Incorporation of Evidence-Based Trauma-Informed Design in Transitional Housing Projects

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Contents

Abstract

Trauma-Informed Design (TID) is an increasingly prominent design framework that aims to prevent causing stress to individuals that have experienced life-altering events, or are currently enduring the effects of a traumatic event in spaces that make up the built environment. TID is driven by the five principles of Trauma-Informed Care: safety, choice, collaboration, trust, and empowerment. However, there are no standardized guidelines for incorporating TID into program components in modern urban development. Transitional housing is a temporary housing typology that aids formerly unhoused individuals transition out of houselessness. Studies show that unhoused individuals are often exposed to traumatic stressors; due to this, a TID approach to creating transitional housing could be beneficial. This project investigates how TID fits into the program components of transitional housing through a literature review, case study reviews, and interviews with designers that have completed projects with a TID framework. These methods were applied to the development of a TID guidebook for designers to intentionally integrate TID into transitional housing projects.

1. Background

1.1 Houselessness in America

The increasing number of houseless individuals since 2015 is a crisis (NAEH 2022). According to the Center of Disease Control, "people are considered to be experiencing homelessness if they stay in a shelter, live in transitional housing, or sleep in a place not meant for human habitation, such as a car or outdoors. Sometimes people are considered to be experiencing houselessness if they are living in a motel or are doubled up with family or friends because they do not have anywhere else to stay" (CDC.gov 2022, webpage). While many articles are using the term "homelessness", this study intentionally uses the term "houselessness". It is important to make a distinction between a house and a home; while houseless individuals do not own a house, this does not imply they do not have a space that they identify as home. Houselessness is a social and public health concern in America that came into public consciousness in the 1980s; due to lack of awareness, emergency shelters were few and far between, and other unhoused-focused social services did not exist (Burt 2010).

While social services and unhoused shelters now exist, the problem of houselessness is far from over. When taking a point-in-time count of unhoused individuals (a count taking place in one single night across representative cities, suburbs, and rural towns across America), the Annual Homeless Assessment Report estimated roughly 580,000 individuals experiencing houselessness in 2020 (Henry et al. 2021). According to the 2022 Housing and Urban Development (HUD) Annual Homeless Assessment Report, over 326,000 individuals are experiencing sheltered houselessness in the United States (HUD 2022). Sheltered houselessness refers to unhoused individuals temporarily residing in emergency housing services, transitional housing, or another temporary housing accommodation (HUD 2022). Safe and adequate services for unhoused individuals needs to be a high priority; a focus on maintaining and improving houseless shelters is key to reducing the amount of unhoused individuals in America.

This study focuses on transitional housing. Transitional housing provides temporary accommodation - up to 24 months - and services for unhoused individuals to help stabilize their lives and support reintegration into permanent housing (SAMHSA n.d.); this form of housing lacks investment, warranting a new approach to incentivise its construction and use. A majority of unhoused individuals are experiencing sheltered houselessness; again, it is important that these spaces provide adequate services and appropriate design that is sensitive to its users ("State of Homelessness: 2022 Edition" n.d.).

1.2 Trauma and Houselessness

Evidence shows that extremely stressful events can cause traumatic effects on mental health, physical health, and livelihoods of individuals (Raja et al. 2015). Traumatic events can include sexual abuse, mental abuse, combat exposure, catastrophe exposure, and various life altering events. To address trauma that previously unhoused individuals have experienced, it is important to understand common traumas that this population endures.

Enduring houselessness is not only experiencing life without a safe/permanent place to live, but is a traumatizing period of time that is often linked to other traumatic events. Being unhoused is often concurrent with, or a result of, traumatic experiences. A 1991 study by Goodman et al. interviewed 141 unhoused individuals in New York City about their personal histories of victimization in their lifetimes. It was found that 89% of the total sample have experienced a form of sexual or physical abuse in their lifetimes (Goodman, et al. 1991).

Houselessness is often chronic, and continual exposure to the traumas of being houseless may cause physiological trauma responses to accumulate and grow in intensity. Continuous exposure to traumatic incidents impact both the psychological and physiological functioning of the individuals enduring houselessness (Women's Bureau 2011). Living without a safe dwelling space or control over their immediate environment, unhoused individuals are at greater risk of facing traumatic events that lead to post-traumatic stress disorder (PTSD), poor physical health, or poor mental health (Kim et al. 2006). Goodman et al. (1991) cite an unpublished data set which reveals that unhoused individuals often present two common symptoms of psychological trauma: Social Disaffiliation and Learned Helplessness. Social Disaffiliation is the belief that an individual is no longer capable of feeling safe or secure due to traumatic events warping their perspective of the world. Many unhoused individuals not only endure these traumatic events, but also lack the security and safety that is offered with housing; thus compounding on the traumatic experiences. Failures of social networks and services exacerbate the hardships of houselessness, leading to learned helplessness. Learned helplessness is the learned belief that there is no solution to a chronic malevolent experience. Unhoused individuals lack control over their living situation which often leads to a feeling of helplessness and violation of their personal autonomy (Goodman et al. 1991). Because of the traumas that many unhoused individuals experience, the Trauma-Informed Care framework is often employed in houseless shelters.

2. Trauma-Informed Frameworks

2.1 Trauma-Informed Care

Trauma-Informed Care (TIC) creates a "paradigm shift that encourages human service providers to approach their clients' personal, mental, and relational distress with an informed understanding of the impact trauma can have on the entire human experience" (Evans and Coccoma 2014, p. 1). TIC provides a framework for medical and service providers to better serve patients and clients that have experienced traumatic events by ensuring that every part of a medical or social service is "assessed and potentially modified to include a basic understanding of how trauma impacts the life of an individual seeking services" (Raja et al. 2015, p. 217). The practice of TIC arose due to the neurological effects that trauma has on the human brain; TIC changes the question from "What is wrong?" to "What have you experienced?" (Evans and Coccoma 2014).

Studies identify two major domains of TIC: (1) Universal Trauma Precautions and (2) Trauma-Specific Care (Raja et al. 2015). Universal Trauma precautions are practices that service providers can apply to all patients, no matter what their lived experiences include. This allows for providers to build rapport with all patients they interact with. Trauma-Specific Care relates to practices that are employed when a provider knows that a patient has experienced a traumatic event. The major difference between the two domains is Universal Trauma Precautions is encouraged to be utilized for all patients, but Trauma-Specific Care is only employed with the confirmation that a patient has experienced a traumatic event. Ultimately, Trauma-Informed Care "emphasizes physical, psychological, and emotional safety for both providers and survivors, and creates opportunities for survivors to build a sense of control and empowerment" (Bollo and Donofrio 2021, p. 3). A focus on TIC shows to help many individuals as they endure traumatic events, and it can inspire designers to explore how the built environment could be Trauma-Informed.

2.2 Trauma-Informed Design (TID)

Trauma-Informed design (TID) is an emerging framework for design that has yet to have a widely accepted definition. Instead, it can be understood through its origins in the principles of TIC (Dietkus 2022). Diekus explains how the design process can be practiced through the lens of the five TIC Principles: (1) Safety - Usergroups feel emotionally and physically protected when engaging in the design process; (2) Trustworthiness/Transparency - design decisions are made with integrity and transparency to all involved in the design process; (3) Collaboration/Mutuality - Using the design process to promote collaboration and shared decision making; (4) Empowerment - community members that are invited to participate in the design process are honored as unique individuals that all have different experiences and may need personalized approaches to participate; (5) Choice - Community members are given decision making power (Dietkus 2022).

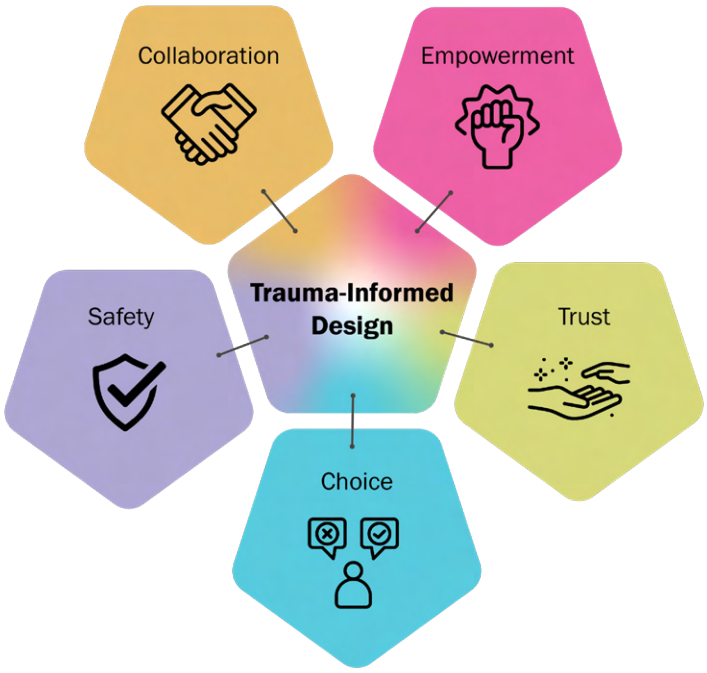

Figure 1: Graphic showing the 5 principles of Trauma-Informed Design; Source: Author, adopted from Dietkus 2022

Because TID is a framework without a widely accepted definition or standard of practice, many versions of TID principles have arisen. For example, a non-profit organization, Design Resources for Homelessness (DRFH 2020), posted a comprehensive list of their TID principles on their website:

- Reinforce the individual's sense of personal identity and ownership
- Provide an environment that is safe while also inviting
- Promote opportunity for choice while balancing program needs and the safety/ comfort of the majority
- Giving residents control over task lighting, such as a reading lighting fixture may support their sense of independence and autonomy
- Engage the individual actively in a dynamic, multi-sensory environment
- Reduce/remove known adverse stimuli and triggers
- Reduce/remove environmental stressors such as noise and crowding
- Provide ways for the individual to exhibit their self-reliance
- Provide the means for privacy and confidentiality
- Reinforce the sense of stable and consistent policy support for individuals that is worthy of their trust
- Provide/promote connectedness to the natural world
- Promote a sense of community and collaboration
- Separate an individual from others who may be in distress. (Bollo and Donofrio 2021; DRFH 2020)

TID tends to follow similar principles across varying building uses – i.e. medical buildings, service buildings, unhoused shelters. It raises the question of whether these strategies can be broadly implemented across all types of buildings for different end-users or if there needs to be specific guidelines based upon who will be residing in the varying buildings.

3. Gaps in Literature: TID Guidelines for Transitional Housing

While there are many emerging articles on TID, there has yet to be a study that applies TID principles to transitional housing and how TID can be incorporated into transitional housing developments for unhoused individuals. The purpose of this research is to provide a Trauma-Informed Design guidebook for designers of transitional housing shelters.

4. Methods

4.1 Literature Review

The literature review (Chapter 5) synthesizes current literature to apply to transitional housing design decisions in order to understand how evidence-based Trauma-Informed Design can be incorporated into program components of transitional housing. The literature review follows the Integrative Review method presented by Whittemore et al. (2005) which contains 5 stages of review: Problem Identification, Literature Search, Data Evaluation, Data Analysis, and Presentation of data (Whittemore et al. 2005). The research question that guided this literature search was: How can evidence-based Trauma-Informed Design be incorporated into program components of transitional housing projects?

4.2 Case Study

A case study (Chapter 6) of an operational transitional housing development was analyzed based upon the current literature found during the literature review portion of this study. I chose this case study based on the following criteria presented in table 1:

Criteria	**Reasoning**
The case study is an adult transitional housing development.	The scope of this project deals directly with transitional housing.
Project completed in previous 10 years.	Since TID is an emerging framework, the project should fall within the timeline that TID began as a studied framework.
Thoroughly documented design process.	Thorough documentation allows for robust analysis of case study.

Table 1: Case study criteria; Source: Author

Within the case study review, design decisions are identified and discussed in the context of the literature discussed in the literature review.

4.3 Interviews

Interview analysis (Chapter 7) discusses major themes found when speaking with design industry professionals. Interviews were conducted with four industry professionals with three main learning goals in mind: (1) Learn of their understanding of TID, (2) Understand whether and how they have used the TID framework in past project work, and (3) Learn what they would find useful in a TID guidebook.

Industry professionals were selected with a snowball sampling method. Snowball sampling is a "recruitment technique in which research participants are asked to assist researchers in identifying other potential subjects" (OSU 2012, webpage). Connections within DLR Group and the UW ARC Consortium were used to recruit the four interviewees. Interviewees were provided a written consent form and informed that both their identity and their firm's identity will remain anonymous.

Interviews were semi-structured. Table 2 provides a template of larger interview goals and general guiding questions. These questions were used as prompting questions for a longer conversation that followed.

Interview Goals	**Prompting Questions**

To understand whether and how they have used the TID framework in past project work.	• Has the TID framework been used in your project work?
	  • On what kind of projects? How many?
	  • Do you customize the TID framework based upon the type of project?
	  • Can you share some specific criteria or design guidelines that you have used in the past?
	  • When you use a TID framework, do end-users play a role in the design process?
	  • How would you measure success from applying this framework to a project?
	• Are there other frameworks that have been used in your project work (like user centered design, universal design, etc.)?
	  • Can you share some of the criteria or guidelines from these frameworks?
	  • How would you measure success from applying these frameworks?

To learn what they would find useful in a TID guidebook.	• What have you found most useful when using a TID framework or other frameworks? • What elements of guidebooks are most helpful to you? • What is your preferred balance between visual and written elements in a guidebook?

Table 2: Goals and guiding questions for interview; Source: Author

5. Literature Review: Trauma-Informed Design Decisions for Transitional Housing

5.1 Layout of Living Quarters

The layout of an individual's living quarters can have an impact on residents of any facility. A study by Anucha in 2005 that interviewed 106 previously unhoused individuals in two Toronto housing programs concluded that an overwhelming number of individuals – 77 out of 88 recorded responses – indicated that they "would prefer to have their own bachelor or one-bedroom apartment," showing there is a strong preference for "housing that would feel like a home" (Anucha 2005, p. 202). In support of individual living quarters, Chan's (2020) study of 37 formerly houseless individuals in a Boston and Cambridge Permanent Supportive Housing Program identifies that individual apartments are preferable. This preference is linked to feelings of safety; private housing types are spaces in which individuals can feel safe, can be alone, can store personal belongings, and "withdraw from the outside world and find peace" (Chan 2020, p.107). Although both studies focus on populations in permanent supportive housing, the same principles can be applied to transitional housing given similarities in demographics in both Permanent-Supportive and Transitional Housing. A layout seen in Figure 2 below shows what independent-style housing could look like with individual units per resident (Studio Twenty seven Architecture n.d.).

Figure 2: Example of individual apartment unit layout with private amenities; Source: "La Casa" Permanent Supportive Housing

While dormitory-style housing with shared amenities is not typically the preferred housing type for previously unhoused individuals, it is important to note that this could be a beneficial style of housing for individuals battling addiction in a sober living facility. This is an example of why it is necessary to understand who the end-users of the facility will be and fit the design to their needs. Shared rooms can help prevent relapse for various substances for formerly unhoused individuals (Wittman et al. 2017). As mentioned, houselessness is oftentimes linked to substance abuse. This is an important consideration for transitional housing developments that aim to assist individuals dealing with addiction. Figure 3 demonstrates what a dormitory style layout could look like with shared housing and amenities available for residents (Dahling Group n.d.)

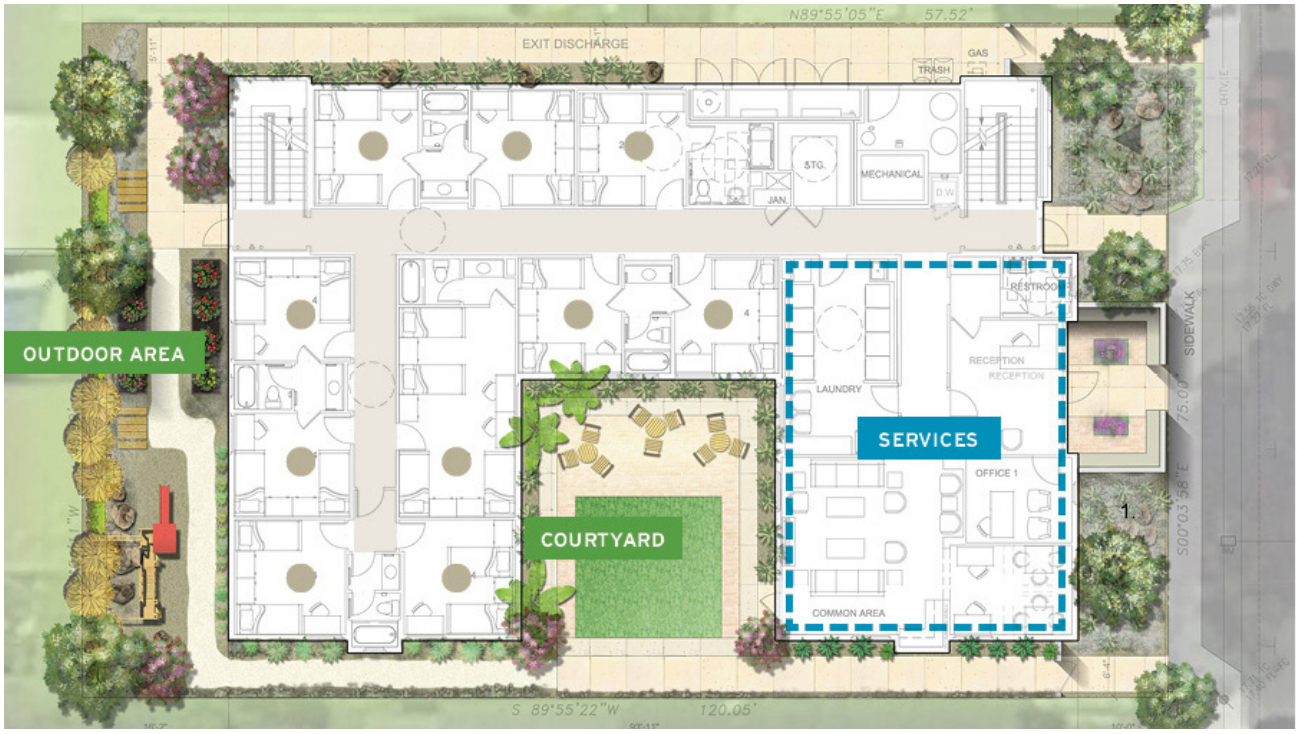

Figure 3: Example floor plan displaying dormitory style rooms with shared amenities; Source: dahlingroup.com

Overall, it is key to understand the specofoc housing needs of the users of a transitional housing facility. While individual apartments are commonly the most preferred housing type for previously unhoused individuals, it may not always be the most fitting solution. Dormitory housing types could be a helpful solution if individual apartments are not a possibility.

Individual apartments promote the TID principles of:

Choice	Individuals can choose when they want to withdraw from the outside world.
Empowerment	Individuals have agency over their own space.
Safety	Individuals are assured that their personal items can only be accessed by themselves.

Table 3: TID principles found in individual apartment layouts; Source: Author

Dormitory apartments promote the TID principles of:

Trust	Individuals can build trust with their roommates.
Collaboration	Individuals can help each other during their transition out of houselessness.

Table 4: TID principles found in dormitory apartment layouts; Source: Author

5.2 Interaction Nodes

Interaction nodes, or spaces intentionally planned for community gathering, are places in which individuals can go for socialization and community building. In a study of 38 formerly unhoused individuals across two permanent supportive housing buildings, McLane and Pable (2020) found that intentional interaction nodes were important for previously unhoused individuals; the transition from unsheltered houselessness to housing is a stressful process which can lead to feelings of isolation (McLane and Pable 2020). McLane and Pable reveal that a majority of the residents and staff in permanent supportive housing communities find value in community spaces; socialization and community helps individuals feel supported and feel that their lives are meaningful to the world.

Figure 4: Example of an resident lounge that serves as an interaction node; Source: CS-A's final photo collection

An important distinction between interaction nodes and shared rooms is that interaction nodes are optional participatory spaces. The same option to choose when to socialize is not available if individuals are in a shared room or apartment. This choice to retreat is equally as important – as detailed in the previous section – as is the choice to participate in social interaction and community building.

Interaction nodes promote the TID principles of:

Choice	Individuals are able to choose if they want to engage in interaction nodes
Collaboration	Individuals are able to interact and collaborate in these shared spaces.
Trust	Individuals are able to build a sense of trust through sharing these spaces.

Table 5: TID Principles found in interaction nodes; Source: Author

5.3 Access to Nature

A topic widely discussed in academic literature is nature and its correlation to improving mental health. Nature is a vital aspect for all housing projects. Klas and Müller (2012) explain that affective connection, through interaction or views, to nature – whether that be through taking a trip to a natural environment, taking a short walk, or even looking out a window to view nature – can have restorative impacts on individuals (Kals and Müller 2012).

Figure 5 : Example of orienting windows to a view of nature; Source: DLR Group Gallery

Having direct access to greenery is important in helping stimulate residents through contact with nature and natural daylight. Johansson et al. (2012) has shown that access to greenery has resulted in benefits to health and wellbeing (Johansson et al. 2012). As previously mentioned, adjustment to housing can be a difficult transition for previously unsheltered individuals. Incorporating various strategies, such as access to outdoor spaces and outdoor views, within transitional housing can aid in easing that transition.

Figure 6: Example of outdoor gardening space; Source: DLR Group Gallery

Access to Nature promotes the TID principles of:

Choice	Individuals are able to choose if they need to leave the facility environment to interact with nature.
Empowerment	Nature can have restorative impacts to individuals suffering from trauma.

Table 6: TID principles found with access to nature; Source: Author

5.4 Bathrooms

Bathrooms, very personal and vulnerable spaces, are important to consider when designing any living facility. In a study conducted by Knight et al. (2014), data indicated that 70% of tenants stayed two years or longer in facilities with private en-suite bathrooms, while only 30% of tenants stayed fewer than two years in facilities with shared bathrooms. (Knight et al. 2014) Figure 7 and 8 illustrate the differences between providing shared bathrooms in a transitional housing facility. This layout demonstrates spatial differences of creating private bathrooms and creating shared bathrooms.

Figure 7: Case Study A layout with private en-suite bathrooms and family bathrooms; Source: CS-A's Schematic Design Report

Figure 8: Case Study A layout with shared bathrooms and family bathrooms; Source: CS-A's Schematic Design Report

Furthermore, Knight et al. include a testimony from an individual who experienced the negative aspects of shared bathroom spaces in homes for previously unsheltered individuals:

> "Really tore up, tore down. Syringes in the bathroom. Blood on the toilet. Because you use the same toilet that everybody else uses. So it wasn't sanitized. So I didn't want to go." (Knight et al. 2014, p. 559)

This cannot be generalized as the experience of all individuals using shared bathrooms, however creating private bathrooms is an important consideration for individuals that have experienced traumatic events. A bathroom is not only a necessity, but also a space where individuals are often the most vulnerable. Private bathrooms allow for individual ownership of their experience in the bathroom and provide the assurance of privacy and safety. Burns et al. (2020) find that shared bathrooms reinforce territorial exclusion (Burns et al. 2020). Territorial exclusion is when certain individuals, based on created social hierarchies or ability, are barred from shared spaces or amenities; this compromises the safety and comfort of individuals that need to use such facilities.

Private bathrooms promote the TID principles of:

Choice	Individuals are able to freely choose when to use their own bathroom without worrying another individual is using it.
Empowerment	Individuals have agency over their own bathroom space.
Safety	Individuals will know that no one will be able to come into their bathroom while they are using it.

Table 7: TID principles found in private bathrooms; Source: Author

5.5 Personal Storage

Providing storage spaces for personal items has the ability to create a sense of safety, security, and agency for newly housed individuals (Chan 2020). Having a dedicated space to safely store belongings is an important desire shown by Anucha's (2005) survey of 106 formerly unhoused peoples (Anucha 2005).

Access to storage facilities promotes the TID principles of:

Empowerment	Individuals have agency over their items.
Safety	Individuals will know that their belongings are in a secure space that only they are able to access.

Table 8: TID principles found with access to storage facilities; Source: Author

5.6 Space Adjacency/Circulation

The organization of various programs and uses is important to how different spaces are utilized by individuals. As community spaces are an optional space for individuals to use, their location can encourage easy access and utilization. McLane and Pable's (2020) analysis of spatial relationships and adjacent spaces in two permanent supportive housing buildings, the Booth Centre and the Westgate Community, indicates how space utilization can be affected by different layout patterns (Figure 9).

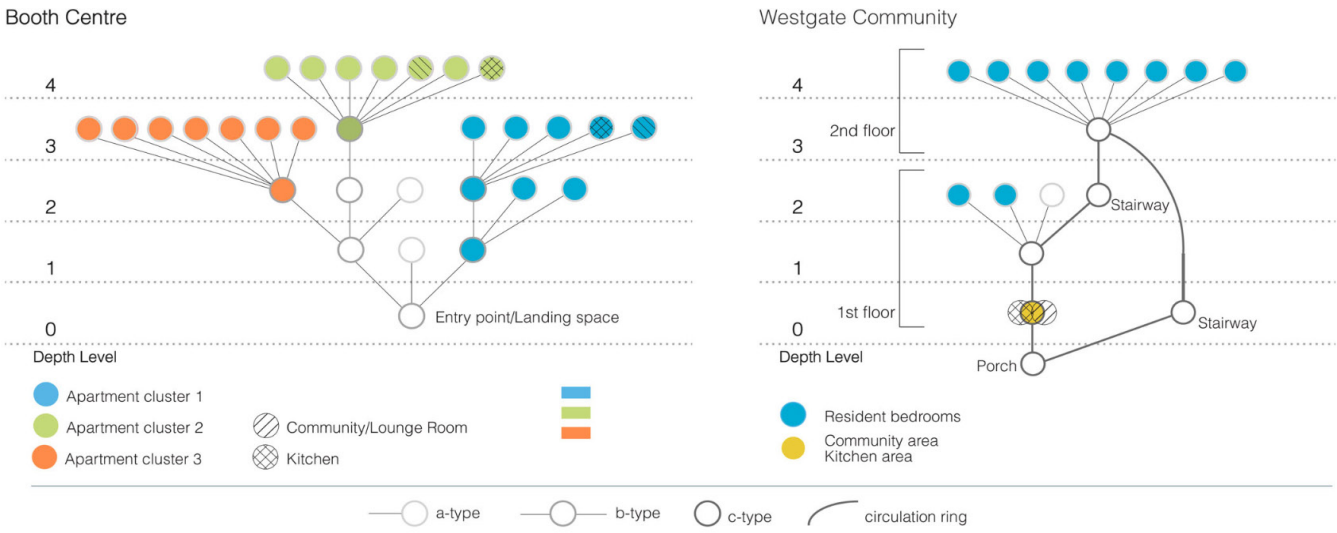

Figure 9: Justified Graphs for the Booth Centre and the Westgate Community; Source: (McLane and Pable 2020)

Figure 9 is a justified graph created by McLane and Plable showing the relationship between a project's varying spaces. This allows the viewer to see how circulation paths interact: it reveals "a-type" or dead-end circulation, "b-type" pass-through circulation, or "c-type" circulation-ring circulation. Understanding circulation is important to Trauma-Informed design. Not only should circulation be simple to understand to promote psychological safety, but it must also provide choices of circulation. This style of analysis has been adapted as a tool for analysis of the case study in a later chapter of this project.

As seen in McLane and Pable's (2020) comparison, there is a key difference in locations of the community spaces and shared kitchens. The Booth Centre's community spaces are at the very end of the circulation branches showing a dead-end style community room and has no circulation rings which dictates how residents can access their rooms and shared spaces. Comparatively, the Westgate Community immediately places the community space at the entrance of the building and also provides a circulation ring – indicated by the bold lines – which allows choice of circulation paths for residents (McLane and Pable 2020).

The further a community space is from an entrance, the harder it is to find and access. This leads to less use due to lack of visibility and ease of access (Hillier 1996). An important consideration for previously unsheltered individuals is the psychological safety of open sightlines. Since unsheltered individuals must continually be aware of their surroundings and inspect if spaces are safe or not, allowing sightlines into common spaces will allow previously unsheltered individuals to assess the space and provide an opportunity to decide if they feel psychologically safe to enter the space or not (Pable 2007). If a space is at the very back of a building and tucked away, an individual may not be able to evaluate the community space leading to a sense of vulnerability – and ultimately dissuading them from using the space (McLane and Pable 2020).

Simplification of Space Adjacency and Circulation promotes the TID principles of:

Choice	Providing various circulation routes allows for individuals to choose what path they wish to take.
Safety	Simplicity in adjacency and circulation can promote a sense of psychological safety and can prevent confusion.

Table 9: TID principles found with simplification of space adjacency and circulation; Source: Author

5.7 Co-Ed Facility Consideration

While it would be easier to house more individuals in one building, it is important to understand the different experiences of formerly unsheltered men compared to women.

Often, women feel more uncomfortable being in mixed gender housing. In many cases, women experiencing houselessness have reported abuse at the hands of men in their lives – this includes fathers, brothers, husbands, or lovers (Bridgman 2002). As indicated by Knight et al. (2014), women have commonly practiced a strategy of deliberate social isolation in single-room occupancy environments where they do not feel safe; in some cases, women self isolate as a means of emotional self-protection in response to living unprotected in an unsheltered setting (Knight et al. 2014). While this is the case for some women in housing services, Knight et al. also describes the contrasted opinion showing that some women connect single-room occupancy with a sense of structure and safety which enhances their mental health systems post-houselessness.

Currently, the literature on gender dynamics in supportive housing communities tends to focus on the woman's experience. More in-depth studies of men's experiences and the experiences of gender nonconforming individuals is needed to fully understand how co-ed facilities should be considered. It is also important to understand the experiences of queer, trans, and gender nonconforming individuals as studies indicate that "sexual minority adults are twice as likely as the general population to have experienced homelessness in their lifetime [and] a higher proportion of transgender people report

recent houselessness than sexual minority and cisgender straight people" (Wilson 2020, webpage).

Therefore, in order to create a successful transitional housing project that is responsive to and considerate of gender dynamics, the end-user of the project must be a part of this conversation.

Consideration of gender separation can promote the TID principles of:

Empowerment	Individuals can relate to others of the same gender identity as them.
Safety	Individuals, particularly women, could feel comfortable being surrounded by individuals of their same gender identity.

Table 10: TID principles found with consideration of gender separation; Source: Author

5.8 Physical and Social Privacy

A sense of privacy not only creates a feeling of safety and security, but also encourages the feeling of ownership of a home for formerly unhoused individuals. Henwood et al. (2018) identifies that formerly unhoused individuals appreciate having a private space not only for the security, but also because it allows them to control when they are social or not (Henwood et al. 2018). Since unsheltered experiences make it difficult to find privacy, the ability to have a choice of being in a private space can be empowering for formerly unsheltered individuals. Chan (2020) expands on this by describing how housing can serve as a safe haven as individuals have a space to withdraw if chosen, but also explains that a community and connections can be a safe haven as well (Chan 2020).

Physical and Social Privacy promote the TID principles of:

Empowerment	Individuals have agency over their private and social lives.
Safety	Privacy provides individuals with both physical and emotional security.

Table 11: TID principles found with physical and social privacy; Source: Author

5.9 “Regular Stuff”

Chan points to the importance of “regular stuff” to help previously unhoused populations connect to what it means to no longer be houseless. Items such as televisions, computers, furniture, microwaves, dishwashers, and air conditioners are items that individuals who have not experienced houselessness may take for granted. Ownership of these items allow for a connection to home and creation of routine, something that is not common when unsheltered. “Regular stuff” is important as a concrete signifier of a departure from houselessness (Chan 2020). Chan includes a testimony from a formerly houseless individual on the benefits of being able to create a routine that includes “regular stuff”:

> “Yeah, it’s a lot better than the shelter . . . having the privacy of being by yourself, getting a little serenity. I’m showering by myself. I can eat by myself, watch television by myself. There are a lot of things I can do by myself now that I wasn’t able to do for a while.” (Chan 2020, p. 108)

“Regular stuff” promotes the TID principle of:

Empowerment	Ownership of “regular stuff” serves as a concrete signifier of no longer being unhoused.

Table 12: TID principles found with “regular stuff”; Source: Author

6. Case Study Analysis

For the protection and privacy of the firm that has provided this case study for analysis, the case study will be referred to as “Case Study A (CS-A)”. Information that can identify the project team or location have been redacted from any imagery used during this analysis.

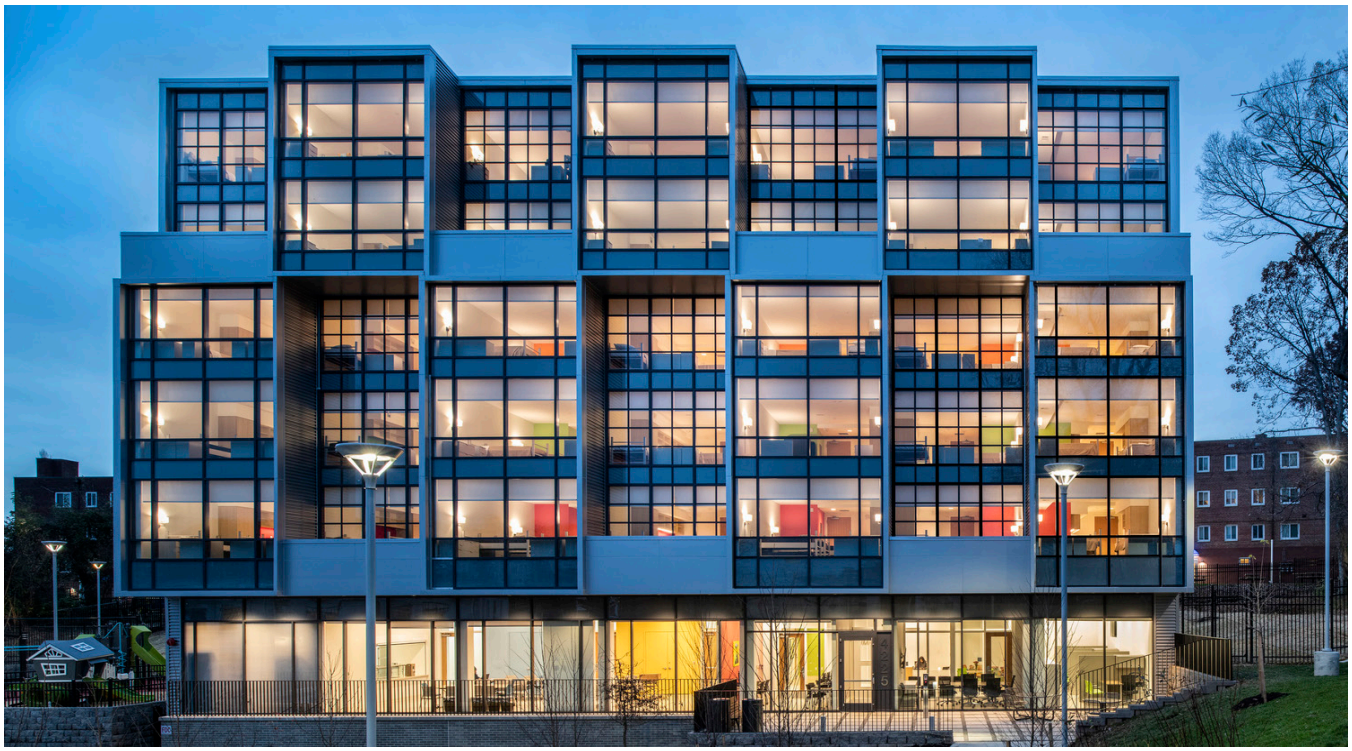

Figure 10: Exterior view of CS-A; Source: CS-A’s final photo collection

Completed in 2018, CS-A is a 36,000 sqft transitional housing project that contains 50 family residential units across its 6 floors. CS-A provides family housing units, shared family bathrooms, common spaces, a warming kitchen, a dining room, indoor and outdoor recreational spaces, a computer lab, and a myriad of services for previously unhoused individuals including case management and a wellness clinic.

6.1 Planning Context for CS-A

CS-A began its planning phase in 2015. The site and context (Figure 11) includes low density mid-rise buildings to the west and low density low-rise buildings to the east.

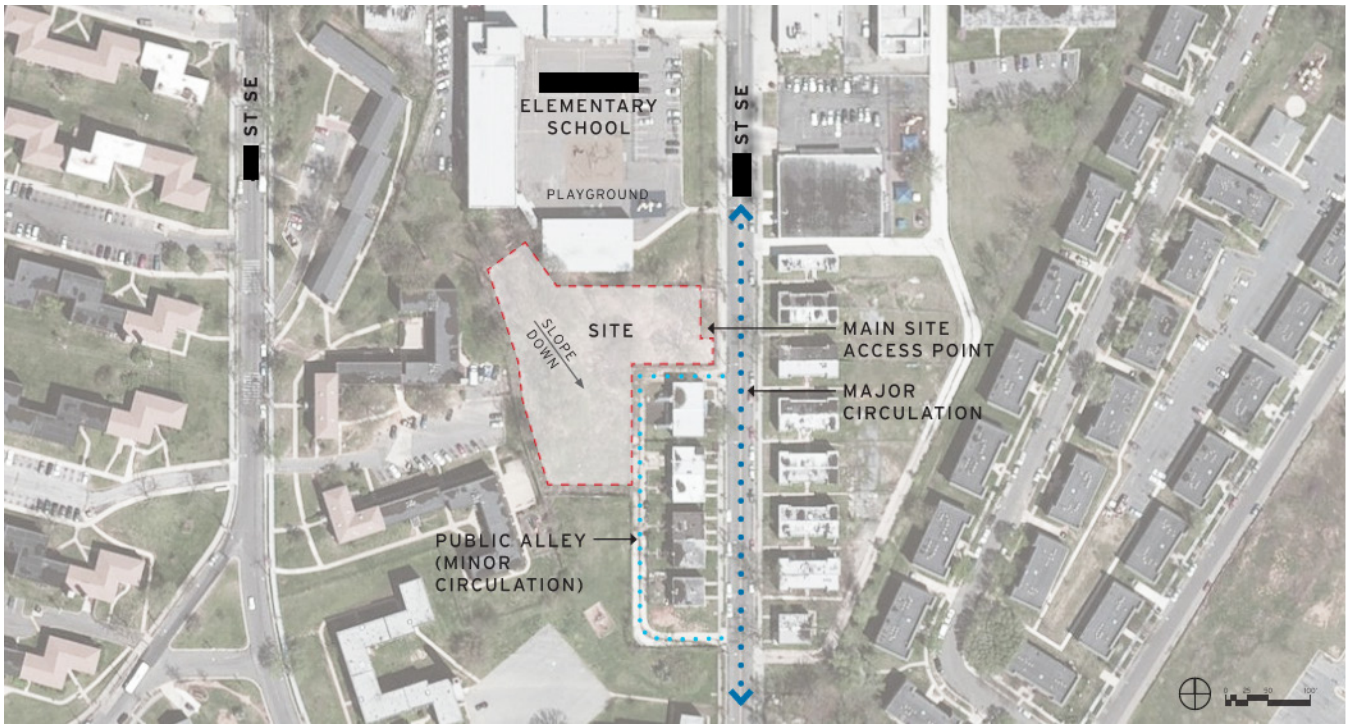

Figure 11: Aerial view of site boundary and surrounding context with streets redacted; Source: CS-A Schematic Design Report

In the executive summary of the CS-A Concept Design Submission, the firm identifies 3 major challenges: (1) a steeply sloped hill at the northwest corner of the site; (2) the size of the program requires the CS-A building to be significantly taller than the surrounding building context; and (3) the design of the building must be sensitive to the unique needs of the residents. While these challenges each significantly direct both the initial and final design of CS-A, I will focus on the third major challenge as it pertains to TID in the context of this study.

Consideration of the various needs of the population – specifically, previously unhoused families – is an important step in the planning process. CS-A designers do not specifically address trauma, however express the importance of designing with the end-user in mind.

> "...the design must be sensitive to the unique needs of the residents. As homeless or at-risk homeless families, these users have a critical need to feel safe and secure, but also motivated to progress to their next step in housing. The design should be warm and welcoming and should feel residential rather than institutional. The facility should have a sense of dignity."
> -CS-A Concept Design Submission

Although this project does not explicitly design with a TID framework in mind, this design consideration statement aligns well with two of the core values of TID:

> Safety - "...need to feel safe and secure..."
> Empowerment - "...motivated to progress to their next step in housing..."

The addition of explicit language regarding the end-user's needs of Trust, Choice, and Collaboration would help to round out the design considerations as they move forward. While the quote above explains that design could help to motivate previously unhoused individuals, there should be discussion on how the design could encourage collaboration between the program/care staff and the residents. The purpose of a transitional home is to provide resources and support systems to aid in the transition. This transitional period should be discussed as a team effort, but this quote placed the responsibility of success on the resident rather than discussing the shared responsibilities of staff and residents.

Referencing the population (previously unhoused individuals) and understanding the purpose of transitional housing helps to frame the thinking of the designers during the early blocking study for CS-A. To meet the programming requirements set out by both the Department of General Services and the Department of Homeland Security, the design team follows the programming list seen in Figure 12.

This Space Requirements Program (SRP) is based upon discussions with DGS and DHS staff in November 2015 - February 2016.

SPACE	CONCEPT DESIGN PROGRAM					CURRENT PROGRAM					NOTES
	Qty	Unit SF	NSF	Total Area	NSF	Qty	Unit SF	NSF	Total Area	NSF	
Residential Floors				**24,575**	**sf**				**21,950**	**sf**	
Dwelling units (300-400sf each)	50	320	sf	16,000	sf	50	330	sf	16,500	sf	3-4 beds each (twins, one w/ trundle); wardrobe (hanging and drawers); shelving; small refrigerator; desk
Private Bathroom	10	70	sf	700	sf	10	70	sf	700	sf	2 per floor of 10 units
Family Bathroom	20	70	sf	1,400	sf	20	70	sf	1,400	sf	4 per floor of 10 units
Men's Bathroom	5	300	sf	1,500	sf						1 per floor of 10 units (3 toilets, 3 sinks, 3 showers)
Women's Bathroom	5	300	sf	1,500	sf						1 per floor of 10 units (3 toilets, 3 sinks, 3 showers)
Laundry	5	50	sf	250	sf	5	60	sf	300	sf	1 per floor of 10 units (2 washers, 2 dryers)
Quiet Space	5	200	sf	1,000	sf	5	135	sf	675	sf	1 per floor of 10 units
Lounge	5	200	sf	1,000	sf	5	260	sf	1,300	sf	1 per floor of 10 units (include sink, microwave)
Reception	5	70	sf	350	sf	5	80	sf	400	sf	1 per floor of 10 units (desk for 2 occupants, line of sight to all unit entry doors and common spaces)
Janitor Closet	5	50	sf	250	sf	5	20	sf	100	sf	1 per floor of 10 units; mop sink and storage shelving
Trash Room	5	50	sf	250	sf	5	40	sf	200	sf	1 per floor of 10 units; trash chute
Electrical Closet						5	10	sf	50	sf	1 per floor of 10 units
Storage	5	75	sf	375	sf	5	65	sf	325	sf	1 per floor of 10 units
Administration				**1,450**	**sf**				**1,405**	**sf**	
Offices-open (case managers)	5	50	sf	250	sf	5	50	sf	250	sf	6' x 8' workstations
Offices-closed	1	100	sf	100	sf	1	110	sf	110	sf	
Conference Room	1	150	sf	150	sf	1	165	sf	165	sf	
Work Room	1	150	sf	150	sf	1	150	sf	150	sf	
Mail Area	1	50	sf	50	sf	1	20	sf	20	sf	lockable (rolling door) with mail slots behind
Health/Wellness Clinic											
Office	1	70	sf	70	sf	1	60	sf	60	sf	
Exam Room	1	120	sf	120	sf	1	110	sf	110	sf	counter/cabinets with sink
Waiting Area	1	60	sf	60	sf	1	80	sf	80	sf	
Offices-open (operations)	1	250	sf	250	sf	1	210	sf	210	sf	
Employee Lounge	1	250	sf	250	sf	1	250	sf	250	sf	include lockers and separate toilet rooms for staff
Support				**3,045**	**sf**				**2,935**	**sf**	
Lobby/Reception	1	400	sf	400	sf	1	450	sf	450	sf	includes security desk (sign-in & bag-check only)
Central Dining Room	1	900	sf	900	sf	1	880	sf	880	sf	dining for 160 in 3 or more shifts
Warming Kitchen	1	300	sf	300	sf	1	230	sf	230	sf	cafeteria-style serving line; warming ovens & refrigerators, no dishwashers; must include storage
Multipurpose Room	1	450	sf	450	sf	1	450	sf	450	sf	flexible; include study carrels
Gaming Area	1	275	sf	275	sf	1	250	sf	250	sf	may be part of Dining Room
Computer Lab	1	250	sf	250	sf	1	250	sf	250	sf	
Communal Phone Alcove	2	10	sf	20	sf	2	10	sf	20	sf	counter with phone for use by residents; acoustic materials
Storage	1	100	sf	100	sf	1	100	sf	100	sf	
Storage (Exterior Access)	1	100	sf	100	sf	1	65	sf	65	sf	
Men's Toilet Room	1	125	sf	125	sf	1	120	sf	120	sf	
Women's Toilet Room	1	125	sf	125	sf	1	120	sf	120	sf	
Main Trash Room											included in gross square footage
Main Electrical Room											included in gross square footage
Emergency Electrical Room											included in gross square footage
Telecom Room											included in gross square footage (no DC Net)
Boiler Room											included in gross square footage
Water Service Room											included in gross square footage
Net Programmed Floor Area				**29,070**	**nsf**				**26,290**	**nsf**	
Net-to-Gross Factor				**75%**					**70%**		includes circulation, structure/skin, systems spaces
Approx. Gross Floor Area				**38,760**	**gsf**				**37,557**	**gsf**	
Site Features											
Playground											visibility from building staff
Half-court Basketball											visibility from building staff
Parking (11 cars)											
Loading Area											
Generator											life safety only

Figure 12: Space requirement programming list for CS-A; Source: CS-A Concept Design Submission

This programming list was curated in order to properly serve 50 unhoused families and provide them both adequate housing and support throughout their transition from being unhoused. This programming list was created through discussions with the Department of General Services and the Department of Human Services. Through discussions with these entities, the designers learned what were the State's minimum requirements for creating a transitional housing project that serves 50 people, and created the programming to fit those specifications and the desires of their clients.

6.2 Planning Principles/Intentions for CS-A

CS-A designers demonstrate the intentionality of their design choices through a blocking study (a study in which designers test fit programming adjacencies through blocks that represent each program) and a 3-page narrative explaining how and why design decisions are made. The narrative shows the intentions that designers had for this space. Discussion of how these narratives are executed in the planning process are discussed in section 6.3. While a portion of the narrative describes logistical choices due to topography or form, a significant portion addresses interior design choices and why they are designed for previously unhoused individuals. This subsection of the case study analysis (Section 6.2.1 - 6.2.2) will highlight the vision of the planning team and highlight positive decisions and areas of improvement in the context of a TID framework.

6.2.1 Blocking Study

With the spatial requirements in line, the team begins to diagram a blocking study to visualize the adjacencies of various program elements.

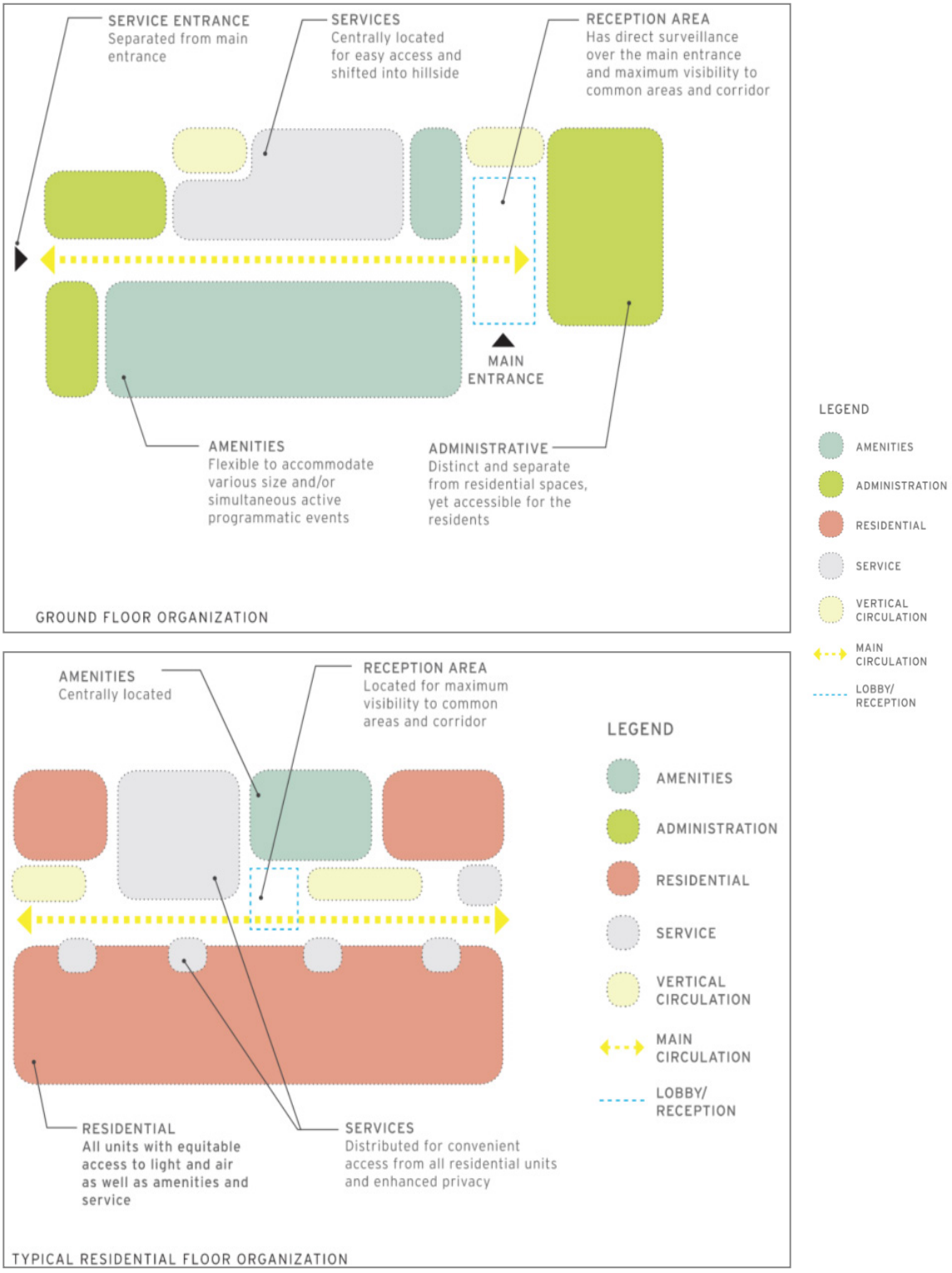

Figure 13: Initial ground floor (Top) and typical residential floor (Bottom) blocking study for CS-A; Source: CS-A Schematic Design Report

Many TID considerations are found within this preliminary blocking study seen in Figure 13 above. Throughout both the ground floor and the typical residential floors, circulation is extremely simple. The simplicity of the circulation path creates an environment that is easy to navigate and avoids dead ends or confusing pathways. A focus on simple circulation paths aligns with TID principles to promote a sense of safety by avoiding feelings of confusion or being lost in a space. The reception areas on both the ground floor and the residential floors were labeled to show the intention of maximum visibility to common areas and the corridor. This also contributes to the TID principle of safety since residents can always be able to have clear sightlines into these common spaces.

6.2.2 Ground Floor Design

While it may not be clear in the blocking study due to the lack of dimensions, the designers intended to create a larger ground floor with the residential floors setback to have a separation between the public realm and the residential floors.

Figure 14: Exterior view with a larger ground floor and residential floors set back; Source: CS-A Schematic Design Report

The main functions of the ground floor are a vestibule, a lobby, amenities, administration, and a health/wellness clinic. The vestibule and lobby are intended to have a "hotel lobby/concierge atmosphere rather than that of an institutional environment" (CS-A Schematic Design Report, p. 9). The lobby is designed to not only welcome residents and visitors, but also allows for open sightlines for staff and residents to observe activities across the entire ground floor. Through discussions with the client and recommendations from the Department of Human Services, the designers include various

amenities that are flexible spaces to accommodate various sizes of groups and/or simultaneous programmatic events. Amenity spaces include a game room for indoor recreation, a dining room with a warming kitchen, and a computer lab for personal work. Alongside the residential amenities, the design indicates case management and operational administration spaces that allow for caseworker and resident collaboration and private space for operational admins to ensure the functionality of the building. Lastly, the health/wellness clinic is a space that is "used for checking on the general health and wellness of the residents" (CS-A Schematic Design Report, p. 9) to provide onsite check-ups and care.

6.2.3 Residential Floor Design

The narrative explains how the residential floors will be composed of 10 residential units, varying residential bathrooms, and amenities. The residential units each contain 3-4 twin sized beds with a flexible trundle-type bed that accommodates an additional resident for larger families. These rooms include a private storage area, a desk, and a small refrigerator. The designers identify that requirements allow for a private en suite bathroom, two shared family bathrooms, and two multi fixture communal bathrooms; however, they express how the ideal scenario for the bathroom layouts would be "an optional floor layout which eliminates the multi-fixture bathrooms in lieu of private and family bathrooms for all units" (CS-A Schematic Design Report, p. 10). This is an ideal case as it would allow for full privacy when using restrooms and prevent various residents having to share a single bathroom space.

6.2.4 Circulation Design

The manner in which the designers desire to lay out the circulation and organization of CS-A aligns well with TID: it promotes the principle of choice by providing various circulation routes, and promotes the principle of safety as the planned circulation is simple and standardized between floors. They state that "the program spaces, particularly the spaces accessed by the residents, must be arranged in a manner that is efficient and easy for the user to understand. The primary path from the building or floor entry to the reception desk to the program spaces should be safe and efficient on each floor" (CS-A Schematic Design Report, p. 8). This attention to detail is an example of designing with the end-user in mind. As mentioned, previously unhoused individuals may need a sense of security through safe and easily understood circulation routes. If the circulation is at all confusing, this could trigger unwanted feelings of confusion in the residents, something that a TID framework aims to avoid. In addition to easy wayfinding throughout the building, the designers include that "only residents who live on [a floor] are permitted access to the floor" (CS-A Schematic Design Report p. 8). This adds another set of security for residents and an added layer of psychological safety as the residents know that they can retreat to a floor that only they have access to.

Figure 15: CS-A hallway showing a residential reception area with a large floor indicator; Source: CS-A's final photo collection

6.2.5 Planning Principles/Intentions for CS-A

Overall, CS-A demonstrates the importance of intentionality in design and provides examples of how to express the necessity of these design choices in the project narrative. Creation of a strong narrative is an important first step in the process, and CS-A designers document this process to refer to during the design process and execution of CS-A.

It is important to reiterate that this narrative is just the first step in the process of executing this project that serves a population that likely has experienced trauma. This section of this analysis (6.2.1 - 6.2.5) discusses the intention of CS-A and the following section (6.3) will discuss the execution of the project. For CS-A, we will see that the execution of the project carries out the intention and narrative set forth in the design proposal. There are amendments made to the design due to extenuating circumstances like budget however, compromises still apply the intended TID principles. For any TID transitional housing project, it is not only important to set a strong narrative that serves the end-user of the space but also ensure that the narrative is not lost throughout the design process.

6.3 Design Process and Execution of CS-A

6.3.1 Blocking Study

Throughout the process, the designers learned that there was not enough budget to have the original layout of the larger ground floor with the upper floors set back. The initial bump-out had to be removed to save on cost. The final blocking study addresses the downsizing by consolidating both the amenities and services into smaller footprints. The residential levels are simplified from the original blocking study, however still include the same programmatic elements.

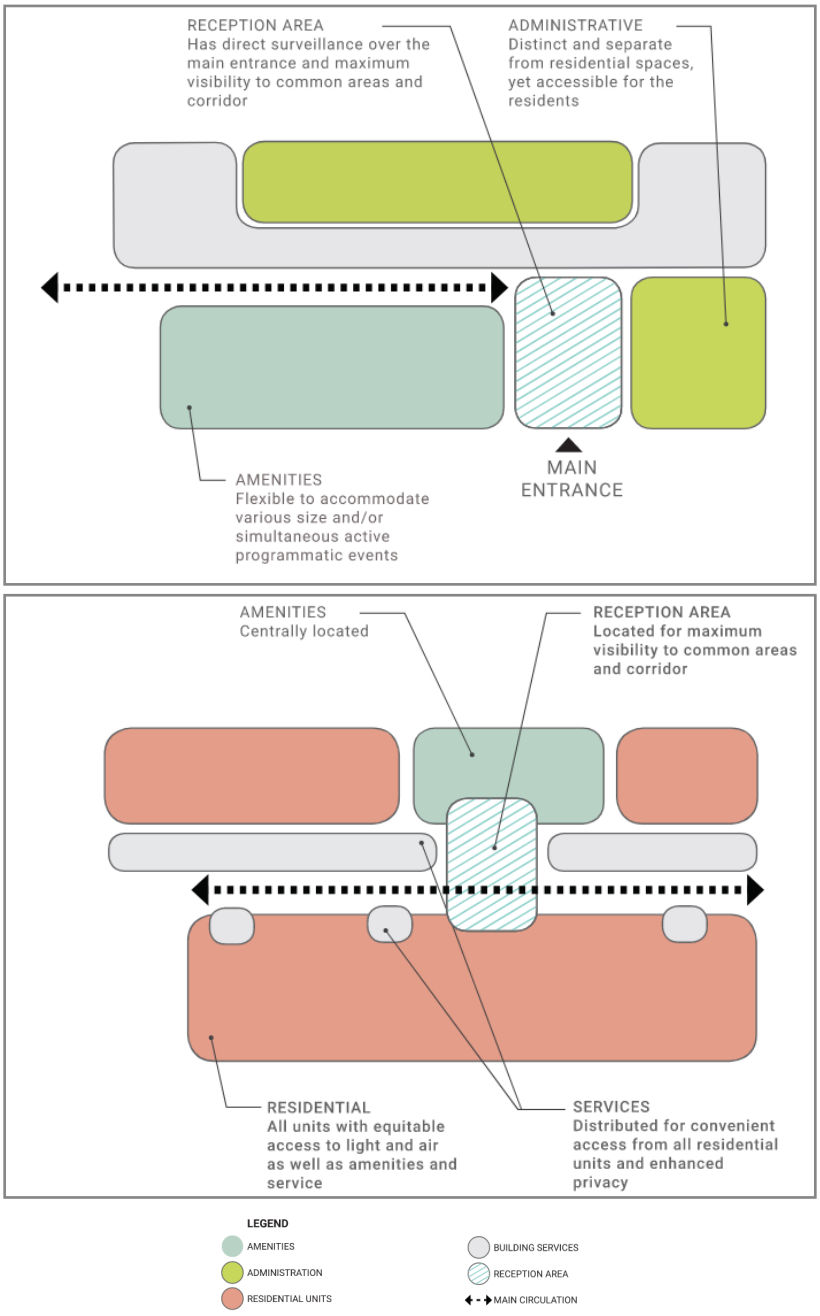

Figure 16: Final ground floor (Top) and typical residential floor (Bottom) blocking study for CS-A; Source: CS-A final presentation document

The Amenities block found in the ground floor allows for flexible and adaptable space for programmatic events; this complements the TID core value of Choice. As mentioned in the literature review, the ability to choose when and how one participates is an essential option for previously unhoused individuals. Additionally, the amenities are adjacent to the entrance of the transitional housing project and allow for immediate sightlines into the spaces as individuals walk into the building. The open sightlines allow the users to peer into the common rooms prior to entering them, allowing for psychological safety as they are able to assess the rooms and decide if they wish to enter.

Figure 17: View from ground floor reception desk. View shows centralized amenity spaces with unobstructed sightlines in CS-A: Source: CS-A's final photo collection

The residential floors also show a central amenities block directly next to the reception area, providing similar sightlines for users to assess whether or not they feel psychologically safe to enter. This blocking study does not show the specific services and amenities that appear in the final schematic. These specifics will be discussed with the floorplans in the next two sections (section 6.3.2 and 6.3.3).

6.3.2 Ground Floor Design

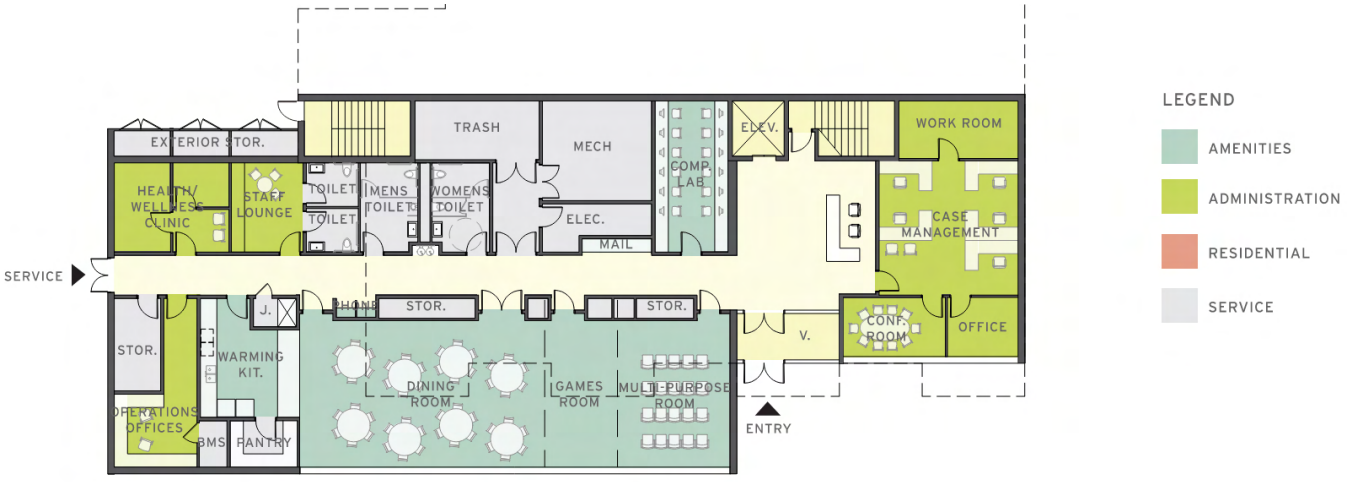

Figure 18: Initial ground floor plan; Source: CS-A Schematic Design Report

This initial ground floor plan demonstrates many principles of TID. The various amenities allows for individuals to have choice for what they wish to participate in with some social-oriented spaces (like the dining room or games room), and some individual-oriented spaces like the computer lab. There are dedicated spaces for support staff such as case management and the wellness clinic. These spaces both support collaboration between residents/staff and empowerment for residents to seek out resources needed during their transition to permanent housing.

As mentioned, the designers found that budgeting would not allow the first floor bump-out due to higher costs. The bump-out that was removed is noted with the red dashed line in Figure 19.

Figure 19: Initial ground floor plan with bump-out indicated; Source: CS-A Schematic Design Report

This removal affected many of the larger communal spaces. This gave the designers a special challenge to figure out how to still provide necessary amenities and services while reducing the space in the building.

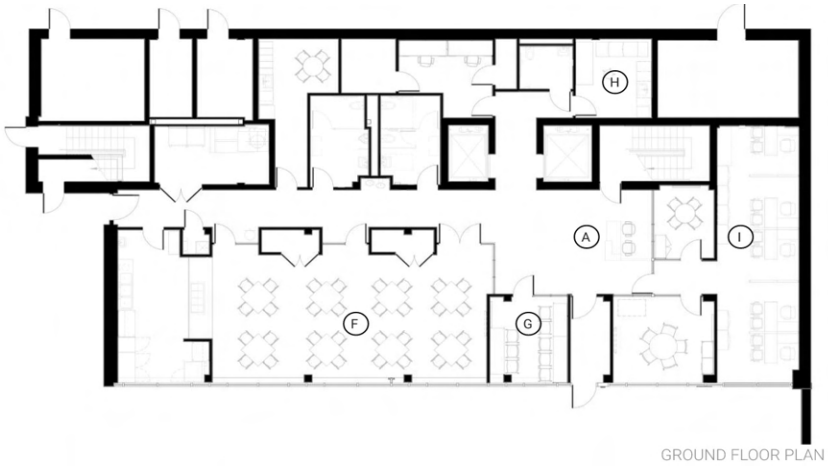

Figure 20: Final ground floor plan; Source: CS-A final presentation document

The amenities are one of the most impacted from the footprint reduction. The designers removed a dedicated multipurpose room from the plan and instead created a flexible dining and multipurpose room (labeled F in the plan). The computer room was downsized and moved from the top of the plan to the bottom. Through conversation with a designer from this project, this was a difficult compromise to make. They stated that they did not want to reduce the options of amenity spaces as they hoped to provide a multitude of choices for the residents to participate in. While the final design of the ground floor plan is not what they envisioned due to budget constraints, they found a solution by creating a flexible dining and multipurpose space that served varying uses for the residents.

Figure 21: Exterior view with reduced ground floor and residential floor setback removed; Source: CS-A Final Presentation Document

6.3.3 Residential Floor Design

The initial plans for CS-A's residential floor come with two alternatives. The main difference is seen in the layout of the bathrooms.

Figure 22: Initial typical residential floor option A; Source: CS-A Schematic Design Report

Figure 23: Initial typical residential floor option B; Source: CS-A Schematic Design Report

When taking TID principles into account, the strongest choice is option A. This prioritizes a one-to-one bathroom and dwelling unit count which allows families to access their own private bathroom, a preference widely seen in previously unhoused individuals. Option B is not an optimal style of restroom due to its use of large shared bathrooms, which are also colloquially known as "gang style" bathrooms. As previously mentioned, bathrooms are very personal and vulnerable spaces. Shared bathrooms can be intimidating for previously unhoused individuals and could cause individuals to be on guard while using the bathroom. Ultimately, the designers opt for a similar style to option A for the final design.

The most optimal layout for this plan would be individual apartment units that come with an en suite bathroom and kitchen. As previously mentioned in the literature review, this would help to give full agency to each family in this transitional housing project. While individual apartment units are not provided, CS-A still manages to create a safe living environment with option A since this plan provided private dwelling space and private bathrooms, even though they were not en suite.

The varying options of amenity spaces displayed (laundry room, quiet space, and the resident lounge) are positive additions to the residential floors. Having the choice of a quiet room and a lounge room complements well with the more social amenities on the ground floor of this initial plan. This allows residents options for respite spaces near their dwelling unit or options for more collaborative and social spaces on the ground floor.

Ultimately, the final design of the residential floors that was created is shown in Figure 24.

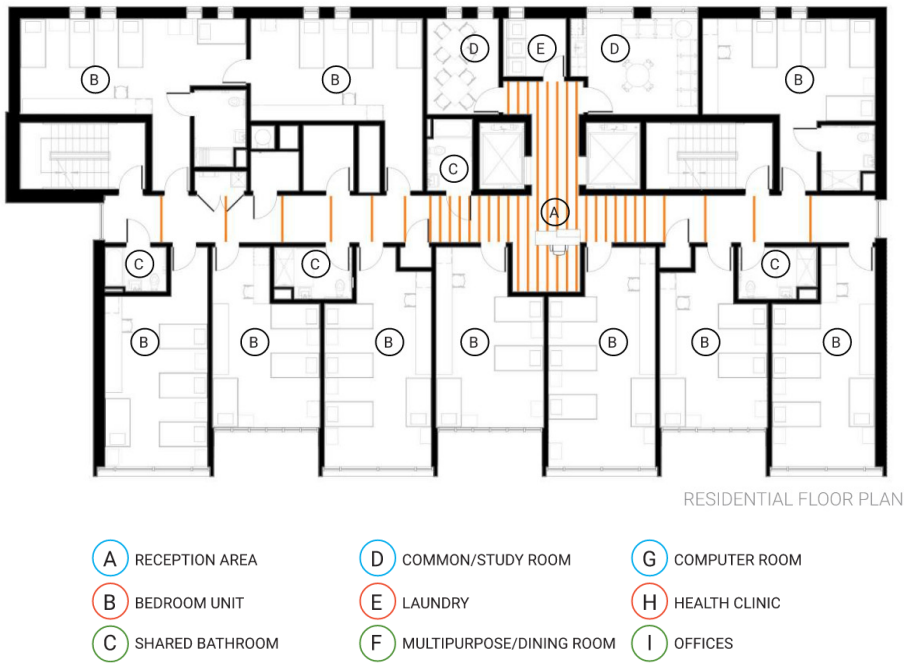

Figure 24: Final residential floor plans; Source: CS-A Final Presentation Document

The final residential floor plan mirrors a similar design to the original Option A of the plan discussed earlier. The choice to abandon the “gang style” bathroom is an intentional choice by the designers to alleviate resident concerns and feelings of vulnerability. The designers understand that shared bathrooms can make residents feel vulnerable. They do not want residents to have to worry about their safety in a shared bathroom which is why family bathrooms are provided instead (labeled C). Due to costs, they are not able to provide a one-to-one ratio of rooms to bathrooms which was not ideal. This means the families will share these spaces, however they were able to ensure that each bathroom can only be occupied by one person or one family unit at a time.

The final plan also indicates private rooms (labeled B) for families. This promotes the TID principles of safety and empowerment as the families are able to control who is coming in and out of their units and the families have full agency over their space.

The amenities (labeled D and E) are kept in the final design, which provides interaction nodes on each residential floor and promotes a place for respite and a place for socialization. This provides residents the choice of varying levels of social interaction and allows for spaces to go if they wish to leave their dwelling spaces.

6.3.4 Circulation Design

CS-A's final design is also sensitive in its circulation pattern. Figure 25 below shows how integrated the circulation pattern is within the project.

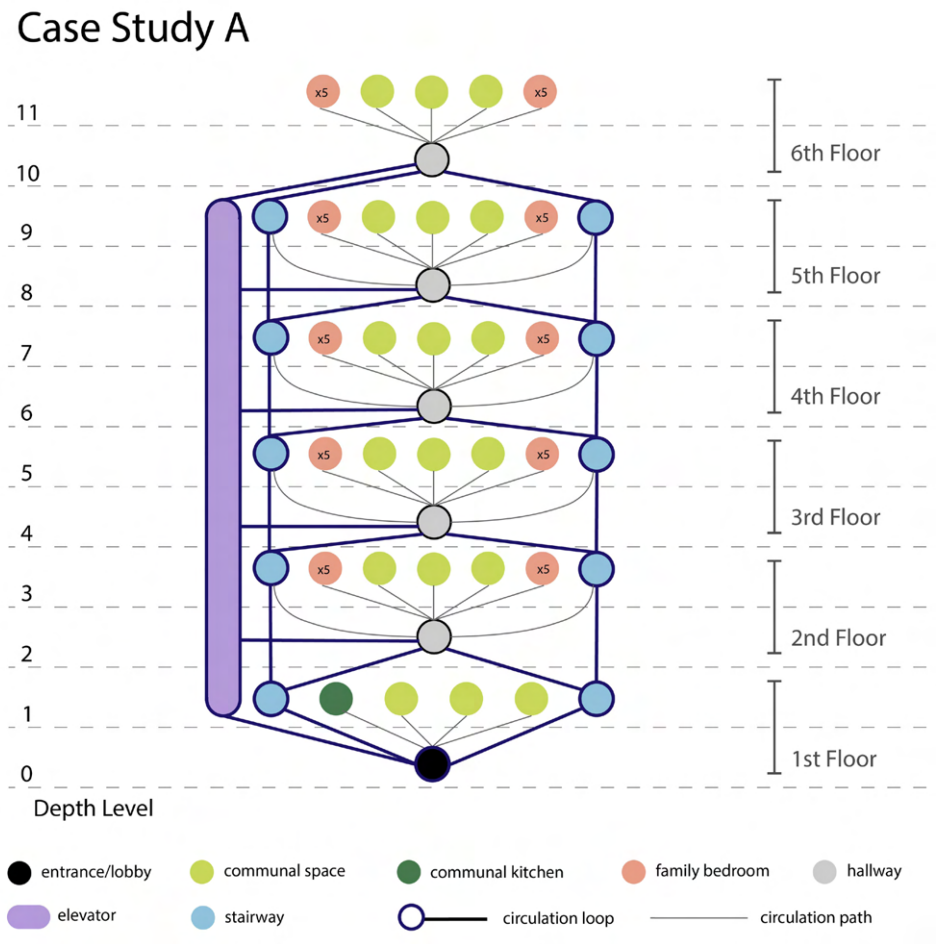

Figure 25: Justified graph for CS-A; Source: Author, adopted from McLane and Pable (2020)

This diagram shows a uniform floor design, with simple wayfinding that is easy to learn and understand. Because the circulation is uniform, the residents will be easily familiarized with the layout, avoiding any feelings of confusion. Additionally, the design of the building allows for various routes from the entrance to the programming elements of the building; this is indicated by the thick circulation loop lines. By creating multiple circulation paths through the building, residents are not forced to navigate through only one path of travel. Forced paths of travel would strip residents of a choice on how they would like to navigate the housing project. As stated earlier, the only individuals that are allowed to access the upper stories are the residents that live there. This provides another layer of safety and comfort knowing that they will not be met with unfamiliar faces. The circulation of CS-A demonstrates a connected and easily navigable space that encapsulates various TID principles such as safety and choice.

6.3.5 CS-A Planning Process/Execution Takeaways

Ultimately, from the initial plans to the final plans, this case study demonstrates the necessity to have creative and sensitive compromises for ideal design decisions. While this project did not strictly follow a TID framework, it exemplifies many strong principles of TID. The designers are clear of their vision from the first iteration of the design and manage to find compromises that allow for similar outcomes in their executed design when compared to their intended outcomes in their original design.

Overall the design choices shown in the case study promoted the TID principles of:

Choice	• Various social spaces • Various respite/individual spaces • Private bathrooms • Various Circulation Paths
Collaboration	• Case management and support staff • Various Social spaces
Empowerment	• Case management and support staff • Individual family rooms
Safety	• Simple Circulation Path • Sightlines into shared amenities • Private bathrooms • Individual family rooms
Trust	• Shared Amenities • Support Staff • Case management

Table 13: TID principles found in CS-A; Source: Author

7. Industry Professional Interviews

One hour semi-structured interviews were conducted with three goals in mind: (1) Learn of their understanding of TID, (2) Understand whether and how they have used the TID framework in past project work, and (3) Learn what they would find useful in a TID guidebook. Four design industry professionals were interviewed from two different design firms. Recruitment for interviews was completed by leveraging professional contacts to connect with individuals with varying degrees of experience in the field. Individuals interviewed have ranged from 10 years to 40 years in the industry. For their privacy, each interviewee will be given a pseudonym. I will provide a brief description of each interviewee:

> John S. is a Partner at a national design firm with 40 years of experience in the design industry. He has previously worked as a City Planner and Architect.
>
> Chris D. is a Project Lead at a national multidisciplinary design firm with 25 years of experience. He has worked previously as an Architect and Project Manager.
>
> Lynn H. is an Interior Designer at a national multidisciplinary design firm with 13 years of experience with a specialization in
>
> Sarah W. is an Architect at a national multidisciplinary design firm with 10 years of experience. She has previously worked in the public sector helping to design spaces for vulnerable populations.

7.1 Interviewee's Understanding of TID

TID is a relatively new framework that started to gain momentum in the 2010s. Because this framework is still in its infancy and lacks an agreed upon definition, one goal of the interviews is to understand how current industry professionals understand TID. When asking of their familiarity with Trauma-Informed design, there are mixed responses.

Chris explains that he has heard of the framework and used some concepts of TID in his project work. John explains he was aware of the concept; however, he expresses that in his 40 years of industry experience, he has not explicitly used a Trauma-Informed framework. Instead, he had designed based on the experiences and needs of user groups. Lynn and Sarah, on the other hand, each share a similar experience in their years as industry professionals and express that they both have used TID framework documents in guiding their project work over the years.

Asking each individual for a definition of TID came with a range of answers that revealed a general theme: TID is rooted in designing a space that is for a group of individuals that are experiencing or may have experienced trauma. Each interviewee explains that they were not sure of a definition. Sarah clarifies her hesitancy to assign a definition clearly when she states, "[I'm] a little bit unclear about the definition, and I think it's a good thing that it's an evolving concept, right? I think we're all still trying to figure out exactly what it means and what the principles are and how we could apply our research and data into that definition." The newness of this framework is likely the cause of each interviewee feeling as if they are not fully able to define TID. This is unsurprising given there is not an agreed upon definition in the literature, however the theme of creating sensitive spaces for individuals that may be experiencing or have experienced trauma emerged in each conversation. While definitions vary, interviewees give similar definitions, stating that TID is "very sensitive to the users and meets them where they are at" and that it aims to design the built environment in ways that not only "feel safe and welcoming, but helps to support and rehabilitate those individuals based on their trauma as well" (Lynn H.).

7.2 How Interviewee's Use TID in Their Projects

As mentioned, use of TID differs per interviewee. Sarah and Lynn state how they have used TID framework documents to guide their projects. Chris states that he had never used a TID framework document, but has been guided by principles similar to those of TID. Like Chris, John states that he has not utilized TID frameworks in his work, but explained that he had been mainly driven to create safe spaces for individuals who have experienced traumatic events.

Because there is not an agreed upon definition of what TID is, I explained how TID uses the 5 principles set by TIC. This was explained to frame each interviewee's understanding of TID into the context of this research. In turn, it also established what principles of their previous design work could fall under TID. I allow each interviewee to think about their past project work and explain where TID principles have been used. Each views their utilization of TID differently, however some common themes were gleaned from the conversations and will be discussed below.

7.2.1 Need for Evidence-Based Design Curated to the End-User

Sarah explains that the use of the framework materializes in the early stages of the planning process. She states that from the start of a project, she utilizes an in-house Research & Development (R&D) team to research the demographic that will be using the space she designs; in her case, users of varying justice & civic facilities tend to be the main demographic. The R&D team then uses that demographic data to find evidence-based design choices that are suitable for their needs in tandem with user engagement with the current populations she designs for.

Lynn reveals that her use of TID follows a similar timeline explained by Sarah. She states that her use of the framework begins the moment she receives a project with an evidence-based TID document that her team relies on. This document is proprietary to their firm so specific details are unable to be shared. However, she communicates that the document details various evidence-based TID design recommendations for the creation of restorative spaces. She explains that the document describes various strategies of utilizing a TID framework that can apply broadly over multiple project types.

When speaking to Chris, he provides various anecdotes on how TID concepts were applied in his past project work. Each anecdote that he provides demonstrates a direct response to the user's needs. For example, he shares an anecdote of a transitional housing development designed for previously unhoused individuals. He explains that literature his team studies indicates that circulation must be simple to navigate since previously unhoused individuals may have aversion to buildings with confusing circulation paths.

Ensuring that design decisions are backed by evidence-based research is important. Taking this one step further, the research should be studying a similar user group to the end-user of a project. There is a wealth of literature about previously unhoused individuals and design practices; it is important to leverage these findings and use the knowledge gained from these studies to create spaces for these individuals.

7.2.2 Inclusion of the End-User in the Planning Process

Sarah explains that in order to use a TID framework, the user must be centered in the conversation, even if there are limitations to user interactions (i.e. not being able to interact directly with vulnerable populations or youth populations):"Oftentimes we hold user group meetings. So we meet with the head of those departments. Sometimes they bring in actual users of the space." If users are not able to be spoken to directly, she ensures that a staff member that has a close relationship to the users is present in conversation. By interacting with staff members who have a close relationship to the users, she is able to glean information on what specific needs the users have and customize the design of the spaces to the users.

John shares an anecdote for a youth overnight shelter that he previously consulted for. He explains that the design of this shelter was "basically from practical experience... I think, [practical experience is what] informed the architecture of that space." The practical experience is user engagement. It is apparent that the industry professionals each support the inclusion of end-users on design decisions. Taking the time to understand the wants and needs of the individuals that are going to use the spaces helps to drive the overall design. This also guides the industry professionals to make design choices that are empathetic to the user.

7.2.3 The Need to Advocate for TID Projects

Both Sarah and Lynn express that pushback on TID is a problem they often encounter. As Lynn explains, TID "gets a lot of push because it may not be the most efficient or aesthetic means of design, but it's very necessary" (Lynn H.). Lynn provides an example of how a couch may not be the most aesthetically pleasing design choice, but it could help to make a space feel more homey and, in turn, be a calming design choice to someone who was previously unhoused. Adding to that sentiment, Sarah states, "I think as designers, we are advocates. We're not just architects and researchers. We're also advocates because of that knowledge we have. So making sure that we're representing our clients and fighting for what we know is important for them and those users." (Sarah W.)

Perspectives from Lynn and Sarah make it apparent that being an advocate for TID goes hand-in-hand with being an advocate for the end-user. This idea of advocacy links to understanding the user and learning what their wants and needs are. By designing through an advocacy lens, it will encourage designers to design with the end-user in mind at all times; this will ultimately lead to decisions that prioritize the end-user.

7.2.4 Measurements of Success

Sarah shares an example of how she measures success throughout a TID project, or in other words, what are indicators that she is achieving the TID principles that she sets out to accomplish in her project work. Sarah explains that her measurement of success is "a constant check with the evidence-based side of it all" (Sarah W.) Throughout her TID projects, Sarah utilizes her firm's R&D team to double check that the design decisions and amendments throughout the design process still fit evidence-based research. She explains that having individuals outside of the planning process (in her case the R&D team) review progress of the project ensures that the original intention of the design is executed.

7.2.5 TID Compromises

During conversation with Sarah, she begins to talk about how projects always have constraints or limitations, whether it be timelines or budgets. She states that revisiting the narrative and ensuring that the intention of a project reaches to the final design is extremely important; of course, there will likely be limitations in the forms of budgets or time constraints, but guaranteeing that the TID principles do not get lost in the changes is the most important aspect. She shares, "there's always an answer. There's always another option. It's just [about] making sure that people aren't quick to cut certain items that they don't fully understand how impactful they are" (Sarah W.) When asked to provide an experience that she had to compromise, she provides a story of her work in a juvenile center. She explained that children had to be held in a room that had no access to natural light. She had to think of a creative way to provide the feeling of natural light and pushed to have faux daylight

panels installed into the wall to help simulate a window that lets in natural lighting. She used this example to explain how there is always a way to design with a trauma-informed lens of thinking. With limitations being a large part of any project work, it is vital to ensure that TID principles are not sacrificed and alternatives are set forth to achieve the same intentions.

7.3 Interviewee's needs in a TID Guidebook

Finally, for the creation of the guidebook, it is important to know what would be helpful in a guidebook aimed for transitional housing. Each interviewee describes that a guidebook must be dominantly visual and easy to interpret. Chris explains a designer's preference for a visual guidebook: "Most of us in the group are very visual, so [visuals] would be very helpful." (Chris D.). Generally, the main points collected were that the guidebook should:

- Be visually interesting
- Allow for a conceptual understanding of spaces
- Rely more on visuals than text
- Be easily understood by clients
- Be able to be read through in one session

Using this information in tandem with the knowledge gained from the literature review, case study, and interviews, the following guidebook was produced for incorporation of evidence-based Trauma-Informed Design in transitional housing projects:

DLRGROUP

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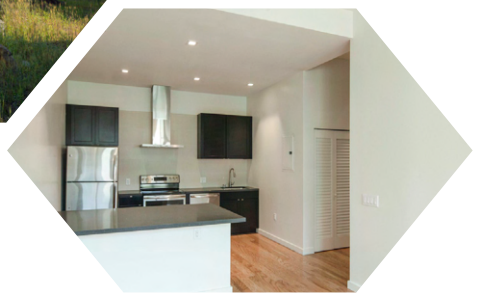
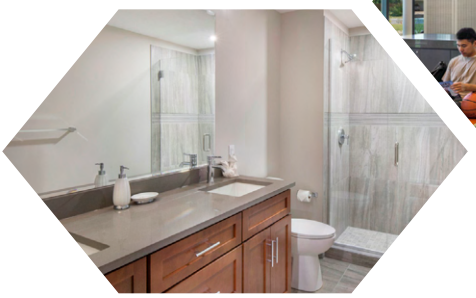
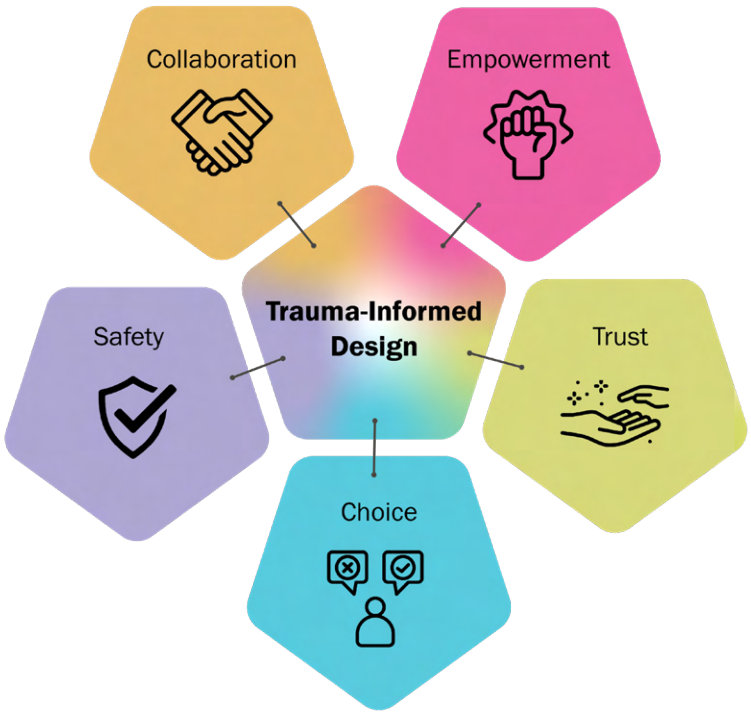


Guidebook for Incorporating Evidence-Based Trauma-Informed Design (TID) into Transitional Housing Projects

by Cody-Michael Gan



Trauma-Informed Design



Trauma-Informed Design (TID) aims to *create physical spaces that promote safety, well-being, and healing*.

TID prioritizes the 5 core values of:

Collaboration:
The design of the space promotes collaboration and shared decision making.

Empowerment:
The design gives agency to end-users and empowers decision making.

Trust:
The design promotes a shared sense of ownership and shared respect.

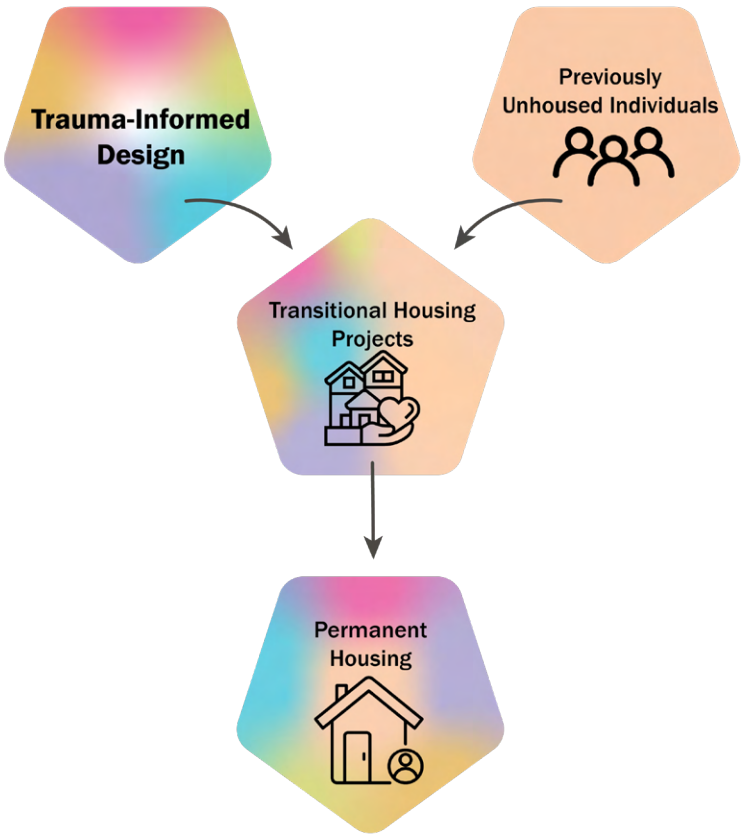
Choice:
The design allows for various forms of decision making.

Safety:
The design considers the comfort and safety of the end-user.

Transitional Housing

Transitional housing is temporary housing for previously unhoused individuals that aims to help these folks to transition into permanent housing.

Since all types of traumas are unique, this guidebook cites evidence-based recommendations for certain traumas that previously unhoused individuals commonly face.



Engage Users Early and Often

Promotes TID Principle(s) of: Collaboration, Empowerment, and Trust

All forms of trauma are different. TID projects must *always* be ***informed by the end users of a space.*** Ensuring that users of the voices are heard in the design process is key to creating a successful transitional housing project.

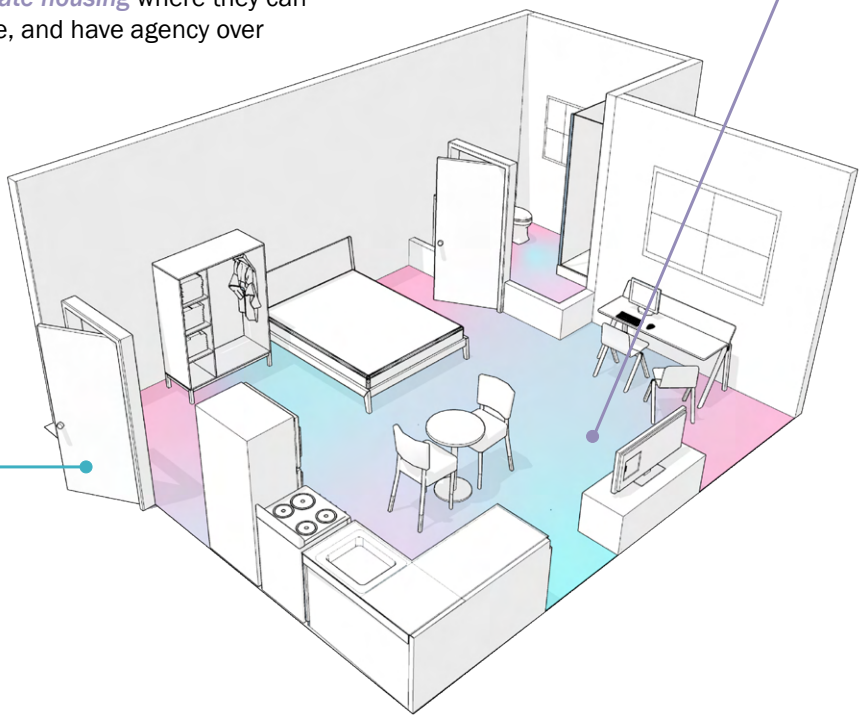
Strategies for engagement include:

- Surveys
- Interviews
- Tabling
- User Group Meetings
- Questionnaires

Prioritize Private Apartments

Promotes TID Principle(s) of: Choice, Empowerment, and Safety

A study by Chan in 2020 shows that formerly unhoused individuals ***prefer private housing*** where they can feel safe, can be alone, and have agency over their living space.



Floorplans can differ, however it is important to keep units private for an individual or a family unit. Housing with strangers can be distressing to formerly unhoused individuals.

Providing a private apartment allows for the resident to dictate whether or not they want to engage socially or have privacy.

Maximize “Interaction Nodes”

Promotes TID Principle(s) of: Choice, Collaboration, and Trust

Interaction Nodes are spaces that allow for informal gathering such as lounge rooms, libraries, studies, food halls, and more. A study conducted by McLane and Pable revealed that ***interaction nodes helped residents feel connected to and supported by their peers.***

Orienting furitnure against walls promotes a feeling of security. Residents are also able to monitor who is entering and exiting common spaces.

Providing interaction nodes of different scales (like a small computer room or a larger work space) allows residents to choose a social setting they feel comfortable with.

Flexible furniture provides residents the choice to reorient rooms in ways they feel comfortable.

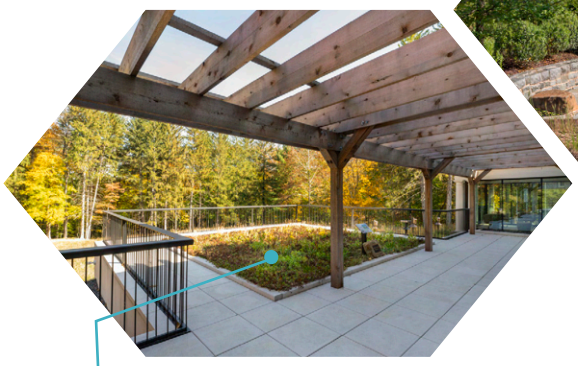
Ensure Access to Nature

Promotes TID Principle(s) of: Choice, and Empowerment

Kals and Muller explain in their 2012 study how ***direct access to nature can have restorative impacts*** to individuals. Both views of nature and interaction with nature can benefit resident’s wellbeing and health.

Windows should be oriented in ways that allow light and air to come into residential spaces. Additionally, views of nature can be very calming to residents.

Simple designs, like creating an outdoor seating patio, can provide a cost-effective respite space for residents to destress.

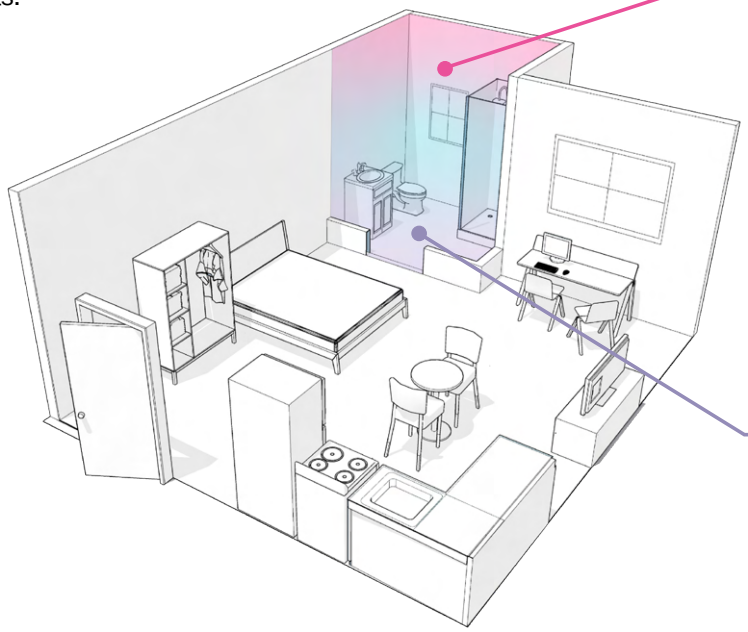


Providing outdoor activities, (such as gardening) allows residents to interact directly with nature.

Provide Private Bathrooms

Promotes TID Principle(s) of: **Choice, Empowerment, and Safety**

Private bathrooms give agency and assurance of privacy to residents. A Knight study reveals that *private bathrooms reveal a 70% retention rate of residents* while shared bathrooms only reveal a 30% retention rate of residents.



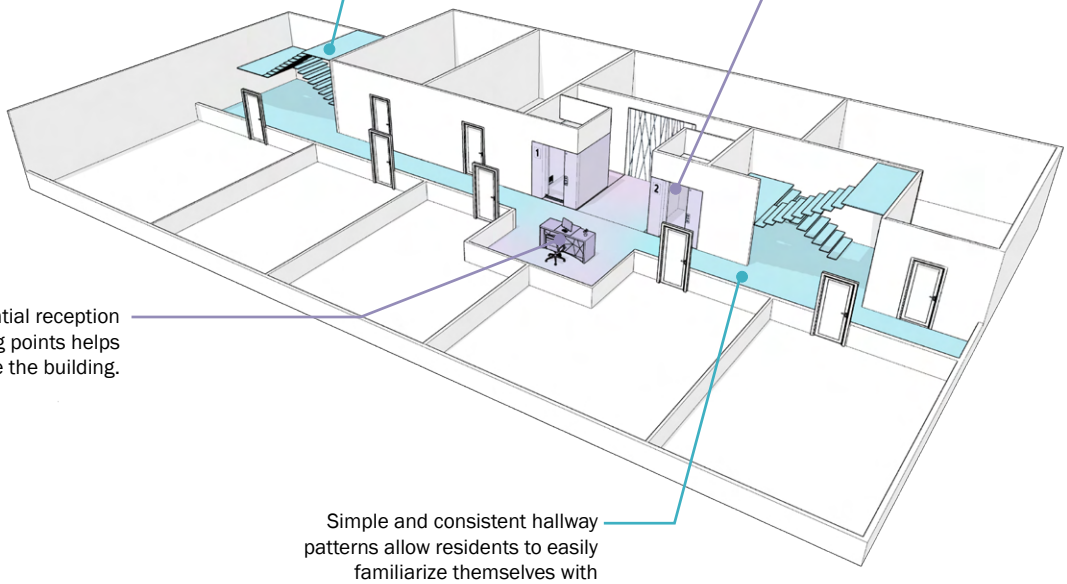
The bathroom is a very vulnerable space. By providing private bathrooms per unit, residents will have ownership over the restroom. Additionally, they will not have to be wary of any unfamiliar individuals entering while they use the restroom.

If private bathrooms are not plausible, ensuring that all shared bathrooms are lockable and single occupancy is suitable. This will prevent waryness of individuals entering while a resident is using the restroom.

Simplify Circulation Patterns

Promotes TID Principle(s) of: **Choice and Safety**

Simple circulation paths throughout promote psychological safety. Simplicity in circualtion and wayfinding is easier to understand and helps residents avoid feeling confused or lost.



Multiple stairways allows for a greater choice of how residents wish to navigate the building.

Central locations of elevators allows for views of the entire hallway network.

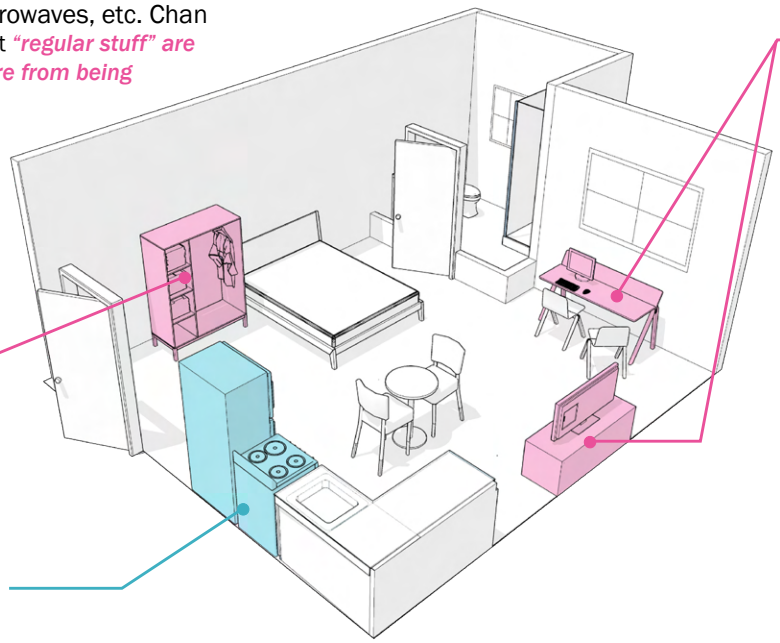
Inclusion of residential reception desks and wayfinding points helps residents navigate the building.

Simple and consistent hallway patterns allow residents to easily familiarize themselves with the layout.

Provide the "Regular Stuff"

Promotes TID Principle(s) of: Choice and Empowerment

"Regular stuff" refers to household amenities that may be taken for granted: washing machines, televisions, computers, microwaves, etc. Chan explains in his 2020 study that *"regular stuff" are concrete signifiers of departure from being unhoused.*



Personal technology (such as computers and televisions) can be used for both work and entertainment. Having access to these items can aid in transitioning out of homelessness.

Private storage allows for residents to have agency over their personal belongings.

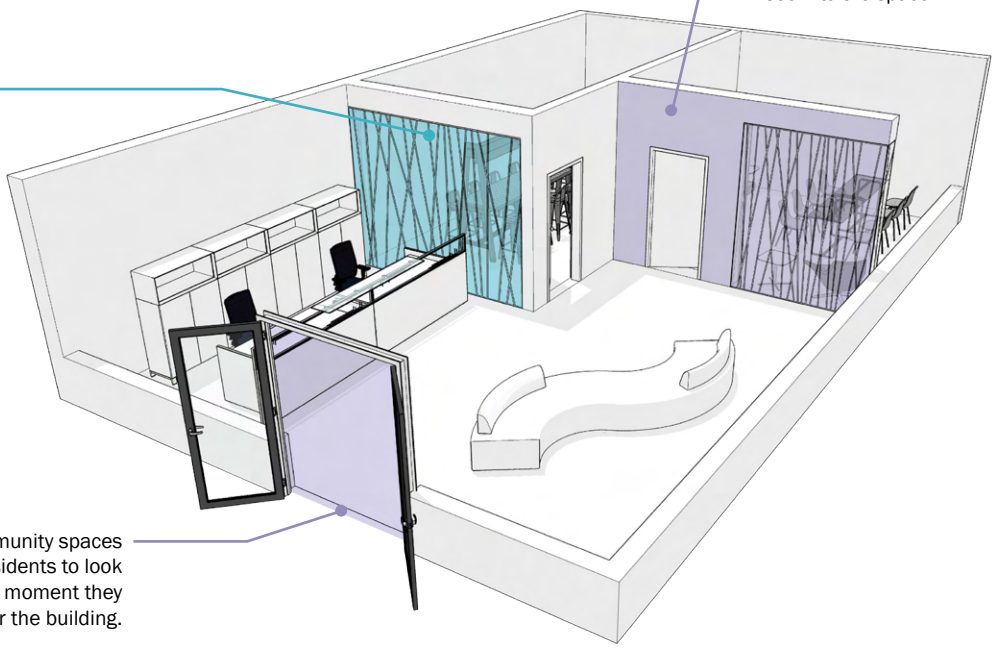
Kitchen appliances allow residents to be more independent when creating their meals. They would not be constricted to menu items in food halls or take out.

Ensure Clear Sightlines Into Communal Spaces

Promotes TID Principle(s) of: Choice and Safety

Clear sightlines into communal spaces *allow residents to assess whether or not they feel* comfortable entering or exiting the space.

Mixing the use of solid walls and transparent materials increases privacy in the communal space. At the same time, it does not prevent sightlines for others to see into the space.



Use of decals or frosted glass would allow for individuals to still see in the communal space, but also provides some privacy for individuals using the space.

Sightlines into community spaces should allow for residents to look into spaces from the moment they enter the building.

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All Images courtesy of DLR Group and Case Study A’s Firm

Methods Used to Create this Guidebook

Literature review
A literature review was used to understand evidence-based TID decisions that can be implemented into transitional housing. Peer reviewed articles were synthesized into the recommendations found within this guidebook.

Case Study
A case study from a reputable firm was analyzed based upon the evidence based TID literature. The case study was analyzed for design decisions that promote TID and areas of improvement. The lessons learned from this case study helped to reinforce the recommendations provided in this guidebook.

Interviews
Interviews were conducted with four industry professionals with three main learning goals in mind: (1) Learn of their understanding of TID, (2) Understand whether and how they have used the TID framework in past project work, and (3) Learn what they would find useful in a TID guidebook. Interviews were semi-structured with questions to guide discussion toward the goals discussed above. Lessons learned about how to apply TID into projects, and advice on construction of a guidebook, were implemented when creating this document.

9. Conclusion

Transitional housing serves the purpose of aiding previously unhoused individuals in transitioning into permanent housing. Being unhoused is often linked to experiencing traumatic events. Transitioning out of houselessness is a very vital time in the lives of these individuals, and the design of a transitional housing project can greatly affect the users of the space. This is why it is important to understand how to design trauma-informed spaces for these individuals.

Through this study, it is apparent that TID recommendations must be evidence-based and curated to the end-user of a space. In the case of transitional housing, there must be intentionality behind the design as the users are individuals that have a much higher likelihood of previously experiencing traumatic events. Transitional housing cannot be just building housing – it must be building empathetic spaces that will optimize the transition of the previously unhoused individuals into permanent housing.

10. Limitations and Areas for Future Research

10.1 Literature Review Limitations

- Because Trauma-Informed is still in its infancy, there are not a lot of peer reviewed articles that specifically focus on how Trauma-Informed design can be incorporated into transitional housing.
- Due to the short duration of the study period, literature involving various topics were not able to be included in this study. Topics are discussed in section 10.4.

10.2 Case Study Limitations

- Due to travel distance, visiting the case-study site was not a possibility.
- In-person analysis was not conducted and this study relied on analysis of design documentation.
- Due to the short duration of the study period, finding multiple transitional housing case-studies was not able to happen.
- Individuals who worked on this project claimed to not remember many details about the design process as its design and construction was 5+ years ago

10.3 Interview Limitations

- Snowball sampling through professional connections limited the network of individuals that were able to be included in this study.
- Due to the short duration of this study, an IRB process to engage with end-users was not feasible.
- Interviews only represented viewpoints of industry professional designers and did not represent viewpoints of end-users or staff at transitional housing communities.
- Four interviews cannot be representative of the industry professional population.

10.4 Areas for Future Research

Due to the limited duration of this study, many important topics were not able to be discussed. Transitional housing is a complex type of housing that invites individuals of many backgrounds into their communities. To help round out the story told in this study, future areas of study could include:

- Gender dynamics in transitional housing
- Experiences of individuals with transgender or gender-nonconforming identities in transitional housing
- Experiences of LGBTQ+ individuals in transitional housing
- Analysis of how facades and landscaping can be trauma-informed
- A cost benefit analysis of implementing TID in transitional housing
- Youth experience in transitional housing

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Appendices

Appendix A: Interview Consent Form

UNIVERSITY OF WASHINGTON
CONSENT FORM
DESIGN PROCESS FOR TRANSITIONAL HOUSING

Researchers:

Principal Investigator: Cody-Michael Gan | 760-519-5985 | gancody@uw.edu

Faculty Advisor: Catherine De Almeida | cdealmei@uw.edu

We are asking you to be in a research study. This form gives you information to help you decide whether or not to be in the study. Being in the study is voluntary. Please read this carefully. You may email me (gancody@uw.edu) any questions about your participation in this study. Then you can decide whether you wish to participate in the study. You may also ask questions at any point during the study if you choose to participate.

PURPOSE OF THE STUDY

The purpose of this study is to understand how the design framework of Trauma-Informed Design can be applied to Transitional Housing. Trauma-Informed Design (TID) is an increasingly popular design framework that aims to design the built environment in a way that prevents re-traumatization of individuals that have experienced life-altering events or are currently enduring the effects of a traumatic event. TID is driven by the 5 principles of Trauma-Informed Care: safety, choice, collaboration, trust, and empowerment. However, there are currently no clear guidelines on how to incorporate TID into program components in modern transitional housing projects. Therefore, this study is aimed at understanding how evidence based TID can be incorporated into such developments. This study will allow the principal investigator to understand why certain design decisions were made and discuss how certain program elements were identified.

STUDY PROCEDURES

Interview (approximately 1 hour)
If you choose to participate, you will participate in an approximately 1 hour interview. The interview will be a semi-structured interview with questions regarding your familiarity with Trauma-Informed Design and its application of the framework to Transitional Housing

This interview will not ask for any personal or identifiable information of the participant. This will strictly be regarding the design phase processes and Trauma Informed Design. To ensure your privacy, you will be assigned a pseudonym and the name of the transitional housing project and your company will only be described in general terms.

This will be a recorded interview to ensure accuracy of information stated. Again, your answers will not be directly linked to your identity and will be credited to your pseudonym in the final deliverable.

RISKS, STRESS, OR DISCOMFORT

This research process poses minimal risks to participants. Participants will not encounter any more stress or discomfort than in their normal day of work.

Participants will have the option to deny answering any questions asked in both the questionnaire and the interview. You will NOT be asked to share any personal or identifying information such as their SSN, medical records, or other sensitive information. To ensure your privacy, you will be assigned a pseudonym to protect your identity.

Since the interview will be taking place online. Precautions will be set so that the interview will take place in a password protected platform, however – while unlikely – there will always be risk of hacking or interception of this interview process.

You are able to withdraw from this study at any point. Withdrawing from this study will also withdraw any information given through the questionnaire and interview.

BENEFITS OF THE STUDY

The benefit of this study will be your contribution to the evolving knowledge of Trauma-Informed Design as a design framework and how to create trauma-informed transitional housing.

CONFIDENTIALITY OF RESEARCH INFORMATION

You will not have to disclose your full name to participate. A pseudonym will be assigned to each participant for the protection of their identity. The transitional housing project and their company will not be identified and only described in general terms.

Recordings will be stored in a password protected drive that can only be accessed by the researcher.

DATA SHARING PLANS

Participant data will not be shared outside of this project.

OTHER INFORMATION

You may refuse to participate, and you are free to withdraw from this study at any time without penalty or loss of benefits to which you are otherwise entitled. If you wish to withdraw, please contact the researcher listed on page 1 of this consent form.

A copy of the consent form will be emailed to you at an email address that you provide. It will be a "PDF" document. Most computers already have PDF viewer software installed, which will allow you to open, read, or print the consent form. The email we send you will include a link to PDF viewer software (such as Adobe Acrobat Reader) in case your computer doesn't already have it. If you would prefer to receive a paper copy of the consent form at no cost to you, please contact the researcher listed on page 1 of this consent form.

RESEARCH-RELATED INJURY

If you think you have been harmed from being in this research, please contact the faculty advisor Catherine De Almeida at cdealmei@uw.edu. This email is monitored Monday-Friday from 9am – 5pm.

It is important that you promptly tell the researchers if you believe that you have been injured because of taking part in this study. You can tell the researcher in person or call them at the number(s) listed at the top of this form. These numbers are monitored regularly and will accept voicemails.

The UW does not normally provide compensation for harm except through its discretionary program for medical injury. However, the law may allow you to seek other compensation if the harm is the fault of the researchers. You do not waive any right to seek payment by signing this consent form."

Consent Presenter Statement

I have provided this participant and/or their legally authorized representative (LAR) with information about this study. The participant/LAR has been given sufficient time to consider participation and I have answered any questions they had. The participant and/or their LAR indicated that they understand the nature of the study, including risks and benefits of participating.

Printed name of study staff obtaining consent

Date

Subject's statement

This study has been explained to me. I volunteer to take part in this research. I have had a chance to ask questions. If I have questions later about the research, or if I have been harmed by participating in this study, I can contact one of the researchers listed on the first page of this consent form. If I have questions about my rights as a research subject, I can call the Human Subjects Division at (206) 543-0098. I will receive a copy of this consent form.

Printed name of subject Signature of subject

Date

Appendix B: Digital Presentation Version of Guidebook

PPTX on following pages

DLRGROUP

Guidebook for Incorporating Evidence-Based Trauma-Informed Design (TID) into Transitional Housing Projects

by Cody-Michael Gan

Trauma-Informed Design

Trauma-Informed Design (TID) aims to *create physical spaces that promote safety, well-being, and healing*.

TID prioritizes the 5 core values of:

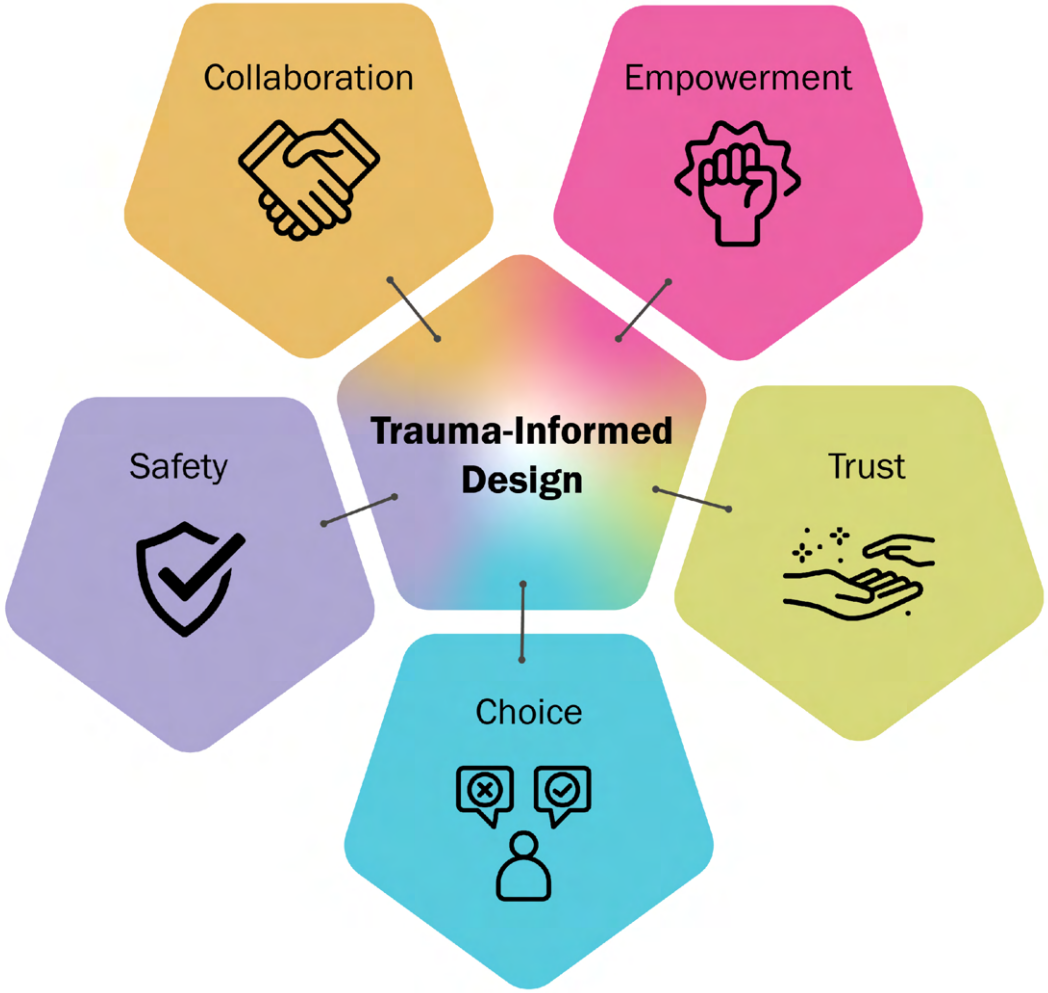
Collaboration:
The design of the space promotes collaboration and shared decision making.

Empowerment:
The design gives agency to end-users and empowers decision making.

Trust:
The design promotes a shared sense of ownership and shared respect.

Choice:
The design allows for various forms of decision making.

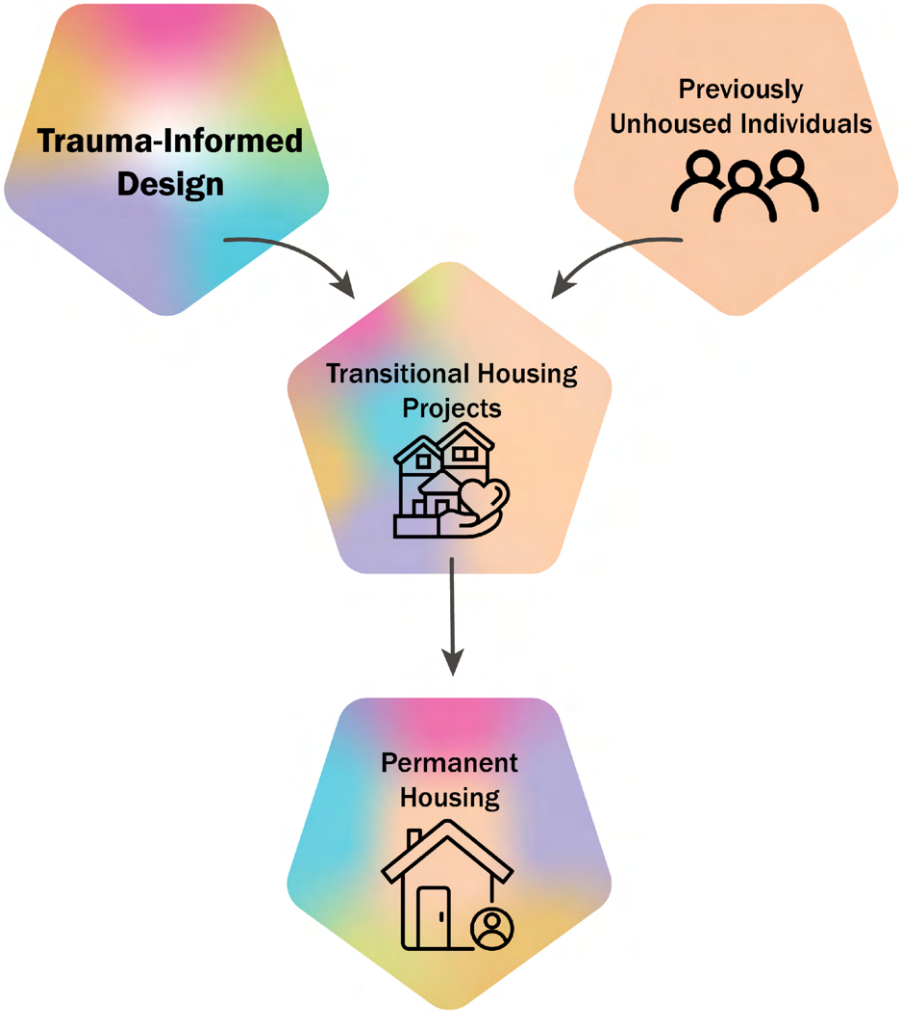
Safety:
The design considers the comfort and safety of the end-user.



Transitional Housing

Transitional housing is temporary housing for previously unhoused individuals that aims to help these folks to transition into permanent housing.

Since all types of traumas are unique, this guidebook cites evidence-based recommendations for certain traumas that previously unhoused individuals commonly face.



TID Recommendations

Engage Users Early and Often

Promotes TID Principle(s) of: Collaboration, Empowerment, and Trust

All forms of trauma are different. TID projects must *always* be ***informed by the end users of a space.*** Ensuring that users of the voices are heard in the design process is key to creating a successful transitional housing project.

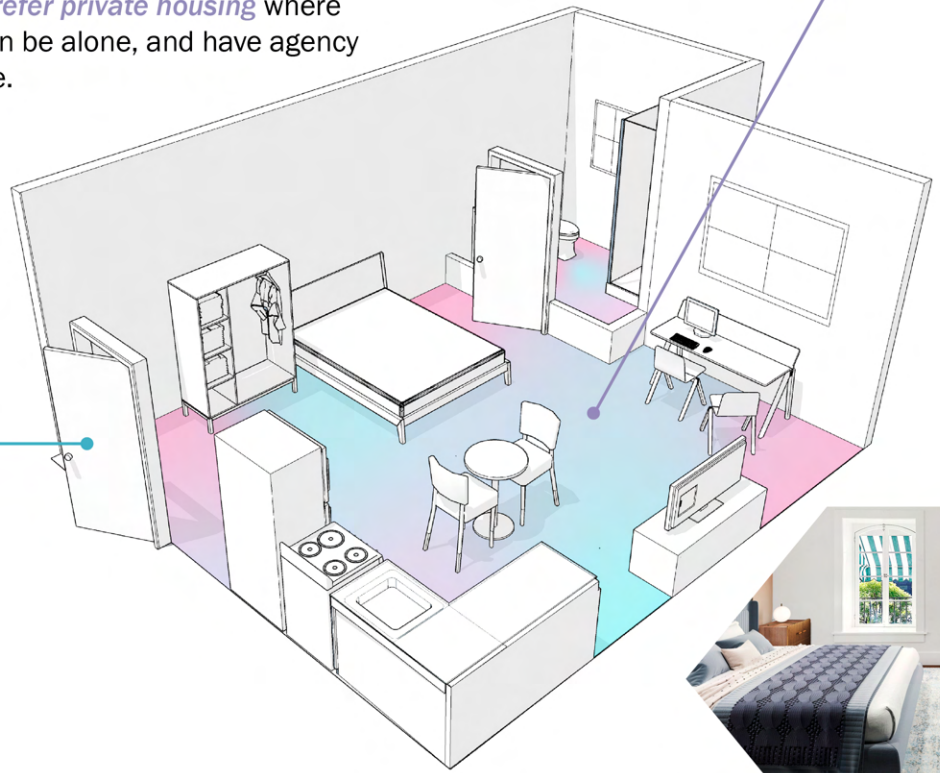
Strategies for engagement include:

- Surveys
- Interviews
- Tabling
- User Group Meetings
- Questionnaires

Prioritize Private Apartments

Promotes TID Principle(s) of: Choice, Empowerment, and Safety

> A study by Chan in 2020 shows that formerly unhoused individuals *prefer private housing* where they can feel safe, can be alone, and have agency over their living space.



Floorplans can differ, however it is important to keep units private for an individual or a family unit. Housing with strangers can be distressing to formerly unhoused individuals.

Providing a private apartment allows for the resident to dictate whether or not they want to engage socially or have privacy.

Maximize “Interaction Nodes”

Promotes TID Principle(s) of: Choice, Collaboration, and Trust

Interaction Nodes are spaces that allow for informal gathering such as lounge rooms, libraries, studies, food halls, and more. A study conducted by McLane and Pable revealed that ***interaction nodes helped residents feel connected to and supported by their peers.***

Flexible furniture provides residents the choice to reorient rooms in ways they feel comfortable.

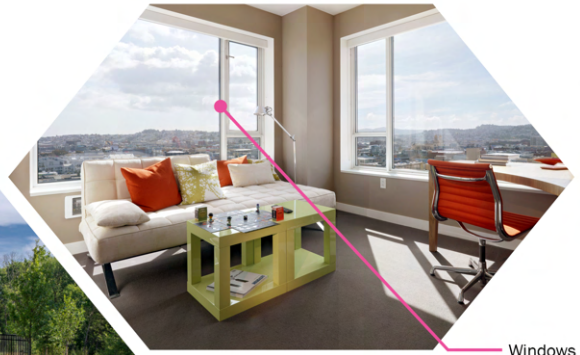
Providing interaction nodes of different scales (like a small computer room or a larger work space) allows residents to choose a social setting they feel comfortable with.

Orienting furitnure against walls promotes a feeling of security. Residents are also able to monitor who is entering and exiting common spaces.

Ensure Access to Nature

Promotes TID Principle(s) of: Choice, and Empowerment

> Kals and Muller explain in their 2012 study how ***direct access to nature can have restorative impacts*** to individuals. Both views of nature and interaction with nature can benefit resident's wellbeing and health.



Windows should be oriented in ways that allow light and air to come into residential spaces. Additionally, views of nature can be very calming to residents.

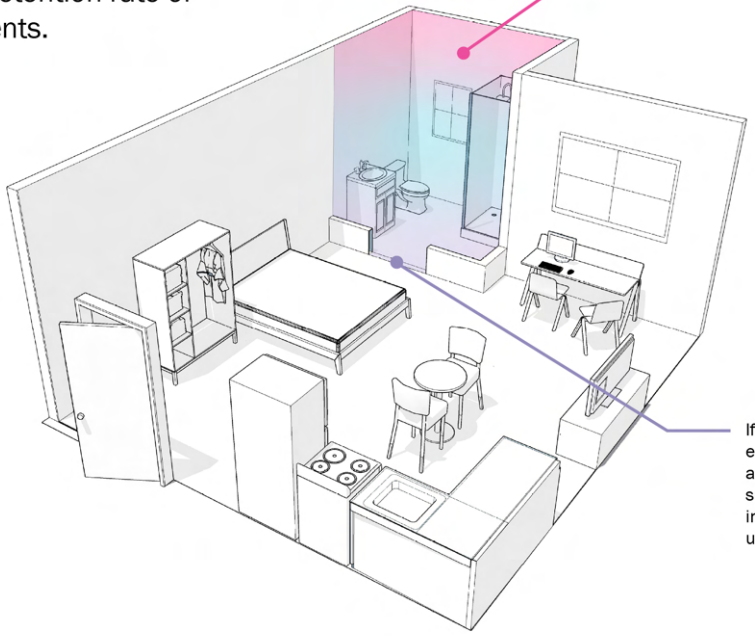
Simple designs, like creating an outdoor seating patio, can provide a cost-effective respite space for residents to destress.

Providing outdoor activities, (such as gardening) allows residents to interact directly with nature.

Provide Private Bathrooms

Promotes TID Principle(s) of: **Choice**, **Empowerment**, and **Safety**

Private bathrooms give agency and assurance of privacy to residents. A Knight study reveals that *private bathrooms reveal a 70% retention rate of residents* while shared bathrooms only reveal a 30% retention rate of residents.



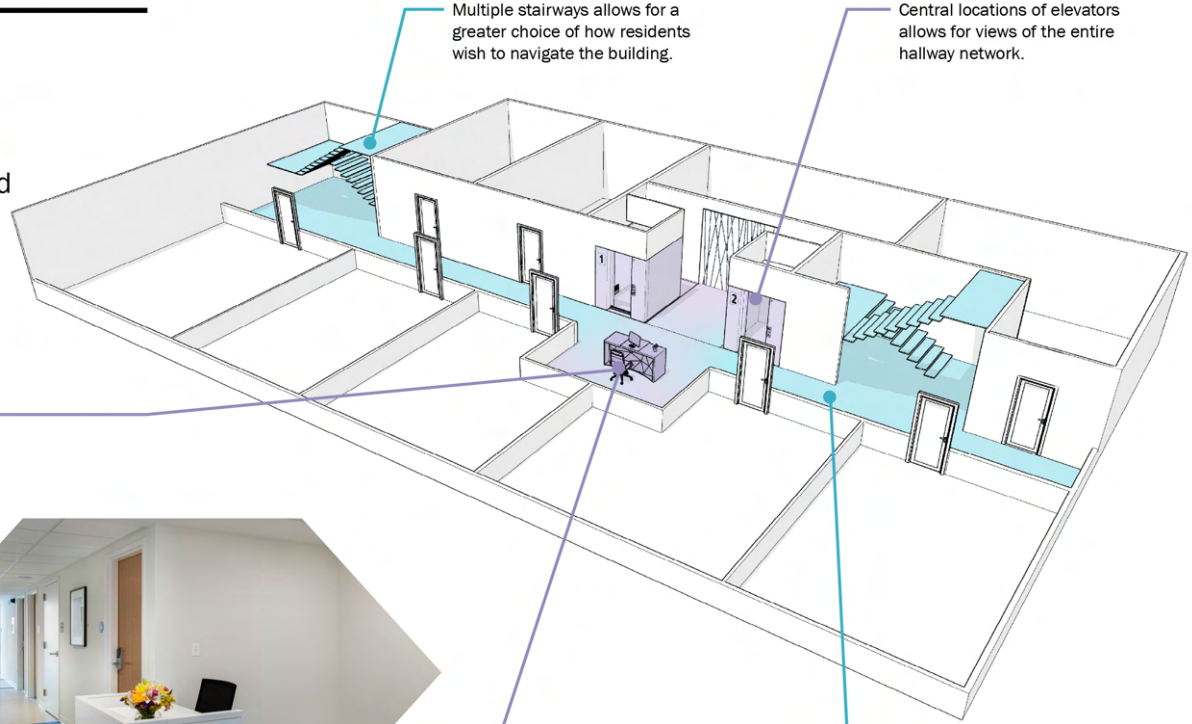
The bathroom is a very vulnerable space. By providing private bathrooms per unit, residents will have ownership over the restroom. Additionally, they will not have to be wary of any unfamiliar individuals entering while they use the restroom.

If private bathrooms are not plausible, ensuring that all shared bathrooms are lockable and single occupancy is suitable. This will prevent waryness of individuals entering while a resident is using the restroom.

Simplify Circulation Patterns

Promotes TID Principle(s) of: Choice and Safety

> *Simple circulation paths throughout promote psychological safety.* Simplicity in circualtion and wayfinding is easier to understand and helps residents avoid feeling confused or lost.

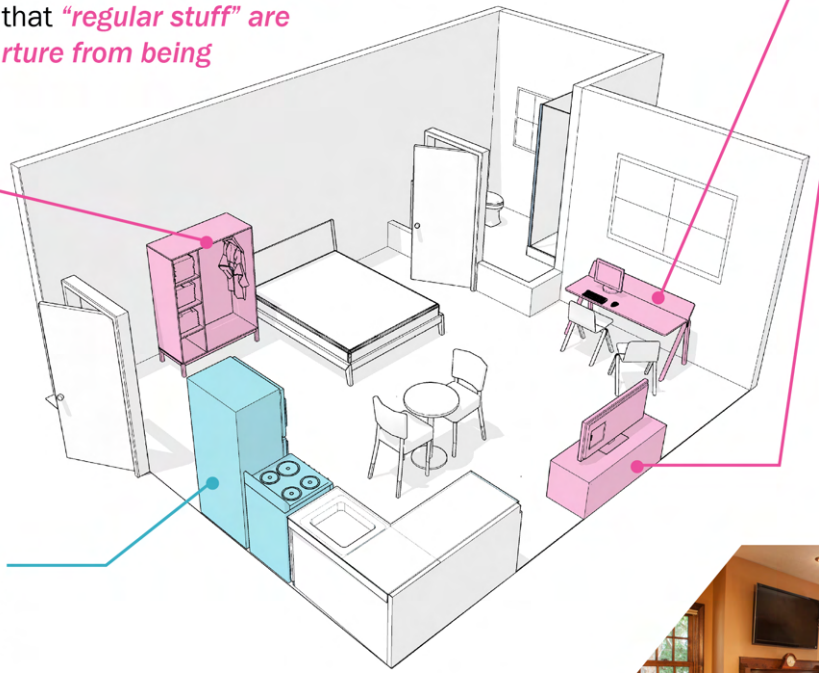


Provide the “Regular Stuff”

Promotes TID Principle(s) of: **Choice** and **Empowerment**

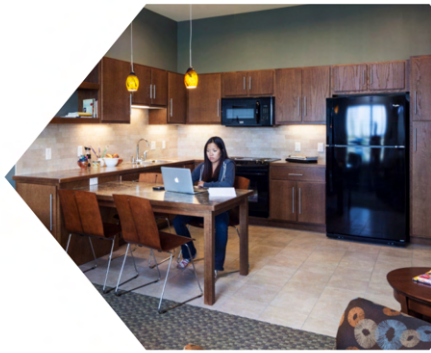
> ”Regular stuff” refers to household amenities that may be taken for granted: washing machines, televisions, computers, microwaves, etc. Chan explains in his 2020 study that ***“regular stuff” are concrete signifiers of departure from being unhoused.***

Private storage allows for residents to have agency over their personal belongings.



Kitchen appliances allow residents to be more independent when creating their meals. They would not be constricted to menu items in food halls or take out.

Personal technology (such as computers and televisions) can be used for both work and entertainment. Having access to these items can aid in transitioning out of homelessness.



Ensure Clear Sightlines into Communal Spaces

Promotes TID Principle(s) of: Choice and Safety

> Clear sightlines into communal spaces *allow residents to assess whether or not they feel comfortable entering or exiting the space.*

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Chan, Dara V. 2020. "Safe Spaces, Agency, and Connections to 'Regular Stuff': What Makes Permanent Supportive Housing Feel Like 'Home.'" Rehabilitation Counseling Bulletin 63 (2): 102–14. https://doi.org/10.1177/0034355218814927.

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**All Images courtesy of DLR Group and Case Study A's Firm*

Methods Used to Create this Guidebook

Literature review
A literature review was used to understand evidence-based TID decisions that can be implemented into transitional housing. Peer reviewed articles were synthesized into the recommendations found within this guidebook.

Case Study
A case study from a reputable firm was analyzed based upon the evidence based TID literature. The case study was analyzed for design decisions that promote TID and areas of improvement. The lessons learned from this case study helped to reinforce the recommendations provided in this guidebook.

Interviews
Interviews were conducted with four industry professionals with three main learning goals in mind: (1) Learn of their understanding of TID, (2) Understand whether and how they have used the TID framework in past project work, and (3) Learn what they would find useful in a TID guidebook. Interviews were semi-structured with questions to guide discussion toward the goals discussed above. Lessons learned about how to apply TID into projects, and advice on construction of a guidebook, were implemented when creating this document.