

Light lies: How does glass communicate in a mental health unit?

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Abstract

This paper looks at the way in which glass is used in the interior architecture of mental health facilities. Ostensibly, glass walls, dividers, panels and windows increase light and a sense of space. Yet in this paper we question how and what glass communicates to mental health clients, clinicians and visitors in the mental health unit of a public hospital. The paper begins by outlining existing research on the relationship between mental health and architecture, followed by a background on glass in western architecture. This brief contextual section focuses upon the contribution of modernist design practice and theory to the continued use of glass in contemporary architecture. The remainder of the paper is structured around major questions and themes arising from our ethnographic study of one specific mental health unit, with a focus on the use of, and responses to, glass within the unit. Specifically, two themes are emphasised, namely those of 'visibility' and 'security'. In the 'visibility' theme we ask whose needs are served the most and what regimes of vision occur when glass predominates in a mental health unit, with a focus on the effects of reflections. In the theme of 'security', we query the use and amount of glass in open and closed mental health wards. With regards to both visibility and security we question the efficacy of an increased 'sense' of space as a result of glass and light flow when the glass also serves as a barrier to movement. We conclude by considering how reflections in the glass might communicate contradictory messages to different occupants of the space.

Introduction

Architecture for mental health and especially acute mental health has historically been an architecture of seclusion. Similarities between prison architecture and mental health institutions were marked throughout the eighteenth, nineteenth and even into the twentieth centuries. Now in the twenty-first century some architectural firms say that that mental health is “no longer the Cinderella of architecture” (Tangram, n.d.). However, the unique problems that arise from designing an interior that must at once seem bright and free but also prevent escape (for acute clients)¹ and

¹ *Clients* is the predominant term used in mental health practice in Australia and thus it is the term we use in this paper. Yet despite this, the majority of the literature still uses the term 'patients'. As such, when we

conform to the many requirements of the health system, must at times be discouraging for architects. The popularity of glass and its technological advancement possibly presented a way to design mental health spaces (such as psychiatric units) that allowed for the bridging of these two requirements (i.e., constraint and aesthetic appeal).

Yet despite this relationship between mental health and the design of space and the challenges that it presents, most of the research into the relationship to date has been published in health journals and is not led by architectural researchers. Perhaps that is the reason for scant attention to the effects of particular architectural materials such as glass in a mental health unit. Marmot (2002, p. 253), for example, notes the complexity of “post-occupancy evaluation” by architectural teams, which include cost, reputation, and the difficulty of correcting problems due to the “many variables” and the uniqueness of design for mental health. These types of concerns, Marmot suggests, can often limit assessment of the actual functionality of spaces by clients of any given space once the design and building have been completed. As we note in the following sections – where we first look at the relationship between mental health and the design of space, and then the specific relationship between glass and design – what is required is a sustained focus upon the need for ongoing assessment of how built spaces are utilised by consumers and how the design of spaces can impact upon consumers, either positively or negatively.

Mental health and design

Yet despite this gap in the literature from a design perspective, health researchers continue to examine the real-world effects of design upon consumers. Daykin et al. (2008), for example, conducted a systematic review of the literature on “the impact of art, design and environment in mental healthcare” (p. 85). This was a review of over 600 papers which were published between 1985 and 2005, and which identified a number of recurring environmental features that were noted to have impacted upon mental health outcomes. Some of these features include the following: clients favoured natural conditions over television (for example) and recovery was faster and more complete when subjects were exposed to natural settings, especially natural lighting (pp. 88, 91); clients in programmes with more physical amenities had better outcomes and “were more involved in self-initiated and community activities” (p. 91); clients had a shorter stay in newer buildings (clients reported being aware of the quality of the environment) (p. 91); clients favoured those aspects of the environment that engendered enhanced “comfort, privacy and normality” (p. 90); and mental health clients appeared to have more definitive and polarised reactions to their environment than other groups, such as aged care and dementia groups (p. 92).

Two other literature reviews published in 2008 and 2010 open up the breadth of research that is necessary to develop architectural and spatial design in relation to healthcare. These are studies by Ulrich et al. (2008) and Dobrohotoff and Llewellyn-Jones (2010). Dobrohotoff and Llewellyn-Jones’ study concentrates on psychogeriatric unit (PGU) design and these authors note that the few

discuss the literature, we adopt the term used by each particular author. Terminology also varies for ‘nurses’ station’ as opposed to ‘duty station’, and ‘clinicians’ which is the broad term for all mental health practitioners, as opposed to nurses and doctors.

existing studies on the relationship between mental health and architecture appear to be more generalist and dedicated to dementia patients. In most cases evidence is sought for changes and improvements for clients and clinicians using “old” and “new” designed spaces. Dobrohotoff and Llewellyn-Jones used a key-word search approach which they then report upon according to firstly, “historical issues” (p. 2), including “violence” (p. 2), “trauma” (p. 3) and “adverse impact of ward milieu” (p. 4), and secondly, the subsequent “designing the optimal physical environment” (p. 4), which includes “safety and design” (p. 4), and “managing physical health” (p. 7). Dobrohotoff and Llewellyn-Jones state that much of the literature on facility design “is based on opinion and anecdote or at best based on observational studies” (pp. 11-12).

On the other hand, Ulrich et al.’s (2008) review used a different approach to Dobrohotoff and Llewellyn-Jones, as it focuses specifically on “evidenced-based healthcare design” (p. 101). Additionally, Ulrich et al. do not restrict themselves to PGUs and instead looked at healthcare design generally. In contrast to Dobrohotoff and Llewellyn-Jones, Ulrich et al.’s study notes the increase in more rigorous research since their previous review of the literature in 2004 (p. 119). Many of the findings summarised in the articles they cover point to the need for daylight and improved visibility as a means of reducing stress for clients and clinicians.

It is clear from the findings summarised above that the architectural environment is important to mental health outcomes, yet as also noted above the difficulties facing architects when designing for the *complex* needs of a mental health unit continue to present a challenge, indicating the importance of continued communication and specifically that this engagement should not stop when the building is opened. As such, our study, outlined in detail below, was concerned with post occupancy evaluation in terms of the ways in which consumers made use of the space in one purpose-built mental health facility.

Glass in western architecture

Light in western architecture and indeed in western imaginaries (emerging as they do from the Judaeo-Christian tradition) carries promises of redemption through the pathway of ‘purity’ (Connellan, 2009; Dyer, 1997; Wigley, 2005). Light in these contexts is the harbinger of a promised freedom. When natural light is harnessed by architects, it can bring life into an otherwise stultified interior space which might be deadened by fluorescents or simply gloomy in the absence of adequate light. The way in which natural light most obviously moves in and through interior spaces is through glass and openings. Glass only began to be used in pieces larger than the lead light method of Gothic Cathedrals (c.1400 – 1500) in nineteenth century England. The first large-piece ‘glass’ architecture was known as the *Crystal Palace*, designed and built by Sir Joseph Paxton (who learnt this technique in his role as royal gardener) in 1851 for the first trade exposition in the world— the ‘Great Exhibition’ in Hyde Park, London. Following this innovation of panelled glass strengthened and sectioned by rolled iron, the technology improved and soon iron was replaced by steel so that glass panels could be even larger than those made for the Crystal Palace.

Modernism was the time of the 'curtain wall', the dictum of 'form follows function' (Louis Sullivan) and of 'less is more' (Mies van der Rohe). The 'curtain wall' literally means a wall of glass. This was achieved by overcoming the need for load bearing brick walls through the new ferro-concrete which was reinforced by steel, allowing glass to wrap around buildings. In this way 'more' became 'less' as heavy opaque walls were replaced by light transparent glass. Sheet glass, picture windows, glass screens and panels were all used to bring the outside inside. Modernist architects feted the interior-exterior flow of sunlight and space. This was to move away from the solid barriers that the brick or stone wall presented to the outside world or indeed to the 'inside world' of inhabitants.

Yet whilst this brought many glistening 'jewels' to city skylines (and continues to do so), the extensive use of glass has also had its critics. Advocates call it an 'intelligent' material (Addington & Schodek, 2005; Compagno, 2002) and applaud its strength, beauty and versatility (Bell & Kim, 2009), whilst environmentalists warn of the problems of heating, glare and reflection, and therefore suggest that glass must be *used* intelligently (Abaza, 2000; Bally, 2002; Gissen, 2003; Guy, 2001; Thibaud, 2001). Work has also been done on the politics of glass, in particular architectural settings such as courts of justice, which has a bearing on mental health units (Resnik & Curtis, 2011). Resnik and Curtis write that the connection between glass and access to justice is "simplistic", presenting the contradiction of "opaque transparency" (p. 341). As researchers seeking to examine the relationship between architecture and mental health, we add our voice to all these discussions and we pose additional questions: Firstly, how does the use of glass improve or hinder concepts and realities of visibility? Secondly, how does the use of glass contribute to feeling safe or threatened? And finally, how does the use of glass improve movement and spatial flow within the constraints of seeing and being seen? We ask these questions with one case study as a focal point: a purpose built mental health unit in South Australia completed in 2010. The method of our study is presented below.

Method

The study was conducted in the mental health unit of a large public hospital in South Australia. Buildings were completed in stages between 2009 and 2010. The secure ward had a total of six beds that were all in single rooms, and three bathrooms with one disabled bathroom. The open ward contained 20 beds, and 10 bathrooms with one disabled bathroom and one assisted bathroom. Both of these wards were typically full throughout the study.

Ethics and participants

Ethics approval was granted from both the University of South Australia's Human Research Ethics Committee and the Ethics Committee of the hospital involved in the study. Clients, staff and visitors at the hospital were informed of the study through information sheets that were placed around the ward. Staff speaking to the second author were assured that anything they said would remain

strictly confidential, and the information sheet similarly stated that no identifying information would be used in any publications that arose from the study. All users of the ward were informed of the times that the ethnography would take place (typically one day a week for a three-hour time slot). The movements of clients, staff and visitors were observed throughout the ethnographic observations.

Procedure

The second author carried out ethnographic observations on ten occasions for three hours each, a total of 30 hours of observations. These observations were conducted during both the morning and the afternoon over a ten-week period, and the time was split evenly between the secure ward and the open ward. In the open ward, the second author spent time both within and outside the duty station; however, in the secure ward the majority of time was spent observing from within the duty station for security and ethical reasons. Brief notes were taken during observations; however, in order to reduce the amount of time spent note-taking during observations, the majority of the field notes were written immediately after leaving the hospital premises. In addition to these 30 hours, the first author also conducted four hours of ethnographic observations entirely from within the wards, including the secure ward. These observations were conducted in order to examine the use of space from where the clients experience it. Both the first and second authors remained neutral during these times, rarely asking questions of staff unless wishing to gain clarification in relation to a particular procedure or space. Where clients or staff asked either author what they were doing, both authors replied that they were observing the use of space and the architecture with the ward.

Ethnography was chosen as the methodology for this study due to the fact that the literature has identified it to be appropriate for use in healthcare settings, and has been used before (Johansson, Skärsäter & Danielson, 2006; Savage, 2000). In particular, ethnographic observations are typically unobtrusive and allow the researcher to develop a flexible approach to both understanding an environment and gaining insight into the relationships between that environment and the behaviour of the people within it.

Analytic approach

Once the observations were finalised, the field notes were analysed using thematic analysis, following the approach laid out by Braun and Clarke (2006). In their paper, Braun and Clarke provide rigorous guidelines for conducting thematic analysis in qualitative research within the broad study of psychology and these guidelines were followed in each stage of the analysis of the field note data. Initial analysis of the entire corpus revealed a number of themes. These included (in order of significance): the use of the duty station by both staff and clients; doors and passages; the use of glass in both wards; the use and effects of gardens and plants; the choice and positioning of visual art in the wards; and the use of colour. Correspondingly, extracts from the data concerning these

themes were further analysed in order to reveal the patterns of use of this space. Each theme is researched as a separate paper, with the results of the analysis of the use of glass presented below.

Findings

As discussed above, a significant concern in relation to the design of mental health units is the extensive use of glass. In the analysis that follows we examine the use of glass in both the High Dependency Unit (HDU - the locked ward) and the open ward. Our ethnographic research noted both similarities and differences between the use of glass in these two spaces, which we discuss under the headings of visibility and security.

Visibility

This mental health unit does not disguise itself from the outside. It is highly visible due to clear and obvious signage (Figure 1). It is a facility whose clients have mental challenges which call for short or longer term stay at the hospital. Whilst for some time now, mental health facilities have typically hidden or minimised their signage out of concern for the potentially negative effects of stigma upon clients, this assumption did not appear evident in the mental health unit examined for this research; the unit is clearly identifiable through a sign saying 'Mental Health'. The signage is there for all to see and specifically for those in need to know precisely where to come and ask for advice if the occasion demands it. Whilst the reception area is not the admission section, it is a portal of information on mental health services. A senior clinical practice consultant with ten years' experience in acute adult mental health in Australia, who is a clinician at the hospital and is a member of our research team, was instrumental in liaising with the architects to ensure the sign was loud and clear. Signs for other units in the large hospital of which this mental health unit is a part all have similar signage, meaning that visibility and truth are right up front in terms of the function of the mental health and other units in the hospital.

However, glass does not play an obvious role in the clarity of the above message about the mental health unit. The public entrance to the facility is not encased with glass (despite the large glass sliding doors); instead, the laminated walls and grey cantilever canopy shadow the doorway, but this does result in a solid welcome. It's a strong beginning but this is not the entrance used to admit mental health clients, as they are brought through an interior (un-glassed) corridor from the main hospital, which is situated behind the mental health unit, and then admitted straight into the ward.

Despite this relatively low level use of glass in the entrances to the facility, there is extensive use of glass in the interior of both open and closed wards in the unit. Natural light floods into shared eating and entertainment areas, communicating a feeling of lightness and airiness (Figure 2). It is well documented that light, and specifically daylight, is immensely important to the mental health of clients and clinicians (Huffcut & Asid, 2010; Schweitzer et al. 2004; Ulrich et al., 2008). Florence Nightingale was one of the first to insist that the rising and setting of the sun should be absolutely

evident to patients and that they should, if possible, have direct sunlight in their ward at all times of the day (Edwards, 2011, p. 155). Ulrich et al.'s 2008 review of literature on evidence-based healthcare design (in non-mental healthcare settings) shows the reduction of stress as a result of daylighting and appropriate lighting (for a summary of these findings, see Table 1). From these findings Ulrich et al. (1991, 2008) developed a "restoration theory", which

implies that modern humans, as a genetic carryover of evolution, have a capacity to derive stress-reducing responses from certain nature settings and content (e.g. vegetation and water), but have no such disposition toward most built or artefact-dominated environments and materials (e.g. concrete, glass, and metal). (Ulrich et al., 2008, p. 128)

If this is the case then we ask, what is the effect of glass on glass in a mental health unit specifically? In the HDU unit of our study, glass offers views of nature that are accessible to those visiting the general hospital outside the mental health unit. In the open ward views to the garden are accessible within a closed and monitored courtyard on the one side, but inaccessible on the other side. In other words, glass is there as a literal window to the world outside whilst simultaneously acting as a constant reminder of the barrier. The following excerpt is from field notes taken by the first author in the open ward and then in the closed ward.

As I sit down at the dining area again I am very aware of the reflections of glass on glass and glass to glass. This causes an ambiguous space and spatial movement. Illusionary.

The second author noted the following when taking notes from inside the duty station for the closed ward:

I notice reflections on glass quite clearly – especially from a distance. The busyness of the reflections could be distracting.

These reflections create an illusion of people in spaces. In addition, when the glass windows have a combination of objects, features and people behind them in the receding space, there are layers of reflections upon reflections. This creates duplications of overlapping and interpenetrating imagery. And whilst being aesthetically pleasing, such visuality presents a confused sense of who and what is where. It was observed that there were times when the clients seemed to look at the glass for periods of time, and this could have been because of the patterns and movements created within the reflections. In the HDU there is a glass panel acting as a divider that drew the attention of the clients, which could be a product of clients being visually entertained by the lively images captured by light and reflection. Schweitzer, Gilpin and Frampton (2004) note that "too much stimulation will have the negative impact of raising anxiety levels" (p. 76). French cultural theorist Jean Baudrillard (1978, as cited in Clark and Brody, 2009) points out that aesthetics:

. . . communicate amongst themselves according to the economy of a model, with maximal integration and minimal loss of information (a harmonized interior in the tonality of blue, or "playing" upon the blues and greens; the crystalloid structures of the residential ensemble; the "naturalness" of "green" spaces). The aesthetic is thus not a value of style or of content;

it no longer refers to anything but to communication and sign exchange. It is an idealized semiology, or a semiological idealism. (p. 156)

Baudrillard reminds us that forms and materials in space are part of a meta-language. Similarly, Foucault (1990) notes that nothing is entirely outside of the conversation of power and that no-one can escape from the connectedness of power relations. Consequently, it is important to consider the behaviour of glass in an environment which is highly dependent upon the semblance of honest communication.

The use of glass, then, has several purposes, and besides allowing enough natural light to flow into the interior and to light up the interior, it is also used to facilitate seeing and being seen when necessary. The first author noted the following:

I am sitting inside the closed ward in the corner. 2 clients are talking to a carer – (senior nurse) – other carer goes off to do the washing. One male client goes away. Female client stays and chats to (reads palm) of senior nurse. One client is lying on a couch / bed with covers, this is full view of the duty station. It's an overcast day but the reflections of glass upon the glass create layered spaces from across the ward eating and living area.

The duty station is encased in glass windows. The station forms a central core between the open and closed wards and is the focus of a forthcoming paper written by these authors. The glass window of the duty station in the closed ward is fixed and cannot open whilst there are two sections of glass that can slide up in the open ward. The staff in the duty station of the open ward are more visible than staff in the closed ward section of the duty station. This may be because the open ward itself is larger and with the emphasis upon glass all spaces are well lit thus increasing the light across to the duty station. However, during our study, in addition to the bright surrounding natural light, the open ward interior electric lights were all on in the duty station, thus lighting up the station even more and also creating more reflections. The ethnographic note below (first author) is written from outside of the duty station in the open ward (i.e., a client's view), indicating how far across the ward reflections appear in the glass (Figures 3 and 4).

The duty station appears lit up and it reflects and is reflected upon other reflections. e.g. trees and brick wall from the outdoor area. Reflections also change with the light on all the glass panels.

The adjoining closed ward duty station is smaller and darker; electric lights do not always seem to be turned on or be as effective in this station. The darker duty station thus becomes less visible, which inadvertently communicates inaccessibility from the outside. It is easier to see out of the closed ward duty station than it is to see into it because one is looking from dark into light (Figure 5). John Berger writes, "We only see what we look at. To look is an act of choice. As a result of this act, what we see is brought within our reach – though not necessarily within arm's reach" (Berger, 1972, p. 8). Berger is not speaking of a mental health environment, but his theories on seeing and looking are nonetheless relevant when one considers regimes of visibility. Things and people that are visible in the designed space of a mental health unit are in a controlled visual environment. Foucault (1995) notes that "visibility is a trap" (p. 200) and expands upon the complexities of seeing and watching in

a space designed for surveillance and correction. As such, there is a slender divide between privacy and security. Interestingly, whilst clients in the unit we conducted our research in could go to their bedrooms to be out of the line of vision, most clients observed in this study spent their day time in the shared spaces.

Security

When the above aspects of seeing and being seen are considered in an environment that is dependent upon power relationships between the role of client and the role of clinician, it is most likely that the extensive use of interior glass is worked into the design as a security measure for all. Increased visibility is often regarded as providing greater safety for occupants of interior space. As mentioned, the centralised duty station is glass encased and the glass allows vision both out and in. There are no computer-controlled false windows which mimic scenes or scenery (Biley, 1996) and no one-way glass interior panels (also sometimes referred to as mirror glass) anywhere in either unit. The reason for the absence of one-way glass may be that there is sufficient security through the use of the ceiling fitted convex directional mirrors (Figure 6) and the numerous security cameras, also ceiling fitted. On the surface it would appear that the use of glass is therefore an open approach to communication with the glass hiding no one nor deliberately suggesting something that is not there.

Yet, the second author, sitting in the closed ward duty station, noted the following:

One male client wanders back up corridor and punches glass wall at end and nurse goes out to have conversation with him and then takes him outside with his smokes.

The above extract is salient in terms of the glass in this instance forming a barrier, but also a surface upon which to vent frustrations upon. Therefore whilst security and safety are optimal in any mental health unit, clients also need to know they are safe from harming themselves. The environment of the mental health unit is itself regulatory; it is the placement of “bodies in a meticulous analytical space” (Foucault, 2003, p. 227). One question presented to designers and mental health practitioners is whether to communicate this regulatory aspect through glass which performs a clearly controlling function, or to disguise the function of surveillance and protection through the transparency of glass. The view that glass is “designing its own disappearance”—as Bell and Kim (2009, p. 5) suggest—alerts us to the increasing technological advancements, which could bring about a material which denies itself. The effects of ostensible transparency rendered by glass in an analytical space such as a mental health unit are always already uncanny. The second author noted that clients wandered around the closed ward a lot. Below is one excerpt from the second author’s ethnographic notes:

S walks down corridor and goes into bedroom or toilet. J gets up and walks around dividing glass panel, then back to TV room, then back around again – holding his drink. He does this several times.

The pacing and wandering may have more to do with the clients' mental condition than with the glass, but it is nonetheless important to consider the effects that glass might have upon the movements of clients. Glass can give the appearance of openness but it can also provide a perceptible transparent barrier to close physical communication. As such, it is used to separate people from people. Stichler (2008), writing from a staff perspective and using the "Planetree" approach, makes five recommendations, two of which focus upon security:

For the staff, designs should address (1) the work flow process of care giving and minimize the steps necessary to secure supplies and equipment; (2)safety features that reduce employee injuries resulting from repetitive movement, patient lifting, mobilization, and transfers;(3) visual access of patients from nursing stations or documentation alcoves; (4) security designs that enhance protection of the staff from hostile visitors; and (5)staff stress reduction with the design of respite rooms (quiet, meditative environments) in high-stress areas. (p. 507)

With (3) and (4) above in mind, it is likely that the glass is used to counter any unsolicited contact and we fully acknowledge that protection is extremely important in any stress filled environment. The question remains though as to how much glass is too much.

The structural feature of the sliding window in the open ward duty station of our study is a point of closer communication. The second author noted the following:

In this ward the nurses' station has a window which lifts up, and clients can lift it up too. This window appears to be a more central part of communication than the door(s) although clients appear to come up to the nurses' station much less in this ward than in the locked one.

Our study also revealed that clients in the closed ward preferred to knock on the door (not made of glass, but with a small glass panel at head-height) of the duty station and have it opened by a staff member, than to converse through the closed glass of the window. See ethnographic excerpt from the second author below:

I notice that sometimes when a client comes to the door to the nurses' station other people come and hang around too, other times they just ignore what is going on.

Overall the door to the nurses' station in the locked ward appears to be a central part of interaction between staff and clients. – also worth noting that it is the door and not the window. People rarely seem to go to the window in the locked ward.

It is also significant that whilst staff could open the door to the clients, they could also ask them to go around to the window. Therefore it would appear that despite this being an acute mental health ward, staff feel sufficiently secure to open the door. At this opened door staff frequently stood and chatted to clients, and clients rarely tried to touch a member of staff. Importantly, if a client did try to point at something in the duty station – thereby putting their arm into the room a bit – they were frequently asked to step back by staff. As such, whilst the door in the closed ward was not designed as a point of contact (it was located out of the way, around the side of the duty station), it did offer

more physical communication than the glass window. Staff allocated to the locked ward generally returned to their tasks within the duty station after interacting at the door. However, the observations also indicated that staff spent what time they could sitting and chatting with clients inside the locked ward, suggesting that they felt some degree of safety in this space. This may have been facilitated by the fact that all staff members had alarms and swipe/key cards to open doors hanging around their necks at all times.

Schweitzer et al. (2004) write that, "Centrally located nursing stations and glass partitions may limit patients' access to staff" (pp.78-79). We suggest that the use of glass as a signifier of simultaneous communication and security may be disingenuous to clients and visitors and similarly these mixed messages might also affect the behaviour of the staff. Schweitzer et al. also note, "It is not uncommon to find large centralized nursing stations on a typical patient unit, set apart from patients by half-walls or glass partitions and at significant distances from most patient rooms. These elements clearly distance staff members from patients, sending the message that they are busy and inaccessible" (p.78). Schweitzer et al., Gross et al. (1998) and Karlin and Zeiss (2006) all recommend the use of open, non-glassed or partitioned duty stations. Messages are sent visually more often than verbally, and therefore the role of glass as a visual communicator needs to be taken more seriously. Berger (1972) writes:

We never look at just one thing, we are always looking at the relation between things and ourselves. ... Soon after we can see, we are aware that we can also be seen. ... The reciprocal nature of vision is more fundamental than that of spoken dialogue. (p. 9)

With the above considerations of communicating security and safety in an honestly visible way, we move to our preliminary conclusions.

Conclusions

We began this paper by situating glass in its architectural history. Glass is no longer a singular material but a highly complex one that can be engineered to perform more complex tasks than being a lightweight building material and a conduit of sunlight. As Mark Wigley writes in the preface to a publication on glass (arising from a conference on the subject between architects and engineers): "It is crucial that we bring together the world's leading designers, scientists, historians, theorists, artists, educators, and engineers to reassess the state of the art in material practice" (Bell & Kim, 2009, p. 9). It is only through inter- and cross-disciplinary approaches that we can succeed with some of the more difficult questions that face the designs of healing environments. As architects and designers we should not be seduced by the properties of beauty and as health practitioners we should not undermine their propensity to heal. Achieving the balance needs a rational blending of aesthetics and functionality.

Glass, in Baudrillardian terms, contributes to the simulacra of the everyday world outside the mental health institution. Its busy duplications are disconcerting for the "normal" individual. The question that must be asked, then, is whether glass is responsible for replicating the seductive qualities of

aesthetic reflections (play of light and the ambiguous imagery) in an environment of heightened emotional responses to all sorts of stimuli. Questions such as this cannot be answered simply on the basis on one ethnographic observational study, and as such more targeted empirical studies need to be done to measure the effects of particular materials in mental health units. Nonetheless, the present study gives some preliminary support for the assertion that glass does indeed play a role, in terms of both visibility and security, potentially with adverse effects.

It is clear from existing studies and specifically the work of Ulrich that natural light is essential to healing. Our considerations regarding the use of glass do not recommend a reduction in windows that capture natural light. Instead, we encourage ways in which natural light can be captured. Alternative methods of capturing natural light (e.g., through skylights) are the subject for another possible paper. At this point, based on the observations we conducted, we recommend that glass is not used for interior partitions unless those partitions are absolutely necessary and then such glass should be non-reflective. For example, the duty station might not require any partition above the counter if the station is used for client and clinician relationships and administration is done elsewhere.

The mental health unit is a highly regulated environment, and glass as an architectural material is also subject to stringent regulations. Its wonderful qualities of emitting natural light have not lost the magic of the middle ages when darkened interiors were turned to light and the liturgy in churches was persuaded to move from hell and damnation to heaven and salvation (Torevell, 2007). Light as lumen must remain, but glass should not be the vehicle of duplicity. Let it continue to be a material of hope.

Finally, it is necessary to bring the paper back to the relevance of this conference entitled “Communication on the edge: Shifting boundaries and identities” and specifically the stream for “Disability and Communications”. Mental health challenges are frequently categorised as a disability and mental health units are designed to provide support and healing. Glass is discussed in this paper as a medium for communication. And this communication would be expected to be supportive and clear in the context of desired mental health outcomes. Glass has been shown to flood the interiors with light, to bring moving imagery and reflective visual patterns that communicate a liveliness but also an ambiguous reality. Glass can therefore miscommunicate, beguile and tease. The various glass structures included in the architectural design of this purpose built unit such as windows, panels, dividers and doors are part of the language of this particular mental health architecture. It is a well-meaning language which sets out to lift the spirits of the clients and clinicians with the poetry of light, but it may be that a more prosaic approach which still incorporates light and glass would be more effective and result in more honest communication than the proliferation of layered visual meanings.

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Table 1: Design strategies or environmental Interventions and healthcare outcomes (adapted from Ulrich, 2008, p. 148).

Design Strategies or Environmental Interventions	single-bed rooms	daylighting	appropriate lighting	nature views	family zone in patient rooms	carpeting	noise reducing finishes
Healthcare Outcome							
Reduced hospital-acquired infections	**						
Reduced medical errors	*		*				*
Reduced patient falls	*		*		*	*	
Reduced pain		*	*	**			*
Improved patient sleep	**	*	*				*
Reduced patient stress	*	*	*	**	*		**
Reduced depression		**	**	*	*		
Reduced length of stay		*	*	*			
Improved patient privacy and confidentiality	**				*		*
Improved communication with patients & family members	**				*		*
Improved social support	*				*	*	
Increased patient satisfaction	**	*	*	*	*	*	*
Decreased staff injuries							
Decreased staff stress	*	*	*	*			*
Increased staff effectiveness	*		*				*
Increased staff satisfaction	*	*	*	*			*

Figure 1: Mental Health signage (photograph taken by first author, 2010).



Figure 2: Open ward dining and recreation area (photograph taken by first author, 2010).

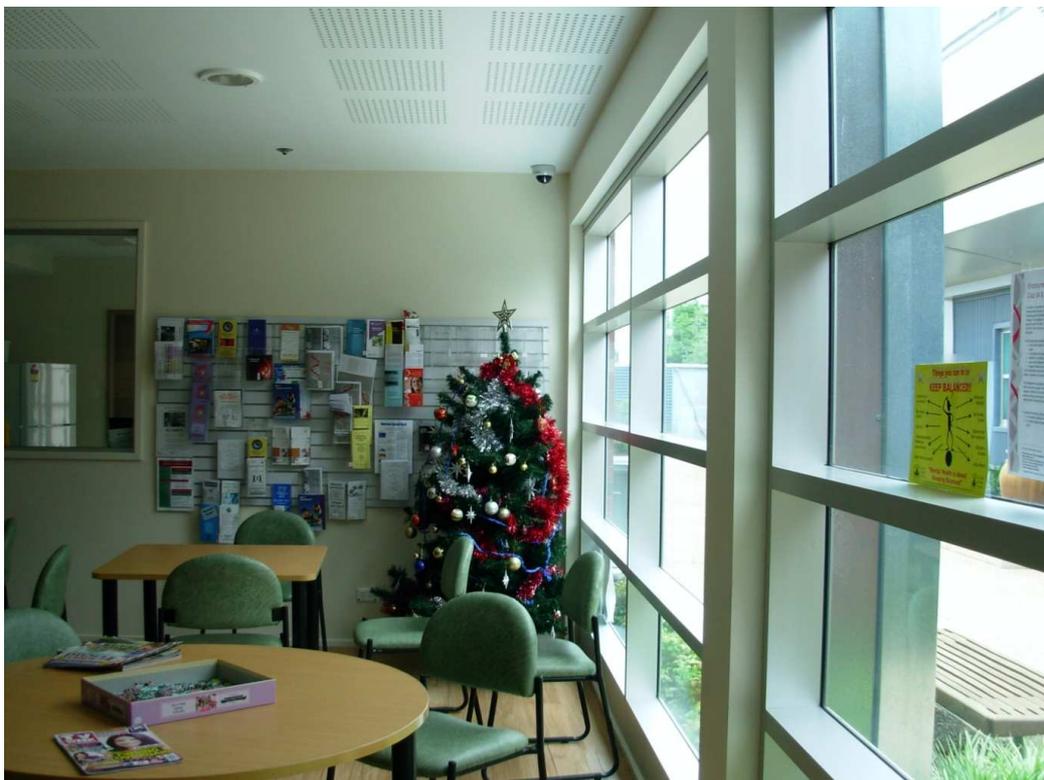


Figure 3: View from inside the open ward, showing the reflection of the duty station (Photograph taken by the first author, 2010).



Figure 4: View through closed ward eating and recreation area (Photograph taken by the first author, 2010).



Figure 5: From inside the closed ward duty station, (Photograph taken by the first author, 2010).



Figure 6: Convex directional mirror. (Photograph taken by the first author, 2010).



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