

Physical design of supported accommodation for people with mental health problems, intellectual disabilities and challenging behaviour: The context for Northern Ireland

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Executive Summary

The Health and Social Care system in Northern Ireland has been subject to review, change in policies and practice and radical transformation in the last 30 years. As part of this transformation, there was a focus on moving people with mental health problems, intellectual disabilities and challenging behaviour out of inpatient settings and reintegrating these individuals back into their communities. This led to pressures on community services and the need to develop better structures to support these populations.

There is evidence to suggest that the built environment and physical design of buildings can have an impact on physical and mental health. Previous research has focused on the physical design of inpatient settings and the impact on health outcomes for patients. Given the prevalence of people with mental health problems, intellectual disabilities and challenging behaviour residing in supported accommodation, research on the physical design of supported accommodation facilities and the potential impact on outcomes (including reducing aggression, promoting social interaction, reducing challenging behaviour, managing risk, facilitating care and improving quality of life) for service users is warranted.

This document is divided into two distinct sections 1) an overview of key policies and reviews in relation to the Health and Social Care system in Northern Ireland with a focus on recommendations for people with mental health problems and intellectual disabilities; 2) a detailed review of the physical design guidelines that exist to provide guidance for planners, architects and builders in constructing buildings and homes, including guidelines for specific populations.

1 Introduction

Over the past three decades there has been a focus on reintegrating people with intellectual disabilities, mental health problems and challenging behaviours into the community and out of long stay inpatient settings. Due to community resettlement, individuals within these specific population groups often reside in supported housing. There is evidence to suggest that the physical design of our surroundings impacts upon physical and mental health. There exists an evidence base for the impact of physical design on health outcomes in the general population and in hospital settings however there is a dearth of research on this topic in supported accommodation. Thus, the aim of this report is to;

- 1) Provide an overview of the Health and Social Care system in the UK and more specifically in Northern Ireland
- 2) Review policies/ guidelines and recommendations relating to the health of people with intellectual disabilities and mental health problems
- 3) Review guidelines for planning and building of supported housing with a focus on physical design

1.1 Background

1.1.2 Deinstitutionalisation

There has been radical transformation of mental health services over the last 30 years; the beginning of the transformation process was deinstitutionalisation which involved moving people with mental health problems and intellectual disabilities from inpatient settings back into the community. The impetus on closure of inpatient psychiatric facilities began in the 1960s, however closures did not begin until the 1980s mainly due to lack of community services and the time required to develop new structures and systems, reallocation of staff and placement of service users into the community (Kings Fund, 2018). The advances in social science, a greater emphasis on human rights, and further understanding of mental illness and intellectual disability were the driving forces behind deinstitutionalisation along with the recognition that institutionalisation was iatrogenic. Deinstitutionalisation has comprised three main components; moving individuals from hospitals into community settings; diverting from hospital admission and development of community services.

1.1.3 Supported accommodation

Deinstitutionalisation and re-integration of people with mental health problems and intellectual disabilities back into the community has led to an increase in supported living in the UK and internationally. Supported accommodation can be defined as any housing scheme where housing

and support are provided to enable people to live as independently as possible in the community (NHS, 2018). The accommodation can be either self-contained or shared with others and is designed to meet the needs of particular user groups requiring intensive housing management. Supported accommodation can provide housing for different groups of people with different needs including older people, people with physical and intellectual disabilities and mental health problems who may otherwise be living in long term residential care or hospital settings.

Additional to providing a home, supported accommodation is for people who require extra housing support and/or an element of care such as personal care, help with preparing meals, managing medication. The extra housing management support and care provided by this type of housing is intended to help individuals lead as independent a life as possible. The main aim of each scheme is to provide appropriate housing and where the accommodation is temporary, to ensure that service users are enabled to 'move on' to independent accommodation as appropriate. The primary providers of supported accommodation include housing associations, local authorities and the voluntary sector.

The Supporting People review (1998) highlighted a number of issues with the funding and structure of supported accommodation. The issues identified included the quality of service provision, lack of consideration of value for money and transparency in the use of resources. Providers were spending a large amount of time managing a wide variety of funding streams and funding decisions tended to distort the accommodation choices of people who may need supported housing. The Supporting People programme was launched in April 2003, across England, Scotland, Wales and Northern Ireland. It brought together several funding streams, including support funded through the Housing Benefit system, into a single grant for local authorities. This could be used to fund a variety of support services to help people live independently in both accommodation-based schemes and floating support schemes.

A recurring theme identified in the Supporting People review is that there is an increasing demand for supported housing for people with learning disabilities and mental health problems. This increasing demand is due to several key factors:

- 1) The number of people with learning disabilities is slowly increasing mainly due to medical advances, which have increased survival rates at birth and led to longer life expectancy for this population;

2) The closure of long-stay hospitals and other institutions: this is part of a long-term trend which began in the 1980s, but has been accelerated by the Department of Health report Transforming Care52 in the wake of the Winterborne View scandal in 2012;

3) There has been a trend amongst local authorities to reduce the use of residential care. One way in which this is being achieved is working with providers to change the status of residential care homes to become supported housing, often referred to as 'de-registration'; that is the residents remain living in the same accommodation but the model changes from registered care to supported housing, with residents becoming tenants and typically becoming eligible to claim Housing Benefit.

1.1.4 Physical design and health outcomes

Although deinstitutionalisation has led to an improvement in some outcomes such as quality of life (McCarron et al., 2019), people with mental health problems and intellectual disabilities are still amongst the most disadvantaged groups in society (Emerson, 2007) are more likely to suffer from significantly poorer health than the general population and experience a range of co-morbidities including obesity, diabetes, cardiovascular disease and chronic obstructive pulmonary disease (Emerson and Hatton, 2014, Park et al., 2013). McCarron et al. (2019) also reported that although people with ID were residing within the community, they were not necessarily integrating with others and some were more isolated than in the residential setting. Bigby et al. (2016) reported that supported accommodation has potential for improving quality of life outcomes, however greater consistency of support worker skills and more skilled support to build friendships and manage relationships is required.

Approximately 1.5 million people in the UK have a learning disability, 40,177 of which reside in Northern Ireland (NI Assembly, 2011). Individuals with intellectual disabilities are more likely to experience a mental health problem (Mental Health Foundation, 2016) and 1 in 6 people per week in the UK in the general population experience a mental health problem (McManus et al., 2016). The physical design of buildings and spaces can have a significant impact on physical and mental health; the Bengoa report (2016) states that 10% of health outcomes are related to physical environment including built environment and physical design. This may be particularly pertinent for people with intellectual disabilities, mental health problems or challenging behaviours who already suffer from a range of health inequalities In comparison to the general population.

Following the seminal work by Ulrich (1983) who introduced the phenomenon of human interaction with the natural environment, a number of studies discussed the relationship between health and the built environment in the general population (Ulrich, 1991; Heller et al. 1998). In recent years, a

number of studies have identified physical design features of inpatient facilities including hospitals and psychiatric facilities (Ulrich et al., 2018; Sheehan et al., 2013; Seppanen et al. 2018). Some of the key design features identified for improving quality of life and health outcomes for patients include; a community location, a newly designed building, home-like facilities, communal areas, movable furniture, nature artwork, outdoor/green space, daylight exposure and window views. A recent systematic review by Jovanovic et al. (2019) identified how to design psychiatric facilities to foster positive social interaction which included features such as removing the glass around the nurse's station, provision of communal spaces, outdoor space, ambient features and new residential furnishings. Recently, there has been a renewed focus on the effects of the built environment on physical and mental health (Ige et al., 2018; Hoisington et al., 2019). A systematic review on the effects of changes to the built environment on the mental health and well-being of adults (Moore et al., 2018) found that two studies reported beneficial effects on quality of life outcomes from improving green infrastructure however the evidence is weak therefore research on associations between the built environment and mental health requires more robust design and further collaboration between public health, planning and urban design experts. Further research is required to identify if the some of the key design features from the built environment and inpatient settings could be transferable to community settings.

1.2 Conclusion

Given the prevalence of intellectual disabilities and mental health problems amongst the UK population, the rise in the numbers of people residing in supported accommodation and the evident impact of physical design of an individual's surrounding environment on physical and mental health, the impact of physical design of supported accommodation facilities on a range of health outcomes warrants further investigation.

2 Existing policy and guidelines

There are a number of existing policies, guidelines and reviews that aim to inform the funding, planning, designing and building of homes, community facilities and cities for the general population and specific populations such as people with mental health problems, intellectual disabilities and challenging behaviours. This report will provide an overview of the policies and guidelines, the populations for whom they have been developed and the design features that they propose in various settings.

In order to provide some context for supported accommodation and the design of these community facilities for people with mental health problems, intellectual disabilities and challenging behaviours,

firstly, it is important to set the scene for health and social care in Northern Ireland, the developments and reforms over the last three decades and the ongoing changes, with specific emphasis on people with mental health problems and intellectual disabilities. There have been numerous reviews of the Health and Social Care system in Northern Ireland (Table 1) which have identified that the configuration of services is not optimised to meet the needs of service users and this is having an increasingly negative impact on quality of care for the NI population. This is not intended to be a comprehensive review of all policies relating to Health and Social Care in NI however it will aim to provide an overview of key policies and reviews in relation to mental health and intellectual disability.

Table 1 Government policies and reviews of the Health and Social Care system in NI

| Policy/Review/Guideline | Year of publication | Commissioned by |
|--|----------------------------|--|
| Mental Health Action Plan | 2020 | Department of Health |
| Supported accommodation review | 2016 | Department for Work and Pensions Department for Communities |
| Supporting People: A New Policy and Funding Framework for Support Services | 2014/15 | Department for Communities |
| Statistics, perceptions and the role of the supporting people programme | 2014 | Northern Ireland Housing Executive |
| The Bamford Review of Mental Health and Learning Disability | 2002-2007 | Department of Health |
| Transforming your care: A review of Health and Social Care in Northern Ireland | 2011 | Department of Health |
| Systems, not structures: Changing Health and Social Care | 2016 | Department of Health |
| Health and Wellbeing 2026 | 2016 | Department of Health |

2.1 Policies and reviews

2.1.2 Mental Health Action Plan

The Mental Health Action Plan (2020) sets out key improvements to mental health services in the short term and a commitment to co-production of a new 10 year Mental Health Strategy. The Mental Health Action Plan outlines objectives across five different domains; Mental Health Strategy;

People/Experience; Access to services; Staff/Workforce; Structures, evidence and commissioning.
Key objectives and the associated actions are presented in Table 2.

Table 2 Key domains, objectives and actions of the Mental Health Strategy

| Domain | Objectives | Actions |
|------------------------|---|--|
| Mental Health Strategy | Mental Health Strategy | <ul style="list-style-type: none"> • Co-produce a sustainable mental health strategy based on the identified needs of people |
| | 10 year funding plan | <ul style="list-style-type: none"> • Evaluate funding patterns and create a funding plan • Create a 10 year funding plan for mental health |
| | Mental Health Champion | <ul style="list-style-type: none"> • Create a Mental Health Champion |
| People/Experience | Better understanding of the system | <ul style="list-style-type: none"> • Create a service map of the system to help and guide understanding of what services are available |
| | Enhanced user involvement | <ul style="list-style-type: none"> • Enhance the involvement of people with lived experience, including service users and carers in service delivery and planning • Embed co-production in all service improvement processes |
| | Enhanced pathways and structures | <ul style="list-style-type: none"> • Improve mental health service pathways and structures • Repeal the Mental Health Order for over 16's and commence Mental Capacity Act • Create managed care networks • Full implementation of mental health care pathways • Review restraint and seclusion |
| | Improved transitions | <ul style="list-style-type: none"> • Improve transitions between different aspects of mental health services • Introduce availability of Mental Health Passports for all service users to assist with transition between services subject to funding |
| | Improved care and treatment in an emergency | <ul style="list-style-type: none"> • Consider and enhance the experience when a person is experiencing a mental health crisis in relation to emergency care |
| Access to services | Improved specialists services | <ul style="list-style-type: none"> • Review and develop specialist services across the mental health system |

| | | |
|--|---|--|
| | Better mental health care and treatment in primary care | <ul style="list-style-type: none"> • Create opportunities for training of GPs on general and specialist mental health and CAMHS |
| Staff/Workforce | Help all staff to work more effectively | <ul style="list-style-type: none"> • Create systems and procedures that reduces bureaucracy and helps staff deliver effective services |
| | Encourage local initiatives and improve staff morale | <ul style="list-style-type: none"> • Create a system that encourages local initiatives and improves staff morale and helps them feel more resilient, supported and respected |
| | Stronger mental health workforce | <ul style="list-style-type: none"> • Create a stronger and more resilient mental health workforce |
| Structures, evidence and commissioning | Enhance government structures | <ul style="list-style-type: none"> • Enhance the governance structures in the mental health system |
| | Better evidence and better use of evidence | <ul style="list-style-type: none"> • Increase use of evidence and using the right evidence |
| | Improved commissioning | <ul style="list-style-type: none"> • Create structures for more regional consistency in commissioning within the commissioning framework |
| | New ways of working and technology | <ul style="list-style-type: none"> • Consider new innovative ways of working • Understand where the pressures on the system are and how the community and voluntary sector can help relieve such pressures |

The development of a Mental Health Strategy will be a key step in ensuring people with mental health problems can access the appropriate services at the right time. The focus on co-production is timely to enable stakeholders, service users and staff to shape the development and improvement of services which increases the likelihood of better outcomes for people with mental health problems.

2.1.3 Supported accommodation review

The Department for Work and Pensions in conjunction with the Department for Communities and Local Government commissioned a review of supported accommodation to identify the scale, scope and cost of the supported accommodation sector.

This review identified that there are approximately 651,500 supported accommodation units across Great Britain and that the majority of these units are for older people and are provided by housing associations. The estimated cost of the supporting housing sector that is covered by housing benefit

across Great Britain is approximately £4.12 billion which equates to 17% of total housing benefit spend.

There were a number of shortcomings highlighted in this review of supported accommodation which then provided the following recommendations to ensure sustainability of the supported housing sector;

- Defining supported housing with a focus on service users as opposed to housing model and provider type
- Providing a stable funding system for housing and support costs that enables commissioners to strategically plan
- Local partnerships coordinating funding, strategy and delivery of supported housing alongside the integration of health and social care
- Consistency in the approach to regulating supported housing, monitoring quality and value for money
- Planning and communication of the transition process to any new funding system

Although this review does not provide guidance on physical design features for supported housing, the recommendations from this review could have implications for the planning and design of accommodation for service users.

2.1.4 Supporting People: A New Policy and Funding Framework for Support Services

The Supporting People programme was proposed by the government in 2008 to transfer expenditure on housing support services into a single budget that would be administered by Housing, Social Services and Probation. In order to combine the separate funding streams of housing support services and housing benefit, a Transitional Housing Benefit scheme would be introduced. The Supporting People programme was developed in response to vulnerable people wishing to live more independent lives and the necessary support required for this involved a new flexible approach to meet their needs and enhance their quality of life and was officially implemented across the UK in April 2003.

As the Supporting People programme was developed in England, implementation in Northern Ireland was not straightforward as it involved joined up thinking across a number of government departments including the Department for Social Development, Department of Health, Social Services and Public Safety, Probation Board and the Housing Executive. Three main strategic documents were used to inform the Supporting People programme in NI; the Northern Ireland Housing Executive (NIHE) Homelessness Strategy; the Community Care Agenda and the Probation

Board Northern Ireland Accommodation Strategy. Each of these strategies identified the need for services that enable population groups with specific needs to remain or be reintegrated back into the community. In Northern Ireland, the Supporting People programme provides funding for NIHE, housing associations, Health and Social Care Trusts and third sector organisations to provide housing-related support services to vulnerable people living in temporary and permanent accommodation. The main aims for the Supporting People programme NI included;

- Achieving a better quality of life for vulnerable people to live independently whilst maintaining their tenancies
- Providing housing support services to prevent hospitalisation, institutional care or homelessness
- Helping the transition to independent living for those leaving an institutionalised environment

The intention of the Supporting People programme was to provide an opportunity for vulnerable people (including people with mental health problems and intellectual disabilities) to have greater independence and thereby increase their quality of life. Part of this involved moving people with mental health problems and intellectual disabilities on from hospital settings and specialist treatment units and reintegrating them into the community.

2.1.5 Statistics, perceptions and the role of the supporting people programme

This review was commissioned by NIHE to assess the resettlement of people with learning disabilities in Northern Ireland and the extent to which this population had moved from long-stay inpatient facilities back into the community. The resettlement process began in the late 1970s, however progress in Northern Ireland was slow especially in comparison to Great Britain. In 1997, the Department of Health, Social Services and Public Safety (DHSSPS) stated that all patients in long-stay hospitals should be resettled into the community by 2002. Despite this target, by 2002 only 48% of patients had been resettled. Renewed targets were set for the 2002-2009 period, however these goals were not also reached and were below target numbers by more than 25%. A further target was set for the resettlement of all long-stay patients by 2011, which was also not met. There are a number of reasons set out by the Bamford review as to why the resettlement process was slower than initially intended including; insufficient funding for other types of provision, lack of robust implementation mechanisms to hold departments and agencies to account, an ongoing perception that the needs of people with learning disabilities could be met by health and social services and a lack of involvement of people with learning disabilities and carers in decision making about the services they want to receive.

By 2012, over 1400 people with intellectual disabilities remained as hospital inpatients (3.5% of the intellectual disability population in NI), over 1000 of those were inpatients at Muckamore Hospital and the average length of stay was over 6 years. More effective planning and coordination across government departments led to more progress with resettlement after 2012 with a focus on enabling people to live as independently as possible with different types of support tailored to their needs.

The lessons learned from the resettlement programme in England, Scotland and Wales were used to produce recommendations that might benefit the process in Northern Ireland including;

- Reconnect people to their families and communities and support them to have relationships in their lives
- Link hospital closure with self-directed support
- Attach funding and support to individuals
- Work with care providers to develop Individual Service Funds
- Leave behind the belief that learning-disabled people need institutions and do not build specialised houses
- Invest in leadership and vision
- Work alongside people with learning disabilities, families and staff, sharing the planning and process of move on
- Northern Ireland has greater command and control potential because of its government structure so this should be used to its advantage in closing institutions. Northern Ireland has the advantage of dealing with segregated communities and can bring this knowledge and experience to avoid the segregation of people with learning disabilities

2.1.6 The Bamford Review of Mental Health and Learning Disability

The Bamford Review was commissioned by DHSSPS to provide an independent review of legislation, policy and service provision for people with mental health problems and intellectual disabilities. Overall, the review consisted of ten reports and concluded that people with intellectual disabilities experience a number of inequalities in comparison to the general population in Northern Ireland. Thus, the review set out a vision for people with intellectual disabilities to be presented with the same opportunities as peers without intellectual disabilities including being integrated within their community. The vision consisted of five themes; citizenship; social inclusion; empowerment; working together and individual support.

One of the key themes of the Bamford review was supporting people to lead independent lives which includes active participation in the community and being able to engage in meaningful activities. Therefore a recommendation from the Bamford review was to promote social inclusion for people with learning disabilities and mental health problems. The review also called for a new impetus to resettle people with mental ill health and learning disabilities who had remained unnecessarily in inpatient facilities into the community. This also led to a focus on ensuring patients that had recent admissions to hospital are discharged back into the community as soon as their assessment and treatment is complete. One of the objectives of the Bamford review was to resettle 200 long-stay learning disability patients who no longer required hospital treatment into the community and to complete this resettlement process by 2015. The learning disability resettlement programme in NI depended on the availability of a number of different models of housing, care and support. The Bamford review and policy statements from DHSSPS and Department for Communities (DfC) emphasised the role of supported housing in promoting independence for people with learning disabilities.

The resettlement of people from inpatient facilities into the community puts a renewed emphasis on supported living facilities; the Bamford review identified that many of the residential services that were created early in the resettlement programme were institutional in character and had physical design features that were akin to a hospital setting. The review, therefore, produced a series of recommendations to guide how people were resettled into the community (Table 3).

Table 3 Adapted from the Bamford Review – Equal Lives Recommendations

| | |
|-------------------------|---|
| Recommendation 1 | By June 2011, all people with a learning disability living in a hospital should be relocated into the community |
| Recommendation 2 | All commissioners should ensure that they have resourced and implemented arrangements to provide emergency support and accommodation for people with a learning disability |
| Recommendation 3 | All housing with support provision for people with a learning disability should be for no more than 5 individuals with a learning disability |
| Recommendation 4 | By January 2013 all accommodation for people with a learning disability under 60 years of age should be for no more than 5 people |
| Recommendation 5 | An additional 100 supported living places per year for the next 15 years should be developed to enable people to move from family care without being placed in inappropriate settings |

| | |
|--------------------------|--|
| Recommendation 6 | The Department for Social Development and the Department of Health, Social Services and Public Safety should develop clear assessments of future housing needs for people with a learning disability |
| Recommendation 7 | Housing planners should accumulate and disseminate detailed knowledge on the range of assistive technology that is available to enrich the capacity of people with a learning disability to lead more independent lives in the community |
| Recommendation 8 | A strategy should be developed by the Department for Social Development to increase opportunities for people with a learning disability to own their own homes where appropriate |
| Recommendation 9 | Procedures and criteria for applying for Disabled Facilities Grants should be revised to tackle inconsistencies, reduce bureaucracy and reduce the cost to carers |
| Recommendation 10 | Department for Social Development and the NI Housing Executive should establish mechanisms to ensure the increased use of floating support |

Studies consistently show that living in smaller groups has better outcomes; that challenging behaviour is the result of living in institutional environments; and that being a part of and belonging to a community contribute to enhanced quality of life, thus it is timely to further investigate the physical design of supported accommodation.

It is evident that much progress has been made in service provision for people with mental health problems and intellectual disabilities, however the Bamford review paints a complicated picture of services with a long process of resettling these populations from hospital settings back into the community which involves many challenges across a number of government departments.

2.1.7 Transforming your care

Transforming your care was conducted in 2011 to review the provision of Health and Social Care in Northern Ireland. The review aimed to assess health and social care services, examine the quality and accessibility of services, the extent to which the needs of patients, carers and communities are being met and produce recommendations for improvement of services. The review takes into account some of the pressures facing the Health and Social Care sector in Northern Ireland in the coming years including; an ageing population, increasing numbers of people with chronic diseases such as hypertension diabetes and obesity; keeping up to date with changes in medical practices and

expectations of the public; and bridging the ever widening gap between service provision and demand.

The review identified specific areas for improvement via public survey completed by 673 respondents, 91% of whom work for an organisation providing HSC services; one of the areas that was highlighted was quality care for specific groups of the population which included people with mental health problems and people with learning disabilities. The disparity in service provision for the general population and specific groups is clear with 93% of respondents indicated that they felt improvement was required for quality of care for people with mental health problems whilst 43% felt that a lot of improvement was required. Similarly, for people with learning disabilities, 70% of respondents felt that improvement was required whilst 30% felt a lot of improvement was required.

Northern Ireland has a higher prevalence of mental health problems than other parts of the UK with factors such as persistent levels of deprivation in some communities in NI and the legacy of the troubles contributing to this.

Additional to the ending of institutionalisation and reintegration of people with mental health problems into the community, the Transforming Your Care review identified 5 key recommendations for the improvement of services for mental health service users and assessing the impact of these on quality of life;

1. Promoting mental health and wellbeing
2. Establishing a programme of early intervention to promote mental wellbeing
3. Clearer information on mental health services to service users and their families making use of modern technology resources
4. An evidence-based pathway through the four step model provided across the region
5. A consistent pathway for urgent mental health care including how people in crisis contact services, triage and facilities in emergency departments

The review also identified 9 key recommendations for the improvement of care for people with intellectual disabilities;

1. Integration of early years support for children with a learning disability
2. Development of enhanced health services
3. Support from Integrate Care Partnerships to improve awareness of the needs of people with a learning disability
4. Better planning for dental services
5. Development of a diverse range of age-appropriate day support and respite services

6. Advocacy and support for individuals and carers to have greater financial control in the organisation of services
7. Development of information resources for people with a learning disability to support access to required services
8. Advocacy and support for people with a learning disability including peer and independent advocacy
9. Closing of long-stay institutions and completion of the resettlement process by 2015

It is evident that the Transforming Your Care review identified areas for improvement in service provision for people with mental health problems and intellectual disabilities. Despite these key recommendations, there remain some challenges in provision of quality care for these population groups.

2.1.8 Systems, not structures: Changing Health and Social Care

An expert panel was assembled in 2016 to produce the Systems, not Structures: Changing Health and Social Care report (often referred to as the Bengoa report). The aim of the report was to address four key areas; to produce principles for underpinning the reconfiguration of health and social care services; to support and lead debate around these principles; to develop a model for future configuration of health and social care and to identify the benefits in relation to health outcomes that will be derived from the new model.

As is consistent with other reports on Health and Social Care in Northern Ireland, the Bengoa report identified the existence of a number of health inequalities particularly between the most and least deprived areas. It is concerning that the gap between most and least deprived areas persists considering 40% of health outcomes are related to socio-economic factors including education, employment, social support and community safety.

Mental health services continue to face pressures in Northern Ireland that are not seen in other parts of the UK. A review of Health and Social Care funding needs in Northern Ireland (Appleby, 2011) found that mental health needs in Northern Ireland were estimated to be almost 44% higher than in England.

The expert panel made a series of 14 recommendations for change within the Health and Social Care system in Northern Ireland. One of the key recommendations from the Bengoa report focuses on targeting mental health. The report recommended the implementation of a new model to replace the multifaceted system of mental health referrals to a single point of contact. The model involves the implementation of a rapid assessment interface and discharge service which comprises a

multidisciplinary mental health team based in an acute hospital setting. This was developed in response to the link between mental and physical health and aiming to achieve better health outcomes by recognising the relationship between physical ill health and underlying mental health problems. The aim of this service is to provide rapid, timely and high quality interventions to promote the recovery of patients admitted to hospital.

2.1.9 Health and Wellbeing 2026

The Health and Wellbeing 2026 report, published in 2016, builds on the work of the Bengoa report which identified challenges within the existing Health and Social Care system in Northern Ireland. Health and Wellbeing 2026 sets out a ten year action plan to address the challenges identified and with the overall goal of achieving an improvement in the health of people in NI, improvement in quality and experience of care, ensuring the sustainability of services and supporting and empowering staff. The report highlights that the Health and Social Care system, in its current format, cannot meet the needs of the population and that previous attempts to transform the whole system have not been on the scale or with the pace required to meet the evolving health needs of people. In particular, challenges relating to organisational barriers, staffing, the changing needs of an ageing population and persistent health inequalities.

One of the most prominent health inequalities is in relation to mental health. It is well established that low socio-economic status is associated with higher rates of mental health problems. This is also true in Northern Ireland with 30% of people from low socio-economic status in the most deprived areas experiencing a mental health problem compared with only 15% of people from the least deprived areas. The most deprived areas in Northern Ireland also have the highest rates of suicide. Health and Wellbeing 2026 sets out a commitment to better provision of specialist mental health services and expansion of community services and services that are better equipped to address the trauma of the past which is often linked to the high rates of mental health problems in NI.

A core focus of the Health and Wellbeing 2026 plan is co-production to empower service users and health and social care staff to aid in developing a more effective system, expanding specific care pathways and services and increasing self-management and choice. The co-production element of this strategy differentiates it from the other strategies. Co-production can be defined as the involvement of stakeholders in the design, management, delivery and evaluation of an intervention (Osborne et al., 2016). Recently, the NICE guidelines have highlighted the importance of co-production in developing interventions to ensure acceptability, sustainability and a coherent evidence base. Furthermore, Hawkins et al. (2017) stated that co-production with stakeholders harnesses their expertise and maximises the acceptability of the intervention during the

development process. Thus, co-production could be a crucial factor in identifying the gaps in the Health and Social Care system, making meaningful changes and reasonable adjustments to services and enabling service users to be responsible for their own health.

2.1.10 Conclusion

Overall, it is clear that there have been many policies and reviews that have sought to highlight health inequalities, identify challenges and produce recommendations for change within the Health and Social Care system in Northern Ireland and especially in relation to vulnerable populations including people with mental health problems and intellectual disabilities. The focus on reintegrating people into the community has put pressure on community services and supported accommodation settings which often seem inadequately equipped to deliver quality care tailored to the needs of individuals. Due to the prevalence of people with mental health problems and intellectual disabilities residing in supported housing, the health inequalities they suffer and the evident links between physical design and health outcomes, it is appropriate to further investigate the physical design of supported accommodation and the impact this could have on physical and mental health of service users.

3 Physical design guidelines

There are a number of design guidelines (Table 4) that aim to provide a checklist of physical design features that should be included when planning and building homes (including supported accommodation) that allow them to be adaptable and functional over time, as a person's needs change. The following sections will review some of the key physical design guides that aim to ensure housing is adequate to facilitate the needs of different population groups.

Table 4 Physical design guidelines

| Guideline | Year of publication | Author/s |
|--|----------------------------|---|
| Lifetime Homes Standards | 1991 | Joseph Rowntree Habinteg Housing Association |
| Department for Communities Design Guide | 2009 | Housing Association |
| Autism Planning and Design Standards | 2017/18 | The Ohio State University Knowlton School of Architecture |
| Autism ASPECTSS Design Index | 2003 | Dr Magda Mostafa |
| National Autistic Society Building Design Factors | 2018 | National Autistic Society |

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|---|------|--|
| Living in the community – Housing Design for Adults with Autism | 2010 | Andrew Brand The Kingwood Trust Royal College of Art Helen Hamlyn Centre |
| A Guide for Assisted Living | 2011 | Royal Institute of British Architects |

3.1 Lifetime homes standards

The Lifetime homes standards were initially developed between the Helen Hamlyn Foundation and Habinteg Housing Association in the late 1980s. The Helen Hamlyn Foundation focused on the design requirements of an ageing population whilst Habinteg Housing Association focused on the housing needs of disabled people. Both organisations approached the Joseph Rowntree Foundation with the aim of developing a list of design features that would create accessible, usable and adaptable homes for disabled people not only focusing on technical criteria but also on cost, implementation and regulation. The design criteria that had been developed were then worked into house plans by an architect, Edwin Trotter, who had significant experience of designing inclusive homes and neighbourhoods.

The diverse nature of people and their individual needs means that it is inappropriate and undesirable to suggest that there is an ‘ideal’ home, however there is consensus that the home should enable people to maintain a good quality of life and be capable of supporting people if and when their care needs develop (Bevan and Croucher, 2011; Pannell et al., 2012).

The overarching aim of the lifetime homes standards (2010) is to guide the building of homes that are suitable throughout the life course and catering for any eventuality through maximising utility, independence and quality of life without comprising on aesthetics or cost. The standards contain 16 criteria that should be implicit in good housing design and are based on five overarching themes including; inclusivity, accessibility, adaptability, sustainability and good value. These principles underpin the set of 16 criteria. The 16 criteria includes design features such as; circulation space, internal doorways and hallways, bathrooms and entrance level living space. A brief overview of the criteria and a description of each criterion is contained in table 5, the lifetime homes design standards provide more specific guidance including exact measurements for each feature for use by planners and builders.

The use of the lifetime homes standards has become policy in many parts of the UK. The Greater London Authority has adhered to the lifetime homes standards for new homes in England since

2004. In Wales, the Welsh Assembly require the lifetime homes standards in their funded developments and this is also the case for the Northern Ireland Housing Executive.

Table 5 Lifetime Homes 16 design criteria

| Criterion | Description |
|------------------------------------|---|
| Car parking width | Private car parking spaces should be a minimum of 3300mm wide or capable of being extended to this width |
| Approach to dwelling from parking | Car parking should be close to the home and the footpath should be level or gently sloping with no steps |
| Approach to all entrances | Footpaths approaching the home should be level or gently sloping with no steps |
| Entrances | Entrances should be lit, have level access with no steps and the main entrance should be covered to provide weather protection |
| Communal stairs and lifts | Communal stairs should not be steep and have handrails at appropriate heights and extending beyond the top and bottom step. If a lift is provided, its controls should be reachable by everyone and its internal floor area should be no smaller than 1100mm x 1400mm |
| Internal doorways and hallways | The width of all doorways and their approaches should be adequate for a wheelchair user to approach the doorway, open the door and pass through it |
| Circulation space | Living and dining areas should be capable of sufficient clear floor space to enable a wheelchair user to turn around. Other rooms should have sufficient space for a wheelchair user to circulate and approach essential facilities |
| Entrance level living space | A living room or space should be on the same level as the entrance into the dwelling |
| Convenient bed space | In homes with more than one storey, there should be space on the entrance level that could be used as a convenient ground floor bed space. This does not have to be a bedroom – it could be a corner of the living room that could be screened from the rest of the room or possibly conversion of a second reception room into a bedroom. This arrangement could cover a temporary situation |
| Accessible WC and potential shower | All homes should have a wheelchair accessible WC on the entrance level and drainage available for an accessible shower if required |
| Bathroom walls | Bathroom and cloakroom walls strong enough to support grab rail and other fixings if these are required |

| | |
|---|---|
| Stairs and potential for stair lift and future through floor lift | Stairs in a house that have adequate width to enable convenient use of a stair lift if this becomes required and an invisible 'knock out panel' somewhere in the first floor construction that could be removed at some point in the future to allow a through floor lift to pass through |
| Getting between bedroom and bathroom – potential hoist | A short distance and a simple route between a main bedroom and the bathroom |
| Bathroom layout | A bathroom with some space either in front of or beside its facilities so that people less agile including those using a wheelchair have extra room to help them move around and approach the facilities |
| Windows | Windows with handles not too high so that they can be opened by those with limited reach and a window in a living room with a windowsill than enables a seated person to have a view to the outside |
| Sockets and controls | Sockets, switches and controls used on a daily basis by the household should be located at heights that are not too high or too low to be reached comfortably by any potential occupant of the dwelling |

Although the lifetime homes standards provide guidance to architects, builders and local authorities, there are many limitations to these standards. The standards only provide guidance on the structure of the home and therefore do not contain any requirement for design features that are appropriate for those with any type of intellectual disability or sensory impairment. The standards also state that certain features do not have to be in place in the initial building phase but must allow future adaptation such as there is no requirement for an accessible shower however drainage must be provided for a future accessible shower. Despite the apparent adaptability of homes designed under the lifetime homes standards, these future adaptations will incur additional costs, highlighting the need to consider these during the initial design phase to enhance cost-effectiveness. The lifetime homes standards acknowledge their limitations and state that these guidelines are not the whole solution for designing buildings that are suitable for both those with and without disabilities and that there are further policies required to aid in the development of homes that are suitable for specific population groups.

3.2 Department for Communities Design Guide

The Department for Communities (DfC) provide guidance on design standards for supported housing known as the Housing Association (HA) guide. The guide is used as a tool by the DfC to deliver its

regulatory responsibilities and ensure equitable service provision and comprises 5 aspects including; development, finance, procurement, governance and housing management. Within the development section of the guidance, there are specific design standards for supported accommodation. The guide states that supported housing may be provided in the following ways; 1) self-contained units, 2) self-contained units with common room and/or associated communal facilities, 3) shared housing units or 4) shared housing units with common room and/or associated communal facilities.

3.2.1 Self-contained housing units

This guide states that the minimum standards for self-contained supported housing is that it must contain a cooker, refrigerator and a washing machine.

Additional guidance is provided for self-contained units with common rooms which include providing a heated and furnished space with a conveniently located wheelchair accessible WC, suitable furniture and soft furnishings, an adjacent chair store and an adjacent kitchen with sink and hot water facility.

The guidelines for associated communal facilities include laundry rooms, guest rooms, emergency alarm systems, offices and wheelchair accessibility.

3.2.2 Shared housing units

Shared supported housing units are subject to additional planning and accommodation requirements as they are classed as houses in multiple occupation (HMO). Design standards for HMOs are set out by the Northern Ireland Housing Executive (NIHE) in the Houses in Multiple Occupation Act (2016). Part 2, section 13 of the HMO Act (2016) refers to the suitability of living accommodation for multiple occupation and provides guidance on the minimum standards required including;

- Natural and artificial lighting
- Ventilation
- Supply of water, gas, electricity, sanitation, space heating and heating water
- Personal washing facilities
- Facilities for storage, preparation and provision of food
- Any requirements about the display of signs relating to fire exits or other matters
- Interior and exterior decoration
- Safety equipment

- Disposal of refuse

Furthermore, part 4, chapter 1 of the HMO Act (2016) provides guidance on the size and space required in rooms, including the number of people permitted to sleep in the same room dependent upon the floor space (Table 6).

Table 6 Number of people permitted to sleep per room according to floor space

| Rooms which are a bedroom only | Floor area of room (m²) | Permitted number of people per room |
|---|---|---|
| | Less than 6.5m ² | 0 |
| | 6.5m ² or more but less than 11m ² | 1 |
| | 11m ² or more but less than 15m ² | 2 |
| | 15m ² or more but less than 19.5m ² | 3 |
| | 19.5m ² or more | 4 plus one additional person for each 4.5m ² |
| | | |
| Rooms which are a bedroom and living room | Less than 10m ² | 0 |
| | 10m ² or more but less than 15m ² | 1 |
| | 15m ² or more but less than 19.5m ² | 2 |
| | 19.5m ² or more | 3 plus one additional person for each 4.5m ² |
| Rooms which are a bedroom, living room and kitchen | Less than 13m ² | 0 |
| | 13m ² or more but less than 20.5m ² | 1 |
| | 20.5m ² or more | 2 plus one additional person for each 4.5m ² |

3.3 Autism planning and design standards

People with autism spectrum disorder (ASD) are more likely to experience stress, anxiety and sensory overload (Hirvikoski and Blomqvist, 2014; Sizoo and Kuiper, 2017). Furthermore, many autistic people are prone to sensory issues which can affect one or more of the senses and impact on how they experience the environment (National Autistic Society, 2018). Despite the evident impact of the environment on people with autism, there is a lack of consideration given to the reasonable adjustments to the architectural environment for this population (Mostafa, 2014).

In response to this, the autism planning and design standards were developed. The autism planning and design standards is a comprehensive 183 page document which aims to address, in detail, all common infrastructures and how they could be adapted to accommodate people with autism. The

purpose of the autism planning and design standards is to inform the development of buildings and cities tailored to the needs of people with autism. The standards were informed and developed by a multi-disciplinary team of mental health professionals, architects, engineers, planners, landscapers, academics and other allied fields. The guidelines were intended for use as a planning practice toolkit for professional planners, landscape architects, civil engineers and urban designers when designing buildings and cities. The toolkit is structured around the Six Feelings Framework (Table 7) which propose that these six feelings contribute to the overall feeling of inclusion for people with autism. The feelings included in this framework, although desirable for neurotypical people, they are crucial for people with autism and planning through the lens of autism can be of benefit to all of the population.

Table 7 The Six Feelings Framework

| Feeling | Design Feature |
|----------------|--|
| Connected | Easily reached, entered and/or leading to destinations |
| Free | Offer relative autonomy and the desired spectrum of independence |
| Clear | Make sense and do not confuse |
| Private | Offer boundaries and provide retreat |
| Safe | Diminish the risk of being injured |
| Calm | Mitigate physical sensory issues associated with autism |

It is clear that the autism planning and design standards document presents research informed adaptations to the physical design of buildings and cities with a focus on infrastructure. A limitation of these standards is that they do not provide prescriptive guidance on interior physical design of buildings which may also impact upon people with autism. As this is the first iteration of these standards, future versions may consider this aspect.

3.4 The Autism ASPECTSS design index

The Autism ASPECTSS design index is an evidence-based guide for the design of environments for people with ASD, developed by Dr Magda Mostafa (architect and researcher) in response to the dearth of facilitative built environments for individuals with ASD. The index is intended as a tool to not only guide design but also to be used as an assessment tool to score the autism appropriateness of a built environment. The design index comprises seven criteria including; acoustics, spatial sequencing, escape space, compartmentalization, transitions, sensory zoning and safety. These criteria have been tested in a school environment with promising results (Mostafa, 2014) and it is

proposed that the criteria may be applied in other contexts such as supported living settings and respite facilities.

3.4.1 Acoustics

The acoustics criterion states that the acoustical environment should be controlled to minimise background noise, echo and reverberation. The level of acoustical control should vary in order to allow an individual to move towards a typical environment.

3.4.2 Spatial sequencing

Spatial sequencing is concerned with spaces being organised in a logical order and seamless flow from activity to the next via one-way circulation with minimal disruption and distraction. This caters for an individual with ASD's propensity for routine and predictability.

3.4.3 Escape space

The objective of escape space is to provide retreat from over-stimulation experience by people with ASD as a result of their environment. Such areas should be partitioned or away from other spaces and should have the ability to be customised by each individual user to cater for their necessary sensory input.

3.4.4 Compartmentalization

Compartmentalization proposes that each space has a clearly defined function in order to limit the sensory environment. The separation between each space may be as subtle as different furniture arrangement, different flooring or variance in lighting. This provides sensory cues to the user in each space.

3.4.5 Transitions

Transition zones help individuals with ASD move from one stimulus to the next by allowing them to recalibrate their senses. These transition spaces may be anything from a small design feature that indicates a shift to a full sensory room that allows sensory recalibration before transitioning between areas of high stimulus and low stimulus.

3.4.6 Sensory zoning

The organisation of sensory zones should be in accordance with their sensory quality. This involves grouping spaces according to whether they are high stimulus or low stimulus with transition zones in between to denote a shift from one to the other.

3.4.7 Safety

It is important to ensure the safety of people with ASD when designing environments, especially for those who may have an altered sense of their environment.

3.5 National Autistic Society – Building design factors

The National Autistic Society (2018) provides prescriptive guidance on the design or adaptation of buildings for use by individuals with ASD, specifically those in community settings. The aim of these guidelines is to enhance wellbeing and ensure safety of autistic service users. The guidance includes factors such as general design considerations; plumbing; electrical; glazing and windows; carpentry; flooring and floor covering; grounds and fencing (Table 8).

Table 8 National Autistic Society – building design factors

| Design aspect | Criteria |
|-----------------------------|---|
| General design | <ul style="list-style-type: none"> • Large single pane windows and large areas of glass in glazed doors should be avoided for safety • Key locks should be provided to all external doors • External and ground floor doors and corridors must be wide enough for wheelchair access • Minimum of one ground floor room should be available for use as a bedroom |
| Plumbing | <ul style="list-style-type: none"> • Box-in WC cistern or fit cistern with lockable lid • Install floor drains in bathrooms • Provide one rapid entry communal bathroom • Replace or avoid plastic baths |
| Electrical | <ul style="list-style-type: none"> • Fit bathroom and WC light switches adjacent to the door on the outside of the room and avoid ceiling-mounted pull switches • Fit main switchboard with lockable cupboard • Fit a discreet key switch isolator to power sockets in each bedroom |
| Glazing and windows | <ul style="list-style-type: none"> • Fit shatterproof, laminated or toughened safety glass to all windows and glazed doors • Limit opening of all windows above ground floor level • Provide lockable windows on the ground floor |
| Carpentry | <ul style="list-style-type: none"> • Reinforce door frames to above the domestic standard • Fix partition walls to floor and ceiling joists • Provide doorsteps and skirting behind all doors that open against a wall |
| Flooring and floor covering | <ul style="list-style-type: none"> • Bathroom and kitchen floors should be covered in a non-slip, heavy duty vinolay • Floors should be covered in single widths of carpet to avoid some residents' tendency to pick at the carpet join • Floor covering in dining areas should be in well-sealed Woodblock |
| Grounds and fencing | <ul style="list-style-type: none"> • The body of the building should provide an enclosed area and be linked to a discreet side fencing to the perimeter |

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| | <ul style="list-style-type: none"> • Boundary fencing should be a minimum of 1.75 metres high with the effect softened by hedges and trees • The grounds should permit the development of a private garden area allowing residents to choose privacy from observation by others whilst remaining within the safety of the grounds |
|--|---|

Furthermore, the National Autistic Society (2018) provides guidance on soft furnishings and general ambiance for schools, homes and services. These guidelines include: colour and patterns; lighting; curtains and blinds; noise; smells; safety and sensory rooms.

Although this is not policy and is focused around safety of service users as opposed to health outcomes, it does provide detailed guidance on the architectural requirements for individuals with ASD and the necessary adaptations to tailor an environment to their specific needs. Despite the extensive guidance provided by the National Autistic Society, there is no information on the evidence base for these design factors.

3.6 A Guide for Assisted Living

The Guide for Assisted Living (2011) acknowledges that the physical and built environment and the way that it is designed and adapted to meet the needs of people with different capabilities throughout their life is a key factor in these people remaining in their own home for as long as possible. The guide for assisted living is based on: 1) Lifetime homes principles; 2) best practice in the design of smart homes; 3) evolving assisted living concepts arising from recent developments in technology and associated services; 4) suggested areas for future research. The guide also brings together three approaches to design; the Building for Life tool, Manchester City Council guide for access; London Housing Design Guide.

Table 9 Guidance on accessible residential buildings and their surrounding environments – key points

| Design feature | Guidance |
|------------------|--|
| Adaptable design | <ul style="list-style-type: none"> • Dwellings required to be accessible are intended to be used by anyone and not held open exclusively for people with specific needs and requirements • Has the potential for all the accessible features that a fixed accessible dwelling has but allows some items to be omitted or concealed until needed • Wide doors, level access, controls and switch locations and other accessible features must be built in • Adaptable design does not mean building inaccessible dwellings on the promise that they will be removed or remodelled for accessibility upon request • Adaptable features are those that can be adjusted in a short time without involving structural or finished material changes |

| | |
|--------------------------------|---|
| A Home for Life | <ul style="list-style-type: none"> • A design for a new residential development should incorporate a simple and clear identity and be easy for the residents and visitors to understand a route within the site • Wayfinding within the residential setting can be enhanced through the use of simple key indicators or tools such as focal points, clear views and routes, lighting, colour and scents • Complicated winding site layouts can encourage vehicle movement and discourage walking |
| Car parking | <ul style="list-style-type: none"> • Designated parking bays should be indicated via the use of contrasting markings in colour and luminance against the background • Parking bays designated to a particular property should be located as close as possible to the pedestrian routes or close to the dwelling entrance • Dropped kerbs are to be incorporated to assist disabled people transferring from vehicle to wheelchair onto the pavement • A safe drop off point should be considered close to the main entrance |
| On-street parking | <ul style="list-style-type: none"> • On street parking bays must be 4200mm x 3600mm when parallel to the kerb • Designated disabled parking bays should be clearly marked 'disabled' in addition to a sign with a Blue Badge disabled symbol |
| Off-street parking | <ul style="list-style-type: none"> • Disabled parking bays within covered car parks must be located to pedestrian routes |
| Internal surfaces and finishes | <ul style="list-style-type: none"> • A mixture of hard and soft surfaces should be considered • Deep pile or excessively grooved carpets should be avoided. Carpets should be shallow dense pile and floor coverings should be firmly fixed • Materials to floors, walls and furniture should avoid patterns and shapes which could disorientate residents • Contrasts in surface colours, material and luminance should be considered |
| Communication systems | <ul style="list-style-type: none"> • A visual alarm should be incorporated into alarm systems within lifts and toilets and all areas requiring emergency communication |
| Wayfinding | <ul style="list-style-type: none"> • Buildings designed with a logical layout can assist wayfinding for people with learning disabilities. • Colour can be used to signal where certain features can be located within a building e.g. walls within areas containing lifts, WCs could be painted a particular colour |
| Lighting | <ul style="list-style-type: none"> • Lighting systems can be used to accentuate interior colour, tone and texture • Entrance areas should be used as transition areas to enable people to adjust to changes in lighting levels from inside and outside • Use light colours for walls and ceilings as these help to reflect and diffuse light • The entrance to a dwelling should be lit artificially to the side or above the doorway |
| Acoustics | <ul style="list-style-type: none"> • For those with hearing impairments, background noise should be kept to a minimum • For those with visual impairments, noises can be helpful e.g. a bell to signal the arrival of a lift |
| Access routes | <ul style="list-style-type: none"> • Access routes should have firm, slip-resistant and reasonably smooth surface • Joints between paving surfaces and adjoining materials should be level between finishes |

| | |
|------------------------|--|
| | <ul style="list-style-type: none"> • The minimum width for main access routes in new developments should be 1800mm |
| Weather protection | <ul style="list-style-type: none"> • The main entrance should contain some form of weather protection, a canopy or recess allowing shelter for people prior to entering the building • An accessible level threshold must be provided at the building entrance |
| Access control systems | <ul style="list-style-type: none"> • Door entry systems should be located on the latch edge of the door either on the door face or on the adjacent wall. The activation pad should be positioned within 200mm of the door frame at a height of between 900mm and 1050mm from the finished floor level |
| Alarms | <ul style="list-style-type: none"> • Important that people with visual or hearing impairments can be alerted in case of emergency • Use of emergency alarms must be backed up by a suitable evacuation strategy for all occupants taking into account all disabilities |

The Guide for Assisted Living also provides further prescriptive guidance on access and space standards for dwellings. The full guide is available at

<https://www.housinglin.org.uk/assets/Resources/Housing/OtherOrganisation/AGuideforAssistedLiving.pdf>.

3.7 Living in the community – Housing Design for Adults with Autism

The Living in the community – housing design for adults with autism guide (2010) categorises physical design factors into four groups; growth and development; triggers; robustness and support tools. The design guide is subsequently further divided into five components that constitute a building project; 1) planning; 2) massing and layout; 3) mechanical and engineering; 4) furniture, fabric and finishes; 5) fixtures and fittings (Table 8). This guide also provides concept drawings to show how the components can be incorporated into housing design for adults with autism. The housing design for adults with autism guide acknowledges the design features presented are only intended to be indicative and that “meaningful design solutions can be best achieved by responding to the context of the building site and specific requirements of residents”.

Table 10 Housing design for adults with autism

| Design Aspect | Do | Consider | Beware of |
|---------------------------|--|--|--|
| Planning | <ul style="list-style-type: none"> • Get to know who you are designing for and understand their individual preferences • Give prospective residents choice of where they live or who they live with • Group together residents with similar needs, routines and lifestyles • Locate residential buildings close to established and stable neighbourhoods, access to public transport, shops and cafes, health services, education and leisure facilities, places of employment, pedestrian and cycle friendly routes | <ul style="list-style-type: none"> • Budgeting for post-occupancy changes which may be required to meet residents' needs • The appropriate number of residents within the context of the site and space available • Harmonising the scale and style of the building with neighbouring buildings to increase integration with the community • Specifying detached buildings to minimise transmission of noise and maximise personal space • Specifying single-storey buildings to negate footfall noise from above and risks associated with staircases • Locating residential accommodation in areas with good access to nature such as public parks especially if onsite outdoor space is constrained • How car parking will be provided for staff, visiting health professionals and family | <ul style="list-style-type: none"> • Having more than 8 people sharing a single residence • Locating residential buildings near roadways, railways, airports, commercial sites, other buildings that allow residents to be overlooked or to peer into other households, areas that may be affected by adverse environmental events, areas that may be impacted by long term town planning directives |
| Massing and layout | <ul style="list-style-type: none"> • Refer to the Care Homes for Younger Adults and Adults Placements National Minimum Standards and Lifetime Homes Standards for guidance on room size and fit out • Specify generous room sizes but of domestic scale and proportion. Larger spaces may be required as people with autism can be sensitive about the amount of personal space | <ul style="list-style-type: none"> • Specifying large communal rooms with high ceilings to allow for large movements such as jumping and pacing and providing smaller enclosed spaces to which residents can withdraw when needed • Using form, material, light or colour to differentiate communal spaces from private spaces. | <ul style="list-style-type: none"> • Focusing on trying to get every detail of the building plan and layout correct as stipulated by various guidelines at the expense of creating a coherent and comfortable homelike environment |

| | | | |
|--|--|---|--|
| | <ul style="list-style-type: none"> • Organise building layout to help establish routines and aid understanding by specifying spaces according to their primary function • Provide clear visual access throughout the building • Separate high stimulus areas such as communal activity spaces from low stimulus areas to minimise transmission of noise • Provide more than one exit from communal spaces to give residents choice and help staff manage challenging behaviour • Provide smooth transition spaces between areas of activity to allow for sensory recalibration especially at entrances to the building or between high stimulus areas • Specify wide circulation spaces with passing bays or incidental spaces in corridors • Minimise blind corners so that residents can avoid unplanned social encounters • Co-locate activity spaces to reduce travel distances and distractions and to mimic typical domestic adjacencies • Position rooms to maximise natural daylight with bedrooms and breakfast spaces towards the east, activity spaces towards the south and increase views of natural features like a garden to enhance alertness and improve mood • Locate laundry facilities so that soiled articles and clothing do not have to be carried through dining or food preparation areas • Provide good access to outdoor spaces and sheltered outdoor spaces | <ul style="list-style-type: none"> • How colour, the position of furniture or lighting can be used to create comprehensible boundaries within a larger room rather than specifying multiple smaller rooms • Using curved walls along circulation spaces or avoiding corridors altogether by designing short connecting spaces so the building interior does not look institutional • Locating physical activity spaces in centrally visible locations in the building, to help increase awareness and use of these spaces • Employing features in circulation spaces that provide activities around which informal social exchange may take place • Separating toilets from bathrooms to aid understanding of these spaces and avoid misuse • Building in systems that allow the interior to be adjusted to the changing needs of residents such as residents wishing to cohabitate with a partner or losing mobility as they get older | |
|--|--|---|--|

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|---------------------------------------|---|--|--|
| | <ul style="list-style-type: none"> • Specify larger bathrooms to facilitate one-to-one assistance with personal hygiene • Provide sufficient space for staff to write, file and store records and a private space away from residents for them to rest and focus on tasks that need concentration | | |
| Mechanical and electrical | <ul style="list-style-type: none"> • Fit individual electrical circuit breakers for mains power supply in each room including bedrooms as well as for individual kitchen appliances • Fit integrated fire alarm and emergency lighting installations that have a domestic rather than institutional appearance • Specify ample plug sockets in all rooms to reduce the length of trailing power cables • Future-proof the building by incorporating new technologies such as alarm systems, digital or fibre optic communication systems • Conceal all pipework and toilet cisterns and fit an inspection chamber behind the toilet to make unblocking easier • Specify space heating systems that respond and settle quickly to the desired temperature • Regulate the temperature of water discharged at hand basins, bath and shower outlets in accordance with care home regulations | <ul style="list-style-type: none"> • Using a whole-house mechanical ventilation system to augment passive systems • Installing zonal heating systems to allow residents and staff greater control of the temperature in their immediate environment • Positioning space heating controls out of reach of residents as access can result in fixation and inappropriate behaviour • Fitting a pumped return system to the domestic hot water so that water is discharged immediately at the desired temperature • Fitting some plug sockets close to ceilings in bedrooms and activity spaces to minimise cable lengths to wall mounted equipment • Installing sensors and assistive technologies to reduce the need for physical monitoring | <ul style="list-style-type: none"> • Using interfaces with winking lights or beeping noises which may lead to excessive focused interests • Using traditional radiators or leaving hot water pipes exposed as residents may burn themselves on them. Instead use alternative space heating devices such as low-surface temperature radiators, under-floor heating or ceiling-mounted radiant panels • Using plastic faceplates for light switches and plug sockets as they can be more easily damaged than metal ones. Use aluminium or brushed steel faceplates to conceal screw heads |
| Furniture, fabric and finishes | <ul style="list-style-type: none"> • Use muted, matt and harmonious colour schemes in communal areas and consult residents on their colour preferences for private spaces | <ul style="list-style-type: none"> • Specifying normal home furnishings rather than special needs catalogue furniture which can look institutional. Where risks to residents and staff are probable, specify sturdy furniture with | <ul style="list-style-type: none"> • Using geometric or repeating patterns on surfaces as these can provoke excessive focused interest or new routines. Organic, non-repeating patterns such as natural wood grain can be preferable |

| | | | |
|-------------------------------------|--|--|--|
| | <ul style="list-style-type: none"> • Assess the visual and colour sensitivities of residents and add or remove colour accordingly using decorative objects, pictures and textiles • Use domestic, comfortable furnishings that are free of toxins and off-gassing chemicals • Use non-reflective materials, minimal detail and continuous and smooth surface transitions to minimise distraction • Arrange furniture so movement is not obstructed and thoroughfares are obvious. Provide some seating against partitions or walls as people with autism can have a fear of being approached from behind • Provide places to affix and integrate visual information such as pin boards or magnetic erase boards • Decorate kitchens, dining rooms, living rooms and activity spaces to clearly differentiate the spaces and indicate the appropriate activities for each room | <p>rounded edges and bite resistant, moisture-proof fabrics</p> <ul style="list-style-type: none"> • Using security hangers for pictures and Plexiglas instead of glass • Specifying some furniture that is easy to move such as rolling shelving units so residents can adjust their environment • Using colour contrast to highlight functional features • Using wall and ceiling fabric hangings or acoustic panels to reduce noise • Marking paths with light or colour giving spaces a clear visual identity and placing feature objects as landmarks to help residents orientate themselves | <ul style="list-style-type: none"> • Removing all stimulation from the environment. Think about how stimulation can be increased or reduced in the same space and provide a subtle degree of stimulation by thinking about materiality, light and shadow, acoustic effects and spatial experience |
| <p>Fixtures and fittings</p> | <ul style="list-style-type: none"> • Internal doors – install outward opening doors on communal use WCs and bathrooms with door-locking mechanisms that can be opened from outside in case of emergency. Fit lever door handles rather than doorknobs and specify bolt through connections. • Lighting – Maximise natural light through light shafts, skylights and clerestory windows. Provide independent control of lighting so residents and staff can adjust light levels. Fit non-flickering lighting such as electronic ballast fluorescent lamps. For more demanding environments install light fittings with bezels that sit flush to the wall. Recess down-light fittings to provide an unobtrusive appearance on the ceiling. • Windows – Use laminated or toughened safety glass for both inner and outer panels of windows and glazed doors. Consider using internal sandwiched glazing blinds to control privacy and the amount of natural light coming into the building if residents are likely to find curtains or shutters over stimulating or target them when agitated. Use electronic blinds if residents are likely to pull chords or handles. Install operable windows with constrained opening and locking features and robust window furniture. • Walls – Use traditional brick construction for internal walls clad with impact resistant plasterboard and skimmed with plaster. Consider enhancing the acoustic performance of the building by separating floors and walls, using suspended ceilings, sound absorption materials, cavities, sound resistant plasterboard or acoustic tiles. Use half walls and cut outs to increase visibility and awareness of what is happening in adjacent spaces. Use durable paints and wall coverings that can be easily cleaned. | | |

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| | <ul style="list-style-type: none">• Storage – Provide plenty of accessible, fixed storage to keep the building free of clutter. Consider building storage into architectural features such as under stair spaces or using it to divide a room. |
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3.8 UK Space Standards

In addition to the housing guidelines presented above, there also exists guidelines relating to space standards for new homes. The space standards for homes in the UK are the lowest in Europe (RIBA, 2011). RIBA found that the average floor area of a new home in the UK is 76sqm compared to 115.5sqm in the Netherlands and 137sqm in Denmark. In England, the Department for Communities and Local Government produced Nationally Described Space Standards (2015) that provide minimum space standards for UK homes however these are only guidelines, are not compulsory and are only applicable if councils adopt them as part of their local housing plan.

4 Conclusion

It is evident that the Health and Social care system and supported accommodation sector have been subject to radical changes in the last 30 years. Throughout this time, there has been development of a number of guidelines and policies for the planning, development and design of homes (including supported accommodation), however there is a dearth of evidence for guidance on physical design features tailored to the needs of people with mental health problems, intellectual disabilities and challenging behaviour. A major limitation of the work done to date is the lack of service user involvement in the consultation and design process which would increase the likelihood of successfully tailoring facilities to their needs. Although there some evidence of the use of physical design features to improve the health and wellbeing of patients in inpatient settings, there is a lack of evidence for this in supported accommodation settings. Therefore, further research should be conducted to synthesise the evidence base and identify the potentially important physical design aspects that should be tailored for specific service users to achieve better health outcomes.

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