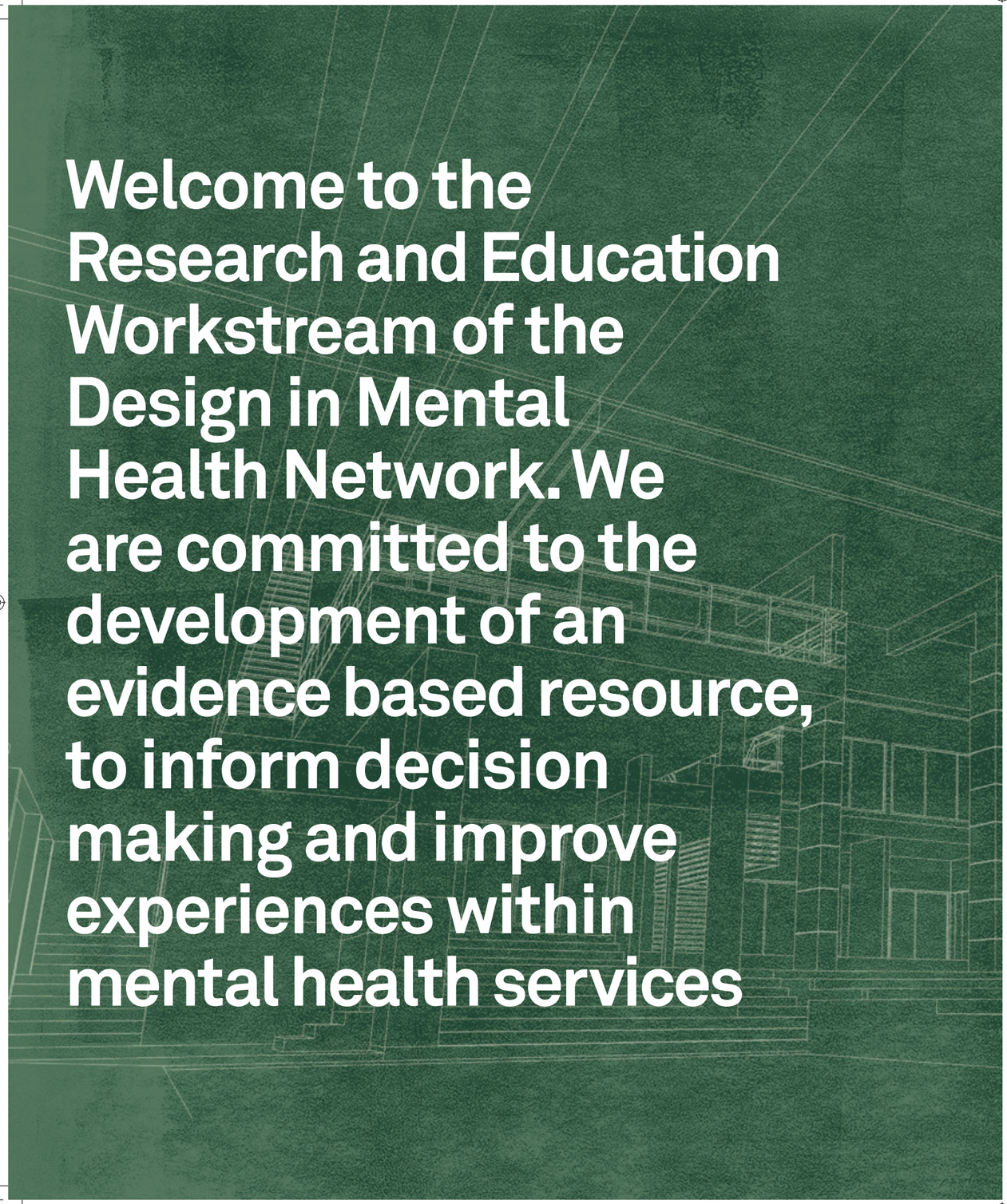
Design With People in Mind

Design in Mental Health Network
LIGHT | SPACE | HOPE



Welcome to the Research and Education Workstream of the Design in Mental Health Network. We are committed to the development of an evidence based resource, to inform decision making and improve experiences within mental health services

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Design with people in mind

As you read through this brochure, you will find we have gone beyond simply describing what designers and policy makers think of as 'good design' in mental health inpatient environments. We wanted to show how people use the space; how they feel, how they act and move in the environments that are designed to help them heal. Design can dramatically affect the way we feel about ourselves and other people, and even change the way we behave. Our vision is to apply evidence, not to simply read about it, which is why we have put together an accessible summary of key research, in the hope it will benefit those who design, live and work in different kinds of care environments.

Space is occupied by people, who make the space their own – to live and heal in. This is a complex process, involving past experiences, current distress and specific needs relating to psychological, cultural and social processes.

As people move through space, the design can make a real difference to the emotional and social landscape: it can impact on how much people talk to one another, how supported they feel, whether they feel safe, and perhaps most importantly, how valued they feel as an individual. As the experience of entering hospital and being away from family and friends can be distressing or often frightening, it is important for design to accommodate emotion and distress and enable therapeutic relationships.

A vital part of using evidence for us is listening to the voices of those living and working in service environments, and you will see how a great deal of the research we showcase refers to people's lived experiences of the environments that they live and work in. At all times, we have kept people in mind, because ultimately this is why we do this work.

This brochure is a snap shot of our review of the evidence related to design and mental health, and we hope an approachable way to learn about the available academic research. For this particular publication, the focus is inpatient environments, but of course we appreciate these are not the only environments relevant to lived experiences of mental health and distress.

Research reports can often be dry and difficult to get through, especially when time is limited, so we thought it might be helpful to drill down to some key questions, areas and debates specifically relevant to inpatient environments, so that you don't have to! In doing so, we have explored a broad range of evidence, from psychology, architecture, nursing, design sociology, service-user literature and psychiatry, providing a flavour of the kind of research happening across the world. We believe we are stronger when we can use evidence well, to promote positive change for all.

In the coming months, we will complete a more detailed and comprehensive review of scientific evidence relating to the link between design, space and mental health, which will be available to members on the DiMHN website.

This review will stretch beyond inpatient environments, and explore a diverse range of spaces and places, including community, home and supported accommodation. For now, we hope you find this brochure on inpatient spaces enlightening, inspiring and ultimately useful.

Professor Paula Reavey
Katharine Harding
Jeff Bartle

Research indicates:

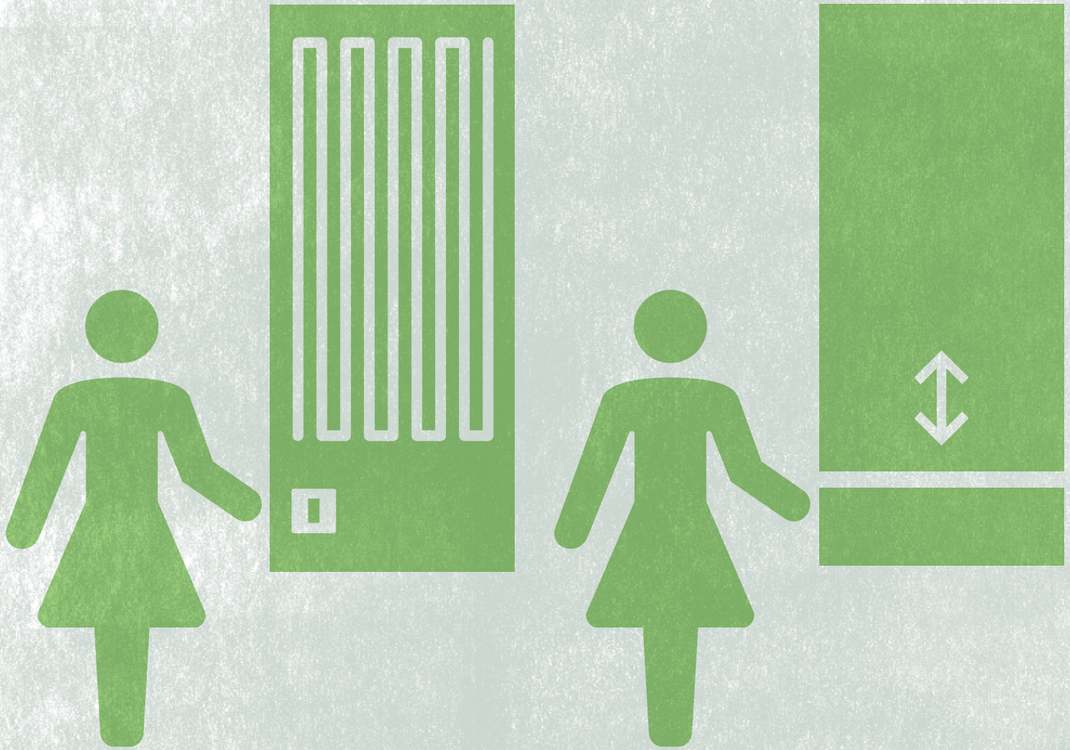
20%
reduction in average length of stay following ward refurbishment
(Payne & May, 2009)

70%
reduction in seclusion rates within new inpatient facility
(Lawson, Phiri, & Wells-Thorpe, 2003)

3.67
(mean) days shorter length of stay in East-facing bedrooms
(Benedetti, Colombo, Barbini, Campori, & Smeraldi, 2001)

26%
reduction in seclusion and restraint with an open nursing station
(Southard et al., 2012)

It's all about choice



> *"It's nice that windows are kept open… it does give you a sense of the outside, of freedom, outside doesn't seem so far away… something like that does help you somehow not to lose touch with what's happening outside."*
>
> [Service user] (Payne & May, 2009, p.80)

The personalisation agenda within health services put forward by the UK government promotes the tailoring of services to individual needs and proposes that 'every person who receives support should have choice and control, regardless of the care setting' (Department of Health, 2011, p.32).

A study to evaluate a psychiatric intensive care unit refurbishment by Payne and May (2009) found that opportunities which enabled individuals to exercise choice and control over the environment such as the provision of openable windows, a choice of alternative social spaces and a range of DVD and music options were perceived to have a positive impact on service users' sense of well-being. In the same study however, the issue of temperature control was identified as an unaddressed staff concern resulting from a cost decision not to install air conditioning. The situation presented an unsatisfactory choice between the use of noisy hired air conditioning units or uncomfortable levels of heat on the wards.

In research examining service user and staff perceptions of existing and new build inpatient mental healthcare facilities, Lawson, Phiri and Wells-Thorpe (2003) found that aesthetic and spatial enhancements were identified by service users within the new facility, however, there was limited perception of improvement regarding individual control over environmental elements including temperature, ventilation, window treatments and noise.

Issues of choice and control are also considered by Karlin and Zeiss (2006) in a review of environmental and therapeutic issues in mental healthcare inpatient settings and research findings suggest that zoned seating areas in communal spaces can provide flexibility and enable service users to control their levels of social contact. Affording a sense of privacy is understood to contribute to individual perceptions of wellbeing and research by Sclafani, Phillips and Caldwell (2009) highlighted that service users moving into a new psychiatric facility perceived the provision of private spaces to be a positive element of the new environment. Other key positive environmental factors identified within the new facility included the application of colour, lighting and natural light.

In examining the use of colour and lighting within hospital environments Dalke, Littlefair, Loe and Camög (2004) report that enclosed environments with strong colours may be over-stimulating or threatening to people experiencing mental distress. The authors recommend that lighting and colour are used to make spaces appear as open and light as possible and propose that muted colours which are 'greyed-off' with a small percentage of black can be relaxing and reduce stress. Similarly, Karlin and Zeiss (2006) report that people experiencing agitation may be over-stimulated by bright colours and suggest that the use of colours which are close in terms of tone and intensity can be calming. Additionally, whilst certain blue tones are reported to be relaxing, it is also suggested that blue-green colours can have a negative impact on people experiencing low mood.

The benefits of natural daylight to mental health are also reported in a study which found a reduction of 3.67 days in the mean length of hospital stay for service users with a diagnosis of bipolar disorder who had East-facing bedrooms with direct morning sunlight (Benedetti, Colombo, Barbini, Campori, & Smeraldi, 2001). In addition to facilitating exposure to natural light, bedroom windows may also afford restorative views, however, research findings highlight the importance of designing windows such that cill heights enable service users to appreciate views from bed (Douglas & Douglas, 2005; Lawson et al., 2003).

The impact of smell on well-being is also identified in a review of research relating to design in mental healthcare settings by Connellan et al. (2013) in which commonalities across the literature suggest that 'pleasing aromas may reduce blood pressure, slow respiration, and lower pain perception levels; unpleasant odours stimulate anxiety, fear and stress', p.145. Accordingly Mazuch and Stephen (2007) note the importance of installing appropriate ventilation within mental health environments to control unpleasant odours which might induce negative emotional responses.

Research suggests that perceiving a sense of environmental control can contribute positively to a sense of well-being, however, opportunities for service users to exert control over their everyday environments within mental healthcare settings are limited (Lawson et al., 2003; Papoulias, Csipke, Rose, McKellar, & Wykes, 2014).

Creating homely spaces

Whilst there is a growing body of research examining the impact of evidence-based design within inpatient healthcare settings on clinical outcomes (Ulrich et al., 2008) research focusing specifically on relationships between the design of mental health wards and service user outcomes or experience is more limited (Papoulias, Csipke, Rose, McKellar, & Wykes, 2014).

Papoulias and colleagues' systematic review identified no clear causal connections between clinical outcomes and environmental design in psychiatric facilities, however, findings showed the provision of private spaces and homely design to be associated with increased well-being and social interaction. Connellan et al. (2013) similarly found home-like comfort to be a particular focus across the literature within a systematic review of research examining the impact of design on the therapeutic experience of mental health facilities.

The impact of a homely environment on well-being is also reported by Payne and May (2009) in an evaluation of a psychiatric intensive care unit refurbishment undertaken as part of the King's Fund grant supported 'Enhancing the Healing Environment' initiative (Department of Health, 2008).

Within the new ward, service users perceived the experience of homeliness to be associated with a number of features, including the overall quality and cleanliness of the new environment as compared with the original ward, comfortable furniture, natural light, openable windows to provide fresh air, indoor plants, private spaces for visitors, high quality food and staff attitudes. The new environment was described by staff as being calmer and having a greater sense of 'openness' and light than the original ward. Following the refurbishment, the average length of service user stay reduced by 20% and a significant reduction in physical assaults on staff and other service users was reported.

Lawson, Phiri, & Wells-Thorpe (2003) also studied the effects of the architectural healthcare environment on well-being and compared service user outcomes between an existing facility and a new build medium secure mental health environment. Whilst the number of instances of physical and verbal aggression remained the same in the two sites, the severity of incidents was reduced in the new facility and there was also a two thirds reduction in service user self-harm. Rates of seclusion also reduced by 70% and there was a 14% reduction in service user length of stay in the new unit. Tactility and texture within environmental finishes and variation in lighting were also reported to provide greater perceptions of homeliness in contrast to smooth clinical finishes and uniform lighting.

A study on an acute psychiatric ward compared differences between two differently decorated seclusion areas in terms of the impact on the symptoms, behaviour, treatment and satisfaction of service users (Vaaler, Morken, & Linaker, 2005).

The two areas had an almost identical footprint with one decorated sparsely as a traditional seclusion area designed to reduce external stimuli and the other decorated like an ordinary home to include wainscoting, wallpaper and artwork to the walls. The results found no negative effects or increased length of stay associated with the homely area and notably, although there was evidence of vandalism in the stark seclusion environment, none occurred within the homely setting. A continuation of this pattern was observed for two years following the research period.

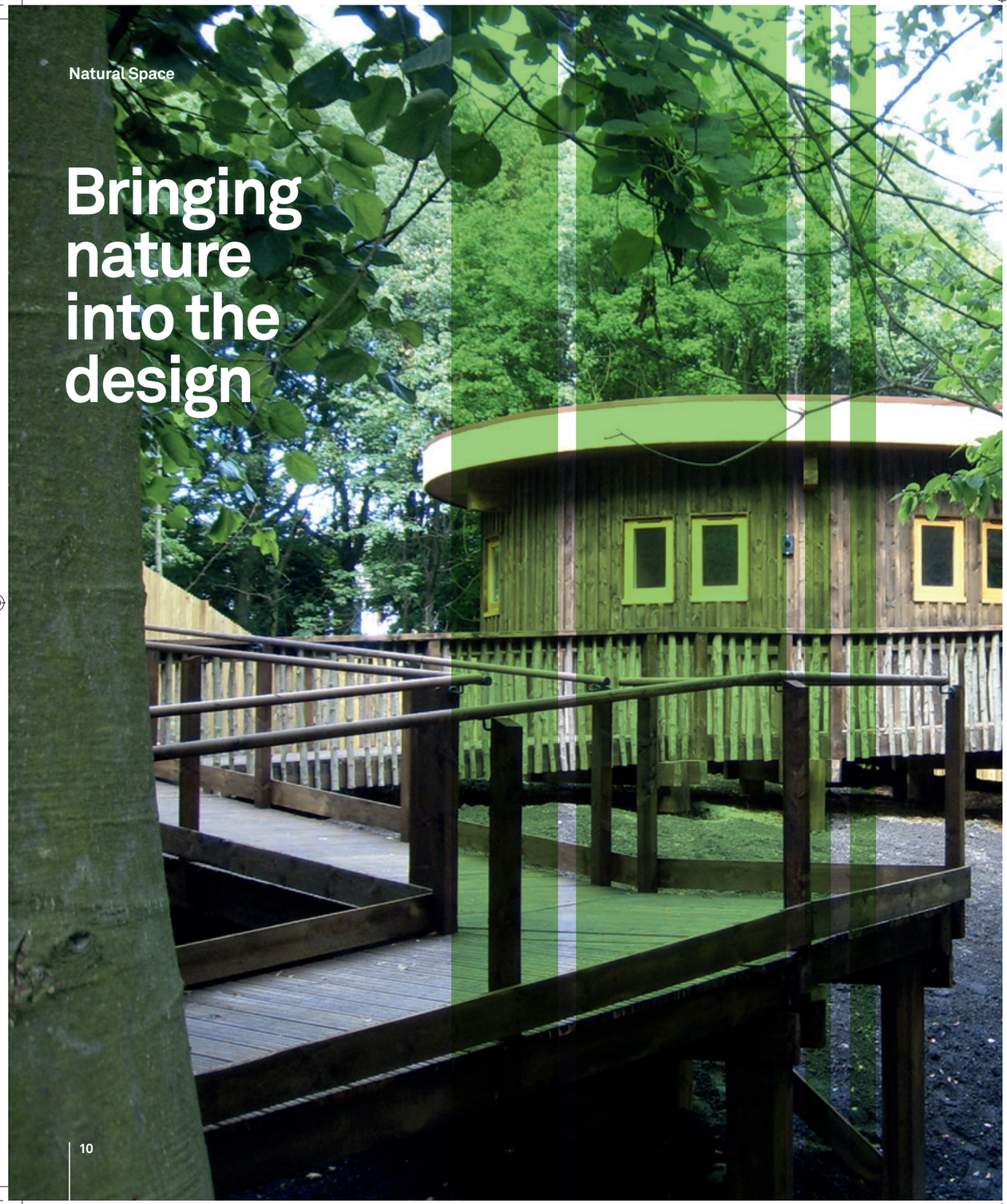
Stichler (2008) describes the holistic approach of the non-profit organisation 'Planetree' towards developing healthcare environments using a relationship-based philosophy which includes nine key considerations: 'human interaction; consumer and patient education; healing partnerships with patients' family and friends; food and nutritional nurturance; spirituality; human touch; healing arts and visual therapy; integration of complementary therapies; healing environments created in the architecture and design of the healthcare setting', p. 506.

Staff culture and attitudes are integral to the relationship-based approach and have been shown to have a positive effect on both service user and staff satisfaction. Particular environmental design recommendations also include natural lighting, natural finishes including timber and stone, water features, plants and 'homelike' elements with the aim of creating calm environments.

Whilst spatial tensions exist between the mitigation of risk and the creation of de-institutionalised environments, the literature suggests that facilitating a balance between achieving the required levels of safety and creating homely non-sterile spaces should be a key consideration in mental healthcare design (Shepley et al., 2016).

> *"It's definitely a combination, it's not just the environment, it's also the staff, the staff as well because they respect you."*
>
> [Service user] (Payne & May, 2009, p.85)

Bringing nature into the design



> *"[Outdoor space] needs to be very usable. I believe those gardens should have places for… recreation and vegetable gardens. They should attract birds and butterflies. Because those are things that… I believe make people better."*
>
> [Interviewee] (Shepley et al., 2016, p.17)

Connections between mental health and the natural environment have long been recognised and features of 19th century asylum design which included providing views of natural landscapes from indoors and opportunities for patients to actively engage with nature were considered beneficial to the therapeutic process (Hickman, 2009).

More recently a body of research evidence undertaken within general healthcare settings similarly suggests that window views, particularly those containing nature, can have restorative effects on health and well-being (Ulrich et al., 2008), including reduced service user recovery time (Ulrich, 1984) and reduced service user stress (Ulrich, Zimring, Quan, & Joseph, 2006) and a sense of connection with life beyond the hospital (Douglas & Douglas, 2005; Lawson, Phiri, & Wells-Thorpe, 2003).

Within a new build mental health inpatient facility, Connellan et al. (2011) examined relationships between internal and external space and observed that the full-height glazing in communal ward areas overlooking garden spaces provided natural light and a sense of openness and indoor-outdoor connection. They also highlighted that windows on a secure ward presented service users with views of inaccessible outdoor spaces and suggest that the potential for glazing to simultaneously offer up and provide a barrier to natural spaces is deserving of ethical design consideration in acute mental health settings. Similarly, in another study the provision of views towards an inaccessible rooftop garden within a refurbished psychiatric intensive care unit where service users did not have direct access to outdoor space was a concern expressed by staff, describing the service users' experience as being, 'you can look but you can't touch' (Payne & May, 2009, p. 82).

Providing free access to outdoor space is also highlighted by Dvoskin et al. (2002) who outline the design approach to planning a new build secure forensic mental health facility. In the design a direct adjacency was created between day areas and outdoor space to form indoor-outdoor day rooms which could be fully observed by staff from indoors but were also accessible to service users at any time. Movement through outdoor space is also recognised to have therapeutic benefit to people experiencing mental distress and research suggests that a desire for free movement through open space often expressed by people experiencing acute psychosis or crisis can be a mechanism for easing mental distress perceived to be overwhelming within the confines of indoor space (McGrath & Reavey, 2015).

Access to therapeutic outdoor environments with multiple functions such as vegetable gardens, sports and recreation facilities is also highlighted in a study to identify key aspects of psychiatric inpatient environments believed to have a positive effect on service users and staff (Shepley et al., 2016). A design framework relating to outdoor space within healthcare settings drawn from a review of peer-reviewed literature and best practice design guidance by Shukor, Stigsdotter and Nilsson (2012) also recommends the provision of transitional space between indoors and outdoors, shelter to allow use in different seasons, variety and choice including different seating types and sensory stimuli including plants which attract birds and insects.

Wood et al. (2013) examined carers' perspectives of new build and existing inpatient mental health facilities in relation to their environmental qualities and identified the importance of affording privacy to service users and visitors in a variety of spaces, including gardens. Whilst participants reported an absence of private visiting rooms and uncomfortable levels of ambient noise within the common areas of the new building, the garden was described as affording a peaceful and private meeting space.

The therapeutic value of active physical engagement with nature has also been studied and a critical review of research evaluating gardening-based interventions in mental healthcare found that all reviewed studies reported positive benefits of the interventions, which included significant reductions in symptoms of anxiety and depression (Clatworthy, Hinds, & Camic, 2013).

Research findings suggest that natural spaces in healthcare settings can be restorative resources which may enable service users, staff and visitors to reduce stress (Ulrich et al., 2006) and it is also suggested that gardens can save costs, due to reduced length of service user stay and reduced turnover of staff (Gordon, 2001).

> *"So I think they [artworks] will look beautiful, actually, and I think they will take that sort of stark, slightly clinical building edge off completely, really. Yes."*
>
> [Service user 13]
> (Daykin et al., 2010, p.12)

Enhancing life with art

A growing body of research examining the impact of arts, design and environment on well-being and clinical outcomes in mental healthcare was identified by Daykin, Byrne, Soteriou and O'Connor (2008) in a systematic literature review.

The authors found very few existing studies that examined arts interventions directly however and none that specifically studied the impact of artwork on service users and staff within mental healthcare settings. The review also highlighted that arts interventions do not always address the lack of control experienced by service users in healthcare settings (Lawson, Phiri, & Wells-Thorpe, 2003) which can be limiting to their potential benefits.

Daykin, Byrne, Soteriou and O'Connor (2010) considered the subjective impact of visual arts in a qualitative evaluation of an arts project designed to enhance service user and staff experiences within NHS mental healthcare environments. The three-year project within 16 new mental health units included 36 individually commissioned artworks which were developed in consultation with service users, staff and other stakeholders. Reported benefits of the art interventions included reinforcement of positive environmental elements such as nature, particularly with the use of natural and handcrafted materials, such that in turn the more negatively perceived clinical and institutional aspects of the environments were minimised.

The findings reported that staff and service users who perceived a sense of control through the process of developing the art interventions and in some cases participating in their construction were generally supportive of the artworks created. It was also suggested that service user participation provided opportunities to re-engage with alternative positive and creative identities (Spandler, Secker, Kent, Hacking, & Shenton, 2007) such as 'artist', 'critic' or 'expert' and exercise a sense of control through actively shaping the aesthetic environment.

The study revealed some tension between issues of 'authenticity' and 'prestige' in relation to preferences for 'service user art' versus 'professional art' and a sense of dissatisfaction amongst some participants that the selection of 'service user artists' had not been made a priority. For some service user/artists the potential for participation in the project had therefore not been fully met.

A study by Nanda, Eisen, Zadeh and Owen (2011) examined service users' responses to different styles of artworks displayed on a rotational basis on the wall of the lounge on an acute psychiatric assessment ward. Their findings showed a significant reduction in incidents of pro re nata (PRN) treatment (medication which is dispensed as needed) for agitation and anxiety, when an image of a naturalistic landscape was displayed versus an abstract image, or the control condition in which no art was displayed.

Whilst staff observed that service users frequently looked at the artwork displayed, though in general did not comment on it or react to it physically, they also reported specific reactions to the abstract art piece, including service users either throwing it, asking it to be turned around, or re-orienting it. The findings suggest support to previous studies which report positive responses from service users to natural images and negative responses to abstract, surreal or ambiguous art in both a psychiatric hospital setting (Ulrich, 1991) and general hospital setting (Nanda, Eisen, & Baladandayuthapani, 2008).

The authors present a financial case for the use of artwork in mental health environments based on the potential for significant cost savings associated with reduced administration of PRN medication, although acknowledge the requirement for further research in additional sites with varied demographics to test the validity of the research findings.

Although research to evaluate the impact of art interventions specifically within mental healthcare settings is limited, the findings of existing studies suggest that environmental enhancements can positively impact on the health and well-being of service users and staff (Daykin et al., 2008).

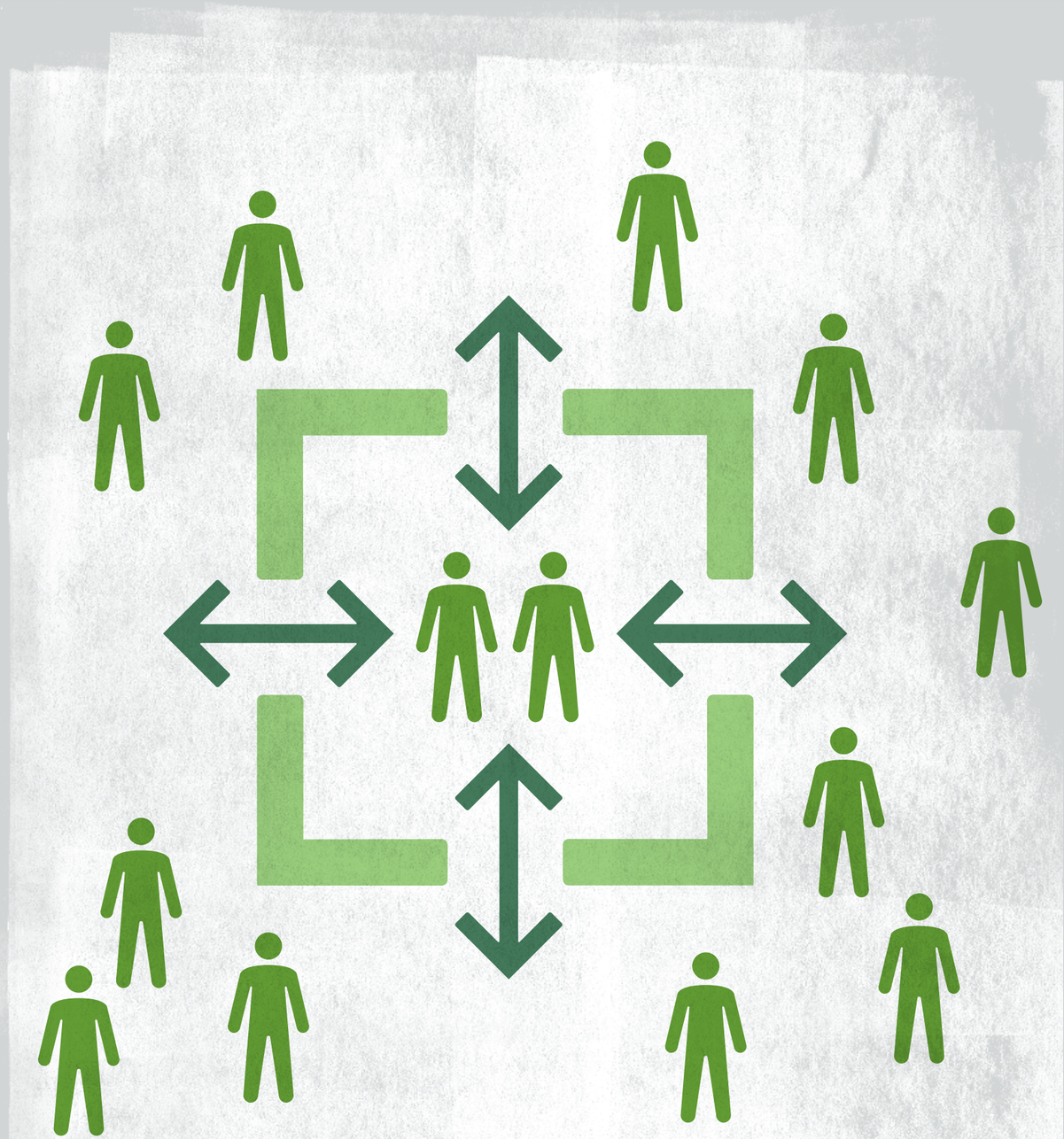
Bringing people together

As a central hub of activity and often tension, the nursing station forms a key interpersonal space for service users, staff and visitors on mental health wards. Accordingly, a systematic literature review by Connellan et al. (2013) found nursing stations to be the most significant element in the physical and spatial design of mental health facilities.

Andes and Shattell (2006) argue the importance of nursing station design to therapeutic staff-service user relationships and propose that enclosed nursing stations may contribute to a sense of power imbalance between staff and service users. It is observed that whilst service users are required to attract staff attention by knocking on the glass, staff members have the power to choose when to engage. A glazed barrier separating service users from staff is also argued to inhibit interaction and reinforce an impression of service users being unable to respect boundaries.

Studies by Southard et al. (2012) and Shattell et al. (2015) examined service user and staff perspectives on an acute psychiatric unit before and after the glazed enclosure to the nursing station was removed. Whilst Southard and colleagues found no statistically significant differences in service user or staff perceptions of the therapeutic milieu before and after the station alterations, their perceptions did not worsen and the open station did not result in any increase of aggression towards staff by service users, as had been predicted by some staff. There was also a reported decrease in incidences of seclusion or restraint by 26% in the year after the enclosure was removed.

In the same context, Shattell and colleagues found that the open station was unanimously preferred by service users, who reported feelings of 'freedom and togetherness' and a greater sense of safety, including the perception that staff could respond more quickly to emergencies. Both service users and staff viewed the enclosure to be a barrier to interaction and service users described associating the glazing with prisons and a sense of punishment. Staff also perceived that the enclosed station elevated service user frustration and reported that the open station had assisted with service user de-escalation.



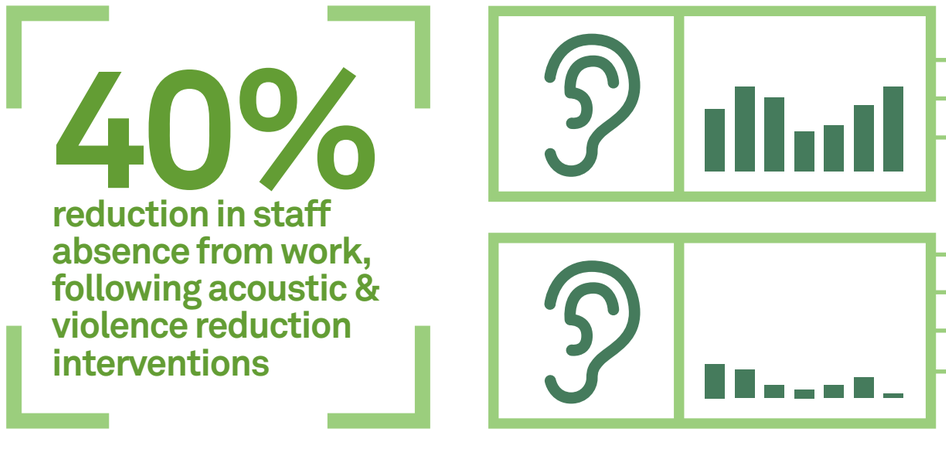
> *"I feel safe knowing that I can see them. They can see me, and I can talk to them just like anyone else would without some – glass, and walls, and things that are going to separate us instead of bring us together."*
>
> [Service user] (Shattell et al., 2015, p.403)

The research findings highlight spatial tensions between the dual demands of the station environment to be both a place of therapeutic staff-service user interaction and a space for often confidential administrative tasks. When considering the open nursing station, issues around confidentiality were raised by staff and whilst some nurses perceived their ability to speak freely with colleagues to be inhibited, others felt the open station encouraged staff to be more conscious when speaking. Some staff also reported that frequent service user interruptions when working in the open station affected their ability to complete administrative tasks (Shattell et al., 2015).

Studies suggest the benefits of providing additional discrete spaces for nurses to carry out administration away from the nursing station and also to relax (Brown, 2009) and an increase in positive nurse-service user interaction was reported in a study following a ward re-design which included more private space for nurses and service users (Tyson, Graham, Lambert, & Beattie, 2002). Planning for social or therapeutic service user activity around the nursing station, such as seating, is also recommended to facilitate improved interaction (Hunt & Sine, 2017).

Whilst empirical research is limited, the findings presented suggest that open nursing stations might lead to greater service user satisfaction through improved staff accessibility and service user-staff interaction. It is also suggested that improved staff satisfaction may be achieved through greater provision of separate private spaces for administration and relaxation.

Sonic Space



Sounding things out

Noise is commonly defined as 'unwanted sound' and whilst there is little empirical research which focuses specifically on the impact of noise within mental healthcare environments, there is much evidence to suggest that excessive noise can be detrimental to service users' physical and psychological well-being in general hospital settings (Ulrich, Zimring, Quan, & Joseph, 2006).

A paper by Choiniere (2010) exploring the impact of noise on service users and staff within general hospital environments highlights the derivation of the word 'noise' from 'nausea' and describes the nervous system responding to noise in similar ways to its response to stress, such that exposure to excessive noise and sleep disturbances can have a negative effect on health, including the immune system.

The potential health impact of noise is also highlighted by Holmberg and Coon (1999) who undertook an exploratory study to measure noise levels within a psychiatric hospital environment. The study found that the levels of noise recorded were equal to or higher than those which have been shown to impact on cardiovascular and cognitive functioning in community or workplace settings with high noise levels.

The effects of intrusive background noise on an older adult mental health ward were studied by Brown et al. (2016) who measured decibel levels and service user distress and agitation as expressed by incidents of violence. Simple interventions including applying felt pads to the base of furniture legs achieved reduced decibel levels and during the study period it was found that violent incidents on the ward decreased. As other measures which aimed to reduce levels of violence were being undertaken simultaneously, the authors reported that a direct impact of the noise reduction on the number of incidents recorded could not be determined, however, it was perceived by staff to constitute part of the overall effect. Instances of staff absence from work were also reported to have reduced by 40% during the study period.

As mental distress is frequently associated with sleep disturbance (Abad & Guilleminault, 2005) the reduction of noise which may compound sleep disruption is particularly significant to mental healthcare settings. A study with forensic mental health service users which examined the relationship between sleep and aggression found sleep difficulties to be correlated with higher levels of self-rated aggression and impulsivity, in addition to higher levels of hostility as rated by clinicians (Kamphuis, Dijk, Spreen, & Lancel, 2014).

A body of research has focused on the impact of noise on service users within healthcare settings, however, studies examining effects on staff in these environments are more limited (Blomkvist, Eriksen, Theorell, Ulrich, & Rasmanis, 2005; Choiniere, 2010). Research examining staff well-being at work in a coronary critical care setting found that the installation of sound absorbing ceiling tiles led to a positive acoustic impact on the environment which included reverberation times and speech clarity. Staff also reported reduced pressure and strain at work and the findings suggest that risk of conflict and clinical errors may be mitigated through noise reduction (Blomkvist et al., 2005).

Whilst staff conversation contributes significantly to noise in healthcare environments, it is suggested that incorporating appropriate acoustic design into the physical environment may be more effective than interventions to modify staff culture. Architectural recommendations for sound reduction include sound-absorbing finishes, single bedrooms and removing or attenuating noise sources (Ulrich, 2006). It is also suggested that the creation of highly reverberant spaces or corridors which are long and echoic should be avoided in the architectural design of mental healthcare settings due to perceptual distortions which may be felt by people experiencing mental distress (Karlin & Zeiss, 2006).

Further research is required to examine the effects of noise within mental healthcare settings, however, existing research shows that noise levels can impact on the health and behaviour of service users and staff, which in turn highlights the importance of appropriate acoustic design.

Making sense of space

Recent years have seen rapidly increasing interest in the therapeutic use of sensory environments and approaches within mental healthcare settings. Also described as 'snoezelen' or 'comfort rooms', sensory rooms may typically contain sensory elements such as optic lamps, bubble tubes, scenic pictures, comfortable furniture, music, aromas, flavours and sensory objects, to create an environment which can be tailored according to the user (Costa, Donna, Morra, Solomon, Sabino, & Call, 2006).

Within this emerging field, a scoping review of existing research examining the use and impact of sensory approaches within mental healthcare environments by Scanlan and Novak (2015) identified that studies have predominantly examined interventions in terms of either reduction in levels of service user distress or rates of seclusion and restraint.

Focusing on staff perceptions of service users' well-being, Björkdahl, Perseius, Samuelsson and Lindberg (2016) examined staff expectations and experiences of new sensory rooms on ten psychiatric wards. Whilst participants reported initial concerns about service users using the rooms alone and the potential for vandalism, self-harm or increased anxiety, it was found that service users typically chose to be alone and staff reported observing an increase in service users' self-confidence. Whilst 92% of participants perceived predominantly positive effects of the sensory rooms on service users' well-being, the experience of negative feelings including increased anxiety, claustrophobia, louder auditory hallucinations and urge to self-harm by some service users was also observed.

A significant reduction in service user distress levels following use of a sensory room, as rated by service users and staff, was reported by Chalmers, Harrison, Mollison, Molloy and Gray (2012) in a study examining the implementation of a series of sensory-based approaches within a psychiatric unit.

The intervention included the development of individualised 'personal safety plans' by service users which incorporated sensory strategies to reduce levels of distress. Other research findings also suggest that sensory approaches can support a person-centred approach to co-creating care strategies based on individuals' needs and lived experience (Champagne & Stromberg, 2004). It is also suggested that sensory strategies can be effectively and inexpensively integrated into personal care plans following discharge (Scanlan & Novak, 2015).

Whilst a hypothesis that sensory rooms might reduce rates of seclusion and restraint has been supported by some research findings, (Champagne & Stromberg, 2004; Lloyd, King, & Machingura, 2014) the results across the literature have been mixed. Smith and Jones (2014) studied seclusion rates before and after the implementation of a new sensory room within a psychiatric intensive care unit and found that there was no significant reduction in rates of seclusion. In interviews however, staff reported perceiving a reduction in seclusion and positive effects in service user de-escalation.

The sensory room was generally perceived as a positive therapeutic intervention which had improved service user-staff communication and service users' overall experience of the unit. Within the restricted environment of the intensive care unit, service users also perceived the sensory room positively as a space where they were able to play their own choice of music.

Smith and Jones also propose that the provision of designated spaces to promote well-being such as sensory rooms should be viewed with as great a priority as seclusion areas when considering the design of mental healthcare environments. In addition to spatial provision however, research suggests that adequate and ongoing staff education and training is vital to the effective use of sensory approaches (Björkdahl et al., 2016; Chalmers et al., 2012; Champagne & Stromberg, 2004; Smith & Jones, 2014).

The majority of studies report service users and staff perceiving a positive effect of sensory rooms on the overall ward environment and in general service users have reported sensory interventions being associated with reduced levels of distress. The inconclusive evidence regarding impact on rates of seclusion and restraint through the introduction of sensory approaches suggests that further research is required to test initial findings (Scanlan & Novak, 2015).

> *"(I am surprised) that so many (patients) have had a positive experience from the room. I thought that a majority would be helped but not to this extent. Nowadays, I get more surprised if it doesn't help."*
>
> **(R85) [Staff] (Björkdahl et al., 2016, p.476)**

Personal Space

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Design With People in Mind

Professor Paula Reavey
Professor of Psychology, London South Bank University,
Honorary Research Consultant at St Andrew's Healthcare
and a Director of the Design in Mental Health Network
Email: reaveyp@lsbu.ac.uk
0207 815 6177

Katharine Harding
Associate, Conran and Partners
Doctoral Researcher at London South Bank University
Email: hardink2@lsbu.ac.uk

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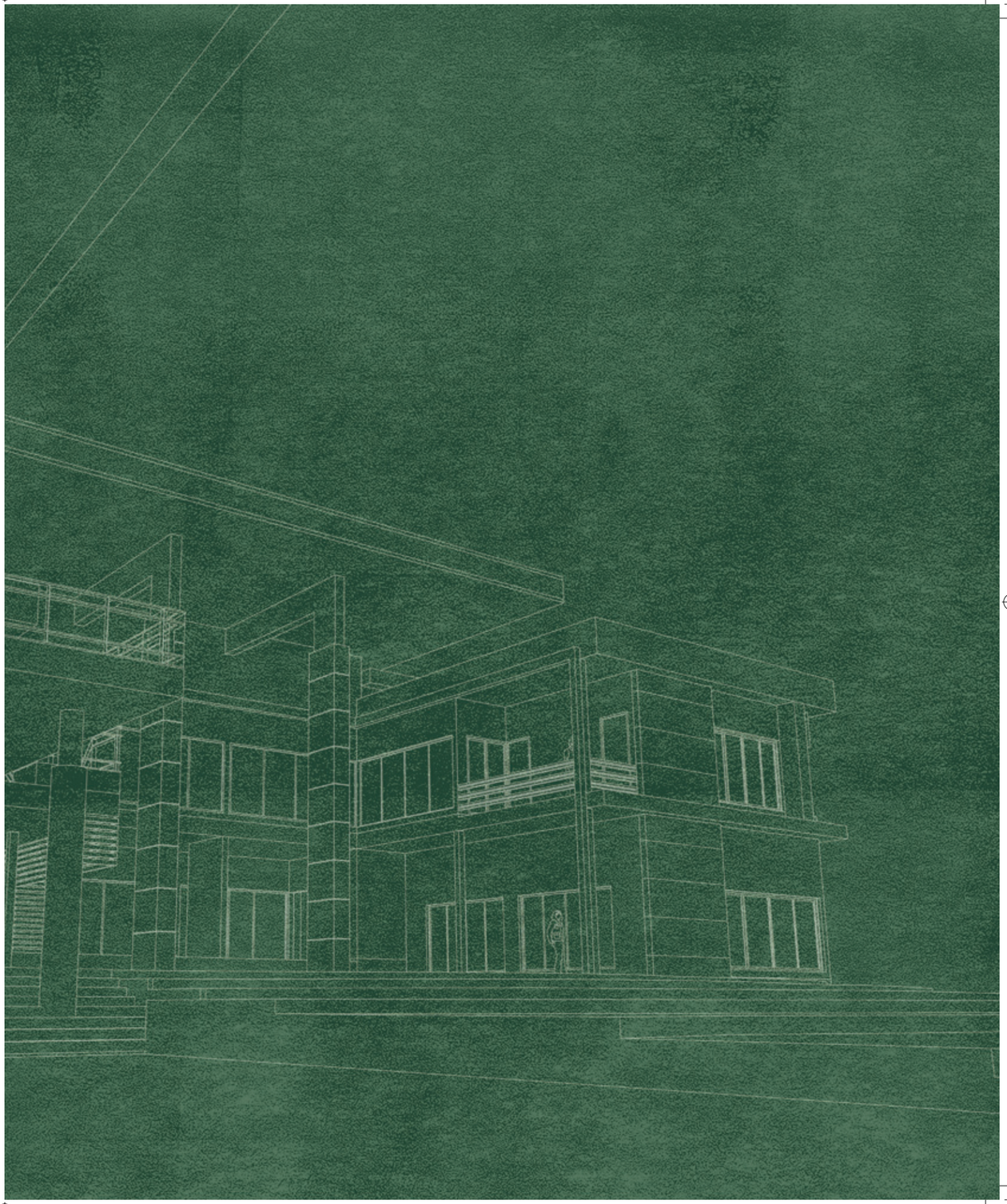

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