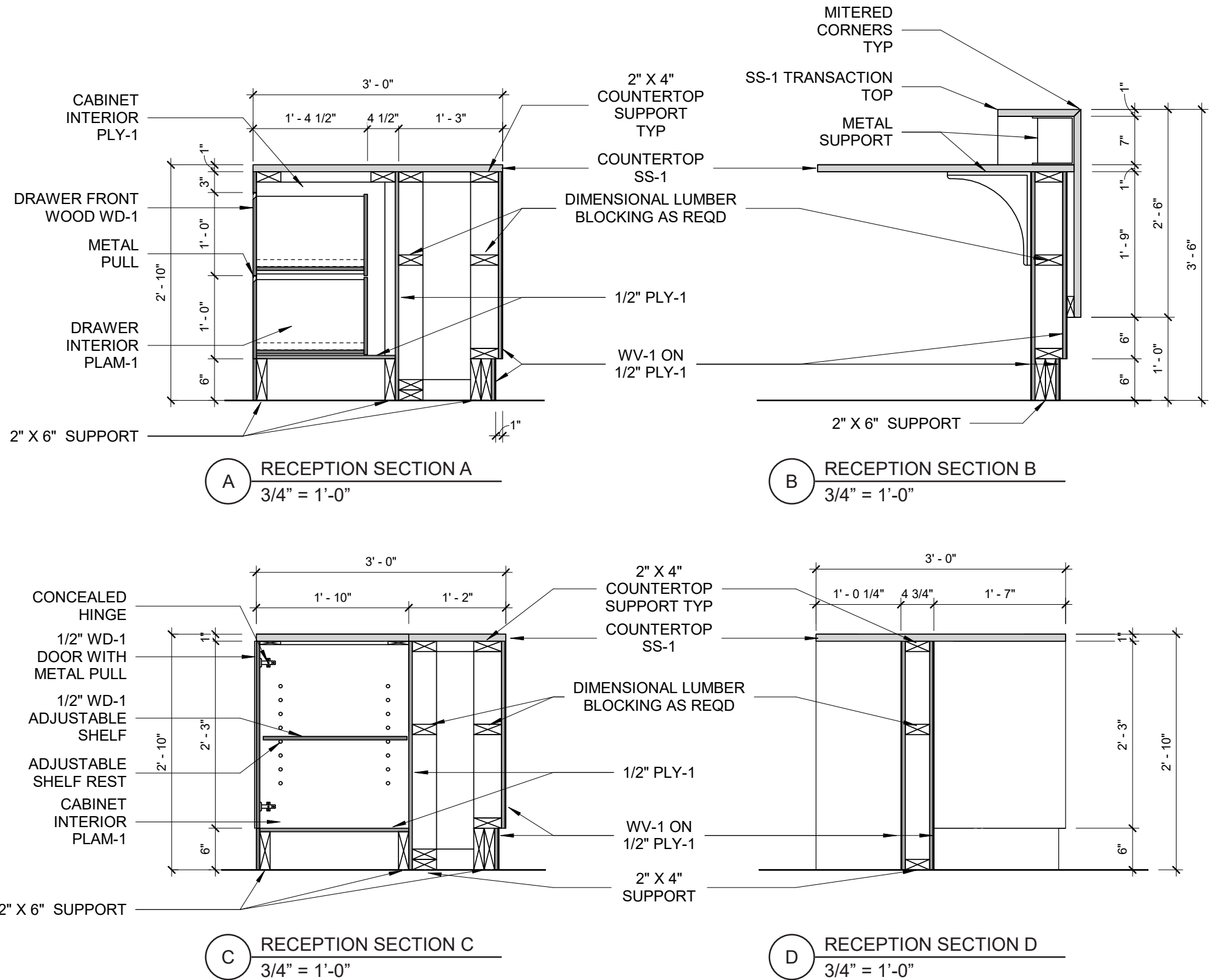
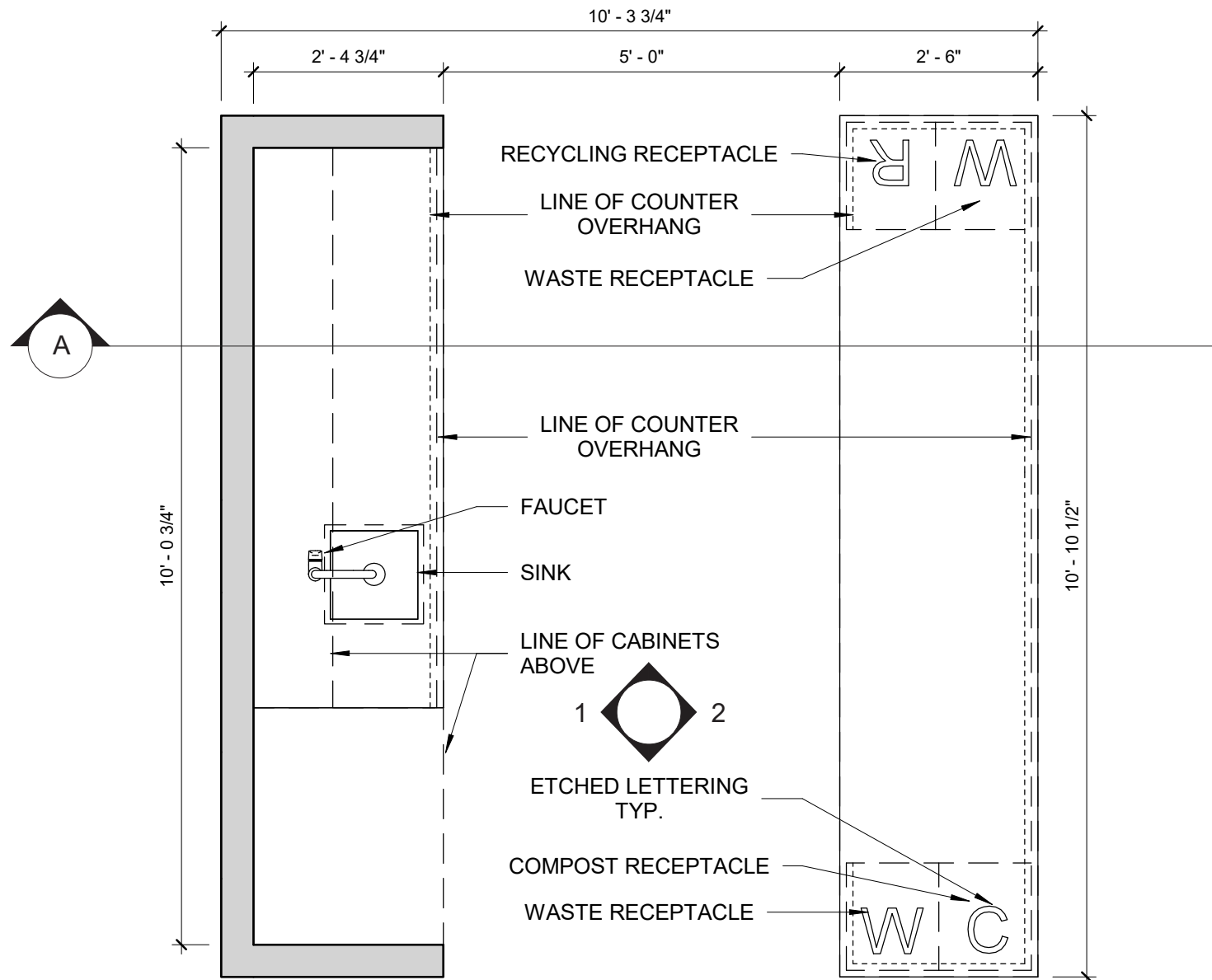


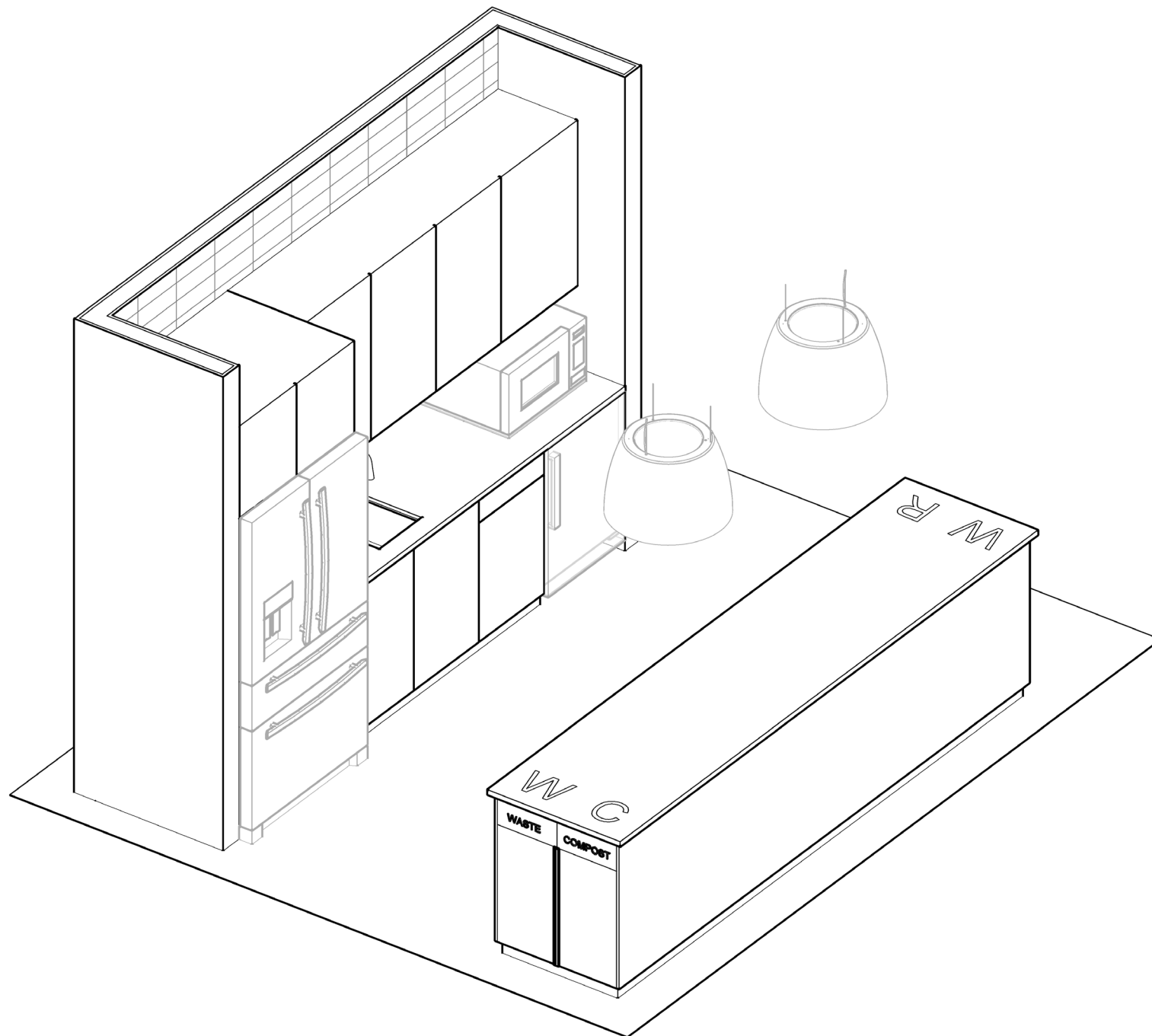
Figure 131. Reception desk sections.



BREAK AREA KITCHEN ENLARGED PLAN

1/2" = 1'-0"

Figure 132. Break area kitchen enlarged plan.



BREAK AREA KITCHEN AXONOMETRIC VIEW

NTS

Figure 133. Break area kitchen axonometric view.

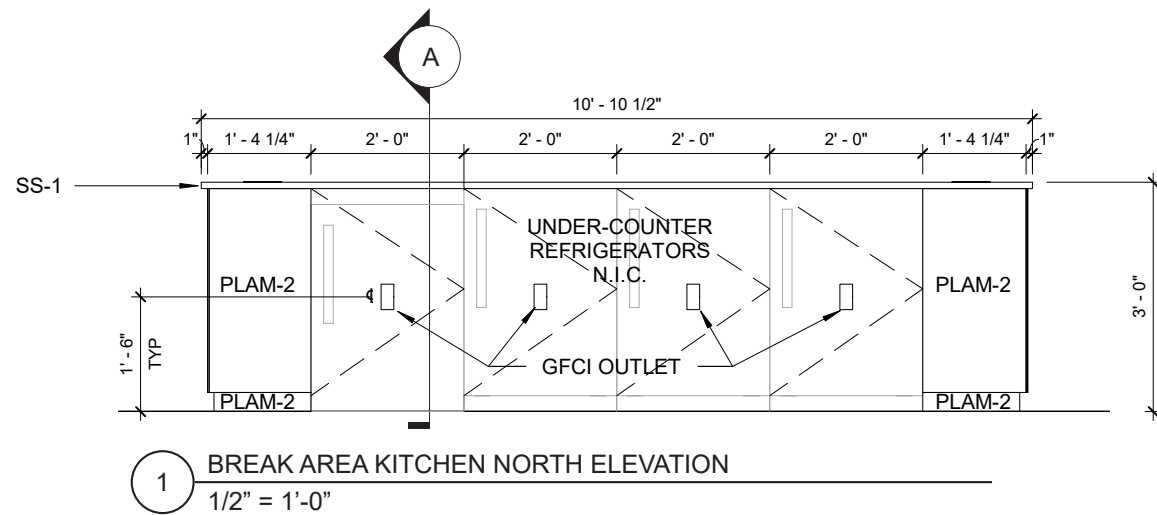
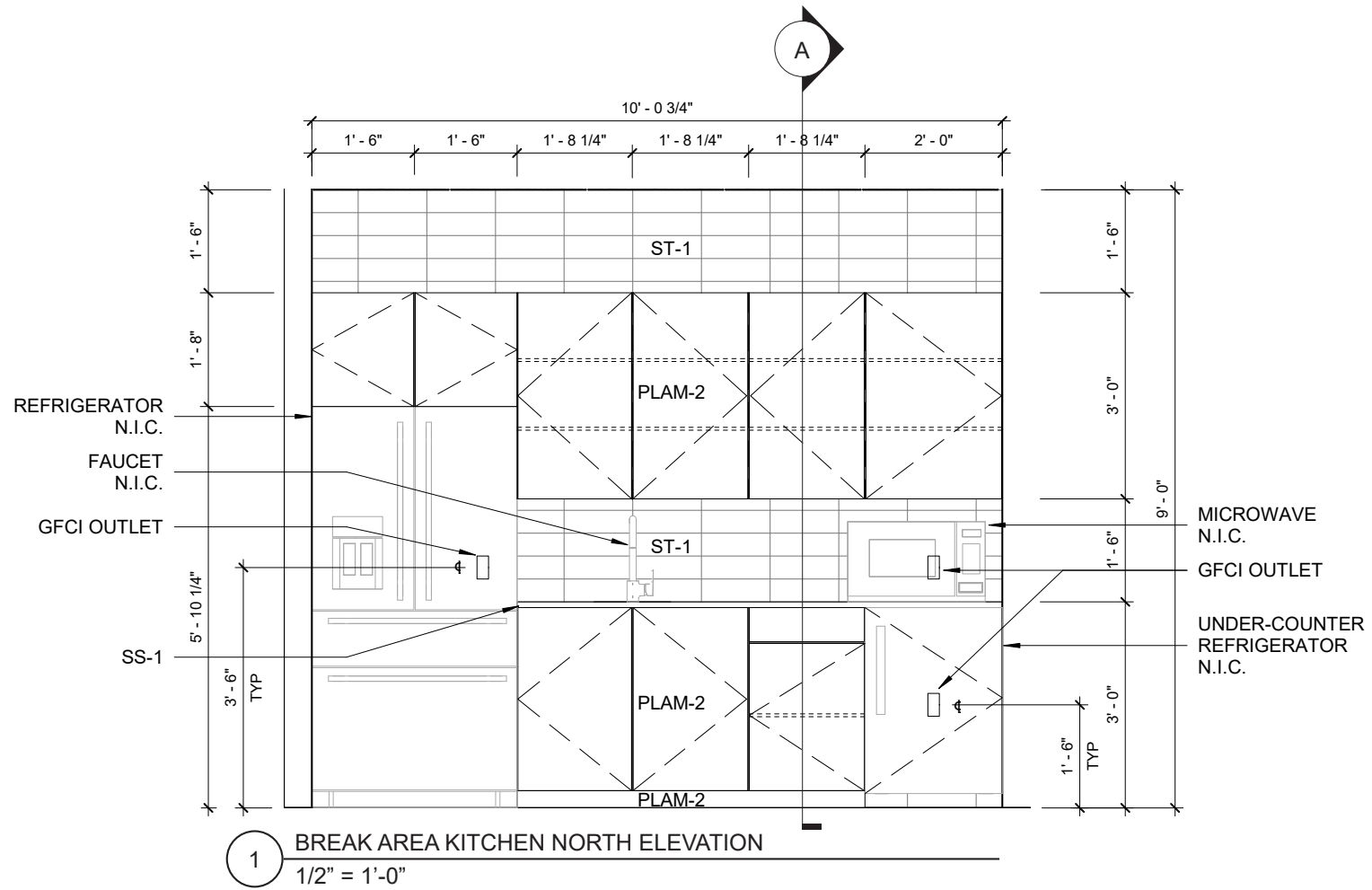
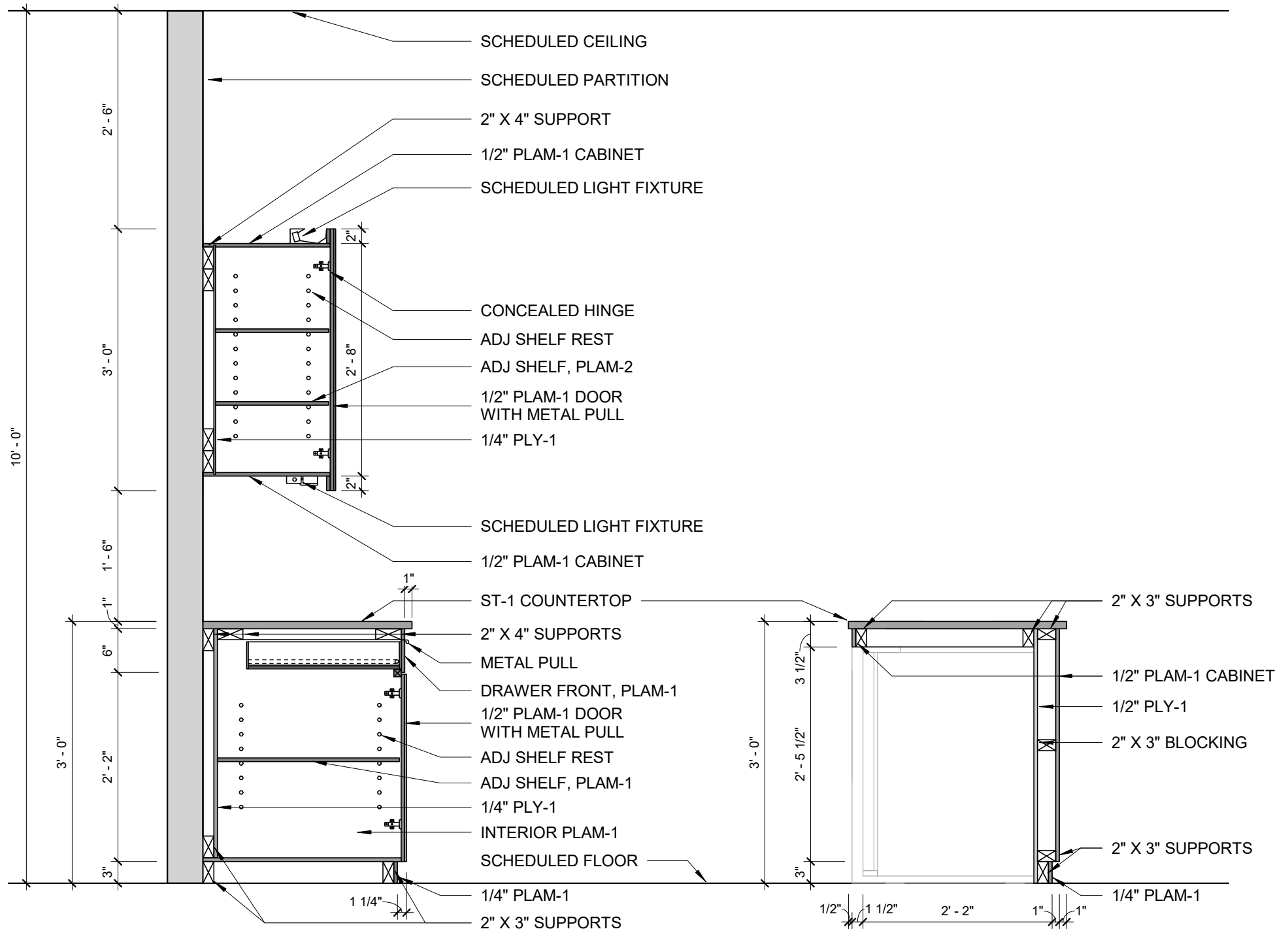


Figure 134. Break area kitchen elevations.

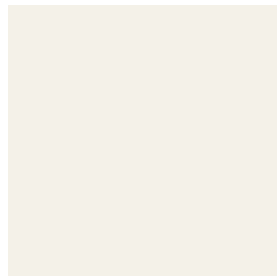


A BREAK AREA KITCHEN SECTION A
 3/4" = 1'-0"

Figure 135. Break area kitchen sections.

APPENDIX D: MATERIALS AND FINISHES

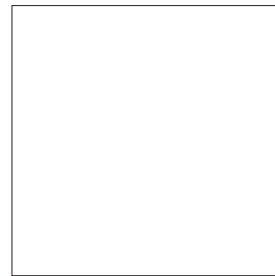
D.1 Materials and Finishes Schedule



PT-1



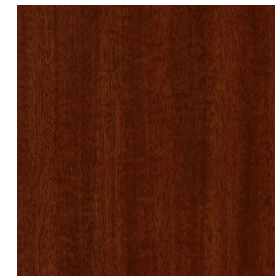
PT-2



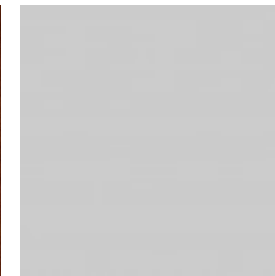
PT-3



AF-1



AF-2



AF-3



CPT-1



CPT-2



CPT-3



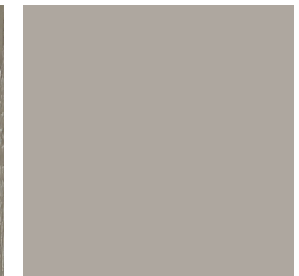
CPT-4



LVT-1



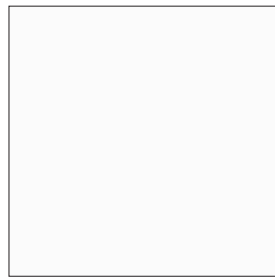
LVT-2



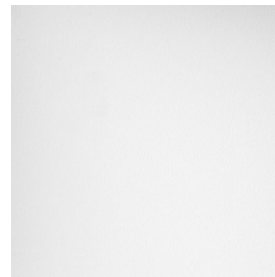
RFT-1



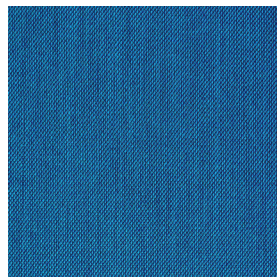
CT-1



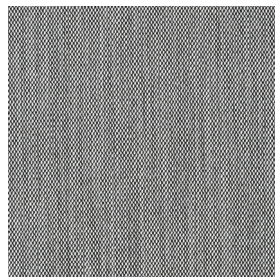
S-1



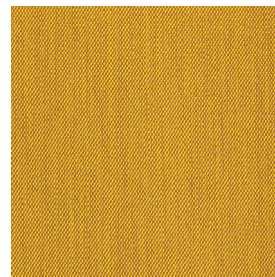
MCP-1



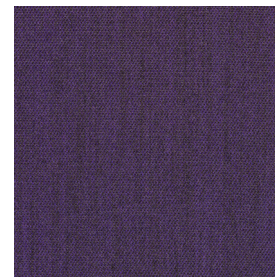
U-1



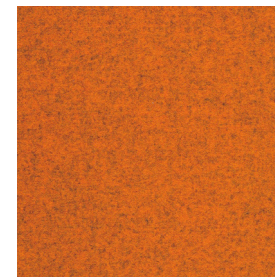
U-2



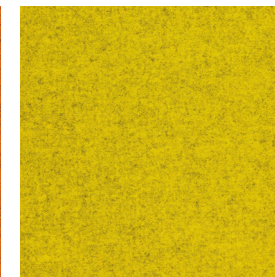
U-3



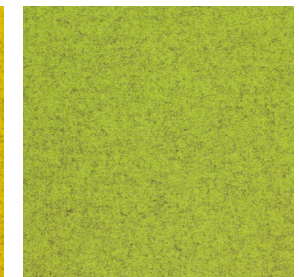
U-4



U-5



U-6



U-7

Table 16. Materials and finishes schedule.

ABBREVIATION	MATERIAL	MANUFACTURER	COLLECTION	COLOUR/STYLE	PRODUCT CODE	NOTES
P-1	Paint	Benjamin Moore	Aura Interior Paint - Matte	Cloud White	967	No VOC
P-2	Paint	Benjamin Moore	Aura Interior Paint - Satin	Cool Blue	2058-40	No VOC
P-3	Paint	Smarter Surfaces	Magnetic Dry Erase	White		Low VOC
AF-1	Architectural Finish Film	3M	DI-NOC	Birch	FW-1211	
AF-2	Architectural Finish Film	3M	DI-NOC	Mahogany	FW-886	
AF-3	Architectural Finish Film	Designtex	Casper Cloaking Technology	Flat	PF001-801	
CPT-1	Carpet Tile	J+J Flooring Group	Foundry	Atelier	2072	24"x24" Tile Install Pattern: Monolithic
CPT-2	Carpet Tile	J+J Flooring Group	Analog Mono	Correlate	1552	24"x24" Tile Install Pattern: Monolithic

MATERIALS AND FINISHES

ABBREVIATION	MATERIAL	MANUFACTURER	COLLECTION	COLOUR/STYLE	PRODUCT CODE	NOTES
CPT-3	Carpet Tile	J+J Flooring Group	Craftwork Modular	Sculptor	2199	24"x24" Tile Install Pattern: Monolithic
CPT-4	Carpet Tile	J+J Flooring Group	Craftwork Modular	Blacksmith	2210	24"x24" Tile Install Pattern: Monolithic
LVT-1	Luxury Vinyl Tile	J+J Flooring Group	Framework	Header	1011	9"x48" Tile Install Pattern: Ashlar
LVT-2	Luxury Vinyl Tile	J+J Flooring Group	Framework	Beam	1015	9"x48" Tile Install Pattern: Ashlar
RFT-1	Rubber Flooring Tile	Johnsonite	Solid Colour Rubber Tile	Cement	121	24"x24" Tile Install Pattern: Monolithic
CT-1	Ceramic Tile	Olympia Tile	Ardesia Mix	Cenere		Matte Finish
S-1	Solid Surface	DuPont	Corian	Designer White		
MCP-1	Metal Ceiling Panel	Armstrong Ceilings	Metalworks Linear	White		Microperforated 2", 4", 6", 8", 10", 12" wide planks

ABBREVIATION	MATERIAL	MANUFACTURER	COLLECTION	COLOUR/STYLE	PRODUCT CODE	NOTES
U-1	Upholstery	Maharam	Steelcut Trio	Blue	865	
U-2	Upholstery	Maharam	Steelcut Trio	Grey	124	
U-3	Upholstery	Maharam	Steelcut Trio	Yellow	453	
U-4	Upholstery	Maharam	Steelcut Trio	Purple	683	
U-5	Upholstery	Maharam	Divina Melange	Orange	521	
U-6	Upholstery	Maharam	Divina Melange	Yellow	421	
U-7	Upholstery	Maharam	Divina Melange	Green	931	

MATERIALS AND FINISHES

D.2 Room Finishes Schedules

Table 17. Level 3 room finishes schedule.

ROOM NUMBER	ROOM NAME	FLOOR	WALLS					CEILING	NOTES
			NORTH	EAST	SOUTH	WEST			
301	CORRIDOR	LVT-1	P-2/GL	-	GL	AF-2	P-1/ST	1	
302	COMMUNITY	LVT-1	GL	P-3	GL	CT-1	P1/ST	1	
303	ACTIVITY LOUNGE	CPT-1	AF-2	AF-2/GL	GL	-	P-1/AF-2	3	
304	LOUNGE	CPT-1	-	-	GL	GL	P1-ST	1	
305	CORRIDOR	LVT-1	-	P-1	-	AF-2	P-1		
306	DATA ROOM	RFT-1	P-1	P-1	P-1	P-1	P-1		
307	STORAGE	RFT-1	P-1	P-1	P-1	P-1	P-1		
308	UTILITY ROOM	RFT-1	P-1	P-1	P-1	P-1	P-1		
309	ELECTRICAL ROOM	RFT-1	P-1	P-1	P-1	P-1	P-1		
310	FITNESS CENTRE	CPT-2	P-1	P-1/V	GL	P-1	P-1	2	
310A	MEN'S CHANGE ROOM	CT-1	P-1	P-1	P-1	P-1	P-1		
310A1	SHOWER	CT-1	CT-1	CT-1	CT-1	CT-1	P-1		
310A2	SHOWER	CT-1	CT-1	CT-1	CT-1	CT-1	P-1		
310A3	SHOWER	CT-1	CT-1	CT-1	CT-1	CT-1	P-1		

ROOM NUMBER	ROOM NAME	FLOOR	WALLS				CEILING	NOTES
			NORTH	EAST	SOUTH	WEST		
310B	WOMEN'S CHANGE ROOM	CT-1	P-1	P-1	P-1	P-1	P-1	
310B1	SHOWER	CT-1	CT-1	CT-1	CT-1	CT-1	P-1	
310B2	SHOWER	CT-1	CT-1	CT-1	CT-1	CT-1	P-1	
310B3	SHOWER	CT-1	CT-1	CT-1	CT-1	CT-1	P-1	
311	MEN'S W/C	LVT-2	CT-1	CT-1	CT-1/AF-2	CT-1	P-1	
312	WOMEN'S W/C	LVT-2	Af-2	CT-1	CT-1	CT-1	P-1	
313	BICYCLE STORAGE	CPT-2	P-1	P-1	P-1	P-1	P-1	
314	COAT ROOM	CPT-1	P-1	P-1	P-1	P-1	P-1	
315	CORRIDOR	LVT-1	P-1/GL	-	P-1	-	P-1	
316	BREAK AREA	CPT-1/ LVT-1	-	-	-	CT-1	MI/P-1	3
320	CORRIDOR	LVT-1	AF-1	-	-	SN	P-1	4
321	MEDITATION ROOM	LVT-1	AF-1	AF-1	AF-1	AF-1	AF-1	
322	WORK LOUNGE	CPT-1	AF-1/GL/AF-3	-	-	-	P-1	5
325	CORRIDOR	LVT-1	GL	GL/AF-3	-	P-1	P-1	

MATERIALS AND FINISHES

ROOM NUMBER	ROOM NAME	FLOOR	WALLS				CEILING	NOTES
			NORTH	EAST	SOUTH	WEST		
326	CUSTOMER SERVICE NEIGHBOURHOOD	CPT-3	P-1/AF-1	GL	P-3	GL	MCP-1	
327	DESIGN NEIGHBOURHOOD	CPT-3	P-3	GL	P-3	GL/AF-3	MCP-1	
328	MEETING ROOM	CPT-4	P-3	P-3	P-3	GL/AF-3	MCP-1	5
329	CONFERENCE ROOM	CPT-4	P-3	GL	P13	P-1/GL/AF-3	MCP-1	5
330	CORRIDOR	LVT-1	P-1	-	P-1	-	P-1	
331	OFFICE SUPPLIES	CPT-1	P-1	P-1	P-1	P-1	P-1	
331A	COPY ROOM	CPT-1	P-1	P-1	P-1	P-1	P-1	
332	FILING ROOM	CPT-1	P-1	P-1	P-1	P-1	P-1	
333	RESPITE ROOM	CPT-4	P-1	P-1	P-1	P-1	P-1	
334	RESPITE ROOM	CPT-4	P-1	P-1	P-1	P-1	P-1	
335	MAINTENANCE ROOM	RFT-1	P-1	P-1	P-1	P-1	P-1	
336	TREADMILL	CPT-1	P-1	-	-	P-1	P-1	
337	MEETING ROOM	CPT-4	-	-	-	-	MCP-1	

Table 18. Level 4 room finishes schedule.

ROOM NUMBER	ROOM NAME	FLOOR	WALLS				CEILING	NOTES
			NORTH	EAST	SOUTH	WEST		
401	CORRIDOR	LVT-1	-	-	GL	AF-1	P-1	
402	DINING	CPT-1	-	-	-	P-1	P-1/WD	3
403	DINING	CPT-1	-	-	GL	GL	P-1/WD	3
405	CORRIDOR	LVT-1	-	-	-	AF-1	P-1	
406	KITCHEN OFFICE	CPT-3	P-1	P-1	P-1	P-1	MTC-1	
407	SERVERY	LVT-1	P-1/V	-	-	P-1/V	P-1/WD	2,3
408	COAT ROOM	CPT-1	P-1	P-1	P-1	P-1	P-1	
410	CORRIDOR	LVT-1	P-1	-	P-1	-	P-1	
411	KITCHEN	RFT-1	P-1	P-1	P-1	P-1	P-1	
411A	PANTRY	RFT-1	P-1	P-1	P-1	P-1	P-1	
415	CORRIDOR	LVT-1	P-1	-	P-1	P-1	P-1	
416	COLD STORAGE	RFT-1	P-1	P-1	P-1	P-1	P-1	
417	ELECTRICAL ROOM	RFT-1	P-1	P-1	P-1	P-1	P-1	
418	MEN'S W/C	LVT-2	CT-1	CT-1	CT-1/AF-2	CT-1	P-1	

MATERIALS AND FINISHES

ROOM NUMBER	ROOM NAME	FLOOR	WALLS				CEILING	NOTES
			NORTH	EAST	SOUTH	WEST		
419	WOMENT'S W/C	LVT-2	AF-2	CT-1	CT-1	CT-1	P-1	5
420	CORRIDOR	LVT-1	P-1/GL/AF-3	-	P-1	-	P-1	3
421	BREAK AREA	CPT-1/ LVT-1	-	-	-	CT-1	P-1	5
425	CORRIDOR	LVT-1	GL	-	-	P-1/GL/AF-3	P-1	5
426	MARKETING NEIGHBOURHOOD	CPT-3	P-3	GL/AF-3	P-1/GL/AF-3	P-1	MCP-1	
426A	PROOFING ROOM	CPT-3	P-1	P-1	P-1	P-1	MCP-1	
426B	PRINTING ROOM	CPT-3	P-1	P-1	P-1	P-1	MCP-1	2,5
427	LEARNING COMMONS	CPT-4	P-3	GL/AF-3	P-1/V	AF-1	P-1	5
427A	WEBINAR ROOM	CPT-4	P-1/V	P-3	P-3/GL/AF-3	GL/AF-3	P-1	5
430	CORRIDOR	LVT-1	P-1/GL/AF-3	-	-	GL	P-1	
431	RESPITE ROOM	CPT-4	P-1	P-1	P-1	P-1	P-1	
432	RESPITE ROOM	CPT-4	P-1	P-1	P-1	P-1	P-1	5
433	MEETING ROOM	CPT-4	P-3	P-3	GL/AF-3	P-3	MCP-1	5
434	MEETING ROOM	CPT-4	P-3	P-3	GL/AF-3	P-3	MCP-1	5

MATERIALS AND FINISHES

ROOM NUMBER	ROOM NAME	FLOOR	WALLS				CEILING	NOTES
			NORTH	EAST	SOUTH	WEST		
435	CORRIDOR	LVT-1	-	GL/AF-3	-	P-1	P-1	5
436	ENGINEERING NEIGHBOURHOOD	CPT-3	P-3	GL	P-3	GL/AF-3	MCP-1	5
437	TEAM ROOM	CPT-3	P-3	GL	P-3	GL/AF-3	MCP-1	5
438	TEAM ROOM	CPT-3	P-3	GL	P-3	GL/AF-3	MCP-1	5
439	TEAM ROOM	CPT-3	P-3	GL	P-3	GL/AF-3	MCP-1	5
440	TEAM ROOM	CPT-3	P-3	GL	P-3	GL/AF-3	MCP-1	5
441	ENGINEERING NEIGHBOURHOOD	CPT-3	P-3	GL	P-3	GL/AF-3	MCP-1	5
442	CONFERENCE ROOM	CPT-4	P-3	GL/P-3	P-3	P-3/GL/AF-3	MCP-1	5
443	MEETING ROOM	CPT-4	P-3	P-3	P-3	GL/AF-3	MCP-1	5
444	MEETING ROOM	CPT-4	P-3	P-3	P-3	GL/AF-3	MCP-1	
445	WORK LOUNGE	CPT-1	P-1	P-1/GL	GL	-	P-1	
446	OFFICE SUPPLIES	CPT-1	P-1	P-1	P-1	P-1	P-1	
446A	COPY ROOM	CPT-1	P-1	P-1	P-1	P-1	P-1	
447	FILING FOOM	CPT-1	P-1	P-1	P-1	P-1	P-1	

MATERIALS AND FINISHES

Table 19. Level 5 room finishes schedule.

ROOM NUMBER	ROOM NAME	FLOOR	WALLS				CEILING	NOTES
			NORTH	EAST	SOUTH	WEST		
501	CORRIDOR	LVT-1	GL/AF-3	GL/AF-3	GL	AF-2	P-1	5
502	RECEPTION	CPT-1	AL/P-2	-	GL	AF-2	P-1	6
503	CONFERENCE ROOM	CPT-4	GL/AF-3	P-1	GL/AF-3	P-1	P-1/AF-2	3,5
504	CONFERENCE ROOM	CPT-4	P-1	P-1	P-1	GL/AF-3	P-1/AF-2	5
505	WORK LOUNGE	CPT-1	P-1	P-1/GL	GL	-	P-1	
506	LOUNGE	CPT-1	-	-	GL	GL	P-1	
510	CORRIDOR	LVT-1	-	P-1	-	AF-2	P-1	
511	STORAGE & MAINTENANCE ROOM	RFT-1	P-1	P-1	P-1	P-1	P-1	
512	UTILITY ROOM	RFT-1	P-1	P-1	P-1	P-1	P-1	
513	ELECTRICAL & DATA ROOM	RFT-1	P-1	P-1	P-1	P-1	P-1	
514	ELEVATOR CONTROL ROOM	RFT-1	P-1	P-1	P-1	P-1	P-1	
515	CLASSROOM	CPT-3	P-1	P-1	P-1/GL	P-1	MCP-1	
515A	CLASSROOM STORAGE	CPT-3	P-1	P-3	P-1	P-1	MCP-1	

MATERIALS AND FINISHES

ROOM NUMBER	ROOM NAME	FLOOR	WALLS				CEILING	NOTES
			NORTH	EAST	SOUTH	WEST		
516	MEN'S W/C	LVT-2	CT-1	CT-1	CT-1/AF-2	CT-1	P-1	
517	WOMEN'S W/C	LVT-2	AF-2	CT-1	CT-1	CT-1	P-1	
518	PRODUCT DEMONSTRATION SPACE	CPT-1	AF-1	GL	AF-1	AF-1	P-1	
520	CORRIDOR	LVT-1	P-1/GL	-	P-1	-	P-1	
521	BREAK AREA	CPT-1/ LVT-1	-	-	-	CT-1	P-1/WD	3
525	CORRIDOR	LVT-1	-	-	-	P-1/GL	P-1	
526	INFORMATION TECHNOLOGY NEIGHBOURHOOD	CPT-3	P-1	P-1	P-3/GL/AF-3	P-1	MCP-1	5
530	CORRIDOR	LVT-1	GL/AF-3	P-1	-	P-1	P-1	5
531	IT WALK-UP CENTRE	CPT-1	AF-2	P-1	-	P-1	P-1	
531A	IT STORAGE & MAINTENANCE	CPT-1	P-1	P-1	P-1	P-1	P-1	
532	MAIL ROOM	CPT-1	P-1	P-1	P-1	P-1	P-1	
533	MEETING ROOM	CPT-4	P-3	P-3/GL	GL/AF-3	P-1	MCP-1	5
535	CORRIDOR	LVT-1	-	GL/AF-3	-	P-1	P-1	5

MATERIALS AND FINISHES

ROOM NUMBER	ROOM NAME	FLOOR	WALLS				CEILING	NOTES
			NORTH	EAST	SOUTH	WEST		
536	TOUCH DOWN ZONE	CPT-1	GL/AF-3	GL	P-1	-	MCP-1	5
537	BUSINESS MANAGEMENT & OPERATIONS NEIGHBOURHOOD	CPT-3	P-3	GL	P-3	GL/AF-3	MCP-1	5
538	WORK LOUNGE	CPT-1	P-1	GL	P-1	-	P-1	
539	EXECUTIVE SUITE	CPT-3	P-3	GL	P-3	GL/AF-3	MCP-1	5
540	OFFICE SUPPLIES	CPT-1	P-1	P-1	P-1	P-1	P-1	
540A	COPY ROOM	CPT-1	P-1	P-1	P-1	P-1	P-1	
541	MEETING ROOM	CPT-4	GL/AF-3	GL/AF-3	P-3	P-3	P-1	5
545	CORRIDOR	LVT-1	P-1	-	P-1/GL/AF-3	-	P-1	5
546	TREADMILLS	CPT-1	-	P-1	P-1	P-1	P-1	
547	FILING ROOM	CPT-1	P-1	P-1	P-1	P-1	P-1	
550	CORRIDOR	LVT-1	-	P-3/GL/AF-3	-	P-1/GL	P-1	5
551	SECURITY OFFICE	CPT-1	P-1	P-1	P-1	GL/AF-3	P-1	5

ROOM NUMBER	ROOM NAME	FLOOR	WALLS				CEILING	NOTES
			NORTH	EAST	SOUTH	WEST		
EO1	ELEVATOR	CPT-4	-	-	-	-	-	
E02	ELEVATOR	CPT-4	-	-	-	-	-	
E03	ELEVATOR	CPT-4	-	-	-	-	-	
ST1	STAIRS	CONC	P-1	P-1	P-1	P-1	-	
ST2	STAIRS	LVT-1		-	-	-	-	7
ST3	STAIRS	CONC	P-1	P-1	P-1	P-1	-	
ST4	STAIRS	CONC	P-1	P-1	P-1	P-1	-	
ST5	STAIRS	LVT-1	-	-	-	-	-	

Material Abbreviations:

AL – Aluminum
 CONC – Concrete
 GL – Glazing
 MI – Mirrored applied film
 ST – Steel
 WD – Wood
 V – Vinyl Graphic Wall Covering

Notes:

1. Gallery-style steel track ceiling system installed.
2. Vinyl graphic applied onto P-1 finished GB.
3. Custom ceiling detail.
4. Custom stone veneer wall and water feature.
5. AF-3 applied on GL from 42”-78” AFF.
6. P-2 applied on AL panels.
7. Custom green wall.

APPENDIX E: FURNITURE SELECTIONS

Table 20. Furniture selections.

DESCRIPTION	MODEL NAME	LEVEL 3 QUANTITY	LEVEL 4 QUANTITY	LEVEL 5 QUANTITY	SIZE	FINISH MATERIAL	MANUFACTURER
Task Chair	Gesture	82	95	110	-	Upholstered Seat Plastic Frame Metal Base	Steelcase
Task Stool	Gesture	-	-	5	-	Upholstered Seat Plastic Frame Metal Base	Steelcase
Task Chair	Shortcut	2	2	4	-	Upholstered Seat Plastic Frame Metal Base	Steelcase
Task Stool	Shortcut	4	26	21	-	Upholstered Seat Plastic Frame Metal Base	Steelcase
Bar Stool	Montara 650	15	49	12	-	Upholstered Seat Wood Frame Metal Base	Steelcase
Stackable Chair	Montara 650	10	37	-	-	Upholstered Seat Wood Frame Metal Base	Steelcase

DESCRIPTION	MODEL NAME	LEVEL 3 QUANTITY	LEVEL 4 QUANTITY	LEVEL 5 QUANTITY	SIZE	FINISH MATERIAL	MANUFACTURER
Lounge Chair	Massaud	3	3	4	-	Upholstered Seat Metal Frame and Base	Steelcase
Lounge Pod	Brody	4	-	4	30"D x 30"W	Upholstered Seat Plastic and Metal Frame	Steelcase
Lounge Seat	Umami Single	11	14	14	30"D x 60"W	Upholstered Seat Metal Frame	Steelcase
Lounge Seat	Umami Double Lounge	3	3	2	30"D x 60"W	Upholstered Seat Metal Frame	Steelcase
Lounge Seat	Umami Double With Arms	1	-	-	30"D x 30"W	Upholstered Seat Metal Frame	Steelcase
Lounge Seat	Umami End Cap	1	2	1	30"D x 30"W	Upholstered Seat Metal Frame	Steelcase
Lounge Seat	Umami Corner	1	-	2	-	Upholstered Seat Metal Frame	Steelcase
Lounge Seat	Media:Scape Straight	-	1	-	-	Upholstered Seat Metal Frame	Steelcase

FURNITURE SELECTIONS

DESCRIPTION	MODEL NAME	LEVEL 3 QUANTITY	LEVEL 4 QUANTITY	LEVEL 5 QUANTITY	SIZE	FINISH MATERIAL	MANUFACTURER
Lounge Seat	Media:Scape Corner with Ledge	-	2	-	-	Upholstered Seat Metal Frame	Steelcase
Lounge Chair	Bob	-	-	4	-	Upholstered Seat Metal Frame	Steelcase
Active Seat	Buoy	4	6	4	18" Doameter	Upholstered Seat Plastic Body	Steelcase
Lounge Chair	Basket	10	-	6	-	Upholstered Seat Metal Frame	Haworth
2 Seat Sofa	Basket	1	-	-	-	Upholstered Seat Metal Frame	Haworth
3 Seat Sofa	Basket	1	1	1	-	Upholstered Seat Metal Frame	Haworth
Lounge Chair	Qbic	-	-	2	-	Upholstered Seat Metal Frame	Haworth
2 Seat Sofa	Qbic	-	-	1	-	Upholstered Seat Metal Frame	Haworth
Lounge Chair	Aukland	6	7	4	-	Upholstered Seat Metal Frame	Haworth

FURNITURE SELECTIONS

DESCRIPTION	MODEL NAME	LEVEL 3 QUANTITY	LEVEL 4 QUANTITY	LEVEL 5 QUANTITY	SIZE	FINISH MATERIAL	MANUFACTURER
Lounge Chair	Windowseat	2	2	2	-	Upholstered Seat Metal Frame	Haworth
Lounge Pod	Open Lounge Zone	-	1	1	-	Upholstered Seat and Panels Wood Frame	Teknion
Lounge Pod	Twin Zone	-	1	1	-	Upholstered Seat and Panels Wood Frame	Teknion
Lounge Pod	Solo Zone	-	3	3	-	Upholstered Seat and Panels Wood Frame	Teknion
Ottoman	Qui - Small	3	-	-	-	Upholstered Seat	Teknion
Ottoman	Qui - Medium	1	-	-	-	Upholstered Seat	Teknion
Bench	Exponents	9	4	5	18"D x 42"W x 18"H	Upholstered Seat Wood Frame	Steelcase
Bench	Davos - Small	3	3	3	14"D x 18"W x 18"H	Upholstered Seat	Steelcase
Height- Adjustable Desk	Migration Rectangular\	74	52	55	29"D x 58"W	Wood Veneer Top Metal and Plastic Base	Steelcase
Table	Verb Rectangle	4	16	12	30"D x 84"W	Wood Veneer Top	Steelcase

FURNITURE SELECTIONS

DESCRIPTION	MODEL NAME	LEVEL 3 QUANTITY	LEVEL 4 QUANTITY	LEVEL 5 QUANTITY	SIZE	FINISH MATERIAL	MANUFACTURER
Occasional Table	Montara 650 Occasional Square	7	5	4	30"D x 30"W	Plastic Base Wood Veneer Top Metal Base	Steelcase
Occasional Table	Montara 650 Occasional Round	-	1	1	30" Diameter	Wood Veneer Top Metal Base	Steelcase
Occasional Table	Montara 650 Occasional Round	1	-	-	36" Diameter	Wood Veneer Top Metal Base	Steelcase
Table	Montara 650 Work Height Square	-	10	-	36"D x 36"W	Wood Veneer Top Metal Base	Steelcase
Table	Montara 650 Work Height Square	8	-	5	42"D x 42"W	Wood Veneer Top Metal Base	Steelcase
Table	Montara 650 Work Height Round	-	8	2	36" Diameter	Wood Veneer Top Metal Base	Steelcase
Table	Montara 650 Café Height Square	-	6	-	30"D x 30"W	Wood Veneer Top Metal Base	Steelcase

DESCRIPTION	MODEL NAME	LEVEL 3 QUANTITY	LEVEL 4 QUANTITY	LEVEL 5 QUANTITY	SIZE	FINISH MATERIAL	MANUFACTURER
Table	Montara 650 Café Height Square	-	2	-	36"D x 36"W	Wood Veneer Top Metal Base	Steelcase
Occasional Table	Millbrae Occasional Rectangular	2	-	-	30"D x 60"W x 15"H	Wood Veneer Top Metal Base	Steelcase
Table	Media:Scape Desk Height Small D Shape	1	1	2	58"D x 48"W x 30"H	Wood Veneer Top Metal Base	Steelcase
Table	Media:Scape Stool Height Medium D Shape	1	2	1	66"D x 60"W x 38"H	Wood Veneer Top Metal Base	Steelcase
Table	Media:Scape Lounge Height Round	-	1	-	54: Diameter x 24"H	Wood Veneer Top Metal Base	Steelcase
Table	Media:Scape Team Studio	-	2	2	60"D x 74"W x 38"H	Wood Veneer Top Metal Base	Steelcase
Counter Height Table	Exchange Bullet	-	-	1	72"W x 42 ¼"H	Wood Veneer Top Metal Base	Steelcase
Personal Table	Campfire Personal Table	-	2	2	-	Wood Veneer	Steelcase

FURNITURE SELECTIONS

DESCRIPTION	MODEL NAME	LEVEL 3 QUANTITY	LEVEL 4 QUANTITY	LEVEL 5 QUANTITY	SIZE	FINISH MATERIAL	MANUFACTURER
Table	Campfire Big Table	1	2	1	48"D x 96"W x 40"H	Wood Veneer Top and Base	Steelcase
Table	Potrero 415 Boat Shape	1	-	1	60"D x 120"W	Wood Veneer Top Metal Base	Steelcase
Table	Potrero 415 Boat Shape	-	1	-	60"D x 168"W	Wood Veneer Top Metal Base	Steelcase
Table	Potrero 415 Boat Shape	-	-	-	60"D x 288"W	Wood Veneer Top Metal Base	Steelcase
Teaching Station	Verb Teaching Station	-	-	1	30"D x 60"W	Wood Veneer Top Metal Base	Steelcase
Side Table	Umami Platform	2	4	2	15"D	Wood Veneer Top Metal Base	Steelcase
Side Table	Umami Platfrom	-	-	1	30"D	Wood Veneer Top Metal Base	Steelcase
Treadmill Desk	Details Walkstation	4	4	2	-	Wood Veneer Work Surface Plastic and Metal Frame	Steelcase
Occasional Table	Smoke Table Rectangular	1	1	1	24"D x 39"W x 18"H	Glass	Haworth

FURNITURE SELECTIONS

DESCRIPTION	MODEL NAME	LEVEL 3 QUANTITY	LEVEL 4 QUANTITY	LEVEL 5 QUANTITY	SIZE	FINISH MATERIAL	MANUFACTURER
Side Table	Cannot Table	2	1	1	22" Diameter x 18"H	Glass Top Metal Frame	Haworth
Occasional Table	SE04 Rectangle	-	-	1	26"D x 50"W x 18"H	Wood Top and Body Metal Base	Haworth
Occasional Table	SE04	-	-	2	26"D x 26"W x 18"H	Wood Top and Body Metal Base	Haworth
Modular Acoustic Pod	Air_20	-	1	-	58"D x 78"W x 90"H	Upholstered Structural Panels Glass Door and Windows Wood Louvers	Orangebox
Modular Acoustic Pod	Air_23	5	5	6	65"D x 110" W x 90"H	Upholstered Structural Panels Glass Door and Windows Wood Louvers	Orangebox
Mobile Storage Cart	Exponents Storage	4	-	-	19 ¾"D x 30"W x 32"H	Wood Veneer Body	Steelcase
Lateral File	Universal Storage	16	14	14		Wood Veneer Body Metal Top	Steelcase

FURNITURE SELECTIONS

DESCRIPTION	MODEL NAME	LEVEL 3 QUANTITY	LEVEL 4 QUANTITY	LEVEL 5 QUANTITY	SIZE	FINISH MATERIAL	MANUFACTURER
Storage Cabinet	High-Density Storage	-	-	6	18"D x 36"W x 28"H	Wood Veneer Body	Steelcase
Storage Cabinet	Universal Storage Combination	-	8	-	30"D x 15"W x 42"H	Wood Veneer Body	Steelcase
Storage Caddy	Worktool Mobile Caddy	74	52	44	18"D x 30"W x 84"H	Wood Veneer Body	Steelcase