Hotel of Last Resort:
Enhancing User Agency in Harm Reduction Architecture

by

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Contents

Abstract

Homeless individuals who use drugs represent some of the most vulnerable and marginalized among society. In the context of a national opioid epidemic in Canada, harm reduction strategies, which reduce the adverse consequences associated with practices or situations, are increasingly being employed to prevent drug overdoses and fatalities. Personal practices of people who use drugs are expanding the current notions of harm reduction. Drug consumption facilities and housing address some of the physical risks to homeless individuals who use drugs. This thesis questions how design can enhance user agency in harm reduction architecture. Through the adaptive reuse of a single room accommodation in the Downtown Eastside neighbourhood of Vancouver, this thesis transforms a risk-laden environment into desirable and dignified homes for vulnerable individuals. By incorporating the personal harm reduction practices into the architecture typologies, this thesis proposes a design that enables self-determination and increases the quality of life of people who use drugs.

List of Abbreviations Used

DCR	drug consumption room
DTES	Downtown Eastside
HF	Housing First
OPS	overdose prevention site
PWUD	People Who Use Drugs
SCS	supervised consumption site

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Chapter 1: Introduction

Homeless individuals who use drugs represent some of the most vulnerable and marginalized among society. Structural violence and social determinants of health challenge them everyday creating high risk environments which they constantly struggle to navigate and negotiate. These risks are exacerbated with the current opioid crisis in Canada which has resulted in unprecedented rates of overdose fatalities across the nation, impacting the province of British Columbia the hardest. The development of harm reduction architecture, such as drug consumption rooms where drug intake can occur in safe environments, decreases the risk of fatal overdoses.

Harm reduction seeks to reduce the adverse consequences of a situation or practice. It refers to “policies, programmes, and practices that aim to minimise negative health, social, and legal impacts with drug use, drug policies, and drug laws” (Harm Reduction International, n.d.). Recently, expanded conceptualizations of harm reduction point to personal practices of harm reduction among people who use drugs (PWUD), as well as the incorporation of pleasure to facilitate safer consumption experiences. A built environment that supports personal harm reduction strategies, in addition to conventional medical approaches, can become the key to enhancing user agency and increasing the efficacy of harm reduction architecture.

The risk environment framework presents a method of assessing micro and macro environment risks to PWUD. Drug consumption sites and marginal housing are high-risk physical environments. Integrated residential models combine housing with harm reduction services. In the

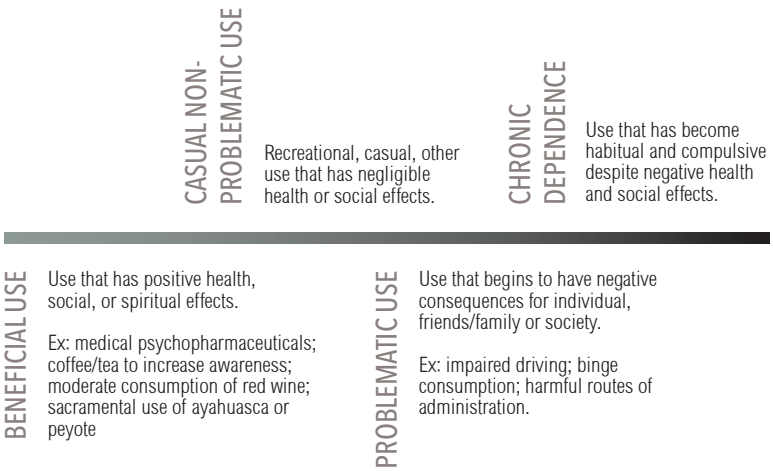
context of the opioid crisis, several housing providers in Vancouver, British Columbia have established unregulated overdose prevention sites in-house. Although ad hoc, such sites nonetheless save countless lives by providing safe environments for drug consumption. Residents gain access to housing with no preconditions, allowing them to work towards recovery under their own terms, regardless of sobriety or past or current substance use. The social risk of stigma and its by-products of stereotypes, prejudices, and discrimination exacerbate the structural vulnerabilities of PWUD. An architectural intervention can create the non-hierarchical space that mediates social mixing and interaction between PWUD and non-users.

The basis of this thesis is the intersection of these built environments – an integrated residence and drug consumption facility, and shared social space. This thesis seeks to answer the question: How can design enhance user agency in harm reduction architecture?

This thesis is structured as follows: Chapter 2 contextualizes the current opioid crisis, the experiences of PWUD, the role of harm reduction, and the architectural response of this thesis; Chapter 3 presents the selection of architectural case studies; Chapter 4 introduces the intervention site; and Chapter 5 presents the design principles, programs, and proposed design.

Chapter 2: Context

Many people use substances for various reasons and not all substance use is problematic. The spectrum of substance use ranges from beneficial to chronic dependence which is characterized by “habitual and compulsive [use] despite negative health and social effects” (HOC 2005). An individual can begin and remain at any point on the spectrum or move gradually or rapidly to another point.



Spectrum of substance use (Information: HOC 2005).

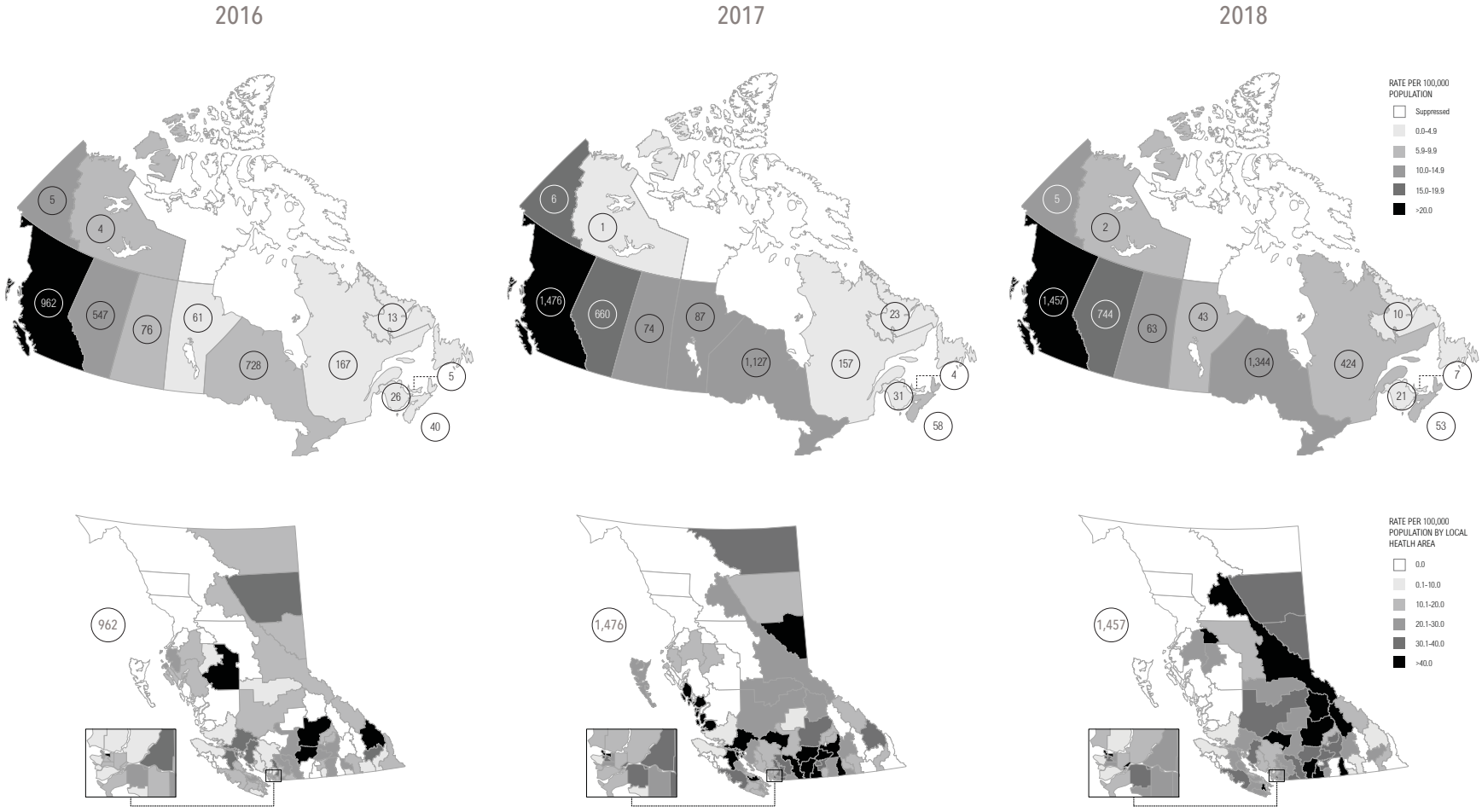
Different paths lead to the use of substances. One familiar narrative is Matt’s, a straight-A student in highschool with a full scholarship to university baseball (Lupick 2017). After a shoulder injury led to surgery, he was prescribed an opiate for pain management. At a certain point he was introduced to the stronger OxyContin, and eventually found his way to the chronice use of heroin. Another common narrative is the use of substances to cope with experiences of trauma.

> In situations of abuse or neglect, the brain adjusts to help a child tune out reality and soften the emotional blows of those experiences. But in the long term, the outcome of those adjustments is a development of the brain that makes it significantly more susceptible to addiction. (Lupick 2017, 167)

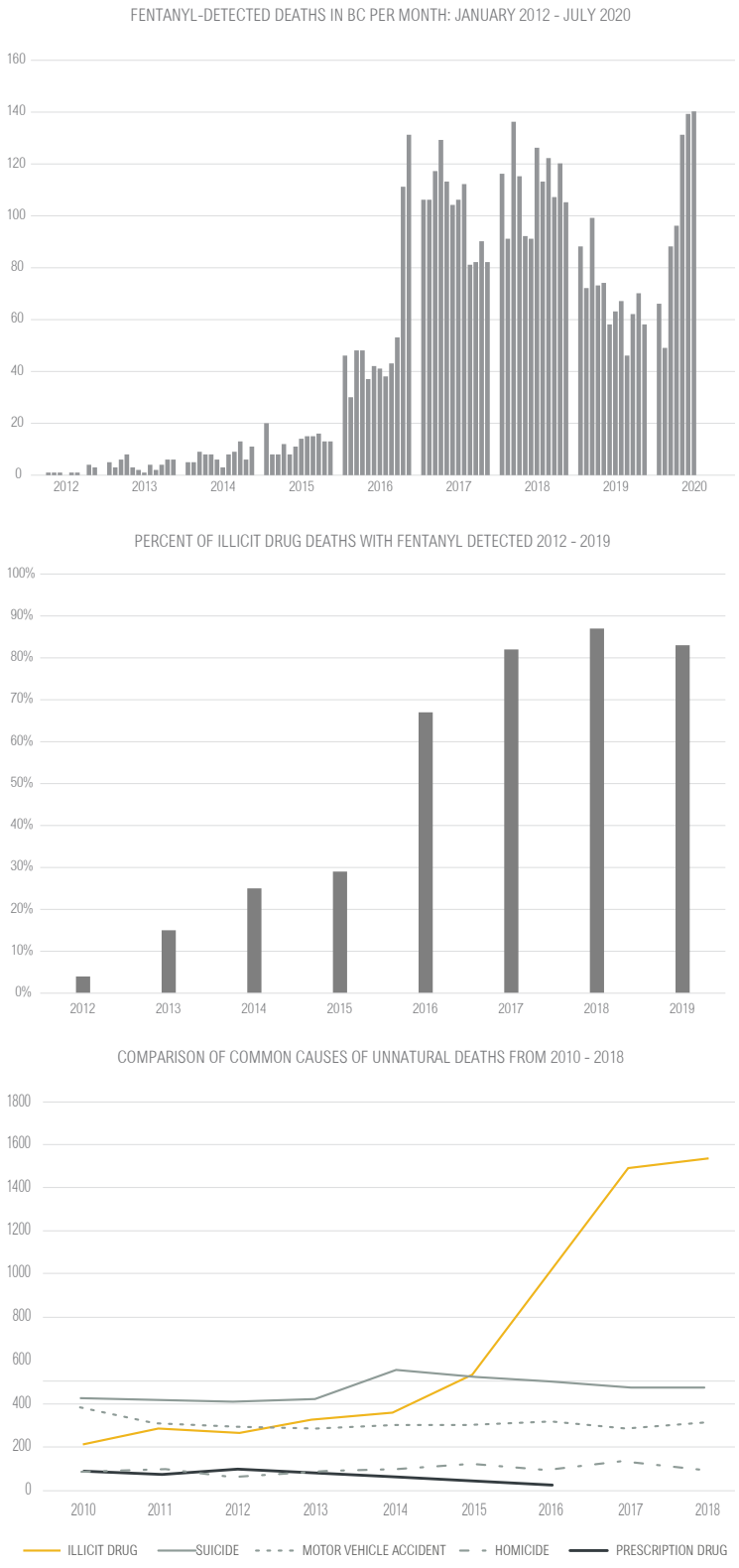
According to Dr. Gabor Maté, a leading physician on the study of substance dependence, and former staff physician at the supportive housing agency Portland Hotel Society, childhood trauma is often a strong determinant of one's likelihood of developing a dependence on drugs (Lupick 2017, 170). The use of substances is the attempt to sooth negative feelings or suppress traumatic memories.

Canada and the Opioid Crisis

Since 2016, Canada has been gripped by a nationwide opioid overdose epidemic. The current crisis follows excessive growth in the use of prescription opioids since the early 1980's. In 2016, there were over 20 million prescriptions for opioids in Canada (Belzak and Halverson 2018). When OxyContin was removed from the Canadian marketplace in 2012, many patients that had become dependent on it began to replace it with heroin. The synthetic opioid fentanyl is a less expensive – and more potent – alternative to heroin. Since it was first reported in the province of British Columbia in 2011, the proportion of overdose deaths involving fentanyl has dramatically increased nationwide (VPD 2017).



Top: Fentanyl-detected overdose fatalities across Canada (Data: Special Advisory Committee on the Epidemic of Opioid Overdoses 2020).
Bottom: Fentanyl-detected overdose fatalities across British Columbia (Data: BCCDC 2020).



Top: Fentanyl-detected deaths, BC (Data: BC Coroners Service 2020)
Middle: Illicit drug deaths with fentanyl detected, BC (Data: BC Coroners Service 2019)
Bottom: Comparison of common causes of unnatural deaths, BC (Data: BC Coroners Service 2019)

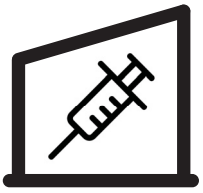
Fentanyl is an opioid pain reliever that is approximately 50 to 100 times more powerful than morphine; the estimated lethal dosage for humans is two milligrams. Currently almost all fentanyl is produced in clandestine labs and pressed into pills, processed, or mixed with other illicit street drugs to improve drug potency and increase drug dealers' profits. Consequently, buyers of other illicit drugs such as cocaine typically have no way of knowing the quality of the drug, or whether it has been compromised by fentanyl (VPD 2017, 8).

The crisis hit British Columbia in 2016 when fentanyl-detected deaths skyrocketed to 668 compared to 12 in 2012. A public health emergency was declared on April 14, 2016 after six consecutive months in which over 100 fatalities were recorded each month at an average of 3.8 fatalities per day. Illicit drug overdose fatalities have been the leading cause of unnatural deaths in BC since 2016. Fentanyl has been detected in over 80% of illicit drug overdose fatalities since 2017 (BC Coroners Service 2019).

Risk Environment Framework

The risk environment is "a space – whether social or physical – in which a variety of factors interact to increase the chances of drug-related harm" (Rhodes 2002, 88). The risk environment framework interrogates the socio-political situations and structures that act on individuals and from this structural lens, interventions in risk reduction are sought.

MICRO ENVIRONMENT

	risks	*interventions*	
PHYSICAL	drug using locations drug injecting in public places	developing drug consumption facilities creating safer drug using sites	
SOCIAL	social and peer group 'risk' norms community health and welfare service access and delivery	low threshold accessible services for PWUD social network and peer-based interventions	
ECONOMIC	lack of incomg generation and employment	micro-economic enterprise and employment	
POLICY	lack of access to low-threshold and social housing	hostel-based housing and neighbourhood development	

MACRO ENVIRONMENT

SOCIAL	stigmatisation and marginalisation of PWUD gendered inequalities and gendered risks	education and contact between PWUD and non-users fostering collective actions in combination with policy changes	

Risk environment framework adapted from Rhodes (2009) to highlight micro and macro environment interventions with architectural solutions. See Appendix A for original.

Social Environment and Stigma

> [T]hey were all saying ‘She’s nothing but a junkie’ […] you know ‘Look at her arms’. I remember the conversation, I could hear the conversation being said, like when I was in the hospital, like outside my room […] and it’s just […] I didn’t feel like I was worth much anyway. (Boucher et al. 2017, 11)

This episode is an example of one of many similar stigmatizing experiences that people who use drugs encounter as they navigate their day-to-day lives. According to Link and Phelan (2001) in their seminal work on stigma as a social determinant of health, stigma exists when “elements of labeling, stereotyping, separation, status loss and discrimination occur together in a power situation that allows them” (377).

People who use drugs are often stigmatised by different people including service providers, family, and the public. Public stigma manifests itself in stereotypes, prejudices, and discrimination against PWUD. Research by Nieweglowski et al. (2018) studied how PWUD experienced these elements of stigmatisation. They found that PWUD are commonly blamed for their drug consumption and considered to be dangerous, criminals, sinners, and without potential. Among the prejudices are feelings of fear, anger, resentment and disgust, as well as feelings of indifference towards the situation of PWUD. Discrimination manifests when PWUD are restricted from opportunities and dehumanized through deprivation of person-to-person engagement (Nieweglowski et al. 2018).

Facilitating interaction among disparate groups, or social mixing between PWUD and the public, is fundamental to counteracting stigma (Lloyd 2013; Rhodes 2009). Providing the site where opportunities for social mixing can occur becomes the responsibility of the architect.

Public Risks

Alleyway in the DTES - an ‘injection niche’ exists inside a recessed doorway and beside a garbage bin (Gordon 2018).

In Vancouver, particularly in the Downtown Eastside (DTES), public drug consumption activity occurs mainly in the large network of alleyways, out of direct view from public surveillance. Carparks and abandoned buildings are also appropriated sites for drug consumption. These spaces are known as ‘injection zones’ and are often unsanitary and restrict abilities to consume, and particularly to inject drugs, in a safe, hygienic manner (Small et al. 2007). Alleyways contain marginal spaces such as small recessed doorways and alcoves that are appropriated by PWUD and known as ‘injection niches.’ These niches offer a limited protection from wind and rain, permitting a certain “degree of physical amenity when doing a ‘fix’” (30).

In addition to the unhygienic conditions of these marginal public spaces, PWUD must contend with surveillance and the danger of arrest by law enforcement. Due to fears of interception and physical assault by police, or robbery by other passerbys, PWUD are often “preoccupied with ‘hurrying and worrying’” (Small et al. 2007, 27), rushing to consume the drug before they are discovered. This greatly diminishes the ability to prepare and intake drugs safely as concerns are directed towards immediate environmental risks posed by law enforcement and other individuals, rather than health risks. An individual must mediate between the need for privacy and the danger of seclusion when injecting in public places.

Housing Risks

The risk environment framework lists “access to low-threshold and social housing” as a risk faced by PWUD (Rhodes 2009). Although it is evident that an overdose can

impact anyone who uses illicit drugs, risks disproportionately affect structurally vulnerable populations by restricting access to safe spaces. PWUD already experiencing multiple health inequities find these exacerbated by their housing vulnerability (Bardwell et al. 2019).

A man injecting drugs in the stairwell of an SRO building (Webb 2017).

Sleeping accommodations in an SRO (Webb 2017).

In Vancouver, a city with a severe housing crisis, private rooms in residential hotels known as Single Room Occupancy hotels (SROs) provide much-needed accessible housing to individuals with limited incomes and resources, often described as ‘housing of last resort’. Standard units are approximately 9.5m^2 containing a mattress and kitchenette while toilet facilities are typically shared by residents of the same hotel floor. Physical conditions vary, though many are “deplorable, unsanitary, and dangerous” (Shannon et al. 2006, 108). Private, unregulated SROs typically offer no services or building maintenance, and many exist in dilapidated buildings requiring extensive repair. Many SROs have broken doors and windows, posing security risks to residents, while there is also lack of safe, accessible water for drinking and washing due to plumbing issues. These deplorable physical, social, and structural conditions undermine the health of PWUD (Bardwell et al. 2019). Not only are the physical conditions of SROs often unfit for habitation, residents also experience stigmatisation, harassment, and stress from living in high overdose risk environments.

Shelters also represent high overdose risk sites. Significantly, risks arise from the prohibition of drug use on site. This leads to acts of concealment and using drugs alone while shelter washrooms become de facto drug consumption spaces (Wallace, Barber and Pauly 2018). The risk of overdose while using alone is magnified in the context of

fentanyl. There is a strong correlation between overdose and housing vulnerabilities in Vancouver, particularly for PWUD experiencing homelessness, those in SROs or neighbourhoods with income inequalities, and those consuming drugs privately indoors.

Counteracting Risks in the Physical Environment

Responses to co-occurring issues of homelessness and substance use advocate for housing solutions for PWUD. These interventions combine accommodations with health and social supports that can be tailored to an individual's co-morbidities (Shannon et al. 2006). In particular, "overdose response interventions should focus more on housing-based responses" (Bardwell et al. 2019, 86).

Harm Reduction

> Harm reduction refers to policies, programmes and practices that aim to minimise negative health, social and legal impacts associated with drug use, drug policies and drug laws. Harm reduction is grounded in justice and human rights - it focuses on positive change and on working with people without judgement, coercion, discrimination, or requiring that they stop using drugs as a precondition of support. (Harm Reduction International, n.d.)

Harm reduction focuses on the prevention of harm, rather than on the prevention of drug use (Boucher et al. 2017). Harm reduction among drug users originated from the civil society. Its beginnings in grassroots practices involved "illegal distribution of sterile syringes by activists and front-line workers" (2). Since then it has become institutionalized in many settings. The remaining sections discuss the common strategies of harm reduction, how PWUD employ personal strategies, the role of pleasure, and finally the architecture of harm reduction.

Strategies

Needle exchange programs involve “the provision of clean needles and syringes to injection drug users” (Beirness et al. 2008, 4). It aims to prevent the spread of blood-borne pathogens and the risks of infections and other harms from using damaged, non-sterile or shared syringes.

Methadone maintenance substitutes oral methadone for illicit opiates and is used to reduce “reliance on [illicit] opiates often administered by injection” (Beirness et al. 2008, 5). It allows PWUD to establish stability and maintain a lifestyle free of injecting illicit drugs.

Drug substitution provides PWUD with legal substance replacements. The aim is to “reduce recourse to criminal activity to support the purchase of illegal substances, to control the quality and dose of substances used, to provide participants with safer-use practices, and to provide access to health and social services” (Beriness et al. 2008, 5).

Safer crack pipe programs distribute safe crack pipe kits to “reduce the transmission of blood-borne pathogens associated with the sharing of crack pipes and to reduce the harms to the user associated with the use of unsafe equipment” (Beriness et al. 2008, 6).

Naloxone administration is an overdose prevention strategy that utilizes the opiate antagonist naloxone to reverse the effects of an opiate overdose. Programs that distribute naloxone to peers and outreach workers reduce the risk of overdose mortalities (Beriness et al. 2008, 6).

Drug checking services inform the individual of ingredients in their substance prior to consumption. This is an essential

service as most PWUD are unaware of the composition of the substances they are taking (VPD 2019).

Drug consumption rooms are specialized facilities providing PWUD with clean, safe environments for drug intake. In Canada, a 'supervised consumption site' is a drug consumption room that operates with a federal exemption allowing individuals to possess controlled substances on site without prosecution (Health Canada 2018). Drug consumption rooms will be elaborated on further in this chapter.

In Practice

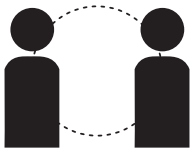
Boucher et al.'s (2017) research in harm reduction found that people who use drugs employ strategies of self-care that are essential to their daily lives, yet do not exist in the public health framing of harm reduction. Public health understandings of harm reduction tend to be "narrowed, medicalized, and situated within health and service provision, which impedes broader thinking about non-medical aspects of well-being." This can be seen in interventions which focus on population level risk reduction such as reducing transmission of infectious diseases through syringe exchanges or reducing crime. They write that promoting harm reduction for the greater population has "removed the control of harm reduction services from the communities who use and experience them" (2).

A broader understanding of harm reduction interventions and motivations move beyond the delivery of health and social services. Community engagement is an essential component of the harm reduction practices employed by some PWUD. Individuals involved with delivering harm reduction interventions in their community believe helping

Community engagement

Increased awareness

Physical activity



Improving social relations

others provides benefits to themselves and expressed interest in further involvement with community-based opportunities. For others, developing cognitive strategies such as increasing awareness of use and self-reflection, and managing behavioural practices by staying active, participating in athletics, or taking on volunteering, were forms of harm reduction interventions. Complementing the nuanced methods of self-care are an array of motivations for employing harm reduction beyond the desire for health management. Most significantly, PWUD were motivated to improve social relationships, such as re-kindling or maintaining familial relations (Boucher et al. 2017).

These examples illustrate how PWUD employ alternative methods of harm reduction that extend beyond mainstream health-based strategies and are motivated by goals other than health management. Research underscores the need for PWUD to have opportunities for self-regulating their harm reduction practices, highlighting the importance of agency, self-care and community building (Boucher et al. 2017).

These important findings suggest that harm reduction architecture which enhances user agency should provide the spaces to support these personal practices, allowing opportunities for individuals to reflect, to be physically active, and to engage in the community.

The Role of Pleasure in Harm Reduction

Grounded in epidemiology, harm reduction discourse privileges notions of ‘healthy’ and ‘normal’ consumption. Pleasures in excess of this model such as those of physical intoxication “are associated with irrationality, over-indulgence, and ill-health” (Duncan et al. 2017, 94). Pleasure

therefore does not fit readily into the rational model of harm reduction, with its focus on health and risk-aversion.

As described by the spectrum of substance use, drugs are used for a vast array of reasons. It can change an individual's perception of physical experiences such as pain or enhance experiences of social situations. Andrew Ivsins and Kevin Yake (2018) explored the positive roles of drugs and drug use among marginalized PWUD in the Downtown Eastside. One individual describes his calming experience of consumption as easing his mind:

> It used to be enjoyable and pleasurable for me. But now it's just, I don't know why, I don't really get high off of it anymore, but it kind of just eases me. It kind of just sets me free, kind of thing, for a few minutes, and that's about it … Puts my mind at ease. (Ivsins and Yake 2018, 5)

Another describes the social motivation behind consumption:

> I think for the most part, it's more of a social thing. It's … it is quite sociable because if you look around, very rarely you'll see, you'll see somebody smoking a rock by themselves, but when it comes down to it, you usually see people in groups. And there' s usually drugs at the centre of it, but you know what I mean, that's the social aspect of it. (Ivsins and Yake 2018, 6)

For many, the embodiment of the 'high' was the pleasurable, sought-after effect:

> It gives me a vast high. [long pause] It's, it's instant… it's really hard to… it makes me feel good, it makes my body feel good you know and… it puts a smile on my face! (Ivsins and Yake 2018, 6)

The authors conclude that chronic substance use can be meaningful and beneficial to PWUD and that "embodied pleasurable experiences and the enhancement of social experiences" have the potential to mediate drug consumption among marginalized PWUD (Ivsins and Yake 2018, 7).

The purpose of harm reduction is to reduce the potential harm caused, in this case, by drugs. At the same time, these

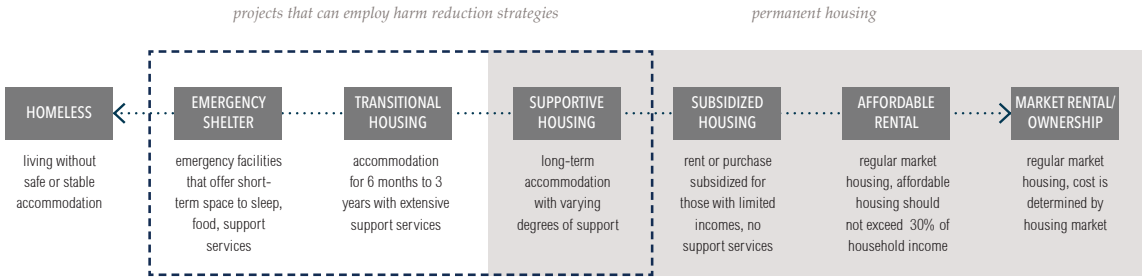
findings suggest that harm reduction architecture should also acknowledge some of the benefits of drug consumption which enable individuals to function productively. Harm reduction architecture should provide a tranquil environment where drug consumption can occur at the individual's own pace as well as accommodate the desire to be around other PWUD or the desire to be alone.

Harm Reduction Architecture

Housing

The housing continuum represents the range of housing available in a community. As an individual's life situation changes, their housing situations also change, and they move along the housing scale. As indicated in the diagram below, different housing types can facilitate harm reduction strategies.

Housing First (HF) is based on the philosophy that "all people deserve housing, and that adequate housing is a precondition for recovery" (Gaetz, Scott and Gulliver 2013, 8). It is an approach to homelessness that entaills providing homeless individuals with supported, permanent housing that is not contingent on perceived readiness for



The housing continuum, indicating types of permanent housing and where harm reduction strategies can be employed (Information: District of Mission 2020).

housing, or compliance with requirements such as sobriety or abstinence from substance use. Harm reduction is key to HF. It contrasts with the highly regulated ‘treatment first’ or ‘treatment as usual approach’ that places homeless individuals in emergency services or temporary living arrangements, such as transitional housing, until they are considered ready for permanent, independent living. This model expects compliance with treatment and abstinence from substance use.

The HF approach begins with outreach or referral of clients who are presented with the option of housing, without expectation of behavioural or treatment goals. Next, clients have some choice over their selection of accommodations, given the availability and affordability of housing within a community. A core principle of HF is consumer choice and self-determination. With this principle, clients have the choice over which services they receive and when they use these services. Clients are then rehoused as quickly as possible in order to minimize the time they spend in absolute homelessness or in emergency services (Gaetz, Scott and Gulliver 2013, 8).

Some housing initiatives do not operate as HF projects but employ the principle of harm reduction and use harm reduction strategies (such as distributing safe use supplies) in their service delivery. Rather than permanent housing, such initiatives offer temporary accommodations in transitional housing, or emergency shelters (Krause, Serge and Goldberg 2005). Some projects help residents “move to less harmful substances and reduce their use” while others inform clients of “ways to stay healthier and reduce the harms associated with their lifestyle and substance use” (14).

Drug Consumption Room

A DCR is a specialized facility that provides PWUD with a clean, safe environment for drug intake.

Integrated Model DCRs are typically part of a broader network of services in which the DCR is an important component of services that may include opiate substitution treatment, or drop-in centres and counselling.

Specialised Model DCRs provide safe, hygienic spaces for drug consumption in a non-judgemental environment. They do not include other services, but typically offer referrals to services like substitution treatment and housing.

Mobile DCRs can operate in different settings and have the ability to reach populations that may not have the means to access fixed sites. They have significantly lower throughput than fixed sites, but can offer multiple harm reduction services such as syringe exchange and blood testing (Schäffr et al. 2014).

Overdose prevention sites (OPS) are spaces integrated into existing social or health care services, or stand-alone sites, that provide on-site monitoring of drug consumption and rapid intervention in an overdose episode. In contrast to supervised consumption sites, federal exemption is not required to establish an OPS (British Columbia, n.d.). These are low barrier models run by non-profit organizations and staffed by peers (current or former members of the community of PWUD).

Order and Surveillance

Drug consumption rooms have the potential to “act as environments that promote the exclusion of ‘disorderly’

PWUD from public spaces" (Bardwell et al. 2018, 87). Much research has been conducted on the role DCR's play in promoting 'public order' through operational models that foster surveillance and control. Research has found significant reductions in the number of public injections, publicly discarded syringes, and other injection-related litter after the opening of the supervised injection facility Insite (Wood et al. 2004), while a record of drug-related crime in the area found a decline in vehicle break-ins/thefts and no increases in drug trafficking, assaults or robbery (Wood et al. 2006). In this light, DCRs effectively serve as mechanisms of control in the public sphere.

Through a lack of control over private space, marginalized PWUD who are accustomed to using drugs in public may feel a sense of internalized surveillance over their substance use (Bardwell et al. 2018). Aversion to surveillance can create tension for the client of a designated drug consumption room where a primary function is supervision of consumption. Architecture that supports drug use while effectively addressing the risk of overdose should design for the individual by considering "the internalization of drug-using norms and practices" (91).

Integrated Residence and DCR

Supportive housing with embedded drug consumption spaces combine living accommodations with health and social supports to address an individual's comorbidities (Shannon et al. 2006). These spaces are generally for the private use of residents and vary in design and operation. Spaces may be as simple as a designated desk in a hall or more formal as in a retrofitted room with multiple stations.

Surveillance is provided by a fellow tenant or a staff member trained to intervene in the event of an overdose.

Architectural Response

Combining the lessons learned about the environmental risks of PWUD, particularly those homeless or precariously housed, this thesis proposes an architecture which seeks to tackle both the physical and social dimensions of risks. Using the texts of Sam Davis (2004) and Jan Gehl (2010) as design guides, this thesis proposes supportive housing as a refuge for PWUD and the combination of public space to enhance social relations between PWUD and the broader community.

Chapter 3: Case Studies

Supportive Housing

Star Apartments, Michael Maltzan, Los Angeles

Star Apartments, LA; photograph by Iwan Baan (Michael Maltzan Architecture 2014)

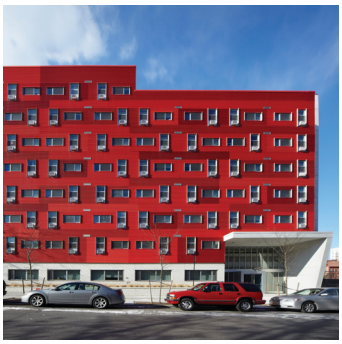
Community garden at Star Apartments; photograph by Iwan Baan (Michael Maltzan Architecture 2014)

This project, located in the Skid Row district of Los Angeles, sought to improve the quality of life for residents, and inspire a sense of pride, independence, and dignity. A mixed-use development, the project consists of 102 prefabricated modular housing units atop a concrete base.

It has three distinct spatial zones: commercial and retail space on the ground floor; community programming on the second floor; and four floors of terraced residences. The ground floor contains a medical clinic and natural light floods into the space with wrap-around glazing. The second floor is considered the wellness centre and contains a variety of programs including; common spaces such as the community garden and community kitchen; activity programs such as a running/walking track, a pickle ball court, and a fitness centre. The modular residences are self-contained units with an individual kitchen, bed and bathroom. Multiple terraces exist for communal and rehabilitative activities while the building maximises natural air and light. The design facilitates recovery based on positive re-socialization, healthy interpersonal relations, and wellness (Michael Maltzan Architecture 2014).

Navy Green, Architecture in Formation and Curtis + Ginsberg Architects, Brooklyn

Providing permanent residence for chronically homeless adults, the project is a source of comfort and pride for its residents. It is an integral part of the Navy Green development, providing 97 of the development's total supply



Navy Green, Brooklyn; photograph by Tom Powel Imaging (Architecture in Formation and Curtis + Ginsberg Architects 2015)

Shared green space at Navy Green (Todd Rader + Amy Crews, n.d.)

of 458 housing units. It aims to foster a sense of community amongst residents, the Navy Green community, and the neighbourhood.

A double-height, light-flooded entry acts as an inviting "welcome mat." Visible from the street, the focal point of the design is the "ramphitheatre" which bridges the streetscape and Navy Green's communal green space. While primarily a handicap-accessible ramp, the ramphitheatre is also a gathering and meeting space and the symbolic heart of the design. The project design encourages physical fitness through circulation, facilitating the use of stairs by using bold colours and offering exterior views. On-site social services, offered in bright, cheerful environments, include: nursing, vocational training, substance use counseling, mental health counseling, horticultural and art therapy, recreational activities, and socialization. The Navy Green development connects supportive housing residents with non-supportive housing residents through the communal green space, allowing the formerly homeless individuals to feel comfortable, validated, and accepted within a broader community (Architecture in Formation and Curtis + Ginsberg Architects 2015).

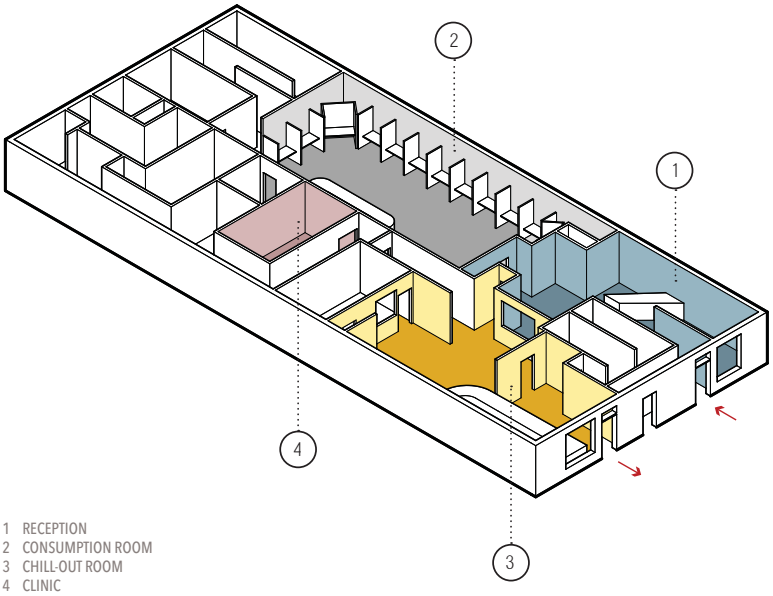
Drug Consumption Rooms

Insite, Sean McEwen, Vancouver

Insite is a specialized drug consumption room in Vancouver and the first such facility in North America. In 2019 Insite received 122,925 visits and reversed 1,112 overdoses (VCH 2020). The facility contains 12 stations where clients can inject their own drugs under the supervision of medical professionals and staff. Currently the space does not accommodate inhalation of drugs due to lack of a proper

Facade of Insite with entrance highlighted.

ventilation system. Sterile equipment including syringes, cookers, filters, water and tourniquets are provided. Clients can make use of the post-consumption 'chill-out room' where they will find light snacks and connect with other visitors and staff members. They can also receive referrals to treatment or housing services (PHS Community Services n.d.)

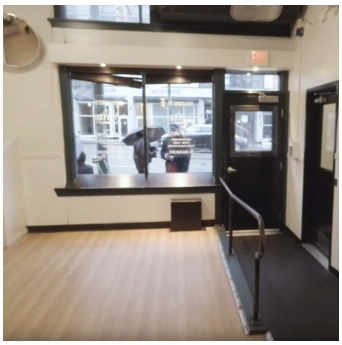


Isometric of Insite in Vancouver, highlighting the spaces used by clients.

The following section describes the sequence of movement through the space as well as the architecture in which the activities occur.

Entry

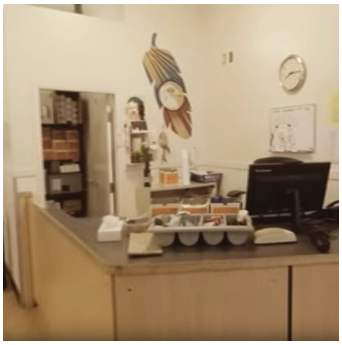
This area features a large storefront and clerestory windows allowing a view of the street and flooding the area with natural light. Visitors enter from Hastings Street using a ramp that makes the space universally accessible to, for instance, individuals in wheelchairs, individuals with walkers, or those



Visitor entry of Insite (NFB 2017)

with large belongings such as shopping carts or bicycles. They are welcomed into a space with high ceilings, clean white walls, and warm-coloured laminate wood flooring. These elements help create an open, clean, and safe atmosphere. A convex mirror located in the corner above the storefront window allows staff at the reception desk to monitor the space.

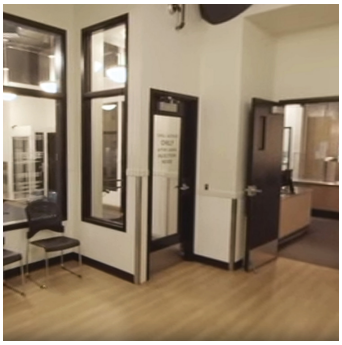
Reception and Intake



Reception desk of Insite (NFB 2017)

Staff interact with visitors behind a barrier-free desk which helps create a connection and develop a sense of trust with visitors. There are only a few requirements to sign in: a name (which can be an alias, but must be the same at each visit) and a minimum age of 16. This low-barrier intake serves to maintain user privacy and allow individuals to quickly and efficiently access clean and safe facilities (NFB 2017).

Waiting



Waiting area of Insite (NFB 2017)

The entrance, reception, and waiting room are one space which can create a loud and busy atmosphere. In this space visitors can interact with each other while they wait to use the consumption room. The limited seating is not used for long as waiting time is usually between 10-15 minutes. The open floor space helps accommodate individuals with large possessions.

Consumption

In the consumption room visitors are provided with drug consumption implements which they take to one of twelve stainless steel desks lined along one wall. Each desk is separated by a plastic barrier and features a mirror, a plastic chair, and a safe needle disposal bin. All surfaces are smooth and easy to clean. Visitors use the mirror to find

Consumption room of Insite (NFB 2017)

veins in different parts of the body. The nurse's station along the opposite wall overlooks each desk and the staff can use the mirrors to monitor individuals. There is no natural light in the space so track lighting above the desks provide bright, warm light that keeps the room from feeling harsh and austere. Visitors typically spend 25 minutes during this process before moving on. If someone experiences an overdose, staff can respond immediately and assess the individual in an adjacent medical room (NFB 2017).

Post-consumption

Chill-out room of Insite (NFB 2017)

The 'chill-out room', as it is officially designated, is a space for individuals to relax and connect with staff members and other visitors. Snacks and drinks are offered here, and a telephone is available for visitor use. Furnishing is sparse and utilitarian, for heavy-duty use; a singular stainless steel cafeteria-style table occupies the centre of the room while plastic chairs line the walls. As in the consumption roomm, all surfaces are smooth and easy to clean. Visitors typically spend 15-20 minutes in the chill-out room although there is no time limit on their stay (NFB 2017).

Exit

Visitor exit of Insite (NFB 2017)

The visitor exit onto Hastings Street is separate from the visitor entrance. A vestibule separates this door from the chill-out room while the staff desk serving the chill-out room also extends to the exit door. This security measure allows staff to monitor all entries into the building. For visitors, this provides one last opportunity to connect with staff before leaving the safety of the facility.

Powell Street Getaway, Vancouver

Facade of PSG

Powell Street Getaway (PSG) is an integrated model drug consumption room in Vancouver's Downtown Eastside. The facility contains five seats and in 2019 it received 35,041 visits and reversed 86 overdoses (Vancouver Coastal Health 2020). PSG is a centre serving homeless and vulnerable populations. Its services include: daily meal program, emergency clothing distribution, in-house social activities and field trips, peer training, pre-employment and internship programs, harm reduction and substance use programs, referrals to health supports and outreach support (Lookout Society n.d.). It also functions as an emergency shelter in extreme weather.

Entry

Entry of PSG

The entry features large storefront windows and sliding glass doors allowing a view of the street and providing abundant natural light. The windows and door are protected by sky blue metal gates when the building is closed. Tall indoor plants decorate the entrance, adding to the life of the space.

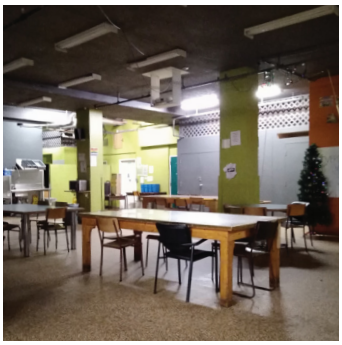
Reception and intake

Reception desk of PSG

Directly in front of the entrance is the reception and features barrier-free desks at two levels for universal accessibility. Visitors register at the front desk and, like Insite, they have the option of using an alias. Wayfinding signage clearly indicates the drug consumption room entrance through the gate and past the reception desk.

Waiting

Visitors can wait in the multi-purpose room adjacent to the foyer. The mismatched furnishings are well-worn, but clean



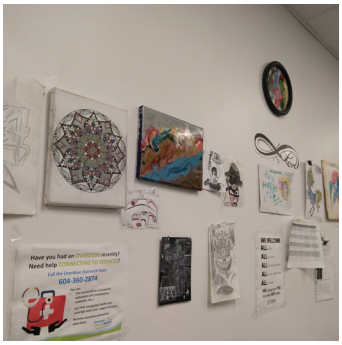
Multi-purpose room of PSG

and functional. The plentiful seats are distributed across numerous tables. Colourful paints in chartreuse and orange brighten the walls while large windows at the front of the room provide natural light. The multi-purpose room is also connected to the kitchen and functions as a dining hall at mealtimes. Visitors typically waiting 10-15 minutes to use the consumption room can avail themselves of other activities.

Consumption

Consumption stations in the PSG DCR.

The consumption room at PSG is narrow with five desks lined along one wall. Upon entering visitors can take the drug consumption implements stocked on a table to their left and proceed to one of the desks. Each desk is stainless steel and features a mirror, a chair, and a needle disposal bin fixed to a stainless steel partition. Above the desks are clerestory windows which keep the room from feeling too enclosed. Artwork is hung along the walls, interspersed with the health notices, personalizing the space for visitors. Two staff members occupy a station at the end of the room near the exit, ready to respond to an overdose. In such an event, the individual is assessed in a medical room in the back office of the facility. Visitors are free to move at their own pace, spending anywhere from ten minutes to three hours in their desks.



Personal artwork is mixed with health notices.

Post-consumption

Visitors exit out to a hall connected to the foyer and can simply make use of the same multi-purpose room to relax. Snacks and drinks are provided, and staff are available to check in with visitors and make references for housing, treatment, or other services.

H17, PLH Arkitekter, Copenhagen

Facade of H17 with staircase and ramp leading to the corner entrance (PLH Arkitekter 2016).

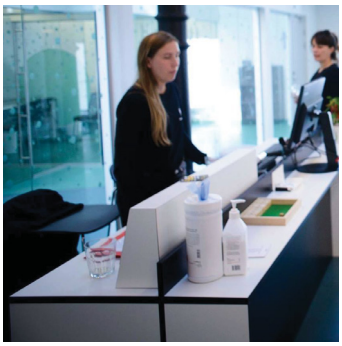
H17 is the world's largest specialized drug consumption centre. The centre occupies a former slaughterhouse in the fashionable Meatpacking District of central Copenhagen. The discreet design of the building's façade respects the building's heritage while also disguising its modern programming. Containing 24 consumption stations, 12 for intravenous consumption and 12 for inhalation, the centre serves approximately 600 visits per day. PLH Arkitekter used colour psychology in what they term as 'nudging' to affect the behaviour of visitors and facilitate flow through the space (PLH Arkitekter, 2016).

Entry

Entrance and reception room at H17 (PLH Arkitekter 2016)

Visitors access the facility through a corner entrance with large glass doors. Passing through a vestibule, they walk into a long hall that functions as the central corridor of the building and from which the various rooms branch off. The spacious entrance features a skylight and uses cool and quiet green and blue tones in order to reduce the levels of conflict and aggression in the air (PLH Arkitekter, 2016).

Reception and intake



Reception desk at H17 (International Network of Drug Consumption Rooms 2016)

The reception desk is an island occupying a central position in the hall. From this vantage point, staff can monitor the flow of movement through the space. First time visitors register at the reception; individuals have the option of using an alias and are not required to provide a health card (Pabst 2016).

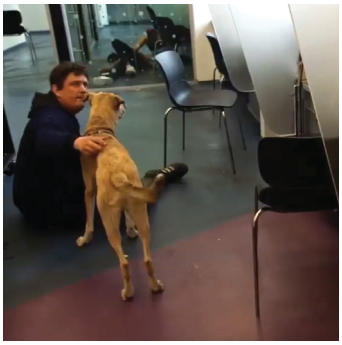
Waiting

The waiting area is located adjacent to the entrance and features large windows looking out to the street. Individuals

exit from the consumption rooms back into the main hall and so visitors who are waiting can easily observe when a station is available.

Consumption

Injection consumption station (PLH Arkitekter 2016)



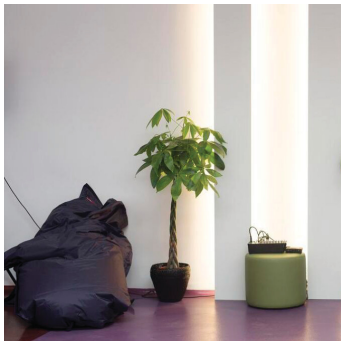
Dogs are permitted inside H17 (Mortensen 2018).

Inhalation consumption station (PLH Arkitekter 2016)

The 24 consumption stations are divided between the two sides of the building. Individuals enter the injection rooms across from the reception desk where they are provided with safe consumption implements. An injection station consists of a stainless steel desk with a hole for needle disposals and plastic and metal chairs; all surfaces are durable and easy to clean. The injection stations are separated by acrylic partitions. These rooms benefit from large windows that provide visitors with views and abundant natural light. Behind the reception desk, a glazed partition separates eight inhalation rooms from the main corridor while also allowing natural light to filter into otherwise enclosed areas. An inhalation room is furnished with a stainless steel desk and a plastic and metal chair, and features a ventilation system that cleans the air four times per minute. These rooms are separated by glazed partitions decorated with colourful dots, a playful feature that is replicated on interior glazing throughout the facility. Visitors typically spend 35-45 minutes in the consumption rooms. Staff can monitor individuals through the glazed partitions and quickly respond to overdose events (Jellestad 2016). Nurse stations are accessible from the main corridor and are also directly connected to the injection consumption rooms.

Post-consumption

Visitors move down the hall to the ‘restitution room’ where the warm purple and burgundy tones create a calm and relaxing atmosphere to give visitors “a break from the hectic



Greenery and decorative lighting enhance the visual quality of the restitution area (PLH Arkitekter 2016).

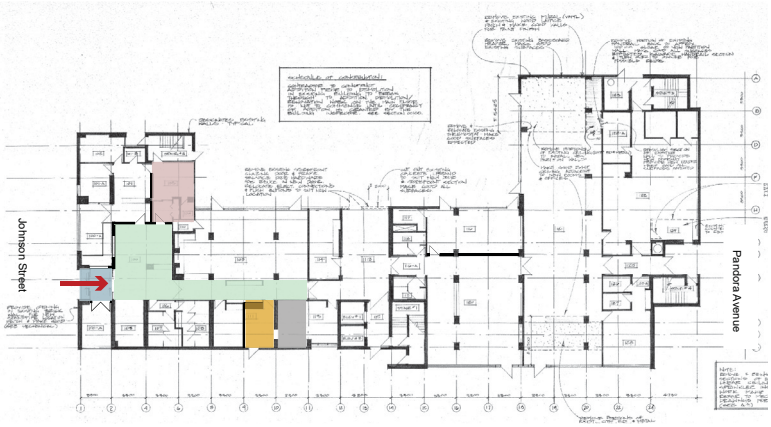
Facade of JSC; photograph Darren Stone (Petrescu 2016)

everyday life on the streets" (PLH Arkitekter 2016). The room is furnished with bean bag chairs and a television set while tropical plants grow on a green wall. After relaxing in the restitution room, visitors can choose to enter the café area where they can have a meal and speak with counsellors or health personnel, or they can exit the building from here.

Integrated Residence and DCR

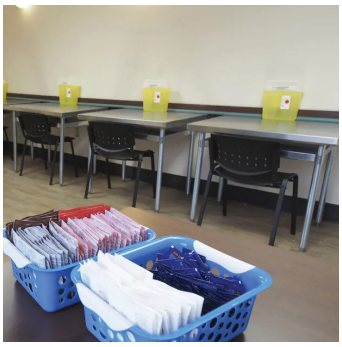
Johnson Street Community, Victoria

Johnson Street Community (JSC) is a supportive housing facility serving 147 formerly homeless residents. It is operated by PHS Community Services (formerly the Portland Hotel Society). Considered the housing of last resort (Lupick 2017), PHS provides accommodations to individuals who would normally be rejected by other housing organizations, and were early proponents of the harm reduction movement. In their early years, they managed existing SROs with limited budgets but have since expanded to operate multiple purpose-built housing developments. PHS established and operates Insite and is one of the housing organizations that

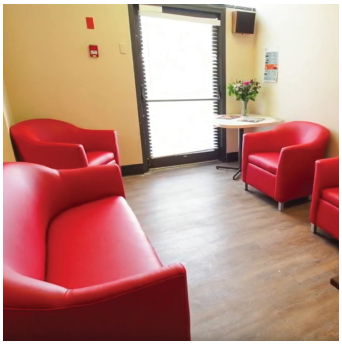


Ground floor plan of the JSC highlighting the DCR (Plan: McEwen, n.d.).

Single room; photograph Darren Stone (Petrescu 2016)



Consumption desks without mirrors and partitions (Island Health 2017)



Chill-out room (Island Health 2017)

have established overdose prevention sites within their buildings during the opioid epidemic.

The building on 844 Johnson Street originally functioned as a senior care home and was repurposed to house individuals living in a city park encampment. It consists of four residential floors with offices on the ground floor. Each room is lightly furnished and contains an en-suite bathroom. Residents are discouraged from hoarding items in their space with limited storage being made available for belongings in the basement. Several services are available to residents including: 24-hour mental health support; home support services to assist with laundry and cleaning; outreach workers; medical services; and daily meals. Peer programs provide opportunities for residents to engage with their community (PHS Community Service n.d.).

Residents are also served by an on-site drug consumption room with four stations. The two-room program was retrofitted into the facility, initially starting out as an OPS before gaining federal exemption to operate as a ‘supervised consumption site’. As in the specialized consumption rooms, individuals can check in with staff at the registration desk to add their name to the waiting list. Residents may wait inside the DCR for one of the four stations, although there are only ten visitors permitted in the DCR at a time. There is no time limit and individuals can use the consumption stations at their own pace. After consumption, individuals move into the chill-out room at which point they can exit the DCR back into the housing complex or exit to the courtyard where they can socialize and smoke a cigarette with other residents.

Chapter 4: Site

This thesis explores a type of harm reduction architecture to assist the lives of people who use drugs and facilitate social interaction with the broader community. While the design principles developed in this thesis can be employed on other sites, the Downtown Eastside neighbourhood, the area most heavily impacted by the opioid epidemic in Vancouver (Daly 2018), provides the backdrop for this thesis.

Situating

Understanding the history of the Downtown Eastside is an integral step to contextualizing and understanding the present circumstances of the community. The Downtown Eastside is one of Vancouver's oldest neighbourhoods and functioned as the city's original civic centre. The original City Hall, the City Market and the Carnegie Public Library were found on the corner of Main Street and Hastings Street while industry was situated further east. The area was a transportation hub for the city and numerous single-room occupancy hotels (SROs) were originally built in the area for commercial travelers and tourists, later becoming lodging for men working in the logging and mining industries who would briefly enjoy the city before returning to BC's forests. The DTES also attracted Chinese and Japanese immigrants who settled in what is now the Chinatown and Strathcona areas.

The southwest migration of the civic and commercial centre during the 1950's and 1960's led to the steady decline of the neighbourhood. Following the decommissioning of Riverview Hospital for the Mind in the neighbouring city of Coquitlam, BC, thousands of people struggling with mental illness and

lacking support were drawn to the DTES (Lupick 2017). By the 1980's, the lumber industry had shut down and the DTES and the SROs had become home to individuals with nowhere else to go. The Carnegie Centre was reopened as a community centre in 1980, but an open-air drug market was firmly established in the neighbourhood with drug dealers using the corner in front of the community centre entrance as their shop. The closure of the Woodward's department store in 1993 is remembered as "the Downtown Eastside's arrival at rock bottom" (33).

Throughout the 1990's and 2000's, the DTES continued to attract low-income individuals along with non-profit organizations and social services intent on providing aid to the community. At the same time, community organizations like the Vancouver Area Network of Drug Users were established for social support and to advocate for the needs and rights of people who use drugs.

Selection Criteria

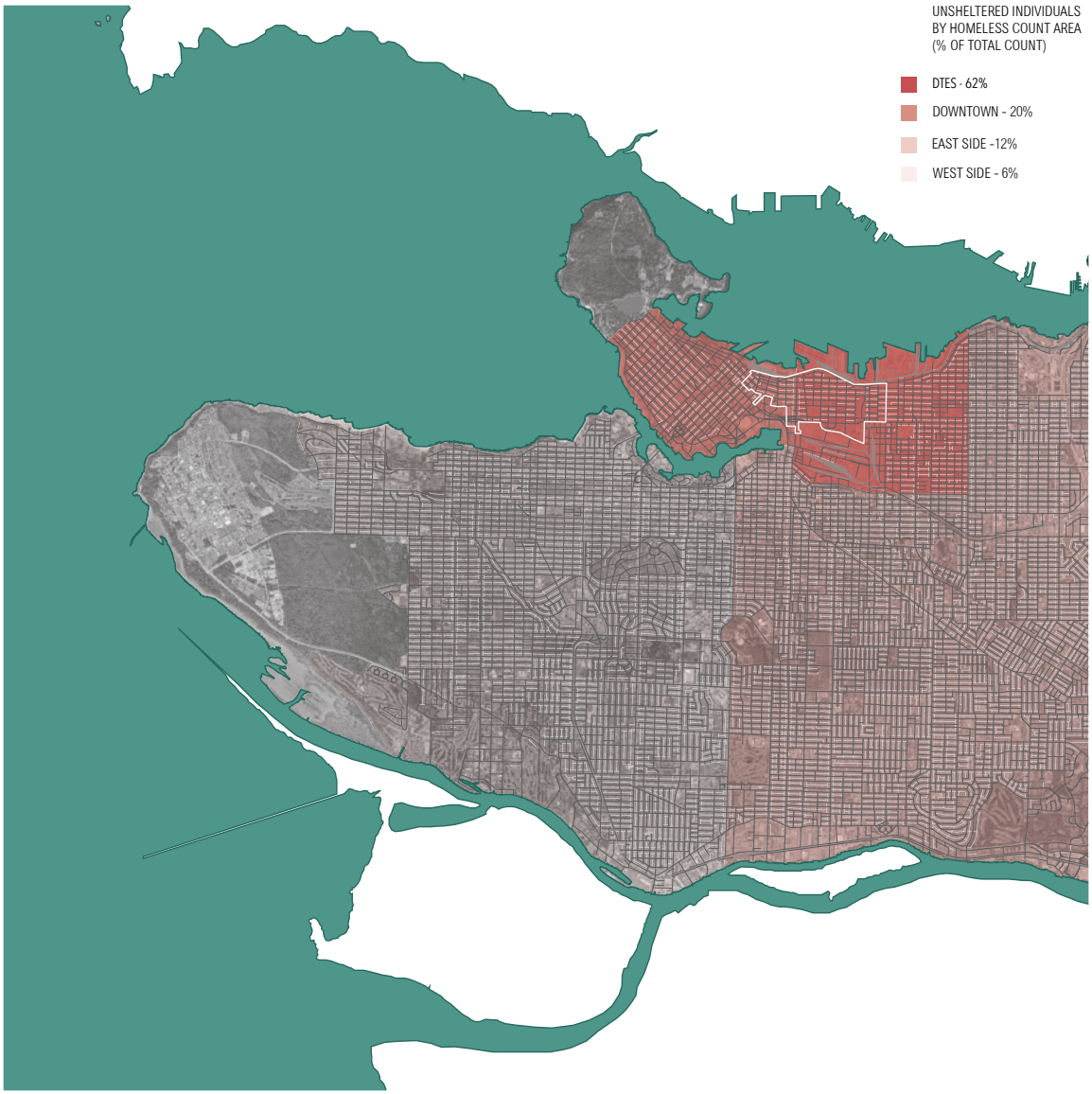
Based on the programmatic requirements of the thesis, the following criteria is used to identify the intervention site.

Proximity to community of street-based people who use drugs increases its accessibility by the target population.

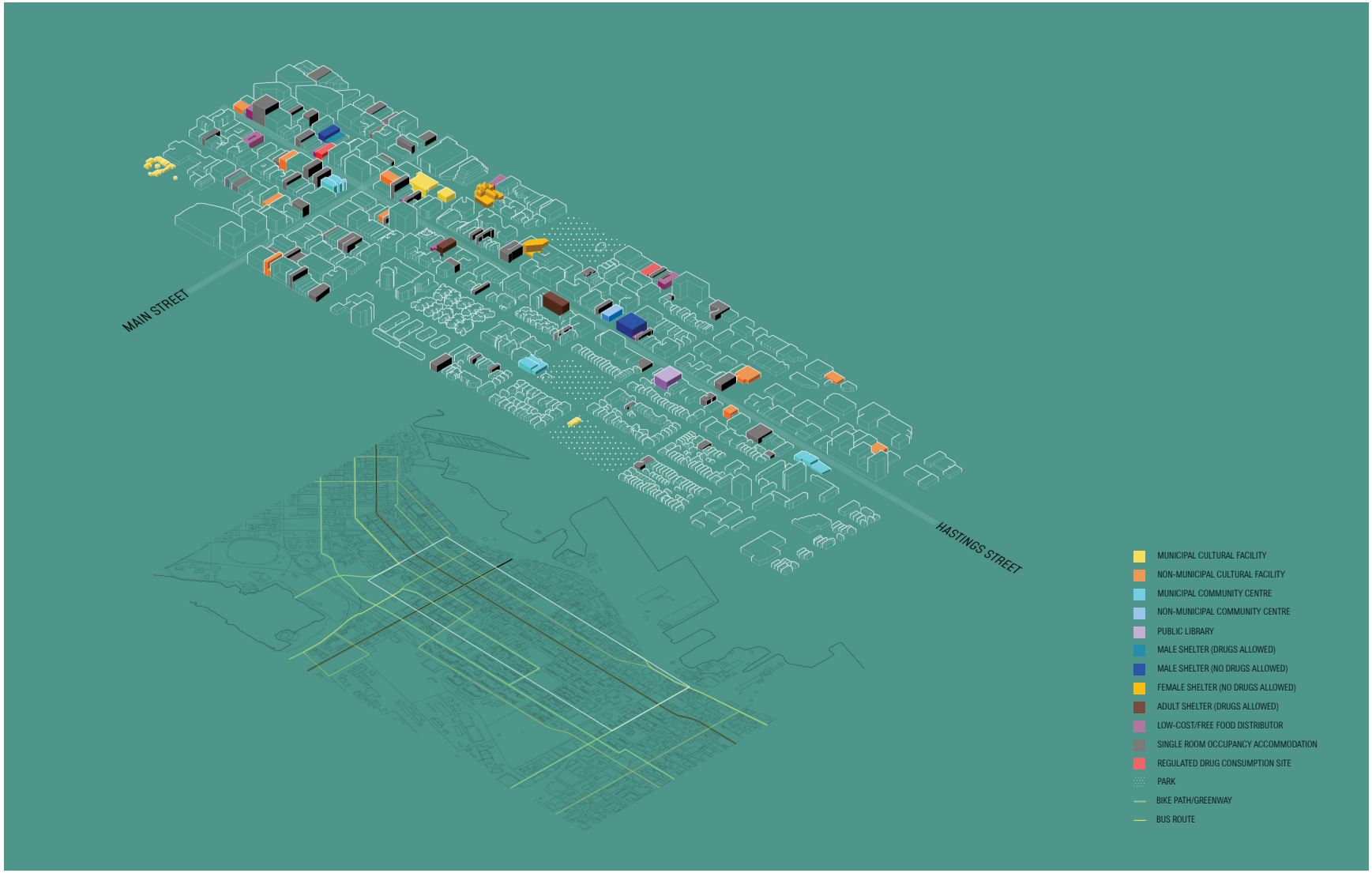
Proximity to a mixed income neighbourhood increases the potential for social mixing.

Need for increased services to support the community of people who use drugs.

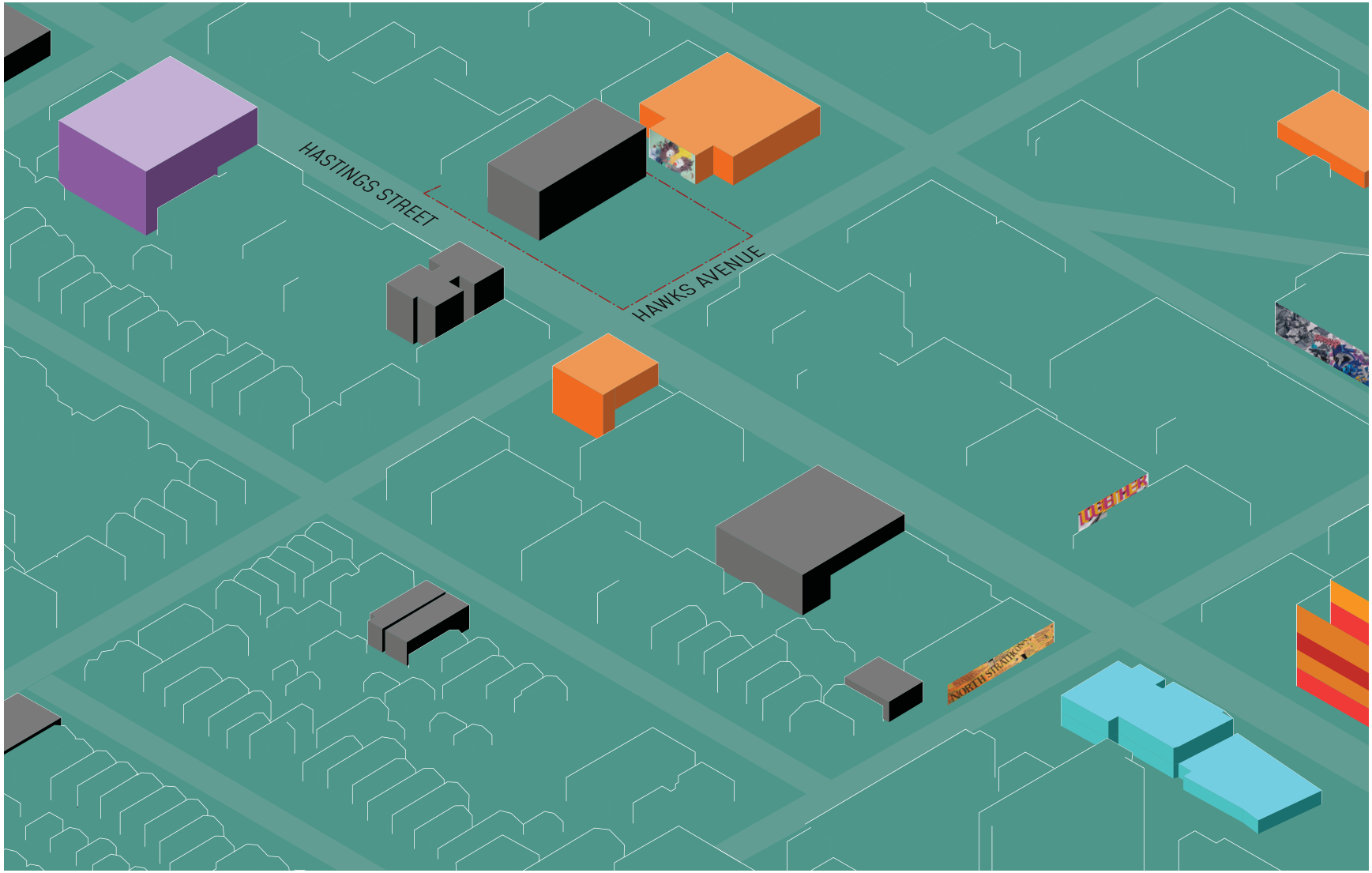
Proximity to nature allows access to green space and offers views of nature.



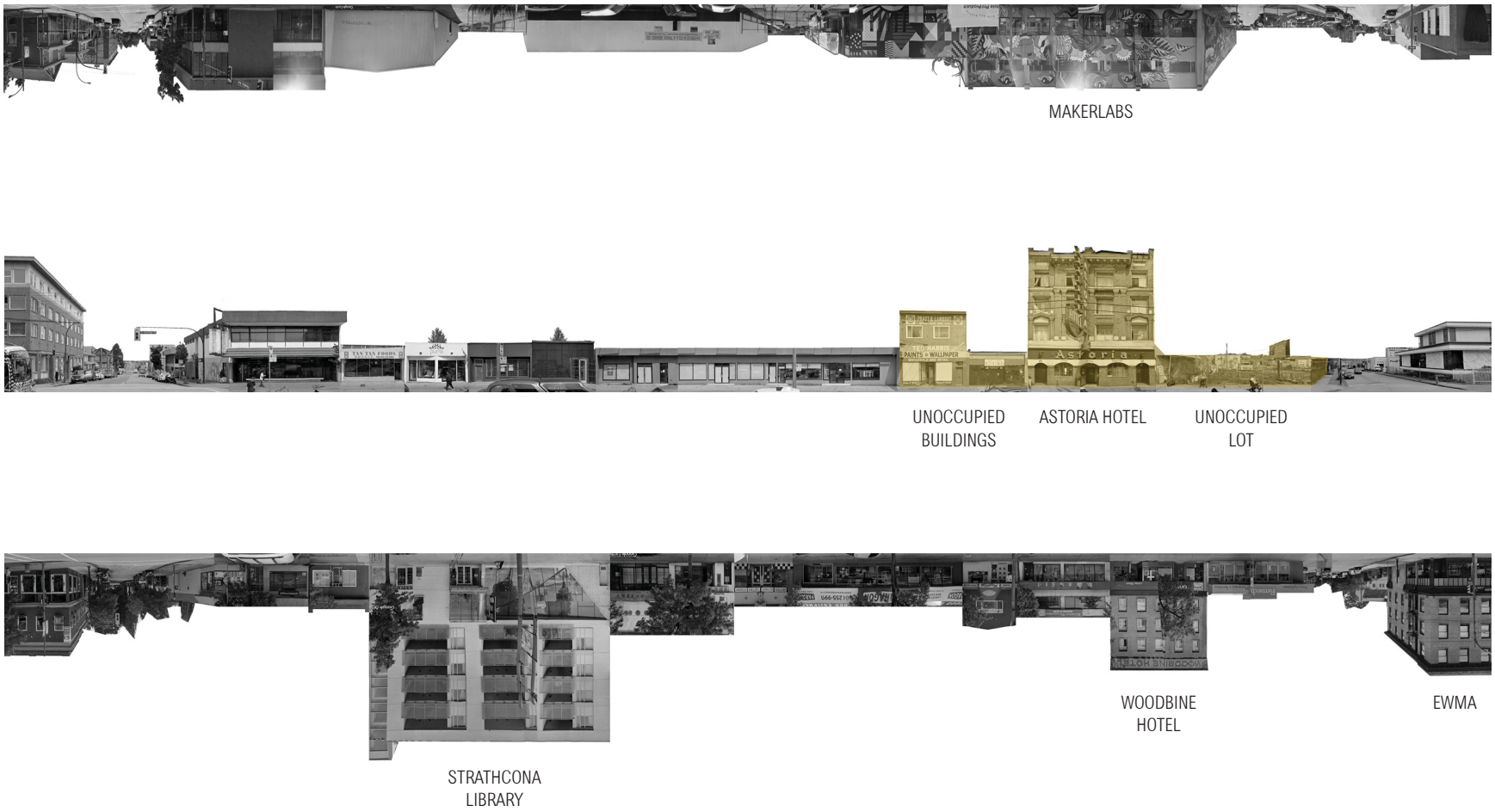
Map of Vancouver, BC, highlighting the distribution of unsheltered individuals and identifying the Downtown Eastside. (Base map: Google Earth, n.d.a)



Service map of DTES Vancouver



Intervention site on Hastings Street



Top: Cordova Street South Elevation
Middle: Hastings Street North Elevation
Bottom: Hastings Street South Elevation (Base images: Google Maps, n.d.b)

Placemaking

The site is located on the boundary of three sub-areas in the Downtown Eastside: the low-income Oppenheimer District, the moderate-income area of Strathcona and the Industrial area. It is bound by an alley on the north, Hastings Street on the south, Hawks Avenue on the east, and a single-storey office building on the west.

Astoria Hotel, Vancouver, South Elevation

Astoria Hotel, Vancouver, East Elevation

A significant building on the site is the Astoria Hotel, built in 1912 by Braunton and Leibert during Vancouver's early boom period (Luxton 2007, 455). It is a privately-owned SRO occupying one quarter of the site area. The Edwardian building is constructed in red brick and its façade is accented with pediments and metal pilasters and cornices. The lobby of the Astoria contains a small liquor store and reception while the back of the building houses a bar and small music venue. Eighty-four rooms are distributed throughout the upper three floors of the hotel. An estimate of the building plan is derived from another Vancouver SRO built in the same period and with a similar building footprint (McGinn 2012).

Without a heritage-building designation, the Astoria Hotel is not subject to rehabilitation restrictions. The decrepit conditions and operation of the establishment have been heavily criticized, along with other SRO buildings belonging to the same proprietors (Webb 2017). The reuse of this building presents an opportunity to re-envision the SRO not simply as a livable accommodation, but a desirable one.

Mural by AA Crew

Mural on MakerLabs by Bicicleta Sem Freio

Strathcona Community Garden (Google Street View, n.d.c)

The connection of the site to the Strathcona neighbourhood allows it to be part of a rich cultural fabric. Art and green spaces are significant elements of this fabric. Art is evident on the side of buildings, on street furniture, and even on the pavement. Its presence creates a space and unites the public in celebration of its manifestation, in annual street fairs and community events. The neighbourhood is home to several galleries and studios, two of which are near the site. On the diagonally opposite corner to the site is Enterprising Women Making Art, an initiative that supports women in the DTES by encouraging self employment through art. The building consists of a drop-in studio connected to a retail space at street-level while the upper floors provide supportive housing for women. Directly on the opposite side of the alley, north of the site, is MakerLabs, a ‘makerspace’ offering tools and work areas for individuals, as well as an environment where the creative community can collaborate and exchange knowledge.

Green spaces, in the form of parks and community gardens, provide opportunities for recreation, gathering and socialization, and connecting with nature. Notably, the Strathcona Community Garden, approximately 544m south of the site, is a public space for residents to grow their own food, a habitat for wildlife, and a space for the community to gather in and enjoy (Strathcona Community Gardens, n.d.). On the opposite end, Oppenheimer Park, approximately 514m west of the site, has been the stage of activist gatherings and protests throughout the years (Lupick 2017), and recently has been the site of a homeless encampment. The park is bordered by shade trees and features a playground, a basketball court, and a field house with public washrooms. Its appropriation into a camp

Oppenheimer Park (Google Street View, n.d.d)

highlights the intractable problem of Vancouver's affordable housing crisis. From these examples, it is evident that green spaces function, through different ways, as sanctuaries from urban life.

Through its prominent location on Hastings Street, the intervention site is well-positioned to become a focal point for the multifaceted community of the Downtown Eastside.

Chapter 5: Design

Through design and programming, this thesis seeks to create ways for architecture to enhance the agency of PWUD in their harm reduction practices. Synthesizing the lessons learned from harm reduction and the analysis of case studies with the texts of Sam Davis and Jan Gehl, this chapter develops design principles, tools, and programs for the proposal of an integrated model residence and drug consumption facility.

In *Designing for the Homeless* (2004), Sam Davis outlines principles for the design of shelters and facilities for the homeless by drawing on his long career working with this sector. While the text lacks specificity regarding housing for PWUD, it should be noted that most accommodations for the homeless restrict the use of substances in-house and service providers have been slow to accept the concept of harm reduction. Nonetheless, Davis provides valuable insight into the needs of a vulnerable population.

By examining the relationship between public spaces and civic society, Jan Gehl's *Cities for People* (2010) formulates criteria for the creation of successful public spaces. Gehl writes that such spaces offer protection, are comfortable places for staying, and provide delightful sensorial experiences. The application of these criteria to the project not only enhances the quality of life for residents, but also serve to create inviting environments where social mixing can occur.

Principles

Instill Dignity

> At its best, architecture not only reflects but also serves society; it has a duty to provide for those with the greatest need and the fewest options. Thus architecture should do more than provide homeless people with shelter: it must sustain their hope and their dignity. (Davis 2004, x)

Dignity is rooted in user choice and autonomy. Promoting user agency by recognizing the multitude of ways PWUD manage their own harm reduction efforts is one such example. Architecturally it is manifested though the provision of quality spatial, material, and experiential options.

Maintain Safety and Privacy

A safe zone combats the vulnerability experienced by PWUD through their everyday socio-spatial relations (Bardwell et al. 2018, 89). Addressing the tension between personal privacy and personal safety is important in the context of an opioid overdose epidemic. Design must mediate between meeting an individual's desire to be alone and providing for an individual's needs. Simultaneously, residents and visitors need to feel secure in the use of shared spaces in order to encourage social mixing.

Facilitate Community and Positive Interactions

Facilitating positive interactions amongst PWUD and non-users is an important intervention to combat stigmatizing attitudes while community engagement is a significant personal harm reduction strategy employed by some PWUD. As a principle, it seeks to create possible moments of interaction through environmental design. Davis writes that the inclusion of public and shared facilities can make supportive housing an integral part of the broader community (Davis 2004, 55).

Promote Pleasure and Delight

For PWUD, pleasure is commonly described as a positive aspect of substance use (Ivsins and Yake 2018). The pleasure of drug consumption is not simply in the embodied experience but also extends to the connection and bonding that occurs when drug consumption is a social activity. An environment with pleasurable sensorial qualities acknowledges and seeks to amplify, what are for some, the benefits of using substances.

Tools

Accessibility ensures individuals have equal ability to participate in moments through accessible design (Gehl 2010).

Adaptability allows for the personalization of an individual's surroundings. As Davis suggests, this can be achieved through residential furnishings (2004, 102), and as noted in the art within the Powell Street Getaway DCR, personalization can also extend beyond an individual residence.

Legibility ensures elements are not complicated and at risk of misinterpretation. Within the case studies, this is most often achieved through colourful wayfinding and signage.

Nature, views to nature, and natural elements contribute to the aesthetic quality of a space in addition to providing healthful benefits (Gehl 2010). Nature is abundant in the supportive housing cases, taking the form of community gardens and green spaces.

Non-hierarchical elements create dignified, destigmatized environments and facilitate communication. For instance, elements such as barriers would instead be replaced with

collaborative structures such as tables. The reception desks of the DCRs provide a good example of this non-hierarchical element.

Porosity facilitates interaction as well as promoting safety. By increasing or reducing the porosity of spatial partitions, this tool delineates and adjusts the flow between spaces (Gehl 2010).

Spatial integration facilitates moments to increase connectivity and interaction (Gehl 2010).

Transparency allows visual connection of spaces while permitting a sense of safety by mediating interaction between individuals (Gehl 2010.).

Visual variation enlivens the environment and contrasts with the monotony of institutional settings (Ibid.). Davis writes that “an architect can create a diversity of spaces even in a single building to give people choices” (2004, 21).

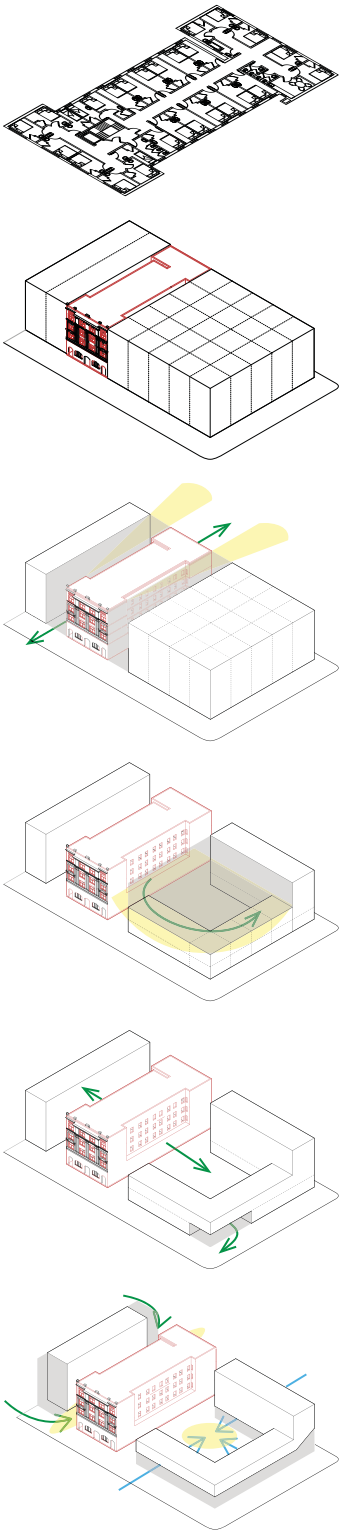
Program

The programs developed for this thesis are guided by the risk environment framework and the personal harm reduction strategies of PWUD. As outlined in Chapter 2, the risk environment interventions involve: safe drug consumption facilities; housing; vocational training and income generation; accessible social, medical, and peer-network services; and interaction between PWUD and non-users. Drawing on the personal harm reduction strategies, the programs will facilitate community engagement, increase awareness, promote physical activity, and improve social relations. The programs support three user groups: the residents of PWUD, homeless individuals, and the broader public.

Design principles and corresponding design tools

Program wheel and primary user groups

Proposal



Series of main design moves defining form.

The adaptive reuse of an existing SRO into supportive housing symbolizes the transformation of a risk laden space into a safe environment for PWUD. Through a series of volumetric subtractions, the building form reflects the intent to create a social and physical support for the residents of PWUD.

Utilizing the lot size and building height of the Astoria Hotel as reference points, the design respects the historic scale of buildings in the DTES. The standard lot size has a width of 7m and a depth of 35m while the four-storey building has a height of 15m. These dimensions are used to establish a volumetric grid on the intervention site.

Opening the sides of the hotel gives it prominence on the site and connects Hastings Street and the alleyway by establishing a perpendicular alley on the west side of the hotel. It also allows for views of the mountains to the north and the neighbourhood parks to the south.

On the east side of the hotel, removing the central volume forms a courtyard that provides an internal source of views as people circulate through the building. By adjusting the heights of the volumes, the spaces are differentiated into public spaces for the community and private spaces for the residents.

Repositioning the points of entry along the horizontal axis creates horizontal movement that is parallel to and signifies the building's connection with the alleyway. Creating multiple access points facilitates accessibility and public engagement with the space.

Opening the ground floor through increased porosity and transparency attracts and invites the different user groups to interact in it. It facilitates the activation of the alleyway by visually connecting the interior space with the alley environment.

The new building forms give prominence to the residential hotel and signify that the development is foremost a home. This aspect is essential for residents to identify with and take pride in where they live. In order to facilitate social mixing, the ground floor is devoted to public programs while privacy increases as the users ascend the upper floors. The West Building is the activity centre, an entirely public building that connects to each of the hotel's residential floors and offers low-threshold personal care services to the community. The drug consumption facility is located on the ground and second floors of the East Building ensuring that residents encounter and therefore have the potential to engage in different activities and environments as they navigate through the building.

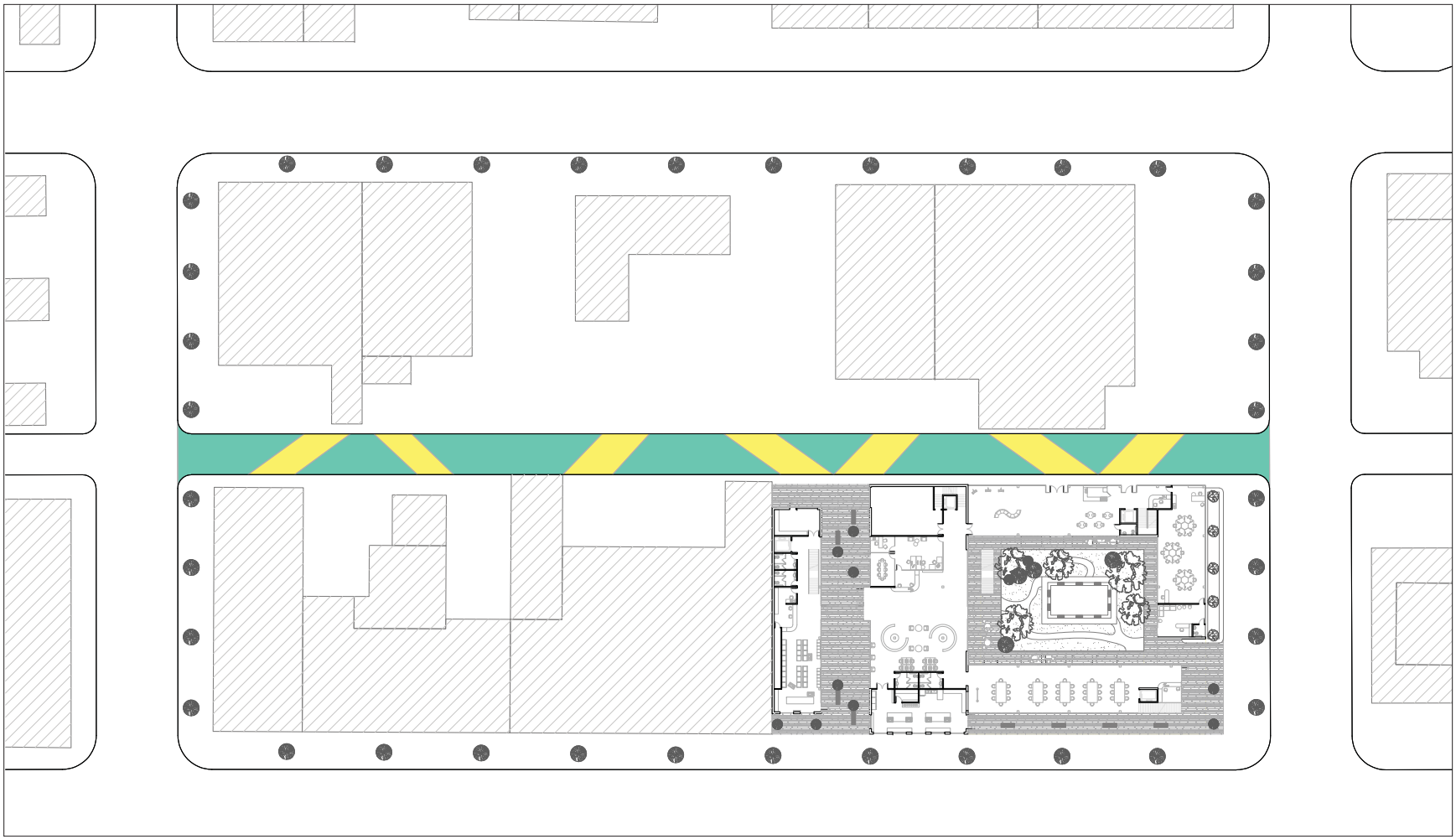
Approach

The red brick façade of the hotel serves as the backdrop for the new buildings whose bright colour palette is inspired by artwork in the neighbourhood. Activating the alleyway, the pavement is transformed into a dynamic mural that also acts as a wayfinding mechanism to the hotel. Approaching the building from the west, either through the alleyway or Hastings Street, visitors are drawn to the perpendicular alley where they can access both the hotel and the West Building.

On the northeast corner, the metal cladding that wraps the upper floors of the East Building is lifted to reveal the second-

floor classrooms and art studios, drawing a connection with the artist studios of Makerlabs. The alleyway entrance on Hawks Avenue is a dynamic corner where visitors can access the DCR, café, and art gallery through separate entrances. Passersby are invited to visit the gallery and the café which open out to both the alleyway and the courtyard.

Located at the intersection of Hasting Street and Hawks Avenue is the corner entrance to the courtyard. Through the courtyard, visitors can access the hotel, art gallery, and dining hall. For the safety and privacy of residents, the corner entrance can be gated and closed to the public at night, limiting access to the hotel to one entrance.



Site Plan

Top: Southwest View
Bottom: Northeast View

Public Space

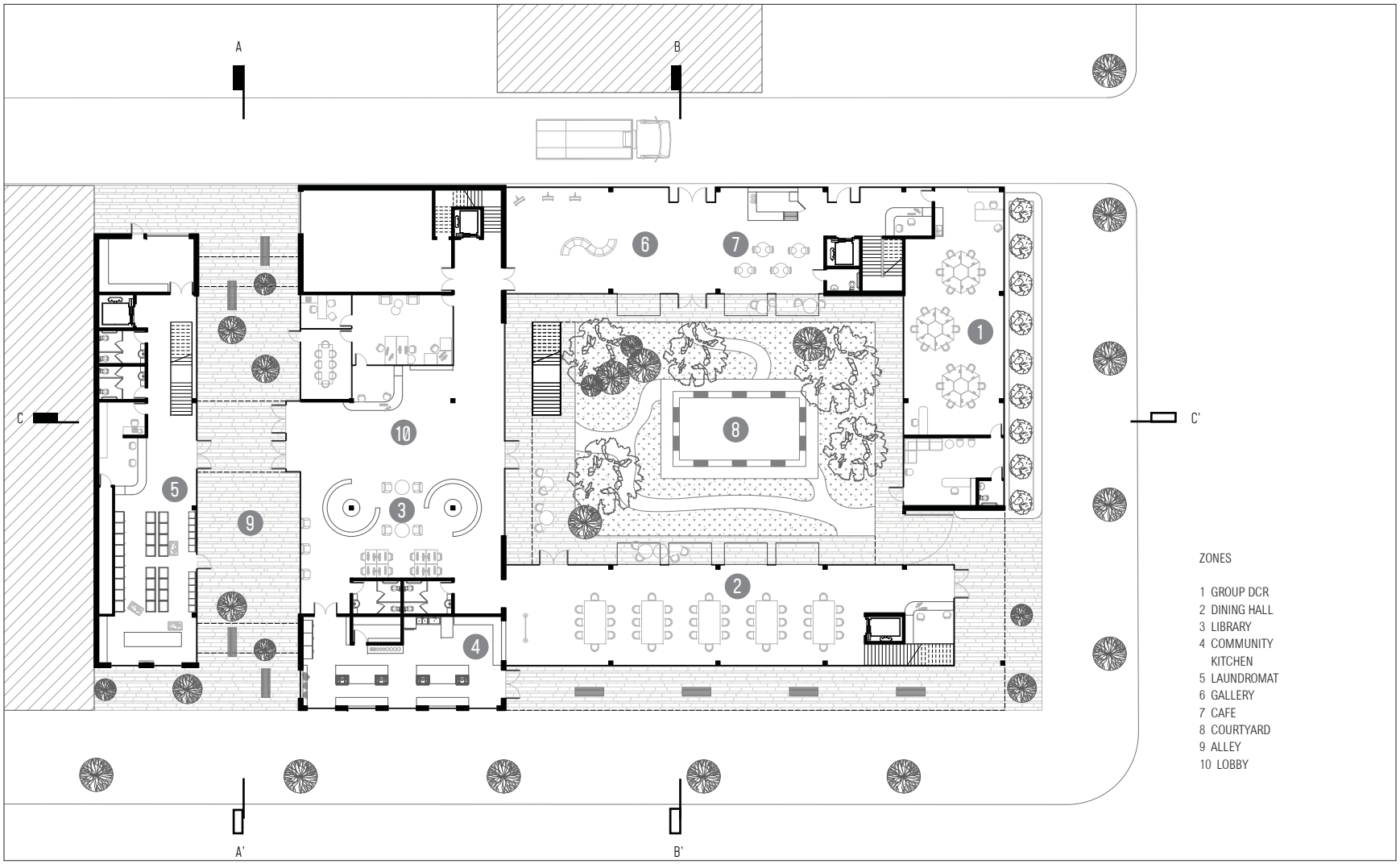
The community is invited to occupy and interact in three outdoor spaces on the site: the newly activated alleyway, the perpendicular alley, and the courtyard. The quality of each environment is unique and presents different levels of privacy for residents and visitors.

Through transparency, it is possible to view the entirety of the building in both directions. This visual connection is intended to foster a sense of community, demystify the space, and allow visitors to see the possibilities of the building's program. Porosity is mediated by implementing bi-fold glass doors, allowing interior spaces to open out to and integrate with the exterior environment.

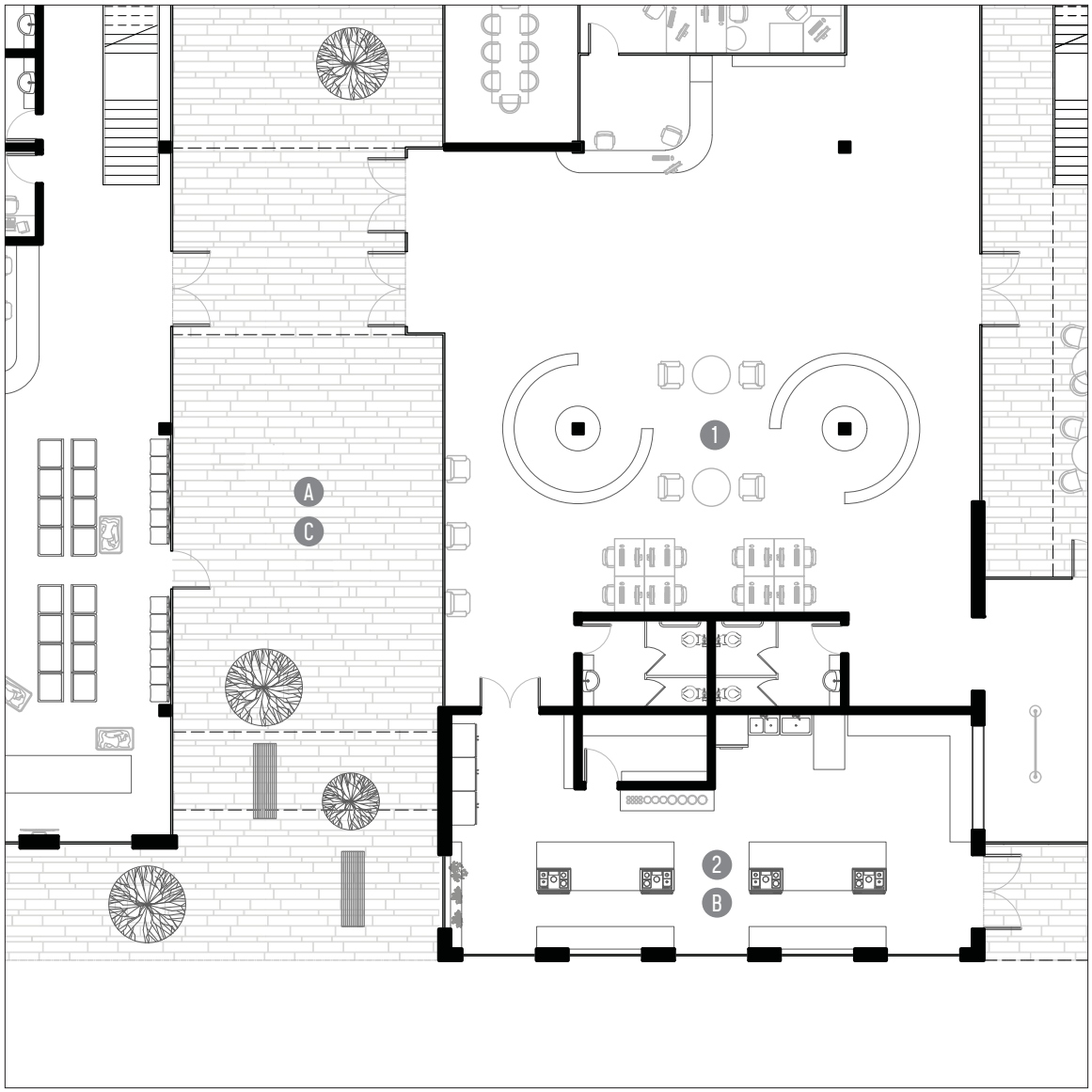
Situating the art gallery and café next to the alleyway gives it equal importance with the street. This encourages the public, normally approaching from Hastings Street, to explore the building, moving form one side of the building to the other. The integrated café and gallery also function as waiting areas for the DCR, promoting social mixing between PWUD and the public.

Each public interior space has a view of or access to a variety of natural elements. The perpendicular alley contains shade trees and seating at its entrances to attract visitors while its open centre can be used for larger gatherings. The courtyard features native plants and trees surrounding a reflecting pool, creating a natural oasis in the city.

During the day, residents can enter the hotel through any entrance. At night, the hotel can only be accessed from the perpendicular alley with staff in the lobby monitoring the traffic in the evening.

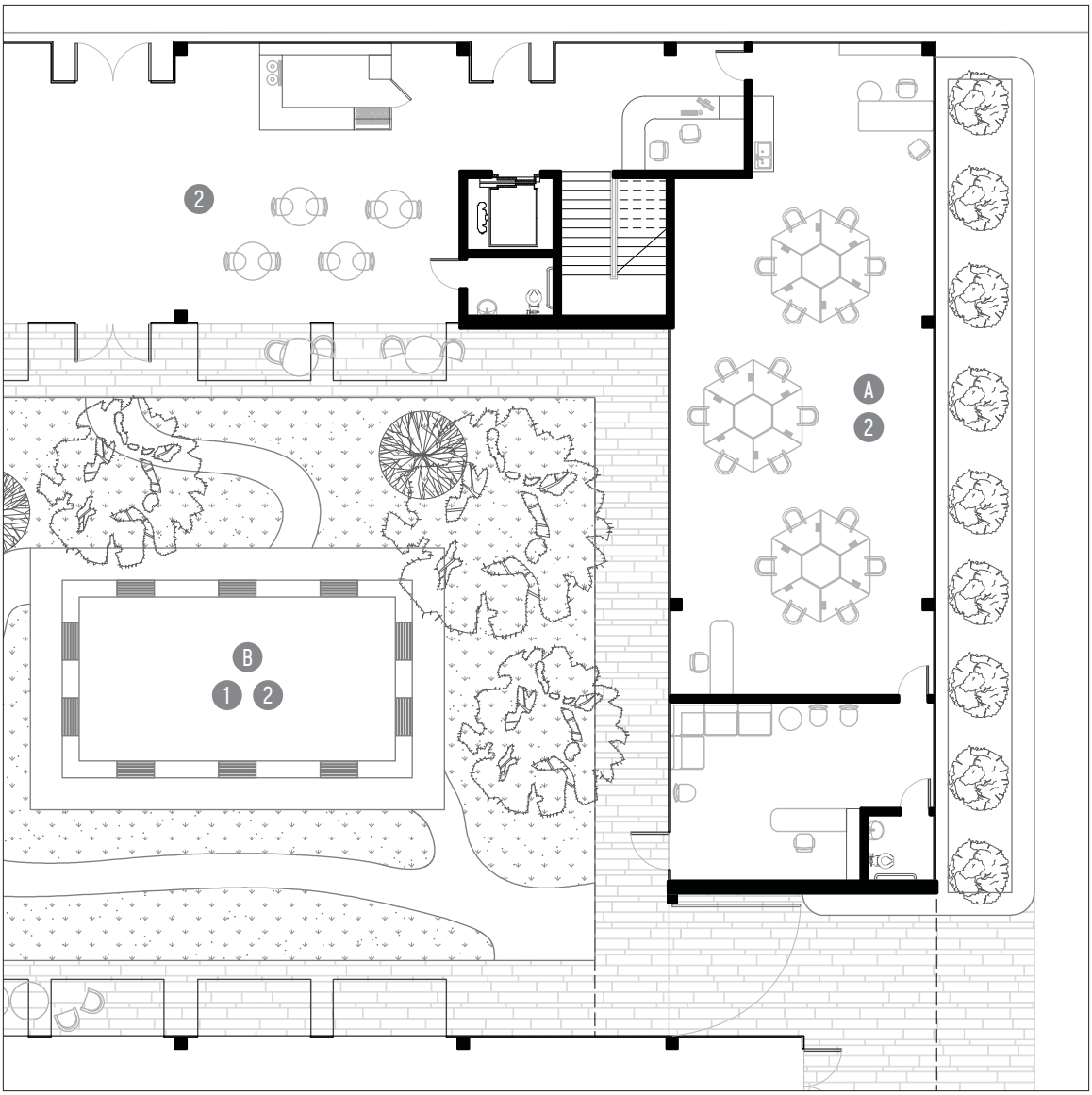


Ground Floor



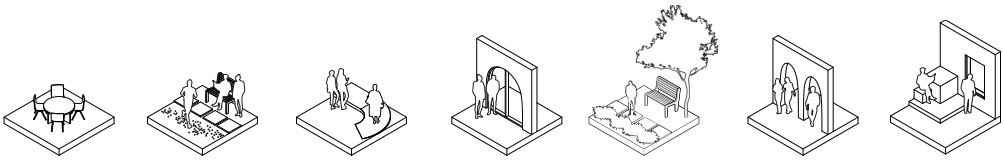
1. INCREASED AWARENESS 2. IMPROVING SOCIAL RELATIONS A. COMMUNITY GATHERING B. COMMUNITY KITCHEN C. MARKETPLACE

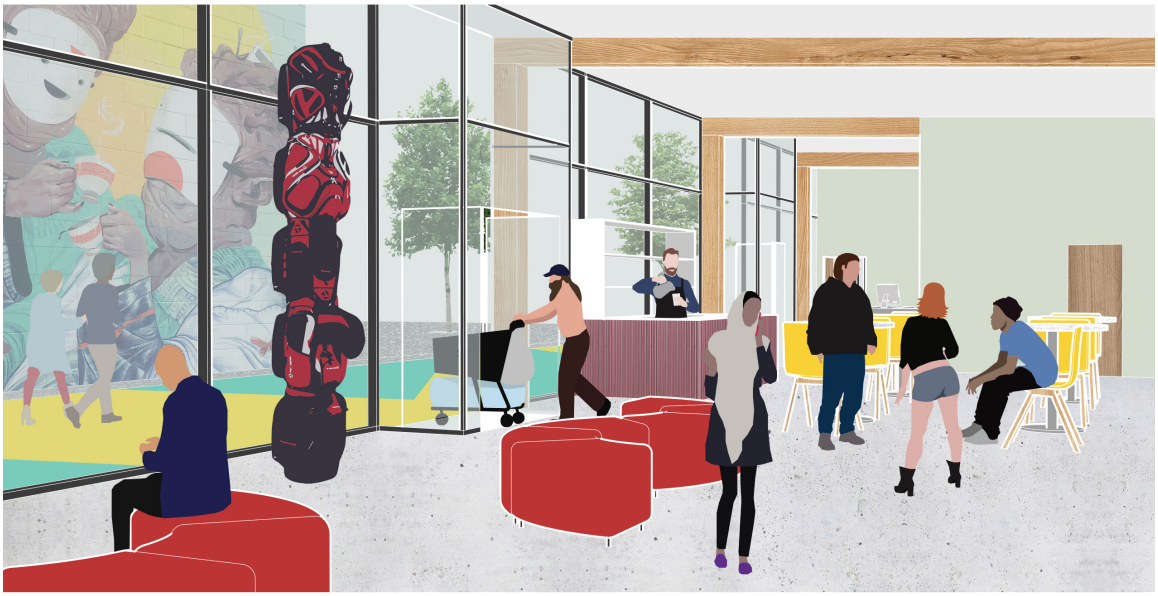
Detail of new alleyway with entrance on Hastings Street; main personal harm reduction strategies and programs supported

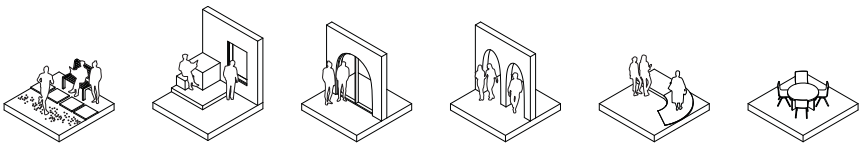


1. INCREASED AWARENESS 2. IMPROVING SOCIAL RELATIONS A. CONSUMPTION B. HEALING

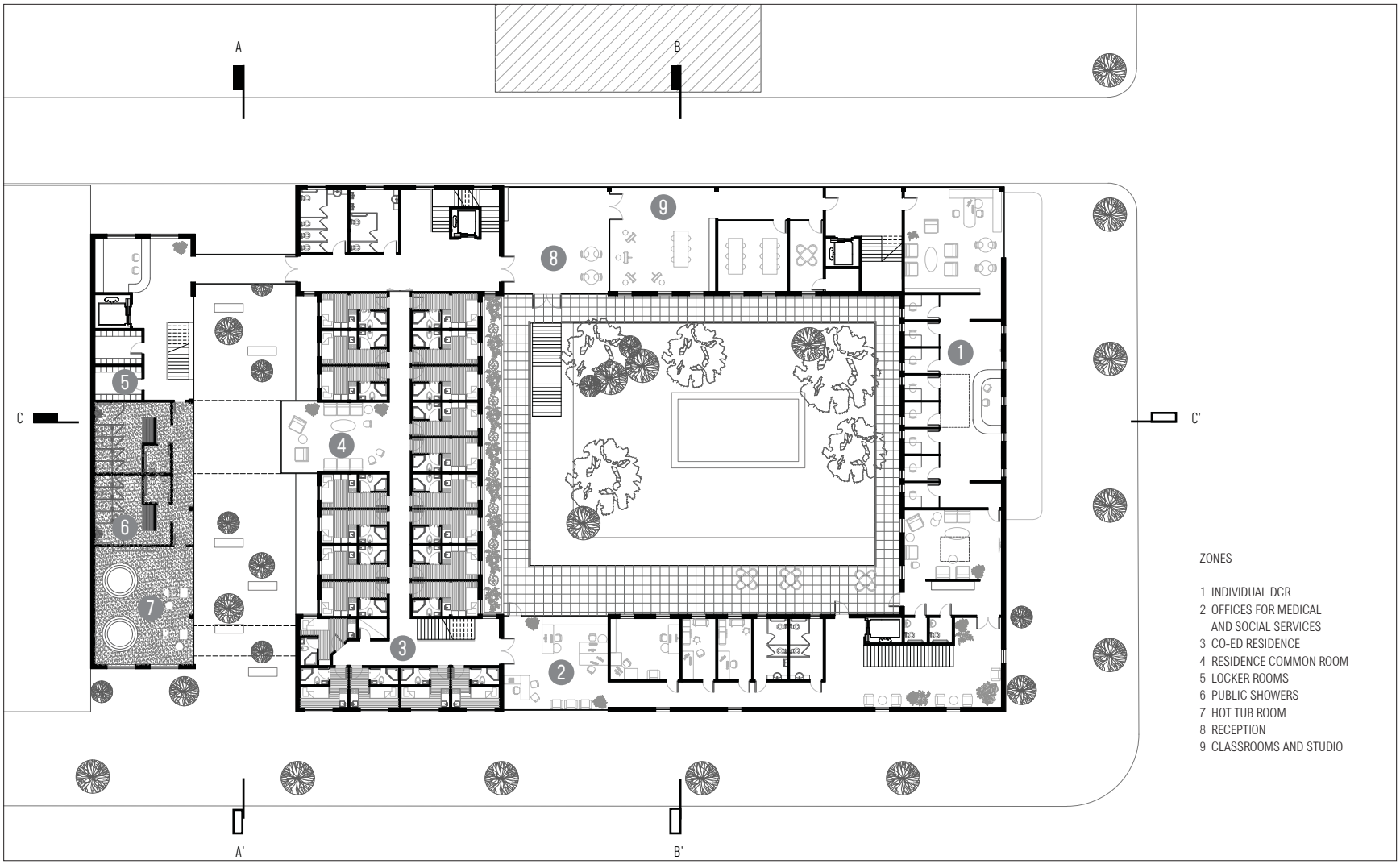
Detail of ground floor group drug consumption room; main personal harm reduction strategies and programs supported.







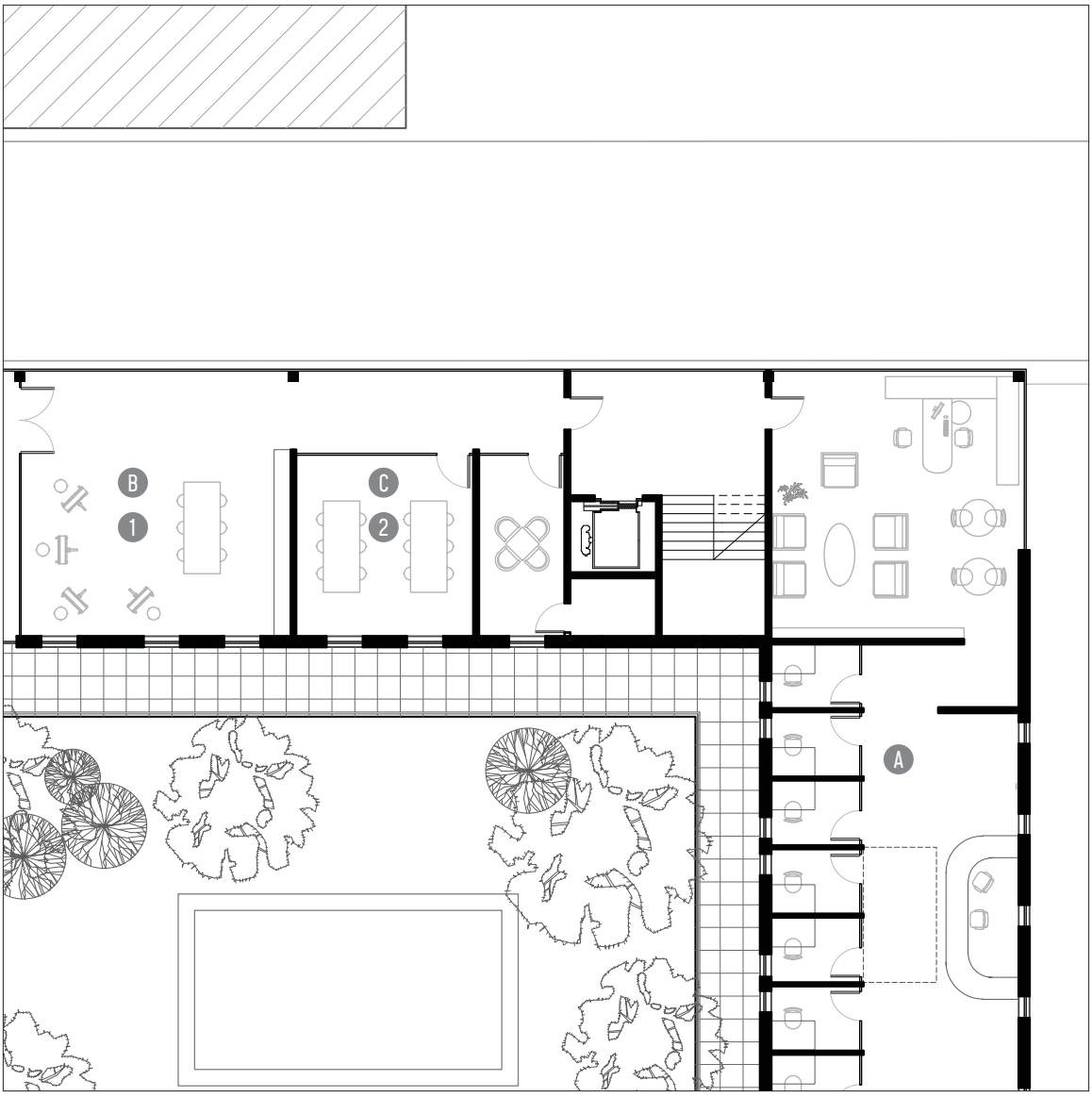
Top: Community Dining Hall; design tools implemented
Bottom: Art Gallery and Waiting Room Café; design tools implemented (Mural: Alison Woodward, Totem: Brian Jungen)

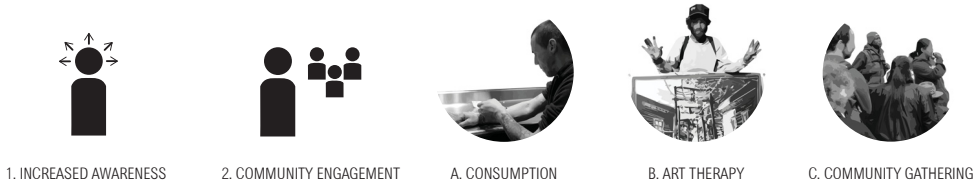


Floor 2. Semi-public spaces, which require registration with the facility for use, are located on the second floor. Residents can use electronic key cards to access the first residential suites on this floor.

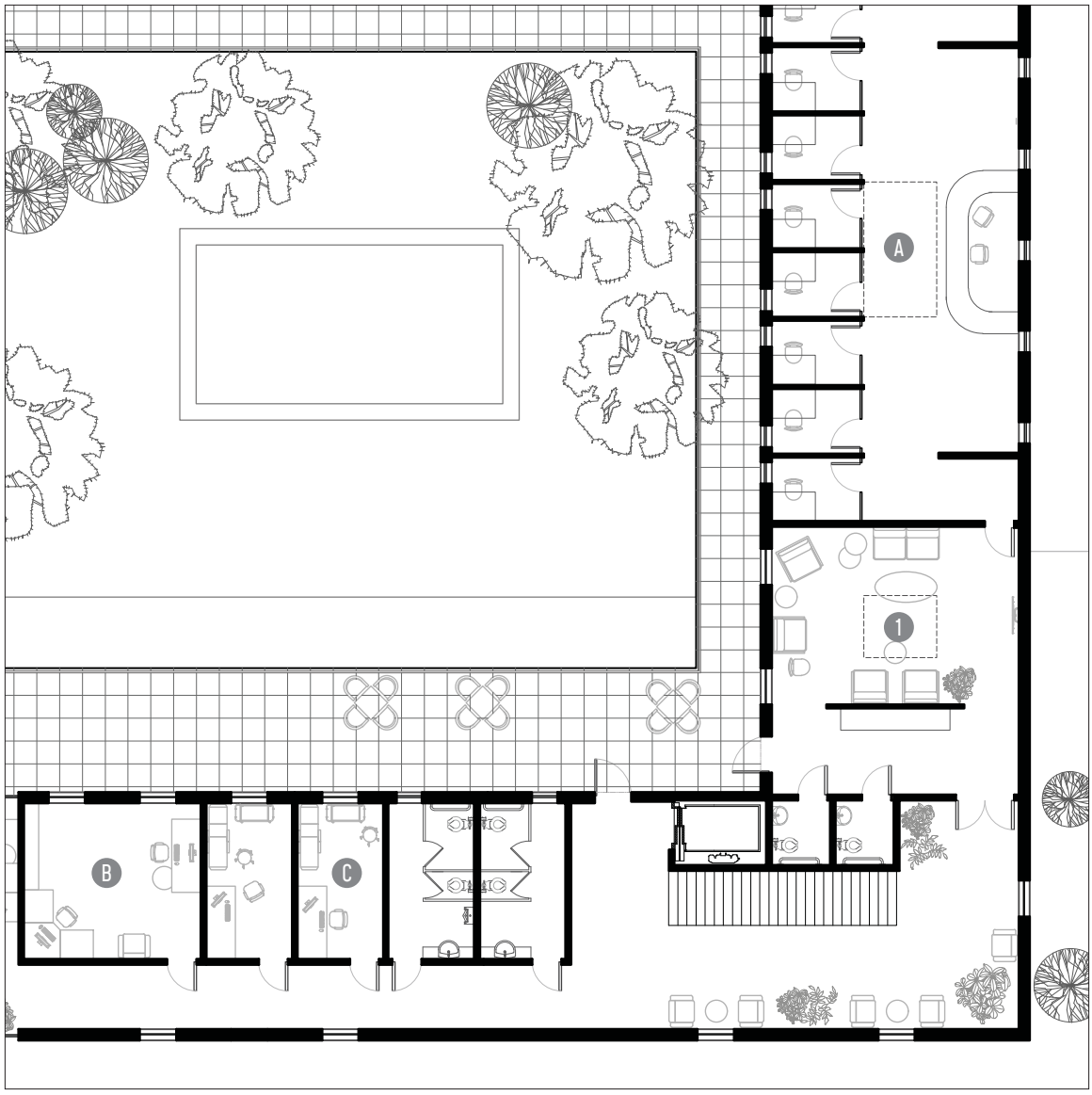
1. IMPROVING SOCIAL RELATIONS A. CONSUMPTION B. HOUSING

Detail of second floor residence and connection between activity centre and the rest of the building; main personal harm reduction strategies and programs supported.





Detail of second floor studios and individual drug consumption rooms; main personal harm reduction strategies and programs supported.



1. IMPROVING SOCIAL RELATIONS A. CONSUMPTION B. CLINIC C. SOCIAL WORK

Detail of offices for medical and social services and connection to drug consumption rooms; main personal harm reduction strategies and programs supported.

DCR

The DCR can accommodate 28 individuals across two floors and is open for both public and resident use. Visitors can access the ground floor DCR from an entrance off the alleyway. Upon entering the space, they can register at the reception desk to use the injection-only group DCR or climb the adjacent stairs to access the private rooms on the second floor. After registering, visitors can sit in the café or take in the gallery exhibition while they wait for their turn in the group DCR. The natural views of the courtyard are intended to create a calm atmosphere for PWUD prior to their use. Inside the DCR, a staff member can test substances for contamination; if they are safe, individuals are provided with consumption implements.

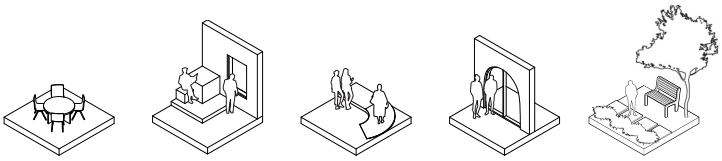
Acknowledging the positive and pleasurable effects of drug consumption, the DCR is designed to be a refreshing and dignified environment. Calming blue and green coloured glazing is used on the curtain wall facing Hawks Avenue, creating splashes of coloured light while providing privacy from the street. The six-seat consumption tables are made of coloured stainless steel with a built-in waste receptacle, mirror, partitions, and rounded edges. The chairs are made of coloured lucite and are durable and easy to clean, like the tables. Above each table is a suspended light fixture which also functions as a planter for hanging plants. Individuals in the DCR can look out to the life of the courtyard and similarly are visible to anyone looking into the DCR through this point. Through transparency, the barrier of unfamiliarity is eliminated, allowing the public to see the practice of drug consumption in a non stigmatizing light.

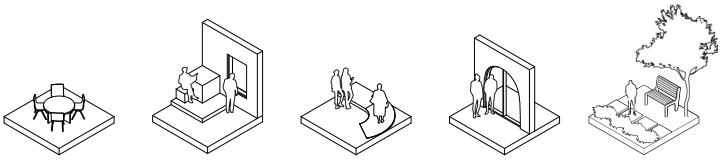
Surveillance is a necessary component of the DCR. In the group DCR, two staff stations are positioned on opposite ends of the room while the corners contain convex mirrors to ensure full view of the stations. As a regulated facility, the medically trained staff can quickly respond to emergencies and individuals can be taken to the medical clinic on the second floor if they require further care. After consumption, individuals enter the chill room where they can sit and relax in a quiet environment or talk with a staff member if they require access to other services. They exit the DCR onto the courtyard, from which they can access the dining hall, the library, or any of the other public programs in the facility.

The second floor DCR contains ten individual rooms for drug inhalation or injection. Visitors enter the reception room, register with staff at the reception desk, and mingle with other visitors in the waiting area. Through a barrier-free passage, they enter the consumption area containing ten rooms with glazed walls along one side and a central staff station to monitor the rooms on the other. Each room features a tall window and is furnished with a coloured, stainless steel table with built-in waste receptacle, mirror, and coloured lucite chair. Importantly, the room contains a vent which regularly cleans the area for the safety of individuals inside the space. Like the ground floor DCR, the street-facing windows and the central skylight are made of multicoloured glass, painting the walls with coloured light throughout the day.

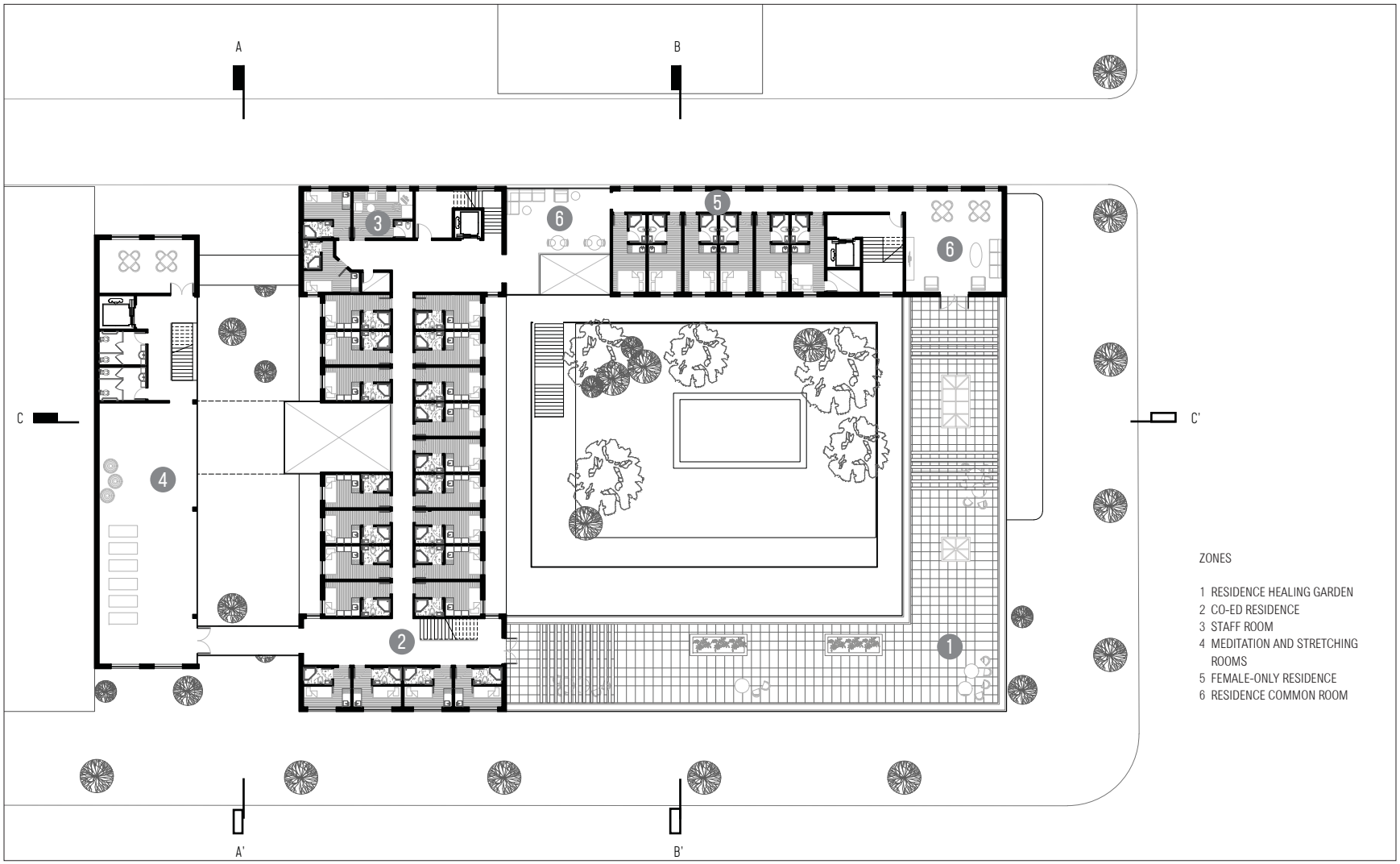
After consumption, visitors move to the chill room where they can relax, talk with other visitors, or staff members. From the chill room, they can exit the facility or visit the offices for medical and social services on the same floor or take the staircase to access the dining hall on the ground

floor. Residents can enter the residential hotel through the medical offices, a method to ensure individuals are regularly supported by staff.





Top: Group DCR (Mural: Elyse Dodge); design tools implemented
Bottom: Individual DCR for injection or inhalation; design tools implemented



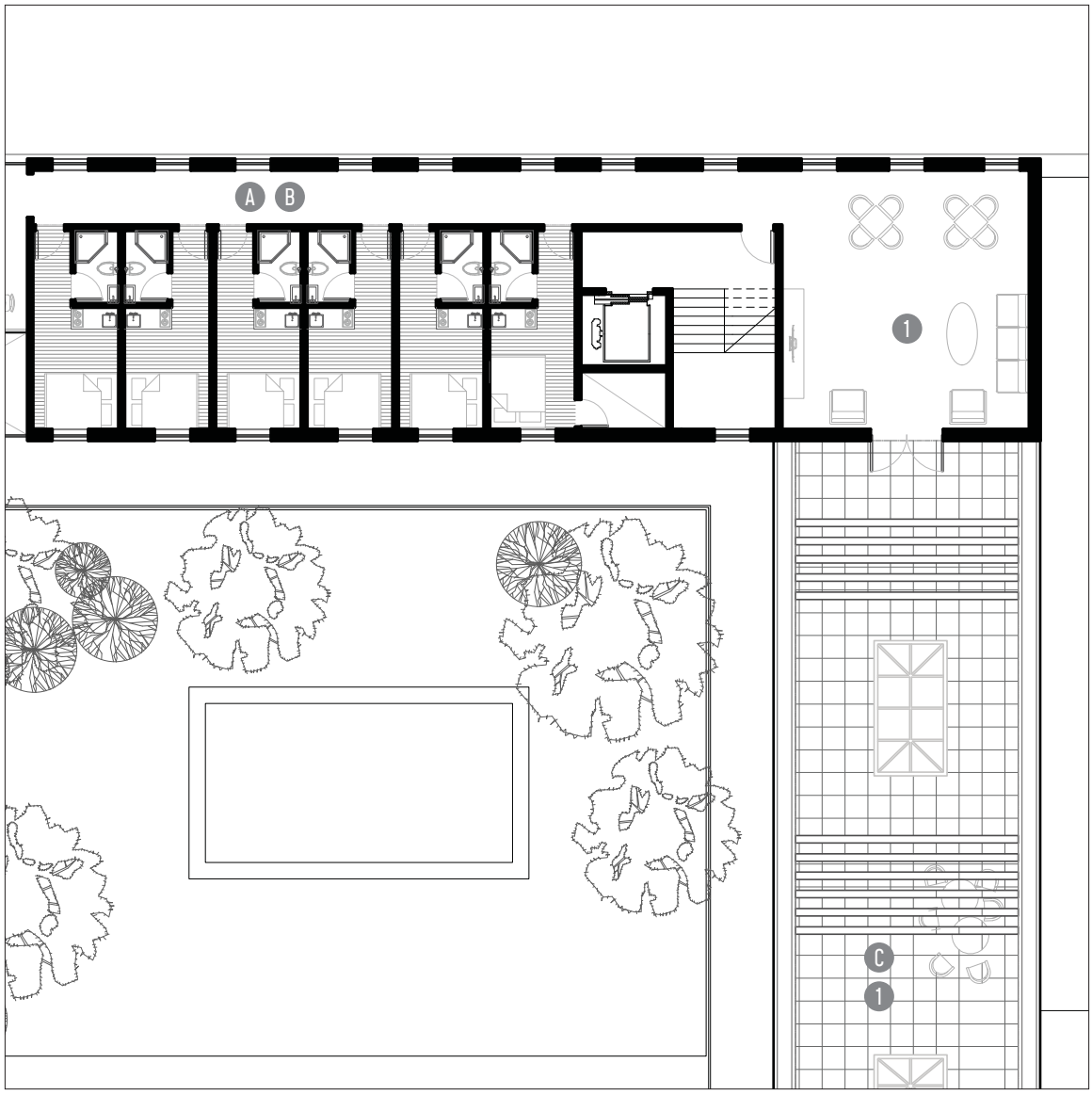
Floor 3. The majority of the third floor is only accessible to residents, including the rooftop garden. The public is welcome to use the meditation and healing rooms in the activity centre.

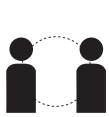
Residence

There are 74 units distributed across the upper three floors of the hotel. Each unit contains a washroom and kitchenette with stove, sink, and mini refrigerator. Maintaining the existing structure of the hotel, the dimensions of the units remain small and common rooms allow residents to socialize with each other or entertain visitors in larger settings. Common rooms are centrally located on each floor and are designed to provide views of the courtyard or the mountains while also allowing abundant natural light into the building's corridors. To respect the attachment of residents to their possessions while also minimizing hoarding, they are encouraged to make use of the storage lockers in the hotel basement.

Acknowledging the risks posed by gender, particularly the violence and trauma experienced by female individuals who use drugs, the design establishes twelve female-only units in the East Building along with female-only common rooms. Only residents of the East Building can use the northeast corner alley entrance to access their units, should they choose to avoid the common alleyway entrance.

Each residential floor is served by round-the-clock staff members who conduct regular check-ins and monitor residents who decide to consume drugs in their own rooms. A light fixture located beside each doorway can be turned on by residents to indicate when they are using. This will also trigger an automated signal to the residential floor staff that an individual is potentially consuming drugs in their room and will need a check-in soon. Providing individuals with different options to practice consumption safely decreases the risks of drug-related harm as well as enabling individual user agency.





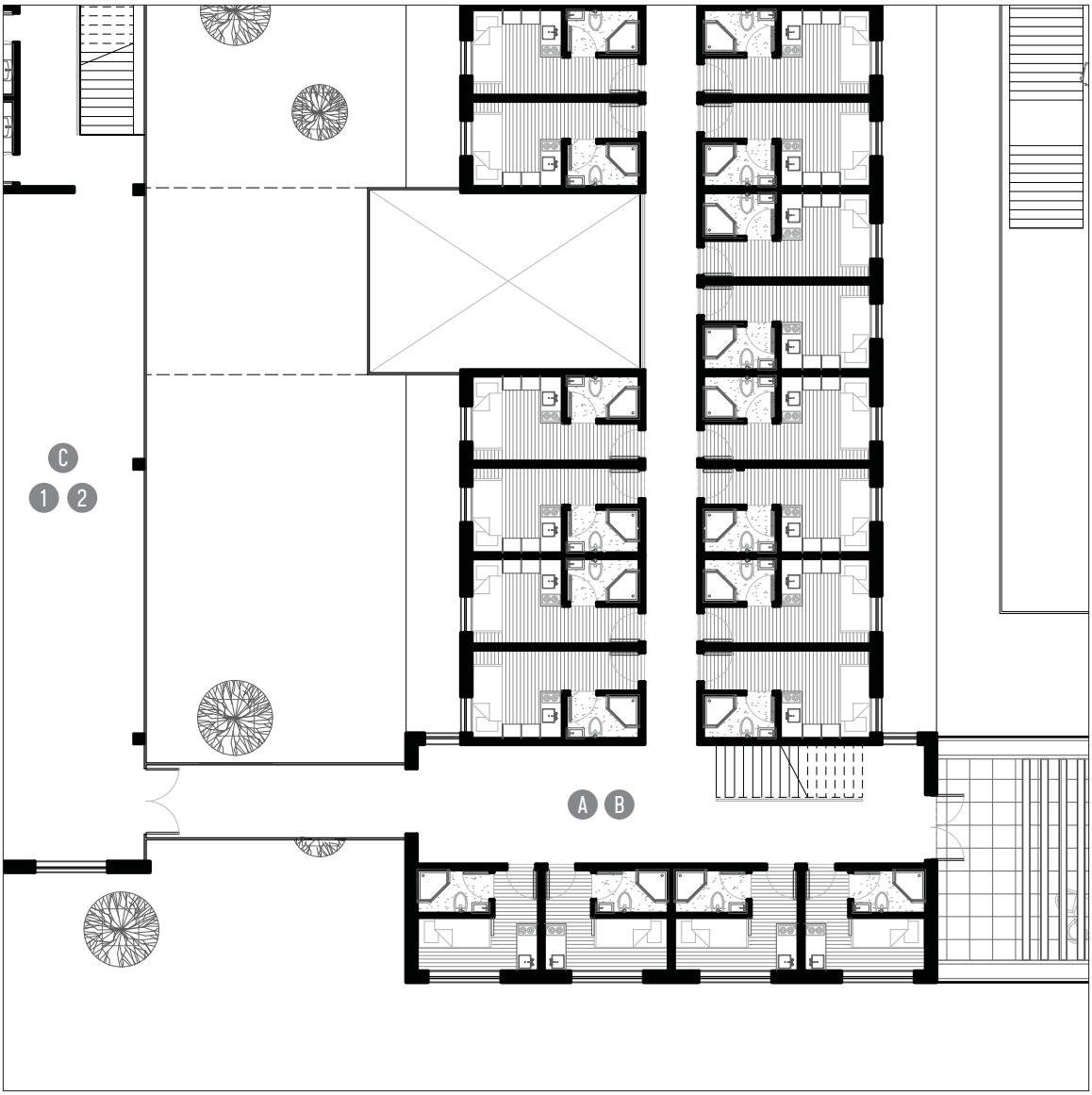
1. IMPROVING SOCIAL RELATIONS

A. CONSUMPTION

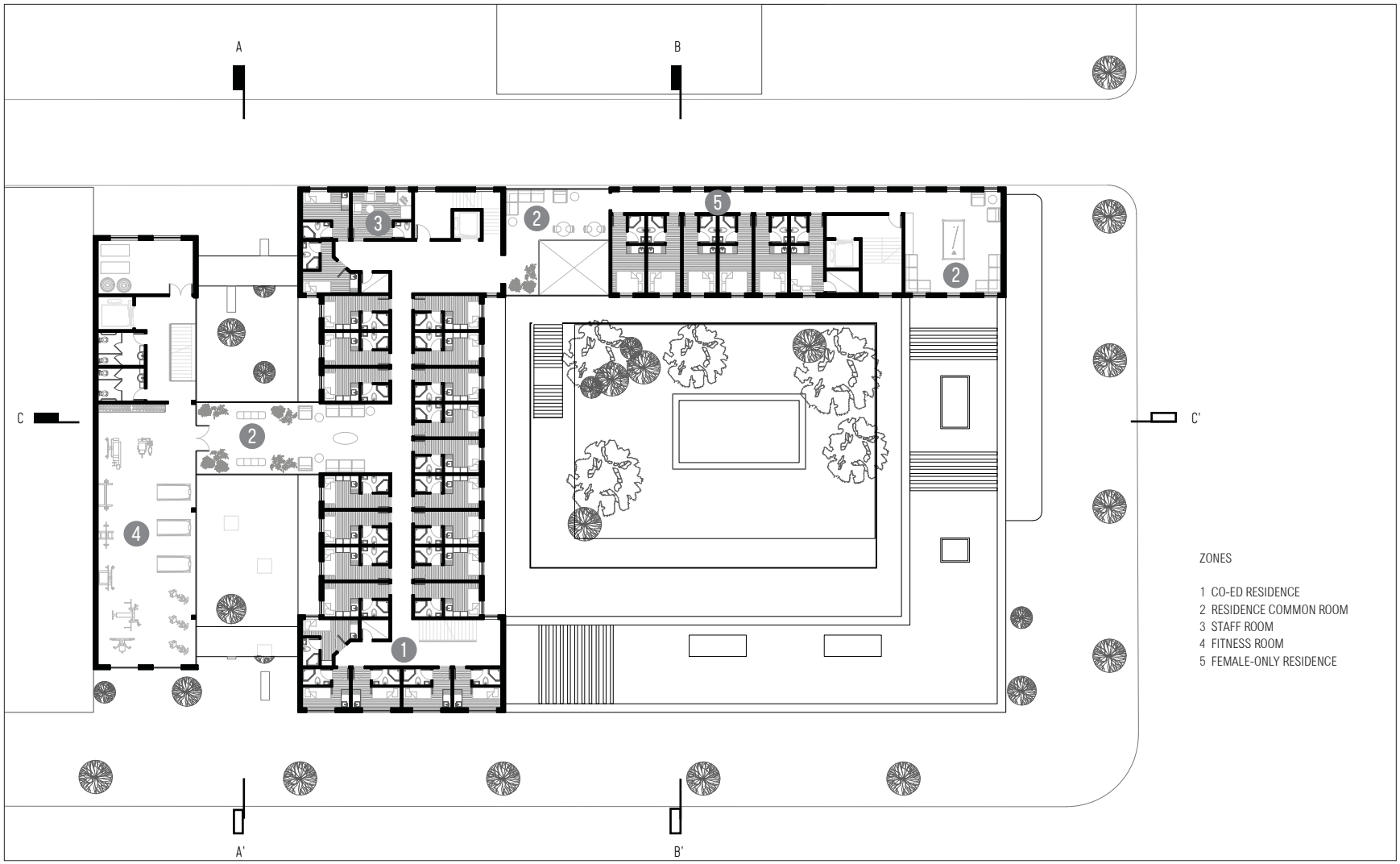
B. HOUSING

C. HEALING

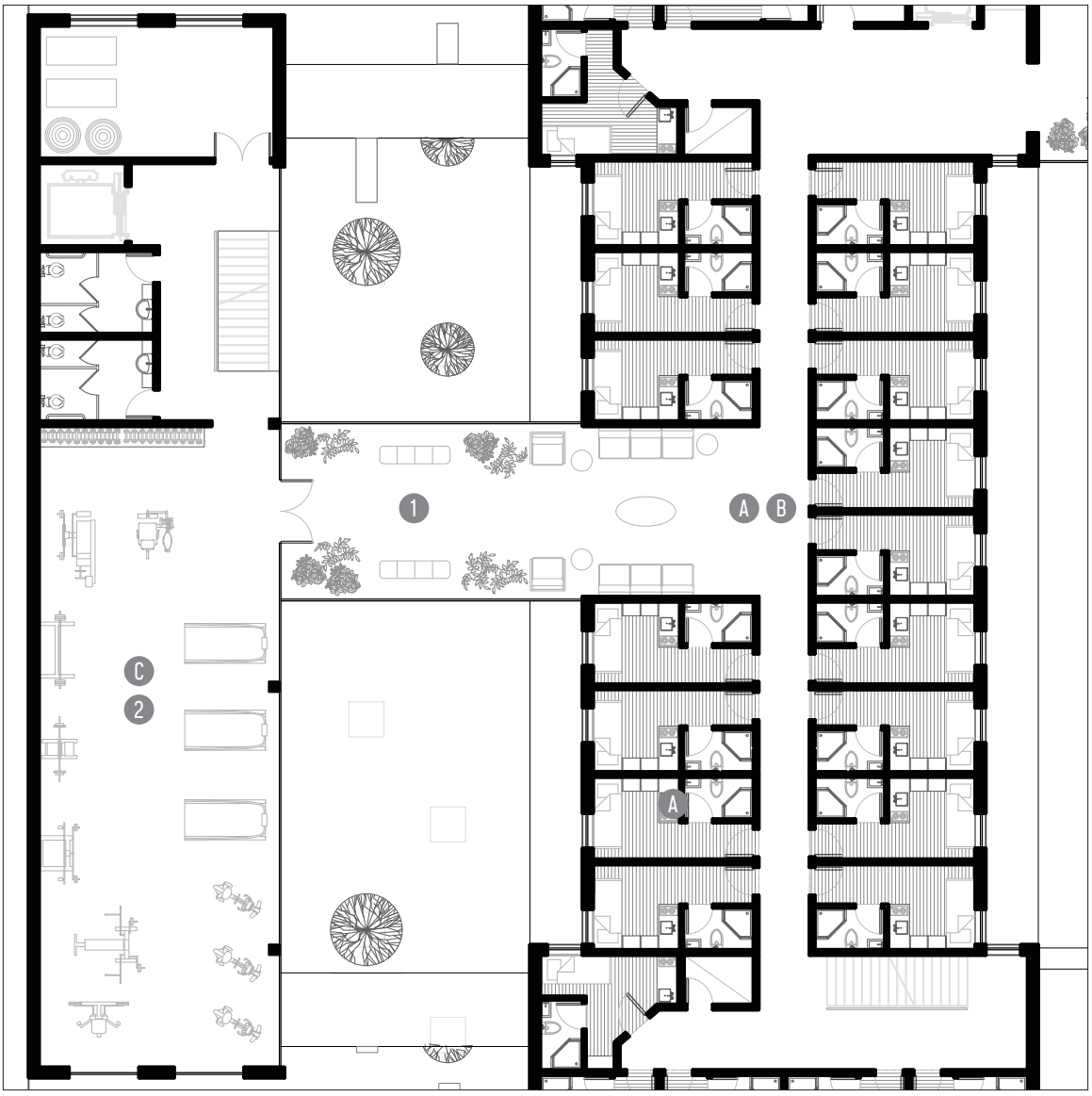
Detail of third floor female-only residence and residence rooftop garden; main personal harm reduction strategies and programs supported.



Detail of third floor co-ed residence and connection with meditation and stretching rooms in the activity centre; main personal harm reduction strategies and programs supported.

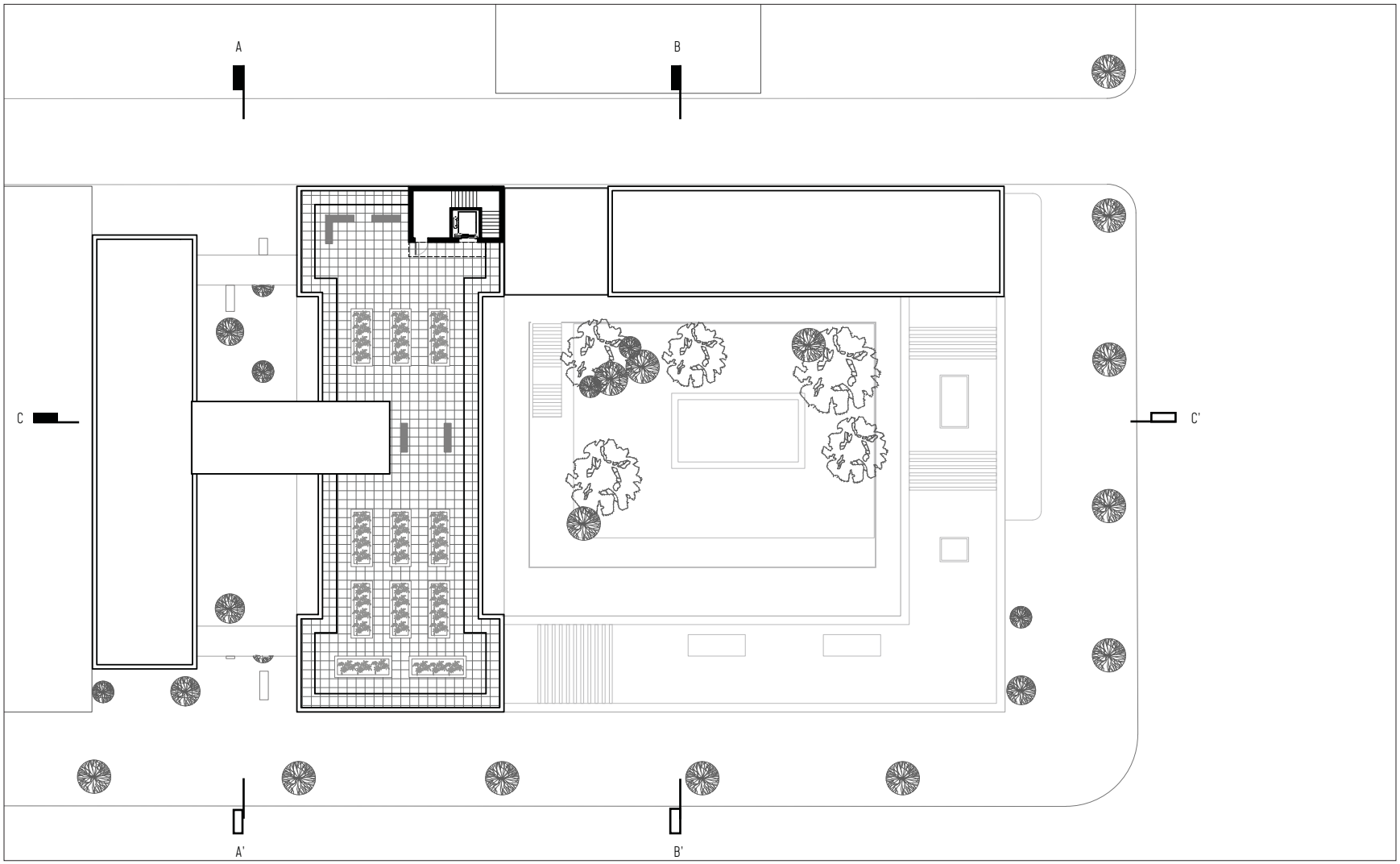


Floor 4. The majority of the fourth floor is only accessible to residents. The public is welcome to use the fitness room in the activity centre.



1. IMPROVING SOCIAL RELATIONS
2. PHYSICAL ACTIVITY
A. CONSUMPTION
B. HOUSING
C. FITNESS

Detail of fourth floor co-ed residence and common room connection to the fitness centre; main personal harm reduction strategies and programs supported.



Roof. The roof is used for an urban farm and is serviced by residents as a means of vocational training. The produce is used in the kitchens or sold in a weekly farmer's market on site.

Section A-A’

Section B-B’

Section C-C’

Chapter 6: Conclusion

This thesis sought to answer how design can enhance user agency in harm reduction architecture. Harm reduction seeks to reduce the adverse consequences of a situation or practice. For PWUD, a combination of conventional medical approaches, and personal harm reduction strategies, facilitate safer consumption practices. The development of harm reduction architecture, specifically drug consumption rooms and supportive housing that allow consumption on-site, provides much-needed support for a highly vulnerable and marginalized population.

This thesis examined the current state of the opioid crisis in Canada, addressing the specific case of the Downtown Eastside in Vancouver, British Columbia. Introducing the risk environment framework, the risks to the health of people who use drugs were analyzed and a set of architectural interventions were developed. The framework identified drug using sites and lack of adequate housing as physical risks, while stigmatizing attitudes of non-users were social risks with detrimental psychological and economic effects for people who use drugs. The architectural interventions included: safe drug consumption facilities, housing, low-barrier medical and social services, spaces for income generation, and spaces for social interaction. It analyzed the conventional harm reduction strategies and examined the personal strategies of PWUD. These strategies were: increased awareness, physical activity, community engagement, and improving social relations. Integrating the architectural interventions of the risk environment framework with the conventional and personal harm reduction strategies, this thesis proposed the development of an

integrated drug consumption room, residence, and service centre that facilitated social mixing with the community.

Utilizing lessons from case studies and the texts of Jan Gehl and Sam Davis, a set of design principles and tools were developed to guide the project. The design was intended to: instill dignity, maintain safety and privacy, facilitate community and positive interactions, and promote pleasure and delight. The Astoria Hotel, an SRO in the Strathcona neighbourhood of the DTES, was selected for an adaptive reuse project that aimed to demonstrate the viability of an SRO to be a dignified and desirable place of residence. Situating the site prominently on Hastings Street, in culturally rich Strathcona, would allow it to become a focal point for the community and enable residents to proudly identify their own place in the city.

Through design and programming, this thesis developed a proposal for harm reduction architecture which enabled the personal harm reduction strategies of PWUD and facilitated social interaction with other community members to destigmatize PWUD and their drug consumption practices. By approaching the design of harm reduction architecture with compassion, architects can enhance the quality of life of some of the most vulnerable individuals in our society.

Appendix A: Risk Environment Framework

Table 1
The risk and enabling environment: selected examples relating to HIV and drug injecting[a].

	Micro-environment	Macro-environment
Physical		
Risk	Drug using, injecting and sex work locations	Drug trafficking and distribution routes
	Drug injecting in public spaces	Trade routes and population mobility
	Prisons and detention centres	Geographical population shifts and population mixing
Intervention	Creating safer drug using sites (e.g. sharps disposal, lighting)	Changes to trafficking interdiction policies
	Developing supervised injecting facilities	Interventions at truck stops and train stations
	Prison-based harm reduction interventions	Cross-border interventions
Social		
Risk	Social and peer group 'risk' norms	Gender inequalities and gendered risk
	Local policing practices and 'crackdowns'	Stigmatisation and marginalisation of drug users
	Community health and welfare service access and delivery	Weak civil society and community advocacy
Intervention	Social network and peer-based interventions	Fostering collective actions in combination with policy changes
	Police partnership and training projects	Mass media and social marketing of harm reduction
	Developing low threshold accessible services for drug users	Strengthening civil society infrastructure and self-help
Economic		
Risk	Cost of living and of health treatments	Lack of health service revenue and spend
	Cost of prevention materials	Growth of informal economies
	Lack of income generation and employment	Uncertain economic transition
Intervention	Subsidised and free treatment	Increase investment in harm reduction relative to enforcement
	Distribution of free prevention materials	National health insurance schemes
	Micro-economic enterprise and employment schemes	Laws governing employment rights
Policy		
Risk	Availability and coverage of clean needles and syringes	Public health policy governing harm reduction and drug treatment
	Programme-level policies governing distribution of materials	Laws governing possession of drugs
	Access to low-threshold and social housing	Laws governing protection of human and health rights
Intervention	Scaling-up pharmacy-based syringe provision	Legal reform enabling the scaling-up of harm reduction
	Secondary syringe distribution programmes	Legal reform enabling the protection of drug user rights
	Hostel-based and housing neighbourhood development	National policy changes regarding public health strategy

The risk environment framework with suggested interventions. (Rhodes 2009)

References

Architecture in Formation and Curtis + Ginsberg Architects. 2015. “Navy Green Supportive Housing.” *Archdaily.* https://www.archdaily.com/769887/navy-green-supportive-housing-architecture-in-formation-plus-curtis-plus-ginsberg-architects.

Bardwell, Geoff, Taylor Fleming, Alexandra B. Collins, Jade Boyd, and Ryan McNeil. 2019. “Addressing Intersecting Housing and Overdose Crises in Vancouver, Canada: Opportunities and Challenges from a Tenant-led Overdose Response Intervention in Single Room Occupancy Hotels.” *Journal of Urban Health* 96, no. 1 (February): 12-20. https://doi.org/10.1007/s11524-018-0294-y.

BCCDC (British Columbia Centre for Disease Control). 2020. *Distribution of Illicit Overdose Deaths (2010-2020).* http://www.bccdc.ca/resource-gallery/Documents/Statistics%20and%20Research/Statistics%20and%20Reports/Overdose/Illicit%20Drug%20Overdose%20Deaths%20by%20LHA%20BC%20-%20No%20Counts.pdf.

BC Coroners Service. 2020. *Fentanyl-Detected Illicit Drug Toxicity Deaths in BC: January 1, 2012-July 31, 2020.* https://www2.gov.bc.ca/assets/gov/birth-adoption-death-marriage-and-divorce/deaths/coroners-service/statistical/fentanyl-detected-overdose.pdf.

BC Coroners Service. 2019. *Illicit Drug Toxicity Deaths in BC: January 1, 2009-August 31, 2019.* https://www2.gov.bc.ca/assets/gov/birth-adoption-death-marriage-and-divorce/deaths/coroners-service/statistical/illicit-drug.pdf.

Beirness, D. J., R. Jesseman, R. Notarandrea, and M. Perron. 2008. “Harm Reduction: What’s in a Name?” Canadian Centre on Substance Abuse. https://www.ccsa.ca/sites/default/files/2019-05/ccsa0115302008e.pdf.

Belzak, Lisa and Jessica Halverson. 2018. “Evidence Synthesis-The Opioid Crisis in Canada: A National Perspective.” *Health Promotion and Chronic Disease Prevention in Canada: Research, Policy and Practice* 38, no. 6 (June): 224-233.

Boucher, Lisa M., Zack Marshall, Alana Martin, Katherine Larose-Hébert, John V. Flynn, Christine Lalonde, Dave Pineau, et al. 2017. “Expanding Conceptualizations of Harm Reduction: Results from a Qualitative Community-based Participatory Research Study with People Who Inject Drugs.” *Harm Reduction Journal* 14, no. 1 (May): 1-18. DOI 10.1186/s12954-017-0145-2.

British Columbia. n.d. “Overdose Prevention.” Accessed January 1, 2020. https://www2.gov.bc.ca/gov/content/overdose/what-you-need-to-know/overdose-prevention.

Davis, Sam. 2004. *Designing for the Homeless: Architecture that Works.* Berkeley and Los Angeles: University of California Press.

District of Mission. 2020. *District of Mission Housing Needs Assessment.* https://www.mission.ca/wp-content/uploads/2020-2024-Housing-Needs-Assessment.pdf.

Duncan, Tristan, Cameron Duff, Bernadette Sebar, and Jessica Lee. 2017. "'Enjoying the Kick': Locating Pleasure Within the Drug Consumption Room." *International Journal of Drug Policy* 49 (November): 92-101. http://dx.doi.org/10.1016/j.drugpo.2017.07.005.

Gaetz, Stephen, Fiona Scott, and Tanya Gulliver. 2013. *Housing First in Canada: Supporting Communities to End Homelessness.* Canada Homelessness Research Network. http://hdl.handle.net/10315/29317.

Gehl, Jan. 2010. *Cities for People.* Washington, DC: Island Press.

Google Maps. n.d.a. Aerial photograph of Vancouver, BC. Accessed October 1, 2019. http://maps.google.ca

Google Maps n.d.b. Elevation along Hastings Street and Cordova Street, Vancouver, BC. Accessed June 1, 2020. http://maps.google.ca

Google Maps. n.d.c. Oppenheimer Park, Vancouver, BC. Accessed July 1, 2020. http://maps.google.ca

Google Maps. n.d.d. Strathcona Community Garden, Vancouver, BC. Accessed July 1, 2020. http://maps.google.ca

Gordon, Elana. 2018. "In Vancouver, People Who Use Drugs are Supervising Injections and Reversing Overdoses." *The World.* Photograph. https://www.pri.org/stories/2018-09-24/vancouver-people-who-use-drugs-are-supervising-injections-and-reversing-overdoses.

Harm Reduction International. n.d. "What is Harm Reduction?." Accessed November 29 2019. https://www.hri.global/what-is-harm-reduction.

Health Canada. 2018. "Supervised Consumption Sites Explained." Last modified August 13, 2018. https://www.canada.ca/en/health-canada/services/substance-use/supervised-consumption-sites/explained.html.

HOC (Health Officers Council of British Columbia). 2005. *A Public Health Approach to Drug Control in Canada*. [Victoria] http://www.cfdp.ca/bchoc.pdf.

International Network of Drug Consumption Rooms. 2016. "DCR 'H17' Denmark (Vesterbro) - Copenhagen." Photograph. https://www.facebook.com/DrugConsumptionRooms/photos/a.1101941089874355/1101941443207653.

Island Health. 2017. "Supervised Consumption Services at 844 Johnson Street, Victoria BC." Filmed on December 2017 at Victoria, BC. Video, 2:02. https://www.youtube.com/watch?v=XoF7IMj6IE0.

Ivsins, Andrew, and Kevin Yake. 2018. “Looking Beyond Harm: Meaning and Purpose of Substance Use in the Lives of Marginalized People Who Use Drugs.” *Drugs: Education, Prevention and Policy* (September): 1-10. https://doi.org/10.1080/09687637.2018.1497145.

Jellestad, Lars. 2016. “Inside Copenhagen’s Swanky, New Supervised Injection Site.” *Vice*. https://www.vice.com/en_us/article/yvewjy/copenhagens-new-supervised-injection-site-876.

Johnston, Ben. 2018. “Together.” Photograph. https://www.benjohnston.ca/exterior-murals#/togethermural/.

Link, Bruce G., and Jo C. Phelan. 2001. “Conceptualizing Stigma.” *Annual Review of Sociology* 27, no. 1 (August): 363-385. https://doi.org/10.1146/annurev.soc.27.1.363.

Lloyd, Charlie. 2013. “The Stigmatization of Problem Drug Users: A Narrative Literature Review.” *Drugs: Education, Prevention and Policy* 20, no. 2 (April): 85-95. DOI: 10.3109/09687637.2012.743506

Lookout Society. n.d. “Resource Centres.” Accessed May 30, 2020. https://lookoutsociety.ca/what-we-do/resource-centres/.

Lupick, Travis. 2017. *Fighting for Space: How a Group of Drug Users Transformed One City’s Struggle with Addiction.* Vancouver: Arsenal Pulp Press.

Luxton, Donald. 2007. *Building the West: The Early Architects of British Columbia*. Vancouver: Talonbooks.

Michael Maltzan Architecture. 2014. “Star Apartments.” *Archello*. https://archello.com/project/star-apartments.

McEwen, Sean. n.d. “Plan of Johnson Street Community.” Hand-drawn Plan. Courtesy of Johnson Street Community.

McGinn, Barry. 2012. *Conservation Plan Hazelwood Hotel.* https://www.partnershipsbc.ca/files-4/project-sro-schedules/SRO-Renewal-Initiative_Attachment-1-to-Appendix-3E_Hazelwood-Hotel-Plan.pdf.

Mortensen, Louise Runge. 2018. “H17.” Filmed February 2018 at Copenhagen, Denmark. Video, 2:35. https://www.facebook.com/1044896805/videos/10214141006772887/.

The New York Housing Conference. n.d. “Navy Green.” Accessed December 1, 2019. https://thenyhc.org/projects/navy-green/.

NFB (National Film Board). 2017. “Inside Insite.” Filmed May 2017 at Vancouver, BC. Video, 8:29. https://www.youtube.com/watch?v=7gIyBMt2BEk.

Nieweglowski, Katherine, Patrick W. Corrigan, Tri Tyas, Anastasia Tooley, Rachel Dubke, Juana Lara, Lorenzo Washington, Janis Sayer, Lindsay Sheehan & The Addiction Stigma Research Team. 2018. “Exploring the Public Stigma of Substance Use Disorder Through Community-based Participatory Research.” *Addiction Research & Theory* 26, no. 4 (November): 323-329. DOI:10.1080/16066359.2017.1409890.

Pabst, Mette. 2016. “Nordens Storste Fixerum Skal Redde Liv.” *A:Social.* https://www.altinget.dk/social/artikel/nordens-stoerste-fixerum-skal-redde-liv.

Pauly, Bernadette Bernie, Dan Reist, Lynne Belle-Isle, and Chuck Schactman. 2013. “Housing and Harm Reduction: What is the Role of Harm Reduction in Addressing Homelessness?” *International Journal of Drug Policy* 24, no. 4 (July): 284-290. https://doi.org/10.1016/j.drugpo.2013.03.008.

Petrescu, Sarah. “Dozens Move into Housing for Tent-city Homeless.” *Times Colonist.* Photograph by Darren Stone. https://www.timescolonist.com/news/local/dozens-move-into-housing-for-tent-city-homeless-1.2316198.

PHS Community Services Society. n.d. “Insite Supervised Injection Facility.” Accessed December 5, 2019. https://www.phs.ca/project/insite-supervised-injection-facility/.

PLH Arkitekter. 2016. “PLH Designed the Largest Drug Consumption Room in the North.” https://www.plh.dk/en/news/plh-designed-the-largest-drug-consumption-center-in-the-north/.

Rhodes, Tim. 2002. “The ‘Risk Environment’: A Framework for Understanding and Reducing Drug-related Harm.” *International Journal of Drug Policy* 13, no. 2 (June): 85-94. https://doi.org/10.1016/S0955-3959(02)00007-5.

Rhodes, Tim. 2009. “Risk Environments and Drug Harms: A Social Science for Harm Reduction Approach.” *International Journal of Drug Policy* 20, no. 3 (May): 193-201. https://doi.org/10.1016/j.drugpo.2008.10.003.

Schäffr, Dirk, Heino Stöver, Leon Weichert and Eberhard Schatz. 2014. *Drug Consumption Rooms in Europe: Models, best Practice and Challenges.* Amsterdam, Netherlands: European Harm Reduction Network. https://idhdp.com/media/399959/drug-consumption-in-europe-final-2014-1.pdf.

Shannon, Kate, Tomiye Ishida, Calvin Lai, and Mark W. Tyndall. 2006. “The Impact of Unregulated Single Room Occupancy Hotels on the Health Status of Illicit Drug Users in Vancouver.” *International Journal of Drug Policy* 17, no. 2 (March): 107-114.

Small, Will, Tim Rhodes, Evan Wood, and Thomas Kerr. 2007. “Public Injection Settings in Vancouver: Physical Environment, Social Context and Risk.” *International Journal of Drug Policy* 18, no. 1 (January): 27-36. DOI:10.1016/j.drugpo.2006.11.019.

Special Advisory Committee on the Epidemic of Opioid Overdoses. 2020. *Opioid-related Harms in Canada.* https://health-infobase.canada.ca/substance-related-harms/opioids.

Strathcona Community Gardens. n.d. “About.” *Strathcona Community Gardens.* Accessed June 30, 2020. http://strathconagardens.ca/about-the-gardens/.

Todd Rader + Amy Crews. n.d. “Navy Green Landscape.” Accessed June 14, 2020. https://www.radercrews.com/navy-green-landscape.

Toulgoet, Dan. 2014. “Needles, Theft No Problem for Garden.” *Vancouver Courier.* Photograph.https://www.vancourier.com/community/needles-theft-no-problem-for-garden-1.1071669.

VCH (Vancouver Coastal Health). 2019. “Insite User Statistics.*”* http://www.vch.ca/about-us/news/overdose-statistics-December-2019.

VPD (Vancouver Police Department). 2017. *The Opioid Crisis: The Need for Treatment on Demand.* https://vancouver.ca/police/assets/pdf/reports-policies/opioid-crisis.pdf.

VPD (Vancouver Police Department). 2019. *A Journey to Hope: An Update Report on the VPD’s Continued Fight Against the Opioid Crisis.* https://vancouver.ca/police/assets/pdf/VPD-Opioid-Crisis-Report.pdf.

Wallace, Bruce, Katrina Barber, and Bernadette Bernie Pauly. 2018. “Sheltering Risks: Implementation of Harm Reduction in Homeless Shelters During an Overdose Emergency.” *International Journal of Drug Policy* 53 (March): 83-89. https://doi.org/10.1016/j.drugpo.2017.12.011.

Webb, Geoff. 2017. “Life Inside Vancouver’s Most Notorious Housing Block.” *Vice*. https://www.vice.com/en_ca/article/vv5emd/life-inside-vancouvers-most-notorious-housing-block.

Wood, Evan, Thomas Kerr, Will Small, Kathy Li, David C. Marsh, Julio SG Montaner, and Mark W. Tyndall. 2004. “Changes in Public Order After the Opening of a Medically Supervised Safer Injecting Facility for Illicit Injection Drug Users.” *CMAJ* 171, no. 7 (September): 731-734. DOI: https://doi.org/10.1503/cmaj.1040774.

Wood, Evan, Mark W. Tyndall, Calvin Lai, Julio SG Montaner, and Thomas Kerr. 2006. “Impact of a Medically Supervised Safer Injecting Facility on Drug Dealing and Other Drug-Related Crime.” *Substance Abuse Treatment, Prevention, and Policy* 1, no. 1 (May): 13. DOI: https://doi.org/10.1186/1747-597X-1-13.