

Implementing Research and Best Practice for the Development of Mental Health Hubs in the Community



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Front cover: "Reflections on C&I Facilities". © Dr Evangelia Chryssikou

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Foreword

1

What could make a mental health facility a place of healing? How could a building for mental health care encourage the community to perceive it as a resource rather than a space they dread? And how would such a building invite that community in and become a space for the most vulnerable ourselves to become well soon? This is how a community would normally perceive **their** local hospital but not **the** local mental hospital. This report will look at elements that would inspire and turn the “the” before the mental hospital to something a community would call “theirs” .

The Bartlett Real Estate Institute aims to challenge the way we understand and value Real Estate. Buildings are the most expensive objects organizations, the NHS being no exception, own. Yet, is this their only value? How these buildings foster or break the cohesion of the communities they host and the communities that surround them? What is the intangible value that a building brings to their community? How do we capture this value?

Couple of years ago for the purposes of the “The social invisibility of mental health facilities: Raising awareness on social exclusion in urban environments through artwork” research, we produced a photographic record of the stigma surrounding mental illness as reflected by the facades and locations of buildings. The photographs demonstrated that mental health buildings looked different from healthcare facilities. They appeared hidden, to go unnoticed, they were striped of comforts such as canopies or the visual pleasure that art would offer, they demonstrated clear signs of vandalism. They were located far from tube stations, extending the time staff or visitors might need to get there. We realized that buildings for mental health portrayed the Cinderella of medical architecture. They had to go unnoticed, be robust to withstand wear and tear and violence, be functional rather than aesthetically pleasant as ornaments were perceived luxuries to adorn the other sisters/hospitals and finally they had to be in a remote location with limited access amenities.

Soon after our book was published, the Camden and Islington NHS Trust (C&I) invited us to join them break this Cinderella-pattern. Standing at a historic moment of the redevelopment of the St Pancras Hospital, C&I decided to open this large psychiatric campus to the community they served and at the same time bring the community into it. As part of this strategy, vital parts of the St Pancras hospital would relocate closer to the people they served, in several locations of the C&I catchment area. Moreover, they decided to avoid visual obscurity for their new buildings.

As mental illness is on the rise and more people need help and support, removing the stigma surrounding mental illness would facilitate earlier diagnosis and therefore, more effective treatment for those who need it. More integrated facilities, closer to what people perceive as accessible and inviting might support the target of vulnerable people asking for help earlier. Mental health facilities with those characteristics would also help people remain engaged with the services if required. Therefore, it was fundamental for C&I to understand what architecture could do to facilitate a shift from institutional to inspiring environments. So, this report had to gather examples that aimed to inspire and change the out site out of mind, custodial image of psychiatric facilities. To identify practices that could do for mental health what the Maggie Centres did for cancer: provide a non-threatening, supportive environment for people to heal.

The other requirement of C&I was to involve also what was happening outside the NHS, which practically meant outside the boarder of the current local regulations. The NHS building stock has been influenced by the Health Building Notes, even if they are not obligatory any more. The HBNs have been an incredible resource for

designers and Trusts and encourage therapeutic architecture. Yet, they come with a very specific framework of possibilities that might limit the amount of out of the box thinking. That was why C&I wanted to get the continental and international perspective: to be unbiased of the current community mental health trends that define the provision of the UK context. Bringing this international perspective on the table would enable the Trust to keep a broader view of possible solutions during the consultation and briefing stages. Therefore, this report will remind the briefing team that mental health facilities can be as complex as the North American Centres and as local and open as the Slovenian gift-shop, which the reader can find later on in the pages of this report. Moreover, mental health facilities can float as the Day Centre/boat on the river Seine or project the intensity of the provided therapies on the façade, informing the community of the systematic processes available inside, as in the case of the Young Disabled Modules and Workshop Pavilions in Zaragosa, Spain.

The aim of this review is to improve the quality of the psychiatric built environment and the neighborhoods that surround them so that people are drawn to them by hope and not fear or despair. It is aimed at everyone involved in the planning, the design and the management of psychiatric units, from C&I estates, although hopefully it might prove inspiring to other trusts as well, to architects and all stakeholders involved, including service users.

Finally, I leave you with two images. Both show similar scale glazed surfaces on top of a building. The one on the left surrounds a space on top of St Pancras hospital. The room surrounded by that glazed surface would be a lovely room for staff and perhaps patients to sit and have a break, on a sunny day, feel the warmth and watch the plants that could grow in there. Yet it is standing unmaintained as if trying to be invisible and un-present on top of psychiatric building. This is how stigma is expressed on a façade: taking a light, sun-lit and transparent structure and have it unmaintained and unused, a demonstration of potential hazard. And then the picture on the right. Where a glazed surface on top of the Great Ormond Street Hospital has colorful stripes to adorn a relatively plain but well-maintained façade. That feature is a detail that aims to make that building more welcoming and pleasant. These two pictures illustrate what Malcolm McFrederick, the St Pancras Transformation Programme and C&I set to do: remove the stigma for mental health buildings and let them have features that invite people in and support them to become well soon.

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Introduction

2

According to the World Health Organisation (WHO) “Mental health is a state of well-being in which an individual realises his or her own abilities, can cope with the normal stresses of life, can work productively and is able to make a contribution to his or her community. In this positive sense, mental health is the foundation for individual well-being and the effective functioning of a community.” (WHO, 2014). Day care and out-patient services provide key components of a comprehensive support service for mentally ill people, older people, along with their carers and their families. The provision of care on a daily basis for the mentally ill, the frail and people with physical disabilities who live in their own homes is well established.

By this report the research team has considered best practice examples of mental health facilities globally and have studied latest research on the subject to recommend on best practice and to determine what are the aspect/characteristics that the new hubs in the community should consider to facilitate the best possible outcome.

We should note that bibliography is very limited on mental health hubs in the community and any out-patient type of mental health provision. Considering that mental health research in terms of built environment is still limited the focus so far has been towards the in-patient, acute spectrum. However, some lessons could be learned from outpatient services in inpatient facilities as they can help state categories of further research that could apply in our case. Moreover, another element that we should take in to consideration is the increasing dialogue about the integration of mental health with primary care, which is particularly strong in contexts such as France –Lille just piloted the initiative which will go mainstream in the entire French territory- and is something that the WHO is supporting. There is also a trend coming mostly from the US and Norway around early diagnosis and treatment and how this affects the mental health building provision. This is something we need to facilitate. The hubs could be an ideal pilot that both principles could be introduced and explored. This would require tremendous innovation both for the UK and quite possibly for Europe, if planned successfully.

Staff is another area that is difficult to approach, as for several decades provision for staff has been related to institutionalization. Our grey literature starts to question this and we do believe that we need to incorporate provision for staff as a priority. Yet, the stigma connected to that topic allows very little evidence, as the area was for several years a taboo of medical architecture. We aim to revisit this concept too, even though the limited research on the topic is not published yet with findings to be released soon.

Finally, we must mention that evidence in design is rather difficult to determine if we compare it to science and medicine. If we were looking only in spatial evidence produced in lab conditions we would a) have barely anything to give us the big picture b) even those could be contradictory to each other as research in environmental psychology and colour has long ago demonstrated and c) would be uncorrelated to major parameters of the healthcare provision. In short, it would be like having few pixels of a screen and even those scattered around and very far from constituting a meaningful image. However, there is still research both quantitative and qualitative as well as best practice that is worth considering and this is what has been included in this report.

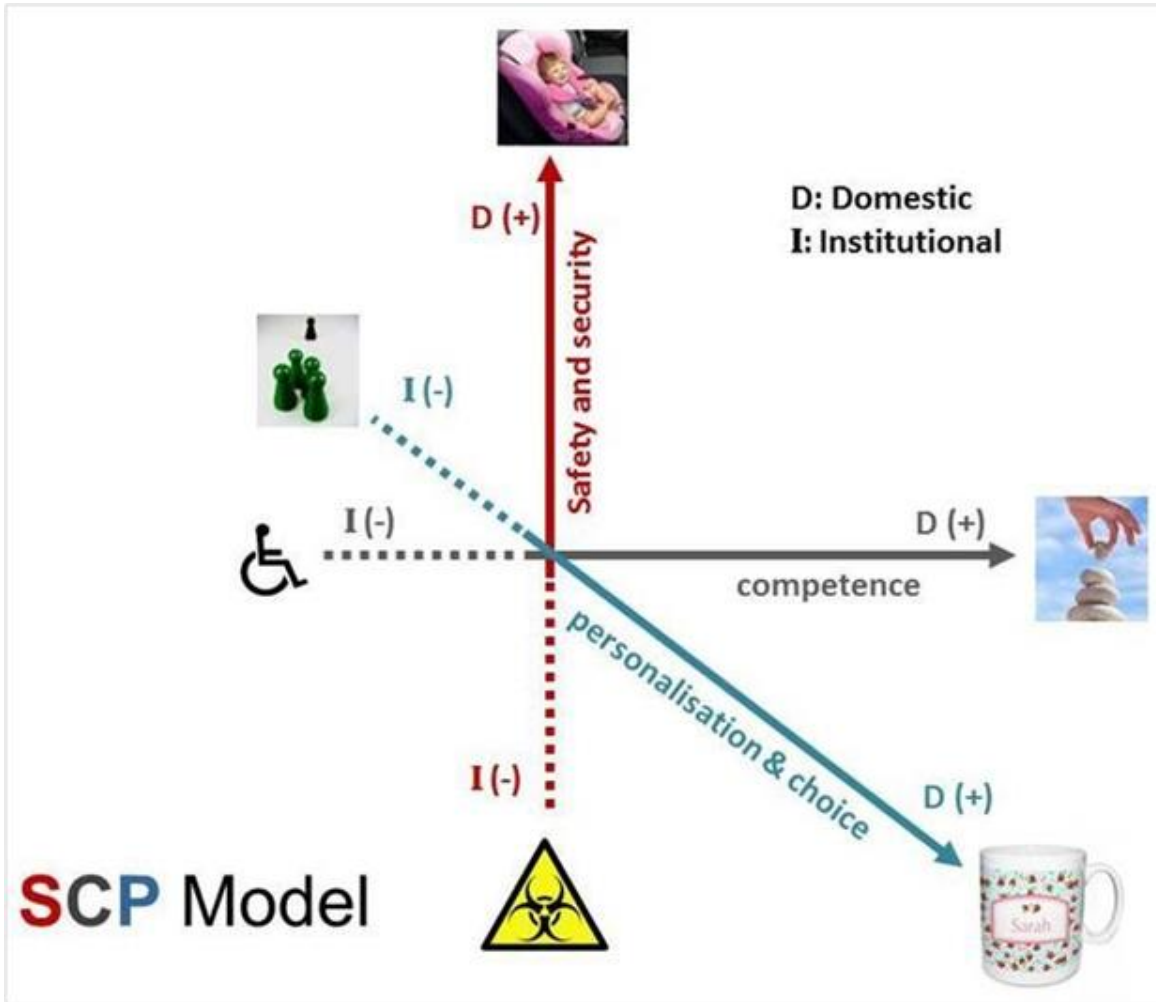
Methodology

3

The research followed a qualitative methodology to gather data deriving on best practice in community mental health facilities. First, a literature review was conducted in relation to healthcare architecture with focus on selecting material on the built environment of mental health facilities, the community mental health delivery and the services they provide. The literature review took place from November 2018 to February 2019. It involved grey literature, UCL Library Services SFX@UCL, PubMed, Academia.edu, ResearchGate, Emerald Insight, SAGE Journals, Springerlink, Science Direct, specific journals, i.e., Health Environment Research & Design Journal (HERD), Social Work in Mental Health, Journal of Psychiatric and Mental Health Nursing, BJPSYCH International, World Health Design etc. as well Health Building Notes and books. The literature review was based on the following matrix of research keywords: mental health clinics, mental health hubs, community-based mental healthcare, psychiatric casualty clinics, clubhouses, behavioural health, warming centres, mental health centres, rural health clubs, high end mental health facilities, outpatient psychiatric clinics, day centres, treatment centres.

Additionally, best practice case studies regarding mental/community health facilities were selected. Data on the following categories was gathered, depending on the piece of information available: location and accessibility, photos, any special characteristics with impact on the well-being of users, use of art, selection of colours, furniture selection, outdoor activities, use of light, outpatient services provided, any special design/spatial elements etc. Case studies from the following countries were studied: Norway, France, Spain, Italy, Denmark, Germany, Belgium, Netherlands, UK, Canada, Australia, USA. Interviews with international experts –Europe and the US-- either from psychiatry or medical architecture have been conducted in parallel.

Data collected was evaluated using the SCP model, a tool specifically developed at the Bartlett by Dr Evangelia Chryssikou for the evaluation of mental health facilities, identifying the relation between policy, care-regime and patient-focused environment. The model was named after the acronyms of three variables: Safety and Security (S), Competence (C) and finally Personalization and Choice (P). It is a three-dimensional model and each of these variables comprises one dimension of a cubic problem space occupied by three axes (x, y and z), where safety and security implies an opposite pole, where the building is unsafe and insecure, where competence implies a situation where dependency is fostered in patients, and where personalization and choice also implies a situation where no personalization and choice is allowed. The SCP model can help define enabling environments for what staff considers best practice and patients perceive as suitable for their environments of care.



The SCP Model as a 3d space where psychiatric facilities can be placed according to their individual characteristics in domestic (+) vs institutional (-) scale

Findings

4

Healthcare system is a sociotechnical system in which the technical system is closely interrelated to a social system of people and organization, including users, staff, the flow of families and friends, the flow of equipment, the flow of medication (Hicks et al., 2015). Community hubs in particular can optimize the health and well-being of community members. By locating health and social care services in the same physical space, users and their caregivers can easily access related supports and forge formal and informal linkages among different service providers, minimizing time and transportation costs (Lum and Ying, 2014). Shifting integrated mental health care to the community is unequivocally the most sensible economic decision, as community mental health services are up to five times less expensive than hospital-based care (WHO, 2008; Goering, 2004). In 2012, the Canadian National Mental Health Strategy was unveiled, making it a national priority to “increase the availability and coordination of mental health services in the community for people of all ages” (Mental Health Commission of Canada, 2017, p. 44).

The built environment of these facilities in the community plays an important role in the user’s wellbeing and the best possible delivery of services. Studies carried out mainly by psychologists show that building features have observable psychological effects on users (Francis et al., 1999). As Scher (1992) suggests, environments can be assessed as having positive attributes to well-being by promoting healing in patients, enhance the performance of staff and promote caring behavior in carers. Recent work by R. Ulrich (2018) confirms that.

From desktop analysis and literature review carried out, findings were selected and organized under the following categories: services (outpatient facilities), primary care integration, location, accessibility, entrance, facades, outdoor areas, layout, environment/therapeutic milieu, spatial characteristics, navigation, window view, staff areas, rooms for families, therapy rooms/low stimulus rooms, reception design/nurse station, storage, design for wellbeing, lighting, art, adjustable heating, air quality/energy-water saving, sound and noise levels, privacy, safety, furniture, colours, amenities to visitors/cateters, technology, engage different groups, design for adolescents, design for older people.

Findings are organized around these key themes. Each key theme is organized in two sections. The first comprises a set of recommendations corresponding to one of the themes. The second section presents relevant case studies and illustrations where these recommendations have been implemented. After each recommendation, inside brackets, there are the acronyms “SCP”. These correspond to the three parameters of the SCP model. The most dominant among the three parameters for that specific recommendation have been highlighted in bold.

A. Provision

i. Services

- Dedicated group work: Important to treat the user holistically, using psychosocial therapy, as individual therapy as well as social networking and group and family therapy in the community. [SCP]
- Group therapies: Run recovery groups/talking therapies, enabling people to share personal experiences of recovering from mental illness and to hear how others have coped. [SCP]
- Recreation therapies: Setting up a library with novels, travel, health, easy read books etc. A visiting librarian could talk to users about their preferences and interests, a reading group may also run for users. Art therapy, music therapy, dance and movement therapy are also desirable options. [SCP]
- Crafts could include: pottery, card making, mosaics, model making, psychodrama, anxiety management, etc. [SCP]
- Complementary therapies such as aromatherapy (at local centres), reflexology, yoga, relaxation techniques etc. could also be offered at the facility. [SCP]
- Technology: Include in the design a computer room, where expert member of staff could help users with PCs and technology in general. For example, for older adults the use of devices such as iPhone and wearables (including watches) becomes more and more important, especially if there are concerns for their physical health. It is important that there the opportunity for them to become familiar with these technologies and ask for assistance on those. The hub could be a potential locus. [SCP]
- Occupational therapy kitchen: It is very desirable to have a separate kitchenette where users can share in cooking activities. At a minimum, the kitchenette could include a worktop, a table, a sink and a cooker. This would enable users to carry out simple tasks, either sitting at the table or standing at the worktop and enjoy the satisfaction of baking. [SCP]
- The importance of the central kitchen table: A kitchen area, like a 'country' kitchen, with room for a large table, which could be used for demonstrations/seminars/discussion groups. The kitchen should be relaxed and inviting enough for anybody to feel welcome to help themselves to coffee or tea. A central 'island' on which cooking demonstrations could take place would be helpful. [SCP]
- Physical activity: Important to include areas for exercise, especially when there is no access to a secure outdoor area or the unit is on an upper floor. Use of exercise equipment even in cases that the facility is small, such as a tennis table or yoga mats or even gaming that could promote exercise. 'Well-being' sessions could also be promoted such as: weight gain support and personal plans for users, advice on quitting smoking, advice on diet etc. A substantial proportion of mental health patients have physical problems that are not known or remain underdiagnosed, so it is important to take this into account and promote physical activity. [SCP]
- Nutrition: What one eats affects not just his physical health, but also his mental health. Experience of a mental health problem may also be associated with poorer diet. A well-balanced diet rich in vegetables, fruit and nutrients can be associated with feelings of wellbeing and depression reduction. [SCP]
- Women: There could be services (for example on a weekly basis) only for women, such as cooking, to provide a safe environment for women to meet other women, get support to develop self-esteem and

confidence. It is also important to recognize the social realities of women's lives, provide support in their roles as mothers by taking into account their parenting and caring responsibilities. [SCP]

- Café: Include in the design a café to provide a relaxed, friendly space for all groups, where service users could also work. [SCP]
- Shop: Include in the design of the facility a shop where users could both work and run the shop but also sell artwork or other craft objects they are doing at occupational therapy sessions. [SCP]

Examples from case studies:

Day Care Centre for People With A Mental Disability, Wetteren, Belgium (2009)



The centre offers room for recreation and crafts.

Skrbovinca Care gift shop, Ljubljana, Slovenia





The care gift shop is a joint work of the City of Ljubljana and the four Ljubljana Workers Protection Centers. It is a place to socialize, exhibit, promote, and also sell creative and working achievements of adult people with special needs or other overlooked social groups. In Info Point 65+, elderly and physically disabled can get the advice or information they need, and the safe point is for people in need. Above all, it is a place in which we want to show that the people who may have been deprived of life may be an equal part of the community in which they live. In Careers, people with special needs are sellers, consultants, mentors, workers in the production and associates. The social care service of management is intended to persons who, because of hindrance, cannot be employed on the regular labor market but want to be included in the working environment.

Sinai Centrum Amstelveen, Bankras, the Netherlands (2007)



The assignment was to design a new building for the Sinai Center, a Jewish care institution for psychiatric clients and people with mental disabilities. In the Bankras location there is the learning/work centre that offers a variety of recreation activities as long as a store / coffee shop, where local residents can buy kosher bread, cakes and gift items, made by users. In this way it contributes to the integration of users in the community.

YPARC Frakston, Australia (2012)



Day rooms and recreation room at the centre.

Adamant, the floating psychiatric hospital, Paris, France (2010)



Adamant, a daytime hospital, accommodates therapeutic working groups around various medias, that look like artist studios. The entrance area hosts several functions. It is at the centre of the institution and leads into the large, circular rooms at either end of the ship and via two flights of stairs one can also reach the lower deck, or go into the admin area. Built-in benches, tables and chairs invite one to stay. There are also two meeting rooms, where private conversations are possible. The daytime hospital also provides the Bar which is managed by the therapeutic club.

Stella's place, Toronto, Canada



Stella's Place is a mental health hub that provides services for young adults aged 16-29 years old in Toronto. Located downtown, Stella's Place is Canada's first non-residential, community based, street-front integrated mental health service hub for young adults. The centre supports more than 800 young adults in-person and online annually.

Innovative, free services include peer support, peer counselling, primary care consultation, dialectical behavior therapy, life skills groups, cognitive behavior therapy for insomnia, narrative therapy group, clinical skills, employment, wellness, arts and recovery programs, as well as their online peer support app, BeanBagChat (a web-based platform and mobile application offering secure chats). Stella's Place has partnered with the Jewish Community Centre to run fitness programs and George Brown which trains peer support counsellors for the facility. All the programs have been created using a process which engages young adults and expert professionals to catalyze dynamic conversations and produce evidence-based services that are highly relevant to them.

The arts are also a vital part of the hub's holistic approach. Stella's Studio Meets Up is a welcoming space where young adults create and share art, including drawing, writing, painting and music. About 10-15 young artists participate in this group each week, by 90-97% rating it as a positive experience where they felt comfortable and safe.

The front doors of Stella's Place lead you to a street-front cafe where young people can hang out, use the internet or speak to a peer support counsellor. In 2017, over 4.800 visits were recorded. The café offers free Wi-Fi and a kitchen stocked with healthy food. People who spent time at the café often accessed one of the 18 programs offered. Statistics and participant feedback showed that this approach reduced isolation and increased young people's enrolment in programs.

Youth Prevention and Recovery Care Bendigo, Australia (2013)

YPARC is a voluntary service so the young people need to be willing to attend the psycho-social rehabilitation activities which are imbedded in the program. All young people are included in this peer led program with

communal house meetings, meal planning and preparation. In 2014-2015, 79% of young people requiring mental health assistance came directly from the community into YPARC, thus avoiding the need for a more serious psychiatric inpatient admission.

GGZ Nederland, Netherlands



GGZ Nederland (Dutch Association of Mental Health and Addiction Care) is the sector organisation of specialist mental health and addiction care providers in the Netherlands. The aim of GGZ Nederland and its member organisations is to ensure the availability of high quality, accessible, affordable and sustainable mental health care. The organisation delivers a wide variety of services to the public, such as mental health promotion, prevention and primary mental health care to assisted independent living, sheltered housing, ambulatory specialist mental health care, clinical psychiatric and forensic institutional care, GGZ prevention, GGZ for children and young people, GGZ for adults and older people, GGZ for adults with a hearing disorder.

GGZEi, Eindhoven, Netherlands

The eLab is an ecosystem for innovation within GGZE. It arose from the desire to set up a whole new care system that is user-centred and can take control of the own recovery process. It is a lively community on the Grote Beek site, where groups of people work together with users and practitioners in the co-creation on new eHealth applications for mental health care. One can practice using digital media, get involved in online treatment or brainstorming about new applications and exchange a great deal of knowledge about innovation in healthcare.

The Living Lab Eindhoven is a structure that explores, develops and tests new tools for people who live with dementia, by collaborating with various stakeholders (including people with dementia and their caregivers, health care professionals, researchers, entrepreneurs and policy staff). The platform now has more than 200 people living with dementia that companies could use to shape developments together with end users.

In the VR Hub, VR applications are being developed in co-creation with users and practitioners, as virtual Reality (VR) offers opportunities to make mental health care more user-oriented.

GGz Central Beweegtuin, Amersfoort, the Netherlands (2018)



At GGz Centraal on May 2018 opened a Dutch so-called Beweegtuin (exercise garden) for their patients. These “exercise gardens” have become increasingly popular in the Netherlands and have the potential to increase levels of physical activity of people with severe mental illness. It widens the range of activities that they can choose from, and is freely accessible at any time of the day. An outdoor gym helps users to improve their poor physical health. Part of the equipment was built out of wood by users themselves during a carpentry workshop held at the facility. This initiative has also become a local project with the village that borders the facility.

The Lahnhöhe hospital, Lahnstein, Germany (2004)



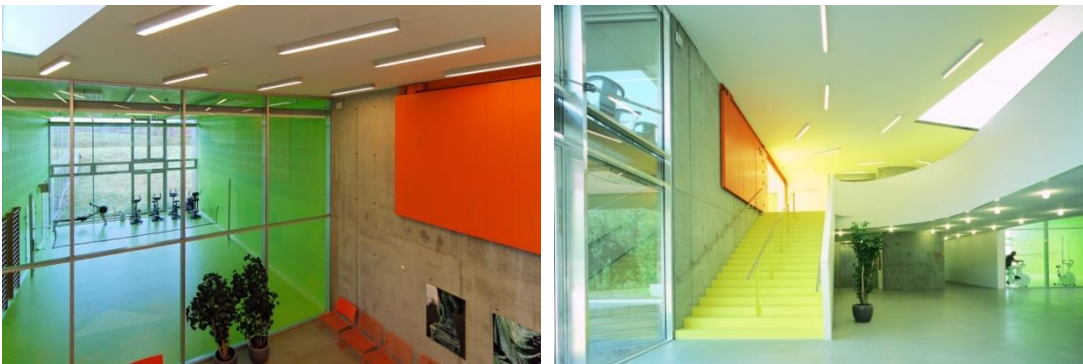
The hospital Lahnhöhe offers treatment through psychosomatic medicine and psychotherapy. Therapy planning is aimed more at the individual combination of methods that will lead to the appropriate treatment path than at the assignment of the patient to specialist departments.

Zuckerberg San Francisco General Hospital & Trauma Center - Child and Adolescent Services, San Francisco



Child and Adolescent Services (CAS) at Zuckerberg San Francisco General Hospital and Trauma Center (ZSFG) is an outpatient clinic devoted to providing mental health and substance abuse services to the children of San Francisco and their families who are living in or near poverty. The services provided include: assessment, treatment, advocacy, and referral services for children, youth, and families who have experienced trauma and/or who present with serious emotional or behavioral problems by making available accessible, clinic, community, and school-based mental health services, eating disorder assessment and treatment, integrated care with primary care providers in pediatric clinics. In addition, CAS collaborates with Foster Care Mental Health to provide assessment of needed level of care to mental health services for children and youth in foster care, as well as training and consultation to systems that serve people who have experienced trauma.

Helsingør Psychiatric clinic, Helsingør, Denmark (2006)



The facility offers a public treatment program placed on the same level with the existing hospital and is organised as 5 individual pavilions, all connected to a central space. One of these spaces is the gym.

FitzRoy House - CAMHS inpatient care, Northampton, UK (2017)



FitzRoy House makes quite outstanding provision for young people living with the challenges of mental health. The centre emphasises on its' therapeutic programme on establishing and maintaining good physical health for its users. As a result, an indoor sports hall and outside multi-use games area provide space for team games. Services include also a variety of therapy suites from sensory and art rooms to music and recording studio.

Children's Psychiatric Centre Genk, Genk, Belgium (2013)



The Centre focusing on the good physical health of its users, offers an indoor gym.

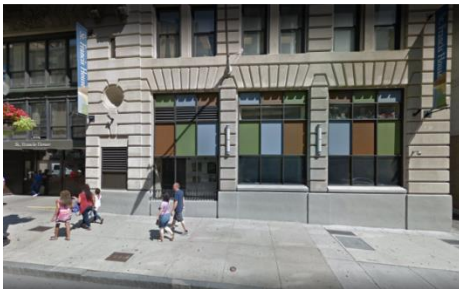
Asgård psychiatric hospital, Tromsø, Norway



In this remote post, 215 miles north of the Arctic Circle, on a hospital floor that had been closed but was recently refurbished, one can find the medicine-free ward at Åsgård facility, the six-bed, medicine-free ward.

The governing principle on this ward is that patients should have the right to choose their treatment, and that care should be organized around that choice. Certain changes has been made so that to make that example so exceptional. A piano is placed in the living room, along with beautiful flowers and other small details that made the visitor feel at home instead of visiting a psychiatric facility. Services include: reflective therapy sessions, daily walks outdoors, and exercise in a gymnasium downstairs; all part of a weekly schedule. As this “therapy” occurs, the patients write up their own accounts of how it has gone, which become part of their health records. By writing down their own accounts, nurses and staff are more aware of the patient’s perspective than writing down what they believe. Also, patients get to read what staff has written and further discuss on that in case of disagreement. The service schedule includes different activities and conversations but the user doesn’t have to participate if she or he doesn’t want to do so.

St. Francis House, Boston, USA (since 1984)



St. Francis House is the largest day shelter in Massachusetts. Located in the heart of downtown Boston, they serve an average of 500 poor and homeless men and women a day, 365 days a year, providing refuge for adults experiencing homelessness and poverty. The shelter provides food and daytime shelter, showers (nearly 10,000 showers a year along with toiletries, including shaving cream, razors, toothbrushes and toothpaste), access to medical care, mental health care, women’s centre (a secure space where women can find custom programs), clean and seasonally appropriate clothing, mail and ID services and art therapy. The Resource Center also features a library, telephones and computers with Internet access.

So Others Might Eat (SOME), Washington DC, USA (since 1970)



SOME is a community-based service organization that exists to help and support residents of the nation's capital experiencing homelessness and poverty. SOME offers a variety of services, including affordable housing, counseling, addiction treatment, and job training. In addition, the centre helps meet immediate daily needs by providing food, clothing, healthcare to those in need, and social services, by addressing mental health (maintaining their mental health by providing several programs, walk-in counseling and psychiatric services to individuals at their Health Services Clinic), addiction, and the special needs of vulnerable seniors in the community.

As per case studies studied, the services provided at the case studies' outpatient facilities are:

- Southern Oslo Psychiatric Centre, Norway: The facility is organized into 2 main programs, a residential and a public treatment one. The public treatment program (day units) is organized as five individual pavilions, all connected to a central space. The individual units contain offices and treatment rooms to one side and waiting areas to the other side. All parts of the building are fused at one single point.
- Children's Psychiatric Centre Genk, Belgium: The outpatient function (or consultations) has been set up so that a good first and quick estimate can be made. The mission of the outpatient clinic is very clear assessment and if necessary referral. There are also areas accessible to the public on top of the green roof.
- Day Care Centre for People with a mental disability, Belgium: The day care centre provides activities such as: modelling clay, playing music, painting, assembling wooden furniture, garden workshop. In the juxtaposition of the workshops the guests are modelling clay, composing and playing music, assembling wooden furniture, painting etc. The workshops are combined in pairs, with the insertion of a storage room, toilets and entrances. In the back, a small volume is cut off from the workshops by an open space where the garden workshop is placed.
- Roseberry Park, Middleborough, UK: Although it is an inpatient mental health complex, it offers services that could be transferred to outpatient facilities/hubs, such as: Activities for adults including pottery art, cookery, yoga, use of a pool table and musical instruments, gym with gym instructor available. For the children, there is a communal area that can be used for sessions where there are DVD players, CD/radios, a wide range of toys and books available for use by the young people who use the service. Young people are encouraged to participate in recreational activities according to their preferences and needs, such as hair and beauty sessions, ball games, and musical interactive games.
- FitzRoy House - CAMHS inpatient care, UK: Although it is an inpatient mental health complex, it offers services that could be transferred, such as: therapy rooms, sensory room, family rooms, art and music suites, indoor sports hall, therapy kitchen and a light workshop area.
- Professor Marie Bashir centre, Australia: The centre is focused on ideas of 'neighborhood' and 'community', including hub spaces and zones for activities. It offers both inpatient and outpatient care services, such as the Eating Disorders Outpatient Clinic that provides a consultative service of assessment and review for community mental health and primary care clinicians, operating on a shared care model.
- Youth Prevention and Recovery Care Bendigo, Australia: YPARC provides a short term 'step up' (from the community) or a 'step down' (from hospital) functions to ensure that effective treatment can continue.

It is a multidisciplinary service, allowing patients' access to a range of professionals all trained to treat children, adolescents and their families/carers. Outpatient services include: the healthy eating group, gym activities with free passes supplied from a local gym, occupational therapy assessments, internet access to maintain and encourage social networks, as well as targeted therapies such as music and art. External assistance, support and education are also available for areas that affect young people's lives, such as sexual health, financial counselling, legal aid, dietetics, drug and alcohol.

- Ambulatory Addiction Center Amsterdam West, Netherlands: For the reception and treatment of clients, the front office has been set up on the ground floor. There are waiting rooms, counters, consulting rooms, doctors' rooms and methadone dispensing.
- Friedrich – Husemann Klinik, Germany: It is a specialist hospital for psychiatry and psychotherapy. In the Psychiatric Outpatient Clinic (PIA), they treat people with the following mental disorders who, due to the nature, severity or duration of their illness or because they are too far away from suitable physicians, need this particular care offer: Affective disorders (depressive and bipolar disorders), schizophrenic and schizoaffective disorders, anxiety and obsessive-compulsive disorder, personality disorders, addictions as an additional diagnosis, organic mental illness. They attach importance to an individual and holistic treatment, which is complemented by anthroposophic applications on request. Outpatient services include: careful diagnosis of mental disorders, psychiatric-psychotherapeutic one-on-one talks, guidelines according to psychopharmacotherapy, psychoeducation, crisis intervention and emergency care for ambulance patients, advice through our social service, nursing support, inclusion of relatives and group offers.
- Clinic and Polyclinic for Psychiatry and Psychotherapy at UKE, Hamburg Germany: The Outpatient Center established by UKE – Medizinisches Versorgungszentrum (MVZ) - the medical care center at the Medical Center Hamburg-Eppendorf-, is a highly specialized outpatient care of users at universal standard. The concept was to bring together specialists from various medical specialties who work as a team to ensure patients the best possible care and a treatment plan tailored to their needs. The hospital's successful model of outpatient care is the first and biggest center of this type in North Germany. Another advantage of the center is its close proximity to the various UKE departments. The practitioners in the department can consult with the specialist physicians and experts in the Medical Center and inpatient departments in order to identify the best form of treatment. This also means that any follow-up care and/or hospital admissions can be dealt with on the same site. The Outpatient Center also focuses on an interdisciplinary dialogue with the colleagues who referred the patient as these physicians have often have been in contact with the patient for many years. Services the clinic offers: Special outpatient clinic for people with psychosis or bipolar disorders, personality and stress disorders, anxiety and obsessive-compulsive disorder, memory disorders (gerontopsychiatry), addiction medicine and dependent behavior, all types of depressive disorders (depression during pregnancy, childbirth and lactation), autism spectrum disorders and diagnosis of persons with suspected attention deficit hyperactivity disorder (ADHD) in adulthood.
- The Lahnhöhe hospital, Germany: Services include: psychodynamic psychotherapy, special therapies with natural remedies, anthroposophic medicine, homeopathy, nutritional medicine, physical therapy / physiotherapy, Bothmer gymnastics, healing, form drawing, plasticizing, speech design, music therapy and eurythmy therapy. The individual procedures are part of inpatient psychosomatic and psychotherapeutic complex treatment in a therapeutic community. The use takes the form of individual

and group therapies with systemic aspects. This effect is intensified by the therapy milieu, which enables patients to become involved in the therapeutic community (teaching learning community).

ii. Primary care integration

SCP in the case of integration to primary care, SCP (integration with Social Services) or SCP for both medical services including primary care and social services.

- **Canada:** The Mental Health Commission of Canada (MHCC) (2017) highlighted the priority for community mental health services to be available at the primary and community care levels, as this is where most people with mental health problems prefer to access services, with community services including assessment, treatment, counseling, education, promotion, prevention, case management, crisis intervention, housing, employment supports, offender interventions, and geriatric programs as well as stakeholder training and skill development. Based on that model, Canada developed an Integrated Health Hub Model (IHHM), providing users with direct access to healthcare and the healthcare system and offering onsite medical services to those who are traditionally not well connected with primary care. This means that the mental health clinician is the primary service provider, and primary care services are provided within the mental health care setting. The IHHM also incorporates an integrated team model, which provides an all-inclusive 'wrap around' service for the individual (Malachoeski, 2018).

Co-locating primary and community care providers is a particularly effective way to integrate care for people who need minimal assistance with daily living, who can generally access and organize the supports they need within a single location: Community-based treatment and support services for mental health and addictions.

WHO recommendation for Europe: offer effective care in community (Helsinki Declaration, 2005) which among others includes: Plan and implement specialist community-based services, accessible 24 hours a day, 7 days a week, with mobile multidisciplinary staff, to care for people in need of mental health care and effective partnership with primary care services.

- **France:** Over the past 30 years in the Eastern Lille Public Sector, there has been progressive development of the set up in community psychiatry, by integrating the entire health system into the city, via a network involving all interested partners: users, carers, families and the support of elected representatives. Today's care structures of the East Lille sector are spread within the cities and always in contact with one another.

The French World Health Organisation Collaborating Centre for Research and Training in Mental Health (WHOCC Lille, France) is a community based mental health service bringing together a network of actions, skills and programmes, related to the mental health policy of WHO, validated by the WHO INTERNATIONAL as good practice service since 1998. Professionals and organizations involved in the field of mental health are fragmented and scattered. The main challenges are to organize levels of support and integration of care, to enable the understanding of mental disorders, and to facilitate users navigation of the system by organizing access to health care for all and by fighting the stigma around

mental disorders. Mental health local councils in France may be the tool of this global process. The WHO CC (Lille, France) has been designated by WHO/EURO as the co-leading institution supporting the transformation of mental health services with WHOCC Trieste, Italy in collaboration with various international networks (IMHCN International Mental Health Collaborating Network). As far as the diffusion of knowledge is concerned, the WHOCC serves mainly as a tool promoting the recommendations of WHO in France, which is also the main purpose for which this body was created.

Every year since 2000 about a hundred policy makers, users, carers representatives, mental health/health professionals, both at national and international level, attend relevant training and visit local mental health service facilities. They participate in national and international exchanges on research and development of innovative treatment, care systems, including and fostering the involvement of service users in their implementation.

- **Italy:** The development of community psychiatry in Emilia-Romagna has proceeded through two partially overlapping phases of deinstitutionalization (1978-1997 and 1990-2008). In 2009, by redrafting mental health policy, the Emilia-Romagna Mental Health Action Plan 2009-2011 was approved by council, basically focusing on the integration of health and social services. DSM services are entirely responsible for the provision of health services, with the aim of guaranteeing integration with primary care, emergency services, and geriatric services as well as providing equal access to ethnic minorities groups. Additionally, recovery-orientated service policies promote the expansion of outreach and clubhouse experiences.
- **Norway:** Implementing community mental health services in Norway means taking the principles of community psychiatry and applying them in a way that makes the best use, coordination and cooperation of the primary health, social care, and specialized mental health care in the community. A major element in the national plan for mental health was establishing district psychiatric centers (OPCs) throughout the country. This model may be seen as the Norwegian version of community mental health centers. The district psychiatric center provides outpatient services, day treatment, crisis intervention, short-term inpatient treatment, long-term inpatient treatment, rehabilitation, and services by mobile teams. Additionally, consultation, supervision, and support of the primary health and social services of the municipalities are considered important tasks for the DPCs, by focusing on the local needs and being in close collaboration with primary care. The challenge for Norway is to develop models combining primary and specialized services so that patients experience care as one service.
- **UK:** Norwich, North Norfolk, South Norfolk has submitted in November 2017 at the Governing Body, a proposal to approve the concept of mental health hub and related proposals to moving forwards with this. Expected the hub to be an important component in the primary/community mental health care model, looking to serve to improve the mental and physical wellbeing of people drawn from the 'whole population' and not just the people with complex issues (agenda item). The integrated approach includes co-locate professional services from both the public and voluntary sector alongside the hub, such as the mental health telephone support line, the crisis resolution home team and adult social workers.
- **Scotland:** Through the Policy and Action Plan 2009-2011 and towards a mentally flourishing Scotland, the Scottish Government is committed to working to improve the mental health of Scotland's people through ensuring that appropriate services are in place, but also by working through social policy and

health improvement activity to reduce the burden of mental health problems and to promote good mental wellbeing. Their approach is based on a social model of health which recognises that people's mental state is shaped by their social, economic, physical, and cultural environment, including their personal strengths and vulnerabilities, their lifestyles and health-related behaviours, economic, social and environmental factors. Three local projects in NHS Lothian, NHS Greater Glasgow & Clyde and NHS Highland explore how primary care mental health services can be better designed to meet the needs of these communities.

- **USA:** Model of treatment to develop a hospital that encourages early diagnoses and will be flexible to do that shift, as they have already seen results in the untreated psychosis.

Examples from case studies:

The Canadian Mental Health Association-Durham Branch

The Canadian Mental Health Association-Durham Branch (CMHA-D) which is located in Ontario, is an integrated community mental health and primary care centre that has been providing mental health services to people in the Durham Region for more than 55 years. With a range of recovery-oriented services provided through inter-professional teams, the organization is focused on providing clinically based services that deal with client mental health issues and addresses social determinants of health. The services offered through CMHA-D offer a holistic wellness perspective and target personal, social, economic, and environmental factors that impact the lives of individuals living with mental health problems and other complex chronic diseases that impact mental health (Malackowski et al, 2018). Services offered include: primary health care services, case management, community wellness services, specialized psychiatric care, community outreach, supportive housing and back office/facility management.

The Hub Model is a synergistic concept that has been promoted internationally within various social and health contexts such as Australia (Hub model promoting social inclusion strategies for migrant families), the United States and India (Hub Model to making rural health care affordable, available and accessible).

St. Paul's Hospital Mental Health HUB, Vancouver

Providence Health Care and Vancouver Coastal Health (VCH) are re-imagining how people access mental health care through three important initiatives: the HUB and the Rapid Access Addictions Centre (RAAC) at St. Paul's Hospital, and the VCH's Access and Assessment Centre (AAC) at VGH.

The St. Paul's Hospital HUB, a first-of-its-kind health-care model in Canada, provides a protective umbrella of services designed to support patients, no matter where they are on their journey to wellness. The HUB aims to divert mental health and substance use patients out of the Emergency Department (ED), and redirect them to a new rapid response care setting with the co-location of acute and community resources. This out-of-the-box solution comes in the form of state-of-the-art modular care spaces, which will allow St. Paul's to co-locate

services without any structural changes to the hospital. The HUB will be comprised of two sites—a state-of-the-art clinical unit and a transitional centre—and support a transformation in access, care and follow-up for people with mental illness and problematic substance use. By providing quicker and integrated service, the HUB will connect the care and expertise provided in a clinical setting to the housing, social and continuing care resources that are already in the communities and neighbourhoods where patients live and are most familiar with.

The Rapid Access addictions centre (RAAC) will provide addiction services from medical specialists, nursing, and social work in an outpatient setting located right in St. Paul’s Hospital.

The transitional centre at St. Paul’s will create a bridge for patients who are returning to challenging environments, by establish relationships with care providers and further support, focusing on reducing future visits to Emergency. It will provide discharged patients with a safe space and connection to community services, through support by Integrated Case Management (ICM) teams, Assertive Outreach Teams (AOT) and Community Transition Teams (CTT).

Worcester Recovery Center and Hospital, Massachusetts (2012)



This facility with its’ 320-bed continuing care public psychiatric hospital makes the building itself an integral part of a patient’s treatment and recovery. The new facility follows the interesting model of House-Neighborhood-Downtown, by integrating familiar analogues to the larger community: ‘House’ responds to sub-units with beds that provide to patients quiet personal space, ‘Neighborhood’ provides users with active space directly outside of their houses providing opportunities for social interaction and lastly, ‘Downtown’ provides users with the sense of being part of a broader community.

Panama Clinic Albert de Pineda, Panama (2018)



The Panama Clinic complex is a multi-purpose project which, besides the clinic has a hotel, offices, supermarkets, theatre, cinema, gymnasium, restaurant and entertainment areas. The integration of the uses creates a unique atmosphere in the complex, creating possibilities of everyday living near the clinic.

GGZ Nederland, Netherlands

At GGZ the severity of the care that is needed determines where someone receives their care. In the first instance, the general practitioner by being quick and easily accessible provides of care, social work and first-line psychologists. If more specialist treatment is required, the general practitioner or a medical specialist will refer the patient to the second line, the specialized mental health care (GGZ).

B. Location

i. Accessibility

- Ease of access for families, carers and staff, including availability and access to public and private transport and parking is a key consideration. [SCP]
- The route between the entrance and the parking should be as short as possible and the entrance should preferably be protected from weather. The entrance should be suitable for wheelchair and assisted access. Access ramps and space to enable wheelchair users to move within the building are necessary. [SCP]

Examples from case studies:

YPARC Frankston, Australia (2012)



YPARC Frankston is a Youth Prevention and Recovery Care project in Frankston designed for the Department of Health and Peninsula Health. Access ramps to enable wheelchair users at the sheltered entrance.

Southern Oslo Psychiatric Centre, Oslo, Norway (2015)



The Southern Oslo Psychiatric Centre in Norway has a welcoming façade and an accessible, sheltered entrance.

ii. Location

- Site selection should take into account how accessible the surrounding areas may be. The proximity to the service catchment area is important, given the need to provide care ‘as close as possible to the service user’s home’ and reduce stigmatization: [SCP]
- Site selection in relation to other health or community services might also be considered as it reflects the desired degree of integration: [SCP]
- Site planning and orientation of healthcare facilities should be carefully considered to ensure sufficient daylight and avoid situations where some buildings block light for others: [SCP]

- As transportation when providing day care services is often a problem, there are advantages when a centre has its' own vehicle: [SCP]
- Important to have availability of regular public transport and (staff) parking near the main entrance. Take into consideration that parking easily in important also for staff that work at multiple sites: [SCP]

Examples from case studies:

Southern Oslo Psychiatric Centre, Oslo, Norway (2015)



The centre covers the psychiatric health service within the districts of Østensjø, Nordstrand and Søndre Nordstrand in Oslo municipality. One of the most important choices in the process was the choosing of the site. What is good about this site is that building is a part of a small community. Set back from Mortensrud square in the south of the capital, it's close to residential areas and shops and also very close to public transportation.

Psychiatric center and sheltered housing, Bolzano, Italy (2016)



The new psychiatric rehabilitation center with an independent sheltered housing unit is positioned within the urban fabric of Bolzano's historically renowned Gries residential district. Sited along the neighborhood's main street, the center presents itself as a residential building rather than a health-care facility and takes on the

chromatic character of the surrounding area with a rhythmic palette of earthy colours. The closest bus station less than 2 min walk.

Nepean Mental Health Centre, Kingwood, Australia (2014)



Nepean Mental Health Centre (NMHC) is a new insertion into the existing hospital campus and is designed to respond to the increase in demand for mental health services as a result of the growing and ageing population. It is integrated into the local community and linked to the adjoining health precinct.

Adamant, the floating psychiatric hospital, Paris, France (2010)



The day-care centre Adamant is a boat house, rocked by the river and lies only three hundred meters away from the big train station «Gare de Lyon».

C. Exterior

i. Entrance

- Marking the entrance in a non-stigmatising way will promote wayfinding and make users feel welcomed in the building. A piece of art, a transition space such as a canopy, is often used for such purposes in public buildings, including hospitals or cultural centres and museums. The extension of this practice to mental health buildings would convey a positive message of appreciation to service users and staff. [SCP]
- Placemaking design features including art tend to be included in healthcare buildings (as opposed to mental health) to promote welcoming patients and visitors. These could be features such as sculptures or elements that mark the entrance. [SCP]

ii. Facades

- The first impression is very important: the façade should be welcoming and attractive both to users and staff, to make them feel encouraged. [SCP]
- An attractive façade, a building that looks modern and clean, will also attract staff. [SCP]
- The existing appearance of “old”-shabby units seems to contribute to public misperceptions of mental illness and addiction. New/well maintained and attractive buildings help to promote a positive image of the hospital as providing good quality services by reducing stigma and promoting a positive image to the community, as well as among family members and visitors. [SCP]
- Regarding the facades of mental health facilities there are two opposite trends of good practice: a) facades with domestic features that blend to the surroundings to avoid institutional connotations and stigma, which is the façade response to normalization theory or b) facades that stand out making a statement for mental illness and which is closer to social valorization regarding mental illness. [SCP]

Examples from case studies:

Southern Oslo Psychiatric Centre, Oslo, Norway (2015)



A welcoming façade with openness to green and neighborhood, offering the necessary privacy by variation in glazing/transparency by the use of the brick façade in a way that reflects the functions.

Young Disabled Modules and Workshop Pavilions, Zaragoza, Spain (2011)



At the youth facility in Zaragoza (in the first phase a new support centre for youth with behavioral problems) a very interesting façade solution was selected by the design team: the differently pitched roofs are meant to reveal how much mental activity takes place in each room. Roofs with the steepest pitches are located above shared common rooms, while shallow gables correspond to patient bedrooms and staff quarters are located beneath flat roofs. The design team uses red colour on the facades as a symbol to make them visible, opposed to stigma and prejudice.

Casa Verde Young Women's Care Home for Mental Health, San Miniato, Italy (2016)



The micro perforated façade panels and the physical light within the building create inside on the main stairs a sense of well-being and a feeling of space, reinforced by the opening façade on the main elevation and the relationship between indoor and outdoor spaces. The selection of the ventilated green façade hasn't only a

color value but different levels of reading as the double micro perforated panes give diaphaneity when you are close to the building but massiveness when viewed from afar.

Adamant, the floating psychiatric hospital, Paris, France (2011)



The fully glazed façade with wooden movable flaps opens to all sides seeking visual contact, but at the same time, remains an autonomous island in the middle of the city. When the day-care centre is closed, the shutters act as a protective skin. During opening hours they will be flipped up to let light and air into the rooms, and to at the same time filter the gazes. Thanks to the shutters, people can know from afar if the day-care centre is open and ready to welcome the users.

Ballarat Acute Mental Health Facility, Victoria, Australia (2010)



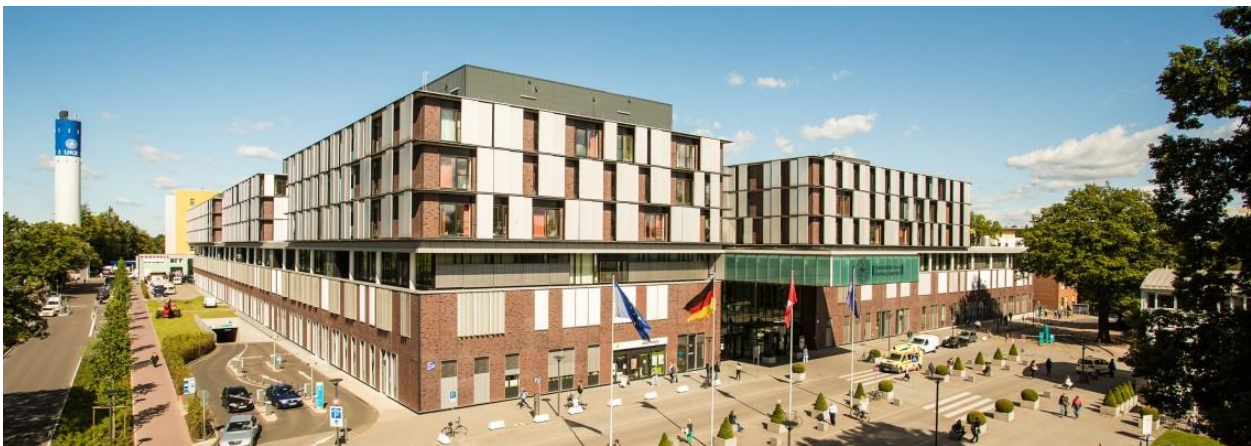
A new entrance with an open timber fence allows the facility to portray an open and engaging presence to the wider community and the architecture creates inviting, domestic scaled spaces.

Ancora House, Manchester, UK (2016)



A welcome façade with bright colours creates a positive impact on users.

Clinic and Polyclinic for Psychiatry and Psychotherapy at UKE, Hamburg, Germany (2004)



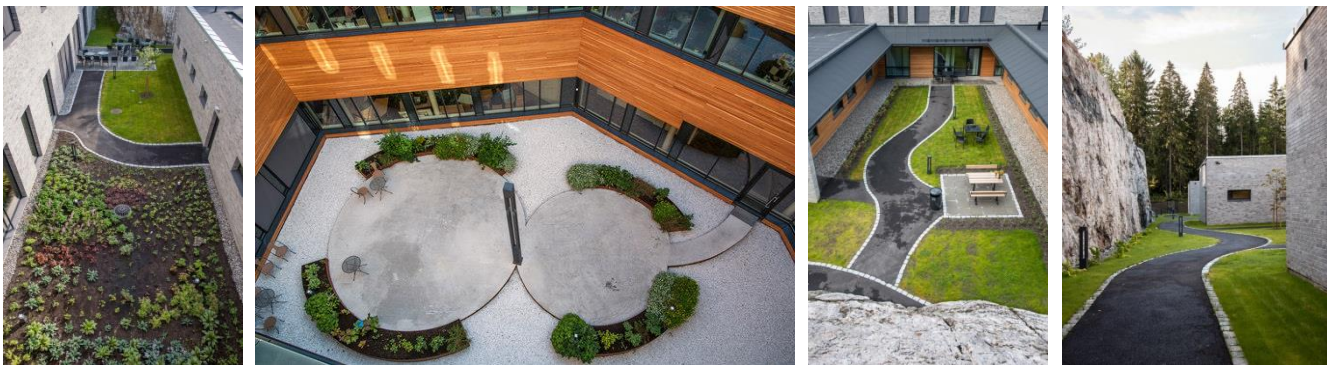
The primary goal of the Outpatient Center established by UKE – Medizinisches Versorgungszentrum (MVZ) was highly specialized outpatient care of patients at university standard. The façade of the facility has a very interesting element since it offers users the ability to adjust the environment by moving the remote partitions of the façade according to their needs for natural light/thermal comfort each time.

iii. Outdoor areas

- Important to incorporate greenspace into the design of healthcare facilities to create shared spaces which facilitate interaction and attachment, foster well-being, and increase opportunities for green exercise and provide a relaxed setting for user-patient interaction away from the facility's interior. [SCP]
- Need to provide a safe outdoor environment, a place for reflection, a place for relaxation, a place for socialization. [SCP]
- A place to maintain the hobby of gardening might be helpful. [SCP]
- More positive effects not only from access to small green patches but also from veritable parks and gardens, where physical, horticultural and other therapies are conducted. [SCP]
- Greenspaces are often used in a targeted way to deliver structured therapeutic interventions. These may include: wilderness therapy, social and therapeutic horticulture, facilitated environmental conservation, care farming, ecotherapy, nature-based arts and crafts, and animal-assisted interventions. [SCP]
- Healing gardens: there should be an absence of harsh noises. Knowledge of healing plants to translate medical approaches is needed. [SCP]
- There should be plenty of seating both in the sunshine and in shade. [SCP]
- There should be access and space for wheelchair users to the seating and planting beds. Raised flower beds can be helpful for wheelchair users. [SCP]

Examples from case studies:

Southern Oslo Psychiatric Centre, Oslo, Norway (2015)



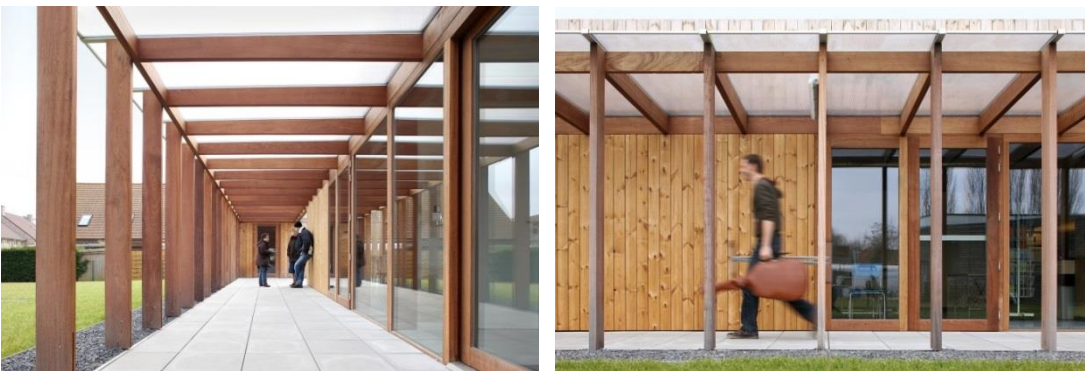
The design team wanted to ensure the first sight for patients entering the building was a garden, as they felt this would immediately reduce the institutionalised feeling often associated with health centres. The centre provides a variety of outdoor options for users, designed to act as an extension of therapy.

Children's Psychiatric Centre Genk, Genk, Belgium (2013)



The Children's Psychiatry Center in Genk innovatively marries a designed outdoor environment with the facility. Children's wellbeing and their families, along with a pleasant working environment for employees were at the core of the design, so every space in the center captures views of internal courtyards, gardens, or the forest. The flat green roof is at the level of the surrounding site.

Day Care Centre For People With A Mental Disability, Wetteren, Belgium (2009)



The outdoor circulation provides special interest as is designed as a covered wooden gallery, a generous space in itself, with such a comfortable width and light structure that is inviting people to meet up and to stick around. The roof is made of transparent polycarbonate sheets. The rigid rhythm of wooden columns and beams offers a strong spatial dynamic. Different points of view offer various experiences. The space of the gallery has in a short term earned a special place in the perception of guests and staff, as the building is referred to as 'the gallery'.

Ancora House, Manchester, UK (2016)



The centre provides several protected courtyards with different sittings spaces for young people to engage with the local environment and exercise. Additionally, Ancora House provides its young people with an opportunity to learn about growing plants, herbs and vegetables and take responsibility for their own raised bed in the Horticultural Therapy Area. They can even cook and share their produce with others in the kitchen.

Reinier de Graaf, Delft, Netherlands



A therapeutic garden in the facility.

YPARC Frakston, Australia (2012)



The central courtyard of the facility has a number of differentiated zones for boys, girls and families. It provides a sense of security and allows staff passive vision at all times without imposing a sense of observation. Additionally, the courtyard arrangement provides a sense of openness and continuity between areas, eliminating the negative aspects of a secure mental health facility.

RHS Feel Good Garden, Chelsea, UK (2018)



The RHS Feel Good Garden was designed to offer a contemporary, therapeutic space in which to relax, while allowing the visitor to reap the positive benefits of being in a garden. It combines a great balance of exciting planting with innovative stonework to create a space that puts the user at ease. By keeping in mind the positive impact that gardens and gardening have on mental health and wellbeing, RHS and NHS joined forces at Chelsea 2018 and designed a garden to raise awareness of the positive impact of horticulture on mental health. After the show, the garden is relocated to the Camden and Islington NHS Foundation Trust that won the 2018 Feel Good Garden competition among 39 NHS mental health trusts in the UK, providing a place where staff and users can garden, relax and be close to nature.

D. Layout

i. Environment – the theme of the therapeutic milieu

- The importance of the therapeutic environment, one that positively contributes to the healing process, not only gives greater importance to design but also provides a framework for convincing key decision-

makers that design is important: for clinical staff in improving patient outcome; for managers in terms of a better service; for patients, visitors and staff in appreciating the value to health of good environmental quality. [SCP]

- Ulrich has further developed his studies into a ‘theory of supportive design’ which promotes improved outcomes by fostering three principles: a sense of control with respect to physical surroundings, access to social support and access to positive distractions, with aim to reduce and relieve stress from the environment. [SCP]
- Violence is less likely to occur in environments where an optimal balance is maintained between density, privacy and control. [SCP]
- Gender safe design: Specific male and female only areas should be available. [SCP]

Examples from case studies:

Södra Älvsborg – Psychiatric Clinic, Borås Sweden (completion expected in 2021)



With the ambition to create a clinic with the dignity of a public building, without the feeling of a closed institutional facility, Södra Älvsborg Hospital (SÄS) Psychiatric Clinic is a healing environment that protects patient integrity, along with being a calming workplace for staff, relatives and visitors. The entire building is orientated to take advantage of the positive healing properties of daylight, courtyards offer sensory experiences, invite activity and encourage social interaction.

ii. Spatial characteristics

- Physical and architectural design promotes positive outcomes and well-being among patients in health care facilities. This facility design includes a number of principles such as: private rooms where clients can personalize the space, noninstitutional furnishings and home-like amenities (e.g., kitchen equipment), flexible and varied spaces for socialization and quiet activities, natural views and gardens. [SCP]

- Treatment rooms should not feature a long and narrow corridor without daylight with the only purpose to get from point A to point B, but should be a place to hang out and offer chances of informal encounters. [SCP]
- Main circulation spines (even separated corridors for patients, visitors and staff) may be replaced by double-loaded corridor designs. However, external views for orientation and daylight should be considered in the case of double loaded corridors [SCP]
- Corners/waiting areas where people could get a magazine/book and a beverage, with comfortable sitting and lighting very similar to a kitchen table. Sockets for laptops or phones could be important. [SCP]
- Larger, open activity areas may replace small enclosed day rooms. [SCP]
- Elimination of ‘dead ends’ and recesses improves observation, security and safety while expanding the reach of natural light, opening outdoor views and orienting staff and patients to the time of day and the season. [SCP]
- Spaces for social interaction may range from small, quiet spaces to larger, open-plan areas, providing choices depending on the needs of users each time.
- Place key therapy areas close to the communication hub to encourage integration between staff and users. [SCP]
- Incorporate training for staff, making sure it is flexible to accommodate different classes and educational events for continuing education opportunities. [SCP]

Examples from case studies:

Roseberry Park, Middlesborough, North Yorkshire, UK (2011)



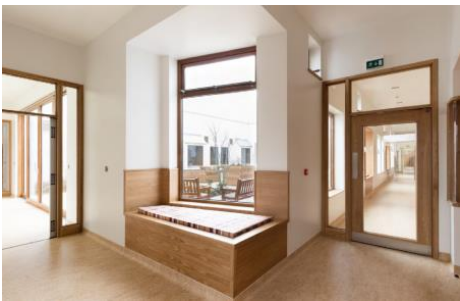
Sitting options in the circulation spines.

FitzRoy House - CAMHS inpatient care, Northampton, UK (2017)



Sitting options in the circulation spines.

Clock view hospital, Walton, UK (2015)



Sitting options in the circulation spines.

Behavioral Health Pavilion, Nationwide Children's Hospital, Ohio (2020)



Waiting sitting options in the circulation spines.

iii. Navigation

- A simple building layout with obvious travel paths and clear signage, so that users do not need to ask for help, support the feeling of security. [SCP]
- Openings and access to plants that change with the seasons, as well as the availability of clocks, provide decoration and information as part of the daily activities, and allow for orientation in time. [SCP]
- Signage properly designed and well-placed. It should be perpendicular to the line of travel and at eye level for wheelchair users; the readability must be legible, incorporating large text and high contrast with the background. Maps should be less cluttered—“You Are Here” designations are of the greatest importance. Advocate landmarks that are distinct in shape and colour. [SCP]
- Decorative fountains are being used by designers for healthcare facilities, as they can serve as landmarks and wayfinding elements as well as positive distractions that reduce stress. [SCP]

Examples from case studies:

Casa Verde Young Women's Care Home for Mental Health, San Miniato, Italy (2016)



Although the basic color used at the facility is a light grey, colored lines (green, blue and orange) are used to form the three different zones where the girls live according to the degree of their disease. Green, Blue and Orange are also in furniture details and in the icons on the walls/doors (pear/strawberry - dining room, TV - room TV, smile – living room, boy /girls - gym, patch - medical center, washing machine - dishwashing room, pot – kitchen, sofa-living room) to identify the various functions.

FitzRoy House - CAMHS inpatient care, Northampton, UK (2017)



Super graphics were used to identify and personalise each space. The themes and colours were also used to develop coherent wayfinding elements for the public spaces.

Young Disabled Modules and Workshop Pavilions, Zaragoza, Spain (2011)



iv. Window view

- Impact of the view from the facilities windows on the recovery. [SCP]
- Positive effects on both users and staff to be able to view the landscape from the inside of the building as well. [SCP]

Examples for cases studies:

Day Care Centre for People With A Mental Disability, Wetteren, Belgium (2009)



Internal views from the facility's common spaces to the outdoor areas.

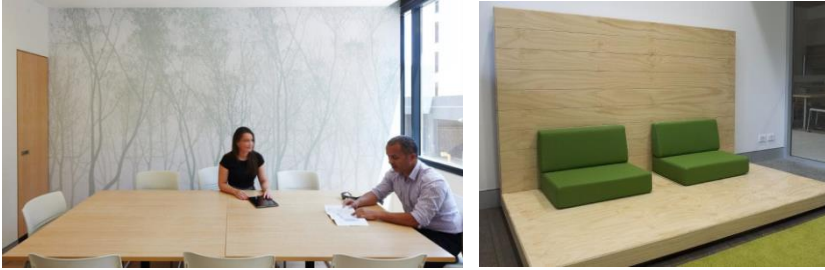
E. Interior

i. Staff areas

- Need for both indoor and outdoor break areas: both areas should be located in close proximity to patient-care areas. With limited time available for breaks, greater distance to break areas may result in reducing the likelihood of using them. [SCP]
- Staff break rooms: better be located within the medical unit as they are the most commonly selected location for breaks, with nurses ranking these rooms as their first choice for both meal breaks and non-meal breaks. [SCP]
- Proximity: the issue of proximity is particularly important for outdoor break areas, which are more difficult to position near medical units. Typical designs, such as centralized healing gardens located far from the care areas, are not likely to be used by nurses on a regular basis and may not provide enough privacy. [SCP]
- Great impact of a walk in a garden, around diverse plants and flowers, receiving direct sunlight. [SCP]
- For outdoor staff break areas: comfortable seating, covered patios, rich natural environment. [SCP]
- Staff break areas should be separated from other support spaces so as to reduce distractions. [SCP]
- Work areas: Positive impact of windowed work places to the overall employment experience as windows are a source of light, sunshine, information about the weather and generally about what is going on in the world outside, providing an indication of time and space. [SCP]
- Staff satisfaction and a positive work environment are inextricably linked to positive user experiences and treatment outcomes. [SCP]
- Staff working without natural daylight might suffer from disruption of their melatonin mechanisms, especially during the winter. It is important for all work spaces to have direct or in-direct access to natural daylight. SCP
- Although, direct access to the outdoor is a very powerful stress reliever, there are ways in incorporating a wide range of natural elements into the break spaces ranging from indirect exposure via nature-related artworks, inclusion of indoor plants, to pleasant window views of mountains, gardens, landscapes, sky, flowers, water features (low preference to park-like areas views and buildings or traffic). SCP

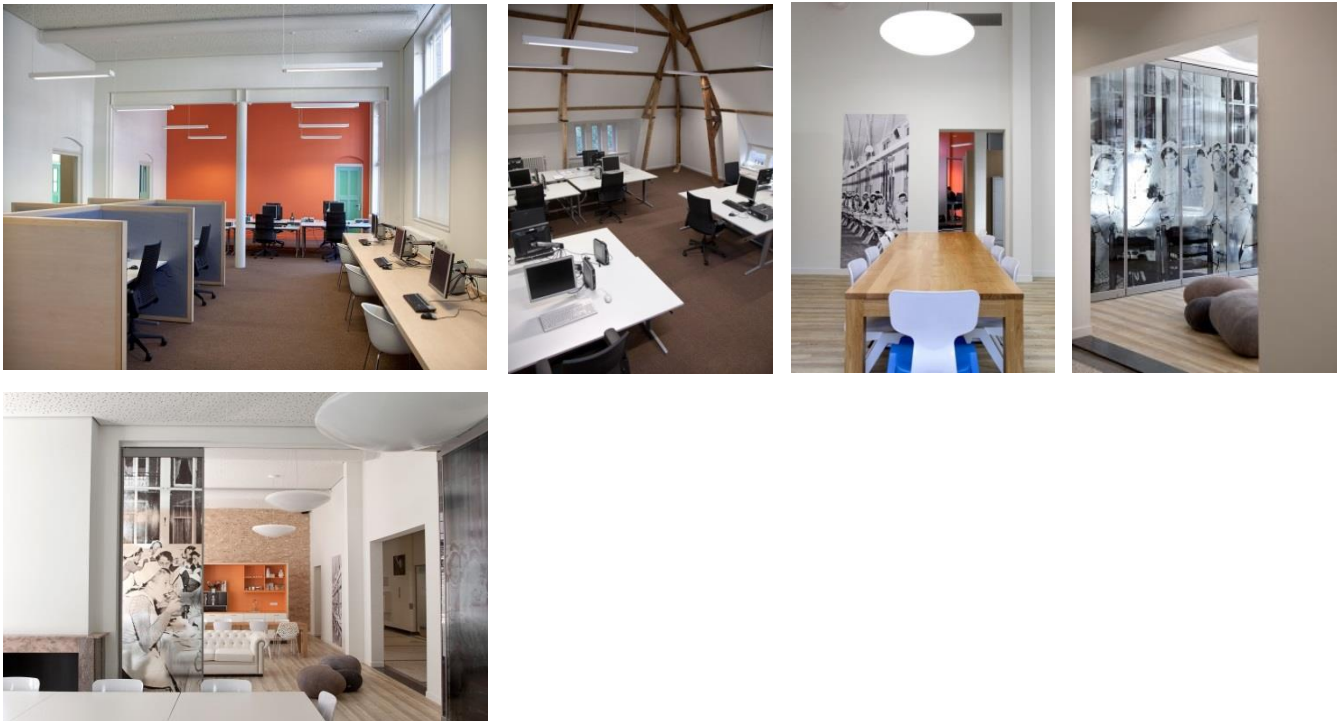
Examples from case studies:

Professor Marie Bashir Centre, Camperdown, Australia (2014)



Staff working spaces and break areas within the centre.

Ambulatory Addiction Center Amsterdam West, Netherlands (2012)



The assignment was to transform the former Tweede Werk- en Leerschool in Amsterdam into an Ambulatory Addiction Centre. The 'back office' is set up on the 1st and 2nd floor, where there are also the office, meeting rooms and a work café. On the glass partitions of the work café the designers have used foil with photos of the original school, as a way to retain the characteristic elements of the building as much as possible. In the Netherlands, hospital staff areas have to have direct or indirect access to daylight.

ii. Rooms for families

- There could be a dedicated visiting area at the front of the facility or in specified areas within the unit or the garden. [SCP]
- Families are very important especially for adolescent patients and older people. Apart from large open user activity areas, smaller more intimate ones are also of great importance. Better to locate these near the entrances. [SCP]
- Particular consideration for child visitors. There may be a child dedicated visiting area, close to the entrance where children can visit safely. [SCP]

Examples from case studies:

FitzRoy House - CAMHS inpatient care, Northampton., UK (2017)



Recognizing the importance of social interaction, the facility provides a variety of ways for young people to keep in touch and many spaces to spend quality time with family, carers and friends.

iii. Therapy rooms/ Low stimulus room

- Patient activity areas can include dayrooms/ large open day rooms to support social interaction, private therapy offices, circular group therapy rooms, family meeting rooms, dining areas, a quiet room for retreating. [SCP]
- Better to be built in a flexible and multi-purpose way, to provide flexibility for different activities in the same spaces. [SCP]
- Low stimulus area should be provided away from communal areas. [SCP]

Examples from case studies:

Roseberry Park, Middlesborough, North Yorkshire, UK (2011)



Reminiscence Therapy is a well-established practice for working with service users who have difficulty with short-term memory but can remember things from their past. Some objects and imagery have particular meanings and associations that are familiar and reassuring, and which allow service users to interact with their carers more fully. Through academic research and workshops with care staff in Roseberry Park's Older People's Unit, artist Dr Jayne Lab has developed a unique project that takes reminiscence therapy and applies both cutting-edge technology and an artist's creativity to it. Service users and their carers can select one of seven beautiful clear resin orbs from a display cabinet and take it into the reminiscence room. Inside the room are comfortable seats facing a 1950s style TV cabinet, and when the orb is placed on the cabinet a 'movie' of video clips, audio and images plays automatically. The hidden technology behind the project makes the process incredibly simple with nothing to switch on or adjust.

FitzRoy House - CAMHS inpatient care, Northampton, UK (2017)



Therapy room: a custom-designed sensory therapy room that incorporates inbuilt sound-damping, adjustable lighting and secure fastenings for swing equipment.

GGZ admission clinic Dijk and Duin Castricum, Netherlands (2013)



Sensory rooms within the facility.

University of Minnesota Masonic Children's Hospital, Minneapolis, USA (2012)



Activity rooms arouse and energize with bold and cheerful colors. Textures are incorporated throughout the space to engage other senses.

iv. Reception /nurse station design

- Nursing stations play a significant factor in mental health facility design. Open areas are essential so as to encourage social interactions between staff and users but a private space where staff can retreat and conduct administrative tasks is also necessary. Decentralized nurse stations with minimal or no physical barriers between staff and users are becoming more desirable and could enable staff to better observe hazardous behavior and increase interaction between staff and users. [SCP]

Examples for case studies:

Professor Marie Bashir Centre, Camperdown, Australia (2014)



A key element of the design of the Centre is an open staff base to facilitate accessibility and interaction with between staff and users, thereby deinstitutionalising the notion of a staff “station”.

Ambulatory Addiction Center Amsterdam West, Netherlands (2012)



For the reception and treatment of users, the front office has been set up on the ground floor with one counter for drug addicted users, where the services of the GGD and DWI are integrated.

Ancora House, Manchester, UK (2016)



The welcoming entrance/reception station of the centre.

v. Storage

- A lockable space could be placed close to the entrance where users can put their outdoor clothes safely and clearly label when they arrive. [SCP]
- Storage needs to be considered for various functions and at a relevant safety and security levels: for occupational therapy equipment, linen and spare clothing, medicines and medical equipment, wheelchairs, office materials/records. [SCP]
- Adequate space for staff to secure personal possessions. [SCP]
- Storage at the entrance/ bicycle parking. This is important for visitors and staff. If there is a separate staff entrance, there could be provision of bicycles there too. [SCP]
- Storage units should be incorporated in the design in a smooth way allowing an unobstructive flow of movement and visibility, especially when safety is a concern. [SCP]

Examples from case studies:

Stella's place, Toronto, Canada



Bicycle parking at the entrance of the facility.

Ambulatory Addiction Center Amsterdam West, Netherlands (2012)



Storage solution at the corridors.

F. Details

i. Design for wellbeing

- Patients first: Patient-focused and patient-centered approach, which aims to improve the patient experience by claiming to be more efficient and to put the patient to the least disruption. The ‘patient-centred’ approach assumes a change in organizational culture in which the design process plays a part in facilitating the adoption of a new care philosophy. Both the patient-focused and patient-centred approaches have given greater importance not only to patients but to the carers and staff, and more particularly to an understanding of their experience and feelings. [SCP]
- Promoting choices: Provide to the user the opportunity to control his immediate environment as much as possible. This may include: lighting level, type of music, seating options, possibility to have access to kitchen facilities, where snacks or meals can be prepared by the patient. [SCP]

ii. Lighting

Natural and appropriate artificial lighting and views of nature are two of the most significant design factors that contribute to positive health outcomes. [SCP]

1. Natural light

- Light has a profound effect on human biology with implications of lights on hormones, brain and behavior. Natural lighting is important in controlling the circadian system. Natural circadian rhythms regulate melatonin production, which influences biochemical and hormonal body rhythms, which have the following effects upon mental health: reduced depression, decreased length of stay, improved sleep and circadian rhythm, lessened agitation, eased pain, and easier adaptation to night-shift work. [SCP]
- Lack of natural light can cause seasonal affective disorder, changes to hormonal body rhythms, glare and flicker, work disruptions, staff stress and decreased staff satisfaction. [SCP]
- It should be kept in mind that although natural light has been identified as crucial, flooding spaces with too much light is likely to cause discomfort in some cases. Shading options should be available. [SCP]

2. Adjustable lighting

- Bad lighting levels may lead to medical errors and poor performance on healthcare settings. [SCP]
- The entrance to the facility should be well lit but without glare. [SCP]
- Lights timed to match circadian rhythms helps to establish routines for users. [SCP]
- Lighting can also help create visual texture in rooms. [SCP]
- Attention should be paid to avoid glare as this can commonly cause problems especially to older users. [SCP]
- Energy saving: Time controls, presence detectors and daylight compensators should be checked for applicability. [SCP]

- Lighting in workspaces: Poor lighting can result in eye strain, fatigue and aching, which in turn is likely to lead to deterioration in performance, particularly if work relies on visual acuity such as computer-based job roles. Individual control over workstation lighting is perceived as more comfortable than recessed parabolic-louvered luminaires. Dimmed down staff based lights are also proposed. [SCP]
- For toilets, recommended lux level 300 and more than one source of light to even spread and avoid shadows, particularly recommended if used by older people. [SCP]
- Night lighting: Night lighting affects many people working in the facility, from nurses to site managers, doctors and security staff. Sufficient light should be provided to be able to see visual tasks (such as working at the computer at night shift). [SCP]
- Based on the facility's policy, at least one central dimmed luminaire should be left at night. [SCP]
- It is important to provide a dark quiet place for staff to rest. [SCP]

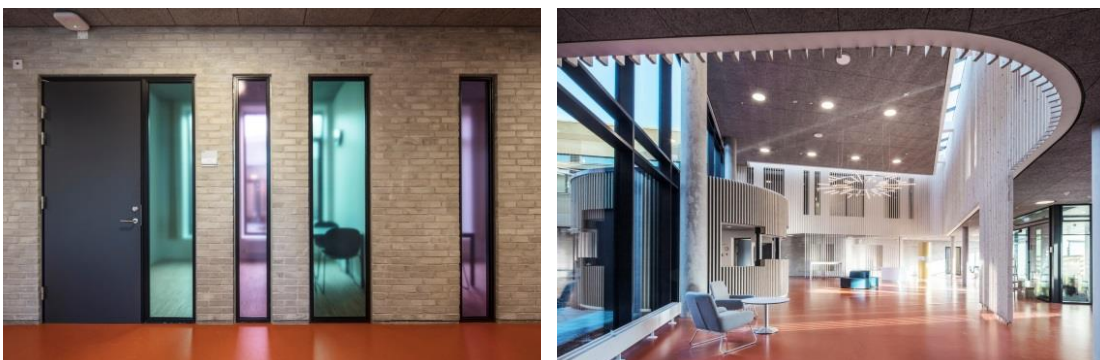
Examples from case studies:

Helsingør Psychiatric clinic, Helsingør, Denmark (2006)



The design team avoided the traditional hospital hallway without windows and rooms and paid special attention to the use of natural light in the building.

Vejle Psychiatric Hospital, Vejle, Denmark (2017)



The design team have designed the building with a special focus on both natural and artificial light in order to ensure the full outcome of lights healing effect on users. Glass panels and interior courtyards bring ample daylight into the building. Withdrawn ceilings and interior glass help light extend even further through the building. Furthermore, 24 hours of colored light therapy is integrated into the wards for calming recovery, elimination of depression and preservation of a natural circadian rhythm for staff and users. Based on glass technology, they have increased the influx of light by avoiding closed corridors, and by choosing light-reflective surfaces. Together with the Austrian company Bartenbach, the design team has developed the world's most advanced artificial light with colour management to tie in with the rhythms of the day. This means warm light in the evening and at night. Each luminaire has an IP address, which makes it possible to control the lighting centrally depending on the time of day and the season.

GGZ admission clinic Dijk and Duin Castricum, Netherlands (2013)



Special attention was paid to the use of daylight, with skylights providing pleasant daylight in all corridors.

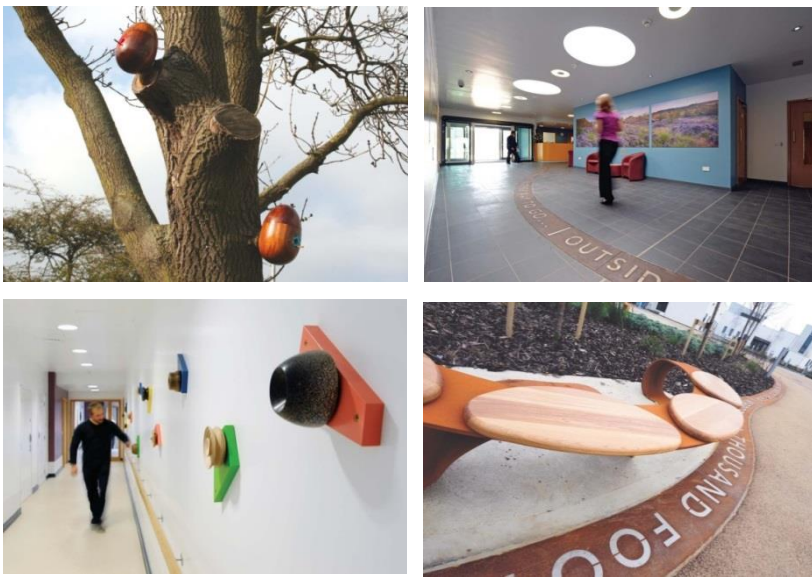
iii. Art

- Art, design and environment in mental healthcare can affect physiological and psychological health, as well as clinical and behavioural outcomes. [SCP]
- Art has the characteristic of establishing equality between patients and non-patients for artistic production. The integration of artists into the psychiatric sector contributes to the production of imaginative work which creativity reaches beyond the stigmatization that people with mental disorders suffer from. [SCP]
- Visual arts: Positive impact of visual arts encompassing nature images, positive facial expressions and caring relationships. Abstract imagery tends to have negative outcomes and increase anxiety and agitation. [SCP]

- Music: Positive effect of music on health: use music as therapy, provide necessary technology to listen to the music, bring musicians to the facility to provide entertainment events. [SCP]
- Users and art: Pieces created by therapists and users could be incorporated in the design process. It is recommended users to be consulted when selecting artworks. [SCP]
- Forms of art: painting, murals, prints, photographs, sculptures, decorative tiles, ceramics. [SCP]
- Murals and artwork could also be used so as to create internal views within the facility. [SCP]

Examples from case studies:

Roseberry Park, Middlesborough, North Yorkshire, UK (2011)



At Roseberry Park a total of 13 artists were commissioned to create what the trust describes as “a series of inspirational and calming pieces of artwork” for both the interior and exterior spaces.

Figures show the Finding Ways poems that are the centrepiece of the arts commissions at Roseberry Park. The journey of this steel ribbon of words cuts through gardens and hallways; it forks, twists and rises from the ground to become seats. It has multiple endings, and in reality consists of several poems with a common starting point at the main entrance. The last figure shows a series of wall-mounted artworks that are both creative and functional, which aim to engage and provide stimulation for service-users as they walk round the corridors.

Casa Verde Young Women's Care Home for Mental Health, San Miniato, Italy (2016)



The CASA VERDE project is a search to find links with the woods, the “guest girls”, the city, the natural light, the centuries-old cypress trees, with art. Graphic works of the ‘guest girls’ are visible on the glass façade. Art by and about the patients has shaped the facility. Drawings from younger patients were edited, scaled, and applied to the ground floor glazing system, while Italian artist Mercurio-S17S71 created Shamans, a contemporary work that features portraits of Casa Verde’s users.

FitzRoy House - CAMHS inpatient care, Northampton, UK (2017)



FitzRoy House is part of a wide-ranging programme of improvement across St Andrew’s Healthcare’s Estate to deliver personalised treatment in a therapeutic environment. Art played an important role during the design process. The main entrance consists of two artworks; a large suspended contemporary chandelier feature which represents the overarching themes for the building and starts the visitor journey, and an original artwork by the artist, Eric Klein Velderman based on his 'Field Series' sketches.

Mindfulness in the 'Branch Out' café: the concept of a tree of mindfulness words contained within a head developed out of service user workshops. The words were collated and agreed with clinicians, OT staff and service users in order to form part of the unit's mindfulness awareness work.

Ancora House, Manchester, UK (2016)



Local artist Stephen Broadbent was tasked with designing an artwork that could be enjoyed by everyone at Ancora House. Understanding that Ancora House is a shelter, Stephen was struck by the idea of designing a protective space. The image that sprung to mind was that of a mother bird sheltering her young under her wing. The artist came up with the idea of a shape inspired by a bird's wing. Around 2m high, this sculptural shape will allow young people to find their own way of using it. They can sit or lean inside it and the bird wing envelopes them.

Clock View Hospital, Walton, UK (2015)



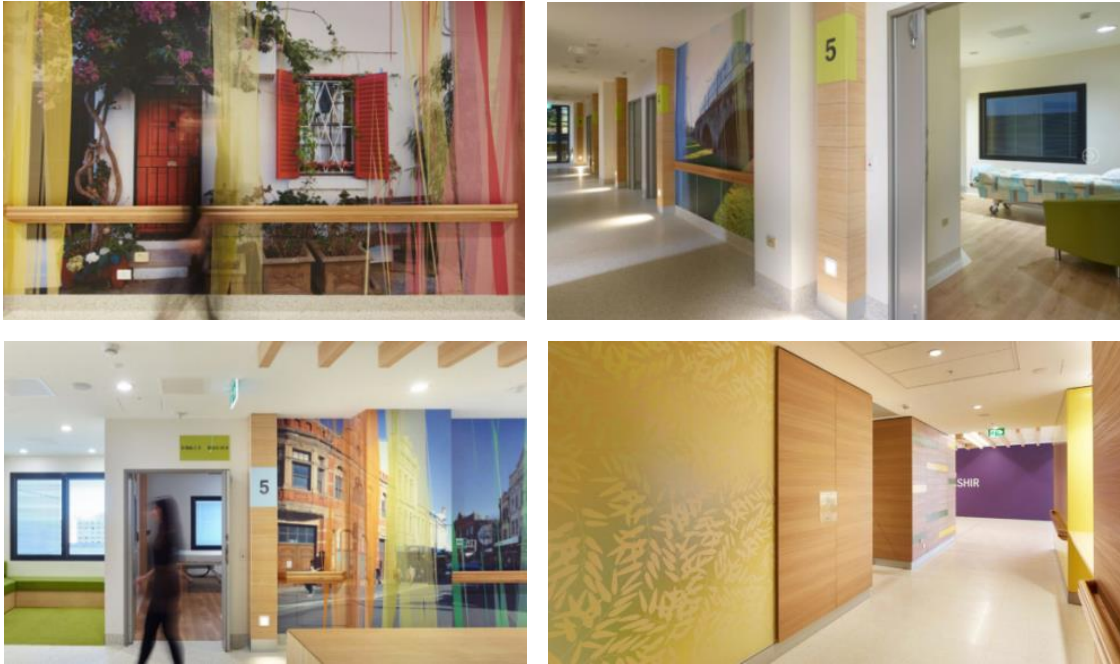
Many aspects of art installations have been incorporated in the design and fabric of the building. At the front of the hospital is an art installation made up of granite blocks, similar to the stone of Liverpool Docks, where people can sit, with imprints on the plinths of boats filled with objects people would take to journeys. Artist David Mackie designed these stone and bronze works. The theme of boats and rivers continues right through the hospital with many glass dividing panels, doors and windows etched with boat shapes.

Nepean Mental Health Centre, Kingwood, Australia (2014)



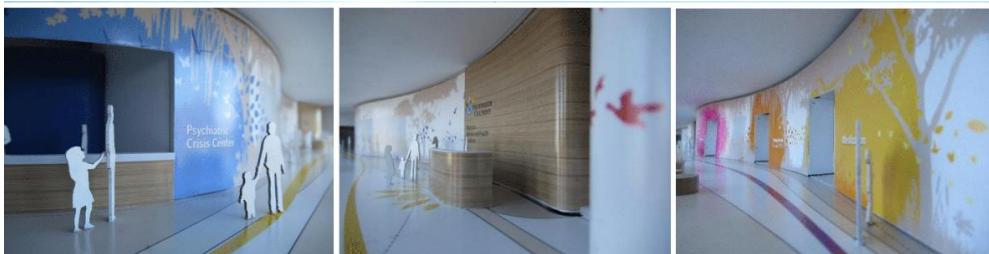
Wall murals used to make very average spaces into visual escapes, having noted positive effects for both the staff and users.

Professor Marie Bashir Centre, Camperdown, Australia (2014)



Graphics, colour and installations are extensively used to reiterate community, with images of terraces, city scenes and landscape.

Behavioral Health Pavilion, Nationwide Children’s Hospital, Ohio (2020)



The Pavilion has a cheerful yet soothing interior providing one safe and calming living space appropriate for children with acute mental health and severe behavioral conditions.

Adjustable heating

- Adjustable temperature has positive effect both on staff and users. Thermostats and controls should be easily available for staff, especially women, to alter the ambient temperature, and adjust it to the needs of the individuals. [SCP]
- Thermostatic radiator valves could also be used for energy saving. [SCP]

iv. Air quality/ water

- The use of effective air quality control measures during construction and renovation to prevent the outbreak of airborne infections is suggested. Measures include, among others the use of portable high-efficiency particulate air (HEPA) filters, installation of barriers between users' areas and construction/renovation areas, generating negative air pressure for construction/renovation areas relative to patient-care areas, and sealing user windows [SCP]
- The design of the physical environment impacts nosocomial infection rates by affecting all three major transmission routes—air, contact, and water. As research shows there is a pattern across scores of studies indicating that infection rates are lower when there is very good air and water quality, and greater physical space per patient. [SCP]
- Ventilation systems: Use effective ventilation systems to achieve optimal ventilation rates, airflow patterns, and humidity so that the spread of infections can be minimized. Effective ventilation is required in crowded spaces, such as day rooms and especially in bathrooms and also to prevent strong odors from areas such as kitchens and dining rooms spreading to other adjacent spaces. [SCP]
- Smells: pleasing aromas may reduce blood pressure, slow respiration and lower pain perception levels. Unpleasant odors stimulate anxiety, fear and stress and are known to increase heart rate and respiration. [SCP]
- The possibility of opening a window for fresh air is very important as staff frequently need fresh air rather than air-conditioning. [SCP]
- Design and maintain the water system at the proper temperature and adequate pressure: minimize stagnation and back flow, eliminate dead-end pipes, regularly clean point-of-use fixture. [SCP]
- In case of decorative fountains, consider their location and carefully maintain them to minimize the risk of waterborne infection. [SCP]
- Water saving: Significant savings can be realized by upgrading toilet and faucet technologies. [SCP]

v. Sound and noise levels

- Low noise level is important as it helps in the reduction of stress. [SCP]
- Noise-induced stress correlates with reported emotional exhaustion or burnout among nurses. [SCP]
- Unpredictable loud noise can distract people and interrupt their performance. A large number of studies have documented the negative impact of noise on workers' performance in non-healthcare settings. However, these findings have not been fully explored yet in healthcare settings. There is some evidence regarding the impact of interruptions or distractions on medication dispensing errors by hospital pharmacists, showing that error rates increased when there was an interruption or distraction, including unexpected noises (e.g., a telephone call). [SCP]
- Noise and stress can be reduced by installing high performance sound-absorbing materials on surfaces such as ceilings, floors, and walls: effective in reducing noise levels, reverberation or echoing, and sound propagation. [SCP]
- Textile floor coverings should be used, where applicable, to reduce noise levels. [SCP]
- Silent fire alarm systems should be considered linked to staff alarm pagers, so as to avoid creating anxiety and could be beneficial in case of evacuation. [SCP]
- Good sound insulation is essential in spaces where confidential discussions take place. [SCP]

vi. Privacy

- Break areas for nurses should provide sufficient privacy from patients and their families. Locations and configurations should offer opportunities for both individual privacy and small group interactions. Very important not to be open to the public. [SCP]

vii. Safety

- Selection of durable, damage resistant furniture with same finishing should be considered at the users' treatment and activity zones. [SCP]
- Special attention should be paid to the design of toilet rooms to ensure patient's safety. [SCP]
- Safety and security varies according to pathology requirements. Also, it differs according to local requirements for anti-ligature. [SCP]
- Extended use of anti-ligature technologies could be characterized as institutional in certain contexts. [SCP]

Examples from case studies:

Psychiatric center and sheltered housing, Bolzano, Italy (2016)



Interesting way in using pieces of art for safety and protection at the staircase.

Furniture

- The type and arrangement of furniture in a sitting room can have a direct impact on the pattern of social interaction. Furniture should be arranged so as to create spaces that support multiple levels of interaction and allow balance between connecting with others, along with being able to retreat when some personal time is needed. [SCP]
- Furniture should be comfortable, domestic in style as possible while being safe, durable and free of sharp edges. It is helpful for furniture to be capable of being easily cleaned and repaired. [SCP]
- Staff break areas need comfortable furniture, extended beyond the traditional office seating, including couches and reclining chairs. [SCP]

Examples from case studies:

Psychiatric center and sheltered housing, Bolzano Italy (2016)



The furniture is largely custom made with an un-expectantly exuberant detailing of oak and laminate finishes.

Junction 17, Manchester, UK (2013)



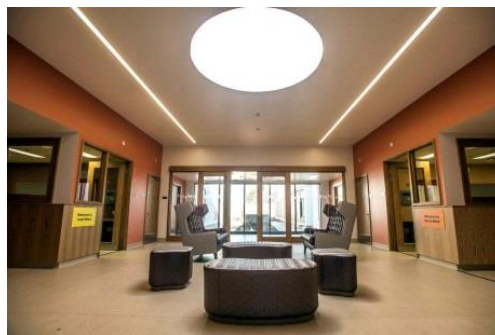
The facility provides a variety of sitting options, with an extensive use of carpet and colours.

Ancora House, Manchester, UK (2016)



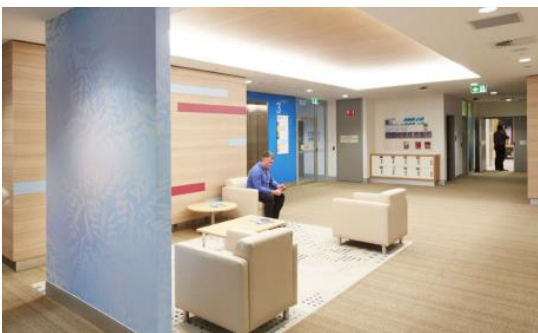
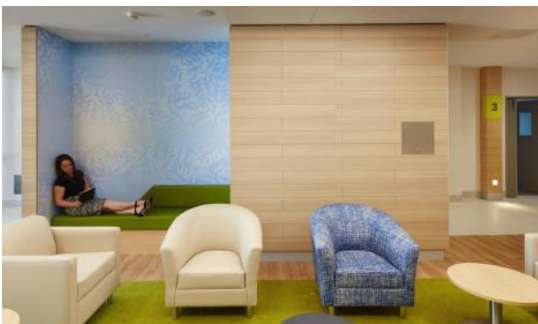
The young people identified the need for an area that worked equally well when they used it as one large group, in small clusters, or when just having some time alone. As a result, different types of seating and at different heights to facilitate a sense of individuality and personal space were designed. The design includes a flexible seating area with discrete separation from the corridor, whilst maintaining a sense of openness but at the same time allow for staff observation. Curved edges to the furniture, eradication of ligature points and infection-safe materials offer a design that is fully compliant to a modern mental health setting. Use of a palette of bright but gender neutral colours, and modern infection-safe upholstery and finishes, complete the design.

Clock view hospital, Walton, UK (2015)



The facility provides a variety of different seating choices.

Professor Marie Bashir Centre, Camperdown, Australia (2014)



Located within the Royal Prince Alfred Hospital campus, the Professor Marie Bashir Centre provides a contemporary, purpose-built mental health service. The Hub provides a variety of siting options.

Youth Prevention and Recovery Care Bendigo, Australia



A different sitting area that provides a cozy environment for young people.

Children's Psychiatric Centre Genk, Genk, Belgium (2013)



Sitting options at the facility.

viii. Colours

- Colour and texture may help differentiate spaces throughout the service. [SCP]
- They can be used strategically to support orientation and wayfinding. [SCP]
- Certain patterns such as lines, grinds and checkboard should be avoided as they might generate illusions. Individuals with dementia or autism might perceive such patterns as change of level or boundary. [SCP]

Examples from case studies:

Psychiatric center and sheltered housing, Bolzano Italy (2016)



The interiors of the project develop the residential tone of the centre where warm, soft hues prevail. Colourful accents in the common kitchens and living rooms break away from the muted tones of the interiors while the bedrooms make for a light-hearted palette of pastels.

ix. Amenities to visitors, carers and staff

- Baby changing area could be located near the entrance or near the dedicated child visiting area. [SCP]
- The provision of a refreshment centre should be considered (e.g. coffee and tea, juice, bottled water, fresh fruit). [SCP]
- For indoor staff break areas: strong preference to refrigerators with ample storage space, computers with internet service, music, television. [SCP]
- 24-hour canteens are stated to contribute to staff being able to feel more comfortable at work and as a result being able to concentrate at work. [SCP]
- Vending machines with healthy snacks. [SCP]

Examples:



Singapore is a great example that offers a variety of vending machines with many different options of nutritious and healthy snacks instead of the typical fast food ones, such as salads, fresh juice etc. The pricing is determined by a health-benefit as opposed to health-burden scale.

x. Technology

- A buzzer or bell can be used at the front door so that staff is aware when the door is opened (protection against wandering, especially for older people). [SCP]
- CCTV could be an appropriate tool for area such as car parks, facility entry or exit points. Should not infringe the privacy and dignity of service users. [SCP]
- A strategy for infection control should also be agreed at an early stage of the design process to determine the choice of accepted materials, finishes and fixtures. [SCP]
- Patient-to-staff call systems should be in place in assisted sanitary facilities. [SCP]
- Staff could have an appropriate personal alarm system, in case of emergency. [SCP]
- Fixtures and fittings such as window and door furniture, door closers and hinges, taps, showerheads, coat hooks, should be able to withstand sustained attack and if necessary be anti-ligature. However, there must be a balance between anti-ligature and comfort. [SCP]
- Technology features such as media walls, software platforms suitable for mental health, could support the therapeutic process and play an important supporting role. [SCP]
- WI FI and an area with computers should also be considered. [SCP]
- VR and mental health: VR has been used in conjunction with counseling and cognitive behavior therapy for the treatment of addictions, in cognitive rehabilitation, used to help adults with autism or children develop the skills necessary for independence, for example how to cross a road, in the treatment of posttraumatic stress disorder (PTSD). VR/AR also has applications in the treatment for psychosis. Its effectiveness has been verified in the treatment of acrophobia, spider phobia, panic disorder and

agoraphobia, body image disturbances, eating disorders, fear of flying and driving, social phobia, claustrophobia. VR technologies could also be used for staff training. In general, provision for these technologies as well as AI should be considered at this stage (storage, spaces where they could be used, IT capacity). [SCP]

Examples:

Media wall COWALL and COWIN (Reconnect)



The communication wall Cowall, with the largest interactive screen, provides a unique feature. Through a special technique colored light is injected into the room, whilst the user is still able to use the touch screen to set the color.

The communication window Cowin is an all-round product that can be placed in any type of wall and includes a camera, speakers and microphone for communication purposes. Could be used expect from treatment areas to waiting areas as well.

Humber River Hospital, Canada (2015)



Humber River Hospital is North America's first digital hospital, managing to use technology to the benefit of automating about 75% of the operations at the back of the hospital - such as a pharmacy, laundry and food delivery. Robots that distribute medication as well as automated guided vehicles delivering pneumatic tubes carrying blood samples from the patients' floors to the lab, are some of the hospital's technological advances. Automated guide vehicles distribute medication, linens, food and other supplies throughout Humber River Hospital.

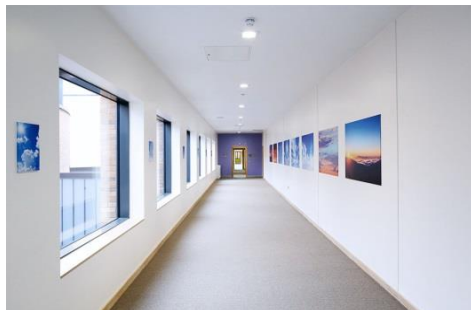
xi. Engage different groups

- A community hub should be designed with and for the community, be accessible, safe and effective, meet the diverse needs of mental health people in the community. They should in addition support physical wellness as well and enhance communication opportunities. [SCP]
- Important to create an inviting non-institutional environment, with new spatial design that responds to a 'normal' community setting that reduces stigma. [SCP]
- Facility design should be explored taking into account the various groups that use them: the users, managers, clinical and allied staff, visiting family and friends, as different user groups interact differently in fundamentally different ways. [SCP]
- Facility redesign and renovations impact not only the physical environment, but also the therapeutic, operational, and psychological environments, as new social and occupational patterns, and routines need to be established, and this process can cause a certain amount of stress across the groups who occupy the new space. [SCP]
- The facility should offer activities and public services to the locals for better integration. [SCP]
- Focus groups are a valuable research tool for gathering qualitative data in health and social services research. Focus groups with staff can provide a highly relevant contextual background for understanding and interpreting data collected from other groups and stakeholders. [SCP]
- Service users should have an early and continuing opportunity to contribute to the new service design and participate in the planning process. Every opportunity should be taken to engage users and their carers. This should be especially taken into consideration when planning furnishing and colours' schemes. [SCP]
- Patient-centered approaches to health care are increasingly serving as guiding principles for service delivery and design. Examples include individualized service planning, multidisciplinary care teams, active user and family involvement, efforts to promote personalization of services and access through decentralized administrative services located nearer to the users. [SCP]
- It is vital that local communities are helped to understand the treatment and care philosophy of the service and given the opportunity to raise questions. An ongoing strategy event after the completion of the design process will keep open channels and encourage ongoing communication. [SCP]
- Engage local artists in delivering art works (that could have also the use of landmarks) or working with users. [SCP]

- Invite carers, friends and family to open events, such as low key activity groups, birthday parties etc. [SCP]
- Pets and mentally ill people: keep pets at the hub enabling patients to regain their equilibrium. Setting times where users could visit with their dogs could also be considered. [SCP]
- Working with other community groups, such as Alcoholics Anonymous and minority ethnic groups which could also provide counselling in other tongue languages. [SCP]
- Create a Faith Room (in collaboration with social services). The possibility of creating a generic faith room and an additional one, for more represented religion(s) in the catchment area, could also be studied. [SCP]
- Provide activities all over the catchment area. Examples include: social centres, municipal swimming pools, public library, art galleries etc. [SCP]
- Ex-user groups are favored partners and could be actively associated to the research programs, as they considered as "experience experts" in the field of Mental Health. [SCP]

Examples from case studies:

FitzRoy House - CAMHS inpatient care, Northampton (2017)



Early on, service users were involved in an engagement programme which explored every aspect of the new building. These workshops generated ideas which helped to develop the concepts for the interior design of the building to provide a positive environment and one which will ease the service users' transition into their new building. Workshop process was used to discuss how different colours made patients feel which the design team

then developed into a set of biophilic themes around nature with colour schemes linked to 'Field + Sky'. This theme and the conversations they had were used to inform the naming of the 11 new wards such as Brook, Fern and Berry and also the colours, super graphics and zones around the building.

Junction 17, Manchester, UK (Junction 17 in 2013, Griffin extension in 2016)



Extensive consultation with staff, young people and other stakeholders during the design process was heavily geared towards meaningful end user engagement with the young people from the outset and included involvement in the full interior design, arts projects and building usage. A digital artist worked with occupational therapists and young people to develop art themes/ artworks. Young people also decided on the name for the unit and the individual accommodation areas: "Junction 17" was chosen not just because of the location but also because 17 years of age was felt by many to be a junction in their lives.

Ancora House, Manchester, UK (2016)



'Ancora' is a Latin noun meaning hope, refuge and support. The name for the new facility was chosen by the young people who will make use of it's services. Graffiti artist Kieron showed the young people spray paint

techniques and together they created a mural on the hording surrounding the building site and framing the new facility. Additionally, young people have been involved in the interior design, artwork to feature in key spaces, external landscaping, external colour schemes and even supported the design of the Ancora House logo. To raise awareness of the new facility, the young people designed, created and produced a video.

Roseberry Park, Middlesborough, North Yorkshire, UK (2011)



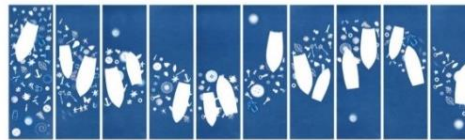
The intention of the Multi-faith Space is to create a sanctuary within the facility grounds, and the glass artwork by Julian Stocks plays an important role in creating this beneficial environment. The theme for the artwork is the redemptive qualities of Hope; an inspirational concept that is central to all religious faiths, but which also communicates a positive and supportive outlook to the religious and secular alike.

Ancora House, Manchester, UK (2016)



Sanctuary is a multi-sensory, interactive opportunity for the young people to engage with spirituality. It is a small room with an unusual but effective shape that offers a space for quiet contemplation, prayer or just a sanctuary from the hustle and bustle of the ward.

Clock view hospital in Walton, UK (2015)



The Mersey Care NHS Trust has undertaken an inspired project to bring together service users, locals and artists to create a series of public artworks in the hospital buildings and ground. A series of 24 workshops took place. Inspired by Liverpool's historic docks they set the theme of Journeys. They worked with service users, local residents and school children to explore the idea of journeys that lead to wellbeing. A series of artworks from the workshops decorate the walls of spaces such as living rooms.

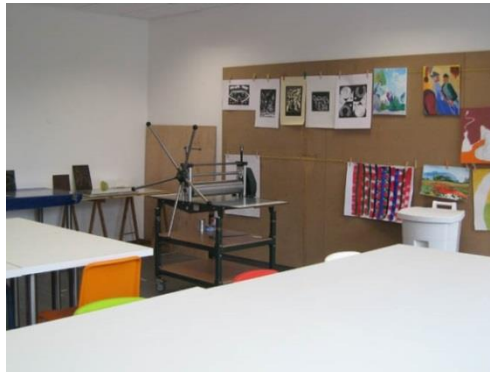
The name of the facility was also chosen from around 50 suggestions made by staff, patients, their families and local community: a name that pays homage to the site's history and the well-known North Liverpool landmark Clock Tower, showing the importance of landmark/history/heritage.

The Trust also engaged with community in many ways: Expressive arts room for cultural partner organisations such as the Royal Liverpool Philharmonic, activity sessions with Movema from Liverpool Institute of Performing Arts, synergies with the Reader Organisation, family visiting rooms, main café area for visitors to enjoy refreshments.



The Sanctuary is a multi-faith room. The stained glass window was designed by service users.

Frontier \$, Hellemmes, France (1994)



Frontier \$ is a space for practice and artistic dissemination related to mental health. It hosts a contemporary art gallery, the contemporary art collection and a workshop of artistic practice. This structure, founded in 1994, has become a meeting place for artists, care teams and mental health users. Located in the centre of Hellemmes city, Frontier \$ has the vocation to promote access to art and culture for all, through partnerships with associative actors, municipal, socio-cultural.

Youth Prevention and Recovery Care Bendigo, Australia (2013)



Young people who receive care from YPARC, are encouraged to engage with other users and give back to other young people experiencing mental health issues in the form of making “Life’s little helper bags”. The contents represent items that provide some comfort when struggling with life such as: the rubber band that helps stretch beyond personal limits, the heart is a reminder that somebody cares, the coin is for never being broke, and the string holds it all together.

Reinier de Graaf, Delft, Netherlands



The faith room is divided in two spaces, one generic faith room and a second one separated for a specific religion.

G. Special groups/considerations

i. Design for adolescents

- Adolescents are a crucial category, especially in terms of treatment for mental illness, as they subject extreme changes in their bodies and lives during their adolescent period. Access to television, music and telephone is of great importance to them, along with physical activity and accessible kitchen. [SCP]

ii. Design for older people

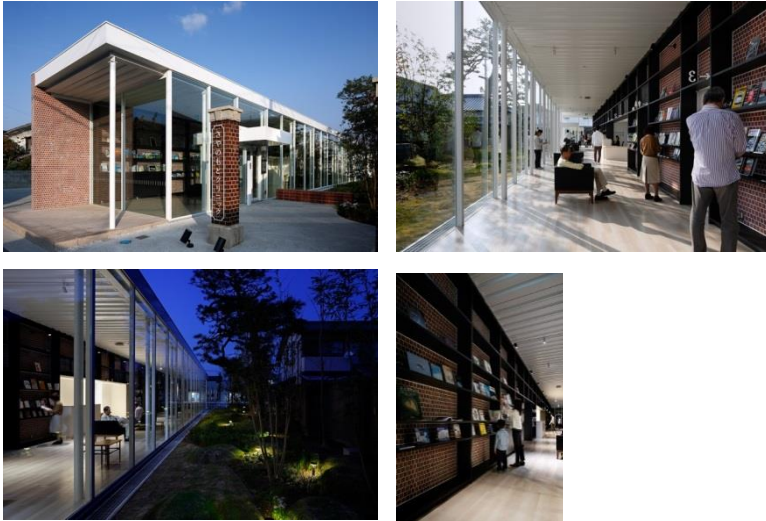
- Main use should be domestic in character, with suitable light fitting, furnishings, plants, carpets. [SCP]
- A small quiet room, preferably near the entrance, where individual carers can be counselled or for users who are temporarily upset should be considered. [SCP]
- Toilet: Design should ensure that the toilets are easy to get and use and that there is sufficient space for staff to be able to assist if necessary. A toilet for wheelchair users is essential. Privacy and dignity for the user are very important. Contrast in colour between toilet seat, grab rails and the floor and wall is recommended. [SCP]
- Bathrooms or showers could be designed for the effective day care of many users, with suitable rails and accessories to assist both users and staff. [SCP]
- Signage for toilet: should be at the right height (about 1.20m from the floor and should be clear with both words and pictures needed (font big enough, picture helpful for people with dementia but not

trendy symbols as are in many cases unhelpful to many people), not too shiny as could cause glare. [SCP]

- Handrails should be used to allow movement within the facility. [SCP]
- Steps in awkward or unexpected places should be avoided as possible and in any case should be provided with handrails. [SCP]
- Floors: coloured floors with stripes can be misleading to users that have poor eyesight as they may think that as a step or obstacle. The same goes with strong contrasts between different flooring materials. [SCP]
- Carpets: Modern washable carpets are generally preferable to other alternatives for the main rooms as they have a short synthetic pile which is impervious to liquids and a waterproof backing which enables them to be cleaned by any standard method. Synthetic carpets are not suggested as they are vulnerable to damage from cigarettes or similar burns. [SCP]
- Colours: Soft colours should generally be used for walls and ceilings so as to create a tranquil environment. For older people, it is useful to have different tones between walls, doors and door handles in the areas where users circulate. It is useful for rooms of the same use to have the same color, such as toilets. Colour can also help to identify space function. [SCP]
- Furniture: Most chairs used by users should have arms and be high to be easy to get in and out without help. Avoid chairs that are firm. A variety of chairs and fabrics are recommended. [SCP]
- Decoration: Decoration should enhance lighting, provide good colour contrast and create a non-institutional homely environment with elements of soothing décor. General décor can enhance way-finding and navigation across the built environment. [SCP]
- Services: Reminiscence therapy involving the use of newspapers, photographs objects from the person's youth could help. [SCP]
- Longer hours to provide care service may be needed for older people whose carers are not older people too but are younger and go to work. Such consideration has a profound influence on the design, staffing and management. [SCP]
- Collaboration with other organisations and caring services is recommended as it can enable a day centre to develop as part of a coordinated community based service to meet the needs of older people and people with dementia. [SCP]
- Staff: Proper training for staff to understand older people, dementia and its implications, and being able to help physically frail and disabled people is recommended. Yet, design tends to ignore staff and this makes it difficult to recruit talented and determined professionals. [SCP]
- Technology is key for older people. Ideally the elements of the built environment should be able to "talk" and communicate the state of the older person, especially for falls and healthcare emergencies [SCP]
- Direct links to primary care and A&Es, if possible with telehealth means to prepare for emergencies. [SCP]
- Fall prevention elements, in terms of lighting especially in staircases and around the bed and from bed to toilet, furnishings and fittings to grab, anti-slippery surfaces for dry and wet surfaces where applicable. [SCP]

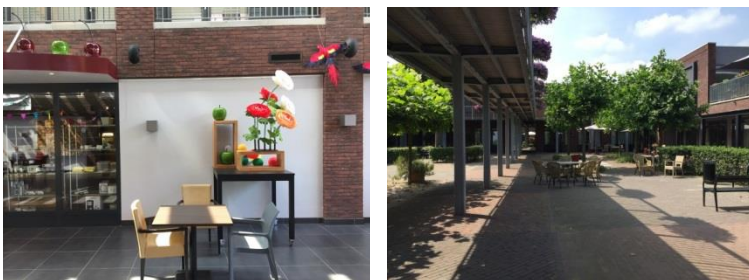
Example from case studies:

Sayanomoto Clinic, Saga, Japan (2014)



Sayanomoto Clinic is a mental health clinic in Saga City specializing in the treatment of patients with dementia. In this clinic a special "Learning" common space was created intended for patients living with dementia and their families. This "Learning" space is not meant to directly treat the illness but rather to provide visitors with a starting point for facing the condition of dementia, a scheme that seeks to connect individuals through education and knowledge. A 30 meter bookshelf was constructed containing pictorial books, magazines, coffee table books, intended not so much to be "read" but rather to be "seen" and impart an impression on the reader. Additionally, an outdoor garden designed to recreate the local scenery of rice fields and mountains using local flora, complete the scheme.

Hogeweyk Dementia Village, Weesp, the Netherlands (2009)



Hogeweyk is the first dementia village in the Netherlands. This is a village-like care home comprising an enclosed network of smaller houses with a protected system of internal roads and several shops and recreation areas. The village aims to incorporate in its built environment what was considered state-of-the-art in design for residences for dementia patients. It employs technology, landscaping and a protected environment with positive distraction stimuli, including art used as visual memory aids.

Conclusions

5

Recommendations conclusion in the design of community mental health facilities		
Note: S stands for Strong, R stands for Recommended and O for Optional		
Description	Wards	Hubs
Provision		
Group work: group and family therapy, individual therapy, social networking, taking therapies, recovery groups, peer support, peer counselling, life skills groups etc.	R	S
Treatment through psychosomatic medicine and psychotherapy: special therapies with natural remedies, anthroposomatic medicine, homeotherapy etc.		O
Substance abuse services	O	S
Services for adolescents (who have experienced trauma)	O	S
Services for homeless people who experience mental health issues		S
Special services for dominant minorities at the catchment area	R	S
Primary care integration at community mental health services		S
Recreation therapy: art therapy, music therapy, recording studio, dance and movement therapy, setting up a library, sensory rooms etc.	R	S
Crafts: pottery, card making, mosaics, model making, psychodrama, anxiety management etc.	R	S
Horticultural therapies: ecotherapy, care farming, nature-based arts and crafts, gardening etc.	R	S
Complementary therapies: aromatherapy, reflexology, yoga, relaxation techniques etc.	R	S
Technology: computer room, where expert member of staff could help users with PCs, wifi availability	S	S
Occupational therapy kitchen	O	S
Kitchen area with room for a large table, where people feel welcomed and relaxed	S	R
Physical activity: include areas for exercise or/and exercise equipment, such as a tennis table	S	R
Nutrition: a well balanced diet to promote wellbeing	S	R
Services for women only, e.g. cooking, meetings in a weekly basis	R	R
Coffee shop/shop where users could also work/sell their artwork		R

Location		
Accessibility/Location		
Proximity to service catchment area, key point in site selection	S	S
Position within the urban fabric-part of the neighborhood	S	S
Easy access for families, carers and staff	S	S
Easy access by public transportation	S	S
Car park availability	R	R
Sheltered entrance	S	S
Access suitable for wheelchair and assisted access	S	S
Facility vehicle	R	R
Facades		
Façade welcoming and attractive to create a good first impression, both for users and staff	S	S
Views to green and neighborhood	S	S
Provide the necessary privacy-openess (by façade material selection/glazing/movable shades)	O	O
Outdoor areas		
Greenspace to facilitate interaction and provide opportunities for green exercise	S	R
Outdoor areas for users and staff only	S	O
Healing gardens	S	R
Provide variety of seating options, both in the sunshine and in shade	S	R
Provide seating and raised planting beds for wheelchair users	S	R
Zen garden	O	O
Connection with indoor areas to provide a sense of continuity	R	O
Layout		
Environment		
Inviting, non-institutional environment	S	S

Patient-focused approach to improve patient experience	S	S
Spatial design that responds to a 'normal' community setting	S	S
Designed with and for the community to meet the needs of mental health people in the community		S
Create a positive work environment: linked to positive user experience	S	S
Natural/appropriate lighting and nature views	S	S
Engagement in the design process of the various groups that will use the centre: users, staff, family, carers, stakeholders	S	S
Promotion of choices among users: lighting level, type of music, seating options, access to kitchen facilities	S	S
Gender safe design	S	R
Adolescent-centered design	O	R
Environment to minimise violence	S	R
Spatial characteristics		
Corridors should be a place to hang out, offer chances of informer encounter, not just having only purpose to get from one point to another	S	R
Expanding the reach of natural light within the building	S	S
Large, open activity areas	O	O
Elimination of dead ends	S	S
A variety of options for spaces for social interaction (from small quiet areas to larger, open-plan areas)	S	R
Opening outdoor views for better staff and patient orientation to the time of the day and the season	S	S
Placement of key therapy areas close to communal areas to encourage interaction between staff and users	S	R
Flexible areas for staff training		O
Navigation		
Obvious building travel paths	S	S
Clear signage so as users do not have to ask for help. Signage properly designed (large text and high contrast) and well placed (also as eye-level for wheelchair users)	S	S
Use of certain colours/icons to identify the various functions	R	R

Allow orientation in time: availability of clocks and decoration/information as part of the daily activities	S	S
Use of landmarks distinct in shape and colour	S	S
Maps with "you are here" designations	O	R
Use of decorative fountains: can serve as landmarks, wayfinding elements and positive distractions of stress		O
Interior		
Staff areas		
Need for both indoor and outdoor break areas	S	S
Proximity of outdoor staff break areas to care areas	S	S
Staff break areas separated from other support areas to reduce distractions	S	S
Work areas with windows to allow light, sunshine, information on weather/time/space	S	S
Pleasant window view to gardens, mountains, flowers etc. instead of park areas and buildings	R	R
Inclusion of nature-related artworks, indoor plants, water features to staff areas	S	S
Rooms for families		
Dedicated area (maybe at the front of the facility) for families	O	S
Variety of family areas, e.g. larger open ones to smaller more intimate ones		O
Child dedicated visiting area	O	R
Therapy rooms		
Activity rooms: dayrooms, private therapy offices, family meeting rooms, dining areas, quiet room	S	S
Built in a multi-purpose way to provide flexibility for a different activities in the same spaces	R	R
Low stimulus areas/sensory therapy rooms	R	S
Reception/nurse station design		
Open and decentralized nursing stations to encourage social interaction between staff and users	O	O
Private space at the nursing station where staff could retreat if necessary	S	S
Storage		
Bicycle parking	S	S
Lockable space close to the entrance for users	S	S

Space for staff to secure personal possessions	S	S
Space for equipment, medicines, wheelchairs, office material/records, linen and spare clothing	S	S
Details		
Natural light		
Important to expand natural light within the building due to its' effect on human biology	S	S
Provision of shading options, as in some cases flooding spaces may cause discomfort	S	S
Adjustable lighting		
Well lit areas to avoid poor performance	S	S
Well lit entrance	S	S
Avoid glare in all spaces	S	S
Lights times to match circadian rhythms so as help in establishing routines for users	O	
Energy saving via time controls, detectors, daylight compensators		O
Well lit workspaces. Individual control over workstation lighting is useful	S	S
Use of more than one source of light in toilets to better spread light and avoid shadows	S	R
Art		
Use of visual arts encompassing nature images and/or positive facial expressions and/or caring relationships	S	S
Avoid abstract imagery as tends to cause anxiety and agitation	S	S
Use of murals, prints, photographs, sculptures, ceramics, decorative tiles	S	S
Integrate artists into the facility, establishing equality between patients and non-patients for artistic production	O	O
Use of music as therapy	R	S
Users' consultation on the selection of artworks	S	S
Incorporate pieces of art created by therapists and users	S	S
Adjustable heating		
Thermostats and controls easily available for staff, especially women to alter the ambient temperature	S	S

Thermostatic radiator valves	S	S
Air quality/water		
Very good air and water quality to minimise the infection rated within the facility	S	S
Effective ventilation systems	S	S
Avoid unpleasant odors as are known to increase anxiety, fear and heart rate	S	S
Access to fresh air instead of air-conditioning	S	S
Design and maintenance of water system at proper temperature and adequate pressure	S	S
Upgrade toilet and faucet technologies for water saving	R	R
Sound and noise levels		
Installation of high performance sound-absorbing materials on surfaces such as ceilings, floors, walls to reduce noise and stress	S	R
Textile floor covering, where applicable, to reduce noise levels	S	S
Silent fire alarm systems linked to staff alarm pagers to avoid creating anxiety	R	R
Good sound insulation to protect privacy	S	S
Privacy		
Locations and configurations of staff break areas should offer sufficient privacy from users and their families and opportunities for both individual privacy and small group interactions.	R	R
Safety		
Durable, damage resistant furniture	S	S
Design toilet rooms to ensure users's safety	S	O
Furniture		
Furniture arrangement to supports multiple levels of interaction	S	S
Selection of comfortable furniture, domestic in style as possible while being safe and durable	S	R
Selection of comfortable furniture for staff break areas, extended beyond the traditional office seating	S	S
Colours		
Avoid patterns such as lines, grinds and checkboard, as they can generate illussions	R	R

Use colours strategically to support orientation and wayfinding	S	S
Use colours and texture to differentiate spaces and uses	S	S
Amenities to visitors, carers and staff		
Baby changing area	O	S
Refreshment centre (coffee and tea, jounce, bottled water etc.)	S	S
Refrigerators, television, computer with internet for staff break areas	S	S
24h canteens for staff	S	R
Vending machines with healthy snacks	S	S
Technology		
Buzzer or bell at the front door (for staff being aware when the door is opened although smart means can provide that silently)	S	R
CCTV for areas such as car parks, facility entry or exit points	S	S
Infection control strategy (materials, fixtures etc) at an early stage of the design process	S	R
Patient to staff call systems at assisted sanitary facilities	S	S
Personal alarm system for staff	S	R
Use of technology features such as media walls, software platforms suitable for mental health	S	S
Area with computers and wifi connection	S	S
VR applications use to therapy, where appropriate	O	O
Engage different groups		
Focus groups with staff	S	S
Engage users and their carers/family as early as possible in the design process (e.g via workshops)	S	S
Open channels of communication with the local community,e.g. by public activities	S	S
Engage local artists in delivering art works	R	R
Engage local artists to work with users	O	R
Invite carers/family to open events and activities such as birthdays	S	S
Keep pets at the facility as therapy method	O	R
Work with other community groups such as Alcoholics Anonymous, minority ethnic groups etc.	S	S

Create a Faith Room	O	O
Provide activities all over the catchment area, including social centres municipal swimming pools, public libraries etc.		S
Involve ex-user groups in research programs	S	S
Design for older people		
Design domestic in character with suitable light fitting, furnishings etc.	S	S
Design toilet to ensure that are easy to get and use, with sufficient space for staff to be able to assist if necessary	S	S
Use of suitable rails, accessories and colour contrast at toilets and bathrooms to assist both users and staff	S	S
Handrails within the facility to allow movement	S	S
Avoid steps in unexpected places	S	S
Avoid floors with stripes or strong contrasts, as they can be misleading	S	S
Use of modern washable carpets	S	S
Use of soft colours for walls and ceilings	S	S
Use of the same colours for rooms of the same function	R	R
Use of different tones for doors, door handle and walls to spaces where users circulate	S	S
Selection of chairs with arms, fairly high so as to be easy to get in and out without help	S	
Use decoration as a means for navigation and way-finding	S	S
Use of reminiscence therapy	O	O
Provision of longer hours services to cater for those that their carers are younger and go to work	O	R
Proper staff training to understand older people and their needs	S	S

Acknowledgments

6

We would like to thank Professor Jean-Luc Roelandt (Director, WHO Collaborating Centre, Lille France) for his valuable input, Dr Jonas Rehn for his information on the German mental health system, Francis Murdock Pitts for his input in the US experience for mental health facilities, and Dr Antoinette Vietsch and Anne Grave for their input in the Netherlands mental health system.

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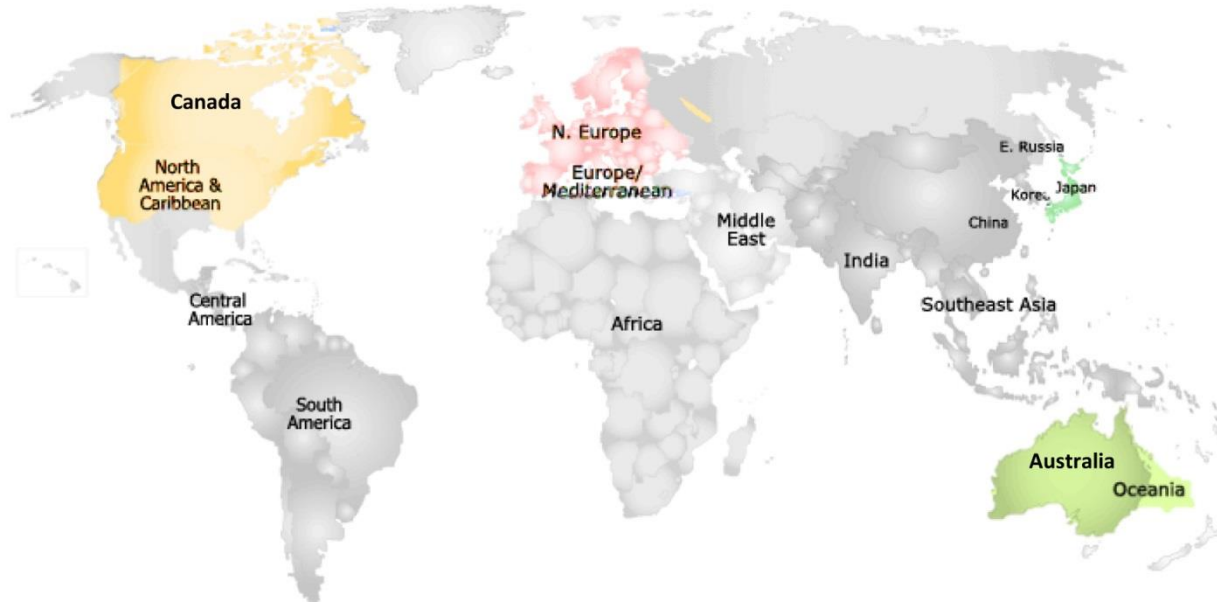
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Index A: Case studies

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Europe

- Belgium: Children's Psychiatric Centre, Genk
Day Care Centre For People With A Mental Disability, Wetteren
- Denmark: Helsingør Psychiatric clinic, Helsingør
Vejle Psychiatric Hospital, Vejle
- France: Adamant, the floating psychiatric hospital, Paris
Frontier \$, Hellemmes
'Elan Retrouve, Paris
- Germany: Friedrich – Husemann Klinik, Buchenbach
Clinic and Polyclinic for Psychiatry and Psychotherapy at UKE, Hamburg
The Lahnhöhe hospital, Lahnstein
- Italy: Casa Verde Young Women's Care Home for Mental Health, San Miniato

Psychiatric center and sheltered housing, Bolzano

- Netherlands: Sinai Centrum Amstelveen, Netherlands, Bankras
Ambulatory Addiction Center Amsterdam West, Amsterdam
GGZ Nederland
GGZEi, Eindhoven
Reinier de Graaf, Delft
GGZ admission clinic, Dijk and Duin Castricum
Hogeweyk Dementia Village, Weesp
- Norway: Southern Oslo Psychiatric Centre, Oslo
Asgard Psychiatric Hospital, Tromso
- Slovenia: Skrbovinca Care gift shop, Ljubljana
- Spain: Young Disabled Modules and Workshop Pavilions, Zaragosa
- Sweden: Södra Älvsborg – Psychiatric Clinic, Borås
- UK: Roseberry Park, Middlesborough, North Yorkshire
FitzRoy House - CAMHS inpatient care, Northampton
Junction 17, Manchester
Ancora House, Manchester

Clock view hospital, Walton

Rest of the world

- Australia: YPARC Frankston
Ballarat Acute Mental Health Facility, Victoria
Nepean Mental Health Centre, Kingwood
Professor Marie Bashir Centre, Camperdown
Youth Prevention and Recovery Care, Bendigo
- Canada: St. Paul's Hospital Mental Health HUB, Vancouver

Stella's place, Toronto

Humber River Hospital

Japan: Sayanomoto Clinic, Saga

USA: Zuckerberg San Francisco General Hospital & Trauma Center - Child and Adolescent Services,
San Francisco

St. Francis House, Boston

So Others Might Eat (SOME), Washington DC

University of Minnesota Masonic Children's Hospital, Minneapolis

Panama Clinic Albert de Pineda, Panama

Behavioral Health Pavilion, Nationwide Children's Hospital, Ohio

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Children's Psychiatric Centre, Genk: <https://www.vai.be/en/project/child-psychiatric-centre-genk>

Day Care Centre For People With A Mental Disability, Wetteren: <https://www.archdaily.com/801369/day-care-centre-for-people-with-a-mental-disability-urbain-architectencollectief>

Helsingør Psychiatric clinic, Helsingør: <https://www.archiweb.cz/en/b/psychiatricka-klinika>

Vejle Psychiatric Hospital, Vejle: <https://www.archdaily.com/901732/vejle-psychiatric-hospital-arkitema-architects>

Adamant, the floating psychiatric hospital, Paris: http://www.ronzatti.com/architecture_flottante-26-en

Frontier \$, Hellemmes: <http://www.art-frontieres.fr/>

Friedrich – Husemann Klinik, Buchenbach: <https://www.friedrich-husemann-klinik.de/kontakt/institutsambulanz.html>

Clinic and Polyclinic for Psychiatry and Psychotherapy at UKE, Hamburg: <https://www.uke.de/english/departments-institutes/departments/psychiatry-and-psychotherapy/index.html>

The Lahnhöhe hospital, Lahnstein: <http://www.lahnhoehe-psychosomatik.de/>

Casa Verde Young Women's Care Home for Mental Health, San Miniato: <https://www.archdaily.com/886409/casa-verde-young-womens-care-home-for-mental-health-ldmda-architetti-associati>

Psychiatric center and sheltered housing, Bolzano: <https://www.theplan.it/eng/award/2015/health/psychiatric-center-and-sheltered-housing>

Sinai Centrum Amstelveen, Netherlands, Bankras: <https://www.ggharchitecten.nl/portfolio/sinai-centrum-amstelveen-locatie-bankras/>

Ambulatory Addiction Center Amsterdam West, Amsterdam: <https://www.ggharchitecten.nl/portfolio/ambulant-verslavingscentrum-amsterdam-west/>

GGZ Nederland: https://www.google.com/search?q=ggz+nederland&source=lnms&tbn=isch&sa=X&ved=0ahUKEwj0idv3ys3gAhXSyqQKHe_DDXoQ_AUIDigB&biw=1396&bih=641#imgrc=KoPtUDYN4BgQxM:

Reinier de Graaf, Delft: Photo by Dr Evangelia Chrysikou

GGZ admission clinic, Dijk and Duin Castricum: <https://www.ggharchitecten.nl/portfolio/ggz-opnameklinik-dijk-en-duin-castricum/>

Southern Oslo Psychiatric Centre, Oslo: <https://www.dezeen.com/2017/04/10/psychiatric-centre-landscaping-gardens-decorative-brick-welcoming-environment-oslo-norway/> , <https://www.architonic.com/en/project/hille-melbye-arkitekter-southern-oslo-psychiatric-centre-ous-mortensrud/5104453>

Asgard Psychiatric Hospital, Tromsø: <https://www.madinamerica.com/2017/03/the-door-to-a-revolution-in-psychiatry-cracks-open/>

Skrbovinca Care gift shop, Ljubljana: Photos by Dr Evangelia Chryssikou

Hogeweyk Dementia Village, Weesp, the Netherlands: Photos by Dr Evangelia Chryssikou

Young Disabled Modules and Workshop Pavilions, Zaragoza: <https://www.dezeen.com/2012/02/01/young-disabled-modules-and-workshop-pavillions-by-g-bang>

Södra Älvsborg – Psychiatric Clinic, Borås:
https://www.google.com/search?q=S%C3%B6dra+%C3%84lvsborg+%E2%80%93+Psychiatric+Clinic,+Bor%C3%A5s&source=Inms&tbm=isch&sa=X&ved=0ahUKEwiGx9DH83gAhULy6QKHfgHCM8Q_AUIDygC&biw=1396&bih=641#imgrc=eLnFqeqRQPWdM:

Roseberry Park, Middlesbrough, North Yorkshire: <https://www.maaparchitects.com/roseberry-park-mental-health-facility>, <http://www.rosellastudios.com/projectOne.html>

FitzRoy House - CAMHS inpatient care, Northampton: <https://cantoodesign.wordpress.com/tag/northampton/>

Junction 17, Manchester: <http://www.gillingdod.com/case-studies/junction-17-new-camhs-unit/>

Ancora House, Manchester: <https://broadbent.studio/ancora-bird>, <https://www.boex.co.uk/ancora-house/>

Clock view hospital, Walton: <http://clockview.tumblr.com/>

YPARC Frankston: <http://www.bamford-architects.com/yparc-frankston/>

Ballarat Acute Mental Health Facility, Victoria: <https://www.blp.com.au/portfolio/ballaratacute/>

Nepean Mental Health Centre, Kingwood: <https://bleux.com.au/projects/nepean-centre-for-mental-health/>

Professor Marie Bashir Centre, Camperdown: <https://bleux.com.au/projects/rpa-mental-health-unit/>

Youth Prevention and Recovery Care, Bendigo:
https://www.google.com/search?q=Youth+Prevention+and+Recovery+Care,+Bendigo:&source=Inms&tbm=isch&sa=X&ved=0ahUKEWjcwPzLzc3gAhVdwcQBHciXBMAQ_AUIECgD&biw=1396&bih=641#imgdii=h-KDPtM6mMBOJM:&imgrc=c2PX6r8bkF2KzM:

Stella's place, Toronto:
https://www.google.com/search?q=Stella%E2%80%99s+place,+Toronto:&source=Inms&tbm=isch&sa=X&ved=0ahUKEWj8jZbnzc3gAhUSH5oKHVKOAMcQ_AUIDigB&biw=1396&bih=641#imgrc=vCE0FEKnGiDRsM:

Sayanomoto Clinic, Saga: <https://www.archdaily.com/795348/sayanomoto-clinic-yamazaki-kentaro-design-workshop>

Zuckerberg San Francisco General Hospital & Trauma Center - Child and Adolescent Services, San Francisco: <https://psych.ucsf.edu/JPF02101>

St. Francis House, Boston: <https://stfrancishouse.org/february-snowstorm-update/>

University of Minnesota Masonic Children's Hospital, Minneapolis: <https://www.bwbr.com/portfolio/childadolescent-mental-health-program/>

Behavioral Health Pavilion, Nationwide Children's Hospital, Ohio: <https://www.nationwidechildrens.org/specialties/behavioral-health/behavioral-health-pavilion>

Humber River Hospital, Canada: <https://www.hrh.ca/>

Panama Clinic Albert de Pineda, Panama: <http://pinearg.es/ENG/projects/detail/panama-clinic>

Bibliography

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- Agile Ageing Alliance (2019) *Neighbourhoods of the future 2019 White Paper: Creating a brighter future for our older selves*. Accessed 25 January 2019: https://www.agileageing.org/site_files/5944/upload_files/NeighbourhoodsoftheFuture2019_250119.pdf?dl=1
- Alzheimer's Disease International (1999) *Planning and design guide for community-based day care centres*. UK: Alzheimer's Society
- Ayers, A., (2017) Waiting room refreshment centre: Improving the patient experience. Accessed 25 January 2019: http://www.alanayersurgentcare.com/Linked_Files/2014_Articles/UCAOA_Refreshment_Center_2013_05_06.pdf
- Barton, J and Rogerson, M. (2017) The importance of greenspace for mental health. *BJPSYCH International*, 14 (4): 79-81
- Blumberg, R. and Devlin, A. S. (2006) Design issues in hospitals: The adolescent client. *Environment and Behavior* 38(3): 293–317. doi:10.1177/0013916505281575
- Brainard, G C. (1995) Implications of the effect of light on hormones, brain and behaviour. *Journal of Healthcare Design*. USA: Center for Health Design
- Berg, S. (2001) Impact of reduced reverberation time on sound induced arousals during sleep. *Sleep* 24(3): 289–292
- Blomkvist, V., Eriksen, C. A., Theorell, T., Ulrich, R. S., Rasmanis, G. (2005) Acoustics and psychosocial environment in intensive coronary care. *Occupational and Environmental Medicine* 62: 132–139
- Chrysikou, E., 2019. Psychiatric institutions and the physical environment: combining medical architecture methodologies and architectural morphology to increase our understanding. *Journal of Healthcare Engineering*, vol. 2019, Article ID 4076259, 16 pages, <https://doi.org/10.1155/2019/4076259>
- Chrysikou, E., 2018. Why we need new architectural and design paradigms to meet the needs of vulnerable people. *Palgrave Communications*. 4:116, doi: 10.1057/s41599-018-0171-z. www.nature.com/palcomms
- Chrysikou, E., 2018. The ecopsychosocial complexities of acute psychiatric wards. In K. Christer, C. Claire, D. Wolstenholme, eds. 2018. *Proceedings of the European Conference on Design 4 Health 2018*, Sheffield 4th-6th September 2018. Sheffield: Sheffield Hallam University. ISBN: 978-1-84387-421-8
- Chrysikou, E., 2017. *The social invisibility of mental health facilities*. London: UCL
- Chrysikou, E., Kostopoulou, E., Savvopoulou, E., Fatah gen. Schieck, A., 2017. Medical Architecture on the Social Valorisation of Psychiatric Patients: Employing transdisciplinary approaches between architecture, physical and mental well-being disciplines. *Proceedings of the AAE 2017 Conference, Architecture Connects*, 6th -9th September 2017. Oxford Brookes University, UK
- Chrysikou, E., 2017. Ecopsychosocial parameters and mental health: the complexities of the psychiatric ward. *Proceedings of the 11th International Space Syntax Symposium*, 3th – 7th July 2017. Lisbon: University of Lisbon. ISBN: 978-972-98994-4-7
- Chrysikou, E., 2017. Ecopsychosocial parameters and mental health: the complexities of the psychiatric ward. *Proceedings of the 11th International Space Syntax Symposium*, 3th – 7th July 2017. Lisbon: University of Lisbon. ISBN: 978-972-98994-4-7

- Paranagamage, P., Chrysikou, E., 2017. Critique of Built Environment practices in care and extra care settings for people across the ageing lifespan. *Proceedings of the 'Living and Sustainability: An Environmental Critique of Design and Building Practices, Locally and Globally' Conference*, 9th-10th February 2017. AMPS Publication Series 9, London: AMPS C.I.O. p. 507-514. ISSN 2398-9467
- Chrysikou, E., Tziraki, C., Buhalis, D., 2016. Architectural Hybrids for living across the Lifespan: Lessons from Dementia. *The Service Industries Journal*, Vol 38 (1-2), p. 4-26. doi: 10.1080/02642069.2017.1365138. Print ISSN: 0264-2069
- Chrysikou, E., Rabnett, R., Tziraki, C., 2016. Perspectives on the role and synergies of architecture, social and built environment in enabling active healthy ageing. *Journal of Ageing Research, Special Issue Active and Healthy Ageing and Independent Living 2016*. Volume 2016, Article ID 6189349, 7 pages. doi:10.1155/2016/6189349
- Chrysikou, E., 2015. III performing buildings for mental health. In: K. Christer, eds. 2015. *Proceedings of the 3rd European Conference on Design 4 Health 2015, Sheffield 13th-16th July 2015*. Sheffield: Sheffield Hallam University. ISBN: 978-1-84387-385-3
- Chrysikou, E., 2014. *Architecture for psychiatric environments and therapeutic spaces*. Amsterdam: IOS Press. ISBN 978-1-61499-459-6
- Chrysikou, E., 2014. The SCP model: A three dimensional methodology for understanding, profiling and evaluating mental healthcare architecture. In: A. Yoxall and K. Christer, eds. 2014. *Proceedings of the 2nd European Conference on Design 4 Health 2013, Sheffield 3rd-5th July 2013*. Sheffield: Sheffield Hallam University. ISBN: 978-1-84387-373-0
- Chrysikou, E., 2013. Accessibility for mental healthcare. *Facilities*, 31 (9/10), p. 418-426. ISSN: 0263-2772
- Chrysikou, E., 2012. From Normalization theory to a "Fit for Purpose" architecture for the mentally ill. *World Health Design*, 5(3), pp.68-77
- Commission for Architecture & the Built Environment (2004) *The role of hospital design in the recruitment, retention and performance on NHS nurses in England*. UK: PricewaterhouseCoopers
- Connellan K., Gaardboe, M., Riggs, D., Due, C., Reinschmidt, A., Mustillo, L. (2013) Stressed Spaces: Mental Health and Architecture. *HERD* 6(4): 127-168
- Defromont, L. (2016) *New tools for mental health care into the community: participative health democracy, mobile teams, host families, ambulatory cares, supportive housing*. Accessed 20 December 2018, file:///E:/15%2011%2018/Mental%20Health%20Hubs/articles/france/2016-10-17_DeFromont-Laurent.pdf
- Department of Health (2013) *Health Building Note 03-01: Adult acute mental health units*. UK: Crown
- Department of health (2015) *Health Building Note 08-02: Dementia- friendly health and social care environments*. UK: Crown
- Department of health (2017) *Health Building Note 03-02: Supplement A – Facilities for child and adolescent mental health services case studies*. UK: Crown
- Fioritti, A. (2010) Development of community mental health services: The case of Emilia-Romagna Italian Region. *Psylogos*: 67-76
- Fitzpatrick, H. C. (2007) *Supportive housing for mental health recovery: A bio-psycho-social approach*. (Master's thesis). University of Waterloo, Waterloo, Ontario, Canada. Retrieved from http://uwspace.uwaterloo.ca/bitstream/10012/2719/1/OGS_Resub.pdf

- Flynn, E. A., Barker, K. N., Gibson, J. T., Pearson, R. E., Berger, B. A., Smith, L. A. (1999) Impact of interruptions and distractions on dispensing errors in an ambulatory care pharmacy. *American Journal of Health Systems Pharmacy* 56(13):1319–1325
- Francis, S., Glanville, R., Noble, A., Scher P. (1999) *50 years of ideas in healthcare buildings*. London: The Nuttfield Trust
- Goering, P. (2004) *Making a difference: Ontario's community mental health evaluation initiative*. Toronto, ON: Canadian Mental Health Association
- Hassell (2014) *Future directions in design for mental health facilities*. Australia: Hassell_Studio
- Heath, Y. (2004) Evaluating the effects of therapeutic gardens. *American Journal of Alzheimer's Disease and Other Dementias* 19(4): 239–242. doi:10.1177/153331750401900410
- Hicks, C., McGovern, T., Prior, G., Smith, I. (2015) Applying lean principles to the design of healthcare facilities. *International Journal of Production Economics* 170(Part B): 677-686
- Institute of Medicine. (2001) *Crossing the quality chasm: A new health system for the 21st century*. Washington, DC: National Academies Press.
- Janner, M., Page, N. (2008) *Star wards 2: The sequel*. UK: Bright
- Joseph, A. (2006) *The impact of the environment on infections in healthcare facilities*. Concord, CA: The Center for Health Design
- Karlin, B. E., and Zeiss, R. A. (2006) Environmental and therapeutic issues in psychiatric hospital design: Toward best practices. *Psychiatric Services* 57(10): 1376–1378. doi:10.1176/appi.ps.57.10.1376
- Kolokotsa, K., Tsoutsos, T., Papantoniou, S. (2012) Energy conservation techniques for hospital buildings, *Advances in Building Energy Research* 6(1): 159-172
- Lingwood, L. (2010) *Redesigning mental health day centres: A modernisation toolkit for London*. UK: Department of Health, in collaboration with Mental Health Foundation
- Lum J., Ying, A. (2014) *Community Hubs: Right care, right place, right time*. Canada: Canadian research network for care in the community
- Maggie's (2015) *Maggie's Architecture and Landscape Brief*. Accessed 10 January 2019, https://www.maggiescentres.org/media/uploads/publications/other-publications/Maggies_architecturalbrief_2015.pdf
- Malachowski, C., Skopyk, S., MacEachen, E. (2018) The Integrated health hub (IHH) Model: The evolution of a community based primary care and mental health centre. *Community Mental Health Journal* 2018. <https://doi.org/10.1007/s10597-018-0339-4>
- Marshall, M. (2017) *Toilet talk: Accessible design for people with dementia*. Australia: HammondCare Media
- Mental Health Commission of Canada (2017) *Strengthening the case for investing in Canada's mental health system: Economic considerations*. Retrieved from: http://www.mentalhealthcommission.ca/sites/default/files/2017-03/case_for_investment_eng.pdf
- Mental Health Foundation (2018) *Diet and mental health*. Accessed 05 February 2019: <https://www.mentalhealth.org.uk/a-to-z/d/diet-and-mental-health>
- Mens, N. and Wagenaar, C. (2010) *Health care architecture in the Netherlands*. Rotterdam: NAI Publishers

- Multi-Sector Rural Health Hub Advisory Committee (2015) *Rural Health Hubs Framework for Ontario*. Accessed 10 January 2019, <file:///E:/15%2011%2018/Mental%20Health%20Hubs/articles/Canada/Rural%20Health%20Hub%20Framework%20Ontario.pdf>
- Nanda, U., Eisen, S., Zaheh, R., Owen, D. (2011) Effect of visual art on patient anxiety and agitation in a mental health facility and implications for the business case. *Journal of Psychiatric and Mental Health Nursing* 18: 386-393
- Nejati, A., Shepley, M., Rodiek, S., Lee, C. (2016) Restorative design features for hospital staff break areas: A multi-method study. *Health Environments Research & Design Journal* 9(2): 16-35
- Novotná, G., Karen, A., Urbanoski, K., Rush, R. B. (2011) Client-centred design of residential addiction and mental health facilities: staff perceptions of their work environment. *Qualitative Health Research* 21(11): 1527-1538
- Platt, S L., Bosch, J S., Kim, D. (2017) Toward a framework for designing person-centered mental health interiors for veterans. *Journal of Interior Design* 42(2): 27-48
- RHS (2018) Growing Happiness. Accessed 05 February 2019: <https://www.rhs.org.uk/shows-events/rhs-chelsea-flower-show/news/2018/growing-happiness>
- Roelandt, J.L., Daumerie, N., Defromont, L., Caria, A., Bastow, P., Kishore, J. (2014) Community mental health service: an experience from the East Lille, France. *Journal of Mental Health and Human Behaviour* (19) :10-18
- Salmi, P. (2008) Wayfinding design: Hidden barriers to universal access. *InformedDesign* 5(8). Retrieved from http://www.informedesign.org/_news/aug_v05r-p.pdf
- Scher, P. (1992) *Environmental Design Quality in Healthcare*. Manchester: Arts for Health
- Schweitzer, M., Gilpin, L., Frampton, S. (2004) Healing spaces: Elements of environmental design that make an impact on health. *Journal of Alternative and Complementary Medicine* 10(1): S71–S83. doi:10.1089/1075553042245953
- Schutz, B and Wicki, L. (2011) *Architecture for psychiatric treatment* (Master Thesis). France: EPFL – École polytechnique fédérale de Lausanne
- Scottish Government (2009) *Towards a mentally flourishing Scotland: Policy and Action Plan 2009-2011*. Edinburgh: Scottish Government
- Shepley, M. and Pasha, S. (2017) *Design Research and behavioral health facilities*. The Centre for Health and Design. NY: Routledge
- Silvester, J., Konstantinou, E. (2010) *Lighting, Well-being and Performance at work*. City University London
- Srivastava, K., Das, R. C., Chaudhury, S. (2014) Virtual reality applications in mental health: Challenges and perspectives. *Industrial Psychiatry Journal* 23(2): 83-85
- Stella's Place (2017) *Embracing Complexity: The new mental health annual report 2017*. Toronto: Stella's Place
- Topf, M., & Dillon, E. (1988) Noise-induced stress as a predictor of burnout in critical care nurses. *Heart and Lung: The Journal of Critical Care* 17(5): 567–574

- Tyson, G. A., Lambert, G., & Beattie, L. (2002) The impact of ward design on the behaviour, occupational satisfaction and well-being of psychiatric nurses. *International Journal of Mental Health Nursing*, 11(2): 94–102
- Ulrich, R. S. (2000) Evidence-based environmental design for improving medical outcomes. Paper presented at *Healing by Design: Building for Healthcare in the 21st Century*, Montreal, Quebec, Canada
- Ulrich, R., Zimring, C., Zhy Xuemei, DuBose, J., Seo, HB., Choi, YS., Quan, X., Joseph, A. (2008) A review of the research literature on Evidence-based healthcare design. *HERD* 1(3): 61-125
- Ulrich, R., Bogren, L., Gardiner, S., Lundin S. (2018) Psychiatric ward design can reduce aggressive behavior. *Journal of Environmental Psychology* 57 (2018): 53-66
- Uniwin, J. (2011) Night Lighting in Hospitals and its impacts on Staff and Patients. *Lighting Journal*, June 2011, p. 27-33
- WHO (2008) *Integrating mental health into primary care: a global perspective*. Geneva: World Health Organisation
- WHOCC (2015) *World Health Organisation Collaborating Centre for Research and Training in mental health (WCHH Lille, France): Annual Report 2015*. France: WHOCC
- WHO (2014) Mental health: a state of well-being. Accessed 25 January 2019 https://www.who.int/features/factfiles/mental_health/en/
- Wijk, E., Traut, A., Julie, H. (2014) Environmental and nursing-staff factors contributing to aggressive and violent behaviour of patients in mental health facilities. *Curatoris* 37(1): Art. #1122, 9 pages

