

Spatial characteristics of community mental health institutions in urban contexts—Using the architectural design of the Mallet ST Youth Mental Health Centre in Sydney, Australia as a case study

Xinfang Zhang*

Architecture, The University of Sydney, Sydney, Australia

Abstract: Promoting the *Comprehensive Mental Health Action Plan 2013-2030* issued by WHO, there is a global trend to transform the mental health care system from a psychiatric hospital-centred mode to a community-based network. Under this trend, decentralised community mental health institutions are gradually replacing psychiatric hospitals and mitigating the stigma of mental illness in the community. Plus, the operation mode and functions of mental health facilities become different, with their space design emphasising different features and requirements. Especially in urban contexts where it is crowded and people face more stressors and complex environments, mental health facilities have more challenges in dealing with the relationship with the surrounding community, reducing stigma from the community, and the impact of the space on patients' mental health. The goal is to explore the spatial characteristics of community mental health institutions in cities and to establish architectural design strategies for these institutions. Through a summary of theories on the built environment of community mental health institutions, combined with an analysis of internationally approved projects, five spatial characteristics were identified: (1) community shared space, (2) threshold space, (3) therapy space, (4) activity space, and (5) natural space. The research on the above five spatial characteristics, combined with the local social and cultural background and the specific needs of adolescents' mental health, was innovatively applied to the architectural design of the Mallet ST Youth Mental Health Centre in Sydney, Australia.

1. Introduction

Mental health is an essential component of health and well-being, and mental illness often leads to poverty, human rights violations, and isolation, and hinders personal development. However, current mental health services in most countries do not meet patients' needs, and the care centred on psychiatric hospitals has resulted in uneven distribution of resources, inefficiency, stigma and other hidden problems [1]. In response, WHO proposed the *Comprehensive Action Plan for Mental Health 2013-2030* to guide the transition of mental health care systems, and the development of a network of community-based mental health care became a global trend [2]. With the transformation of mental health services, the demands and emphasis on the design of psychiatric rehabilitation spaces are also changing [3]. Compared to traditional psychiatric hospitals, community mental health institutions (CMHIs) face a more complicated social environment, stigmatisation, and challenges in the relationship between the institution buildings and the surroundings [4] pp. 63-74. Especially in dense urban areas, the limited distance between mental health institutions and neighbouring communities usually causes conflicts in terms of safety and privacy [5].

Nowadays, as the population moves into the city, the lack of infrastructure and the transformation of residents' identities bring about a higher risk of mental illness, so the city needs more CMHIs on the streets [6] pp. 18-21. Therefore, there is a need to translate the new mode of community mental health care into architectural language by researching the spatial characteristics of urban CMHIs to provide quality rehabilitation environments for relevant stakeholders.

2. Spatial characteristics of community mental health institutions in urban contexts

In the late 1800s and early 1920s, asylums served as the primary institutions for taking care of people with serious mental illness, copying the design of prisons in the early days [7]. These institutions were tightly regulated, socially and physically isolated from the outside world and far from the local community and cities [8][9]. As the number of patients increased rapidly after World War II, these institutions were heavily criticised for overcrowding, violence and many other problems.

Hence, the 1960s deinstitutionalisation movement arose, which closed or downsized many large psychiatric

*Corresponding author: zhangxinfang1996@0outlook.com

institutions and established mental health care facilities in the community ^[10]. However, large psychiatric institutions did not disappear, but gradually abandoned the prison-like spatial features, with some institutions still having the long corridor format. In countries such as the United States, the United Kingdom, and Japan, new village-like mental health communities were built to create informal rehabilitation spaces with a range of amenities similar to normal dwellings ^{[11] pp. 19-32}.

In contrast, CMHIs are found in a wider variety of places, including converted shopfronts, office buildings, private homes, and newly built buildings. These institutions are scattered all over the urban communities and are encouraged to become part of the daily lives of the inhabitants, building a network of community mental care.

The study of the spatial characteristics of CMHIs in urban contexts is based on a theoretical summary of the built environment of CMHIs, combined with a critical analysis of the design of internationally recognised mental health institutions. Referring to Anthony's ^{[12] pp. 70-85, 179-198} classification and function bubble diagrams of mental health facilities, five key spaces were analysed and distilled from them, which are (1) community shared space, (2) threshold space, (3) therapy space, (4) activity space, and (5) natural space.

2.1 Community Shared Space

Community Shared Space is the space shared between CMHIs and the community to create a buffer zone between the bustling urban social life of patients and their therapeutic lives. It also aims to help outsiders understand more about people with mental disorders and be more supportive towards them, effectively alleviating the stigma related to mental illnesses in the community. The stigma not only causes rejection and fear towards people with mental disorders and relevant institutions but also

presents as patients' denial of themselves, often leading to self-isolation ^{[13] [4] p.50}.

Community shared space, as a place where the community and CMHIs functionally interpenetrate, increases the opportunities for patients to have passive exposure to the community. Patients can participate in social life under appropriate supervision to increase their sense of safety. What's more, for outsiders, places like CMHIs have a strong sense of non-neutrality. By incorporating neutral places that are accessible, serve the public equally, and encourage public activity, CMHIs can become more inclusive and create a positive image that makes the public feel safe ^{[14][15]}. For example, Wooden Forest Medical Centre for Mentally Disabled People in the Netherlands allows residents in the community to share the medical and sports facilities as a payback to the community. For instance, children can take swimming lessons in the rehabilitation pool ^[16]. Another example is Kronstad Psychiatric Hospital which sets up an outdoor football field for shared use between the community and the hospital (Figure 1). It portrays a healthy image for the hospital and alleviates stigma while creating a sense of belonging among all users ^[17].

Furthermore, space is limited in cities, and as the population and the need for infrastructure increases, sharing some space between different institutions is inevitable ^{[6] p. 18}. By connecting or borrowing public spaces such as neighbouring parks and streets, community-shared spaces can dissolve the boundaries of CMHIs and help them blend into the urban context. For example, the Kronstad Psychiatric Hospital, located in the centre of a busy city, provides a public plaza on the north side of the hospital where citizens and institutional users can both rest and play here ^[17] (Figure 1). Plus, different cultural groups have their values, and the design of shared spaces needs to adapt to local conditions, incorporating local history, culture and social issues, to create shared spaces with a collective memory of the community ^[13].



Football field, Kronstad Psychiatric Hospital



Northern public plaza, Kronstad Psychiatric Hospital

Figure 1. Community Shared Spaces in Kronstad Psychiatric Hospital

Image Source: <https://www.archdaily.com/451158/kronstad-origo-arkitektgruppe>

2.2 Threshold Space

Threshold space can be defined as the part where public spaces intersect with private or semi-private spaces. It serves as a link between the city and the CMHI, such as the arrival area associated with the entrance and the semi-private space attached to it ^[18]. In cities, the lack of buffer

space from neighbouring facilities and the well-developed transport network makes the CMHI exposed to the public ^{[6] p. 19}. Therefore, the threshold space needs to control the access of people and the level of exposure to protect the privacy and safety of patients and outsiders.

Moreover, the ambiguous messages expressed in the threshold space affect the visitors' willingness to seek treatment, and negative messages such as being threatened

and unwelcome can weaken the patients' determination [11] pp. 114-115. Therefore, the threshold space should ensure a visual connection with the surrounding space and also create interesting elements or extensions from the inside out, to create a relaxed and welcoming image that attracts and guides people to walk into the institution. Meanwhile, it should protect entrants from negative external factors such as busy traffic and noise [19]. Adamant Hospital, a psychiatric hospital floating on the Seine, creates a calm, serene space by separating the institution from the busy city centre through the river (Figure 2). The soft curved lines of the hospital building, the warm wooden louvres and the footbridge connecting to the marina provide an attractive and welcoming image that encourages patients to come back again [20].

Threshold space can also be the place that marks the transition from one state (childhood or unmarried) to another (adulthood or marriage) [21] p. 49. For mental health institutions, this transition is often frightening due to society's negative attitudes towards people with mental disorders. Thus, many patients, before entering the institution, feel anxious and need a gentle process to adapt it. Hence, in the 42nd Street youth mental health centre, a long corridor was set up before the front lobby for entrants to hesitate, linger, and even escape from the building [6] pp. 22-25. Skylights in the corridor and chalkboards on the walls filled with messages from peers promote a bright and positive space that relieves patients' confusion about shifting identities (Figure 3).



Footbridge



The view from the river bank

Figure 2. Adamant Hospital

Image Source: <https://www.archdaily.com/934267/adamant-hospital-seine-design>



The front of the building



The corridor

Figure 3. 42nd Street Youth Mental Health Centre

Image Source: <https://www.archilovers.com/projects/124712/42nd-street-young-persons-centre.html>

2.3 Therapy Space

Therapy space, where therapeutic activities take place, supports a variety of themes of therapeutic programs such as music, art, pets, exercise, games, and so on. Different therapeutic programs require different equipment and space, and therefore therapy spaces need to be flexible enough to switch between different functions and have adequate storage space. Art therapy may also need exhibition spaces in public areas to display patients' artworks.

Plus, therapy space for different groups should match their psychological and physiological needs. For example,

children need more colourful and interesting spaces (Figure 4), while the elderly need better accessibility and more obvious signage. These therapy spaces all have one thing in common: deinstitutionalisation. Through the combination of comfortable furniture, colours, lighting, decoration and other elements, therapy space will be similar to places in daily lives, and become an extension of the home [22]. For example, Adamant Hospital set up several workshops including poetry, music and painting (Figure 5). The interiors of these spaces use a lot of wooden interfaces and furniture with curved lines, combined with the warm sunlight on the river and interior lighting design to create a cozy and homelike atmosphere [19].

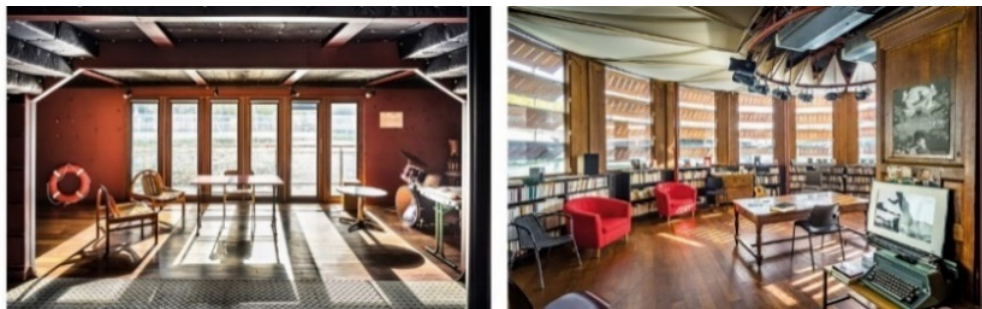


Children therapy space

Children therapy space

Figure 4. Euregio Clinic

Image Source: <https://www.b-k-p.net/de/projekte/euregio-klinik-kinder-jugendpsychiatrie-nordhorn>



The workshop

The workshop

Figure 5. Adamant Hospital

Image Source: Grazia, S. (2023) *Adamant Hospital*. Available at: <https://www.archdaily.com/934267/adamant-hospital-seine-de> (Accessed: 16 Nov 2023).

2.4 Activity Space

Community mental health facilities often provide spaces for patients to engage in daily social or group activities. Through a wide range of self-organized informal activities, patients can make friends and use their experience to support each other.

To encourage patients' participation in social activities, besides providing a warm and comfortable home-like environment, the activity space should allow them to take control of the space, which can reduce their stress and enhance their sense of security [12] p.29. Therefore, the activity space should have some blank space for users to fill and change, making the space an expression and a symbiosis of their identity, giving them a sense of

belonging and security [21] p.56. For example, the Youth & Mental Health Building of the Brain and Mind Research Institute borrowed a room from a neighbouring building as an additional activity space (Figure 6). The room was spontaneously divided into different zones based on groups and filled with objects with their imprints, such as drawings, blankets, handicrafts and so on. Teenagers gather here spontaneously after school, and the activity room has become their second home and harbour of the soul. Moreover, the activity space needs to be appropriately transparent, not only to ensure that staff can keep an eye on the patients inside but also to let patients outside perceive the activities inside and find the groups they prefer. Plus, it's also necessary to ensure the privacy of the users and avoid the feeling of being monitored.



Figure 6. Youth & Mental Health Building of the Brain and Mind Research Institute

Image Source: Zhang, X. (2022) Head Space activity room [Photograph]

2.5 Natural Space

Natural spaces are spaces with natural elements such as plants, water and stones. Research has proven that

interaction with nature can have a positive impact on people's health and well-being: adding plants or other natural features (both real and photographic) to a building, or increasing visual contact with outdoor plants, can reduce people's stress levels. Therefore, many mental

health institutions encourage patients to do outdoor exercise and therapy programs in healing gardens, which also provide a place to relax and rehabilitate [23]. For instance, Sydenham Garden combines horticultural activities with natural therapy, hosting regular gardening and outdoor craft classes to help patients de-stress and have more social contact (Figure 7) [24].

Natural spaces contribute not only to people's well-being but also to the regeneration of ecosystems and the

promotion of sustainability, especially in cities, where they can help mitigate pollution and noise. Thus, many institutions renovated roofs, balconies and even indoor spaces into gardens. For instance, the Residence and Day Center for the Mentally Handicapped in Spain set a series of terraced gardens inside the atrium and on the rooftop to create a garden villa inside the city (Figure 8) [25].



Entrance of the garden



The planting area

Figure 7. Sydenham garden

Image Source: <http://www.architype.co.uk/project/sydenham-garden-centre/>



Garden in the atrium



Roof garden

Figure 8. Residence and Day Center

Image Source: <https://www.archdaily.com/342719/residence-and-day-center-for-the-mentally-handicapped-aldayjover-arquitectura-y-paisaje>

3. Architectural design of the Mallet St Youth Mental Health Centre in Sydney, Australia

3.1 Background

The project transformed the historic Bonds Factory building at the University of Sydney's Mallett Street Campus into a community youth mental health centre, providing free counselling and therapy services for young people aged 12 to 25 years in the surrounding community as well as office and research spaces for staff.

Completed in the 1920s and owned by the University of Sydney's School of Nursing since 1990, this classicist factory building is an important part of the community's heritage. Compared to the low-rise traditional terrace

house in the neighbourhood, the original building complex has a large volume and hard concise mouldings, creating a cold and oppressive image (Figure 9).

The history of the building as a nursing school and the clinical atmosphere created by the surrounding medical research facilities deterred residents from the surrounding neighbourhood. Plus, there is a lack of buffer zone between the building complex and the neighbouring buildings and streets, with the eastern and western gates of the building adjacent to the street, a narrow alleyway to the north, and a courtyard belonging to the Brain and Mind Centre surrounded by fences to the south. To the west of the site is Camperdown Park, which is the largest green space in the community. The project aims to create a healing harbour for teenagers in this historic urban community, alleviate the stigma of mental illness and encourage interaction between outsiders and young patients by adding new public spaces to the community.

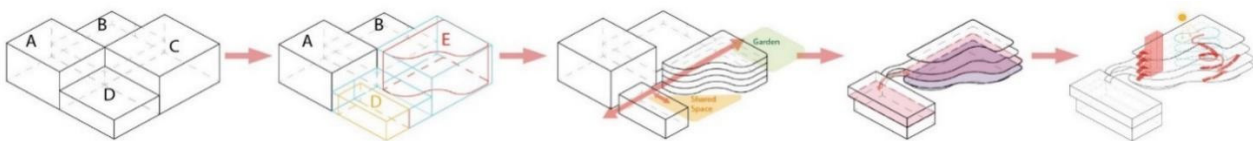


3.2 Space Design

3.2.1 Massing Design

To create a transitional space between the building and its surroundings and to change the clinical atmosphere of the site, the project demolished Building C and the southern half of Building D, building a new triangular three-storey building at the same location. The new triangular building is constructed along the red curve, leaving a triangular outdoor area that brings sunlight into the centre of the site. This area is the threshold space between the building and

the street and will include a natural space and a playground shared with the community. The eastern part of Building E and D will be cut away to create a north-south natural pathway that connects the triangular outdoor space and the southern courtyard. Furthermore, the treatment and activity spaces are located on the higher levels of Building E and D, providing sufficient daylight and good views, and are connected by a sky bridge. An atrium is cut out along the curved line in Building E, bringing sunlight into the building. Plus, users can see where the curved stairs in the atrium leads to and find out their location to avoid disorientation (Figure 10).



3.2.2 Spatial Organization

The building is divided into four parts based on the degree of privacy and are distributed on four floors in sequence: the public area on the ground floor, the activity area on the second floor, the consultation and therapy area on the third floor, and the office area on the fourth floor (Figure 11).

In front of the main entrance on the ground floor, there is a soft threshold space which is a community-shared natural space. Behind the entrance, there is a reception desk and a waiting area with community-shared spaces such as a café and a gallery to encourage passive contact between patients and the neighbours. On the second floor is the activity area which provides a kitchen, a dining room, and several activity spaces in different sizes. These activity spaces are open only to young patients, increasing their sense of belonging. The third floor is the therapy area which includes a waiting lounge, meeting rooms and therapy spaces, allocated in both Building E and D, which are connected by a footbridge. The therapy spaces in

Building E are small therapy and consultation rooms, and each therapy room has its own outdoor natural space. The therapy spaces in Building D include virtual and digital care rooms and a large multi-function room for group therapy. The office area on the fourth floor is the most private and formal space and includes collaborative offices, private & and focus offices, breakout areas and a roof garden for staff only. The rooftop of Building E is the nature space for patients to hold planting activities or natural therapy (Figure 12).

The clinical atmosphere in the project increases gradually from the outside in, from the bottom up. Therefore, as patients enter the building and climb up the curved stairs in the atrium, they have a gentle transitional experience, helping them to adapt to the atmosphere. Plus, the areas for patients and staff are separated to give adolescents more freedom and privacy, alleviating the feeling of being monitored. The atrium ensures that staff on different floors can keep an eye on the activity spaces to ensure the safety of the youth (Figure 11-13).

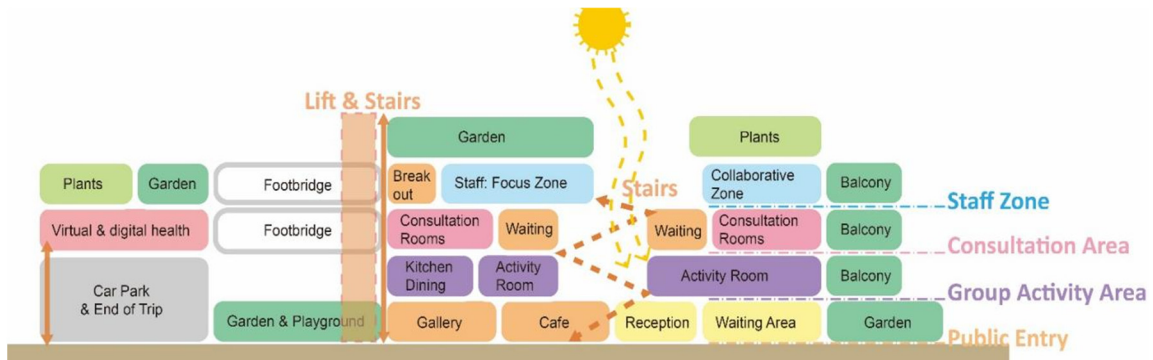


Figure 11. Sectional Diagram

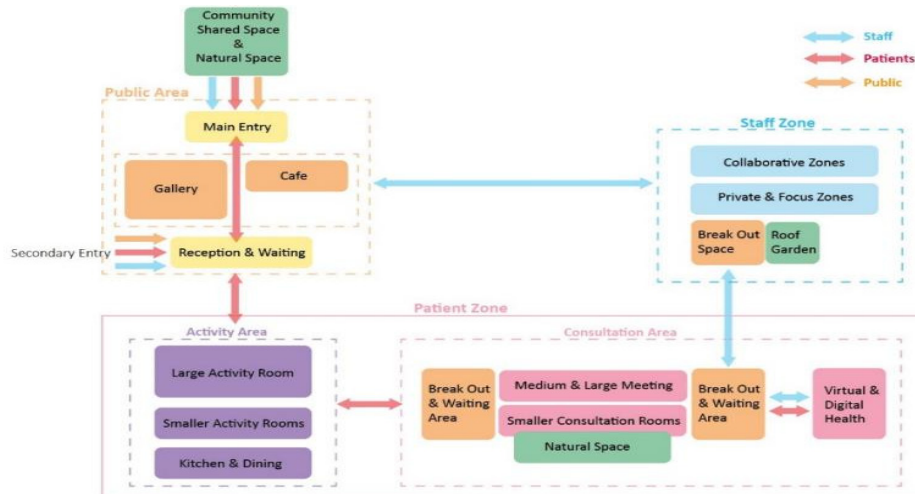


Figure 12. Bubble Diagram



Figure 13. Axonometric

3.2.3 Building Facades

The façade combines modern materials with the architectural heritage to break out the heaviness of the original building complex and blend in the surrounding urban context. Although the southern half of Building D was demolished, the internal beams and columns and the façade along the street were preserved. Wooden strips and frames replace some of the walls and windows, allowing the façade to retain past memory while giving better permeability to the threshold space. The renovated façade

of Building D combines with plants at different heights to produce a screen that protects the natural spaces in the centre of the site without blocking visual contact.

The façade of Building E uses large areas of glass to create a modern image that is different from the neighbouring buildings. It also allows users to see what is inside the building before they enter, relieving their nerves from entering a strange place. Moreover, the glazed façade provides enough daylight and good views for both the activity space and the therapy space.

The façade of Building D and E are connected by the wavy timber handrails of the balconies and footbridges.

The warm and natural quality of the timber, combined with the greenery of the balconies, counteracts the coldness of the glass. Plus, the flowing curves on the façade and the curved building boundary soften the impact of the building on its surroundings.

These façade elements above create a more inclusive, safe and natural gesture on the outside, encouraging patients and outsiders to enter the building, while also producing a bright and comfortable healing environment for users inside (Figure 14).



Figure 14. Elevation

3.2.4 Space experience for different groups of people

The project provides a pleasant and comfortable space for three different groups of people: outsiders, patients and staff, through the integration of five spatial characteristics. This helps to eliminate the hidden exclusion and stigma that outsiders and potential patients may have towards the youth mental health centre, and assist in blending the centre into daily life in the neighbourhood. It also provides an attractive and supportive environment for patients and staff to heal and work in.

(1) Space experience of outsiders

The spaces available to outsiders are on the ground floor, including an entry garden, a small playground, a café and a gallery in Building E, and a car park and end-of-the-trip facility in Building D.

These spaces represent safety, inclusiveness, and health in the local culture. Thus, using these places as community-shared spaces can alleviate outsiders' negative impressions of the mental health centre and attract them to the building. As a result, outsiders can have more passive interaction with young patients to mitigate the stigma related to mental illness. These community-shared spaces also work with threshold space and natural space to create an intimate and gentle entering experience for visitors.

The entrance garden serves as both a threshold space and a natural space, creating a buffer zone between the

building complex and the street, diminishing the oppression of the site. The curved lines of the landscape around the building create a gentle and attractive boundary and invite visitors to walk towards the main entrance and look towards the café, gallery and playground along the curve (Figure 15). The garden provides seats for resting and above the garden, a wooden shading device is attached to the preserved structure of Building D to protect people from the strong sunlight. The soft threshold space and lively natural space improve the surrounding landscape and provide more places for outsiders to have fun and enjoy nature.

After entering Building E, outsiders can relax in the café or have a look at the artworks in the gallery. Wooden furniture and curved walls create a cozy interior atmosphere (Figure 16). The art studio on the ground floor runs community art workshops regularly and displays the work in the gallery, encouraging participants to express their feelings and promoting community understanding of mental health. Moreover, a new pathway runs across the entire site on the east side. Staff and students from the university can use the end-of-trip facility of the centre and then walk to the school buildings via the pathway or have a cup of coffee in the café. The community shared space and threshold space enrich the variety of public facilities in the neighbourhood and make the centre become part of the daily lives of the community (Figure 17).



1. Car parking 2. Bicycle Parking 3. End of the trip 4. Garden 5. Playground, 6. Reception 7. Café 8. Waiting area 9. Art therapy room 10. Gallery

Figure 15. Ground Floor Plan



Figure 16. Art therapy & Gallery



Entrance garden



The garden and the playground



The eastern pathway



The eastern pathway

Figure 17. Outdoor areas of Ground Floor

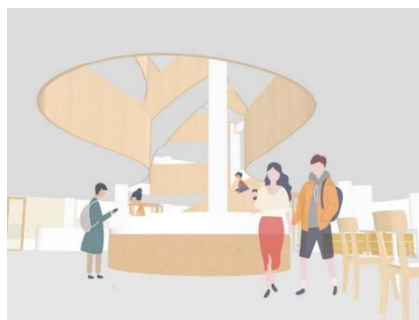
(2) Space experience of patients

The project sends positive messages to patients through the public area on the ground floor, encouraging them to enter the institution and seek treatment. Because of the combination of the community shared spaces, threshold spaces and natural spaces, the institution becomes more harmony and inclusive to the community, reducing patients' stress and self-stigmatisation. Young people who feel confused or hesitant before entering the YMHC can pause in the garden and relieve anxiety through the healing effects of the natural space.

Entering Building E, after confirming their information at the reception desk, patients can then wait in the waiting area on the east side of the ground floor (Figure 18). Plants enclose the waiting area along a curved line that continues into the natural space outside. This protects waiters from the rest of the room, enhancing their sense of security, while also linking the natural spaces inside and outside, eliminating the boundaries of the building. What's more, the shared spaces in the lobby allow patients to socialise with the community under the

supervision of staff, helping them to return to normal social lives.

Patients then access the activity area on the second floor via a curved staircase (Figure 19). The open-plan kitchen and dining room add some home-like elements to the building. A wide shared balcony combines the natural space with a lounge area where teens can enjoy the view of Camperdown Park. The large activity room is for teens to hold daily activities or do their homework after school. Along the west side of the building, four smaller activity rooms are designed as places for them to run specific activities, such as bands, dance studios, and so on. There are no fixed functions or furniture in these rooms, and young people can design and change the space with moveable furniture. This moveable furniture has four different elements that can be combined in a variety of ways to meet different functions, such as display/storage cabinets, seating, tables, drawing boards, screens, and more. It empowers the teenagers to take control and fill the entire second floor and the gallery, increasing their sense of belonging and confidence (Figure 20).



The lobby and reception desk



Waiting area

Figure 18. The indoor area of the ground floor



Figure 19. Cross section of activity rooms

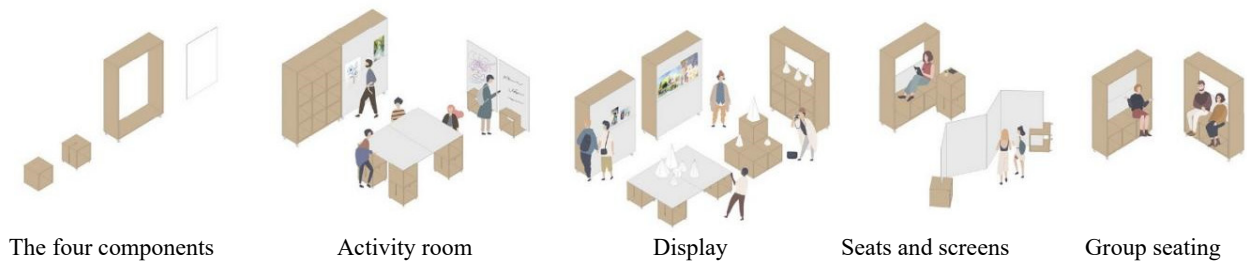


Figure 20. Application options for the removable furniture

Patients who have booked a treatment or consultation pass through the second floor, which has a more casual atmosphere, and then head to the therapy space on the third floor. Each of the therapy spaces includes a natural space and tries to create a relaxing and home-like environment through elements such as comfy sofas, soft carpets, bright colours and wavy wooden partitions. The therapy rooms in Building E are arranged along the north-western edge so that each room has a view of the park and a balcony. Through a bridge on the north side, adolescents can access the therapy space on the second floor of Building D (Figure 21-22). Through the lift, patients can access the planting area on the roof of Building E. Patients can participate in gardening activities and enjoy growing flowers and vegetables to relieve their life's stresses. Harvests can be cooked in the outdoor kitchen on the roof (Figure 23).

The interior materials of the activity and therapy spaces are mainly wood and glass, combined with natural elements to create a warm and modern healing environment. The lower half of the interior partition wall is covered with wavy wooden panels, while the upper part of it is made of glass, which brings sunlight into the atrium and enhances the interaction between different spaces. Plus, the glass of the interior wall of the therapy room is translucent glass to protect the privacy of the patients.

Ground floor gardens, flower beds on terraces and roof gardens contribute large areas of natural space to the community. It not only contributes to people's well-being but also contributes to the ecological recovery and sustainability of the neighbourhood. Combined with the wooden surface and organic lines of the façade, the natural space also creates a lively image shown to the outside world, dispelling the past serious and sombre atmosphere of the site (Figure 24).



Figure 21. Third Floor Plan



Figure 22. Therapy Rooms



Figure 23. Section



Figure 24. The cross section of the third floor

(3) Space experience of staff

Benefiting from the ground floor public area, staff now face a friendlier community attitude and a more comfortable working environment. The car park, end of trip facilities and café all provide staff with convenience and encourage healthy lifestyle. Entering Building E and walking through the public area, staff can access the work area on the fourth floor via lifts. The work area has a kitchen, a lounge area and a natural space on the west balcony. Because staff members often need to take phone calls from patients, sound-proof call rooms have been set up in the lounge area to ensure the privacy of the calls. Moreover, as the staff always need to deal with negative emotions from patients, the project provides them with an exclusive roof garden on the top of Building D. Staff can relieve their work stress in the quiet garden without being disturbed. Wooden surfaces, curved lines and plants are also used in the working area to create an enjoyable work experience.

4. Conclusion

The study of the spatial characteristics of urban community mental health institutions analyses how the concept of community mental health care can be achieved through spatial design. The community shared space encourages the interaction between patients and the community by creating a safe and open place to eliminate the stigma attached to mental illness. The threshold space aims to portray a relaxed and friendly image encouraging patients to seek treatment. The therapy space needs to be a flexible and home-like place and meets the needs of different groups of patients. The activity space allows patients to change and fill the space, enhancing a sense of belonging and encouraging them to help each other. The natural space intends to create vibrant places for healing and to contribute to the sustainability of the city. Through these five spaces, community mental health institutions

blend into the urban context and daily life in the community and become a harbour of soul for the residents in the neighbourhood.

Current architectural practice and research on urban community mental health institutions are mainly in developed countries, and these studies may provide useful references for developing countries. However, due to the differences in cultural, economic and social backgrounds, the design of these institutions in developing countries have their special characteristics. Therefore, the next step is to conduct further research on the current and future development of architectural spaces in community mental health centres in developing countries.

References

- World Health Organization. (2022) *World mental health report: transforming mental health for all. Executive summary*. Geneva: World Health Organization, P.17. <https://www.who.int/publications/i/item/9789240049338>
- World Health Organization. (2021) *Comprehensive mental health action plan 2013-2030*. Geneva: World Health Organization, P.11. <https://www.who.int/publications/i/item/9789240031029>
- Anthony, K. H., & McCaffrey, K. (2018) 'Designing mental and behavioral health facilities: Psychological, social, and cultural issues', In A. S. Devlin (Ed.) *Environmental psychology and human well-being: Effects of built and natural settings*. Elsevier Academic Press, pp. 335–363.
- Chrysikou, E.G. (2014) *Architecture for Psychiatric Environments and Therapeutic Spaces*. Ios Press. Available at: <https://ebooks.iospress.nl/publication/38698> (Accessed: 8 August 2023).
- McGrath, L & Reavey, P. (2019) *The Handbook of Mental Health and Space: Community and Clinical Applications*, 1st edn, Routledge, Milton. doi: 10.4324/9781315620312.
- Co'burn, H. (2021) *The Architecture of Mental Health*. Sydney: NSW Architects Registration Board. Available at: https://www.architects.nsw.gov.au/public-resources/byera-hadley-travelling-scholarships1/research-reports/report/59?search=&report_tags=&locations=
- Smith, L. (2007) The architecture of confinement: urban public asylums in England, 1750–1820, in Topp, L., Moran, JE and Andrews, J. (eds) *Madness, Architecture, and the Built Environment*. New York: Routledge.
- Goffman, E. (2007) *Asylums: essays on the social situation of mental patients and other inmates*. New York: Routledge.
- Sine D. M. (2008) The architecture of madness and the good of paternalism. *Psychiatric services (Washington, D.C.)*, 59(9), 1060–1062. <https://doi.org/10.1176/ps.2008.59.9.1060>
- Chow, W. S., & Priebe, S. (2013) Understanding psychiatric institutionalization: a conceptual review. *BMC psychiatry*, 13, 169. <https://doi.org/10.1186/1471-244X-13-169>
- Verderber, S. (2018) *Innovations in behavioural health architecture*, Routledge, Milton Park, Abingdon. doi: 10.4324/9781315213866.
- Shepley, M. (2017). *Design for Mental and Behavioral Health*, 1st edn, London: Routledge, doi: 10.4324/9781315646916.
- Bil, J. (2016). Stigma and architecture of mental health facilities. *The British Journal of Psychiatry*, 208(5), pp. 499-500. doi:10.1192/bjp.208.5.499b
- Jacobs, J. (1961) *The Death and Life of Great American Cities*, New York: Random House.
- Gurian, E.H. (2005) "Threshold Fear," in Gurian, E.H. (ed.) *Civilizing the Museum*, London: Routledge.
- Architizer(2018). *Wooden Forest - Medical Centre for Mentally Disabled People*. Available at: <https://architizer.com/projects/wooden-forest-medical-centre-for-mentally-disabled-people/> (Accessed: 10 Nov 2023).
- ArchDaily(2013). *Kronstad Psychiatric Hospital / Origo Arkitektgruppe*. Available at: <https://www.archdaily.com/451158/kronstad-origo-arkitektgruppe>(Accessed: 16 Nov 2023).
- Kimmel, L. (2021). *Architecture of threshold spaces : a critique of the ideologies of hyperconnectivity and segregation in the socio-political context*, London: Routledge, p. 3.
- Salingaros, N. (2018). 'How life is influenced by physical boundaries: Campus design', *Urbanism of Adaptive Networks*, Available at: <https://www.cnu.org/publicsquare/2018/08/13/how-life-influenced-physical-boundaries-campus-design-part-9> (Accessed: 16 Nov 2023).
- ArchDaily(2023). *Adamant Hospital / Seine Design*. Available at: <https://www.archdaily.com/934267/adamant-hospital-seine-design> (Accessed: 16 Nov 2023).
- Unwin, S. (2019). *Metaphor: An Exploration of the Metaphorical Dimensions and Potential of Architecture*, London: Routledge.
- Connellan, K. et al. (2013). 'Stressed Spaces: Mental Health and Architecture', *HERD*, vol. 6, no. 4, pp. 127–168. doi: 10.1177/193758671300600408.
- Grinde, B., & Patil, G. G. (2009). Biophilia: does visual contact with nature impact on health and well-being?. *International journal of environmental research and public health*, 6(9), 2332–2343. <https://doi.org/10.3390/ijerph6092332>

24. Sydenham garden (2002). *Sydenham garden a growing community*. Available at: <https://www.sydenhamgarden.org.uk/> (Accessed: 16 Nov 2023).
25. ArchDaily (2013). Residence and Day Center for the Mentally Handicapped / Aldayjover Arquitectura y Paisaje. Available at: https://www.archdaily.com/342719/residence-and-day-center-for-the-mentally-handicapped-aldayjover-arquitectura-y-paisaje?ad_source=search&ad_medium=projects_tab (Accessed: 16 Nov 2023).