Designing a Long-Term Supportive Housing Facility for People with Schizophrenia

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fulfillment of the requirements for the degree of

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Abstract

The 1960s witnessed a shift in perception for care of the mentally ill which resulted in the deinstitutionalization of the mentally ill. This meant that this fragile population found themselves shifted from institutional care to community care. The community environment was unprepared with affordable housing for the mentally ill and so they found themselves in substandard housing, homeless or in the prison system. Furthermore, government policy implementing cut backs in income support and affordable housing added to the burden of the mentally ill and accessibility to supportive housing and rehabilitation was further compromised. As a result the mentally ill, specifically those with a major mental illness like schizophrenia, found themselves not only further marginalized but additionally further stigmatized. Supportive housing that takes into account the cognitive deficits and coherent recovery programs for the mentally ill can not only provide a safe and supportive environment for recovery, but further to this, improve the quality of life for those with schizophrenia.

This thesis initiates with a discussion of schizophrenia as a life altering brain disease with symptoms so pervasive that they impact all areas of cognitive function, including a failure in the processes of thought, emotions and finally behaviour and as an outgrowth, the necessity of a supportive housing that maintains drug therapy while providing psychosocial and cognitive behaviour therapy. Secondly, the thesis goes on to a discussion of the symptomology of schizophrenia which implies significantly on the design features of a housing facility that supports optimal recovery and rehabilitation. Thirdly, a discussion of psychosocial therapy is presented, since it is part of the recovery process and has significant implications on design selections. Fourthly, the thesis turns to a detailed discussion of housing, including policy shifts in government that led to a shortage in housing and income for the mentally

ill, a discussion of the types of housing currently available, as well as the kinds of housing conditions possible, including consideration to preference in housing situations on the part of the residents, which tend to reflect a more consistent rate of recovery. Moreover, this section includes a discussion to features that address security for the residents and integration as a method for rehabilitation. Finally, the chapter examines two presently functional supportive housing facilities that act as models for the design of the housing facility and provides examples of design features that have been successful and not successful.

The design portion of this thesis presents a site analysis of three different housing facilities in Ottawa and follows with a discussion of the site chosen for this research design project.

Following this, the design of a supportive housing facility for people with schizophrenia is presented. Three anchoring objectives drive the design, including the aim to improve the quality of life for the residents suffering from schizophrenia, to strengthen peer support in the mentally ill community and to achieve integration between the society and the mentally ill population.

Finally, the thesis offers a postscript which presents the intentions behind the project design and concludes with a response to the objects set out in the initiation of this design project.

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Preface

I first became aware of schizophrenia when a loved one became diagnosed with schizoaffective disorder after an attempted suicide. At the time of on-set and to this day, I have witnessed the drastic crumbling in both his vivacity and spirit as a result of the illness and in his dealing with the illness. Since his diagnosis, not only did he have to overcome dramatic changes to his planned life, but the illness extended beyond him, indirectly affecting his family and circle of friends as well. I experienced a drastic change in the family dynamic where priorities of each family member shifted towards supportive caring for the individual. As a result, an immense amount of support, time, energy and personal sacrifices of future goals were given up in order to care for him, and provide him with as stable and loving a life as possible. The parents of the affected live with constant worry of who will take care of their child when they pass on, and the guilt of passing on responsibilities to siblings and their spouses. I also witnessed the individual's constant struggle of the self against the illness. Internal turmoil arose including self-hatred, low self-esteem and struggles in defining one's own identity.

This loved one was fortunate to have a strong family support system throughout the daily challenges of the illness. I began to wonder, how do the rest of the schizophrenic population who do not have the family support undergo these challenges alone? It was then that I realized that there is a strong need for community support for this population. This led to another question, how could the physical environment support people with schizophrenia in coping with and stabilizing the illness?

Introduction

The Canadian Mental Health Association (CMHA) reports that mental illnesses are so prevalent that they will indirectly touch all Canadians at some point over their lifetime, either through family, friends or colleagues. Moreover, CMHA reports that a staggering twenty percent of Canadians will personally be affected by a mental illness at some point in their lifetime.¹ Clearly, the pervasiveness of mental illness is such that its roots extend well beyond patients and their families, into the community and in turn to society at large.

Perhaps one of the most devastating and least understood of the multitude of mental illnesses is schizophrenia. Oxford Dictionaries defines schizophrenia as:

a long-term mental disorder of a type involving a breakdown in the relation between thought, emotion, and behavior, leading to faulty perception, inappropriate actions and feelings, withdrawal from reality and personal relationships into fantasy and delusion, and a sense of mental fragmentation.²

Dr. Fuller Torrey, a leading psychiatrist in the study of schizophrenia reveals the human dimension of schizophrenia, and as such builds on the clinical view offered by the Oxford online Dictionaries:

Schizophrenia is a cruel disease. The lives of those affected are often chronicles of constricted experiences, muted emotions, missed opportunities, unfulfilled expectations. It leads to twilight existence, a twentieth-

1 CMHA, 'Fast Facts about Mental Illness', in Canadian Mental Health Association: Mental Health for All <<http://www.cmha.ca/media/fast-facts-about-mental-illness/#.UVZS-le1WK4>> [accessed 1 April 2013]

2 Oxford University Press, 'Schizophrenia', in Oxford Dictionaries <<http://oxforddictionaries.com/definition/english/schizophrenia>> [accessed 1 April 2013]

century underground man. The fate of these patients has been worsened by our propensity to misunderstand, our failure to provide adequate treatment and rehabilitation, our meager research efforts.³

Finally and perhaps the most poignant description of schizophrenia comes from the Australian and New Zealand Journal of Psychiatry and quoted by Torrey in his book *Surviving Schizophrenia*: “[s]chizophrenia is to psychiatry what cancer is to medicine: a sentence as well as a diagnosis.”⁴

Unquestionably, these descriptions of schizophrenia portray a brain disease, perverse and all-encompassing. In other words, schizophrenia ravages not only the cognitive functioning of the individual, but as a consequence of this impairment, his educational and employment opportunities, social and family relationships and ultimately his ability to maintain appropriate shelter.

The Schizophrenia Society of Ontario reports that schizophrenia is ranked the third most disabling condition worldwide and that sixty to seventy percent of people suffering from schizophrenia will not marry or find a life partner.⁵ Further to this the Society reports that “[d]irect and indirect costs of schizophrenia in Canada are approximately \$6.85 billion annually”⁶ Clearly, these statistics reveal the difficulties tied to providing those with serious mental illnesses, like that of schizophrenia, a home environment that supports their special needs.

Housing becomes a fundamental challenge in supporting the mentally ill and good architectural design is imperative to the recovery and stabilization of the patient. The Centre

3 E. Fuller Torrey, *Surviving Schizophrenia: A Manual for Families, Patients, and Providers* (5th Ed.) (New York: HarperCollins, 2006) (p. 1).

4 E. Fuller Torrey, *Surviving Schizophrenia: A Manual for Families, Patients, and Providers* (5th Ed.) (New York: HarperCollins, 2006) (p. 1).

5 Schizophrenia Society of Ontario, ‘Schizophrenia and the Mental Health System’, in Schizophrenia Society of Ontario <<http://www.schizophrenia.on.ca/docs/Schizophrenia%20Facts.pdf>> [accessed 1 April 2013]

6 Schizophrenia Society of Ontario, ‘Schizophrenia and the Mental Health System’, in Schizophrenia Society of Ontario <<http://www.schizophrenia.on.ca/docs/Schizophrenia%20Facts.pdf>> [accessed 1 April 2013]

for Addiction and Mental Health (CAMH) includes on its website a Housing Discussion Paper, which specifically addresses the topic of housing for those with serious mental illness. This paper states that:

[p]eople with mental illness need safe and affordable places to live. They also need the right kind of support to live successfully in these settings. To work for consumers and for a health care system that faces high demands and limited resources, a coordinated housing strategy needs to be driven by good information and to utilize models that respect the capacities of consumers and offer only the support that is needed.⁷

Further to this the paper recognizes that:

Although gaps in knowledge still exist, the important elements of successful housing and support programs for people with mental illness are clear. These elements encompass a range of housing and programmatic support features that must be implemented to provide the best opportunities for recovery and success in the community.⁸

Historically supportive housing began in the 1960s when the de-institutionalization of the mentally ill in Canada was born out of criticisms of psychiatric practices as being dehumanizing as well as stigmatizing. "Deinstitutionalization refers to a concerted effort by the mental health system to find community-based alternatives to psychiatric hospitalization."⁹ The report continues to acknowledge that in fact, this deinstitutionalization movement was not met with a satisfactory development of housing resources in the community of the mentally ill. To further substantiate this, the Globe and Mail reported in December 2011 that prisons are

7 CMHA, 'Fast Facts about Mental Illness', in Canadian Mental Health Association: Mental Health for All <<http://www.cmha.ca/media/fast-facts-about-mental-illness/#.UVZS-le1WK4>> [accessed 1 April 2013]

8 CMHA, 'Fast Facts about Mental Illness', in Canadian Mental Health Association: Mental Health for All <<http://www.cmha.ca/media/fast-facts-about-mental-illness/#.UVZS-le1WK4>> [accessed 1 April 2013]

9 CMHA, 'Fast Facts about Mental Illness', in Canadian Mental Health Association: Mental Health for All <<http://www.cmha.ca/media/fast-facts-about-mental-illness/#.UVZS-le1WK4>> [accessed 1 April 2013]

becoming a warehouse for the mentally ill.¹⁰ Furthermore, homelessness for those suffering from a serious mental illness has also been the result of the 'deinstitutionalization movement'.

The increase in homeless mentally ill in Canada is often attributed to the closing of psychiatric hospitals (deinstitutionalization). However the biggest increase occurred in the 1990s when many provinces lowered welfare rates and limited investment in social housing. At this time, there were also fewer funds for health and social services.¹¹

The literature clearly supports that schizophrenia is pervasive, devastating, and expensive. Housing initiatives are not only a failure, but additionally community and government has not provided well-designed housing that will accommodate the number of mentally ill while addressing their unique needs. Additionally, and as reported by Statistics Canada, the policy of the Canadian government to deinstitutionalize the mentally ill and in turn provide suitable shelter addressing continued recovery and long term stability has not met the reality of the problem.¹² Without question, there is a direct link between appropriate housing and a positive outcome in the rehabilitation and continued recovery for those suffering from schizophrenia. In fact,

a key determinant for readmission rates in schizophrenia patients is the type of situation to which they are discharged. Browne and Courtney (2004) reported that people discharged to lower-quality housing situations had higher rates of readmission to the hospital. Lack of quality

10 Kim Mackrael, 'Health: Canada's prisons becoming warehouses for the mentally ill', 2011 <<http://www.theglobeandmail.com/news/politics/canadas-prisons-becoming-warehouses-for-the-mentally-ill/article4236899/>> [accessed 1 April 2013]

11 Canadian Alliance on Mental Illness and Mental Health, 'Homelessness and Mental Illness', in Canadian Alliance on Mental Illness and Mental Health <<http://camimh.ca/mental-illness-awareness-week-english/about-mental-illness/what-is-mental-illness/homelessness-and-mental-illness/>> [accessed 1 April 2013]

12 Statistics Canada, 'Section A: Overview of issues - Mental health and the criminal justice system', in Statistics Canada <<http://www.statcan.gc.ca/pub/85-561-m/2009016/section-a-eng.htm>> [accessed 1 April 2013]

housing options can contribute to the “revolving door” phenomenon experienced by so many people with mental illness.¹³

Further to this the report reiterates the central importance that housing plays in rehabilitation and the quality of life for those with schizophrenia:

“The quality of housing has a critical effect on relapse rates (J Community Psychol, 1991:19:1). The results of this study, which followed the outcome of patients discharged from in-patient care, concluded that when patients are in need of both residential *and* psychiatric services, “housing interventions are more important than psychiatric services for patients’ ability to stay in the community” (measured by the rate of re-hospitalization during a six-month period)”¹⁴

The principal objective of this thesis and design of this project is to determine if and how a living environment for those suffering from schizophrenia can be designed in such a way that it fosters a consistency in quality of life for those suffering from schizophrenia. Secondly, and fundamental to the design of this housing facility, is the feasibility of such a living environment to support a platform that blends the mentally ill into mainstream society and accomplishes this through supportive housing design, centered on inviting mainstream society to the environment of the mentally ill.

In an effort to determine design features, this thesis examines elements that support a housing facility focused on improving quality of life for the individuals. Firstly, offered is a discussion of the symptomology of schizophrenia revealing it as a complex illness that requiring significant considerations to the design of a housing facility. Secondly, as schizophrenia includes visual and audio expressions, as well as deficits in cognition, it is critical that design take into account this aspect of the illness, and so the thesis will discuss the choices to hous-

13 Schizophrenia.com, ‘Finding a Good Residential Option for Someone with Severe Mental Illness’, in Schizophrenia.com <<http://www.schizophrenia.com/housing.html>> [accessed 1 April 2013]

14 Schizophrenia.com, ‘Finding a Good Residential Option for Someone with Severe Mental Illness’, in Schizophrenia.com <<http://www.schizophrenia.com/housing.html>> [accessed 1 April 2013]

ing design that play a role in promoting a user friendly, supportive and a safe environment for the patient. Thirdly, a discussion of psychosocial treatment is offered since such therapy is adjunct to drug treatment and figures prominently in recovery. Fourthly, models of active facilities for those with a mental illness are included since these facilities have had an impact on choices made for this design of housing. Fifthly, a discussion of site analysis considerations is presented, again since the illness itself demands consideration to exterior, as well as interior design. Finally, the design and a discussion of the housing project are included.

At its core this design is intended to be a holistic approach for the treatment for those suffering from schizophrenia, where the outside world can slowly be re-integrated into their daily life in a protective and comprehensive manner.

1 SCHIZOPHRENIA

According to Fuller Torrey schizophrenia is considered to be one of the most serious of the mental illnesses and is caused by a chemical imbalance in the brain affecting 1 in 100 people.¹⁵ Approximately 120,000 people in Ontario have some form of schizophrenia.¹⁶ Considered to be the most potent of all mental disorders, this illness has drastic life-altering implications, not only for the individual, but also for their family and friends. Schizophrenia has both different levels of severity and types, such as schizoaffective disorder, catatonic schizophrenia, childhood schizophrenia, disorganized schizophrenia (hebephrenic) and paranoid Schizophrenia.¹⁷ Schizophrenia is termed the cancer of youth, since the illness typically occurs in the late teens to early twenties for males and mid to late twenties for females and typically erodes the appearance of what it is to be young and 'normal'.

The symptoms are categorized into positive and negative symptoms. Positive symptoms intensify normal cognitive functions and abilities, such as erratic behavior, hallucinations, paranoia, the hearing of voices, delusions and distorted perceptions. This makes distinguishing between real and unreal experiences difficult for the individual. Negative symptoms diminish cognitive functions and abilities such as withdrawal, slurred speech, flattening of facial emotions, lack of ambition, disorientation, difficulty in co-ordination, loss of

15 E. Fuller Torrey, *Surviving Schizophrenia: A Manual for Families, Patients, and Providers* (5th Ed.) (New York: HarperCollins, 2006).

16 Mood Disorders Society of Canada, 'Quick Facts: Mental Illness and Addicron in Canada, 3rd Edition', in Mood Disorders Society of Canada <<http://www.mooddisorderscanada.ca/documents/Media%20Room/Quick%20Facts%203rd%20Edition%20Eng%20Nov%2012%2009.pdf>> [accessed 1 April 2013]

17 Arthur Schoenstadt, 'Types of Schizophrenia', in eMedTV: Health Information Brought to Life <<http://schizophrenia.emedtv.com/schizophrenia/types-of-schizophrenia.html>> [accessed 1 April 2013]

focus, confusion and delayed speech fluency. The illness can also manifest into other mental disorders including various forms of addictions such as impulse behaviors, gambling and drug abuse.¹⁸

There is no distinct cause of schizophrenia. Scientific findings, however, believe that genetics and the environment are two primary factors responsible for the development of this illness. A person with one parent with schizophrenia has a ten to fifteen percent chance of developing the disorder. This possibility increases to fifty percent if both parents and an identical twin are affected.¹⁹

Presently, there is no cure for the illness but psychosocial and medical treatment can stabilize and suppress the symptoms from worsening, to assist the individual in continuing with some level of life activities. Medical treatment for schizophrenia is extremely complex and includes primarily, though not exclusively, the use of atypical antipsychotics. Determining the proper dose, combination and type of drugs for each individual is through a tedious trial and error process. This process can take years and numerous drug changes before finding the suitable drug or combination of drugs which in turn makes recovery a long and difficult journey.

The side effects associated with antipsychotics are in themselves debilitating. Obesity, type II diabetes mellitus, hyperlipidemia, QTC interval prolongation, myocarditis, sexual side effects, extrapyramidal side effects and cataracts are but a sampling of the possible side effects of such janitor in the drum drugs.²⁰ The side effects of antipsychotics are so debilitating that they require the patient to take other prescription drugs to deal with these side effects. For example, benztropine, an anticholinergic is prescribed for acute dystonic reaction,

Figure 1: Image of brain scan of two identical twins. The twin on the right is affected with schizophrenia.

18 'Schizophrenia Symptoms', in Schizophrenia.com <<http://www.schizophrenia.com/diag.php#common>> [accessed 1 April 2013]

19 Mood Disorders Society of Canada, 'Quick Facts: Mental Illness and Addicton in Canada, 3rd Edition', in Mood Disorders Society of Canada <<http://www.mooddorderscanada.ca/documents/Media%20Room/Quick%20Facts%203rd%20Edition%20Eng%20Nov%2012%2012%2009.pdf>> [accessed 1 April 2013]

20 Alp Üçok and Wolfgang Gaebel. 'Side effects of atypical antipsychotics: a brief overview', World Psychiatry. 7 (2008), 58-62 <<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2327229/>> [accessed 1 April 2013].

“40-60% of schizophrenics have attempted suicide and 10% have succeeded”

(Mood Disorders Society of Canada, 2009).

which ``consists of stiffening of muscles on one side of the neck and jaw. ``²¹ Although it is necessary to take this medication to address the side effects of the antipsychotics, benztropine can worsen or cause glaucoma, can cause confusion, memory loss, or Alzheimer like symptoms as well as making tardive dyskinesia (ticks) worse and already a side effect of antipsychotics.²² Sadly, the schizophrenic cocktail of drugs is in itself a serious impediment to an already disabling illness.

Further to the long list of side effects associated with antipsychotics, there is no guarantee that the medications will be effective for the lifetime of the patient and likely the patient will require further drug changes over the course of their lifetime.

As previously documented, the likelihood of constant adjustments to medication causes added stress to the body and mind of an already taxed system. Additionally, such medications and possible ongoing changes in medication has an enormous impact on the quality of life of the schizophrenic patient, not just within his body and mind, but equally important with friends, family and other loved ones, who don't always understand the implications of such a devastating illness.

Surviving schizophrenia is a life-long battle and often times, many schizophrenics lose hope in recovery and a purpose to live. As indicated by the Mood Disorders Society of Canada, forty to sixty percent of schizophrenics will attempt suicide and ten percent will succeed.²³ Suicidal thoughts are not solely from the symptoms, but are also a result of depression that is an aspect of schizophrenia which makes treatment more complex.²⁴

21 E. Fuller Torrey, *Surviving Schizophrenia: A Manual for Families, Patients, and Providers* (5th Ed.) (New York: HarperCollins, 2006) (p. 221).

22 Kristi Monson and Arthur Schoenstadt, 'Precautions and Warnings with Benztropine', in eMedTV: Health Information Brought to Life <<http://nervous-system.emedrv.com/benztrapine/precautions-and-warnings-with-benztrapine.html>> [accessed 1 April 2013]

23 Mood Disorders Society of Canada, 'Quick Facts: Mental Illness and Addictron in Canada, 3rd Edition', in Mood Disorders Society of Canada <<http://www.mooddisorderscanada.ca/documents/Media%20Room/Quick%20Facts%203rd%20Edition%20Eng%20Nov%2012%202009.pdf>> [accessed 1 April 2013]

24 Ciaran Mulholland and Stephen Cooper, 'The symptom of depression in schizophrenia and its management', *Advances in Psychiatric Treatment*, 2000, pp. 169-77.

The features of the illness itself include a hindering on the ability of the afflicted to perform basic tasks in self-maintenance, such as hygiene, difficulty in interacting with others, functioning in society and maintaining employment. This makes it difficult for patients to integrate into the community after being discharged from the psychiatric hospitals. This can affect self-esteem, a sense of identity and the level of confidence in patients.

Clearly, the characteristics of the illness itself, the cocktail of drugs to control the symptoms of the illness, and the side effects of the medications are in themselves challenging and overwhelming for those diagnosed with schizophrenia. Equally problematic is the reality that those with schizophrenia will still need to deal with day-to-day life activities. Moreover this already marginalized population will still face the challenge of overcoming the stigma of having a mental illness. Considering the age of onset of the illness, the individual may have to face continuation of some sort of education all the while managing the complexity of the illness, or accepting that they will not be able to continue studying and eventually needing to find employment. Added to this juggling act is the likelihood of many hospitalizations.

The typical characterization of schizophrenia as a disease that has onset primarily in adolescence or early adulthood implies a disruption in the skill developments characteristic of this stage of life. It is with sensitivity to this circumstance that my design of supportive housing has attempted to reflect and further to respond to, not only with a physical design conducive to recovery, but additionally taking into consideration in house rehabilitation programs. In short, it is the overriding goal of this housing facility to significantly support an improved outcome for quality of life.

1.2 Psychosocial Therapies

An intricate aspect of treatment for those suffering with schizophrenia, are psychosocial programs, as well as daily treatment activities, which take place in supportive, housing. Understanding the purpose of these programs and activities will translate into designing effective architectural design considerations that are integral to the recovery and stability of

those in supportive housing.

As previously stated there is no cure for schizophrenia, however medication combined with psychosocial therapy can help the mentally ill to gain better control of their symptoms and live independently in society. For over five decades, treatment for mental illness has progressed from institutional care to community based care. Psychosocial therapy provides training and assistance for the individual to develop functioning skills such as career development as well as social and domestic skills to live a self-functioning life. Various benefits from community based care include greater patient satisfaction in treatment, higher chance of preventing relapse and re-hospitalization, better protection of human rights, reduced homelessness and the promotion of the integration of the mentally ill into the society. This recent treatment has proven to be more cost effective than hospitalization and homeless shelters.²⁵

Additionally, the cost per day for community-based treatment is significantly lower than psychiatric treatment and homeless shelters.²⁶

It is important to understand at this point, that the research on supportive housing generally discusses such housing in terms of its fitness for the mentally ill in general. In the case, however, of this research design the unique qualities of schizophrenia, as a serious mental illness with symptoms that distort reality, is a fundamental consideration in the choice of supportive housing as the best kind of housing to foster rehabilitation for this group. In other words, supportive housing has qualities that take into account security and in this case, security for both patients and others.

25 Jose Miguel Caldas de Almeida and Helen Killaspy. 'Long-Term Mental Health Care For People with Severe Mental Disorders' (Report, European Commission, Public Health, 2011). (p. 2).

26 Canadian Broadcasting Corporation, 'The Cost of Homelessness', cbcnews: the fifth estate, 10 March 2004.

2 HOUSING

Persons suffering from schizophrenia may, for any number of reasons have to move from one home to another. A typical scenario might be that they are living in the family home, however, due to instability, the family may not be able cope with the situation and the person with schizophrenia may be obliged to leave the home. Additionally, those suffering from schizophrenia are often hospitalized in an acute phase of the illness, but are released when the hospital deems that they no longer need such an acute care environment. However, due to the cognitive deficiencies typical of the illness, those with schizophrenia likely may not be ready to take on the vast challenges of supporting themselves not only financially, but in many other ways. Critical to their continued mental health “people with schizophrenia need stability; any lack of permanency in their living situation can have a negative impact on their psychiatric condition.”²⁷ As such, supportive housing can act as a link that supports the individual as they navigate their particular situations and are able to function in mainstream society.

Certainly, drug therapy and appropriate housing is critical in stabilization and ongoing care for those with schizophrenia, but equally fundamental is the element of therapy. Psychosocial therapy can be an essential element for recovery for those with schizophrenia. “Oriented toward the practical, psychosocial rehabilitation teaches a patient how to access resources--such as health services and housing availability--and regain independent functioning. It also provides programs of enrichment or self-development, even basic support such as housing and food.”²⁸ In short, beyond drug therapy, a successful plan of action for someone just diagnosed with schizophrenia or for someone who has been suffering with it

²⁷ The-Crankshaft Publishing, 'Housing Choices for someone having Schizophrenia: Figuring Out Where to Live', in what-when-how: In Depth Tutorials and Information <<http://what-when-how.com/schizophrenia/housing-choices-for-someone-having-schizophrenia-figuringout-where-to-live/>> [accessed 1 April 2013]

²⁸ Patrick A. McGuire, 'New hope for people with schizophrenia', in American Psychological Association <<http://www.apa.org/monitor/feb00/schizophrenia.aspx>> [accessed 1 April 2013]

over time is two-fold: appropriate housing and rehabilitation therapy.

This chapter will begin by addressing the problem of housing for those with schizophrenia by initiating with a discussion of the reason for the shortage in housing. Secondly, a summary of different types of housing, as well as what types of housing those with schizophrenia prefer will be presented. This chapter will conclude with an in-depth investigation of design strategies specific to how people with schizophrenia perceive and respond to their physical environment. The guiding intent will be to provide a sense of security and encouragement regarding integration between the general public and those with schizophrenia.

1.2 Housing Shortage

In order to determine the appropriate architectural approach in designing supportive housing for the mentally ill, it is important to understand the cause of the housing shortage and its effects on the living conditions of the mentally ill. This in turn will help determine how the environment can be improved over current supportive housing for the design portion of this project.

Living stability is fundamental for the wellbeing of any person. For those suffering from schizophrenia it is critical to maintaining mental stability particularly in light of the cognitive deficiencies associated with the illness. However, housing stability is not a given for those with schizophrenia due to limited finances, stigma from society and scarcity of supportive housing.

According to the report “The Cost of Homelessness” by CBC News²⁹, there were approximately 8,500 affordable housing units for the mentally ill in Ontario in 2006. Waiting times to receive supportive housing ranged from one to six years. As noted in the previous chapter, there are approximately 120,000 Ontarians with schizophrenia.³⁰ Under the assumption that each person with schizophrenia will be housed in a supportive housing environment, the potential need of housing for the schizophrenics falls at 93%.

In 2006 the following supportive housing types in Ontario were estimated at:

84, 208 Public Housing;

21,200 Co-operative Housing;

²⁹ Canadian Broadcasting Corporation, ‘The Cost of Homelessness’, cbcnews: the fifth estate, 10 March 2004.

³⁰ Mood Disorders Society of Canada, ‘Quick Facts: Mental Illness and Addicton in Canada, 3rd Edition’, in Mood Disorders Society of Canada <<http://www.mooddorderscanada.ca/documents/Media%20Room/Quick%20Facts%203rd%20Edition%20Eng%20Nov%2012%2009.pdf>> [accessed 1 April 2013]

88,159 Non-Profit Housing;
 1,981 Urban Native Housing;
 9,500 Supportive Housing
 8,500 Supportive Housing for the Mentally Ill.³¹

The scarcity of supportive housing for the mentally ill can be seen as a result of the restructuring of three fundamental policies in Canada during the 1990's which includes Health Care, Income Support and Affordable Housing. According to Sheryl Forchuck in "Housing, Income Support and Mental Health; Points of Disconnection", these three policies were the essential foundations that anchored the stability of housing for the mentally ill.³² These policies underwent drastic reformation that left the mentally ill population without homes. In an attempt to understand the effect on those with schizophrenia a discussion of the changes follow.

2.1a Health Care: From Institutional Care to Community Care

For over four decades, treatment for the mentally ill has progressively shifted from institutional care to community based care.³³ Alongside to this, new treatments such as psychosocial therapy and cognitive behavioral therapy or CBT were developed to guide mentally ill patients to build employment skills, social skills and basic domestic skills to be able to live self-sufficiently in the community. The report, "2000 and Beyond; Strengthening Ontario's Mental Health System" by the Ministry of Health indicates that both housing and income support are two important factors that need to be properly addressed in order to support

Figure 2: Diagram of the three policies affecting housing shortage.

³¹ Canadian Broadcasting Corporation, 'The Cost of Homelessness', cbcnews: the fifth estate, 10 March 2004.

³² Cheryl Forchuk and others, 'Housing, income support and mental Health: Points of disconnection', Health Research Policy and Systems, 5 (2007). (p.1)

³³ Cheryl Forchuk and others, 'Housing, income support and mental Health: Points of disconnection', Health Research Policy and Systems, 5 (2007) (pp. 5-7).

the shift from institutional treatment to community care.^{34,35} However, the reality of the housing situation for the mentally ill is that there remains a strong need for supportive housing. Cheryl Forchuk indicates in her article that the movement towards community-based treatment resulted in a drastic decrease of psychiatric hospital beds. From 1960 to 1982, the number of hospital beds in Ontario had decreased from 19,501 to 4,514. The restructuring of the Provincial Mental Health System in Ontario in 1999 further decreased the number of psychiatric hospital beds by 39% from 2,900 beds in 1996 to 1,767 beds in 2003.³⁶ The outcome from decreasing hospital beds essentially displaced a large number of the mentally ill from the hospital environment into the community. This shift into the community required more housing which in fact was not available. As indicated earlier, there were approximately 8,500 supportive housing for the mentally ill in 2006 in Ontario while there are approximately 120,000 Ontarians with schizophrenia. As a result of the insufficient number of supportive housing to support the high housing demand of patients newly discharged from hospitals, many of those with schizophrenia live in poor living conditions and in housing located far from family and friends.³⁷ This rather disjointed living arrangement caused instability and in turn stress for those with schizophrenia, which led to a need for re-hospitalization or homelessness. In a CMHC study it was found that supporting homelessness is more expensive than supportive housing and as such improper management of housing has an impact not only on those with mental illness, but in turn puts added strain on the economy.³⁸

34 Dan Newman, 'Mental Health: 2000 and Beyond: Strengthening Ontario's Mental Health System' (A Report on the Consultative Review of Mental Health Reform in the Province of Ontario, Government of Ontario, Ontario Ministry of Health and Long-Term Care, 1998).

35 Cheryl Forchuk and others, 'Housing, income support and mental Health: Points of disconnection', Health Research Policy and Systems, 5 (2007). (p.5).

36 Cheryl Forchuk and others, 'Housing, income support and mental Health: Points of disconnection', Health Research Policy and Systems, 5 (2007) (p. 5).

37 Jose Miguel Caldas de Almeida and Helen Killaspy, 'Long-Term Mental Health Care For People with Severe Mental Disorders' (Report, European Commission, Public Health, 2011).

38 Canadian Mortgage and Housing Corporation, 'Evaluating Housing Stability for People with Serious Mental Illness at Risk for Homelessness: Final Report' (Research Highlights, Government of Canada, Community Support and Research Unit Centre for Addiction and Mental Health, 2001).

2.1b Decrease in Income Support

Furthermore, Cheryl Forchuk addresses the change in income support that lead to limited financial resources for the mentally ill. Despite the push towards community living for the mentally ill, mentally ill patients do not receive enough financial support to live independently.³⁹ As a result of insufficient funding many patients who are discharged from psychiatric hospitals end up becoming homeless.

Concurrent to the reformation of the Provincial Mental Health System in Ontario, Income Support for the disabled also underwent restructuring. ODSP (Ontario Disability Support Program) was a new income support system in the 1990's that focuses specifically for the physically, mentally and visually impaired. According to Cheryl Forchuk, this system is applicable to those who fall under the following:⁴⁰

1. *With mental/physical impairment that prevents the ability to work;*
2. *Prevents ability to self-support and self-sustain, function in the community and in the workforce; and*
3. *Verified and approved by a medical professional.*

Cheryl Forchuk says that this financial support program separated the disability branch from the welfare branch, which was originally categorized under one system in the previous GAINS-D program. She continues by saying that, the new ODSP program, which was intentionally developed to improve financial support, in fact posed a negative impact to the financial security for the disabled. Essentially, the new program had very stringent acceptance regulations and the annual income provided was significantly lower than the previous GAINS-D. Since the new legislation, Forchuk points out, the income support decreased by 10.6%. In 1992, the annual income funded by ODSP was \$13,449 and by

³⁹ Forchuk, C., Turner, K., Joblin, L., Schofield, R., Csiernik, R., & Gorlick, C. (2007). Housing, income support and mental Health: Points of disconnection. Health Research Policy and Systems, 5 (14). (p. 4)

⁴⁰ Cheryl Forchuk and others. 'Housing, income support and mental Health: Points of disconnection'. Health Research Policy and Systems, 5 (2007) (p. 5).

1997, the amount had decreased to \$12, 682.⁴¹ Certainly, the changes to financial support programs further marginalize an already victimized group essentially by adding to their financial burden.

Understanding what Cheryl Forchuk discusses, in short, there are two events that took place resulting to housing shortage. First, due to the change in treating the mentally ill, a large population of the mentally ill was relocated into the community. Meanwhile, income support for the disabled has drastically been decreased. This leaves minimal resources and financial support for the mentally ill to live in the community after being discharged from the psychiatric hospitals. As a result, this makes the mentally ill population severely vulnerable to homelessness and living below the bare minimal standards in quality of life. Cheryl Forchuck continues to explain how change of the third policy in affordable housing posed more difficulties for the mentally ill to be able to live at the bare minimal standards in quality of life.

2.1c Decrease in Affordable Housing

In addition to the reformation of the Mental Health and Income Support policies, Forchuk cites a third policy in Ontario that underwent restructuring that being, Affordable Housing. With Mike Harris as Ontario's Premier in 1995, she says the availability of affordable housing took a drastic downward turn. The strategy under Harris' governing was aimed to boost the economy by focusing on private ventures. Harris' approach focused heavily on the business class and neglected the well-being of the less fortunate.⁴² Regulations to control annual rental price mark ups were removed and consequently, rental prices spiked drasti-

⁴¹ Cheryl Forchuk and others, 'Housing, income support and mental Health: Points of disconnection', Health Research Policy and Systems, 5 (2007) (pp. 6-7).

⁴² Cheryl Forchuk and others, 'Housing, income support and mental Health: Points of disconnection', Health Research Policy and Systems, 5 (2007). (p. 2)

cally. In the paper “The Ontario Alternative Budget 2001: Made-in-Ontario housing crisis”, the author Michael Shapcott points out units in Ottawa increased at a staggering 12.6% within one year.⁴³ Furthermore, Shapcott points out those major cutbacks in municipal funding resulted to the closure of 17,000 co-ops and non-profit housing in Ontario.⁴⁴

Prior to the 1990's, Forchuk points out that funding and responsibilities of social housing was a joint venture between the federal and provincial government and from there, the responsibilities was re-allocated to the municipality. During the governing of Mike Harris, the decision making of affordable housing developments was reallocated from the municipal government to private ventures. Due to the stigma from the general public towards social housing, minimal affordable housing was developed by private ventures during 1995-2002.⁴⁵

It is evident from the research presented above that there is serious issue in housing stability as a result of the restructuring of the policies of mental health, affordable housing and income support. A possible reason for why the mentally ill are vulnerable to any shift in cut back or policy is the stigma towards this demographic. It is argued in this thesis that the reason for the stigma against this population has a lot to do with their reliability on income support and as such they are seen as being lesser than others. This design project attempts to address this stigma and through design change the way in which the outside world views those with serious mental illness. Supportive housing for the mentally ill should not solely provide the basic needs of housing accommodation, but offer various levels of support, including the development of employment and social skills. In an attempt to respond to this goal, the design incorporates a habitable greenhouse into the housing facility. As such the habitable greenhouse incorporated into the housing facility will not only provide therapeutic

⁴³ Shapcott, M. (2001). The Ontario Alternative Budget 2001: Made-in-Ontario housing crisis Technical Paper #12. Canadian Centre for Policy Alternatives/Ontario, Ontario Alternative Budget. (p.6).

⁴⁴ Michael Shapcott, “The Ontario Alternative Budget 2001: Made-in-Ontario housing crisis Technical Paper #12” (unpublished thesis, Canadian Centre for Policy Alternatives/Ontario, Ontario Alternative Budget, 2001). (p.10).

⁴⁵ Cheryl Forchuk and others, ‘Housing, income support and mental Health: Points of disconnection’, Health Research Policy and Systems, 5 (2007) (p. 2).

tic living accommodations, but also will place working opportunities, such as maintaining the greenhouse, within the safety of their home. In the long run, this opportunity for work will help strengthen their employment skills giving them the confidence to integrate into society. This approach to supportive housing will provide them not only with work skills that are transferable to other employment in mainstream society, but further to this be therapeutic by giving them a sense of success accomplishment and in the end build confidence.

2.2 Types of Housing for the Mentally Ill

As there are different forms and severity of mental illness, there are also different types of housing for the range of mental illness. In order to design a supportive housing facility, it is important to understand the different types of housing models, how they function and the type of patients they are intended for. This understanding will guide the design project in determining where it fits into the housing programs for the mentally ill. This section will discuss the different types of housing for the mentally ill, provide a comparison of the advantages and disadvantages between different housing types and also investigate the preferences in housing of mentally ill consumers.

There are numerous advantages of supportive housing for the mentally ill to both the individual and the community. These benefits include reducing homelessness, improving overall quality of life for the mentally ill and providing a more cost effective treatment alternative than hospitalization and reduce the chance of re-hospitalization.⁴⁶

Housing for the mentally ill consists of two types, Supportive Housing and Supported Housing. In supportive housing, lodging services and on-site mental support programs are operated under a single management, and can be classified into two categories: high-intensity and moderate intensity, which provides different levels of security and regulations for different levels of severity in mental illness. Examples of this housing type include group homes, halfway houses, supportive apartments and community residences.⁴⁷

In low-intensity supported housing, the patient lives independently in a mixed occupancy market priced apartment building and receives off-site mental health support services. Un-

⁴⁶ Jose Miguel Caldas de Almeida and Helen Killaspy, 'Long-Term Mental Health Care For People with Severe Mental Disorders' (Report, European Commission, Public Health, 2011), p. 2.

⁴⁷ Lipton, F. R., Siegel, C., Hannigan, A., Samuels, J., & Baker, S. (2000). Tenure in Supportive Housing for Homeless Persons with Severe Mental Illness. *Psychiatric Services* . 51 (4), 479-486. (p. 480).

like supportive housing, housing and mental support programs in the supported housing are managed separately by different agencies.⁴⁸

As such since this thesis aims to provide housing specifically for people with schizophrenia, the design project will be a supportive housing facility that has on-site mental health support. There are different types of supportive housing programs and each has its own structure targeted to different levels of severity in mental illness. It is therefore important to understand the types of supportive housing to determine more specifically the framework that this supportive housing will take and the type of patients it is intended for.

According to the article “Evaluating Housing Stability for People with Mental Illness at Risk for Homelessness” by the Canadian Mortgage and Housing Corporation, *High-intensity supportive housing* is a short-term living accommodation with 24-hour surveillance and a high number of on-site staff for support. Examples include Group Homes and Half-way Houses.⁴⁹ Tenants in this housing program, often referred directly from the psychiatric hospital, have severe mental illness and usually also suffer from substance abuse. As a result of both the severe mental illness and drug addiction of the tenants, high-intensity housing implements very strict house regulations. Various house rules include, no overnight guests, prohibited drug use by tenants and tenants must return to the facility at the end of the day by a specified time. The daily activities, personal finances and medication of tenants are closely monitored by staff. High-intensity housing also offers training programs that help tenants to transition into the community. It is mandatory for tenants in this housing program to participate a minimum of 20-30 hours per week in training programs. Tenants in this facility live in congregate living arrangements, often with two or three roommates per apartment unit. Various domestic services are provided for these tenants including meal

⁴⁸ Frank R. Lipton and others, 'Tenure in Supportive Housing for Homeless Persons with Severe Mental Illness', *Psychiatric Services*, 51 (2000), 479-86.

⁴⁹ Canadian Mortgage and Housing Corporation, 'Evaluating Housing Stability for People with Serious Mental Illness at Risk for Homelessness: Final Report' (Research Highlights, Government of Canada, Community Support and Research Unit Centre for Addiction and Mental Health, 2001), p. 28.

preparation and housekeeping.⁵⁰

Moderate Intensity Housing is a supportive long-term accommodation that offers private rooms equipped with shared cooking facilities and communal spaces. Examples include Supportive Apartments and Community Residences. In comparison to high-intensity housing, house regulations in this housing type is generally more flexible. Overnight guests are allowed and a designated curfew is not enforced. Twenty four hour surveillance with moderate number of on-site support staff is provided. On-site supportive programs are offered such as money management, medication administration and clinical assistance, however, unlike high-intensity housing, tenant participation in these programs is optional.⁵¹

The information presented above shows that high-intensity housing and moderate intensity housing have very different programming, structure, levels of security and functions. Understanding the differences between both types of supportive housing will help determine what type of supportive housing will be implemented in the design project and how to design for that type of housing. It appears that high intensity supportive housing has very strict regulations of monitoring their residents. The facility goes into 'lock-down' after a designated time and at which time residents cannot leave the facility, nor can visitors stay. In understanding this, the design for this type of housing must enforce this same level of security, for instance the number of entrances to the building is minimized for staff supervision. Housing in moderate intensity settings, however, is intended as a long-term housing program, where residents have more freedom and control of their daily activities. Therefore, the design of supportive housing of a moderate intensity can provide open spaces, such as open courtyards, private entrances into the facility without a security station nearby.

50 Judith McKenzie, 'Supportive housing strategies for the mentally ill in Canada', in *Adequage & Affordable Housing for All: Research, Policy, Practice* ([n.p]: [n.pub.], 2004) (p. 6).

Lipton, F. R., Siegel, C., Hannigan, A., Samuels, J., & Baker, S. (2000). Tenure in Supportive Housing for Homeless Persons with Severe Mental Illness. *Psychiatric Services*, 51 (4), 479-486. (p. 480)

51 Judith McKenzie, 'Supportive housing strategies for the mentally ill in Canada', in *Adequage & Affordable Housing for All: Research, Policy, Practice* ([n.p]: [n.pub.], 2004) (p. 6).

In the article “Tenure in Supportive Housing for Homeless Persons with Severe Mental Illness”, by Frank R. Lipton et al published in April 2000, information is provided on the different types of housing programs for the different mentally illnesses in the state of New York. This data shows that there are 2937 housing consumers in a total of 66 mental housing programs in the state of New York. Of the 66 housing programs, 19 sites were high-intensity housing (total of 512 beds with average of 28.1 beds per site), 10 sites were moderate-intensity housing (total of 499 units with an average of 50 units per site) and 38 sites were low-intensity housing (Total of 1524 units with an average of 87 units per site).⁵² For each of the different intensities the following characteristics were observed:

Supportive Housing

High-Intensity

- 64% suffered from schizophrenia
- 53% were referred directly from a psychiatric facility
- 37% stayed for more than five years

Moderate-Intensity

- 64% suffered from schizophrenia
- 46% were female who are least likely to have a substance abuse
- 56% stayed for more than five years

Supported Housing

Low-Intensity

- Consumers were primarily diagnosed with bi-polar
- 54% stayed for more than five years

It appears from the above data that the primary residents of both high-intensity and mod-

⁵² Frank R. Lipton and others, 'Tenure in Supportive Housing for Homeless Persons with Severe Mental Illness', *Psychiatric Services*, 51 (2000), 479-86. (p. 481-483)

erate-intensity housing suffer from schizophrenia. Furthermore, it appears that in housing with moderate intensity settings, residents have stayed in the housing facility longer than residents of high-intensity housing. Therefore, in selecting the appropriate type of housing program for the design project, which will provide for long-term support, this data further concludes that the housing program will be a supportive housing facility in a moderate intensity setting.

2.2a Housing Preference

As mentioned, this thesis aims to determine how the living environment can improve the quality of life for people with schizophrenia. In order to do so, it is important to understand what type of living accommodations are preferred amongst residents with mental illness, particularly with schizophrenia. This section will discuss the different living preferences amongst residents of different age, mental illness and stage of recovery, as well as those who live alone or with children. This will help determine the type of residents that will be in this supportive housing for the design portion of this thesis.

Gender plays a factor in the types of housing preferred. According to Judith McKenzie in the article, "Supportive Housing Strategies for the Mentally Ill in Canada", women and men have very different housing preferences from one another.⁵³ Women, usually have other dependents such as children and prefer to live in separate dwelling units within a group-setting environment amongst other families with mental illness. This is due to both a better sense of security and community support. Most women prefer living in a moderate intensity-housing program that provides mental health support without stringent house rules. In contrast, men, have more flexible living preferences and do not require a group setting living environment with other people in the same situation. The sense of community support and security is not as important to men as to women. Most men suffering from

⁵³ Judith McKenzie, 'Supportive housing strategies for the mentally ill in Canada', in *Adequacy & Affordable Housing for All: Research, Policy, Practice* ([n.p]: [n.pub.]. 2004) (p. 4).

and the community. The design project must be able to provide a safe and secure environment for residents. The design project must be able to provide a variety of dwelling units for both single individuals and families. Secondly, residents prefer to live in certain housing types in reflection of their treatment progress. Understanding this, the design project must propose a specific type of housing for a specific stage in recovery of the residents. The supportive housing in this thesis design reflects a supportive housing facility in a moderate-intensity setting. It follows then that it will be functional for patients who are in a stage of recovery where they are able to manage their symptoms and can live alone under moderate health support.

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mental illness live alone in bachelor apartments or shared apartments with other mentally ill tenants.^{54,55}

The article, "Housing preferences and choices among adults with mental illness and substance use disorders: A qualitative study" by Jack Tsai et al, indicates that age does not significantly influence housing preference. Two mentally ill male tenants of different age are able to live well together in a shared dwelling unit. Rather than age, it is a patient's stage in recovery that influences housing choice. Patients undergoing early diagnosis of mental illness prefer to live in a highly supervised environment.⁵⁶ This is because tenants with unstable mental conditions feel a sense of security under high security and close supervision of staff. As the patient's recovery progresses and the patient gains a better control of managing their illness, their housing preferences changes to more independent living accommodations.

In short, it appears that women and men have different preferences in living accommodations. Women, who often have children, prefer to live in a family oriented setting for safety reasons while men prefer to live independently. In understanding this, the supportive housing in this design project must provide a variety of dwelling units for both single individuals and families. Secondly, residents prefer to live in certain housing types in reflection of their treatment progress. Understanding this, the design project must propose a specific type of housing for a specific stage in recovery of the residents. The supportive housing in this thesis design reflects a supportive housing facility in a moderate-intensity setting. It follows then that it will be functional for patients who are in a stage of recovery where they are able to manage their symptoms and can live alone under moderate health support.

54 Jack Tsai, Gary R. Bond and Kristin E. Davis, 'Housing Preferences among Adults with Dual Diagnoses in Different Stages of Treatment and Housing Types', American Journal of Psychiatric Rehabilitation, 13 (2010), 258-75.

55 Jack Tsai and others, 'Housing preferences and choices among adults with mental illness and substance use disorders: A qualitative study', Community Mental Health Journal, 46 (2010), 381-88.

56 Jack Tsai, Gary R. Bond and Kristin E. Davis, 'Housing Preferences among Adults with Dual Diagnoses in Different Stages of Treatment and Housing Types', American Journal of Psychiatric Rehabilitation, 13 (2010), 258-75 (p. 6).

2.3 Design Considerations

This section focuses on the design considerations of the physical environment and aims to understand how symptoms of schizophrenia affect the way a person perceives space. These considerations will help determine the architectural planning approach of the thesis and how the design of the physical living environment can improve the quality of life for residents with schizophrenia.

The physical environment is an important factor in treating schizophrenia. According to the “Design Guide 2010: Mental Health Facilities”, the design of the environment can reinforce the effectiveness of treatment, the way in which treatment is carried out and the efficiency in delivering treatment.⁵⁷ As the article, “The Cost-Effectiveness of Independent Housing for the Chronically Mentally Ill: Do Housing and the Neighborhood Features Matter?” Joseph Harkness et al indicate that “*Study participants living in newer and properly maintained buildings had lower mental health care costs and residential instability. Buildings with a richer set of amenity features, neighborhoods with no outward signs of physical deterioration, and neighborhoods with newer housing stock were also associated with reduced mental health care costs.*”⁵⁸

In a psychosocial approach where treatment is focused on nurturing the mentally ill with skills to live independently and to integrate into society, the design of the living environment is fundamental to the success level of this type of treatment. Housing that is designed with great sensitivity to the conditions of the illness can promote healing and stabilization of the mind for the mentally ill. Housing designed with considerations to its surrounding

⁵⁷ Office of Construction & Facilities Management, ‘Design Guide 2010: Mental Health Facilities’ (Review, Government of the United States, Department of Veterans Affairs, 2010). (p. 1-1)

⁵⁸ Joseph Harkness, Sandra J. Newman and David Salkever, ‘The Cost-Effectiveness of Independent Housing for the Chronically Mentally Ill: Do Housing and Neighborhood Features Matter?’, Health Services Research, 39 (2004), 1341-60 (p. 1341).

environment can help stimulate integration between residents with mental illness of the housing facility to other residents in the community. This section will focus on two elements in design: Integration and Security. In this thesis, *Integration* refers to how housing facility can be designed to promote integration of residents with mental illness into the community and *Security* refers to the interior spatial conditions of the housing facility to promote recovery and healing for patients with mental illness.

2.3a Integration

First we will look at various elements of integration. As indicated earlier, this thesis aims to develop a supportive housing project that not only aims to improve the quality of life for residents with mental illness, but also aims to integrate the mentally ill population with society, in hopes to eliminate the stigma towards mental illness. It is therefore important to understand the various types of integration in order to select a site for the design project, as well as to develop architectural design strategies to stimulate interaction between the mentally ill population and the public.

In the article “Community Integration of Persons with Psychiatric Disabilities in Supportive Independent Housing: A Conceptual Model and Methodological Considerations” by Yin-Lin I. Wong and Phyllis L. Solomon, integration is classified as: Physical Integration, Social Integration and Psychosocial Integration. The article explains that physical integration is to be physically present in the community, psychosocial integration refers to the “*emotional connection of the resident to his/her community*” and social integration is defined by the “*the extent to which an individual engages in social interactions with community members that are culturally normative both in quantity and quality, and that take place within normative contexts*”.⁵⁹ According to this article, Social integration is further classified into five factors: Presence, Access, Participation, Production and Consumption. “(1) *presence—the amount of time spent in the community*; (2) *access—the ease to which goods, services, and social contacts are available*; (3) *participation—the extent of involvement in activities with other people*; (4) *production—whether or not an individual participates in income-producing employment*; and (5) *consumption—the extent to which an individual manages his or her*

⁵⁹ Yin-Lin I. Wong and Phyllis L. Solomon, ‘Community Integration of Persons with Psychiatric Disabilities in Supportive Independent Housing: A Conceptual Model and Methodological Considerations’, *Mental Health Services Research*, 4 (2002), 13-28 (p. 10).

*personal finances or purchases goods and services”*⁶⁰

Understanding the different types of integration will help in determine how to promote integration between the mentally ill and the general public. For instances, access which refers to the type of services and social activities in the community helps to understand that the proximity of a site to social activities and resources such as public transportation, community centers and mental health supportive are fundamental in promoting integration. And then particularly with the main objective to eliminate the stigma, towards the mentally ill, production is an important type of integration to consider in the design project.

Production, indicated earlier is the involvement of income generated activities, is also a type of integration that is focused on in the design project, as a way to promote integration between the mentally ill and the general public, in the hopes that the stigma associated with mental illness, can be addressed. To accomplish this, the greenhouse in the design project will support this production type by providing working skills for the residents that can lead to “income-generating” activities in society.

Furthermore, the report “Evaluating Housing Stability for People with Serious Mental Illness at Risk for Homelessness” by the CMHC indicates four crucial elements in housing include i) the physical structure of the environment; ii) the home; iii) the neighborhood; and iv) the community.⁶¹ Of these four elements, the neighborhood and community are two elements that are considered for the site selection of the design project in order to promote integration of the residents and the general public. The report defines the neighborhood as “*the immediate physical area around the house and home*”⁶² In the design project; this can

⁶⁰ Wong, Y.-L. I., & Solomon, P. L. (2002). Community Integration of Persons with Psychiatric Disabilities in Supportive Independent Housing: A Conceptual Model and Methodological Considerations. *Mental Health Services Research*, 4 (1), 13-28. (pg 8)

⁶¹ Canadian Mortgage and Housing Corporation, ‘Evaluating Housing Stability for People with Serious Mental Illness at Risk for Homelessness: Final Report’ (Research Highlights, Government of Canada, Community Support and Research Unit Centre for Addiction and Mental Health, 2001). (p. 30).

⁶² Canadian Mortgage and Housing Corporation. (2001). Evaluating Housing Stability for People with Serious Mental Illness at Risk for Homelessness: Final Report. Government of Canada, Community Support and Research Unit Centre for Addiction and Mental Health. CMHC. (p. 30).

include community resources such as public transportation, entertainment and community centres. Close proximity of the housing facility to these resources will in turn increase the level of community integration between the mentally ill tenants and the community. In addition to this, Harkness et al in "The Cost-Effectiveness of Independent Housing for the Chronically Mentally Ill: Do Housing and Neighborhood Features Matter?" expresses that supportive housing for the mentally ill should be located in a neighborhood that has a range of demographics in financial income status, a range of different people types and a balanced mix of commercial and residential buildings.⁶³ The second element of housing to be considered in the design project is the community. CMHC refers community to be "*The range of important services in the neighborhood*".⁶⁴ In the design project, these important services surrounding the housing facility will be support services such as training workshops, the mental health institute, various employment programs, etc. A further explanation of how the selected site in this thesis supports the two elements of housing – the neighborhood and the community - will be further explained in chapter three. Since the exterior surroundings have been considered for the design project, the interior will be looked at in the supportive housing facility.

⁶³ Joseph Harkness, Sandra J. Newman and David Salkever, "The Cost-Effectiveness of Independent Housing for the Chronically Mentally Ill: Do Housing and Neighborhood Features Matter?", *Health Services Research*, 39 (2004), 1341-60. (p. 1344).

⁶⁴ Canadian Mortgage and Housing Corporation. (2001). *Evaluating Housing Stability for People with Serious Mental Illness at Risk for Homelessness: Final Report*. Government of Canada, Community Support and Research Unit Centre for Addiction and Mental Health. CMHC. (p. 30).

2.3b Promoting Security

An objective of this thesis is the improvement in the quality of life for those suffering with schizophrenia. In order to achieve this, a fundamental focus of the design is to include a sense of security in their living environment and in turn this environment should reflect a home, rather than a facility. Therefore this section is themed as security and various design specifications have been selected with consideration to the way in which those with schizophrenia perceive and respond to their physical environment. Eventually, all the subtopics of security that follow are aimed at providing that security or better said, to help the residents feel safe. This section will first present research of design considerations for the mentally ill

The design of supportive housing for the mentally ill should 'de-institutionalize' and to create a 'home-like' atmosphere which endorses a sense of stability, security and belonging to the community in the living environment. According to the "Design Guide 2010: Mental Health Facilities" published in 2010, institutional settings visually reflects the mental health condition of the tenants, which segregates them apart from the general public. Therefore the living environment for the mentally ill should have domestic architectural qualities so that the mentally ill tenants can feel 'normal' and feel that they live in the same way as others in the community.⁶⁵ The condition of the home has a strong impact, both physically and psychologically on the occupant. The design guide report further stresses the importance of design by stating: "*design impacts the beliefs, expectations, and perceptions patients have about themselves, the staff who care for them, the services they receive*".⁶⁶ Therefore by providing a home that the patient feels comfortable in can psychologically improve his perceptions of

⁶⁵ Office of Construction & Facilities Management, 'Design Guide 2010: Mental Health Facilities' (Review, Government of the United States, Department of Veterans Affairs, 2010).

⁶⁶ Office of Construction & Facilities Management, 'Design Guide 2010: Mental Health Facilities' (Review, Government of the United States, Department of Veterans Affairs, 2010), pp. 1-1.

Figure 3: Auto-release coat hook in psychiatric bathroom stall to prevent hanging

Figure 4: Cafeteria Chairs at the Royal Ottawa Menral Health Institute made with a light weight material to prevent being used as a weapon.

Figure 5: Example of cordless window shade.

himself and improve quality of life.

It should be mentioned that some of the research in design methods presented in this thesis is more directly applicable to the design of psychiatric hospitals rather than supportive housing. However, it is essential to understand how the mentally ill in all levels of severity respond to different environments before selecting specific design elements that are better suited for this design project.

Security is the most important factor to consider when designing environments for the mentally ill, and refers to both the physical and psychological safety of the occupants. Although reinforcing the sense of security in the home pertains to everyone, including those without mental illness, the architectural spaces that convey security varies significantly between those with and without the illness. All architectural qualities in design including privacy, selection of materials and color, access to natural daylight, sound control and relationship between interior and exterior spaces all aim to promote the sense of security for the occupants of supportive housing.

The physical aspect in security to consider is the prevention of self-harm and harm to others by the patients, particular when the patient is undergoing a psychotic episode. It should be noted that contrary to the misconception towards the mentally ill, people with schizophrenia do not pose a physical danger to others and are more likely to harm themselves. In extreme cases of the illness, people suffering with schizophrenia may have suicidal thoughts caused not only by the symptoms of delusions, but also as a result of the depression developed from the struggles of the illness. It is therefore fundamental to reduce the possibilities of inflicting self-harm in the living environment. The report "Design Guide for Mental Health Facilities," recommends modifying objects that may be used for hanging, such as installing all coat hooks to have the auto-release mechanism and eliminating all cords from window shades, telephones and electronic devices in areas occupied by patients. Decorative objects such as wall mounted artwork should be fixed-in-place and moveable furniture such

as chairs should be made of an impact reducing material like plastic.⁶⁷ Windows should have a maximum opening distance of 4 inches and multi-level open stairwells should be avoided to prevent attempts of jumping off.⁶⁸ These precautions are more emphasized in the design of psychiatric hospitals where patients are more likely to inflict self-harm, over patients in long-term supportive housing, however, these elements are still necessary to be considered for the purpose of designing a supportive housing facility.

The psychological aspect of security in an environment is to promote the feeling of safety for the occupant. Paranoia is a common symptom in schizophrenia that can trigger the delusion of being watched. People with the illness are extremely sensitive to their surroundings and can feel anxious and distressed in certain spaces that normally do not bother people without the illness. In understanding this, spaces in the design project need to be designed specifically in consideration to the way the mentally ill observe space. Examples of this include avoiding spaces that are open from above. A person with mental illness may feel distressed in the open space and feel that people in the upper levels are watching from above similar to a stage. Furthermore, spaces with large spans of glazing or curtain wall systems can trigger the feeling of being exposed.

Familiarity

Familiar settings and objects can also provide a sense of security for residents who are transitioning to a new environment. This can be achieved in the design project by placing sentimental personal belongings in the new home to help the resident adjust smoothly. A suggestion in this thesis in design strategies to promote familiarity in new environments is by repeating certain qualities and features of the supportive housing facility, such taking particular pattern on the walls, a particular sculpture or color and applying them to other parts of the city. This way will promote a sense of familiarity and instill a sense of security

⁶⁷ Office of Construction & Facilities Management, 'Design Guide 2010: Mental Health Facilities' (Review, Government of the United States, Department of Veterans Affairs, 2010), pp. 4-28.

⁶⁸ Office of Construction & Facilities Management, 'Design Guide 2010: Mental Health Facilities' (Review, Government of the United States, Department of Veterans Affairs, 2010), pp. 3-40,4-19.

Figure 6: Diagram of buffer zone between counselling rooms and waiting area to provide both visual and acoustical privacy for patients.

for the resident in new environments, which will encourage the resident to explore new places outside of their home. This will then prevent isolation in the supportive housing and encourage the dweller to integrate into the community.

Privacy

The sense of security is also reinforced with privacy, which can repress the symptom of paranoia and the fear of being watched for the mentally ill. According to the article, "The Role of the Physical Environment in the Hospital of the 21st Century: A Once-in-a-Lifetime Opportunity" by Roger Ulrich et al, there are two types of privacy: visual privacy and auditory privacy. Auditory privacy is particularly important in counseling rooms where the dialog between the staff and patient is confidential. The author of this article indicates that patients in rooms with low auditory privacy or in open areas, such as a shared patient bedroom, have withheld information from staff. This can prevent the staff from properly treating the patient and therefore pose a risk to patient safety.⁶⁹ Furthermore, the author continues to stress the importance of auditory privacy because support staff often violate patient confidentiality by discussion patient information with other colleagues in common areas that can be overheard by others.⁷⁰ A suggestion to increase auditory privacy in this thesis is to provide demising walls that are acoustically insulated and separated ductwork to prevent transfer of sound between rooms. Secondly, spatial design can reinforce privacy by providing buffer zones between private a public areas, such as a counseling room and waiting rooms.

Visual privacy is to reduce the ability to see directly into a personal space from a common area. In the design project, visual privacy into resident dwelling units can be accom-

⁶⁹ Roger Ulrich and others, 'The Role of the Physical Environment in the Hospital of the 21st Century: A Once-in-a-Lifetime Opportunity' (Report to The Center for Health Design, Texas A&M University and Georgia Institute of Technology, Center for Health Systems and Design, College of Architecture, 2004), p. 14.

⁷⁰ Roger Ulrich and others, 'The Role of the Physical Environment in the Hospital of the 21st Century: A Once-in-a-Lifetime Opportunity' (Report to The Center for Health Design, Texas A&M University and Georgia Institute of Technology, Center for Health Systems and Design, College of Architecture, 2004), p. 13.

Figure 7: Windows in counseling doors interfere with patient confidentiality.

Figure 8: Tucked away alcoves provide areas for residents to retreat.

Figure 9: Diagram illustrating how furniture layout can create intimate spaces in a large room.

plished by avoiding door openings that directly faces a common area and instead to place the door opening to the side. In the training and education areas of the design project, buffer zones are placed between waiting areas and counseling rooms. This not only prevents sound transferring between private to public spaces, but also create a visual transition area to eliminate the feeling of exposure when a patient leaves a counseling room directly into a room of waiting patients.

Scale

Privacy can be given to patients by providing a range of room sizes for different activities. The report “Design Guide for Mental Health Facilities” recommends that every four dwelling unit will have a common area.⁷¹ In the design project, a mixture of room sizes that are dispersed throughout the building to give the patient the choice of where they want to go and the degree of social interaction they would like to have with others. This reinforces the sense of freedom and personal control of surroundings for the resident. Secluded places such as tucked away alcoves provide personal spaces for the resident to withdraw and de-stress from social gatherings and to serve as places for quiet activities such as reading, painting and writing. In the supportive housing design, areas for individual quiet activities are provided throughout the building. This aims to reduce isolation in the living units when the tenant desires personal space.

In addition to the use of partitioning walls, furniture layout can divide spaces and manage the number of people for group activities. The article, “Architectural Design is Psychotherapeutic Milieu” by Charles Davis et al, indicates that furniture with domestic qualities such as dining tables for 4-6 people creates intimate eating experiences and reflects a home-like environment. Chairs and sofas can be arranged into clusters and area rugs can be used to split large spaces into smaller areas. Furniture that can be easily moved and re-arranged by patients can promote a therapeutic effect on the patients by instilling a sense of freedom in

71 Office of Construction & Facilities Management, ‘Design Guide 2010: Mental Health Facilities’ (Review, Government of the United States, Department of Veterans Affairs, 2010), pp. 2-11.

Figure 10: Typical corridor at the Royal Ottawa Mental Health Institute. These corridors cause disorientation for patients.

Figure 11: Navigating tool to guide people to their destination.

their environment and encouraging social interaction.⁷² This design quality is particularly unique for the design considerations of the design project.

Sense of Structure

The sense of security is reinforced for the mentally ill when there is structure and set of rules put in place. Activities in psychiatric hospitals are rigorously set on a time schedule such as mealtimes, administering medication, bedtime and patient curfews. Architecturally, the design of spaces should also strengthen structure in the daily activities of the patients. In the design project, each room is designated for a specific activity that is visibly distinguishable to the residents. For example television rooms should be strictly for watching T.V, while activity rooms should be strictly for arts and crafts. Multi-purpose rooms that are not for a particular designated program should be avoided to prevent confusion for the occupants.

Orientation

The article “The Role of the Physical Environment in the Hospital of the 21st Century: A Once-in-a-Lifetime Opportunity” by Ulrich et al, lists various important design considerations that guide the thesis design project for people with schizophrenia. Firstly, a sense of orientation is particularly important for schizophrenics. Disorientation in a building can make the occupant feel a loss of control, which can then trigger panic and fear for people with mental illness. This refers back to the fundamental aim of supportive housing - to promote the sense of security. The ability to easily orient the self in a building will create a sense of security for the occupant. Repetitive floor layouts and ‘look alike’ corridors dispersed throughout the building that has no visual viewpoints or reference points can create disorientation inside the building.⁷³ To prevent this, visual and physical connections to the

⁷² Charles Davis, Ira D. Glick and Irving Rosow, ‘The Architectural Design of a Psychotherapeutic Milieu’, *Journal of Hospital & Community Psychiatry*, 30 (1979), 453-60 (p. 457) <<http://www2.arch.uiuc.edu/kanthony/arch572sp07/Readings%20page/Architectural%20Design.pdf>> [accessed 1 April 2013].

⁷³ Office of Construction & Facilities Management, ‘Design Guide 2010: Mental Health Facilities’ (Review, Government of the United States, Department of Veterans Affairs, 2010), pp. 2-11.

Figure 12: View towards central courtyard acts as a way finding tool.

Figure 13: Landscape artworks are recommended in spaces for schizophrenics. Optical illusions are not recommended (top right).

outdoors, for instance a courtyard, and using interior finishes such as different materials, textures and colors to distinguish different areas can act as a navigating and self-locating tool for the patient within the building. Ulrich et al., state that “*Hospital gardens not only provide restorative or calming nature views, but can also reduce stress and improve outcomes through other mechanisms, for instance, fostering access to social support and providing opportunities for positive escape and sense of control with respect to stressful clinical settings*”⁷⁴ Design strategies for using the outdoors as a way finding tool includes the use of a courtyard at the center of the building where interior spaces have a constant reference to the courtyard.

Light

Furthermore, daylight poses many benefits to psychological health. Ulrich et al further explains that patients being treated for depression recovered sooner in patient bedrooms with direct access to daylight.⁷⁵

The above features are particular important for the design of a supportive housing facility for residents undergoing many difficulties as a result from the illness. A central resident courtyard will be implemented into the design project to allow for ample access to natural daylight as well as creating an uplifting living environment and essentially improve the quality of life for the residents.

Interior finishes: Materiality and color

Artwork installations can further promote a ‘home-like’ atmosphere in the supportive

⁷⁴ Roger Ulrich and others, ‘The Role of the Physical Environment in the Hospital of the 21st Century: A Once-in-a-Lifetime Opportunity’ (Report to The Center for Health Design, Texas A&M University and Georgia Institute of Technology, Center for Health Systems and Design, College of Architecture, 2004), p. 22.

⁷⁵ Roger Ulrich and others, ‘The Role of the Physical Environment in the Hospital of the 21st Century: A Once-in-a-Lifetime Opportunity’ (Report to The Center for Health Design, Texas A&M University and Georgia Institute of Technology, Center for Health Systems and Design, College of Architecture, 2004), p. 20.

Figure 14: Acoustical Ceiling Tiles help sound control.

Figure 15: Carpet tiles are durable and can be easily repaired in isolated areas.

housing and uplift the living environment and the moods of the residents.⁷⁶ Roger Ulrich et al further mentions that artworks with harsh colors such as black, orange and chartreuse and images with jagged lines and optical illusions should be avoided for this type of tenants. Passive artworks that do not over stimulate the mind such as paintings of landscape are preferred over images of human figures, faces or abstract art.⁷⁷ Similar to artwork, colors and materiality of interior finishes pose a strong psychological impact on the occupant. The “Design Guide for Mental Health Facilities” suggests that *“warm paint colors with accent tones should be used in patient rooms and common areas.”*⁷⁸ Durable materials such as ceramic tiles and sheet vinyl with wood grain patterns are recommended as a flooring material in high traffic areas. Carpet tiles are also recommended due to their flexibility in repairing damaged areas without having to replace the entire flooring. Gypsum board panels painted with warm colors in an eggshell finish are preferred for wall finishes in dry areas such as common rooms and dwelling units.⁷⁹

The above suggestions of surface finishes are extremely important for the design of the supportive housing facility. In chapter 4, a more in depth explanation of why various materials for different areas were selected in order to promote a sense of healing and calmness for the design project will be discussed.

Sound control

The control of noise level is exceptionally important for the mentally ill. As mentioned

⁷⁶ Roger Ulrich and others, ‘The Role of the Physical Environment in the Hospital of the 21st Century: A Once-in-a-Lifetime Opportunity’ (Report to The Center for Health Design, Texas A&M University and Georgia Institute of Technology, Center for Health Systems and Design, College of Architecture, 2004), pp. 22-23.

⁷⁷ Roger Ulrich and others, ‘The Role of the Physical Environment in the Hospital of the 21st Century: A Once-in-a-Lifetime Opportunity’ (Report to The Center for Health Design, Texas A&M University and Georgia Institute of Technology, Center for Health Systems and Design, College of Architecture, 2004), pp. 22-23.

⁷⁸ Office of Construction & Facilities Management, ‘Design Guide 2010: Mental Health Facilities’ (Review, Government of the United States, Department of Veterans Affairs, 2010), pp. 4-25.

⁷⁹ Office of Construction & Facilities Management, ‘Design Guide 2010: Mental Health Facilities’ (Review, Government of the United States, Department of Veterans Affairs, 2010), pp. 4-23 to 25.

earlier, people with mental illness are highly sensitive to their surroundings. Loud noises or sudden sounds can increase stress levels and trigger symptoms of paranoia, hallucinations and agitation. Therefore materials with sound absorbency should be used particularly in rooms for congregation. Furthermore, sleep is a crucial factor to stabilize the mind for the mentally ill and to prevent psychotic breakdowns. Orienting sleeping areas away from high traffic street activity as well as placing buffer zones or transition areas between dwelling units and common rooms for group activities can decrease noise levels in the dwelling units.

The above design considerations presented aim to promote a sense of security particularly for people with schizophrenia. Chapter four of the design project will elaborate in depth in how these considerations have been implemented into the design of the supportive housing facility.

2.4 Precedents Analysis

Figure 16: 25 Neilson Phase II Supportive Housing for the Mentally ill.

Figure 17: Edmonds Place Supportive Housing for the Mentally Ill.

Before designing a supportive housing facility it is crucial to study the current supportive housing that has been built in an attempt to understand what has worked and what has not and in turn aid in designing a supportive housing facility that reflects the best possible outcome. In this thesis two present site analyses have been selected, specifically because of their differences in location for the mentally ill population.

First, Neilson Rouge Valley provides supportive housing outside of Greater Toronto in a suburban area. It was chosen because of its remote location and acted as an example of what features of location in a remote area acted in a positive way on rehabilitation. Additionally it acted as a comparison to the second location which is in the city.

The second location presented is Edmonds Place located in downtown Toronto. This particular supportive housing is unique in that it aims for luxury living for the mentally ill, which essentially represents a contradiction to how society views those with a mental illness.

25 Neilson Rouge Valley Phase II Supportive Housing

Figure 18: Site Plan

Opened in February 2008, Rouge Valley Phase II Supportive Housing provides 30 units of both permanent and transitional supportive housing with 24-hour support for the severely mentally ill.⁸⁰ Rouge Valley supportive housing aims to diminish homelessness amongst the mentally ill population by providing proper living accommodations and on-site treatment programs such as clinical care, rehabilitation, psychosocial care and social support. Located in the east end of Toronto, this facility is a good example of implementing supportive housing in a suburban middle-class neighborhood. It is the second development to the Phase I Gatesviews Supportive Housing located in Scarborough that offers housing accommodations for six patients. Residents of the housing program are referred directly by the psychiatric hospital.⁸¹

Situated along a major artery, the building rests on a 2.8-acre site abutting acres of greenery of the Morningside Park and the Ellesmere Ravine. South of the housing units consists of a hospital and a long-term housing facility for the elderly. Across the road and north of the housing units is a commercial plaza consisting of a major chain grocery store, a fast-food restaurant and a few retail stores. The outer periphery surrounding the site consists mostly of suburban homes.

80 Akilah Dressek, 'Rouge Valley construction projects address needs of growing community', in Hospital News <<http://www.hospitalnews.com/rouge-valley-construction-projects-address-needs-of-growing-patient-community/>> [accessed 1 April 2013]

81 Rouge Valley Health Systems Foundation, 'Background: Phase 2 Supportive Housing', in Rouge Valley Health Systems <http://www.rougevalley.ca/rvhsf/Documents/MentalHealth_OnePager.pdf> [accessed 1 April 2013]

Figure 19: View of training facility

Figure 20: View from central courtyard towards resident housing.

The supportive housing is encircled primarily by parking lots that serve the neighboring buildings. There are limited pedestrian activities that surround the site and amenities such as community centers, libraries and entertainment are not within walking distance from the housing complex. The long distance to nearby amenities makes it difficult for residents to interact with the general public since many of these residents do not own a vehicle.

Programmatically, the building is divided into two parts, the clinic centre for treatment and rehabilitation and the residential units. The one-story clinic centre is located at the east end of the site near the parking entrance, and the residential units are secluded to the west end, at the back of the site. The residential units are arranged into two rows of stacked townhouses with the front entrances of all living units facing the central courtyard. Access from the street to the housing is through the clinic centre and to the courtyard. All living units have a private washroom, kitchen and entrance to the courtyard. The layout of each suite is an open spaced concept, with domestic activities such as sleeping, dining and cooking grouped into one living area. Access between the clinic centre and the residential units is through the courtyard. In the clinic centre, the treatment rooms and communal spaces have ample access to daylight with large windows that span across the building. However, these rooms have mundane views that directly face a parking lot.

Architecturally, the design of the interior spaces, exterior materials and program layout differ drastically between the clinic centre and the housing units. As a result, the two programs appear as two distinguishably separate buildings. At the clinic centre, the exterior material consists primarily of red brick with a flat roof whereas the residential units consist of a light grey aluminum siding with the traditional gable roof.

Figure 21: View of housing program from Neilson Avenue.

There are various positive qualities in this housing facility, which can be re-interpreted into the design project of the thesis. Firstly, the layout of dwelling units around a central courtyard creates a sense of community in the facility. The courtyard is a striking feature that lends itself to improvement in quality of life by allowing access to greenery which fosters a therapeutic living environment and that lends itself to the quality of life for the residence. The courtyard also provides an outdoor gathering space for the residents to socialize, which emphasizes peer support amongst the residents with mental illness. Secondly, the design of the dwelling units is a townhouse style that replicates closely to the style of houses in the surrounding area. As a result, the housing facility blends well into the suburban fabric. This is a good example of joining together the supportive housing facility into the surrounding neighborhood, which will enforce integration of the mentally ill population into the community.

A negative quality in the facility is that there is minimal emphasis on creating an engaging streetscape between the major road and both the housing and the clinic centre. In the housing program, the backyard of the living units faces the major road and is separated by a wooden fence that spans across the entire north façade of the housing. This creates both a physical and visual barrier between the street and the housing. In the clinic centre, the north façade facing the road consists primarily of a brick wall with very few small punched windows, whereas large windows span across the entire south façade facing the parking lot. All doorways are also located on the south side of the clinic centre towards the parking lot facing away from the road. This creates a visual disconnection between the street and the north façade of the clinic centre, making it difficult to observe the interior spaces and activities taking place inside the building from the street.

Edmonds Place

Figure 22: Typical apartment unit.

Figure 23: Electric Organ donated by D.B. Johnson to Edmonds Place.

Built and operated by Parkdale Activity Recreational Centre (PARC), this 6.9 million dollar development in the west end of Toronto, is a prime example of community support towards the mentally ill population. PARC is a non-profit group of volunteers founded in 1977 by residents of Parkdale community after observing the struggles of integrating into the community that many mentally ill patients face after being discharged from psychiatric hospitals.⁸² Members of PARC encourage new developments of affordable housing for the mentally ill, and volunteer in the maintenance, meal preparation and activity planning such as movie nights and art classes for the supportive housing program. Trained staff workers in the supportive housing provide 24hour on-site mental health support. The housing support staff also consists of people who have previously lived in supportive housing. This allows people who have once struggled with mental illness and have gained stability in their lives to give back to the community.⁸³

Opened in January 2011, Edmond's Place is a conversion of a burned down rooming house that has been left unoccupied for several years, into a supportive housing for people with mental illness.⁸⁴ Located in the west end of Toronto in the Parkdale community, Edmond Place offers 21 bachelor suites and 8 one bedroom units of both long-term and transitional housing for the mentally ill with drug addictions.⁸⁵ Owned and operated by Parkdale Activity Recreational Centre (PARC), the design of Edmond's Place reflects the people

82 Parkdale Activity-Recreation Centre, 'About', in Parkdale Activity-Recreation Centre <<http://parc.on.ca/about/>> [accessed 1 April 2013]

83 Parkdale Activity-Recreation Centre, 'About', in Parkdale Activity-Recreation Centre <<http://parc.on.ca/about/>> [accessed 1 April 2013]

84 Parkdale Activity-Recreation Centre, 'About', in Parkdale Activity-Recreation Centre <<http://parc.on.ca/about/>> [accessed 1 April 2013]

85 Omid Zareian, '194 Dowling Avenue (Edmond Place)', in Toronto.ca <http://www.toronto.ca/affordablehousing/pdf/194_dowling.pdf> [accessed 1 April 2013]

at PARC's beliefs that the less fortunate can also live luxuriously.⁸⁶ For Edmond's Place, a number of upscale custom-made furniture were designed and built by several high-end designers, some that were commissioned and others were donated, for the supportive housing facility. These pieces of furniture were created using 85% of restored materials such as old floor boards, old floor joists, stoves, etc.⁸⁷ An example of the many decorative pieces include a re-furnished operable electric organ located in the communal living area that was designed and donated by carpenter/designer D.B. Johnson which is valued at \$3,000 CAN.

During the construction of Edmond's Place, furniture making classes were offered to the residents to make their own furniture for the facility also out of restored materials.⁸⁸ This feature is a distinctive quality in a supportive housing facility that heavily inspired the design project of this thesis by integrating a habitable greenhouse into the supportive housing facility. The opportunity for the residents to learn how to build their own furniture reinforces the psychosocial treatment by providing opportunities for the mentally ill to interact with the general public which strengthens social skills, provide carpentry knowledge for the residents that reinforce working and employment skills and most importantly, instill a sense of ownership and contribution to the creation of the building for the residents.

Figure 24: Example of high-end decor at Edmonds Place

Each living unit at Edmond's Place is equipped with a private washroom, kitchenette, furniture and living necessities such as shower curtains, bed sheets and kitchen utensils. Each unit has large windows that provide ample daylight, which creates an up-lifting living environment for the residents. There is a communal cooking and dining area on every level, and a rooftop patio space for outdoor social gathering within an urban setting.

⁸⁶ Alexandra Shimo, 'Homeless chic', in thestar.com <http://www.thestar.com/life/2011/07/12/homeless_chic.html> [accessed 1 April 2013]

⁸⁷ Christopher Jones, 'Design Do-Gooders', in TO Live With Culture <<http://www.livewithculture.ca/design/design-do-gooders/>> [accessed 1 April 2013]

⁸⁸ Christopher Jones, 'Design Do-Gooders', in TO Live With Culture <<http://www.livewithculture.ca/design/design-do-gooders/>> [accessed 1 April 2013]

The existing façade of the 3-storey building was retained and restored for the development of the supportive housing program. The restoration of the façade both preserves the heritage elements and history of the building, and blend smoothly the new housing program into an established community, which further supports the integration between the mentally ill and the general public. An additional fourth level was constructed without hindering the overall appearance of the existing façade of the heritage building while maximizing the number of living units.

Edmonds Place conveys a unique approach to affordable housing that is extremely inspiring for the design project of this thesis. Edmond's Place portrays the positive perspective society has towards mental illness, contrast to the stigma from majority of the general public. Edmond's place further promotes that the marginalized can live luxuriously and equally as others in society. An example of this is by providing high end custom made furniture and décor to a supportive housing facility. The framework for Edmonds Place is unique in that it diverges from stereotypical design for the disenfranchised. This is a powerful approach that will drive the design approach of the project.

Following is the second part of the thesis which will focus on the design of a long term housing facility in a moderate intensity setting for people with schizophrenia.

3 CITY OF OTTAWA

Figure 25: Map locating the 3 housing agencies in Ottawa

- Ottawa Salus
- Ottawa Mental Housing Association
- Housing First Project

This chapter will discuss the process in selecting a site for the design project of a supportive housing for people with schizophrenia. Also, this chapter will discuss how various factors of integration discussed in the previous chapter has been considered in selecting a site to promote integration between residents with schizophrenia and the general public.

The design project of the supportive housing will be located in Ottawa, Ontario. In order to select the specific location within Ottawa for the design project, it is important to first investigate different types of housing agencies and the locations of their supportive housing, in order to understand the housing market for the mentally ill in Ottawa and in turn find the most optimal location for this design project. The following are housing agencies in Ottawa that provides support services and housing accommodation for people with mental illness:

- Affiliated with the Royal Ottawa and CMHC Affordable Housing, the first housing agency is Ottawa Salus is a housing agency that provides supportive housing for the Mentally Ill in Ottawa. The supportive housing ranges from high-intensity support such as transitional housing for mentally ill adults to low-intensity supportive care primarily for independent living in the community. Living accommodations of Ottawa Salus are small-scale housing in-fills into existing residential buildings. Because of this, these supportive housing do not have a distinguishable look and

blends well into the surrounding homes in the community.⁸⁹

Operated by the Ottawa Salus housing agency, Fisher Transitional Rehabilitation Home is a high-intensity transitional supportive housing for the mentally ill adults discharged from the Royal Ottawa. Converted from privately owned market-priced apartment building, Fisher Transitional Rehabilitation is a three level residential home that offers 15 units for tenants with severe mental illness and require extensive support.⁹⁰

- The second housing in Ottawa is the Canadian Mental Health Association – Ottawa Project Upstream: The Ottawa Project Upstream is a supported housing program developed by the Canadian Mental Health Association in collaboration with Ontario Ministry of Health, Canadian Mortgage and Housing Corporation, Governments of Canada and Ontario, and the City of Ottawa. There are 32 condominium units in 21 mixed-occupancy residential buildings owned by CHMH that are rented as affordable housing for single individuals with mental illness. Ontario Ministry of Health provided funding for CMHA to purchase 22 of the units and the Canada-Ontario Affordable Housing Program provided funding to purchase the other 10 units. Residents in this housing type pay a fixed percentage of their income towards rent and the provincial rent supplement funds the remainder of the rental price. This is a low-intensity program that provides independent living in the community. This program follows the housing first approach where tenants do not have to follow the traditional admission procedure of enrolling in treatment programs before being qualified for supportive housing.⁹¹

89 Ottawa Salus Corporation, 'Community Development', in Ottawa Salus Corporation <http://www.salus.on.ca/en_community_support.asp?cID=250> [accessed 1 April 2013]

90 Ottawa Salus Corporation, 'Fisher Rehabilitation Home Poster', in Ottawa Salus Corporation <<http://www.salus.on.ca/uploads/SalusFisher2006.pdf>> [accessed 1 April 2013]

91 Project Upstream, 'Our Services', in Project Upstream: Community Mental

- Finally, a third housing project and more recent housing agency is Housing First Project. Opened in 2012, Housing First Project provides permanent supportive housing for people with both mental illness and substance abuse in Ottawa. The aim of this housing agency is to reduce both the number of patients admitted to emergency rooms and to homeless shelters in Ottawa. Operational costs to run this program are expected to be \$1 million annually.

This program runs differently from the traditional housing model in that it provides homeless people with immediate access into supportive housing and does not require treatment and enrollment of educational programs provided by support staff.⁹²

The above three housing agencies are located in Ottawa and each is structured differently. Ottawa Salus own their properties, however, the Canadian Mental Health association owns separate units that are dispersed throughout the city. These two agencies operate differently from the more modern Housing First Project in the area of admission. These examples show the various housing agencies that vary in types of housing provided and are operated in different structures. Understanding the housing for the mentally ill in Ottawa, provided background information that lent itself to an understanding of the city in which this project design will be situated.

The following section will move onto the site description of the location of the supportive housing in Ottawa.

Health Support since 1985 <http://www.projectupstream.com/our_services.htm> [accessed 1 April 2013]

92 Ontario's Community Health Centres, 'Housing First and the road to recovery', in Sandy Hill Community Health Centre <http://www.sandyhillchc.on.ca/PDFs/Newsletters/winter_2012_engl.pdf> [accessed 1 April 2013]

3.2 Site Analysis

Figure 26: Map of different districts in Ottawa

1 Lower Town	8 The Glebe	15 Carlington
2 Byward Market	9 Old Ottawa South	16 Experimental Farm
3 Downtown	10 Tunney's Pasture	17 Carleton University
4 Centretown	11 Mechanicsville	
5 Old Ottawa East	12 Hintonburg	
6 Lebreton Flats	13 Westboro	
7 Old Ottawa East	14 Civic Hospital	

The selected site for this design project is located in the neighborhood of the Central Experimental Farm in Ottawa, Ontario. Bounded by communities that make up Central Ottawa, including China Town, Little Italy and Hintonburg to the north, Centretown and the Glebe to the east, Wellington to the west and Old Ottawa South to the south, this region offers both a diverse demographic and a mixed range of commercial, residential, entertainment and greenery.

The building site is located at Carling Avenue and Sherwood Drive, near the major intersection of Carling Avenue and Preston Street. Situated on the northeast corner of the Queen Julianna Park, owned by Public Works and the Government of Canada, this site distinctively offers two contrasting atmospheres of both an urban setting with heavy street activities directly to the north on Carling Avenue, and a tranquil setting in a field of greenery directly to the south. Currently, the park consists primarily of grass with very few trees and little landscaping. There are minimal activities that take place on the park for the majority of the year.

Furthermore, the site is adjacent to various methods of public transportation such as the Carling OTrain Station that connects directly to the Transit Line. Direct access to public transit is important particularly to this demographic because it is expected that the majority of people with mental illness do not own a vehicle. Direct access to public transit lines help encourage people with mental illness to gain access to other resources throughout Ottawa.

==== Line of Otrain
==== Bus Line

3.2a Qualities of integration on site

Figure 27: Diagram show the boundaries of activities in the Northeast and East of the site

- **NORTHEAST** of the park is Preston Street, which is the main axis for the Italian community of Ottawa, commonly known as Little Italy. Numerous entertainment services such as family owned Italian bistros, high-end restaurants, pubs and coffee shops line along Preston Street. The neighborhood has a strong sense of community and cultural identity. Since 1974, the annual Italian Festival takes place along Preston Street in the month of June to celebrate the Italian heritage and community. During this week, vehicle traffic is closed on Preston Street to allow for social gathering of music and dance performances, food tastings and exhibitions of Italian cars.
- **EAST** of the site is Dow's Lake, one of Ottawa's main water attractions located at the end of the Rideau Canal. Outdoor sport activities are very prominent in that area year round. During the summer months, kayaking, canoeing and paddle boating takes place in Dow's Lake. During the month of May, the National Capital Commission organizes the annual Tulip Festival beginning from Dow's Lake and along the Rideau Canal. In this event, 50 types of tulips totaling to 300,000 are exhibited to the public each year. This is one of the many events during the warm season aimed to beautify and embody the landscape of Ottawa. The annual Winterlude festival, also held by the National Capital Commission, takes place in the month of February for winter activities. In this event, both Dow's Lake and the Rideau Canal are converted into the world's longest skating rink.

Figure 28: Diagram show the boundaries of activities in the South, West and Northwest.

- Directly **SOUTH** of the Julianna Park is the Central Experimental Farm that consists of 400 hectare of National Historical land. The Central Experimental Farm is the research station for the Federal Department of Agriculture, and is home to the Eastern Cereal and Oilseed Research Centre focusing on the study of genes in crop plants. The Farm hosts various exhibitions throughout the year for the public. This includes gardens that display various types of roses, perennials and other flowers, animal barns with sheep, cattle, chickens, lambs and pigs as well as an arboretum located to the east along Dow's Lake.
- To the **WEST** and **NORTHWEST** of the site consists primarily of residential homes, commercial and medical offices. The site is within a seven-minute bus ride, 2 minute drive and 20 minute walk to the Royal Ottawa Mental Health Institute. The close proximity of the site to the Royal Ottawa is particularly beneficial for this design project in that mental health support is easily accessible in the event of psychotic crisis of residents with schizophrenia.

As indicated in the previous chapter, components of housing for the mentally ill to consider are the physical building, the home, the neighborhood and the community. In this particular site, the components of the neighborhood and the community are fulfilled. Indicated earlier, the neighborhood is defined by the location of the building and its proximity to community resources such as public transportation, community centers and entertainment. All of these elements are present in this site. The selected site for this design project is within walking distance to the Carling Otrain station that connects directly to the major transit line. This makes commuting around Ottawa easy for the residents of the housing facility.

Furthermore, the site is located close by to various entertainment activities in Little Italy and Dow's Lake. Various festivals take place throughout the year in this area, such as the Italian Festival, the Tulip Festival and Winterlude. Community integration is defined by the types of resources available for tenants, such as community centres, training and workshops, support programs for psycho-education, employment opportunities, etc. As indicated earlier, the site is within a seven-minute bus ride to the Royal Ottawa. Therefore, in the event of a psychotic episode, residents in this supportive housing can easily access mental health care. All in all, the above qualities of the Carling and Preston location determine the site to be suitable for the supportive housing facility of this design project.

The following section will discuss the design of the supportive housing facility.

4 DESIGN

The design project attempts to answer the central question of this thesis: Can the design of the living environment improve the quality of life for people with schizophrenia, strengthen peer support amongst the mentally ill population and promote integration between the mentally ill and people in the community, in hopes to eventually diminish society's stigma towards mental illness? Furthermore, this project aims to enrich pedestrian activities of the park, which currently has very minimal activities taking place throughout the year, as well as develop a lively streetscape to stimulate pedestrian traffic along Carling Avenue.

The supportive housing is intended for patients with schizophrenia who have been discharged from the psychiatric hospitals and are in the process of transitioning into living independently in the community. The design project is an amalgamation of three programs: a habitable greenhouse as a gardening attraction for the public, housing, and training and support programs for money management and developing domestic and employment skills.

5 driving forces guide the development of the design:

1. Provide ample access to natural daylight
2. Encourage resident interaction to promote community and peer support
3. Design spaces that stimulate social interaction between the

general public and the residents.

4. Provide a sense of home of the entire facility for the residents.
5. Design an efficient layout that can encourage every resident to utilized every part of the building.

The following section will discuss the design the design approach of the supportive housing.

Design Approach

As indicated earlier, supportive housing should aim to de-institutionalize and to provide a home-like living environment for people with schizophrenia. In order to do this, spaces in the supportive housing design, particularly for social gatherings, such as dining, training and entertainment, are placed in rooms that are intimate and small-scaled to create a home-like setting, as well as preventing accumulation of large crowds that may cause distress to residents. In large spaces that serve a big crowd of people, the individuals in that crowd may tend to feel detached from the physical space as a result of both the large size of the room and the size of the group. The bigger the gathering or the larger the space, the more detached the person becomes from the physical environment. For example, a person will feel more relaxed and feel more comfortable to 'let their hair down' in a private space rather than an open public space. Although this housing facility provides accommodation and treatment for a large group of people, the fundamental focus in this supportive housing program is to create intimate spaces that center around the individual and the 'personal space', rather than creating large spaces for a group of people. That way, each resident will feel his or her own personal connection to the physical environment as if the housing was designed specifically for him or her. The design aims to create a home-like environment where every resident feels a sense of belonging, a sense of connection and a sense of ownership to not only their private living units but also throughout the entire building.

In order to achieve this, the approach in this design refrains from the institutional setting, but instead develops similarly to the design method

for a single household. In this case, the supportive housing is interpreted to be one big house that houses all treatment programs and dwelling units under one roof. This also metaphorically signifies that all residents move towards recovery and independence together as a family, stressing the importance of peer support in community treatment.

As indicated in the research portion of the thesis, in order for a patient with schizophrenia to integrate into the community, the patient must first strengthen the relationship with the self, such as self-discovery and developing a sense of identity. This includes reawakening past hobbies prior to the illness and to develop life skills to live independently. To do this, the design of the supportive housing program offers various spaces for both individual and group activities, such as reading spaces in the 'greenhouse pods', 'social nodes' at the three ends of the housing levels, a habitable greenhouse and a dog park that provides both therapeutic and employment development. In order to improve the quality of life of the residents, architectural strategies have been made in this housing facility to promote the connection between each resident and the self, the residents with the landscape and the community. Specific design details that supports the mentioned objective will be pointed out in the following pages.

Beginning from the overall massing form of the building to the specific interior design details, the following section will first describe the development of the overall building form of the supportive housing facility.

4.1 Modifying the Courtyard

The early design stages of the supportive housing facility focuses on creating a courtyard to provide a private and intimate outdoor gathering space for residents. This aims to support the psychosocial approach by providing gathering opportunities that can stimulate social development in the supportive housing facility. The following will explain how the conventional courtyard has been modified to better serve the residents of the housing facility and the surrounding site.

1. There are numerous benefits of courtyards. Courtyards offer maximum access to daylight for rooms in compact buildings and provide outdoor spaces that are secluded from street activities. However, conventional courtyards that are enclosed by adjoining walls may pose a sense of confinement. Furthermore, rooms with windows that face the courtyard often have direct view into the spaces on the other side of the courtyard. This may pose a sense of discomfort and a sense of being watched for dwellers, particularly people with schizophrenia who suffer from paranoia.

2. Lowering and elevating certain areas of the building base on the angle of the sun and surrounding views can preserve the advantages of the courtyard meanwhile eliminating the sense of confinement and exposure. In this case, the south portion of the building is lowered to allow for maximum sun exposure from the south into the courtyard. Lowering the south end will also frame the water view of Dow's lake located southeast of the site. Lastly, by lowering the south end will eliminate direct viewing be-

tween opposite rooms surrounding the courtyard.

3. The west wing of the building is lifted above the ground to allow the courtyard to 'breathe'. This creates a natural circulation flow between the courtyard and the urban street, meanwhile, still maintaining the positive qualities of the conventional courtyard, such as privacy in outdoor spaces and visual and acoustical separation from street activities.

4. The south end is lowered at the pedestrian sidewalk and ramps up into the building. The roof of the south end becomes a terrace that allow for a gradual upwards movement for visitors from the pedestrian sidewalk and up into the building. The final form is a habitable greenhouse that spirals upwards from the street level all the way to the auditorium at the highest elevation that faces the water.

Now that the general form of the building has been developed, the following section will move on to the types of programming and where they are placed in the building form.

4.2 Programming

This section will further discuss the types of programs implemented into the design of the supportive housing and provide an explanation of where and why each program fits into the building form.

The layout of the programs aims to further encourage integration between the urban activities with the landscape of the park, and the general public with the residents of the housing. The building is organized into three parts, a. housing, training and b. mental health support, c. habitable greenhouse. (refer to diagram on next page). Permanent housing for the residents is situated along Carling Avenue to visually engage the residents in their dwelling units to the street activities. Training programs and the dog park are situated towards the park with views of the greenery, which creates a calming atmosphere that enhances counseling sessions and educational classes. The greenhouse acts as a passageway between the living and training quarters. At the center of the building is a sunken private courtyard for the residents. The courtyard promotes a tranquil outdoor space for the residents and is visually and acoustically blocked from the busy street activities. Resident and staff parking is located underground beneath the courtyard. Visitor parking and the loading dock is concealed along the east of the building furthest away from the park to not disrupt the tranquility of the park and the smooth transition from the park to the greenhouse with vehicular traffic.

Figure 34: Exploded axo diagram of levels

4.3 Plans

The following pages provides architectural plans for each level of the supportive housing facility. These plans are to provide an overall understanding of each level and are intended to be used as reference pages for the discussion of specific design details in section 4.4 that aims to achieve the objectives of the thesis.

A1

1 Main Lobby	4a Cafe Patio	8 Staff Office	12 Class Room
2 Waiting Area	5 Loading Dock	9 W/C	13 Dog Center
3 Retail	6 Superintendent Office	10 Staff Lunchroom	13a Dog Park
4 Cafe	7 Transitional Housing	11 Study Area	

Carling Avenue

A2

- 1 Greenhouse Lobby
- 2 Display Area in Cold Room
- 3 Zen Garden
- 4 Display Area in Cold Rom
- 5 Supply Room

1:500

Carling Avenue

A3

1 Residential Corridor	5 Greenhouse Storage
2 Painting Room	6 Auditorium
3 Activity Room	7 Open to Below
4 Greenhouse planter	

Tucked away alcoves provide private spaces for residents to be alone. These alcoves look down to the zen garden below.

A4

1 Residential Corridor	5 Catwalk to library
2 Tv Lounge	6 Library
3 Tucked away alcove	7 Auditorium
4 Tv Lounge	8 Open to below

Tucked away alcoves provide private spaces for residents to be alone. These alcoves look down to the zen garden below.

Recreation centre offers area for board games and card games for residents. Provides direct access to rooftop patio and basketball court

Resident corridor's looks out towards courtyard. Receives ample natural daylight

Corridors are widened to provide social gatherings for residents

Media Center provides electronic resources such as computer, internet access, printers and scanners for residents.

A5

- 1 Corridor
- 2 Media Center
- 3 Tucked away alcove
- 4 Recreation centre
- 5 Rooftop basketball court
- 6 Open to below

S3

4.4 Design Considerations

This section will unravel the design of the building by describing specific design considerations of three programs: Housing, Habitable Greenhouse and Training and how each programs are designed to promote a healing environment to improve the quality of life for the residents, as well as to encourage integration amongst residents and people with schizophrenia and the general public.

The following section will explore the design of the habitable greenhouse.

4.4a Habitable Greenhouse

Figure 41: Map of Experimental Farm

- Line of OTrain
- Experimental Farm Parking
- Building
- Juliana Park
- Arboretum
- Ornamental Garden
- Research Fields
- Dow's Lake

As indicated earlier, the building is situated directly northeast of the Experimental Farm. Friends of the Central Experimental Farm (FCEF) is a non-profit committee of volunteers dedicated to maintaining the public areas of the Central Experimental Farm such as the Arboretum and the Ornamental Gardens. The adjacency the housing facility to both the Experimental Farm and Julianna Park makes a great opportunity to propose a greenhouse into the housing facility, which will be a garden attraction to the public maintained by the FCEF. The amalgamation of a greenhouse into a supportive housing facility on the park is beneficial to all three parties including the farm, residents of the housing and the park.

The Experimental farm is one of Ottawa's major attractions and is the only urban working farm in a Capital City. However, the presence of this 400-hectare of National Historical Land is out of sight from the neighboring Preston Street and Dow's Lake. Therefore, the greenhouse acts as an extension of the agricultural attraction to the northeast of the farm to create a strong presence of the Farm facing Carling Avenue and Preston Street, and to connect activities of the farm with the street.

Secondly, due to its walking distance from Dow's Lake, the greenhouse acts as an extension of the Tulip Festival as a gardening attraction to beautify and promote the outdoor qualities of Ottawa. Currently, the park is an open field of grass with very minimal landscaping elements and very few functions such as social gatherings and events. The displaying of plants in

Figure 42: Friends of the Experimental Farm (FCEF).

Figure 43: Ornamental Garden at the Experimental Farm

the greenhouse and the extension of the tulip festival into the park will draw people to the site, stimulating activities on the park, and beautifying the streetscape along Carling Avenue.

Most importantly, the greenhouse provides numerous advantages to the recovery of patients in the housing program. The integration of a greenhouse provides a therapeutic living environment for the residents and offers low-stress working opportunities for the mentally ill within the safety of the home. The greenhouse also creates opportunities for the general public, such as the FCEF and the mentally ill population to work together. This will support the aim of mental health treatment by helping the mentally ill to develop social and working skills, which will build confidence and self-esteem in the individual.

Lastly, by integrating a program that serves to the general public in a supportive housing facility, in this case, a greenhouse that is a gardening attraction affiliated with the Experimental Farm will help blend the supportive housing into the neighborhood and to prevent the building from being easily identified as a supportive housing for the mentally ill. This minimizes the stigma towards supportive housing for the mentally ill and will therefore encourage the public to engage with the building.

Figure 44: 3 components of the greenhouse

The greenhouse is designed to be the central feature of the housing facility, which can be accessed by all areas in the housing and training level.

Circulation through the greenhouse takes place through a continuous ramp that begins from the pedestrian walkway at Carling Avenue, ramps up and around the courtyard and ends at the auditorium at the very top level, with a panoramic south facing view towards Dow's Lake and the Arboretum. All levels of the housing and training programs have a direct view towards the courtyard and physical access to the greenhouse.

The greenhouse is divided into three areas. The first area is the exterior ramp towards the greenhouse entrance, the second area is the greenhouse lobby and the final area is the elevated greenhouse. Movement through each of these three areas offers a unique and different spatial experience. The beginning of the ramp begins at the pedestrian walkway at Carling Avenue and moves up towards the entrance of the greenhouse. The ground material of this part of the ramp is primarily grass which blends into the natural surrounding park. From Carling Avenue, it would appear that the ramp is a fragment of the earth that is tilted up towards the building. At the beginning of the ramp by the pedestrian walking at Carling Avenue, a visitor can look up to a glass facade bridge suspended over them. This entices the visitor to continue up the ramp and to explore the building. The exterior portion of the ramp is elongated to create an opportunity for the visitor to observe the exterior surroundings of the building including the central sunken courtyard below and Juliana Park to the south. The length of the exterior ramp is elongated to create a prolonged experience to entice the visitor and to create a moment of anticipation. Here, the visitor can experience the exterior space of the courtyard framed by the curtain wall glazing of the housing levels above. The curtain wall reflects similarly to a single brushstroke along the building.

Once inside the greenhouse, the second spatial experience continues to ramp upwards inside the building. Here, the visitor is engaged with the display of flowers kept in glass clad cold rooms, as well as an exterior zen garden at the northwest corner of the building. The zen garden is a vertical element that connects to the housing levels above. In the housing levels, secluded hideaway alcoves for personal reflection encircle the trees of the zen garden from above. This allows residents with schizophrenia to observe the trees from up high. A further description of the resident spaces surrounding the zen garden in the housing levels, which aims to promote a therapeutic environment for the residents with schizophrenia will be explained in the following housing section. The surface material of the floor in this portion of the ramp is primarily wood planks, similar to a wooden deck. Although this area of the ramp is inside the building, an exterior surface material for the floor in this area aims create an exterior

Figure: 45 Diagram of greenhouse

Juliana Park

■ Floor plate above
 - - - Profile of building envelope

environment inside the building, and to create a smooth transition from the grass from the exterior ramp into the building.

The final area of the greenhouse is located at the bridge of the building. This area of the greenhouse is elevated above the residential courtyard. Double in height and with floor to ceiling glazing, the greenhouse receive ample natural daylight and conveys the feeling of being elevated for the visitors. In this space, egg-shaped floating pods hangs above the greenhouse level. These pods are balconies accessed from the housing levels that provide intimate spaces for the residents to read a book and experience the greenhouse without having to interact directly with visitors.

The underside of these egg shaped pods are lined with moss and hanging flowers. A visitor standing underneath the pods can observe the flowers hanging from above. This creates a vertical way of displaying plants in addition to the conventional horizontal layout on the ground in traditional greenhouses.

Figure 46: View inside the elevated greenhouse underneath the nesting pods.

Figure 47: Diagram of the elevated greenhouse

... "Nesting Pods" are suspended in the greenhouse and provides intimate spaces for residents to experience the greenhouse without having to directly interact with visitors to the greenhouse.

Figure 48: Section into the elevated greenhouse

Figure 50: Initial view of sunken courtyard as you begin to move up the ramp towards from underneath the greenhouse bridge.

Figure 51: Interior view of the greenhouse bridge looking up towards the 'nesting pods'.

The design project of a supportive housing facility in this thesis aims to promote recovery and improve quality of life for the residents with schizophrenia, strengthen peer support and to encourage integration between the general public and the residents. Implementing a greenhouse as a gardening attraction into the supportive housing facility supports the above three objectives.

The displaying of plants and flowers in the greenhouse provides a therapeutic and calming environment for people suffering with schizophrenia. Residents of the supportive housing can easily access the greenhouse from the housing levels. Suspended 'Nesting pods' located in the elevated portion of the greenhouse provides intimate spaces for a resident to visit the greenhouse without having to directly interact with visitors to the greenhouse.

The gradual upwards ramp into the greenhouse directly from Carling Avenue to the very top level of the building naturally pulls pedestrians from street activities to the site. This design feature promotes others in the community to engage with the building's facility and to interact with the residents.

Lastly, the greenhouse, primarily maintained by the Friends of the Experimental farm also provides employment opportunities for the residents to develop working skills within the safety of the home. All these elements of the greenhouse aim to support improving the quality of life for the residents, strengthen peer support amongst the residents and promote integration between the mentally ill and the general public.

The following section will discuss various design considerations in the housing levels.

4.4b Permanent Housing

Various design approaches in this design project have been developed based on the research of how schizophrenics perceive space. This section will describe various design moves in the housing levels that aim to create both a therapeutic and interactive living environment for people with schizophrenia that will improve the quality of life of the patients as well as reinforce peer support by promoting interaction between residents.

There are 27 permanent and 5 transitional dwelling units in this housing, which accommodate a total of 57 residents. As indicated earlier in the thesis, disorientation for people with schizophrenia can trigger a sense of fear and lost of security. Each floor has slight differences in layout and has visual openings to see the other levels to help the resident easily distinguish where they are in the building at all times.

The layout of the residential units is similar to the layout of a residential house. In the traditional supportive housing layout, communal spaces and social gatherings for residents are contained on the first two levels and the upper levels are designated for the private apartment units. In this setting, a resident will mostly only engage in his or her own apartment level and the first two levels of communal spaces, with minimal interaction with the other levels. In this design, the communal spaces and social gatherings are dispersed onto all floors in the housing. For instance, social gathering spaces in this design, such as the painting room, media center and recreation room are located at the three end corners of the housing levels. By doing so, it will encourage the residents to move through and inhabit all

Figure 52: Diagram shows the variation of floor layouts in each housing level to allow residents to easily distinguish their location in the building.

Figure 53: Partial plan of housing level 3. Corridors outside private dwelling units are widened to create social gathering spaces for residents.

levels in the housing, similar to an occupant of a house. This will stimulate more interaction between the residents from different apartment levels and to create a sense of belonging for the resident that extends beyond their own living units to other areas in the building.

As mentioned earlier, it is recommended to provide different sizes and separate rooms in the building for different levels of interaction between residents. This gives the resident the choice of choosing their environment, whether to participate in social gatherings or to be alone. Therefore, a variety of spaces in the supportive housing facility are provided for different group sizes. Rooms located at the corners of the housing levels, which will be called 'social nodes' in this thesis, are designated for groups activities of 10 people, such as a painting room, a media centre and a recreation room. These rooms vary from double to triple in height and receive ample natural daylight to provide a more open spaced environment for larger crowds in the housing facility.

The corridors that access the residential units are widened and provide seating to allow for small gatherings of two or three people. This transforms the corridors into interactive spaces, rather than simply a means for circulation, which is common in many supportive housing facilities. Similar to a house where a bedroom may be accessed through a living room, access to the apartment units is no longer by means of a long linear corridor but is now through a living space. This refers back to design approach where circulation takes place through a progression of spaces. In this case, it is a progression from formal, to semi formal and to private. This will also prevent the resident from isolating him or herself in the private living units and to engage into other areas of the building. For instance, a resident may choose to come out of the apartment to read a book in the living

area. These gathering spaces also provide a place for a resident to chat with another resident if they do not feel comfortable to invite them into their dwelling units.

These corridor spaces face towards the central courtyard and look outwards towards Juliana Park. The south-facing view of these gathering spaces receives ample natural daylight, which further encourages residents to utilize the space and stimulate social interaction amongst residents. These gathering spaces have large windows that span horizontally across the entire level. Vertically, these windows are elevated at 1000mm above floor level, so that when an individual sits down, he or she can feel visually hidden from the internal courtyard. This prevents the sense of being watched from the courtyard that is common in schizophrenics with paranoia.

As mentioned earlier, artworks, particularly paintings of landscape can help promote a calm home-like environment for residents with schizophrenia. In this supportive housing facility, designated areas on the walls of the corridors are provided for displaying artwork created by the residents. By allowing residents to display their artworks in communal spaces will help boost confidence and self-esteem for the residents, which is a primary objective for the psychosocial therapy approach.

It is recommended that surface materials in spaces for people with mental illness are durable, can be easily maintained and are sound absorbent, to prevent echoing and sound transfer. In the communal spaces of this project such as the social nodes and corridors, carpet tile is selected to be the primary flooring material. Carpet tiles offer various advantages of allowing for easy repairs in isolated areas, eliminates echoing and is a soft material that promotes warmth and a calm atmosphere. The ceiling and wall surface material will be gypsum board painted in an eggshell finish in soft

Figure 54: Section view of triple height rooms at the ends of the housing level for activities of large groups of 10.

Figure 55: Image shows how the corridors to living units have been widened to provide for informal gathering spaces

Figure 56: Corridor in housing levels looking out towards courtyard

Figure 57: Proposed window detail in corridors

Plan

Elevation

Axonometric

Figure 58: Window elevation and plan in housing corridors

Figure 59: Proposed integrated seating at curtain wall

grey. Since the corridors are intended to be gathering areas, guardrails and corner guards are installed on the walls at a 1100 mm height to reduce damages from furniture on walls.

Furthermore, areas to be alone are provided with tucked away alcoves so that residents can retreat to quieter areas to be alone and to de-stress. These tucked away alcoves are located directly above the zen garden in the greenhouse level. From these alcoves, a resident can see the zen garden below, as well as observe the trees at height of the branches. This way, private spaces for contemplation above the zen garden are provided.

Figure 60: Section of zen garden

As discussed in Chapter 3.2a Housing Preference, housing preferences vary between females and males. Female patients often have children and prefer housing programs that provide a group setting atmosphere. This preference is not as important to male patients as they often live alone. It is therefore essential to provide a variety of dwelling units with different numbers of bedrooms to support the different types of residents in this housing facility. The diagram below is a partial plan of a housing level that show the variety of dwellings units, ranging from bachelor suites to 3 bedroom units. Each unit has their own balcony. A small alcove is setback from the corridor to provide a transition area between semi-private to private spaces. The entrance to each unit is placed at the side of the alcove to minimize direct visual access into the private dwelling units from the corridors when a resident opens the door.

Figure 61: Partial Plan of housing units of level 3

Figure 62: Housing units

Figure 63: Balcony detail of housing units

4.4c Training and Education

The training and education programs for residents with schizophrenia provide resources for mental health support, money management, career development and domestic skills development such as meal preparation, maintaining personal hygiene. The environment for these programs must promote tranquility and calmness to reinforce the learning and development of the residents. In order to accomplish this, these programs are located to the south end of the building towards Juliana Park and are pulled away from social activities in the residential levels to eliminate any distractions in training programs.

Located underneath the exterior greenhouse ramp, the training program has views towards the landscape of both Juliana Park and the central courtyard. Not only does this provide ample access to daylight, residents can visually see activities taking place in the park and the central courtyard while in training. Located on grade level of Juliana Park, numerous entrances are provided on the south facing wall of the training programs to allow for direct access from the training programs to Juliana Park. This will strengthen both the visual and physical connection between activities in the training program and the park. For instance, residents who are taking a break from their courses can easily access the park.

Juliana Park

Figure 64: Diagram showing the different programs in the building.

Various design considerations from the research in the previous chapter has been implemented into the design of the training programs. Firstly, as indicated earlier, acoustical and visual privacy is important to promote a

Figure 65: view of training program from Juliana Park

Figure 66: View from inside training program towards Juliana Park

sense of security patient to feel comfortable in counselling rooms. In this design, transitional spaces such as buffer zones are located between counselling rooms and waiting areas to decrease both the visual and sound connection between a resident in the counselling room and other residents in the waiting area. This will enhance the sense of privacy for the resident.

Floor to ceiling windows are provided on both the south and north wall of the training program. This allows for ample access of light into the training courses to promote a natural connection between the exterior and interior spaces.

Flooring material selected for the training programs are vinyl flooring with a wood grain pattern. As indicated, wood grain pattern promote a home-like environment while providing durability in high traffic areas.

Figure 67: Partial Plan of level 1 showing training programs

Figure 68: View of supportive housing from Juliana Park. Training and educational programs are located at the park level. All surfaces around the central courtyard is primarily glazing.

Figure 69: View from Carling Avenue. Exterior surface of the periphery of building is primarily cedar cladding.

Design Conclusion

It is uncertain if the stigma towards the mentally ill population will ever be eliminated. However, the design of supportive housing in this thesis aims to improve the quality of life of patients in their living environment, as well as promoting interaction between the general public and the mentally ill population, which in hopes, aims to diminish society's negative and unjust view towards those affected with schizophrenia. In order to achieve the integration between the two parties, supportive housing must not solely provide lodging, but also provide programs and services that serve to the public. This will encourage the public to engage with the housing facility. The design project, located at the northwest corner of Juliana Park in Ottawa Ontario, incorporates a greenhouse as a gardening attraction and a dog park for the public into the housing facility. This will provide low-stress employment opportunities for residents within the safety of their living environment encourage the public to access the site and stimulate interaction between the mentally ill and others in the community. The design of the supportive housing is heavily centered on both the courtyard and the greenhouse in order to increase interaction between interior and exterior activities. All areas in the housing facility have direct access to greenery of the courtyard, the park and the greenhouse. The greenhouse spirals upwards around a central courtyard from the street level moving through various areas of the facility including training programs and housing units, up to the highest level of the building that has a panoramic view towards Dow's Lake and the adjacent arboretum.

5 CONCLUSION

Schizophrenia is both a detrimental and a drastic life-altering illness. People with schizophrenia undergo tremendous daily challenges as a result of both the symptoms of the illness and side effects of medications. These obstacles include impediments in cognitive functions, inability to carry out basic life skills to live independently and difficulty in functioning in society. Although there is no cure for schizophrenia, medical and psychosocial treatments aim to help the patient manage their symptoms in order to continue with life activities. The path towards recovery is a long and difficult journey, which oftentimes results in the loss of confidence, sense of identity and a purpose to live for the patients.

Following the discharge from psychiatric hospitals, many patients endure further challenges of living independently and transitioning smoothly into a society that has a strong stigma towards mental illness. Supportive housing is a fundamental component in the recovery for the mentally ill, which provides both living accommodations and programs such as mental health support, life skills and career development. Unfortunately, various issues in supportive housing arise, including poor living conditions and insufficient amount of supportive housing to accommodate the mentally ill population shifting to community care. This is a result from the reformation of three policies during the 1990's including mental health care, income support and affordable housing. The change of mental health care shortened the length of stay in psychiatric care by shifting towards community care. This imposed a large population of the mentally ill into the community, without providing the appropriate resources for patients to live independently. The new income support called Ontario Disability Support Program created in the 1990's decreased the amount of annual income support making it extremely difficult for the mentally ill to afford for food and housing. Under the governing of Mike Harris, new development of affordable housing severely reduced, making access to affordable housing extremely limited for patients enter-

ing the community.

There are numerous considerations when designing spaces for the mentally ill. Symptoms such as paranoia, anxiety and delusions affect the way people with mental illness perceive space. Schizophrenics are very sensitive to their physical environment and can feel distressed in certain spaces that do not affect those without the illness. Design of the physical environment that pays great attention to the way patients react to their surroundings can increase the level of success in treatment for the patients. The primary objective in designing housing for the mentally ill is to create an environment that promotes both a physical and psychological sense of security for the residents. The sense of feeling watched and being exposed of a patient makes multi-level atriums, areas with large curtain walls and large social spaces not suitable for the mentally ill. Instead, home-like settings with intimate spaces that provide visual and acoustical privacy are recommended for supportive housing. Furthermore, materials with high sound absorbency and finishes, colors and artworks that promote a sense of calmness are advocated in these environments.

In summation, this design project responds to the principle objective of the thesis by aiming to foster consistent quality of life for those with schizophrenia through attention to strengthening peer support among the residents, and by providing various spaces for interaction dispersed throughout the housing facility. For example, the housing was designed from the perspective of being a singular community that houses a family, rather than separate tenants living separate lives. For example, this is accomplished by providing a modern take on conventional corridors to residential units and by making those corridors an interactive space for residents to have the opportunity to connect with each other. Secondly, by dispersing housing resources throughout all levels of the housing facility, contrary to traditional housing where these resources are normally located on the ground level the residents will be encouraged to access all areas of the facility, rather than isolating themselves in their particular residential level. In theory, this should enhance a feeling of home rather than the disconnect, reflected in institutional environments.

The integration of the greenhouse into the housing facility provides a therapeutic landscape which is accomplished by creating an inhabitable space where daily activities of the residents are engaged with the greenhouse. Secondly, and in response to the second objective for this design, the greenhouse acts as a gardening attraction for the community and invites others in the community to engage with the housing facility. This not only helps in the integration of the mentally ill and the general public, but the amalgamation of the greenhouse identifies this facility less as a supportive housing for the mentally ill, but also as a service to the general public. This will therefore aim to diminish the stigma associated with developing a supportive housing facility for those with schizophrenia into the community.

Lastly and in response to the objectives of this design, working opportunities for the residents will be provided to maintain the greenhouse that will primarily be operated by the friends of the experimental farm. This accomplishes the production operation and also provides an opportunity for mainstream society and the mentally ill population to work together, which will go towards eliminating the perception that the mentally ill are inferior to others.

In conclusion, architects have the power to significantly improve the way of living for people struggling with schizophrenia. This thesis presents an effort from an architectural background, of the many endeavors strongly needed towards improving the quality of life of people with schizophrenia. Eliminating society's stigma towards mental illness remains a far-reaching accomplishment. It requires beyond the contribution of the architect, but it is through a complete collaboration from all fields including engineers, medical staff, developers, etc to work together towards changing society's views of mental illness.

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