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Ollscoil na hÉireann, Corcaigh

National University of Ireland, Cork



Appropriate Housing choices for a whole lifetime – how accessible are new housing proposals in Ireland?

Thesis presented by

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Doctor of Philosophy

University College Cork

School of Engineering and Architecture

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2024

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Declaration

“This is to certify that the work I am submitting is my own and has not been submitted for another degree, either at University College Cork or elsewhere. All external references and sources are clearly acknowledged and identified within the contents. I have read and understood the regulations of University College Cork concerning plagiarism and intellectual property.”

Kevin Busby
May 2024

Abstract

The availability of appropriate accessible housing options in Ireland, in the event of an immediate need, and to also future-proof one's living accommodation in later years is of paramount importance. The Irish Wheelchair Association (IWA) recommend that 90% of all new houses should be designed to lifetime adaptable criteria. [1] Their proposal, in part reflects the reality of an ageing population, living longer but experiencing frailty in old age.

> *"The Place Alliance Housing Audit (2020) found that three-quarters of new builds in England were 'mediocre' or 'poor'. Developers are not incentivised to build well-designed projects."* [2]

While there are some encouraging signs of contemporary small developments adopting Universal Design (UD) principles towards a new typology, the significant majority of recently completed housing schemes in Ireland reflect the reality of the above statement from the UK, regarding accessibility. Additionally, a large proportion of the existing housing stock is either unsuitable or too expensive to adapt to the needs of, not only older people to age-in-place, but to all those requiring extra space due to mobility issues.

Housing, as one aspect of the Irish built environment, affects and is affected by the decisions of a diverse variety of individuals and organisations, from the housing minister, in government through to the end-user, the resident. State bodies, legislators, advisory groups, developers, and designers all play their part in the process, each with their own priorities and expertise.

In the Centre for Excellence in Universal Design (CEUD), Ireland has an impressive grounding in research into UD, influenced by the ground-breaking work of Ron Mace in the 1980s. Recent publications mark significant steps in the understanding of what is required to help older people to age-in-place or to provide a new type of appropriate housing for all of Ireland's current and future population. This is very helpful instruction for architects, designers and educators, aiming to ensure an acceptable standard of accessibility in new housing design. Questions remain, however, namely: what aspects of current design proposals fall short of UD requirements and are CEUD recommendations being put into practice?

The methodology behind the research, informed by an initial study of existing suburban housing, developed into an analysis of a time and location-specific database of recent, new – as yet unbuilt - housing proposals. The designs are considered against a set of lifetime homes criteria given the following 2 scenarios:

1. a wheelchair user or person with significant mobility issues who is trying to buy a new house or has an immediate need to find a rental home to move into.
2. an elderly person, hospitalized after a fall who wishes to return to their new home.

The research findings suggest that only a small minority of new housing in Ireland is, at least functionally accessible. Recommendations with regard to policy, legislation, and education form part of the concluding discussion, with a specific emphasis on the professional development of architects and designers.

Key words: Accessibility, New housing

[1] retrieved from: https://www.iwa.ie/app/uploads/2021/06/IWA-Submission-UNCRPD-Draft-State-Report.pdf

[2] Design Council UK. Supporting the design of better places July 2020

Author's Introductory note:

An academic approach

Following a career in architectural practice in London and San Francisco, I have been lecturing in the Department of Architecture, in what is now MTU, for over 20 years. For the past 12 years, through my involvement in Year 1 Design Studio in Interior Architecture, student projects have focussed on an understanding of how the human body interacts with architectural space. Primed by studies in anthropometrics and ergonomics, Year 1 culminates in the design of an accessible apartment in an attempt to infuse Universal Design into the curriculum at an early stage in the student's career. Universal Design has also been promoted through my involvement and co-ordination in the undergraduate years of the architecture course in CCAE, a joint initiative between MTU and UCC which commenced in 2006. The age-friendly housing project that I jointly initiated in Year 2 has been particularly successful, winning a national award in 2018 in collaboration with Cork County Council. In both courses I have been encouraged and supported by my colleague and supervisor, Dr. Jim Harrison who introduced me to the work of Ron Mace and has generously shared his considerable knowledge and experience of Universal Design. The following research has been inspired by this teaching and co-operation and has taken a number of twists and turns through circumstance and chance over the past 6 years.

Growing awareness of disability issues

Barriers to inclusivity in the built environment affect many different users, some continuously and others on a more temporary basis. Disability comes in many forms and affects a wide-range of activities in daily life that such barriers impose. In 2014 I was introduced to the Belgian Architect, Hubert Froyen at a small event at the Centre for Excellence in Universal Design (CEUD) in Dublin. His presentation that day reinforced my ideas about how we teach and how we practice design. Rather than using a purely prescriptive approach, of laws and regulations, to design, he advocates an alternative which focusses …

> "On a radical **descriptive** approach and more particularly on the question (of) how contemporary Universal Design Patterns might improve communication between designers and users, user-experts included." Froyen H, Keynote UD2014, Sweden

Froyen proposes that people with permanent or long-time functional limitations could be described as 'lead users' who experience disabling situations in their everyday lives.

For inclusive design solutions to be effective it is necessary for the designer to attain, by research, relevant knowledge about a diversity of users at <u>all</u> stages of the design process. Such knowledge, through direct consultation and participation, must include an understanding of user-experts' specific needs and expectations, as well as how they perceive and experience the built environment.

An inter-disciplinary approach

When specifically considering the use of architectural space within and around our homes it is pertinent to focus on the needs of people with impaired physical mobility. For many years, lecturers in CCAE have been fortunate to work alongside our colleagues in the Occupational Therapy Department in UCC. Linda Horgan, in particular, has enhanced our understanding of the user experience of persons with disabilities through her simulation exercises and collaboration on conference papers. For one thing, these collaborations are probably the only experience that I, and most of the students have had, of people affected by a disability. They tend to remain invisible to general society as they are constrained by the inaccessibility of the built environment around them. A significant element of the work of occupational therapists is involved with home adaptations where they seek to improve the everyday lives of occupants who are subject to the limitations of the poor quality of the existing housing stock. This understanding of how we use and manoeuvre within and between specific spaces is particularly pertinent to older people in their attempts to age-in-place within their familiar home environment.

Insights from post-graduate modules

As a requirement of the PhD I had to complete a number of post-graduate modules offered by UCC. Between January and May 2019, I undertook the *Community Based Participatory Research* module PG6025. This involved working with Family Carers Ireland, meeting carers to listen to their remarkable stories and propose solutions to highlight their predicament. By this time I had started to formulate my ideas about the direction and methodology of my thesis. In general it would relate to the experience of the elderly living alone at home in suburbia and how compromised architectural spaces within and around the home affect the individual's well-being. current research suggests that the elderly confine themselves to ever-shrinking space within their home and their contact with their immediate neighbourhood diminishes. The well-being element was therefore how to counteract the potential for isolation and depression.

A possible methodology

It became clear that the appropriate way to research this topic would mean engaging in-person with individual people which requires a level of trust and mutual understanding. User (human) – centred design involves direct engagement and I was inspired by the approach of Graham Rowles, an urban geographer. His book, *Prisoners of Space*, published in 1978 recounted his research on the everyday lives of several elderly people who had lived in the same neighbourhood for over 50 years. I began to look for neighbourhoods in Cork which fitted the criteria and settled upon a particular suburb in the city, established in the mid-1960s. For several years I had been leading a small group of Year 4 dissertation students, discussing concepts of home and memory, introducing them to texts by de Botton, Pallasmaa and Proust.

2020 and a change of direction

In January 2020 I undertook my second Post Graduate module in UCC, led by Meta Newhouse, a visiting professor from the USA. PG7018 *Guerrilla Tactics in Research* involved radical techniques in highlighting research topics by using examples from the advertising industry. I had gained, after an exhaustive process, ethics approval from UCC (SREC log 2019-185, approved) and was preparing to meet my first participants, following some initial discussions with contacts online.

In mid-March 2020 Ireland went into pandemic lockdown and the over 60s were 'cocooned' from any personal interaction outside of their homes for an indefinite period.

I decided to return to my strengths and area of expertise (architecture) and to employ my contacts with the CEUD and part-time teaching colleagues operating at the 'coal-face'. Around this time I was contacted by Bernadette Egan, an architect and, also a wheelchair user, who was carrying out research on UD education in architecture schools. During our discussion she recounted her difficulties in finding accessible accommodation in Ireland. This prompted me to investigate the standards of accessibility in new housing proposals. Much of this information was in the public domain through the council planning portals online and I could use my architectural and teaching experience to analyse the data effectively.

The following chapters include papers and reports that touch upon this research journey, from analysis of older people's home experience, through to the findings on current proposals by architects and designers for new housing with regard to accessibility.

Some of the papers and reports are included in the appendices with an emphasis on design education.

Chapter One



Chapter One – Housing in Ireland

Note: this chapter contains an expanded and revised version of the author's paper delivered to the IFA 13th conference on ageing, in Brisbane 2016.

1.0 Ireland is currently experiencing a serious housing crisis, but political responses indicate only expedient rapid development as a solution, without reference to the form that such housing might take. Such short-term thinking, despite the lessons of the recent past, is of particular concern in relation to the provision of appropriate housing for an ageing population. Consequently there is a real danger of ill-considered physical planning and design, unrelated either to location or social need, leaving a legacy of unsuitable and restricting life-zone implications for future generations.

Ireland has made steps to develop 'age-friendly cities', based on the World Health Organisation (WHO) project, which suggests that there is an intention to embrace initiatives in, among other things, the design of housing, from zoning of neighbourhoods, amenities, down to detail application of inclusive, universal design principles.

Changing social and demographic forces in Ireland require housing responses appropriate to the individual and to community. Architects should seek to tailor such responses with regard to the design, brief formulation and location of any new development intended for an older sector of society and its setting in the wider community

In 2007 the International Longevity Centre (UK) stated that "It is important to note that lifetime neighbourhoods should be viewed as sustainable communities that offer a good quality of life to all generations." [1] The implications of this with regard to the physical design are far reaching and demand a real understanding of the diverse needs of the occupants, now and as future living patterns emerge.

Aside from the demographic shift of an ageing population and its consequences in terms of frailty and reduced mobility, there is another sector of society that must be considered within the debate on housing. The label of disability covers a wide range of conditions, encompassing educational, sensory and physical but in the majority of cases the individual is cared for at home by a family member, with limited support.

1.1 Introduction

Recent national and international demographic surveys predict a steady increase in the number of people living to an advanced age. This appears to be the case in the Republic of Ireland from analysis of the census taken in 2016. The census indicated a population of just over 4.76 million persons of which almost 13.5% (637,567) were aged 65 or over (footnote 296837 male and 340743 female) [2]. Initial results for the most recent census, taken in April 2022 show a similar upward trend, with the population now over 5 million persons.

With advancing age there is a propensity for reduced mobility, sensory and intellectual faculties to adversely affect lifestyle. The World Health Organisation (WHO) describes global ageing as both a triumph and a challenge:

> "Population ageing is first and foremost a success story for public health policies as well as social and economic development." …
> Gro Harlem Brundtland, 1999 [3]

The challenge is to maintain, where possible, all aspects of lifestyle that are enjoyed by the younger population. A healthier and happier older generation will also reduce the burden on the state through economic (and social) savings in healthcare. This challenge is greater for those, aged over 65 who are living alone.

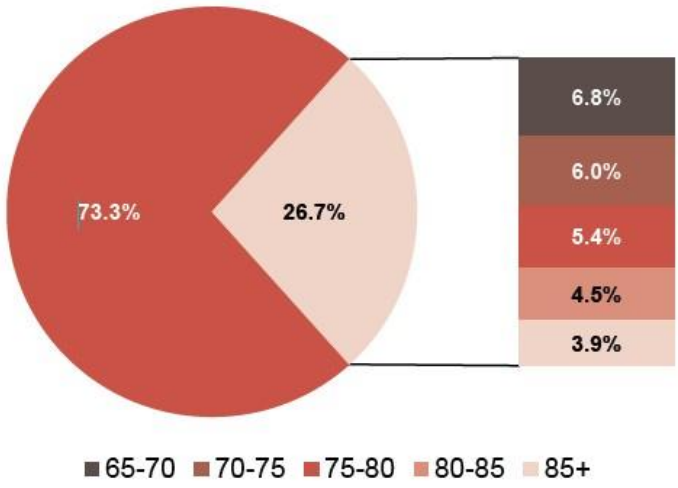


Figure 1.1a. Persons living alone as a percentage of persons living in private households. [4]

The realization that steps need to be taken to deal with this demographic shift comes at a time when Ireland, like many countries, is experiencing a crisis in housing provision. National waiting lists for Local Authority Housing are rising exponentially as private housing rents increase.

> "A new reality of near complete 'omni-crisis' is nascent for (a) growing number of households across (the) Irish economy and society. This is particularly so for low-income and socially excluded groups…but also increasingly for over-indebted homeowner households…"
> Ed. Maclaran, A and Kelly, S. 2014 [5]

1.2 Age Friendly Cities in Ireland – a good news story

In response to the instigation of the Global Age Friendly Cities programme in 2005, the Republic of Ireland has made commendable efforts to introduce the programme nationally.

Age Friendly Ireland (AFI) was established in early 2014, to take on the work of the independent organisation the **Ageing Well Network,** with the purpose of managing the national **Age Friendly Cities & Counties Programme,** instigated in 2009. This programme is affiliated to the Global Network of Age-Friendly Cities and Communities (GNAFCC). AFI draws upon collaboration with city councils and local authorities across the republic.

Dundalk, County Louth (pop 38, 000) was one of the initial 33 cities included in the Age-friendly Cities development in 2007, subsequently published in 2009. The first international conference on Age-Friendly Cities took place in Dublin in 2011, followed in 2013 by the EU summit on Active and Healthy Ageing, leading in both instances to a Dublin Declaration. The 2013 declaration included the supporting pledge to:

> "Promote and support the development of neighbourhoods and communities for all ages that are diverse, safe, inclusive and sustainable, and that include housing for older people that is of the highest quality….." [6]

In its report, 'the age-friendly cities and counties programme: the story so far', AFI outlined the work it had undertaken up to 2014. Its findings were based predominantly on surveys with older-people networks in order to understand the factors facing them in Ireland. There are very good examples of appropriate survey methodologies from international sources such as AARP in the USA and the Enable–Age Project Consortium in Europe.

Many of the findings related to the need for services to assist older people. These include home-visits for meals or simply for company, help with shopping, advice and instruction on using computers, and information about home security to alleviate the fear of crime.

With regard to the built environment the consultation found the following, somewhat expected topics recurring:

- Pavements and walkways required improvement to prevent trips and falls.
- More provision of appropriate and good quality seating and accessible toilets in the neighbourhood was felt necessary for opportunities for rest and relief.
- Planning for local centres of interaction, accessible green spaces and outdoor gyms, providing both health and social benefits were seen as beneficial.

On the subject of ageing-in-place the report offers some well-considered observations on older people's concept of 'home' and identifies particular attitudes in the Irish context that are of interest, stating that:

> "A recent Euro barometer report (2008) found that … when asked about their preferences for moving house during retirement only 31% of Irish people would consider moving to a smaller house in the same location (compared to almost 60% of Danish people or 57% of Dutch people). Very few Irish people would consider moving to sheltered housing, compared to 40% of Slovenians or 24% of Austrians" [7]

The report found, however, that the ability to remain at home is compromised by the quality and suitability of their existing homes. Expensive adaptation to achieve, for instance, appropriate bathroom provision adjacent to bedrooms on an accessible floor level and physical location within the context of walking to the shops or health centre were seen as barriers to ageing in place. Assistive technologies were also seen as being an important area to develop.

1.3 The Context of Housing in Ireland - current realities

The most fundamental element of any city is the dwelling unit and, where there is a shortfall, in number or adequacy, a crisis situation demands intervention at different levels. Currently the Republic of Ireland is experiencing just such a serious housing crisis. Successive neo-liberal policies have significantly reduced the output of social housing, while post 2007 economic crises presented the private sector with various disincentives to build.

Before the demise of the "Celtic Tiger" economy, in a somewhat simplistic attempt to provide more rented housing, property developers were obliged, under a government Act of 2000, to construct 20% of all building work for 'social and affordable housing' before being granted planning permission. However, in an amendment to the Act in 2002, under perceived pressure from developers, they could now "offer cash to local authorities in lieu of this obligation or offer sites or land elsewhere." [8].

Many developers took advantage of this opt-out during the boom years with the resulting shortfall in affordable housing. Following the financial crash of 2008 there has been stagnation in construction, since these and other levies for infrastructure make it unprofitable to build new dwellings. In an effort to improve the situation, in 2015 the Irish Government halved this requirement "to 10 percent and removed the option for developers to 'buy out' on-site social housing in new developments, optimistically predicting that 10% or more of all new dwellings will be affordable social housing." [8]

The debate around the provision of affordable housing continues to this day. Scarcity of housing supply (existing and proposed), labour shortages and economic volatility at an international level, among other factors have created a housing price bubble far beyond the reach of many.

Such knee-jerk political reactions to an increasingly urgent need for housing stock suggest a concern only with showing an increase in quantity rather than quality, where the creation of appropriate habitats for the future is eclipsed by seemingly more urgent and basic problems of accommodating an ever-growing number of families made homeless as a result of repossession or other economic straits. Despite the lessons of the recent past, such short-term thinking is of particular concern in relation to the provision of appropriately designed housing for an ageing population, now and in years to come. Consequently there is a real danger of ill-considered physical planning and design, unrelated either to location or social need, leaving a legacy of unsuitable and restricting home-zone situations for future generations.

In the Age Friendly city, the standard of all dwellings, their location and proximity to facilities, the social cohesion or mix of people of different/same ages and other vital factors must surely exist; but almost without exception, in a "sellers' market", the standard developers' solutions rarely take such factors into account – provided the units can be sold.

In the Republic of Ireland, as in its neighbour, the United Kingdom, there have been traditionally two main potential providers of housing, firstly the private sector – developers whose sole purpose is to make a profit, supported by banks with a similar incentive to receive interest on mortgages. Secondly there is the state, through local authorities who would build 'social housing', providing rented housing for those unable to afford to buy elsewhere.

The Irish situation is significant in that social housing was seen by the new state after independence from Britain in the 1920s, in the following light:

> "For much of its history, Irish social housing not only sought to improve housing conditions for those on lower incomes but also served as a stepping stone to owner occupation." [9]

This differed from the approach of many of Ireland's European counterparts. Government supported social housing in Ireland was significantly cut back during the mid-1980s as a result of economic recession. Over the last twenty years the nature of social housing has changed to a predominance of welfare-recipient tenants rather than the lower-income working population it was intended to support.

The third potential route to housing provision is the 'Housing Association' – a term loosely used to describe organizations, who facilitate not-for-profit construction, generally for the benefit of a particular cohort of residents, often with a specific need, such as physical or mental disabilities or disadvantaged groups. But even where such bodies create housing it is often the case that:

> "All … applicants are drawn down from the Local Authority waiting list in which the Scheme is located." [10]

So far Ireland has not seen private enterprise developing housing clusters for the over-55s in the same way that has taken place in UK for several decades. Whilst aimed at a particular socio-economic group of retirees, these developments by developers such as McCarthy & Stone, and, more recently Pegasus Life, provide a range of social and care facilities with various types of dwelling unit. The sites for these are generally chosen and integrated into existing infrastructure and neighbourhood though rarely in an urban setting. They may have some of the features of gated communities, which would possibly restrict the opportunities for contact with other generations. Equivalent initiatives by not-for-profit housing associations, being less commercially-driven, may be constrained more by economic necessity.

'Market forces' drive many aspects of the environment; for housing this works well if there is adequate choice, in terms of appropriate location, variety of house form and design, cost etc. for the buyer or tenant, but where there is a shortfall in such provision, this generalised approach will not be adequate. In considering the Age Friendly City (or town or village) these and other factors must surely play a major part.

1.4 Lifetime Homes and Lifetime Neighbourhoods

The design, brief formulation and location of any new development are important factors to consider for housing intended for an older sector of society and its setting in the wider community. Aspects of inclusion through design and planning are closely linked with the concept of Universal Design in relation to Lifetime Homes and Neighbourhoods.

First developed by the Habinteg Housing Association, the concept of Lifetime Homes led in 1997 to the James Rowntree Foundation's publication of Lifetime Homes Standards (updated 2010) [11]. These standards are now being considered for adoption by the UK to refine/update building accessibility regulations. In addition to the usability of the home, one of the factors that most affects the elderly is isolation and lack of engagement with community/neighbourhood:

"Five themes in the experience of pleasantness in the home area:

- Communicating with one another
- Being accessible to one another
- Relaxing after having finished work
- Being free to do what one wants
- Absence of boredom" [12]

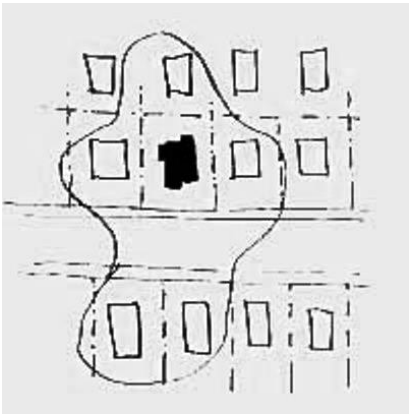
Aside from such quantifiable aspects as space standards and practical issues of encouraging mobility, there are more experiential, cultural matters to consider.

> "One of the great, but often unmentioned, causes of both happiness and misery is the quality of our environment: the kind of walls, chairs, buildings and streets we're surrounded by". [13]

1.5 Multi-generational and inclusive neighbourhoods

In his writing, the architect Christopher Alexander [14] discusses patterns in architectural design that can be used to design neighbourhoods that are multi-generational and inclusive. He breaks down this theoretical approach into 'patterns' that can be linked from macro through to micro scales such as:

- Identifiable neighbourhood(s) - encourage neighbourhoods of 400-500 inhabitants with an appropriate density.
- Life cycle - ensure "that each community include a balance of people at every stage of the life cycle and include settings that mark the rituals between each stage"
- Household mix - Encourage growth towards a mix of household types in every neighbourhood, from one-person households through to groups of people living together



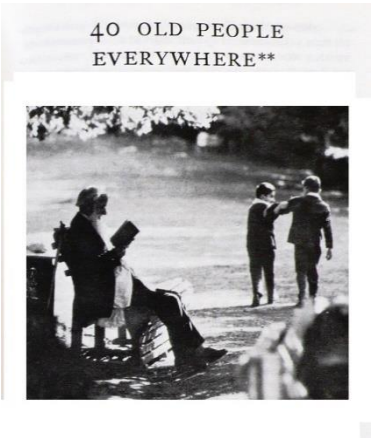


Figure 1.5a and 1.5b. House cluster diagram and 'old people everywhere'. Alexander. C, Ishikawa. S, Silverstein. M, Jacobson. M, Fiksdahl-King. I, Angel. S. 1977.

- House cluster - clusters of 8 to 12 households around common land and paths, accessible to all.
- Old people everywhere – essentially the careful incorporation of appropriate dwellings for older people interlocked with other ordinary households of the neighbourhood.
- Old age 'cottage'- Alexander recognizes the paradox that, as one ages, one gains more independence but "by the very nature of ageing, old people become dependent on simple conveniences, simple connections to the society about them". He therefore advocates the design of appropriate dwellings for older people.

In analysing how the multiplicity of dwelling units fit successfully into the Age Friendly City however, there are aspects of design that should be regarded as important (to consider) as contributing to quality of life, identified in the aforementioned AFI report of 2014.

Design of the wider 'Life Zone' includes all the spaces that the individual uses in their regular life, both within and without the dwelling; beyond the threshold of the home, where the environment is familiar to the user, the spaces and facilities become shared with an increasingly diverse range of other users, so that some compromises need to be made in the design to allow them, "to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design." [15]

This principle of Universal Design which is increasingly understood by designers and applied to the built environment, products and IT services, goes beyond eliminating barriers by integrating each element into the whole experience. Ireland is fortunate to have an excellent, possibly unique organisation in the National Disability Authority (NDA). As part of the NDA, the Centre for Excellence in Universal Design (CEUD) publishes a number of comprehensive guidelines such as Building for Everyone, Shared Space, and Housing and Dementia, Universal Design Guidelines for Homes in Ireland. [16]



Design features that are in line with a universal design appr

- A Multi-purpose porch with power point (could be also used for a wheelchair or buggy).
- B Entrance door with a clear width of circa 1000mm.
- C Wide hallway of circa 1200–1500mm with storage.
- D Flexible width door openings called 'cat and kitten' doors.
- E Circa 1800—2400mm turning circle in all habitable rooms.
- F Kitchen arranged in a 'U'—shape, with the door outside the kitc
- G 1800mm between opposing work surfaces.
- H Easily adaptable with 'soft-spots' eg internal walls to change fro bedroom lay-out to one larger bedroom (highlighted in red).
- I Bathroom immediately adjacent to the main bedroom.
- J Provision of 'hard-spots' eg in ceiling construction for hoist trac to be installed in bedroom.
- K Accessible WC.

Figure 1.5c House plan for UD Design. [16]

On the macro scale, aspects such as safety and personal mobility – access to services essential for day-to-day living (shops, medical centres, public transport) and meshing into existing social patterns are essential for the age-friendly city:

> "Walking represents a crucial way of moving across cities for older people. As a consequence, a safer and in general pedestrian-friendly urban road environment must be ensured for the sustainable age-friendly development of cities." [17]

In detail, as well as the design of the interior, the setting of the unit and its relationship to its neighbours becomes an important factor in successful design, so that the risk of isolation is reduced. There may be undesirable factors in any built environment that cause loneliness and isolation: personal security is a major factor in encouraging people to be part of a community, so that positive aspects such as safe and secure spaces and streets, barrier-free environments and accessible buildings, proximity to facilities will reduce the fear of going out, sustain and encourage inclusiveness into old age, as the individual's physical and sensory abilities diminish.

In Ireland, over relatively few years, changes in family size and structure, the waning influence of the church and recent prosperity are leading to a shift in attitudes. There is no longer an adherence to traditional family obligations where younger members were expected to care for their elders.

Besides accessibility, the design of housing for older people requires adaptability to the varying needs determined for example by different family sizes. But what can innovative design offer and what does it imply? Overt innovation in itself may not necessarily be welcomed by older people, so needs careful integration into the design, where the innovation is through the assembly of the parts.

> "The architect's main work is the organization of a unique whole through conventional parts, and the judicious introduction of new parts when the old won't do." [18]

The use of technology in the home and improved telecommunication has undoubtedly changed many aspects of life for the better.

> "Cities are becoming smart not only in terms of the way we can automate routine functions serving individual persons, buildings, traffic systems but in ways that enable us to monitor, understand, analyse and plan the city to improve the efficiency, equity and quality of life for its citizens… [19]

This is, however, not an excuse for neglecting the way that the environment is designed. If the mobile phone and Skype reduce the incentives for people to go out and meet then something is wrong. Technologies can improve many aspects of life for older people, but they are commercially orientated ('disruptive technologies') and sometimes used as an excuse for reducing services that might be socially more acceptable on a face-to-face basis.

1.6 What type of housing shall we build?

An excellent source of information on the type of housing that needs to be provided for an ageing population is the HAPPI Report (Housing our ageing population: Panel for Innovation) published in the UK in 2009 [20]. The report from the multi-agency panel outlines a number of recommendations for all stakeholders in the delivery of housing. It also presents 24 case studies, considered to be exemplars of housing for the older population. With some irony it found that the characteristics required to design good housing for the elderly were the same characteristics required for all good housing design, irrespective of the age of the occupant. Innovative, carefully considered design of housing is good for all.



Figure 1.6a. Case Studies from HAPPI report

> "… HAPPI has asked two key questions: what do older people want from their housing… and what are the barriers that prevent them from getting it? What we want is sometimes contradictory: we want to be alone and yet with others; we want tradition and also to be 'up-to-date'; we want independence, but we also want to know that help is close to hand." [20]

1.7 The invisible factor of the disabled and their carers

Universal Design addresses the needs of all, not just older people. Obligations of caring for family members with a disability tend to fall on the parent, generally the mother, some caring for more than one individual. There is also evidence that a number of young people are caring for their older relatives.

> "Within the next ten years, demand for care at home will increase dramatically due to a rising ageing population, the shift away from institutional care for people with disabilities and the increased emphasis on home-based care." [21]

A cautious approach has to be taken when talking about numbers of disabled people and their carers. The above report suggests that up to 1 in 10 of the population may be involved in a caring capacity. Another document, a working paper produced by family Carers Ireland (FCI) and updated in March 2022 highlighted the problems in identifying exact numbers and what type of activity within the home is affected by

the disability. For example, the proportion of people identifying as carers in the CSO Census of 2016 was 4.1%, yet the CSO Irish Health Survey of 2019 found that 12.5% identified as carers, which is closer to international norms [22]. The importance of posing the right question, or set of questions, phrased with clear terminology is paramount in this regard and, currently the single YES/NO question on the census form is wholly inadequate. A more comprehensive survey could follow the approach of Van den Berg and Spauwen, who have proposed a number of categories of care, one of which considers the physical activities of daily living (ADLs) which include: bathing, dressing, feeding or using the bathroom [23].

> "There is an urgent need to improve data collection on physical and sensory disability to inform service planning, and to involve the service providers and the support organisations to achieve that". [24]

In April 2018 a working group attached to the HSE published a paper entitled Transforming Lives, a report on future needs for disability services up to 2026 [24]. The paper stated that in 2017, the most comprehensive data was available on intellectual disability services which accounted for 90% of residential services costs of €1bn. This suggests that, at that time the remaining 10% or €100mn was allocated to residential care for those with physical and sensory disabilities.

The above figures do not necessarily reflect the situation of the family carer who lives in the family home, either providing unpaid care themselves for their close relative or relying on support systems where available. The National Physical and Sensory Disability Database reported that in 2009, nearly 86% of their respondents were living with other family members.[22] The Disability Federation of Ireland issued a report in March 2019, stating that 262,818 people had reported difficulties with basic physical activities, in the 2016 census. Extrapolating from a family size of 2.75 people would suggest that physical disability affected 14% of households. [25] Another source of data relating to issues of physical mobility in the home, which may give a more focused picture, is the number of applications for the Housing Adaptation Grant. The government publishes figures of the amount of funds allocated and drawn down per county each year [26]. Anecdotal evidence, however, suggests that these are significantly underestimated. The experience of occupational therapists in their everyday work, and emerging reports in the press, paint a picture of long waiting lists for assessment and building work, creating significant financial and emotional hardship for those affected.

> "Throughout the participatory sessions with Family Carers Ireland, community participants voiced challenges such as *navigating a very bureaucratic, highly disorganised public system to access information and entitlements*. They passionately identified the need for *more support to be made available to all types of carers* ….." [27]

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Chapter Two



Chapter Two – Ageing in suburbia

2.0 The following paper*, Ageing in Suburbia: the limitations of the speculative housing* development*,* was written and accepted for presentation at the UDHEIT conference in Helsinki 2020. Due to the Covid 19 pandemic, the conference was postponed and the paper withdrawn and subsequently expanded in order to form part of this thesis.

The subsequent section describes the efforts made to initiate the research during the effects of the pandemic.





Fig 2.0a and 2.0b Author's images of a typical 1960s suburban estate

Bounded by main roads to the south and east, the selected estate, until very recently, presented itself as a quiet suburban enclave of mid-20th century housing. This time-capsule of neat and well-maintained facades of identical detached bungalows, lined the eerily empty streets. Fifty years after their initial construction, these family homes, developed and constructed by a local builder, have experienced the full-circle of a changing demographic. Upon first investigation, in 2016, there was a high proportion of elderly residents living alone or in couples. Since that date, there are signs that the circle is about to turn again.

Ageing in Suburbia: the limitations of the speculative housing development

Abstract.
The 7 principles of UD promote the case for more usable environments. Principle 1 considers provision for privacy, security and safety while being appealing to all users. This should include design that has psychological benefits to the user. To the isolated and lonely, particularly in later life, such design intentions should aim to be life-enhancing. Principle 2 considers flexibility in use. Life-course triggers over time create a need for flexibility of space, initially to expand as the family grows and then to contract as we age. The vast majority of the population in Ireland live in Speculative housing developments offering 'fixed' accommodation and rarely consider the needs of the 'mobile family'. Many of the elderly residents of suburban Cork City have lived in the same house since its construction in the 1960s and have adapted their space over time through necessity.

Under the general topic of age-friendly housing an architectural research group within the Cork Centre for Architectural Education (CCAE) has been working with the Older Peoples' Council. This has involved a recent award-winning project undertaken by students in our Architecture programme and also a particular focus on the elderly living alone.

Working with community groups and using community based participatory research, individual residents are interviewed to create a 'housing history' of their use of architectural space and a detailed analysis of the current limitations of their home as an older person.
The paper proposes that, despite the lessons of many decades of developer-led speculative schemes, such housing is still not fully adopting appropriate universal design principles.
By understanding the way we use and adapt our homes over time we can help to inform both the occupants (user-experts) and policy-makers about the flexibility and adaptability of all housing.

Keywords. Built-environment, ageing-in-place, universal design

2.1 Introduction

This paper forms part of doctoral research in architecture undertaken at the Cork Centre for Architectural Education (CCAE) in Ireland, a joint venture between Cork Institute of Technology (CIT) and University College Cork (UCC). Universal Design and Age-friendly housing have been identified and pursued for a number of years as one of the key research streams in CCAE.

In response to the instigation of the Global Age Friendly Cities programme in 2005, there is now significant support for age-friendly towns and cities in Ireland, through local government and NGOs who recognize the growing demographic shift towards an increasing elderly population. Age Friendly Ireland (AFI) was established in early 2014, to take on the work of the independent organization, the Ageing Well Network, in order to manage the national Age Friendly Cities & Counties Programme, instigated in 2009.

Dundalk, County Louth (pop 38, 000) was one of the initial 33 cities included in the Age-friendly Cities development, subsequently published in 2009. Dublin hosted the first international conference on Age-Friendly Cities in 2011, followed in 2013 by the EU summit on Active and Healthy Ageing, leading to a Dublin Declaration which sought to:

> "Promote and support the development of neighbourhoods and communities for all ages that are diverse, safe, inclusive and sustainable, and that include housing for older people that is of the highest quality….." [1]

In 2014 the AFI published a report on its progress to date [2] which suggests that much of what is studied and published in Ireland has been carried out by a range of disciplines, yet with minimal input from the architectural profession or academia. Consultation generally takes place through round-table discussions and through focus groups in meeting rooms, day-care centres and nursing homes. Many of the findings relate to the need for services to assist older people including home-visits for meals, shopping, or simply for company. Regarding the built environment, somewhat expected topics recur and pertain to the external space outside of the home. Pavements and walkways require improvement to prevent trips and falls, while appropriate and good quality seating and accessible toilets in the neighbourhood are needed for opportunities for rest and relief. It is pertinent to suggest that, to study the ways in which the elderly use the architectural space within and around their home requires empirical observation in-situ, rather than conversations around a table in a remote meeting room.

> "Housing is a matter of perspective and is not the domain of any one profession or interest group. Housing constitutes nearly 80 percent of any urban conglomeration, yet it barely attracts 10 percent of the professional design expertise in Ireland." Brady. N. [3]

Initially inspired by the work of the urban geographer, Graham Rowles [4] in the USA in the 1970s and by that of social gerontologists Sheila Peace and Caroline Holland [5] in the UK in the 2000s, this research study seeks to apply an architectural spatial-use perspective to the reality of ageing-in-place and its implications for future design through education at tertiary level. One of the challenges to doctoral thesis research when teaching at undergraduate level is to find ways to engage the students in the research in a worthwhile and effective manner.

2.2 Background

In Christopher Alexander's book *A Pattern Language for Architecture*, [6] pattern no. 40 sets out a template for the creation of inter-generational and inclusive communities and is entitled 'Old People Everywhere'. To study recent census figures from Cork city would suggest that it is indeed the case that the elderly are a significant and growing proportion of the population, though their distribution and location would not adhere to the principles that Alexander and his colleagues proposed in the 1970s. To achieve the goal of inclusive architectural design 'Old People Everywhere' proposes that small groups of appropriate dwellings for older people are carefully incorporated with other 'ordinary' households within the neighbourhood. Other patterns identified in the book encourage a diverse mix of households and the inclusion of places for ritual across the lifespan such as school and church.

Parallels can be drawn between the pattern language process and the concept of Lifetime-Homes and Lifetime Neighbourhoods, first developed by the Habinteg housing association. The Lifetime Homes standards – updated in 2010 – advocate the usability of all parts of the home for all ages of occupants and closely follow universal design principles [7].

The highest proportion of elderly residents in Cork City are found in the speculator-led suburban housing estates, constructed in the second half of the 20th Century, [8]. In some of these estates the elderly population of over 65s makes up the majority of the population. Many of these residents are the original occupiers of their 'new' homes, purchased and occupied in the 1960s and 1970s by young couples who would go on to start their own families. Ireland experienced an economic boom during the early 1960s under the stewardship of the Taoiseach Sean Lemass and the economist T K Whitaker. The boom led to an expansion of owner-occupied family housing gradually spreading across existing farmland outside the city. By the end of the 1960s the boom was over but the city boundary had been redrawn to include these new surrounding suburbs. Fifty years later the city boundary has, once again, expanded to take in satellite towns and villages and create a larger metropolitan area, increasing the population of Ireland's second city from 120,000 to around 210,000. [9]

The last fifty years have seen long periods of recession and emigration replaced by the economic miracle of the 'Celtic Tiger' economy, in the early years of the new

millennium. Since the global crash of 2008, current political reactions to the increasingly urgent need for housing stock suggest a reliance on quantity rather than quality. The creation of appropriate habitats for future ageing generations is deferred by the more urgent and topical problem of homelessness as a result of repossession or other economic straits. This is of particular concern in relation to the provision of appropriately designed housing for an ageing population, now and in future years. There is a real danger of ill-considered physical planning and design, unrelated either to location or social need, leaving a legacy for future generations of unsuitable and restricting home-zone situations.

> "In the housing boom from the 1990s the market has dominated the debate,.. The estates have multiplied virus-like in recent years, and services (infrastructure) are often non-existent. Yet we look on as if all of this has happened because of some law of nature that is not amenable to the hand of man. Such is not the case. Dublin's sprawl has been allowed to happen because of greed.… Developers are happy to cram houses on sites. Can anyone blame them for making outrageous profits since few others seem to be working in the public interest. Planners and councillors have failed miserably. None of this is rocket science". [10]

Suburban, developer–led housing can be dismissed by architects as non-architecture, unglamorous and uncreative, an area of academic study for social scientists, planners and geographers. Yet this housing, the commonplace but invisible, is where a significant majority of the current population experiences the built environment so fully.

> "The family moulds its shape to fit the ground plan; it tries to find a form of existence that is viable under the conditions the ground plan imposes. Certain behaviour patterns crystallise immediately, in order to facilitate the "survival" of the old family in its new situation." [11]

2.3 Location

In the late 1950s a small development of bungalows commenced on a hilltop road running east-west through an agricultural landscape, 5km from the centre of Cork city. Within five years the same developer [12], had purchased a larger tract of land across the road to the north, constructing a further 180 identical bungalows. Planning legislation only came into effect in Ireland in 1963 and for many years was lightly enforced. The economic boom of the time had brought much-needed employment to Cork and the houses on the larger estate were soon sold, for £2100, to aspirational purchasers, many working in the new local industries and starting their own families.

Based on initial conversations with long-term residents, a picture is starting to emerge of both the historical and current story of the estate. By the mid-1960s, all of the 3-bedroom bungalows were occupied and the population flourished. A number of 2-storey dormer bungalows were soon built at the periphery and, by the

early 1970s children were everywhere, playing in the relatively traffic-free streets and surrounding fields, and attending the newly-built primary school nearby.
In a commentary on the housing estate layouts constructed in the 1960s and 1970s, the Irish geographer Ruth McManus states that

> "The predominant character of suburban development throughout Ireland has been monotonous, typically featuring straight, wide streets of standard dimensions, flanked by pavements of uniform width and low-density, low-rise, detached, semi-detached or terraced houses with gardens" [13]

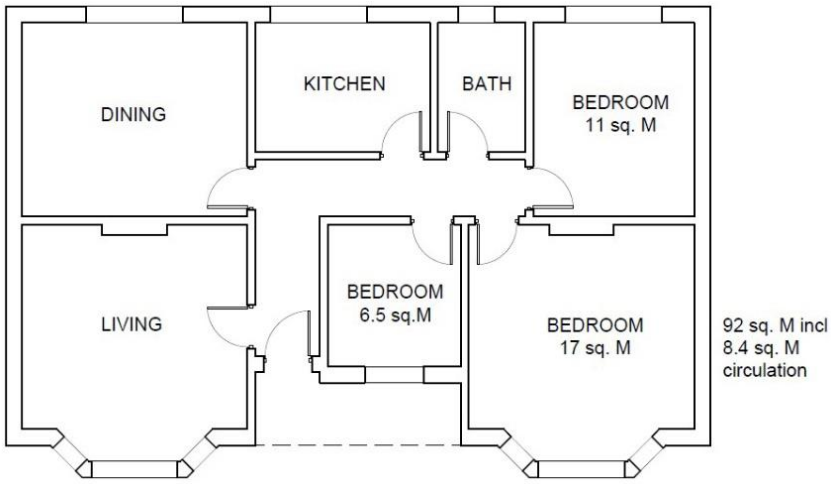


Figure 2.3a typical 1965 bungalow plan drawn by the author.

Each of the original 180 detached bungalows was identical in internal plan – see fig. 2.3a. With one or two exceptions the plot size was also identical with 8m deep gardens to the front, 14m deep gardens to the back and a driveway to one side for the family car. In many cases these modest houses of 92m² area were occupied by families of up to 10, with instances of 4 children sharing a bedroom of 3m x 3m floor area. This represents an extreme example of Burkhardt's mobile family in a fixed space.

In her literature review on the meaning of home in 1991, Carole Després [14] concludes that built-form and societal factors are as important in the understanding of environmental meaning as those of human-behavioural theories. One issue she raises, concerned the danger of applying a selective bias to the study group where she suggests that a model of the nuclear family (2 parents and 2 children) was no longer pertinent to suburbia in the USA.

In the cultural and social background of Ireland, dominated by the Roman Catholic church until, at least, the end of the 1980s, large family size was very common and divorce and single parenthood were rare. [15] To have the security and comfort of one's own home was of more importance than the space requirements for a growing family and, in some cases, there was not enough money to adapt. Those who could afford to, added extensions to the rear of the house to accommodate the family more comfortably – see figure 2.3b. As the children grew to adulthood and eventually left home, overcrowding eased and room usage changed.



Figure 2.3b suburban plot (1960s house =white, extensions = red/blue).

There is no intentional concession to universal design in these houses. The ubiquitous typology of detached bungalows is due more to the ease and economy of construction and to the cultural consequences of separation in 1922, after many centuries, from the influence of Britain. During the colonial period the Irish were affected by insecurity of tenure, threat of eviction, and a poor standard of housing. Nationalist campaigners were keen to ensure that the result of independence would lead to the fair redistribution of land.

“Landownership (and with it, security of housing), became indelibly linked to the other national issues of identity and independence from England” [10].

Various incentives incorporated into the housing (amendment) acts of 1948 and 1950, together with subsequent acts in 1958 and 1962 paved the way for an expansion in house- building and in home-ownership [10]. In the 1960s for the first time in Ireland the rate of private house building outstripped that of the public housing. The 2016 census figures indicate that 86% of the housing stock in Ireland is taken up by single dwellings, the remaining 14% in multi-unit housing [8].

Despite the determination to break free from Britain, in the early years of independence, Ireland was still influenced by a number of cultural and societal aspects of its larger neighbour. The Tudor Walters report, published in the United Kingdom in 1918 concluded that the ‘self-contained cottage’ was the most suitable accommodation for the working classes. At around the same time, in Continental Europe, Walter Gropius’ modern movement ideals advocated that rental accommodation in apartment blocks were the preferred solution, but despite this, the philosophy of the self- contained, privately owned dwelling still pertains in much of both Britain and Ireland [16].

The typology of rows of identical houses with small front and large back gardens with driveway to the side is a familiar suburban model. The back garden is private and secluded while the front garden is the threshold between the public and private realm, between involuntary social interaction and privacy/control. The urban geographer Graham Rowles (1981) describes this as the ‘surveillance zone’ [4] and yet, in the suburbs of Cork, the front of the house tends to present a blank face, not attempting to engage with the neighbourhood, either as ‘defensible space’ or for interaction. Traditionally in Irish houses, particularly in rural areas, the

back door is used for access, whatever the occasion, with the front door reserved for the letterbox. The front façade, together with its neatly manicured garden, can infer a sense of status and a perceived sense of security but the façade remains impermeable, shutting out daylight and opportunities for watching the world go by.

Time and tide wait for no man. When this research area was first considered over six years ago, available census figures at that time suggested that the 1960s estate had the highest proportion of elderly people living alone. A recent census report, issued in 2016 [8], indicates a shift in the demographic. Fewer and fewer of the original residents remain and more and more of the houses are inherited by their children, who have homes of their own. Consequently there has been a growth in rental accommodation on the estate for new, younger families to move in, while the house ownership is maintained by the original family. So, once again, the new family must fit into the fixed space with little incentive or necessity for the owners of the houses to adapt and alter the interiors.

The 2016 census report [8] indicates where the next pressure-point in ageing residents is located, specifically the estates constructed nearby during the 1970s, almost all of which are two-storey, semi-detached with one bathroom upstairs. This phenomenon of homogenous communities is also referred to as Naturally Occurring Retirement communities (NORC) where the original residents remain in place over a long period of time [17].

2.4 Educational Approach

In CCAE and in one of its parent institutions, MTU, universal design and lifetime housing principles are infused into the architectural design curriculum, particularly in the early years of the undergraduate programme [18].

In Year 1 the interior architecture students are introduced to the theme of the human body in architectural space, carrying out anthropometric studies, leading to a number of design projects based around the domestic environment and appropriate for all users.

In Year 2 the architecture students are challenged to design a group of age-friendly houses. The project is run in conjunction with the Older Peoples' Council (OPC) in Cork and with the local authority who provide a 'live' site under their ownership [19]. Each year the focus changes to a particular town within the county where there is a real potential for the designs to be taken up as a viable, physical entity. Direct engagement with the elderly 'user-experts' in the OPC provides useful insights to inform the student's design proposals. Following appraisal by a jury made up of OPC and local authority members, the designers of successful schemes are rewarded with paid internships in the local authority offices. Such is the popularity and success of this joint venture that all parties concerned were awarded first prize in the National Age-friendly Awards for Housing 2019.

Year 3 architecture students continue to apply their universal design knowledge to their project work, for instance, carrying out accessibility audits of their design proposals for educational, civic and cultural buildings.

Design problem-solving by means of either a hypothetical or live project is the standard teaching approach in CCAE as it is in most, if not all schools of architecture. Module content can be delivered and learning outcomes achieved with a well-written brief. There is, however, little primary research of the real world undertaken in the early under-graduate years apart, perhaps, from site analysis. This may take the form of the topographical and climatic conditions of a particular site all the way through to mapping the many characteristics of a town.

One project carried out in year 2 architecture titled *family and home* could be considered as a piece of empirical research used to prime the housing project. Students are asked to revisit, both mentally and, if possible physically, the family home where they grew up. Analysis is based on tracking changes of room-use over time and also identifying positive and negative perceptions of; spaces of comfort, warmth, privacy, security etc. Their findings are expressed graphically through marked-up plans such as those in fig. 2.4a



Figure 2.4a student analysis of warmth and usage in the family home, James Harris.

Such achievements are particularly possible when the lecturers involved are enthusiastic about teaching universal design. Adopting UD as a research strand in the college in recent years has changed attitudes and helped to encourage other lecturers to engage with UD issues in their project briefs. Of particular benefit is the interaction enjoyed by CCAE with other disciplines such as the Occupational Therapy Department in UCC with reciprocal teaching across both disciplines. Further multi-disciplinary efforts are being formulated within the Ageing Cluster group in UCC to find common areas of research across disciplines such as neuroscience, health care professionals and social scientists.

Engaging students in, for example, community-based participatory research, is a worthwhile goal but can be problematic and requires careful planning, particularly with regard to ethical concerns. Before research can commence in UCC the research ethics committee reviews all applications where the methodology involves interaction with human participants. The process requires the researcher to confirm such factors as participation being voluntary, informed consent is received and confidential data is both anonymous and stored appropriately. In particular the researcher must be aware of the code of conduct for research in the institution and display a level of maturity and sensitivity to the participant when carrying out the study [20].

2.5 Methodology

> "Assumptions and stereotypes concerning older persons abound and include the common view that older people are passive and not interested in actively participating in social life……Older people are not a homogenous group, either in terms of their needs or their functional ability." [21]

Urban areas are designed and structured around a youthful, working population [22] while day-time suburban streets are quiet and appear unpopulated, as the residents are either at work or spend much of their time indoors. For the undergraduate student in their 20s, often the only social connection they have with older people is with their grandparents, though rarely as an extended family under the same roof.

In the 1970s, Graham Rowles [4], an urban geographer was interested in the question of commonality in geographical experience. His methodology was to closely study the lives of a number of elderly people residing in the same neighbourhood in a town in the USA. His objective was to understand the manner in which a group of older people inhabit the spaces and places around them. In his book, *Prisoners of space? Exploring the geographical experience of older people*, Rowles wrote about his work with 5 participants, regularly interviewing them, or rather, conversing with them in their homes over many months. From this Rowles made, 'structural generalizations' and devised four 'modalities of geographical experience: **action, orientation**, **feeling** and **fantasy'**.

More recently, in their investigations into notions of quality-of-life experience for the elderly, a group of social gerontologists in the UK [5] came to the conclusion that:

> "A life of quality (is one) in which the *sum* of connections with foci that lie outside the self - a few or many, constant or mutable – is sufficient to satisfy the individual. Our initial findings suggest that connections with the following areas are 'legitimate' components from which to make up a good enough summation of connectedness at any one time:

- Personally significant material household objects
- Sufficient home space for self-actualisation above the basic level of self-maintenance
- Location which is integrated with personal history
- Reachable neighbourhood with a level of security, complexity and accessibility which is compatible with personal needs
- Social community at least part of which is accessible daily
- Comfortable gradient of boundary between private and public spaces".

As with Rowles, some of their work was undertaken in-situ, following consultation with appropriate organisations and focus groups.

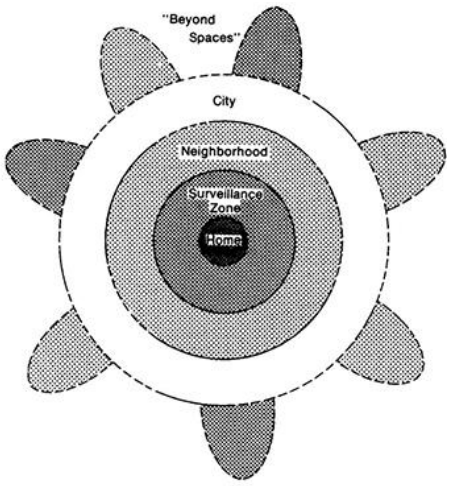


Fig. 2.5a Rowles' general schema

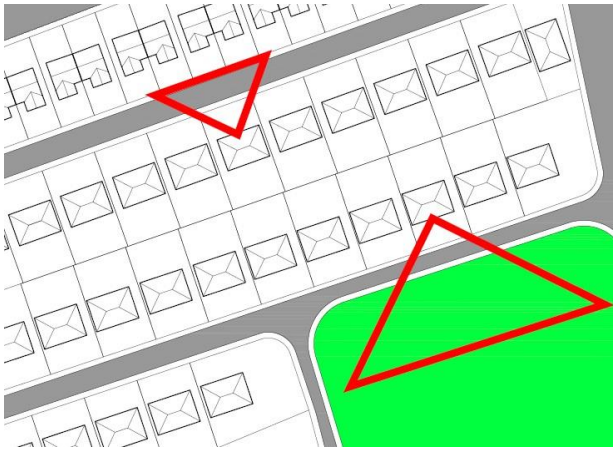


Fig. 2.5b surveillance zone – author's drawing

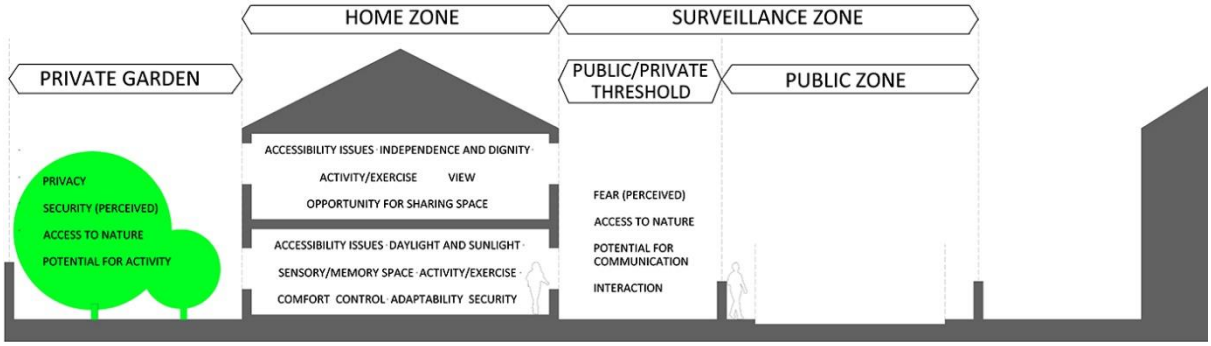


Fig.2.5c thresholds of privacy – author's drawing

Clearly from these two studies, there are some areas of universal design that can be investigated from an architectural perspective. Initial approaches to local residents and older people's groups in this particular suburb of Cork proved encouraging with a number of potential participants eager to engage and 'tell their story'. The process commenced with pilot one-to-one interviews, which informed a more comprehensive, more relevant set of questions for the main study. The intention

was that recorded interviews would be carried out, where possible in the family home and structured in an attentive and empathetic way, allowing the interviewee to ask questions in return, trying to create a conversational style. Questions are kept simple, easy and short, and time is allowed for the respondent to answer fully. The focus of the finalized interview would then relate to the following themes.

- housing history – where had they lived before and how they came to live here
- accommodation layout and changes over time in response to life triggers such as growing family or adult children moving away
- current use of space
- housing satisfaction and how that has changed over time.
- current issues of mobility
- sensory response to home – light / warmth / texture
- spaces and objects that evoke memory/ comfort/ privacy
- views out and interaction with the immediate external environment.

These themes can be sub-divided into 2 categories:

1. Long term aspects of housing history, layout changes and objects that invoke memory
2. Acute issues of current space-use affected by frailty, feelings of isolation and sensory and mobility issues.

To emphasize the architectural nature of the research, relating more specifically to the acute issues, each participant would also be provided with a floorplan of their house (all identical when first-built), upon which they would insert their observations on such topics as; zones of activity and restriction, unused space, views of nature, external communication, extensions and adaptations. The intention was to invite all participants to a presentation of the initial findings for comment and review.

The *Campus Engage* programme [23] in Ireland provides useful advice on initiating and administering community research, advocating that the people who are affected by research need to inform that research. One important aspect of collaboration is to understand the roles of the participants. The researcher, outside of the community may have initiated the study but will be challenged to maintain a balance of power to allow the voices of all participants to be heard.

One of the questions that arises is how to involve the student in this research study. This may be achieved by students in earlier undergraduate years, through mapping exercises of the external environment using assessment tools such as REAT 2 Audit instrument [24] or, more effectively a hybrid version of such tools. At later stages and at Master's level it is possible that individual students can be directly involved with the participants, provided that relevant protocols are followed. UCC actively supports such student engagement through its CARL [25] programme.

2.6 A multi-disciplinary approach

What constitutes a rounded or complete architectural education? If it is about problem solving then presumably this should not be limited to the design of new buildings to fit a programme or brief. Identifying real-world issues and acting as a catalyst for imparting knowledge and for progressive social change is essential in preparing the architects of the future. Much of what is taught in schools of architecture focusses, quite rightly on new prototypes and typologies and yet more than 80% of new and existing housing in Ireland has no architectural design input.

Faced with the necessity for a home adaptation due to the onset of a mobility or sensory impairment can be a daunting experience for older people. There is financial support available through the local authority but assessment is required by an occupational therapist and estimates need to be sought from building contractors. There is an opportunity for a more design-led approach where architects work with the occupational therapist in a more holistic way to achieve the client's requirements. There can be instances, though lack of communication amongst the different parties or with the client themselves, where the adaptation is unsuccessful or even unwanted. This can reinforce a sense of helplessness among older people who identify so closely with their home environment [26] [27].

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Short questionnaire

Dear (X and Y), thank you for offering to help me with the research. Given the current situation it would be helpful if you could answer some questions about how you use your home.

Take your time to mull over these – a few days is fine.

To reply to the following questions, please place a letter in a circle on the house plan sheet no. 1. The letter will correspond to the question. Please add comments in the box under the question and also add comments on the plan drawing if you wish. I have included an (X) on the plan, for example, to show your front door. Use pens or pencils in any colour, don't worry about being messy as long as I can read the answers. Don't forget you do not have to answer a question if you don't want to.

(A) Where would you normally sit and have a cup of tea/coffee if a friend came to visit?

Comments:

(B) Is there somewhere indoors where you can see nature or watch people walking by?

Comments:

(C) Where would you normally eat your meals? Is it the same for breakfast, lunch and dinner?

Comments:

(D) Have you extended your house since you originally moved in?

Comments:

Ⓔ If it was a sunny day outside where, indoors would you sit to enjoy the light and warmth?

Comments:

Ⓕ Do you have a back door to the back garden. How often do you go into the garden?

Comments:

Ⓖ Do you have a bathroom downstairs and, if so, where is it? Is it near the bedroom?

Comments:

Ⓗ Where would you normally sit to watch TV? Do you each have your own favourite chair?

Comments:

Ⓙ Where do you usually sit when you are on the phone?

Comments:

Ⓚ Do you have hobbies? Is there a certain space you use for your hobbies?

Comments:

A few more questions:
How often do you go upstairs? Every day, once a week, not very often?

Do you ever sit in the front garden?

Can you think of anything that has changed how you use your house since the lockdown?

On the other plan sheet (No. 2), I would like to know what rooms you use the most and the least in the house during the day. Are there rooms that you rarely go into. Do you go straight to the kitchen / dining space after getting up in the morning, for instance?
Please write notes within each of the spaces – how often you use them and at what times of the day.
Again, take your time over a few days – there's no rush.

Once (Z) has dropped these over to you I'll give you a call and introduce myself.

Kind regards
Kevin
April 2020

2.7 Responses

The following is a synopsis of initial contacts with the residents through informal conversations, with an emphasis on the following:

- Early days – how did they hear about the new development; where were they initially from and why did they consider moving there; what was the initial community like?
- Changes over time – how has the house changed over time with the growing family, extensions and alterations to accommodate this and the advent of the family moving away?
- Current situation – what space do you now occupy; how often do you see your neighbours?

Based on initial, pre-lockdown, conversations with long-term residents, some of whom are in a residents' group, a picture is starting to emerge of both the historical and current story of the estate. The last houses were occupied in the mid-1960s and the population flourished. By the early 1970s children were everywhere, playing in the relatively traffic-free streets and attending the primary school nearby. Over the last five years the demographic has witnessed subtle changes. As a result of inheritance, more properties are being rented, in particular to younger families. The original residents that remain are generally widows, living alone or with a family member. There are also some older couples living together.

2.7.1 Respondent A. - Tuesday 5th May 2020

Pandemic lockdown was introduced in March 2020 and, significantly, all over 70s were asked to 'cocoon' to shield them from infection. A telephone conversation was therefore initiated.

The couple and their first child moved in to the newly-built house in the mid- 1960s. The bungalows across from them had been built for about a year. The roads were still unfinished for quite a while and there were no shops nearby so they relied on the bus. The new residents were from all around, many from Cork city. Their eldest son went to a local school in 1970. The local church had not been built yet, so they had to go to one nearby. They now spend most of their time downstairs but are still able to manage the stairs if necessary. They go to mass every day in the local church though as much for the social element. The husband still drives but is finding it more difficult except on routes he knows well. Parking was a problem during term time at the local college, though a double yellow line has now been added down one side of the road. Over the years a lot of the houses took in student lodgers for some extra income. There were some student houses at one time but they were too rowdy and local pressure curtailed them.

Given the pandemic lockdown, the respondents were asked if they would fill in a questionnaire, with the hope that the situation would improve and a face-to-face conversation could be initiated. The questionnaire was delivered in a clean envelope, together with an approved consent form, and retrieved a few days later across the garden gate.

2.8 Conclusions

The methodology of this initial research was heavily compromised by the restrictions of the pandemic lockdown. None of the intended interviews within the home were undertaken, and the responses on the following pages, carried out remotely, were of limited use, falling short of the ambition of the research project. It was also evident that a significant number of research assistants would be needed, each of them requiring ethics approval through the college, a rigorous and exacting process, which could take several months. If this, or a similar methodology is to be taken on again in less restricted times, it would be pertinent to consider a multi-disciplinary approach, employing students of geography, occupational therapy and social sciences, working alongside their architectural peers, over a number of years. Rowles, single-handedly, spent 2 years developing a close relationship with only a handful of participants, in order to produce his work. [4]

Based on the, albeit very limited, survey information, a number of interventions of differing scales and complexities could be proposed. Adding more daylight, changing the use of a room and increasing functionality and wayfinding are simple steps. Window seats can be added for more light and more engagement with the outside world as well as providing opportunities to oversee one's environment. Extensions and adaptations can be proposed but, in the right location and with outcomes that enhance the enjoyment of the space through good circulation and adequate daylight. Such interventions would help to realise some of the findings of Rowles' work. [4]

And so, a two-pronged approach towards housing may be necessary to strive to create a new universal typology but be accepting of the need to address alterations/additions to existing homes in a design led approach.
The respondents stated that they spend most of their time downstairs but are able to climb the stairs if necessary. They are fortunate in having installed a down-stairs shower room, a number of years ago. Given that all of the 2-storey houses on the estate and in surrounding estates from the 1960s/70s have no downstairs bathroom in their initial design, the need for such interventions is paramount with an ageing demographic.
How is it possible to encourage good design in alterations and additions? There is an increasing acknowledgement that architects will be required to work in multi-disciplinary teams in the future and these opportunities exist in academia to work more closely on research into universal design and its implications for an ageing population. In section 3.42 of this thesis, such an opportunity is highlighted through the work of occupational therapists, who also express an intent on a greater involvement at the design stage of new buildings.

Response sheet 1

short questionnaire

Dear , thank you for offering to help me with the research. Given the current situation it would be helpful if you could answer some questions about how you use your home.

Take your time to mull over these – a few days is fine.

To reply to the following questions, please place a letter in a circle on the house plan sheet no. 1. The letter will correspond to the question. Please add comments in the box under the question and also add comments on the plan drawing if you wish. I have include an (X) on the plan, for example, to show your front door. Use pens or pencils in any colour, don't worry about being messy as long as I can read the answers. Don't forget you do not have to answer a question if you don't want to.

(A) Where would you normally sit and have a cup of tea/coffee if a friend came to visit?

Comments:
We sit at the Kitchen table

(B) Is there somewhere indoors where you can see nature or watch people walking by?

Comments:
We have a big Kitchen window where we watch the birds

(C) Where would you normally eat your meals? Is it the same for breakfast, lunch and dinner?

Comments:
Kitchen

(D) Have you extended your house since you originally moved in?

Comments:
Yes - extra bedroom upstairs

(E) If it was a sunny day outside where, indoors would you sit to enjoy the light and warmth?

Comments:
We usally go outside front door as it is very sunny.

(F) Do you have a back door to the back garden. How often do you go into the garden?

Comments:
Yes we have a back door all day long in and out

Response sheet 2

(G) Do you have a bathroom downstairs and, if so, where is it? Is it near the bedroom?

Comments: Yes we have a shower toilet and sink near Back door

(H) Where would you normally sit to watch TV? Do you each have your own favourite chair?

Comments: Yes we have.

(J) Where do you usually sit when you are on the phone?

Comments: We have a nice stool next to the phone

(K) Do you have hobbies? Is there a certain space you use for your hobbies?

Comments: We have alot of nice flowers in the back garden

A few more questions:

How often do you go upstairs? Every day, once a week, not very often? 3-4 times a day.

Do you ever sit in the front garden? NO.

Can you think of anything that has changed how you use your house since the lockdown?

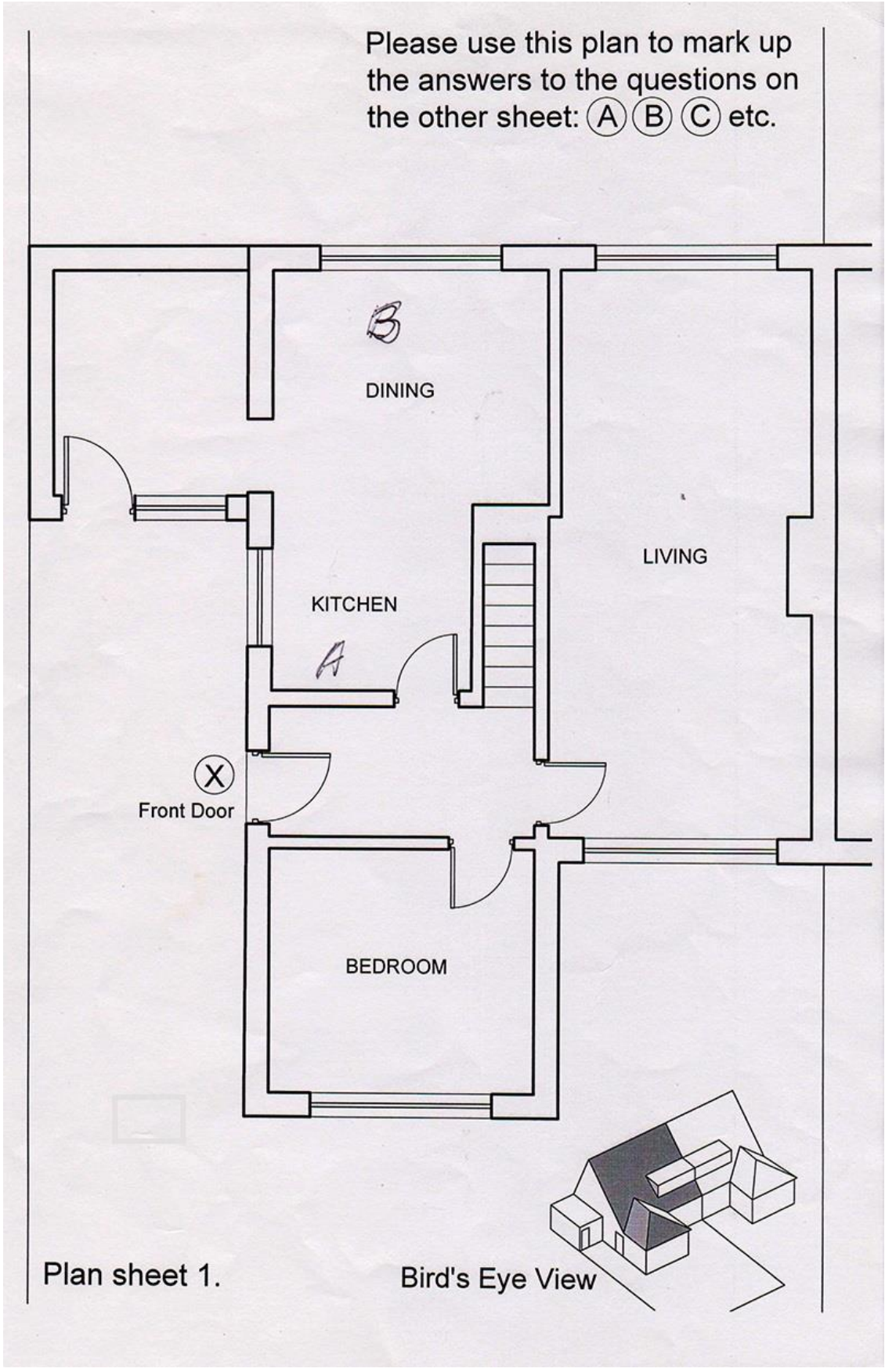
Normal.

On the other plan sheet (No. 2), I would like to know what rooms you use the most and the least in the house during the day. Are there rooms that you rarely go into. Do you go straight to the kitchen / dining space after getting up in the morning, for instance?
Please write notes within each of the spaces – how often you use them and at what times of the day. Again, take your time over a few days – there's no rush.

Once [redacted] has dropped these over to you I'll give you a call and introduce myself.

Kind regards
Kevin
April 2020

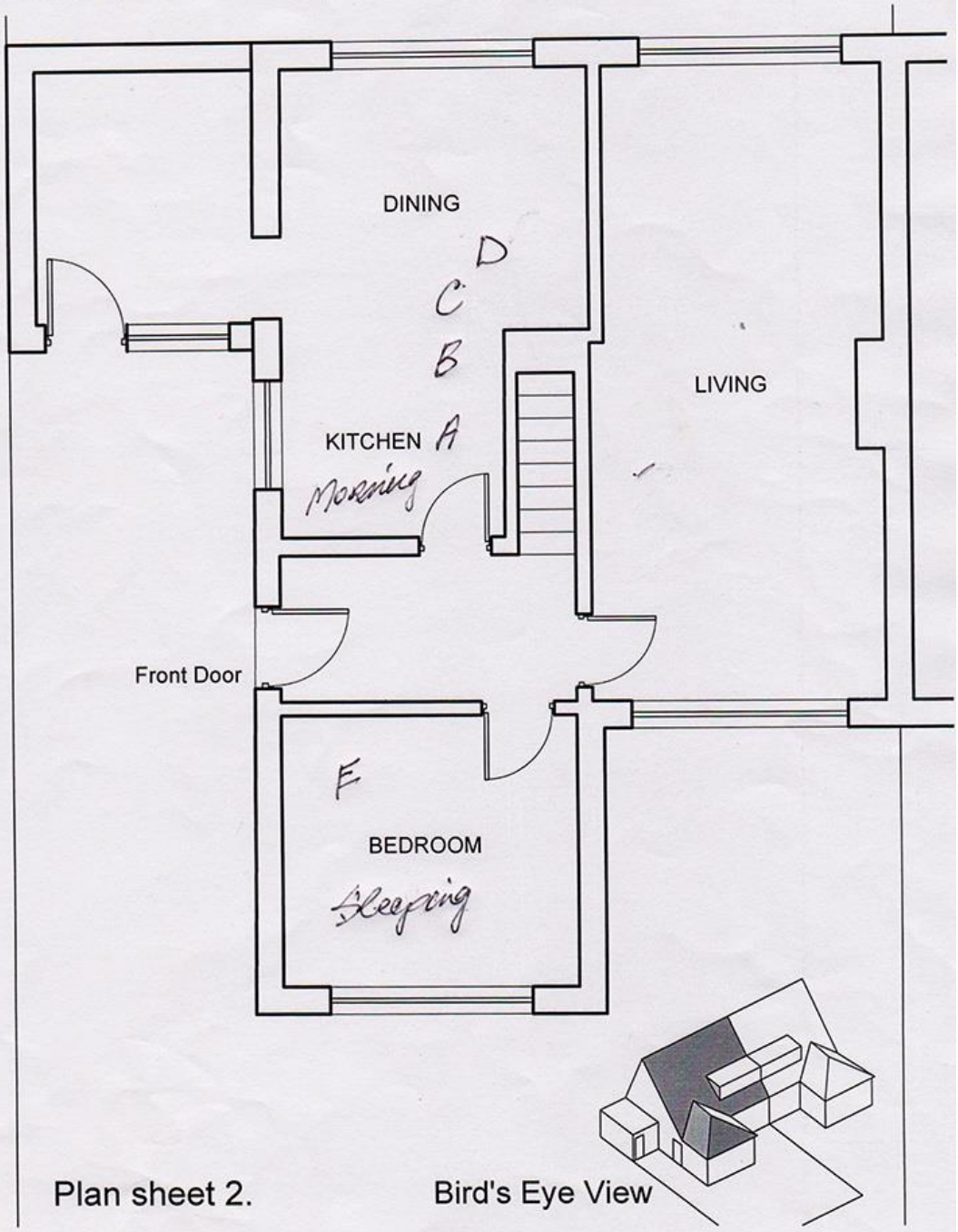
Plan sheet 1


Please use this plan to mark up the answers to the questions on the other sheet: A B C etc.
B
DINING
LIVING
KITCHEN
A
X
Front Door
BEDROOM
Plan sheet 1.
Bird's Eye View

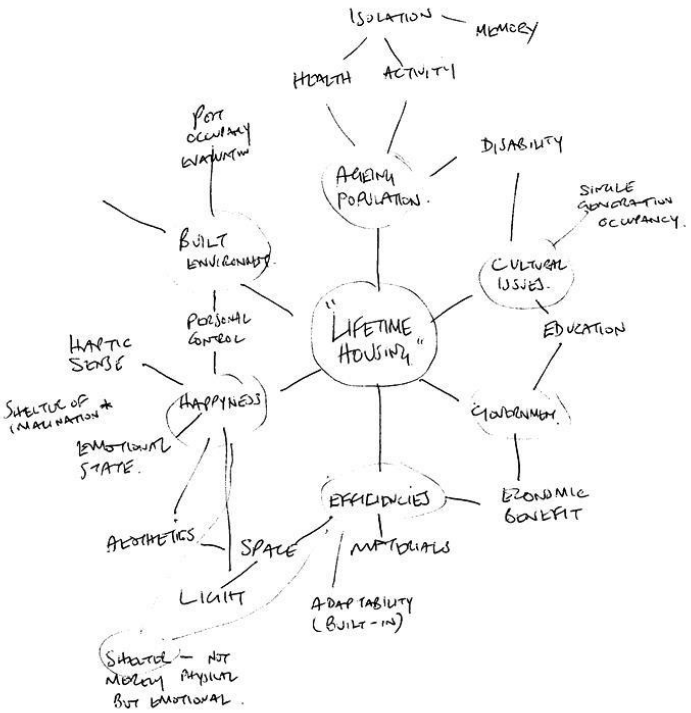
Plan sheet 2

Please use this plan to write down notes on which rooms you use during different times of the day, such as:
morning - lunchtime - afternoon - teatime/dinnertime - evening.

Is there a change on certain days of the week or if it's sunny or raining outside



Chapter Three



Chapter Three – dramatis personae

The first pandemic lockdown imposed in March 2020 necessitated a change in direction. As further lockdowns followed it proved to be a wise choice, as the over-70s were still regarded as a vulnerable sector of the population in 2022.

Discussions with wheelchair users, architect colleagues and contacts within CEUD changed the focus of the research to investigate the standards of accessibility in new housing proposals. One aspect of the planning of the dormer bungalows and two-storey houses, built in the 1960s and 1970s, affecting the spatial use for older people, was the absence of a ground floor bathroom. Information on this and on a number of other aspects of new housing was in the public domain and, more significantly, available online.

The first step was to consider the 'players' involved in the housing process from government policy through to the experience of the end-user.

3.0 Dramatis Personae

"My building has every convenience
It's going to make life easy for me
It's going to be easy to get things done
I will relax, along with my loved ones"

Talking Heads, 1977

When David Byrne of Talking Heads told us not to 'worry about the government' [1] he paid particular respect to the civil servants who 'work so hard and try to be strong' but, above all expressed his good fortune in finding a building that he wanted to live in.

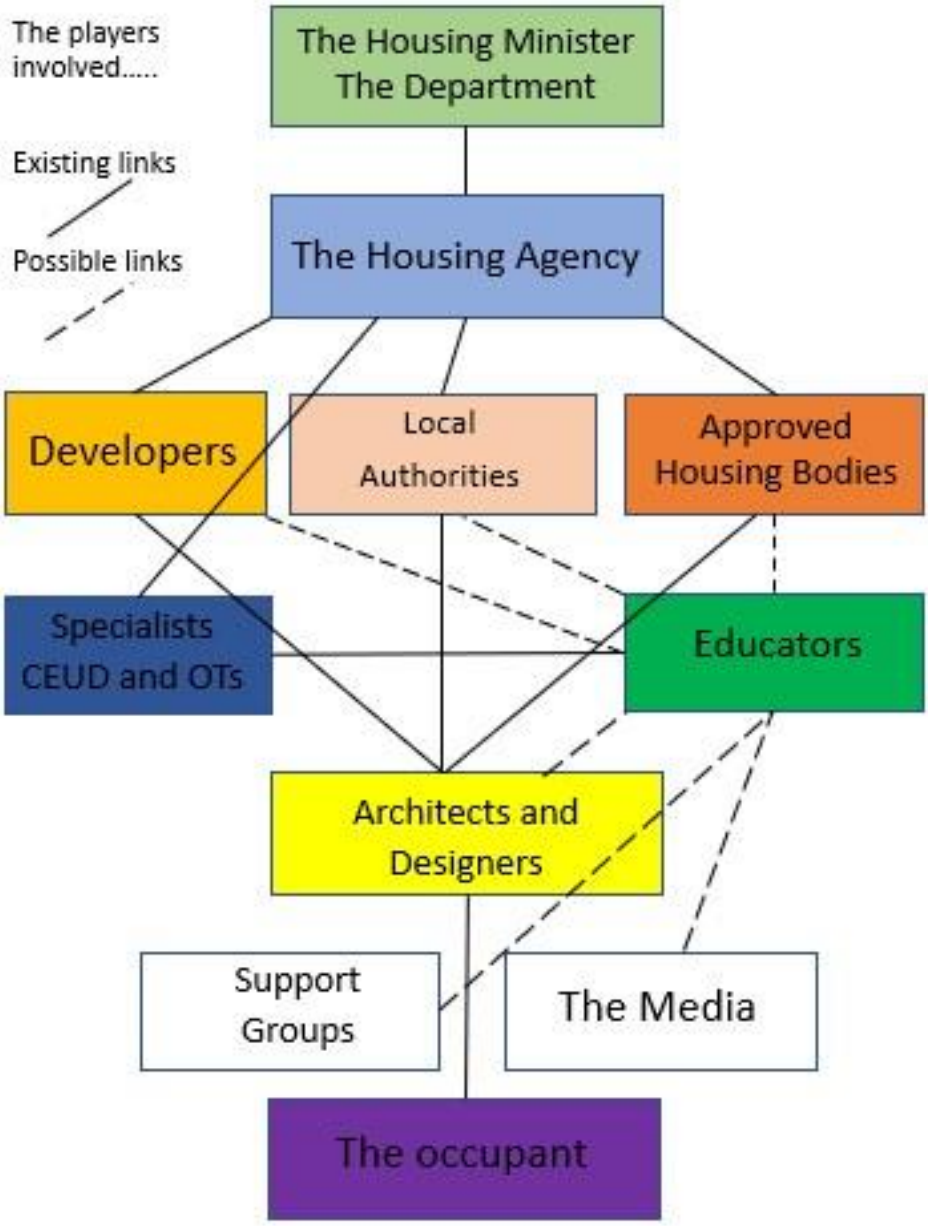


Fig. 3.0a connections between the parties, by the author

3.1 Government – Housing, Local Government and Heritage (formerly housing, planning and local government).

The Irish Government has changed 7 times in the last 20 years, having, in that time experienced the exponential growth of the 'Celtic Tiger', the subsequent economic crash of 2008 (precipitating the fall of the government in 2011), the disruption of Brexit from 2016 and the Covid Pandemic from 2020. In those 20 years there have been 10 separate ministers specifically responsible for housing.

Reviewing some of the earlier ministers' colourful and sometimes controversial political careers, it is difficult to find any positive responses to the question of accessibility in housing, particularly prior to the creation of the new role of housing minister in 2016. A career in politics appears to attract former primary school teachers, farmers, doctors and company directors. In the majority of cases there is little evidence to suggest that it be a requirement of the post to have any prior knowledge of, or involvement in housing, or, in fact anything to do with the built environment. Election defeats and cabinet reshuffles, particularly in times of crisis lead to short term positions of influence before the incumbent moves on to, often unrelated posts in Health, Energy, Transport etc.

List of ministers responsible for housing provision over the past 20 years [2]:

1. **Noel Dempsey** up to 2002 - resigned from politics in 2011
2. **Martin Cullen** 2002-2004 - resigned from politics in 2010
3. **Dick Roche** 2004-2007 - defeated in 2011 election
4. **John Gormley** 2007-2011 - defeated in 2011 election
5. **Eamon O'Cuiv** – served 2 months only in 2011 while, at the same time, minister for defence, and for social protection prior to Fianna Fail's election defeat in March 2011
6. **Phil Hogan** 2011-2014 – left to take on a role in EU agricultural and rural development in 2014
7. **Alan Kelly** 2014-2016 -inherited the controversial role of water charge deployment, instigated by his predecessor
8. **Simon Coveney** – July 2016-june 2017 – inaugural minister for housing. He became Tánaiste in 2017 with special responsibilities regarding the emerging crisis of Brexit.
9. **Eoghan Murphy** – June 2017-june 2020 - survived 2 votes of no confidence during his tenure. Now resigned from politics

The current housing minister is Darragh O'Brien of the Fianna Fail Party [3], assisted by his Minister of State, Peter Burke. Unlike many of his predecessors in the post, he has some prior experience of the role, having been opposition spokesperson since 2016. He presides over the department's management team, which includes a number of government secretaries responsible for housing delivery, housing policy, legislation and governance. The stated departmental goals for the period 2017-2020, related to ensuring the sustainable and balanced development of good quality housing.

3.1.1 Housing Policy

In 2021 the department published “Housing for all – a new Housing plan for Ireland”, [4] outlining its policy proposals up until 2030. The scope of the proposals can be broken down into 3 topics: a commitment to increased supply of housing; new financial incentives to purchase or rent housing; adjustments to legislation particularly around tenure.
Other than a proposal to increase funding for adaptations to existing dwellings, there is very little explicit within the document that relates to appropriate levels of accessibility or Universal Design in new housing. This is despite the stated aim of offering a high quality of life. The development of a national policy on right-sizing is also suggested, as an acceptance of changing demographics, however, the adoption of lifetime homes principles for all new housing would ensure this objective for the future.
Under the section entitled ‘*enabling a sustainable housing system’* there is a proposal to embed compliance in the construction sector through Building Regulations and Building Control Regulations. This emphasizes the fact that there is currently a lack of compliance in this area and the document goes on to suggest a need for innovative approaches to housing construction, albeit with a main focus on issues of tackling the effects of climate change. A stated commitment to establishing a commission on Housing will, hopefully, address such quality-of-life issues as accessibility, in future housing proposals.

Section 2.4.1 of the document proposes to “increase the housing options available to older people to facilitate ageing in place with dignity and independence.” It goes on to suggest that it will focus specifically on the delivery of housing appropriately sized and located for older people. Adopting lifetime/UD standards will achieve this, not only for older people but for everyone. Encouragingly, at this point in the document there is a reference to delivering housing in line with Universal Design principles, but the commitment appears to relate to the development of a website promoting the topic and continuing to work with age-friendly organisations, rather than to any concrete proposals.

Section 2.4.2 outlines the importance of increasing housing supports for people with a disability and suggests that 1 in 7 of the population of Ireland has a disability. It is unclear from the text as to exactly how many of these have a disability that affects mobility within the home. As with many proposals relating to housing for the elderly and disabled, a range of housing types is proposed, implying that such people are a special case. Adopting lifetime housing standards in all new housing will accommodate many people with less severe disabilities or need for support, at the same time giving them dignity and independence. It is to be hoped that the recently established Housing and Disability Steering Groups (HDSG) within the local authorities can help to promote this.

The report goes on to discuss problems of housing supply. Given the ambitious target of 33,000 homes to be built every year until 2030 it is imperative that they are built to an accessible standard that reflects current approaches to inclusive and Universal Design. Though accessibility is not strictly a planning issue, the proposal to replace the strategic housing development (SHD) with the large-scale residential development (LSRD) may give opportunities to increase oversight and engagement with HDSGs within local authorities.

Section 5 of the report is concerned with sustainability, specifically in response to climate change. There is, however, a proposal to incorporate value-engineering and standardisation into the construction sector. While the focus of this is aimed at construction methods and materials, it could also be applied to standardisation of house plans or for more thought to be applied to ergonomically efficient and accessible spaces within houses.

The *housing for all* document is the latest in a number of headline policy statements, strategies and research papers published in recent years that emphasize the crisis within housing provision. Some of these, including documents relating to age and disability are:

- Building Sustaining communities 2005 [5]
- Delivering Homes, sustaining communities 2007 [6]
- Housing Policy Statement 2011 [7]
- National housing strategy for people with a disability 2011 [8]
- Construction 2020 – (published in 2014) [9]
- Rebuilding Ireland 2016 [10]
- National Planning Framework 2018 [11]
- Housing options for our ageing population 2019 [12]
- Housing for people with a disability 2020 [13]

3.1.2 Building Control

Through legislation the government is also responsible for the building regulations which came into force in 1992. Section 3 of the Building Control Act of 1990 [14] states that building regulations are made by the minister (at that time the Minister for the Environment).

The standards prescribed within the Building Regulations include –

- “Accommodation for specific purposes or in connection with buildings, and the dimension of rooms, components and other spaces within buildings
- Means of access to and egress from buildings and parts of buildings”

The second schedule of the regulations consists of a number of technical guidance documents (TGD), A through M, based on the system adopted in the United Kingdom. Part M TGD [15] relates to access for people with disabilities.

Section 2 of the 1990 Act states that building control is carried out by the local (authority) council. The Local Government Reform act of 2014 abolished many of the smaller local councils in order to reflect the changing demographic of urban and rural areas. Described by the Irish Times as the biggest change in organisation of local councils since 1898 [16]. Whatever the ramifications of this change, the number of Building Control officers within each county was comprehensively inadequate to inspect the developments being carried out.

Section 14 of the 1990 Act states that the minister will appoint a Building Regulations advisory body who will advise on matters relating to the Building Regulations. The members of the body are appointed by the minister as he/she thinks fit to serve. The Housing for All document of 2021 proposes the re-establishment of the Building Regulations Advisory Body, which highlights that, over a significant number of years there was no analysis being carried out as to the effectiveness of the Building Regulations.

Failings in the regulations and, in particular, the 'light-touch' regulation adopted by successive Irish governments since the early 1990s have been placed starkly in the spotlight by an acceptance in July 2022 that the bill for fixing defective properties constructed during a long period of lack of oversight could amount to €2.5Bn. [17] Very little if any of this refurbishment work relates to a lack of accessibility but rather to problems with structure, building fabric and fire safety issues.

One of the problems in effectively achieving accessibility in housing is that responsibility falls between the remit of a number of government departments other than housing, such as health and finance.

" there are people dealing with different aspects of disability across a whole series of departmental silos, and as a result, we do not have a rights-based approach to disability matters in the context of the United Nations convention on the rights of persons with disabilities (UNCRPD) [18]

3.2 Relevant state body - The Housing agency

The housing agency, established in 2012, is described as a non-commercial state agency under the aegis of the Department of Housing, Local Government and Heritage.

> "We work closely with our colleagues in the Department to ensure and support the delivery of ministerial policy objectives. We are subject to the Code of Practice for the Governance of State- Sponsored Bodies and the Public Spending Code. We work to act in a fully accountable and transparent way." [19]

The agency's function is to provide a link between the government minister and their department and each local authority and other housing providers via a number of services relating to

- Housing Research and Analysis
- Housing Supply Supports and Advice
- Local Authority Services
- Approved Housing Body Services

The agency's strategic plan for 2019-2021 includes a vision to "promote the building of sustainable communities" and a stated mission to "promote the supply of housing to meet current and future needs and demand by being a centre of expert knowledge on housing, supporting housing policy development and implementing effective housing programmes in collaboration with key stakeholders." [19]

Aside from offering advice and support, the Housing Agency has a useful role in providing up-to-date statistics through its Housing data hub, the following being examples of available data:
In Ireland there are 2,003,645 Houses and apartments (2016) with an average household size of 2.75 persons, of which:

- 1,697,665 were occupied by persons usually resident
- 9,788 were occupied by guests or visitors
- 50,732 dwellings unoccupied by residents temporarily absent
- 62,148 vacant holiday homes183,312 vacant houses and apartments [20]

Another useful role of the agency, in partnership with the IPA (institute of public administration) and the Chartered Institute of housing, is the Housing Training network which provides training for 'housing practitioners'.

> " Our goal is simple – we want to provide everyone involved in housing with the advice, support and knowledge they need to be brilliant. As the professional body for people who work in housing, our job is to make sure you have all the advice, support and knowledge you need to put housing policy into highly effective practice". [21]

It is pertinent to ask whether good design is a policy issue relating to housing and to understand where such advice can be sourced by those who construct and deliver housing.

3.3 Housing providers

"the state must drive the provision of housing and urban development. The Irish Housing system is speculative, volatile and expensive…" [22]

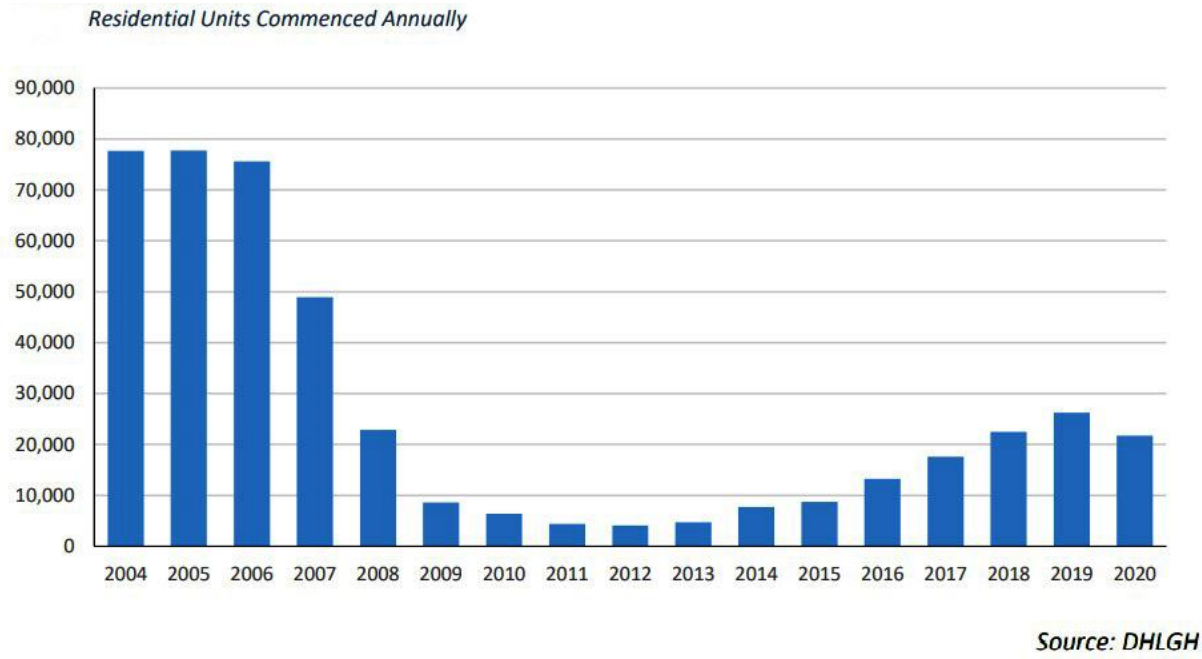


Fig.3.3a Residential unit commencements since 2004.

3.3.1 Private Developers

Speculative development can carry significant risk but, in turn can achieve significant profit as a reward for that risk-taking. One of the repercussions of the global financial crisis (GFC) of 2008 was the property price crash in the housing market, exposing speculative developers to huge losses and unwanted media attention. The scale of the losses created an existential crisis for the Irish banking system which led to the instigation of the National Asset Management Agency (NAMA) in 2009. The agency took on the loan books of the banks and sought to recover the debts from the property assets of the leading debtors.

Fig. 3.3b [23] indicates that, before the GFC, speculative developers were covering 80% of the housing construction market before falling dramatically over the following years. More recently property speculation has focussed on the building of hotels and student housing, which are proving more profitable.

There has been a steady increase in house-building costs since 2016 – specifically materials, overall site development and land prices, net-zero carbon measures, fire-detailing and water connections. [24] Supply chain issues following the pandemic and the inflationary impact of the war in Ukraine in 2022, have resulted in significant cost increases since 2020.

3.3.2 Local Authorities

In Ireland, social housing is predominantly focussed on lower-income and disadvantaged households the majority being delivered by the local authorities, with the assistance of the approved housing bodies.

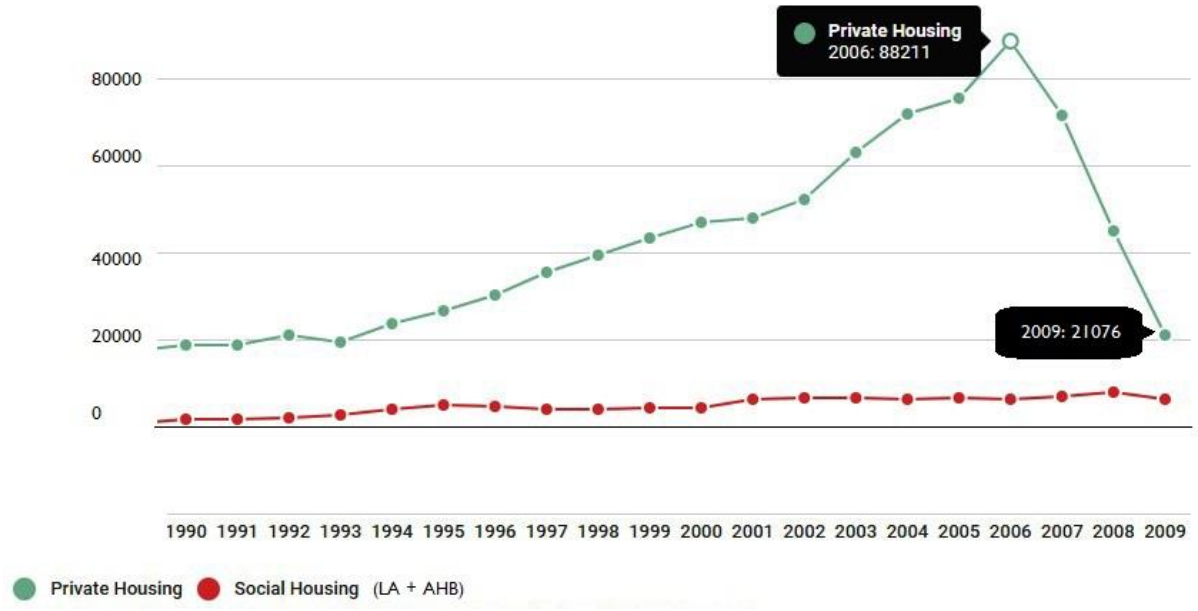


Fig. 3.3.2a share of house building prior to the global financial crisis – Housing Agency

Social housing is almost exclusively funded from government, through the exchequer. In 2008, capital spending by the government on housing equated to €1.5 Bn per annum but this was soon to fall in the wake of the economic crash to a level of €300 Mn in 2013. 2020 figures have seen a return close to the levels before the crash. [24]

As the government is required to use 'public money' to fund local authority housing, budgets are tightly controlled and there is little scope to design beyond the minimum standard as set down in the building regulations. A housing department, receptive to equality, could introduce lifetime home or universal standards into their proposals but would find these 'value-engineered' out prior to construction.

3.3.3 Approved Housing bodies (AHB)

The essential role of the AHBs is to contribute to the social housing stock either through construction, acquisition or leasing of housing units, funded by various government schemes. In 2021 the combined AHBs built a total of 2,802 new long-term social housing units. [25]

3.4 Specialists and consultants

3.4.1- CEUD

The Centre for Excellence in Universal Design was established in 2007 as part of the National Disability Authority (NDA) under the Disability Act 2005. Based upon the seven principles of Universal Design (UD) developed by Ron Mace and his team in 1997 in the USA [26], CEUD promotes standards in UD by:

- Commissioning, conducting and collaborating with research studies. Ruth O'Reilly, Senior Built-Environment Design Advisor, has been very generous in her help with this thesis, in particular on the discussion around minimum and optimal floor areas to achieve Universally-Designed dwellings. It is anticipated that some of the findings from this thesis will be cited in future CEUD publications
- Contributing to relevant international standard bodies – most recently BS EN 17210: Accessibility and usability of the built-environment. Functional requirements, published in March 2021
- Providing expert advice and information to relevant stakeholders, through a range of excellent publications that emphasize best-practice.
- Encouraging compliance with national and international standards of UD. This is probably the most challenging aspect of CEUD's work in that UD standards are, as yet not mandatory. National regulations on accessibility for instance, fall short of the rigour applied by a UD or lifetime homes approach [27]
- This final point is being addressed with the development of a National Standard of Ireland relating to Universal Design in Dwellings. The author is a member of the expert working group on the development of this standard, co-ordinated by the CEUD.



Fig. 3.4a Hubert Froyen's presentation at CEUD in 2014 – photo by NDA/CEUD

In addition, the centre has been at the forefront of promoting UD teaching in Education, through organizing conferences in Dublin Castle in 2015 and 2018, various events at its Dublin headquarters, and in the awarding of the Universal Design Grand Challenge each year to students on design courses that have addressed UD issues in their project work.

Particularly significant in the work of the Centre are the publications high-lighting best practice. *Building for Everyone, a universal design approach* [28] was the first significant publication, followed by *Universal Design guidelines for homes in Ireland* in 2015 [29], divided into sections including spaces for living. Most recently the centre was involved in advising the Housing Agency in support of its publication *Designing homes to meet the needs of all* [30] and the launch of the *housing for all* website.



Fig. 3.4d CEUD

CEUD is an excellent resource for Ireland and part of a wider network of international centres of excellence such as the Helen Hamlyn Centre for Design at the RCA in the UK

3.4.2 - Occupational Therapists

Occupational therapists (OTs) are, perhaps, in the best possible position to reflect and report on the state of accessibility in the built-environment. Their daily work puts them in direct contact within the homes of people with disabilities who are often invisible to the rest of society.

To the uninitiated, the term occupational is misleading. It does not refer to a person's job or employment, but to all the daily activities that occupy one's time, the tasks of daily living that one is engaged in. These tasks might relate to maintaining hygiene through bathing or using the toilet, to cooking, eating, cleaning, to getting restful sleep, or simply to enter and leave the house.

Often attached to hospitals, health-centres and care homes, occupational therapists are also employed by local authorities to carry out assessments of a person's needs by visiting their home to see what changes may be required to enable them to live as independently as possible. They will then work with the person to plan for any adaptations, in conjunction with local authorities, building contractors and architects.

The *Association of Occupational Therapists of Ireland* AOTI set up the Housing Advisory Group (HAG) in 1999 to promote the role of OT in accessible housing and independent living. The name of the group has changed to the *Enabling Environments Advisory Group*, broadening its scope beyond the home into public space. Such a venture provides opportunities to work with a variety of disciplines beyond the healthcare setting and to offer their expertise at the design stage rather than dealing exclusively with existing properties.[31]

OTs are in high demand, responding to a steady increase in the ageing population and to the poor levels of accessibility in the existing housing stock.

Situations around this lack of space and facility are frequently described in the press and in televised Oireachtas debates on disability matters over recent years. On 2nd December 2021, Jennifer Murnane O'Connor, Fianna Fail TD for Carlow Kilkenny, stated that she was constantly fighting on accessibility issues.

"We need to develop a disability awareness-raising strategy" [33]

3.5 The Architect

"Architects may come and architects may go
and never change your point of view" [34] Paul Simon 1970

What is the motivation to pursue a career in architecture? Not for the potential financial rewards offered by other 'professions' such as law or medicine. With 7 years in training and as many more in junior positions in practice, architects tend to mature as designers over a long period of time.

Public perceptions of architects change over time and circumstance. In contemporary Ireland there is a sense of status and a positive identity attached to the profession. Places on architecture courses are generally highly sought-after and reflected in the entry requirements. Television programmes provide entertaining glimpses of the potential for improvement and ultimate happiness, fuelling the national obsession for property ownership and creating celebrities of the architect presenters.

This current state of affairs is a world away from the experience of the late 1970s in the United Kingdom where public opinion had turned against brutalism and some of the poor construction standards of the 1960s. This reached its nadir in the events around the case of the disgraced architect (never officially registered with the profession) John Poulson. Poulson was sent to jail in 1974 on charges of corruption and a number of high-profile resignations followed, but the case highlighted a wider problem, particularly within the urban regeneration projects of the time. [35]

The Vitruvian ideal from the 1st century BCE, of commodity, firmness and delight - conditions first espoused in his 10 books of architecture [36], still remains relevant today. These conditions can be interpreted in a number of ways such as: usability, spaciousness, functionality; sturdiness, reliability, sustainability; aesthetics, form, composition, and other characteristics.

Whatever the reasons that lead one to committing to a career in architecture, the reality of the current profession is one heavily influenced by regulation. The complexities of carrying a project through the various design and work stages tends to lead to a high level of administration, and achieving the condition of delight often remains elusive, though that is part of a different discussion.

The author's experience of the profession was one of enthusiasm at the inception and brief development of the project and, in most cases the satisfaction of realising the finished building at the end of the process, making this a rewarding career choice. The work carried out between encompasses a number of stages involving liaison with planning departments and the production of drawings, closely scrutinized to ensure compliance with increasing legislation. Value-engineering can often compromise the design intentions as contract price tends to dictate the outcome – the client is buying a product from the contractor and paying the consultants to ensure the best outcome. Concerns about avoiding possible litigation and maintaining adequate public indemnity cover are an ever-present reality.

Above all the architect must be aware of the current issues facing the industry and beyond, in this case the effects of climate change, covered in Part L of the regulations.

3.6 Educators

The work of academics performs, or rather can perform a vital role in efforts to increase the accessibility of our housing stock.

In appendix B, the paper *Promoting Universal Design in architectural education*, 2015 [38], outlines the philosophy and methods employed within the Cork Centre for Architectural Education (CCAE) and in collaboration with other disciplines in academia. Examples of project briefs from MTU's department of architecture can also be found in Appendix F.

Appendix C contains the paper *Universal Design in Architectural Education – community liaison on live projects*, 2018 [39], which documents a particular CCAE student project for elderly people's housing in a West Cork town, in collaboration with the county council. A similar project, run the following year in Kinsale was submitted for, and awarded the National Age-friendly housing award for 2019.

In 2022 representatives of all the Schools of Architecture met in Carlow to discuss a project called the resilient curriculum. The focus of the project is to embed sustainability into the curricula of each school, initially in the undergraduate years and for which it has received funding. CCAE propose that UD should be included in the proposal as a form of social sustainability. Such efforts require a level of enthusiasm from the participants as it can be difficult for champions of UD to keep less-evangelical colleagues engaged with the process.

Most if not all schools of architecture allude to accessibility in their prospectuses, but certain institutions stand out for their clear commitment to UD research. The DWELL project at the University of Sheffield in the UK, considered the ageing population and "created a roadmap that industry, local authorities and others can use to co-design and deliver the down-sizer (or right-sizer) homes that people want." [40]

The same university has other ventures including EVOLVE [41] which relates to an evaluation tool for people living with sight loss, and another entitled ODESSA [42] which seeks to investigate innovative ways of adapting homes so that people can live independently.

The Helen Hamlyn Centre for Design at the Royal College of Art (RCA) in London, UK has a strong reputation, built up over decades for excellence in inclusive design research. One of its strengths is in its collaboration with industry, community and government through a series of live projects. [43]

In Hasselt, Belgium, the architect and UD advocate Hubert Froyen initiated a living-lab (Woonlabo) project in the city centre with the intention of carrying out empirical research into UD applications as a resource for the university and the wider community.[44]

Both of the papers produced by CCAE and highlighted above, were well received at conference and subsequently published, but their impact is mainly within the academic community. The goal is to find ways of disseminating the work to the wider community and, as with the Helen Hamlyn Centre, potentially influencing policy decisions.

3.7 Disability support groups

In Ireland there are a large number of groups that support the disabled, from small community-based operations to multi-national agencies. The Disability Federation of Ireland (DFI) lists 119 such groups on its website. [45]

It is unclear what connection, if any, that the DFI has with the National Disability Services association (NDSA) [44] which is an umbrella organisation that represents a number of leading disability service providers, who are also members of the DFI. One of these service providers is the Irish Wheelchair association (IWA) which has over 20,000 members. [46]

The National Federation of Voluntary Service providers (NatFedVSP) specifically represents people with an intellectual disability. Its CEO, Alison Harnett, however, expressed the view, in a recent Oireachtas Joint committee meeting, that a review of Part M of the Building Regulations was urgent. The goal was to get UD principles into many houses and to move towards a wheelchair 'liveable' rather than a 'wheelchair' visitable philosophy, which, to date, had not been achieved. [47]

At the same meeting in December 2021, Niall Pender, a leading clinical neuropsychologist, responded to the question of numbers and types of disability. He stated that there is no clear data in Ireland on this, and consequently there is a reliance on extrapolation of research findings from other countries who have such data. He also stated that the availability of service and treatment were often dependent on where you live.

Another aspect of those providing support comes from Family Carers Ireland, who represent the carers of disabled people. Like the volunteers of disability groups, they are the unseen and undervalued aspect of the care system. They do not volunteer for this caring role but fulfil it out of a sense of love and duty to their family members. The author had a brief yet humbling glimpse into this life through a community participation exercise, the draft report of which is included in Appendix D. One of the stark conclusions is highlighted in the report as follows:

> "What became evident throughout the course of the partnership was that many of the themes and ideas of importance require the support and leadership of others in addition to those engaging from Family Carers Ireland. The innate need for leadership and input from a range of areas speaks to the gaps in service provision and support currently available to carers," [48] (see appendix D).

There are many more international examples of disability support groups, each concerned with its own area of focus. One of these, Habinteg, is a UK and Ireland-based housing association, founded in 1970 that publishes important documents

and research on accessible living, alongside it's house-building programme. Habinteg is particularly influential in its work on developing lifetime housing standards and incorporates the Centre for Accessible Environments (CAE) within its organisation. [49]

In addition to support groups and organisations there are online platforms that champion disability issues such as disabilitypower100.com [50] which, each year, recognizes excellence from individuals within the field, and podcasts streamed on the BBC Sounds website. *Access all: disability news and talk* is a podcast presented by people with a variety of disabilities which covers a wide range of topics as a useful source of information about what it is like to live with a disability.[51]

3.8 The media

Despite the rise of social, non-broadcast media, viewing figures for the national broadcaster RTE and commercial stations remain relatively high, and are freely available across the country. Subscription services are also popular, giving access to a variety of channels including those from the UK. TV news shows and current affairs from RTE and Virgin Media provide an active debate which is reflected in the content and discussion on radio stations throughout the day. Analysis of the viewing figures suggests the most popular genres are news/current affairs from Ireland and soap operas, either home-produced or from the UK and Australia [52]

Another popular genre is lifestyle. Channel 4 alone lists 35 shows relating to home renovation and purchase [53] while the BBC offers over 20 across its various platforms [54]

Amongst RTE's lifestyle offerings is the show *Goodbye House* [55] where a, predominantly older, member of the public is considering down-sizing or, more preferably, right-sizing. The scenario follows a different person each week who recruits 3 family members or friends to find them an appropriate home.





Fig. 3.8a and 3.8b from RTE's Goodbye House

The viewer is shown around the 3 chosen options where the commentary rarely rises above entertainment value.



Fig. 3.8c from RTE's Goodbye House. S 2. Ep. 3

There is little or no discussion about rooms being big enough. If a room has a double bed in it then it's a double bedroom, ignoring the fact that there is 500mm to each side of the bed and no storage. But sometimes the 'contestant' poses a pertinent question.

In this instance Michael's question was met with incomprehension. There is a contradiction here in that lifestyle shows should, in some way depict real life. They are not public information films but there is a missed opportunity for a real conversation about what right-sizing means. What the programme also emphasizes is the lack of choice in finding suitable accommodation.

3.9 The public

Nobody wants to grow old or become disabled, let alone consider what it would like to be either. As evidenced by the lack of attention attributed to it in mainstream media, accessible design is not seen as a priority when choosing a house. In a summary of research carried out on attitudes and decisions about buying a new house, from 2005 in the UK, accessibility barely gets a mention other than to state that older people prefer bungalows or ground-floor flats. Internal layout, adequate space and number of rooms proved to be some of the main drivers, as evidenced by CABE in 2006:

> "I find a lot of houses have 5 bedrooms and downstairs there isn't enough room to sit around the table". [56]

Bernadette Egan is a member of the Irish public who has a valuable insight into living with a disability. She is a registered architect MRIAI who experienced a significant 'life-trigger' with her health, which has resulted in her becoming a wheelchair user.

Her article in the RIAI's Architecture Ireland magazine in 2021 gives a perspective on the current state of disability policy with regard to housing.

> "a complete change in attitude must be achieved in order that disabilities are properly recognised and integrated into the discipline of building" [57]

Bernadette falls into another category as an educator and researcher. She has a Masters of Laws in International and comparative disability law and policy [58]. In her recent presentation to the Oireachtas Committee on Disability Matters she states:

> "I discovered the hard way that the built environment is not adequately accessible at all. Life became a daily obstacle course" [59].

The stark reality for Bernadette was, and remains for many other people with a disability, the lack of choice of appropriate housing. This is not a right-sizing issue but a matter of immediate need, potentially making people in her situation homeless.

One of the subject areas in debates about the housing crisis in Ireland has been that of elderly people, living alone in vast houses that could be suitable for a family.

> "Research by Demos has suggested that if just half of people aged 60+ interested in downsizing were able to do so, this would free up 3.5 million homes". [60]

Yet where are these potential new, or existing homes that one can right-size into?

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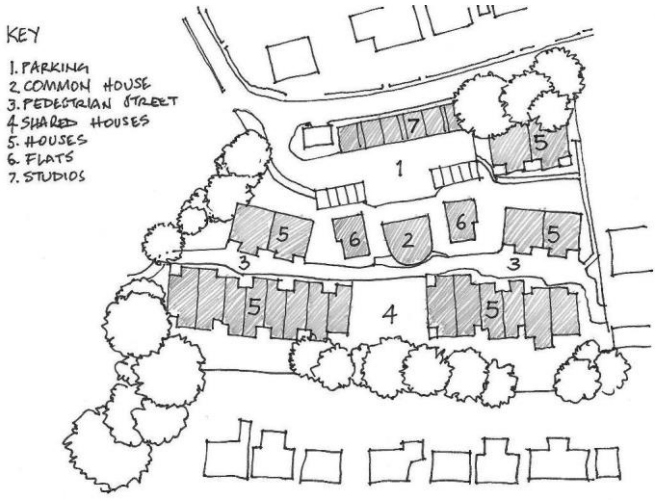
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Chapter Four



Chapter 4 – New Housing proposals: primary research

4.0 Introduction

> "As a longer-term policy objective and in line with the commitment in the Programme for Government to promote and support universal design, an examination of lifetime housing policy will be undertaken which will also consider the accessibility needs of wheelchair users …. in supporting people with disabilities to live independently." [1]

The phrase 'longer-term' seems ambiguous now when one considers that, since this National Housing strategy for people with a disability was written, 12 years have passed and 5 housing ministers have come and gone. The existing housing stock falls short of modern accessibility standards but the time for examining a lifetime homes policy for new housing is long overdue if we are to avoid the mistakes of the past.

A number of articles were published in the online edition of Cork's Evening Echo newspaper in 2020 [2] relating to a planning application for new housing that had received a large number of objections/observations.
The scheme, located in a south-western suburb of the city, proposed 40 townhouses, 36 of which would be 2-bedroom. In addition 27 apartments were planned, 10 of which were 1-bedroom units. Many of the, almost 900 observations related to parking issues, aesthetics and building height, issues that were subsequently addressed with a slight reduction in unit numbers, building height and a more vernacular iconography.
Close inspection of the plans revealed that the 36, 2-bedroom townhouses were considered small dwellings due to their floor area and consequently only contained a minimal WC on the access floor that conformed to the building regulations. There appeared to be no objections to the fact that these units would be inaccessible if following lifetime homes principles. This directly led to the decision to investigate what new housing was being proposed by designers.

From a given sample, the following research study investigates to what extent new housing proposals are being designed beyond Part M and towards a UD/lifetime homes standard.

4.1 Note on source material

In Ireland, all proposed private housing developments are subject to scrutiny by the planning system, either conventionally through the local authority planning department, or through a Strategic Housing Development (SHD) process for mass-housing proposals through An Bord Pleanála. The scrutiny extends beyond the planning officials to the general public as proposed scheme documents and drawings are published online.

This level of access provides a useful and relatively comprehensive record of the characteristics of current private housing development. For the purposes of this thesis, primary data was sourced from weekly planning lists of applications received, published online by Cork City Council for the full year of 2020 [3]. The planning lists contain a variety of planning requests such as for house extensions, change of use and new housing development. All new housing developments of more than 1 proposed unit (i.e. housing rather than houses) were identified from the lists and classified by type as either apartment or house. Scans of relevant documentation and specifically drawings of proposed schemes were then scrutinized, where available, to assess adherence to a Universal Design/Lifetime homes approach.

In the case of the SHD applications, lists are available through An Bord Pleannala [4]. Each multiple housing development for Cork City, received in 2020 was identified and relevant PDFs of documentation and drawings were downloaded and scrutinized from their specific website, again where available. These were similarly classified by apartment, house or duplex, and subsequently assessed.

All proposed developments were scrutinized where available, regardless of whether the decision of the planning authority was to grant, refuse, or to request further information, in order to provide a time-related record (the calendar year of 2020) of the standard of new housing design.

4.1.1 Methodology and scenarios

Each housing unit was assessed against a selected list of 15 guidance criteria (shown on the next page) identified in the Centre for Excellence in Universal Design's guidelines, *Universal Design Guidelines for Homes in Ireland* [5], specifically from *Section 2: Entering and Moving Around* and *Section 03, Spaces for living.* A scoring system for each criterion was adopted as follows, under 5 categories:

1. Designed to Lifetime homes standard, no adaptations required. 5 points
2. Requires simple adaptations with minor costs 4 points
3. Requires possible adaptations with moderate costs 3 points
4. Required extensive adaptations with significant costs 2 points
5. The design is economically unfeasible to adapt 1 point

The scoring system is explained in greater detail in the following pages and is based on the assumption of a newly-built home that is functionally accessible given the following 2 scenarios:

a wheelchair user or person with significant mobility issues who is trying to find a rental home to move into; an elderly person, hospitalized after a fall who wishes to return to their new home.

The housing schemes under scrutiny, however, are not yet built, presenting opportunities to achieve full Lifetime Homes standards at the design stage. The initial question posed is therefore, what percentage of the survey sample fulfils category 1 as a 'Lifetime Home', and what percentage require only minor adjustments in design to move from category 2 to 1? The research then identifies the reasons why some of the housing design proposals fall into each of the categories 2 to 5.

4.1.2 Sample size

The sample size of available and measurable data* from the planning lists and SHD information was as follows:

Planning applications	SHD applications
904 units of which:	**1301** units of which:
Houses **334** (37%)	Houses **776** (60%)
Apartments **489** (54%)	Apartments **459** (35%)
Duplexes **81 (**9%)	Duplexes **66 (**5%)

Table 4.1a Survey sample information

* a further 22% of all planning applications received were either withdrawn or incomplete, with no drawings submitted and could therefore not be scrutinized. This accounted for 72 houses and 195 apartment/duplexes. The SHD figures are based on 5 of the 9 applications listed. The remaining 4 applications were unavailable for scrutiny.

4.1.3 Criteria for analysis

Space-standard priorities from the CEUD guidelines [5]. The specific guidelines and criteria are explained in greater detail in the following pages.

a) Provide a WC compartment of at least 1500 x 1800mm at entry level
b) Make the room large enough to be adapted to a shower room at entry level 1800 x 2000mm, preferably 2100 x 2400mm
c) Clear turning circle of 1500mm in habitable rooms
d) Identify future bed-space at entry level
e) adequately-sized entrance lobbies
f) Double/twin bedrooms at least 13 sq. m and single at least 8 sq. m
g) Corridor widths 1050 – 1200mm
h) 300mm at leading edge of doors
i) 1200-1500mm between opposing work surfaces
j) 800mm clear to each side and more to the end of the bed
k) Recommended unobstructed living room widths per bedroom
l) Adequate space around dining table
m) 'U'-shape or 'L' shape kitchen preferable
n) storage inside front door
o) Flexible study space for home-working

In order to maintain objectivity, all of the above criteria are either measurable (a, b, c, f, g, h, i, j, k), identifiable (d, m, n, o) or can be interpreted from available space-planning data (e, l)

4.1.4 Examples of some of the planning data

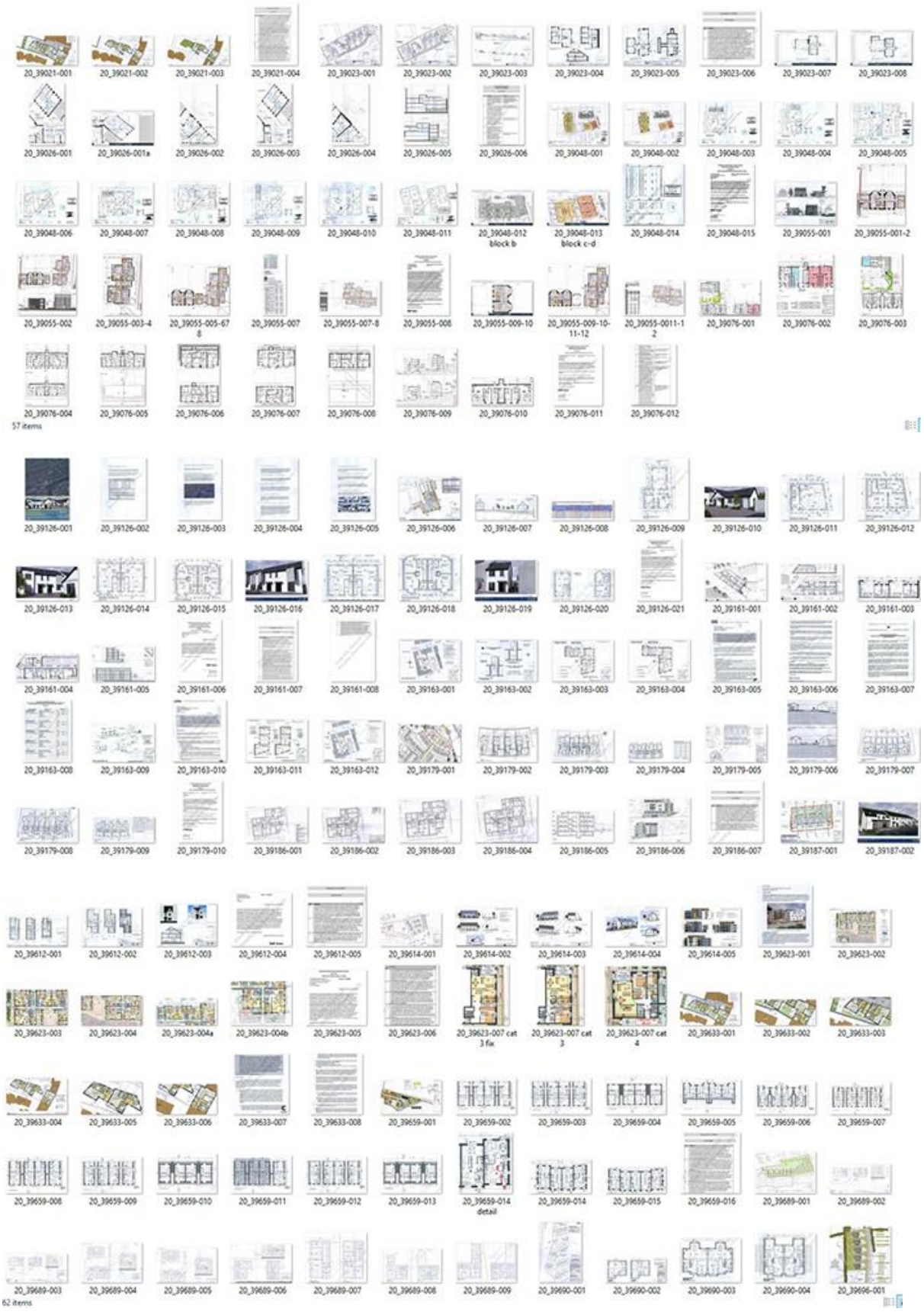


Fig. 4.1a Thumbnails of some of the drawings accessed through Cork City Council's planning portal

4.1.5 Example of scoring sheet

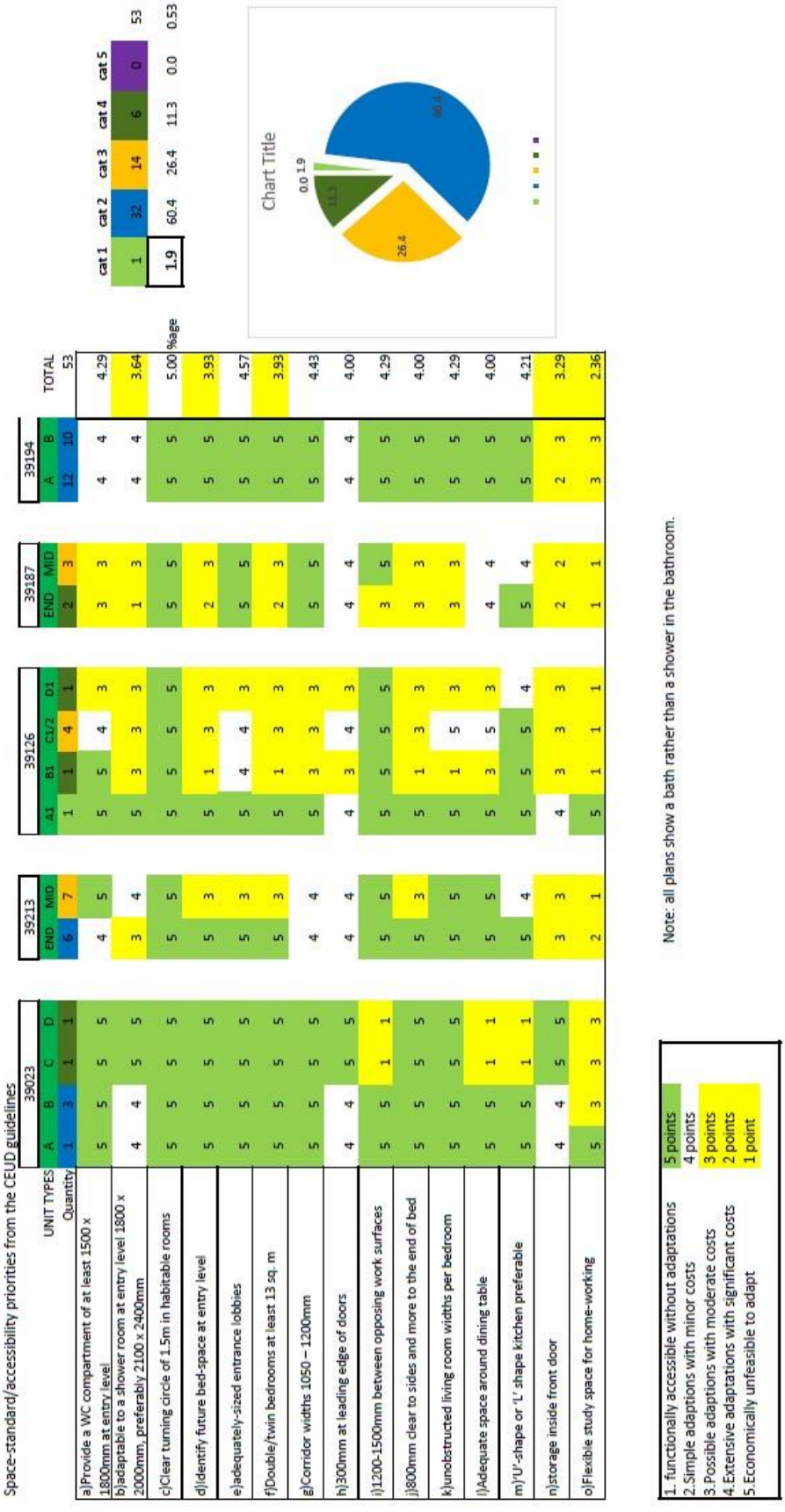


Fig. 4.1b Scoring sheet – houses 1 -from Planning applications to Cork City Council 2020

4.2 Literature review

Guidance and regulation for the designer of housing

4.2.1 Government publications

Since the introduction of the Disability Act of 2005 [6] there has been a plethora of publications relating to housing, some with specific regard to accessibility and others providing only a cursory reference to the subject. Strategies, 'road-maps', best practice guides and policy documents abound, invariably containing minor amendments from previous iterations after the pre-requisite ministerial introductions proclaiming the latest panacea

As an example, the Department of Environment, Heritage and Local Government published one such document, an 84-page, best practice guide in 2007 entitled *Quality Housing for sustainable communities* [7]. It was updated in 2015 and, most recently in 2020 with some minor amendments. The following is a summary of some of the specific points.



Fig.4.2a cover of the Quality Housing for sustainable communities

Page 4 of the 2007 document states that:

> "The needs and reasonable expectations of residents are of fundamental importance. The typical family dwelling will be required to meet the needs of infants, young children, adults and older people, either separately or in combination, at various stages of its lifecycle."

While they may be considered of fundamental importance, the (subjective) needs and reasonable expectations are undefinable and open to different interpretation. Needs may be defined but it is unclear as to who is the judge of what is a 'reasonable' expectation. Following the same theme, what constitutes a 'typical' family dwelling?

The document states that it does not deal with the (undefined) special design features required by the disabled, referring the reader instead to the CEUD document "buildings for everyone" [8]. P.5 and yet goes on to say:

> …."There should be ease of access and circulation for all residents, including people with impaired mobility, enabling them to move as freely as possible within and through the development, to gain access to buildings and to use the services and amenities provided. Dwellings should be capable of

adaptation to meet changing needs of residents during the course of their lifetime." P.7

Again, the phrase "as freely as possible" is open to significant interpretation. People come in all shapes, sizes and abilities.

Similar ambiguities occur in Part 2 of the document which discusses the design brief where content and level of design input… "should ensure that the scheme will 'meet the needs' of the potential residents…. and that the design will be 'appropriate' to the needs of the occupants" P.15/16/17.

Other instances from this section include arbitrary phrases such as 'as far as possible', and 'in so far as practicable'. The section concludes with cost control and procurement for Housing Design but makes no reference to accessibility or flexibility

Section 4.2 Design Approach states that:

"In the planning and design of the scheme, the architect should: eliminate barriers to accessibility for all users - particularly older people and those with mobility impairment or other disability;" P.30

For the designer, to effectively eliminate barriers requires clear guidance and enforceable regulation.

4.3.3 Mix of Dwellings – duplex apartments are mentioned here but only in the context of social housing P.32. Duplex apartments, where the entry level is above ground floor are invariably inaccessible.

4.6 Accessibility…… (regarding Part M [9]) the documents states that:

"The underlying philosophy on which these requirements are based is that buildings should be accessible and usable by everyone, including people with disabilities. Those involved in the design and construction of housing developments should have regard to the philosophy of universal access and 'should consider' making additional provision where practicable and appropriate'." P. 39

'Consider' could be defined as, 'to think carefully about before making a decision'. Architects and designers think carefully about many aspects of their work but are ultimately guided by legislation and regulation.

Part 5 Dwelling Design

5.1.2 Apartments – in relation to apartments we have:

> "The need for lift access should be given particular consideration, not only from the point of view of facilitating people with disabilities but also in the context of sustainable living for all users." P. 45/46

There is no mention here of duplexes – it is not clear whether they are considered separately.

5.2 Flexibility and adaptability

> …."Designers should consider not just the immediate needs of the prospective occupants but also their changing needs over the life of the dwelling. In so far as practicable, the design
> should provide for flexibility in use, accessibility and adaptability. The aim should be to ensure that dwellings can meet the changing needs of occupants over their lifetimes, including needs associated with moderate mobility difficulties and the normal frailty associated with old age. Older people or persons with moderate disabilities, who wish to remain independent in their own home, should be able to do so without the need for costly and disruptive remodelling of the dwelling." P. 47

There is a reference given to lifetime homes guidance in appendices, but, significantly, the sentence regarding persons with moderate disabilities being able to use the home without modification is crucial to the appropriate design of all new housing .

5.3 Internal layout and space provision

5.31 General principles …. gives some reference to possible future bed space for individuals with mobility issues but there is no mention of an accessible bathroom or access to acceptable levels of hygiene. P. 47

5.32 Space requirements and room sizes.

> ….."Adequate floor areas and room sizes are important considerations but do not necessarily create good quality living spaces". P. 48.

And yet the text quickly defers to a set of precise, prescriptive area guidelines for room sizes with no explanation as to their origin. There is a note that "Floor areas for dwellings designed to accommodate older people, disabled people and others with special needs, may vary from these, depending on the particular requirements to be met", but it would be more practicable to consider how much extra space, if any, that such situations would require.

5.52 Circulation

> …..“There should be adequate circulation space for wheelchair users at entry level, affording them access to the main rooms within the living area, e.g., sitting room, dining area and kitchen, with space to turn a wheelchair within this area.
> In dwellings of two or more storeys, where there is no bedroom at entry level, there should be space within the living area at entry level that could conveniently and safely accommodate a bed space. The stairs design should be designed to allow future provision of a stair lift. The possible future location of a ‘through-the-floor’ lift, e.g., from the ground
> floor hall to a landing area next to the bathroom on the first floor, should also be considered at design stage”. P.53/54 –

the phrase ‘should be’ regarding space to accommodate a future bed space is unenforceable but, more significantly there is no mention of an accessible bathroom. Why go to the expense of a future lift if an entry level bathroom will suffice? A future lift provision does not help in an acute or temporary situation.

5.8 Sanitary facilities and bathroom provision

5.82 Bathroom states that:

> “A bath should normally be provided…The bathroom layout …should facilitate later adaptation for wheelchair users, if required.” P. 59

Later adaptation does not help in an acute or temporary situation. If wheelchair-users may be able to use it one day, why not design and install a level-access shower at ground (access) level?

One positive note is that, in the appendices there is a useful audit checklist based on the Joseph Rowntree foundation for Lifetime homes standards [10].

While clearly produced with good intention, it can be difficult to understand the purpose, usefulness and intended audience for these documents, other than to highlight that the government and current housing minister is aware that there may be a problem. Much of the content is often an iteration of the previous version from 2007 and 2015, with some minor changes responding to the zeitgeist. The phrasing of the text has a level of ambiguity, open to interpretation, but above all, failing to commit to any concrete proposals despite a clear understanding of the problems relating to accessibility.

4.2.2 Building regulations

The fundamental aim of the building regulations is to provide safety and welfare to people, in and around buildings, specifically new buildings or new extensions to existing buildings. Minimum performance requirements 'likely to be suitable for the purpose of the regulations' are identified in the second schedule of the regulations as twelve Technical Guidance Documents (TGD), lettered parts A to M [11]. The regulations relating to accessibility for all building types are covered in TGD M, from 1991, amended in 1994, 1997, 2000, 2010 and most recently in 2022. [9]

The TGDs appear to be based on the UK regulatory approach of Approved Documents (AD) and adopt a similar lettering system [12]. In 2015 the UK AD, Part M 2010 was amended and split into two parts, namely Volume 1: dwellings and Volume 2: buildings other than dwellings.

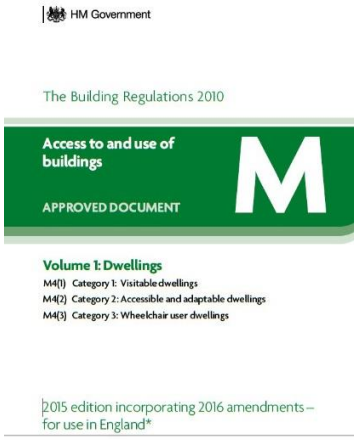


Fig.4.2b cover of the UK Part M

Sanitary provision in Volume 1 was further categorised into 3 parts:

M4 (1) Visitable dwellings;

M4(2) accessible and adaptable dwellings; and

M4(3) Wheelchair accessible dwellings.

The Irish TGD devotes over 90% of its 180 pages to 'buildings other than dwellings'. Its limited intention is clear from the general introduction on page 6 which simply requires that new dwellings are 'visitable'. This is further emphasized in item 0.4 on page 8 where the use of steps for the ambulant disabled is considered acceptable, both in terms of entering the home and also of moving around in the home. There is a minimum requirement for a WC at entry level, for which diagrams are provided in part 3, but there is no suggestion that it should be accessible as a bathroom. The introduction also references the Disability Act of 2005 [6] but only in relation to public buildings.

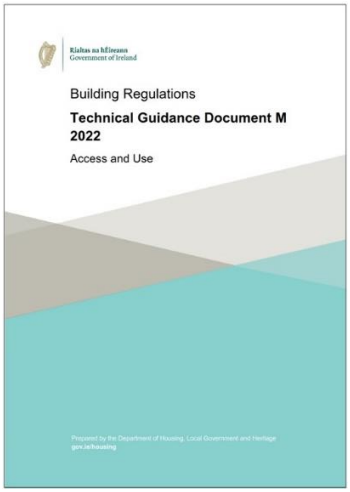


Fig. 4.2c cover of the Irish Part M

Starting on page 149, Section 3 deals with Access and Use of dwellings and commences with item 3.1, the approach to dwellings via gentle slopes, ramps and steps. Regarding the sole provision of stepped access, item 3.1.2.5 allows for this solution in the case of duplexes where the entrance floor is above ground floor, making such housing units inaccessible.

Section 3.2 Access to dwellings clearly states the objective that the entrance to the building should be accessible to visitors. It is not made clear in the text as to why a visitor, rather than the occupant should be specifically accommodated other than to say that the entrance door should be wheelchair-accessible.

Section 3.3 Circulation within dwellings continues the theme of accommodating visitors to the home, or at least to the entrance storey. Diagrams included are labelled 'visitability' requirements of internal doors', conjuring up images of expectant occupants waiting for a wheelchair-user to visit to test the accessibility of their home.

"The building regulations require housing to be 'visitable' but not wheelchair accessible. People who have a mobility impairment and who are or who may become full-time wheelchair users require appropriately designed and future-proofed housing…" [13]



Fig. 4.2d IWA Best Practice Guidelines

Section 3.4 Sanitary facilities for dwellings once again seeks to accommodate the visitor rather than the occupant. In this instance at least there is some regard to accessibility in allowing space within the WC to transfer from a wheelchair.

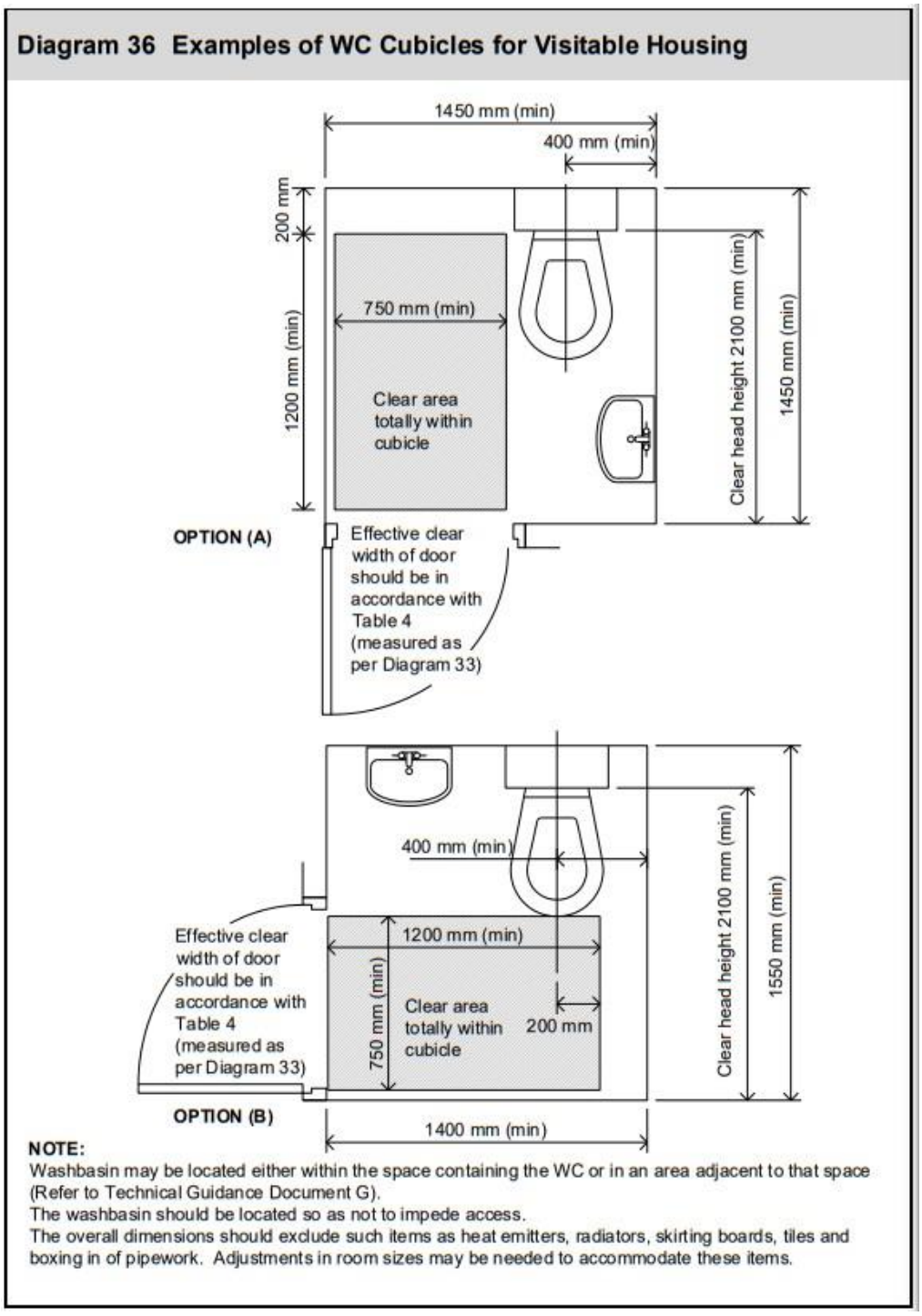


Fig. 4.2e Accessible WC guidelines from TGD Part M. DEHLG

As discussed earlier in this chapter, the document *Quality Housing for sustainable communities* [14] suggests provision for a future bed space on the access floor but not for somewhere to wash oneself and maintain a dignified standard of hygiene.

Section 3.4.3 WC in smaller dwellings

Where the area of the storey containing the WC is less than 45m², then the following WC compartment is deemed acceptable. A wheelchair user would have to sit on the toilet, with the door open and the wheelchair in the hall, in order for transfer to be effective.

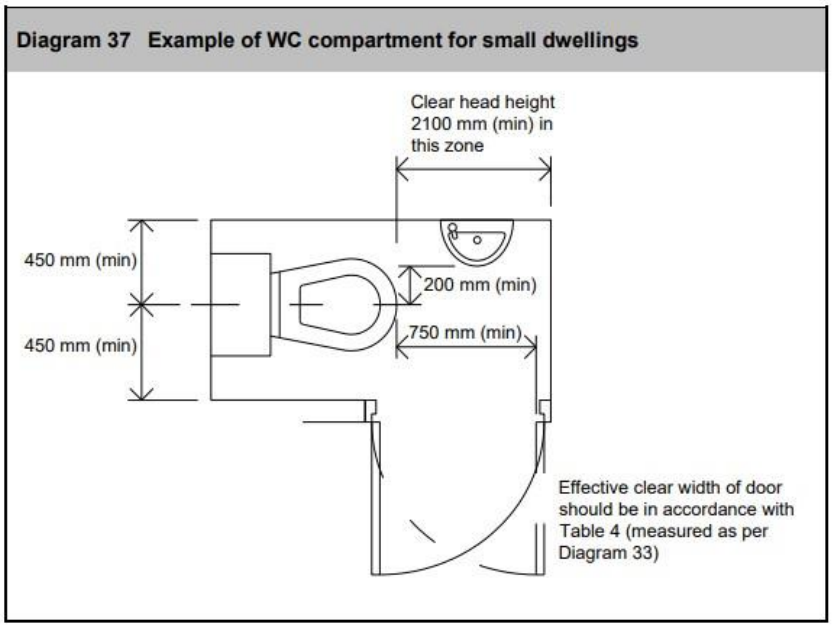


Fig. 4.2f WC guidelines for small dwellings from TGD Part M. DEHLG

The logic behind this decision appears to be to save money by minimising space but it fails to consider any aspect of dignity and privacy for the occupant and visitor.

4.2.2.1 Application and semantics of the regulations

As with the documents and publications described in 4.2.1, there are many areas of the regulations which are open to interpretation.
The guidance section on page 6 of TGD Part M, states that …"where works are carried out in accordance with the guidance in this document, this will, prima facie, indicate compliance". There is also an opportunity for compliance to be achieved by other methods and approaches, providing that evidence of such compliance can be proved. There are around fifty related standards and publications listed at the end of the TGD which are useful as sources of information but do not form part of the guidance. This is crucial as many of these sources of information could be overlooked, resulting in a minimum standard of compliance

Great care appears to have been taken to include normative statements, proposing what should or could be rather than what shall and will be. Phrases abound such as 'In general'; 'likely to be suitable'; 'Adequate provision' (undefinable); 'to the greatest practicable extent, in the most independent and natural manner possible'; 'normal everyday activities; and 'where practicable and appropriate'.

4.2.3 CEUD Best-practice Guidelines

The building regulations set out a minimum standard in an effort to ensure that:
"all buildings should be designed and constructed so that:

(a) people can safely and independently approach, gain access and use a building, its facilities and its environs…."

The critical word in this statement from the regulations is 'use' and how this word is interpreted.

This research has focussed on a particular publication highlighting best-practice, *Universal Design guidelines for homes in Ireland* (UDGHI) from 2015 [5], which is divided into sections including *spaces for living*. The publication is not listed in the standards in the 2010 building regulations but is based on an earlier CEUD publication, *Building for Everyone, a universal design approach* [8] which was the first significant publication on this topic. Despite being based on extensive research, taking guidance from national and international sources, and from government policy and regulation, UDGHI is not referenced in the 2022 version of TGD M.



Fig. 4.2f. *Universal Design guidelines for homes in Ireland* 2015, CEUD

In the foreword to the document there is an explicit aim that the guidelines should 'inform' national policy and be used by the relevant stakeholders to meet the needs of all occupants regardless of their circumstances.

The document sets out the 'landscape' of a changing demographic and an ageing population, living longer but wishing to remain at home, citing figures from the National Council on Ageing and Older People (NCAOP) which suggests that 87% wish to do so.
It then goes on to consider the benefits of a UD home and to acknowledge that a UD home is designed for the widest number of people, rather than a template of 'one-size fits all'. The final section before the guidance is explained, includes a number of case-study images, highlighting UD features within and around homes.

4.2.3.1 The guidance



All of the criteria in this thesis are taken from *Section 2: Entering and Moving Around*, and from *Section 3: Spaces for Living*, both of which describe UD features within the home itself, as follows:

2.2	Hallways and corridors	6 pages
3.1	Living Rooms	3 pages
3.2	Dining Rooms	2 pages
3.3	Kitchens	13 pages
3.4	Entry-level toilet	2 pages
3.5	Bedrooms	3 pages
3.6	Bathrooms	19 pages
3.7	Multi-purpose rooms	5 pages
3.8	Private Outside Space	6 pages

Table 4.2a breakdown of pages from CEUD guidelines, by the author

Each space is described with the use of photographs and explanatory text. The text is quite broad in its scope, considering lifestyle choices such as how one would want to use a particular room and space for a number of functions. This is then followed by the UD recommendations for each space.

Section 3 contains 54 pages of guidance in total, within which there are 146 UD Home, and 33 UD Home + recommendations. Some of these are general whereas others focus on very specific features of the design.

39% of all the UD Home recommendations in Section 3 relate to sanitary provision within entry-level toilets, bathrooms and showers. The next largest group is kitchens at 26%, followed by multi-purpose spaces and storage at 13%

4.3 Breakdown of UD criteria and categories

4.3.1 Scenario

> ……"Because Lifetime Homes will be suitable for older people (whose numbers are increasing rapidly) and for the vast majority of disabled people, as well as the non-disabled person, they will have a wider market of potential buyers and residents, probably increasing their value and the ease with which they can be re-sold." [15]

Margaret and Sean are in their early 70s and made the decision in their 60s to 'right-size' from their family home of many years to a newly-constructed house. They value their independence and, at the time of the move, were in good health and consequently felt that they could manage the stairs in the 2-storey house. The new house is smaller than the home where they brought up their family but its suits their current situation, with well-lit spaces, a modern kitchen and 2 spare bedrooms upstairs for when their children and grandchildren come to stay. It is also relatively close to the community where they have built friendships over many years.

While clearing snow from the path on a winter's morning, Sean takes a fall and fractures his hip. He spends 3 weeks in hospital and is looking forward to returning home to normality. His outcome is successful but he has a mobility issue which requires the use of a walking stick. On returning from hospital he soon realizes that he can no longer manage the stairs in his new home. The practicalities of having somewhere to sleep (together) and to bathe with dignity become paramount as Margaret and Sean try to determine how to live in this new predicament.

4.3.2 Criteria

All of the following selected criteria are based on the **UD Home** category from Section 2 of the CEUD publication, *Universal Design Guidelines for Homes in Ireland: Entering and Moving Around* and from Section 3: *Spaces for Living* [5]

(a) Provide a WC compartment of at least 1500 x 1800mm at entry level

This is an absolute priority and yet the stated objective in TGD Part M appears to be more related to the convenience of visitors rather than to that of the occupant. The size of the WC cubicle permitted in smaller dwellings does not allow for any sense of privacy or dignity of the user when transferring from the wheelchair.

(b) Make the room large enough to be adapted to a shower room at entry level 1800 x 2000mm, preferably 2100 x 2400mm

This is again, a priority relating to dignity and independence and a necessity if criteria (d) is to be adopted. There is no specific guidance in TGD Part M section 3.4 on bathrooms for dwellings. Adopting the inclusion of a level-access shower room on the entrance floor would facilitate this. For criteria 1 and 2, the efficient location of this space within the floor plan requires important consideration when designing for drainage and water supply.

(c) Clear turning circle of 1500mm in habitable rooms

Adoption of appropriate space standards and sensible planning should ensure this. There is a tendency to concentrate on providing enough space for the turning circle rather than considering its optimal position within the room. In a bedroom for instance, the appropriate location for the turning area is on the door side of the bed.

(d) Identify future bed-space at entry level

This is another priority. When this is achieved by adapting the living room there is generally a diminution in spatial quality and functionality – where does one sit and relax? The Kitchen/Dining space, often to the rear of the building tends to be too small to accommodate 'living' space. In the 'Victorian terrace' style of plan, which is prevalent in Ireland, the Living room is to the front of the house, effectively the traditional front parlour. Adapting this room into a bedroom creates privacy issues if close to the street.

(e) Adequately-sized entrance lobbies

There is little point in entering a house through the front door if you are unable to close it behind you. The arc of the door swing and proximity of the bottom step of the stairs often presents a problem in multi-storey houses.

(f) Double/twin bedrooms at least 13 sq. m and single at least 8 sq. m

Generally this appears to be achievable for at least one of the available bedrooms. The actual area is less important than the dimensions of the physical space around the bed and the adequate provision of accessible storage

(g) Corridor widths 1050 – 1200mm

The traditional 2-storey terrace presents problems with 900mm corridors running alongside the staircase. Any 'second-fix' items such as radiators, bookshelves and protruding door-handles can reduce the 'built' dimension to a restrictive level.

(h) 300mm at leading edge of doors

This is in order to reach the handle of a door and open it effectively if using a wheelchair. Lack of this feature is often a result of minimal corridor widths. The dimension can sometimes be achieved by simply hanging the door to the other side.

(i) 1200-1500mm between opposing work surfaces

This relates particularly to kitchen design, specifically where galley kitchens and kitchens with islands can present a problem. Pull-out cupboards and cupboard door swings can be problematic, particularly where 2 people are trying to use the space at the same time.

(j) 800mm clear to each side and more to the end of the bed

With careful planning this can be achieved. Overall bedroom sizes are dependent on the size of the bed and whether it has a headboard. 2000mm is a generally assumed length of a bed. This requirement relates to criteria (c), turning circle, where the door side of the bed will necessarily be wider. It is often the case that the windows will be to the far side of the bed, opposite the door and will access for opening.

For a person in a wheelchair, who lives alone, it is very difficult to see how they can dress a bed (change sheets etc) with minimum access to the far side.

(k) Recommended unobstructed living room widths per bedroom

The recommended widths are 3.3m for 1 bedroom, 3.6m for 2 bedrooms and 3.8m for 3 bedrooms. These are based on recommendations from the government publication Sustainable urban housing: design guidelines for new apartments from 2018. It is unclear from the text as to how these figures were decided upon. There is a possible variation of 5% that can be applied to these figures, presumably as an addition.

(l) Adequate space around dining table

This is dependent on decent space standards being adopted but asks specifically for 1200mm clear space to be provided along 2 adjacent sides of the table.

(m) 'U'-shape or 'L' shape kitchen preferable

The 'L' shape appears to be the most popular choice from the sample. Adopting either an 'L' shape or a 'U' shape can create problems when accessing corner cupboards. One of the most challenging aspects of residential interior space design is the relationship between the kitchen, dining and living space, both in terms of aesthetics and efficiency.

(n) Storage inside front door

Essential storage for removing coats, shoes, umbrellas, space for buggies, etc is often omitted in traditional terrace style plans. This relates directly to adequately-sized entrance lobbies but should be as close to the entrance door as possible.

(o) Flexible study space for home-working

This appears to be generally ignored and only works when there is a second accessible bedroom which only tends to occur in apartments. The study sample would have been designed before the COVID 19 pandemic and subsequent lockdowns, which has highlighted the need for a separate space for home-working. This should, preferably not be accommodated by using the second or third bedroom

4.3.3 Categories

Categories are ranked by the level of intervention required to make the home functionally accessible. The proposed housing units are analysed on the basis that they are newly-built, whereas it would be of crucial importance that amendments could be carried out at design stage.

Category 1 – can be used by a person with mobility issues, without requirement for alterations. Given the 2 scenarios there is an acceptance that the home can be functionally accessible in the case of immediate need. Homes designed to full Lifetime standards are further identified in the conclusions to the survey.

Category 2- requires minor alterations such as the demolition or relocation of 1 or 2 internal partitions, reversing door swings, and minor services relocation, without affecting the overall usability of all the spaces within the housing unit.

Category 3 – requires the demolition or relocation of a number of internal partitions and fixed furniture, new openings, plus the relocation/addition of new drainage, without affecting the overall usability of all the spaces within the housing unit.

Category 4 – requires significant adjustments to internal planning and services which may not prove cost-effective.

Category 5 – Inaccessible, often due to level changes within and approaching the dwelling unit. This is particularly apparent in split-level units, and Duplex apartments where the access floor is above ground level.

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Chapter Five



Chapter 5 – results and analysis

5.0 Introduction

Based on the selected 15 criteria from CEUD, the results and analysis are broken down into a number of thematic areas, as follows:

5.1 Hygiene and dignity

Sanitary provision (a) and (b)

5.2 Confined spaces and circulation

Moving around (c), (e), (g), (h), (i), (j) and (m)

5.3 Flexible space

Moving things around (d) (l) and (o)

5.4 Regulated space

Minimum requirements (f) and (k)

5.5 Storage

At dwelling entrance (n) and, as a minimum requirement, followed by references

5.6 Summary of results

Category breakdown and performance in each of the criteria.

Results for each of the criteria are also distinguished by the use of pie charts for:

1. planning applications which range from 2 units up to 97 with an average of 14 house units and 21 apartment units per application. They encompass submissions from individuals, small builders and some speculative developers.

2. Strategic Housing Development (SHD) applications which range from 123 units up to 753 with an average of 155 house units, 92 apartment units and 13 duplexes per application. All of the SHD applications are from speculative developers.

5.1 Hygiene and dignity

> "..and then my wife being busy in going with her woman to a hot-house to bathe herself, after her long being within doors in the dirt, so that she now pretends to a resolution of being hereafter very clean. How long it will hold I can guess." [1]

Clearly it took some time to take a hold in the public's imagination as nearly 300 years had passed since Samuel Pepys observation, when, in 1947, a report was published, entitled "an inquiry into domestic hot-water supply" which found that as much as 54% of households in the UK had no bathrooms [2]. The survey continued and some 20 years later, by 1967, 25% of UK households still lacked the basic amenity of a bath or shower and indoor WC.

In Ireland the situation was similarly unsatisfactory. The 'economic war' with Britain that had prevailed since the 1930s and the effects of World War II (the 'Emergency' in neutral Ireland) had a significant impact on the living standards of the population. The Public Health (Ireland) Act of 1878 required that houses should be furnished with a water closet, earth closet or privy accommodation. Despite this, the Central Statistics Office (CSO) Census data records from 1946 show 48% of Irish households with no specific sanitary facilities (of any kind) – the first time that the question was posed on the census form. [3]


Fig 5.1a hulldailymail.com

Ireland experienced an economic boom during the early 1960s under the stewardship of the Taoiseach Sean Lemass and the work of the economist T K Whitaker. This led, among other things, to an expansion of owner-occupied family housing, with an expectation from the householders that one feature of their new, modern homes would be the enjoyment of indoor sanitary facilities.

The existing housing stock was also to be addressed by legislation, such as Section 22.1.d of the Housing Act 1966, which proposed that, as part of the reconstruction (refurbishment) of a house, consent of a grant for the provision of a fitted bathroom may be applicable. [4]

The 1981 census record indicates that things were moving in the right direction, where, by now, 18% of households had no fixed bath or shower and by 1991 this figure had fallen to 6% of households. Around the turn of the Millennium the

records show a significant improvement in housing standards in this particular area [5]. The most current EU data shows 0.2% of Irish households have no bathroom or shower [6] and, in recent years this figure has generally been below 1%. The 2001 census form (and subsequent forms) does not/no longer includes a question on whether the household has a fixed bath or shower. [7]

Such progress is to be welcomed when one considers the criteria laid down in the early census information from the 19th Century. The 1841 census includes a classification of housing classes, where:

> "fourth class were comprised all mud cabins having only one room – in the third, a better description of cottage, still built of mud but varying from to 2 to 4 rooms and windows.." [8]

In our current age it would be inconceivable for new housing to be offered on the market without the provision of a useable bathroom, where one can wash in a dignified manner and maintain an acceptable level of personal hygiene. Well-intentioned legislation that attempts to address this includes:

SI No. 306 of 1991 – Building regulations 1991

Bathrooms and Kitchens

G1. A dwelling shall be provided with –

(a) A bathroom containing either a fixed bath or shower bath, and a washbasin.. [9]

and

SI No. 137 of 2019 – housing (standards for rented housing) regulations 2019

"Sanitary Facilities 5. (1)

There shall be provided within the same habitable area of the house, for the exclusive use of the house:

(a) A water closet, with dedicated wash hand basin adjacent thereto with a continuous supply of cold water and a facility for the piped supply of hot water, and

(b) A fixed bath or shower with continuous supply of cold water and a facility for the piped supply of hot water. [10]

The above legislation, however, includes no specific requirements of space or usability for a bathroom. Consequently, and almost exclusively, bathrooms are still located on the upper, non-access floor of multi-storey houses, both in the existing stock and in new housing proposals.

As discussed in 4.2.2 of this thesis, there is no explicit requirement for a visitable/accessible bathroom in Technical Guidance Document M 2010.

5.1.1 Results

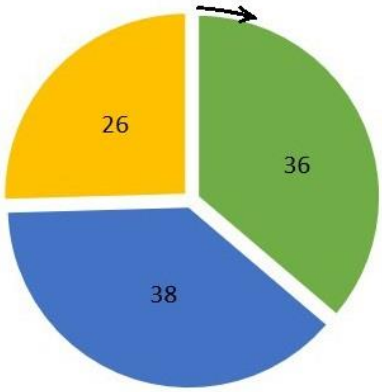


Fig. 5.1b

Results in the following sections are represented by pie charts. Starting from 12 o'clock and moving in a clockwise direction the following are represented as a percentage:

Green = category 1 (accessible)
Blue = category 2
Yellow = category 3/4/5

In the example to the left, 36% follow the CEUD criteria and 38% would conform with minor alterations at design stage, giving a potential accessible rating of 74% at no extra cost.

5.1.2 Planning applications – houses

(a) Provide a WC compartment of at least 1500 x 1800mm at entry level.

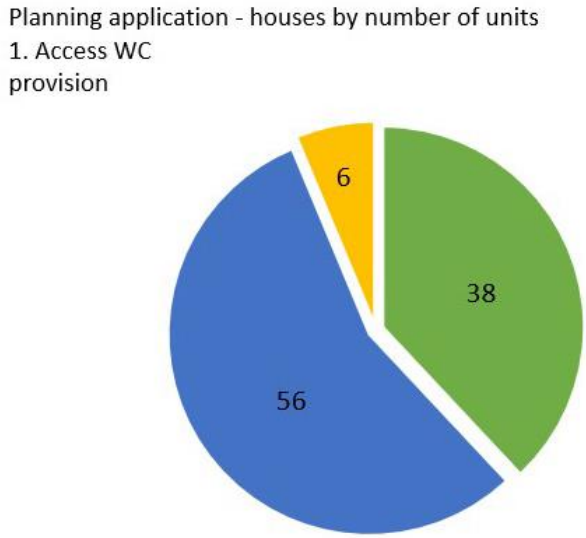


Fig. 5.1c

The chart shows **Cat 1 + cat 2** gives a potential for 94% of units to enjoy an accessible WC.

The majority (67%) of Housing units proposed in the planning applications list tend to be 3-bed with floor plan areas at least 10% larger than the minimum standard, giving space for an accessible WC.

For 2-bed houses (16%), the only units with a category 1 WC were single-storey bungalows.

The 4-bed houses (17%) were significantly larger in floor area than the recommendations, but many did not include accessible WCs to CEUD guidelines.

(b) Make the room large enough to be adapted to a shower room at entry level 1800 x 2000mm, preferably 2100 x 2400mm.

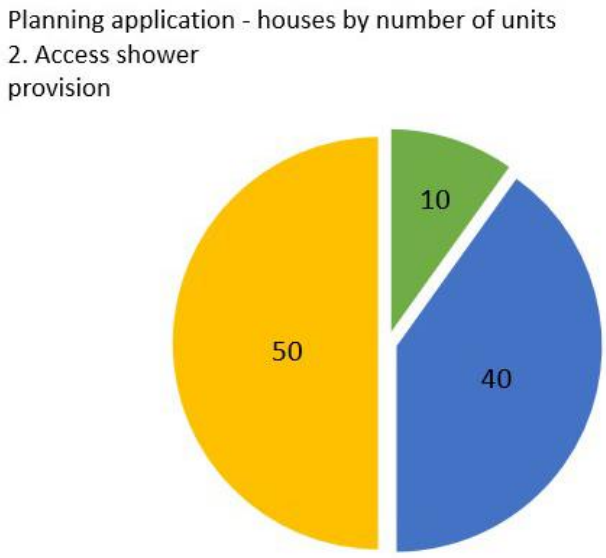


Fig. 5.1d

The chart shows **Cat 1 + cat 2** have a potential for 50% of units to enjoy an accessible bathroom/shower.

With a very small exception, despite their larger floor area, the 3-bed, 2-storey house types were not designed with an accessible bathroom/shower.

The 10% of the units that had an accessible bathroom were either large, 2 or 3 – bed single storey units (bungalows) or very large 3-bed, 2-storey houses.

All units in the planning list appear to be designed to TGD Part M 2010 guidelines.

5.1.3 Planning applications – apartments

(a) Provide a WC compartment of at least 1500 x 1800mm at entry level.

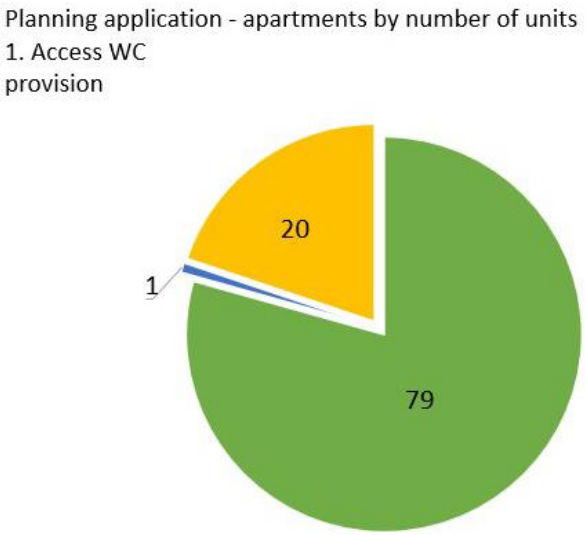


Fig. 5.1e

Cat 1 + cat 2 gives a potential for 80% of units to enjoy an accessible WC.

Apartments tend to be single-storey and would be otherwise described as duplexes. They tend to have a bathroom off the main circulation which is large enough for WC transfer.

Apartments in the category 3/4/5 range include changes in level or restrictive spaces within refurbishment of existing buildings.

(b) Make the room large enough to be adapted to a shower room at entry level 1800 x 2000mm, preferably 2100 x 2400mm.

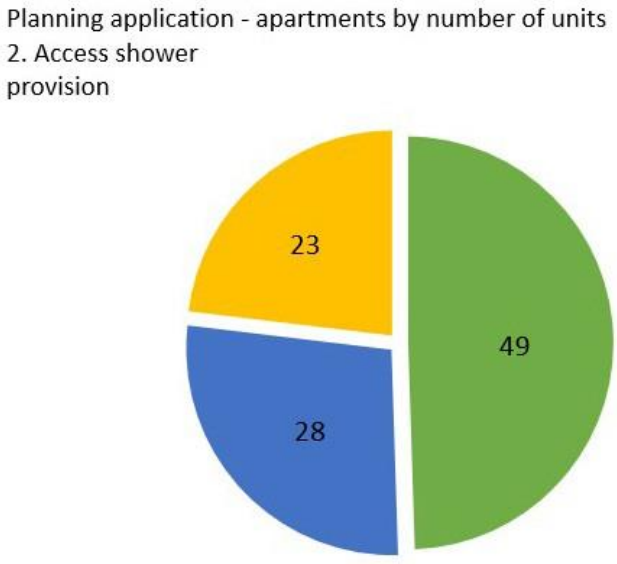


Fig. 5.1f

Here **Cat 1 + cat 2** gives a potential for 77% of units to enjoy an accessible bathroom/shower.

As explained in the criteria for WC figures above, apartments tend to have bathrooms off the main circulation. Many of these bathrooms, however, include a 1700mm long bath with the consequence that the minimum dimension for the bathroom width is less than 1800mm as recommended by CEUD guidelines.

Duplexes are defined in this thesis as 2, or 3-storey apartments, often within an apartment complex. If their access is from the ground floor or from an accessible lift lobby then they are essentially the same as a 2 or 3-storey house. 50% of the duplexes in the planning list conformed to this while 50% where inaccessible as they could only be accessed by a staircase.

5.1.4 SHD applications – houses

(a) Provide a WC compartment of at least 1500 x 1800mm at entry level

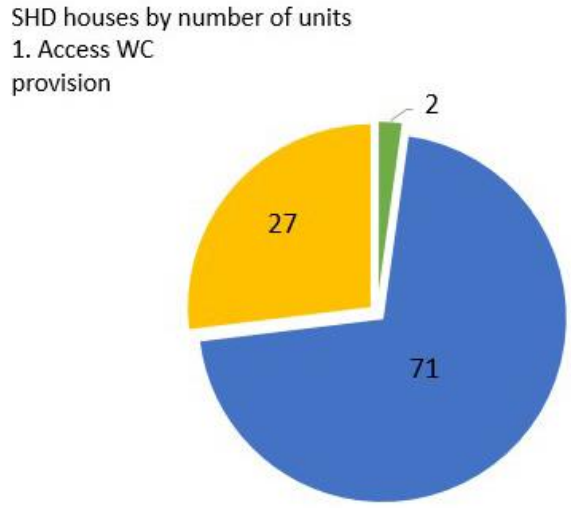


Fig. 5.1g

Here **Cat 1 + cat 2** have a potential accessible WC for 73% of units

The large figure of units in category 2 suggests an adherence to quantity rather than quality. One house type in this category made up 235 units.

The 27% of units proposed in the SHD applications list that fall into category 3/4/5 are predominantly small 2-storey houses with an overall area of 90 m² or less giving limited space for an accessible WC to CEUD guidelines.

(b) Make the room large enough to be adapted to a shower room at entry level 1800 x 2000mm, preferably 2100 x 2400mm.

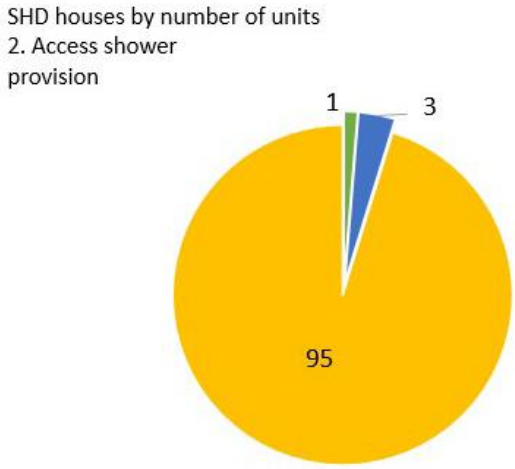


Fig. 5.1h

Cat 1 + cat 2 gives a potential for only 4% of units to enjoy an accessible bathroom /shower.

The predominance of small 2-storey houses with an overall area of 90 m² or less makes the provision of an accessible bathroom/shower to CEUD guidelines almost impossible to achieve.

The house type with 235 units noted above could be amended to an accessible WC under category 2, but not to an accessible bathroom/shower due to the layout of the ground floor.

All units in the SHD list appear to be designed to TGD Part M 2010 guidelines.

5.1.5 SHD applications – apartments

(a) Provide a WC compartment of at least 1500 x 1800mm at entry level.

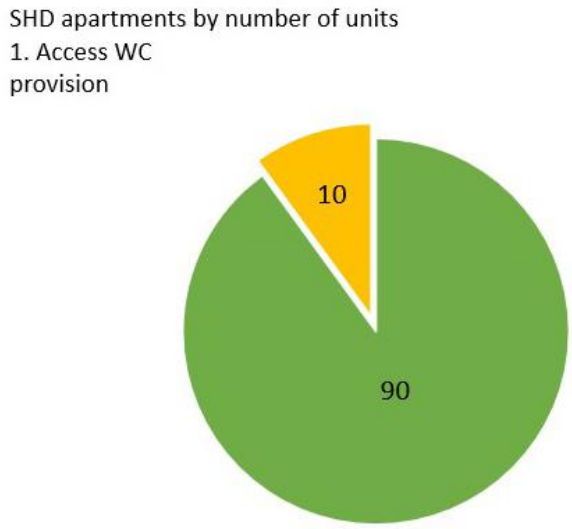


Fig. 5.1i

Cat 1 + cat 2 gives a potential for 90% of units to enjoy an accessible WC.

As with planning applications, the SHD apartments tend to be single-storey and would be otherwise described as duplexes. They tend to have a bathroom off the main circulation which is large enough for WC transfer.

Apartments in the category 3/4/5 range are all duplex apartments within a larger apartment block, with only stair access to the front door.

(b) Make the room large enough to be adapted to a shower room at entry level 1800 x 2000mm, preferably 2100 x 2400mm.

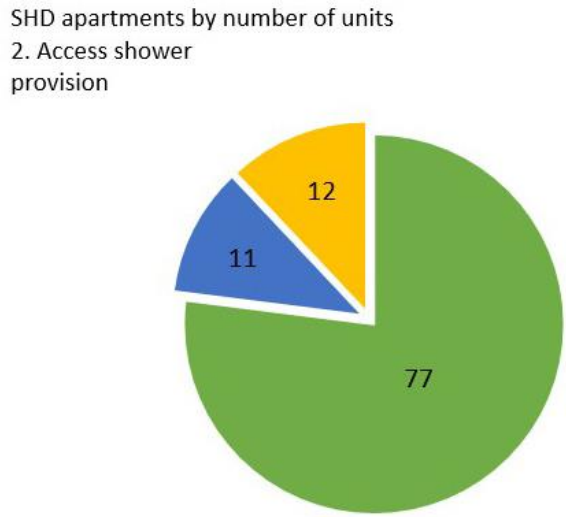


Fig. 5.1j

Cat 1 + cat 2 gives a potential for 88% of units to enjoy an accessible bathroom/shower.

As explained in the criteria for WC figures above, apartments tend to have bathrooms off the main circulation.

Bathrooms falling into category 2 tend to include a 1700mm long bath with the consequence that the minimum dimension for the bathroom width is less than 1800mm as recommended by CEUD guidelines.

Apartments in the category 3/4/5 range are all duplex apartments within a larger apartment block, with only stair access to the front door.

5.1.6 Non-standardization

Figure 5.1k below indicates that, in the 38 No. 2/3-storey house types applied for through Cork City Council Planning applications 2020, where dimensions were provided, there are 24 different sizes of access level WCs, one of which could be considered an accessible shower room.

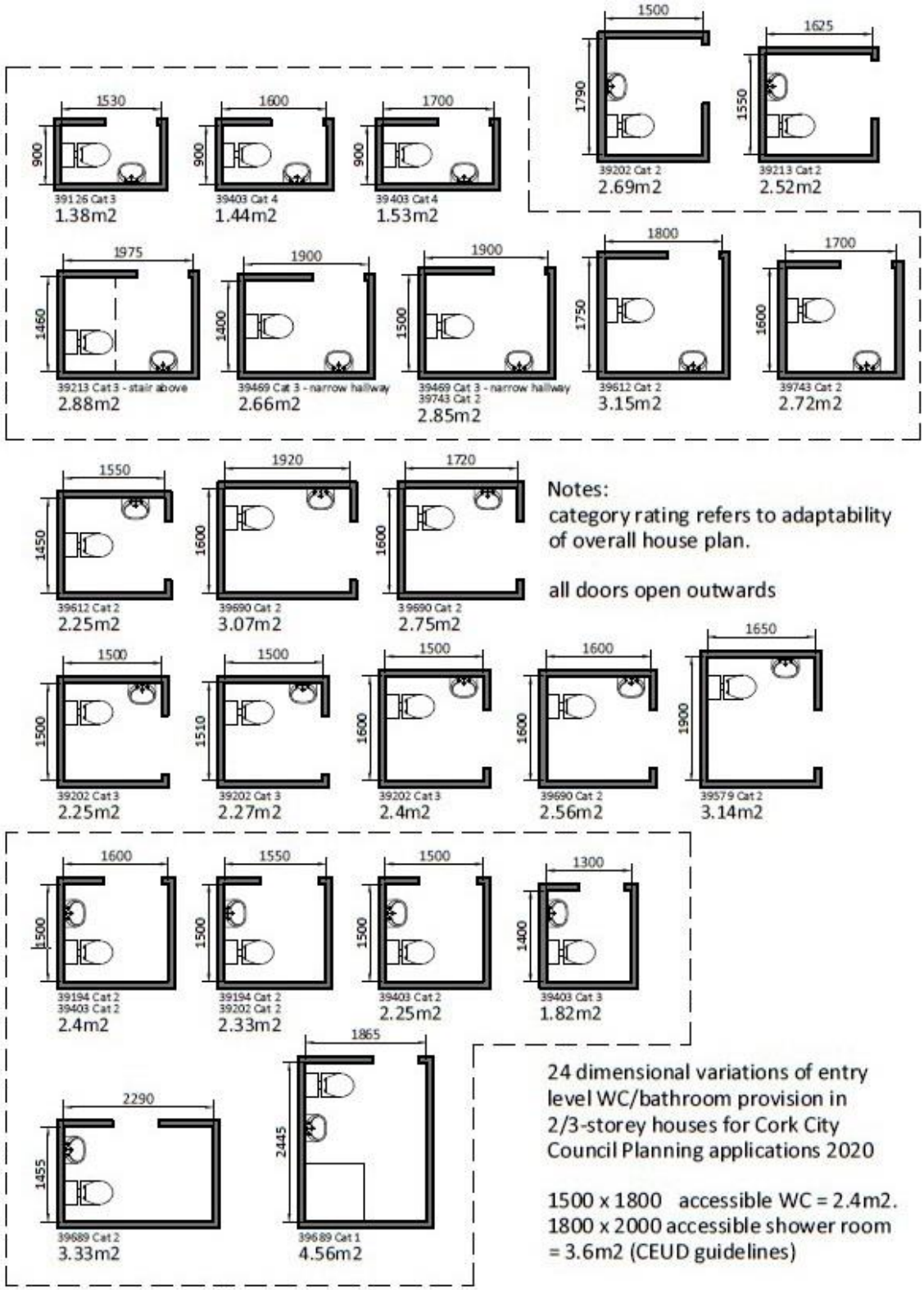


Fig.5.1k author's image

5.1.7 Examples

A small number of architectural practices have clearly considered more generous provision in terms of area than others, but only 5 unit-types from fig 5.1k have adopted the design criteria proposed in the CEUD guidelines for accessible WCs and 1 for an accessible shower room. None of the examples have used a template of 1500 x 1800mm or 1800 x 2000mm respectively as a generator of the overall house plan. This suggests that only the minimum requirements as laid out in TGD Part M, are being followed by the majority of practices.

Based on the number of units, architects make up around 76% but are not the only designers of housing in the City Council planning lists. There are also engineering firms and construction firms submitting applications for around 22% of the units, and a very small proportion of architectural technicians and other designers who have submitted applications.

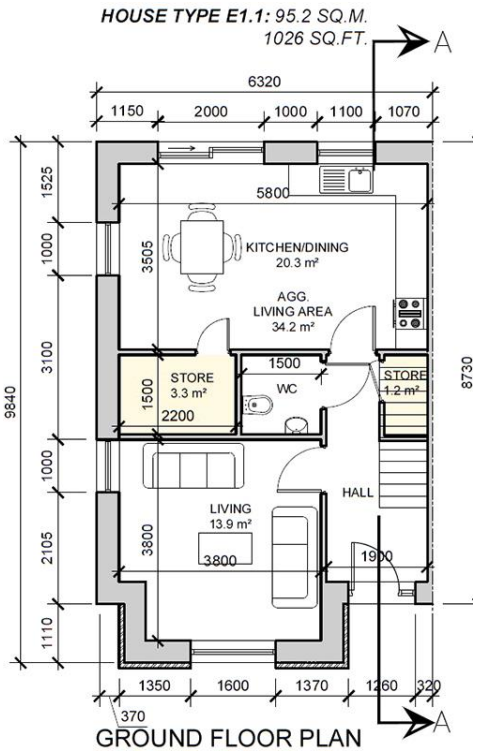


Fig. 5.1l

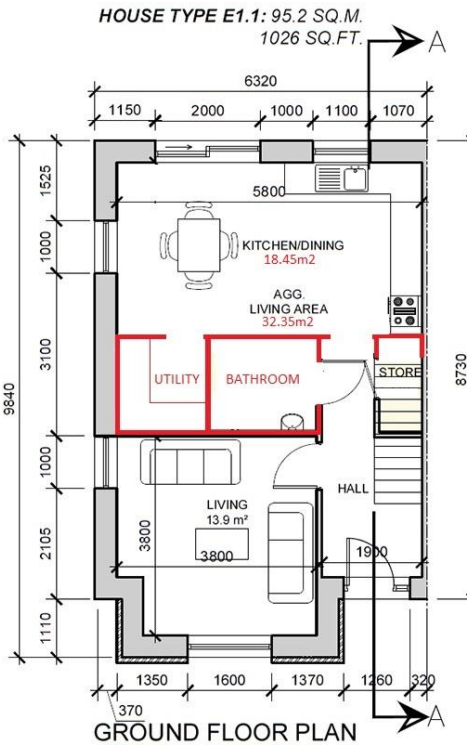


Fig. 5.1m

Fig 5.1l shows a typical example of a 3-bedroom house from an SHD application which is placed in category 2 of the survey study. Fig. 5.1m, to the right represents the amendments that could bring the scheme up to category 1. The original design appears to conform to TGD Part M 2010.

5.2 Confined spaces

The following criteria relate to general circulation within the housing unit and within specific rooms with fixed or large items of furniture.

5.2.1 turning circle

criterion (c): provide a clear turning circle of 1500mm in habitable rooms

Not every person who develops a disability through illness, accident or frailty will require a wheelchair to use their home to its full potential. A UD home, as specified by the CEUD criteria, however, will provide the capacity for the widest range of people to enjoy their home and remain in it as long as they can. This is not the same as a wheelchair accessible housing which is specifically designed for wheelchair users. The latter may be considered, erroneously by society as institutional or 'special', whereas, adopting the phrase 'clear turning circle' is ambiguous enough to avoid such classification. What is clear from the analysis is that the 1500 diameter circle is generally adopted. It should be noted that some motorized wheelchairs require a wider turning circle.

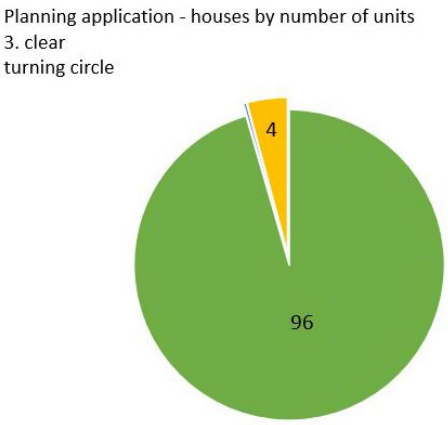


Fig.5.2a house turning circle

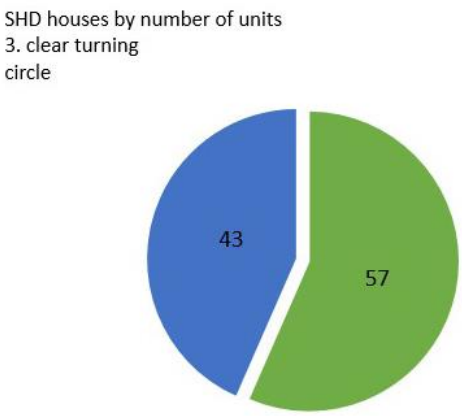


Fig. 5.2b SHD house turning circle

The 4% of house applications falling into category 3/4/5 in Fig 5.2a is a result of interior level changes or steps close to the entrance. A turning circle may be achieved but units are effectively inaccessible. In fig 5.2b the 43% of units in category 2 relate to small dwellings with an access level footprint of 40m². Category 1 may be achieved in these cases with appropriate furniture selection and placement.

The figures under this criterion for apartments are similar to those for houses above with, for example 83% of planning applications for apartments achieving category 1 for adoption of clear turning circles, as shown in fig 5.2c to the right.

The 17% in category 3/4/5 are in general due to level changes and stair-only access. They may contain appropriate space for turning but are effectively inaccessible.

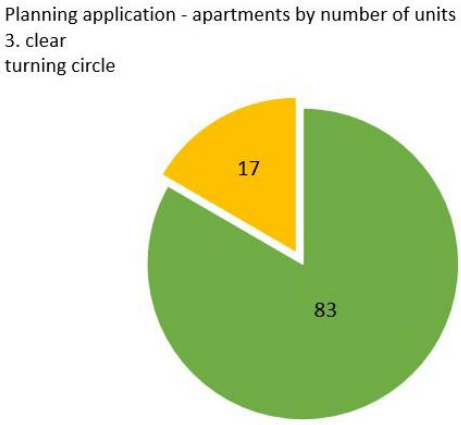


Fig. 5.2c apartment turning circle

5.2.2 Adequately sized entrance lobbies

Criterion (e): the CEUD guidance recommends **the provision of entrance hallways with a space of between 1500 x 1500 mm and 1800 x 1800 mm adjacent to the entrance door.**

Considering that there appears to be no clear guidance as to entrance lobby size in dwellings in TGD Part M 2010, the designers of housing in the survey have done remarkably well in achieving between 75 and 79% compliance with category 1 as shown in fig 5.2d and 5.2e.

The building regulations persist in the idea that the visitor can be accommodated, i.e one can open the door for the visitor, allow them to pass within and then close the door behind them. The units falling into category 2 and, in particular category 3/4/5 are often compromised by the proximity of the bottom step of stairs in multi-storey houses as shown in Fig 5.2f.

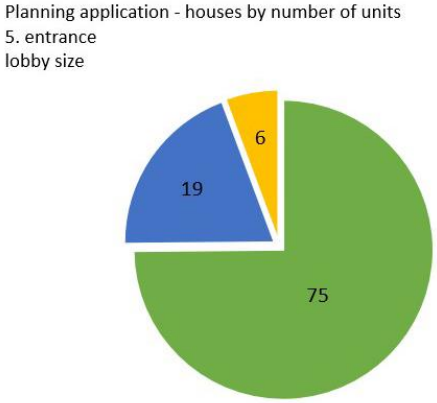


Fig.5.2d house lobby size

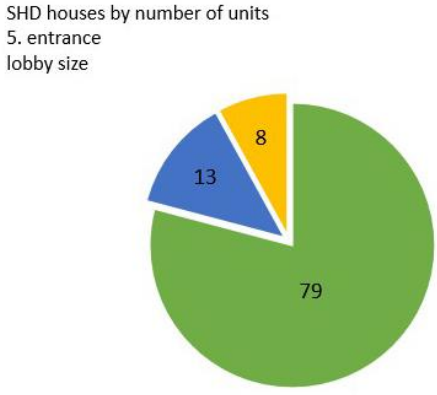


Fig. 5.2e SHD house lobby size

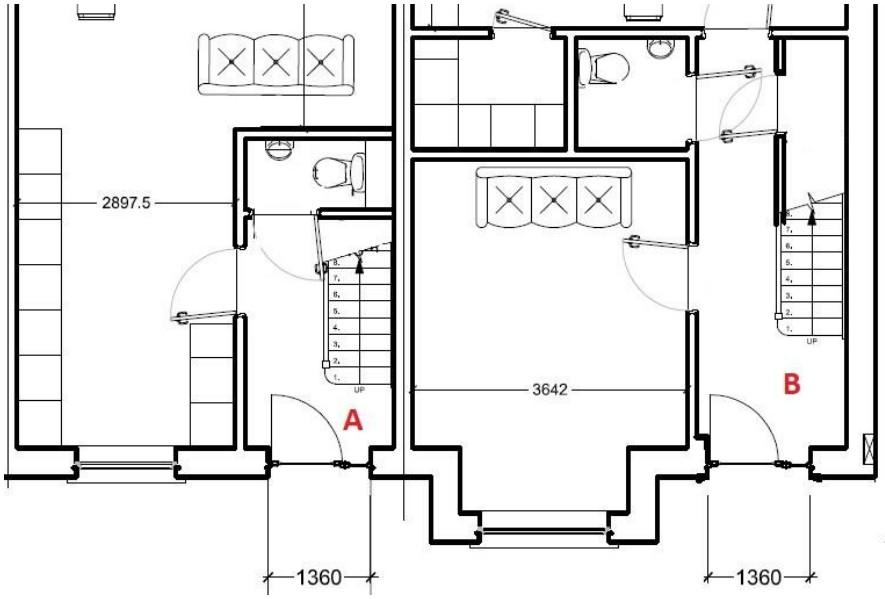


Fig. 5.2f entrance hallways example from SHD application

Fig. 5.2f shows the end of a terrace of houses from an image retrieved from the survey sample. The lobby at A is within a 2-storey house with a ground floor area of 41.8m² and appears to restrict, or at least make the passage of a wheelchair user difficult, despite a 2000 mm width to the hallway. The lobby at B is more successful but easier to achieve with a ground floor area of 54.4m², allowing the stair to be positioned further back. Neither house has an accessible WC to CEUD guidelines.

5.2.3 Corridor widths

Criterion (g) provide a width of corridor of 1050-1200 mm between walls

CEUD recommendations for corridor widths are between 16% (minimum) and 33% (optimum) wider than the guidelines within TGD Part M. The more generous widths appear to appreciate the challenges of wheelchair users in confined spaces. There are 2 specific areas where this situation occurs most often; alongside the staircase in a traditionally arranged terraced house and within many apartment plans which tend to mimic the traditional bungalow arrangement of an internal, artificially lit corridor leading from the entrance to the principal rooms of the unit.

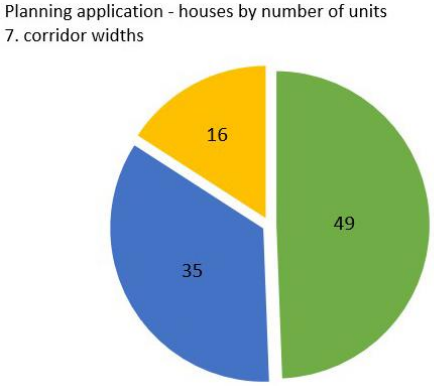


Fig.5.2g house corridor widths

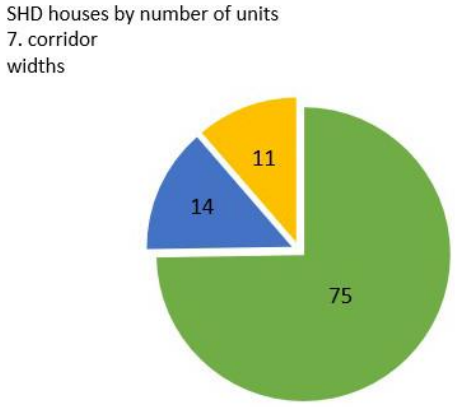


Fig. 5.2h SHD house corridor widths

With apartment design the figures for units in the category 3/4/5 range are similar to the house unit figures shown in fig. 5.2g and 5.2h above, giving a combined category-1 and 2 figure of between 80 and 90%. Moving from category 2 to 1 may only involve the repositioning of one wall, albeit, sometimes a long wall. This is a simple task at design stage which should incur no cost.

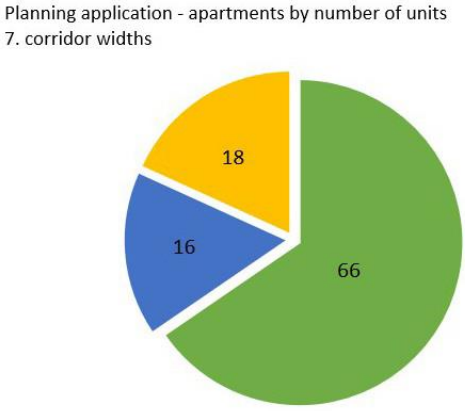


Fig.5.2i apartment corridor widths

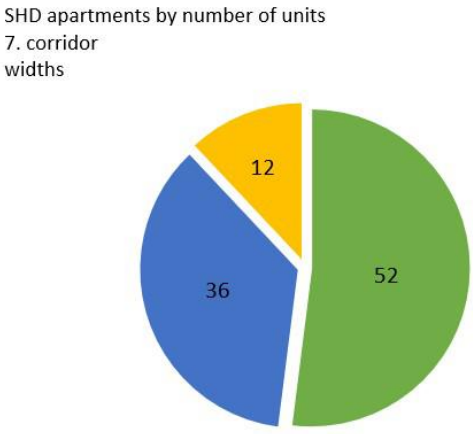


Fig. 5.2j SHD apartment corridor widths

This criterion and the following, concerning the leading edge of doors are examples where a housing unit could be considered 'functionally' accessible given the 2 scenarios of immediate need, rather than to exacting CEUD guidelines of a preferred Lifetime homes standard for a new dwelling.

5.2.4 Leading edge of doors

Criterion (h) provide a 300 mm clear area beside the leading edge of all doors at entrance level

If a corridor is designed with insufficient width, then it is unlikely that the 300mm clearance can be achieved at the leading edge of the door. Added to this restriction is the poor placing of a door opening at the end of a corridor or in proximity to fixed furniture items such as kitchen countertops. There is often enough room along a wall perpendicular to the direction of the corridor but the door is still placed too close to a perpendicular wall or is hung in the wrong direction. This is one of the poorest performing criteria and suggests a significant lack of awareness, presumably because its purpose is specifically designed to aid a wheelchair user.

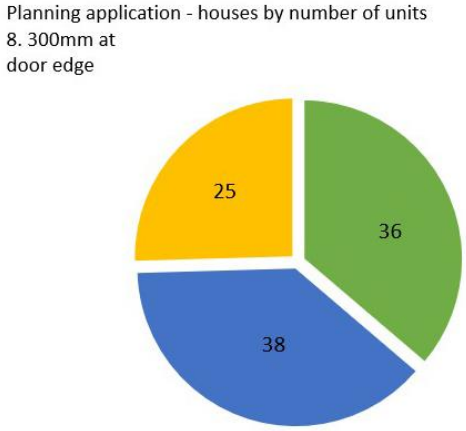


Fig.5.2k house 300mm at door edge

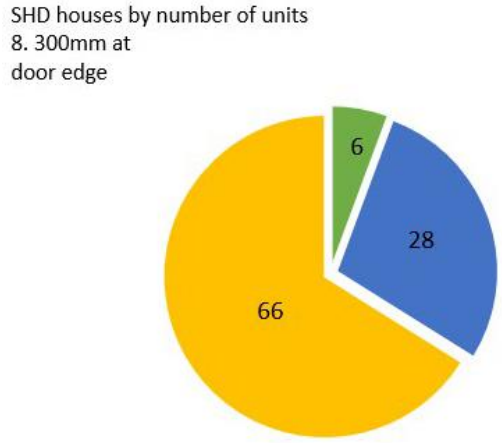


Fig. 5.2l SHD house 300mm at door edge

Statistics for apartments are similar to the above on both forms of application process. The only guidance from TGD Part M 2022 on dwellings is limited and confusing as shown below in fig. 5.2m.

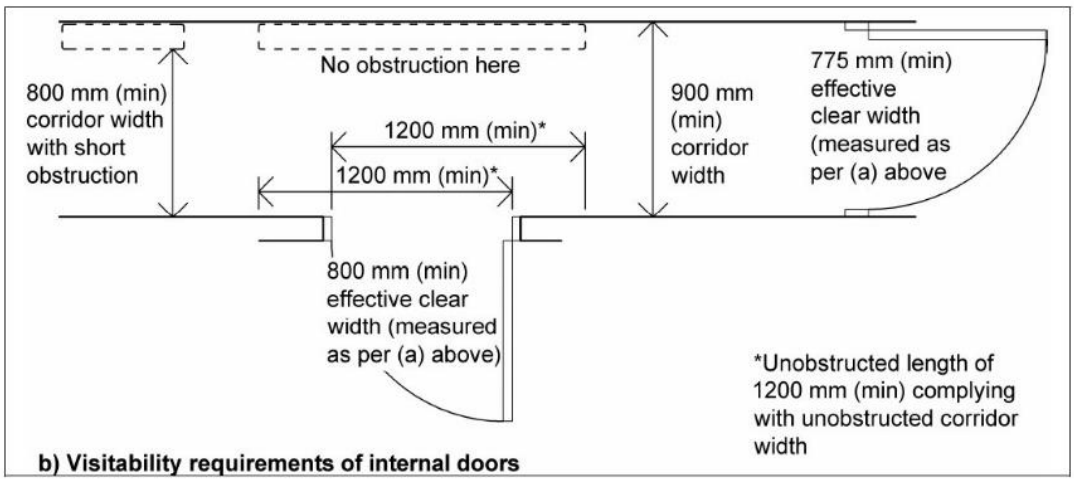


Fig. 5.2m

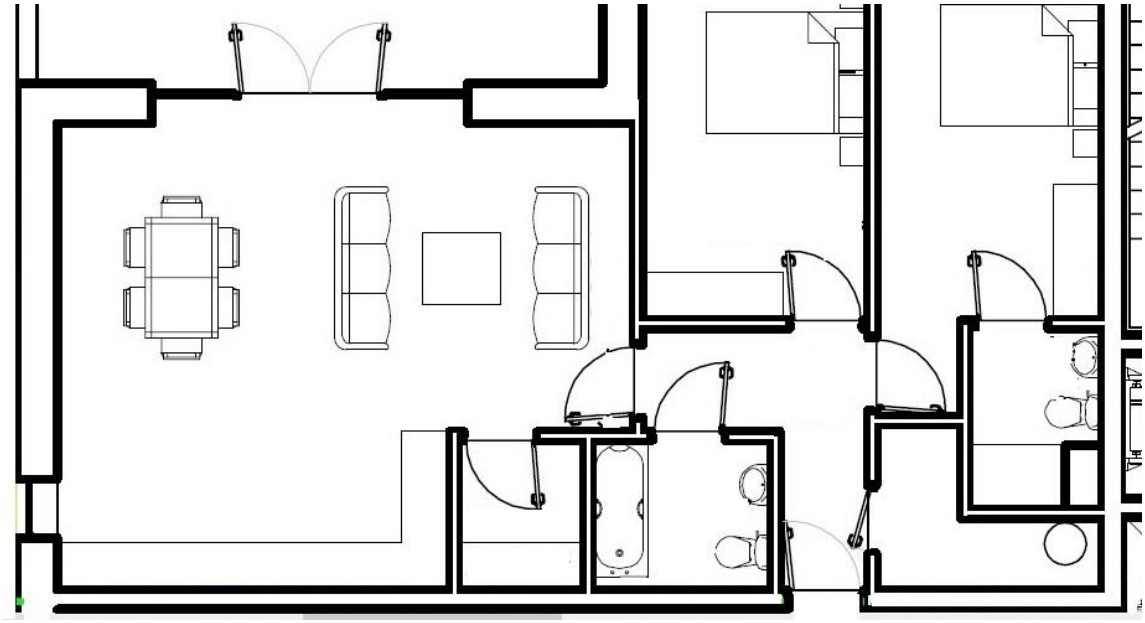


Fig. 5.2n simplified image of lobby/corridor/door edge example from SHD application

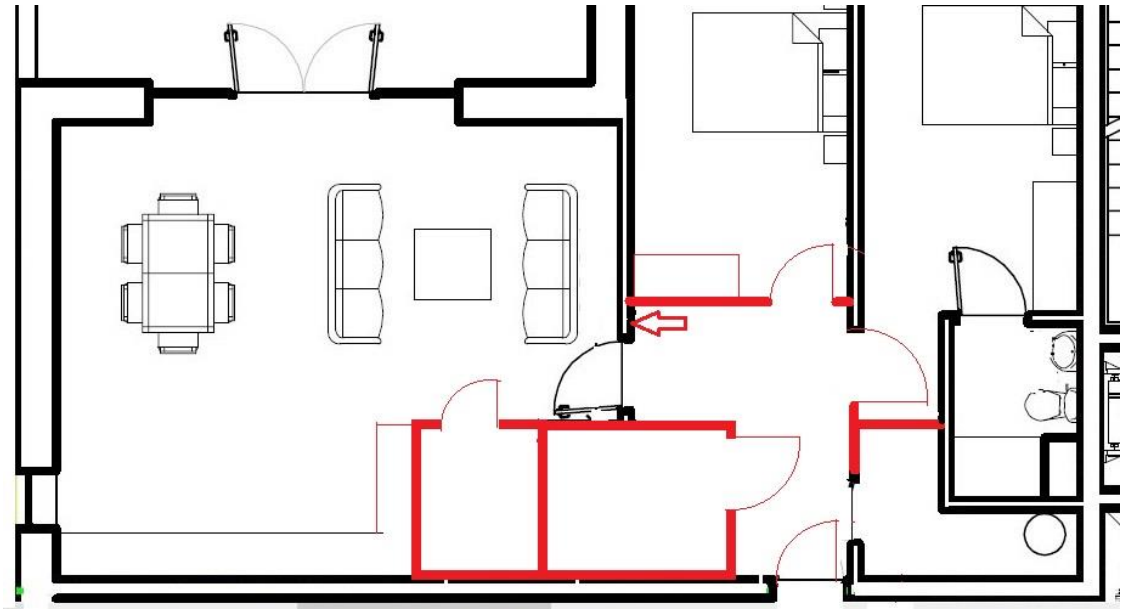


Fig. 5.2o possible amendment to achieve UD/LH standard

The purpose of highlighting the above condition in figs. 5.2n and 5.2o, in no way seeks to criticise the initial design which appears to follow TGD Part M 2010. It is rather, to show how a greater understanding of UD principles and recommendations could achieve an appropriate CEUD standard with relative ease at design stage. A glazed sidelight at the point indicated by the arrow and/or a glazed door to the living space would also introduce borrowed natural light to the hallway.

5.2.5 Space between work surfaces

Criterion (i) 1200 to 1500mm between opposing work surfaces

As stated earlier in section 4.3.2, and considering its location within the CEUD guideline document - *Section 3: Spaces for Living*, this criteria relates particularly to kitchen spaces which could be described as the place where work is carried out in the home.

1200 mm is determined by the required width where two people can work in the space at the same time and 1500mm would consider the presence of a wheelchair-user.

The image in fig. 5.2p to the right [11] shows the variety of activities that take place when preparing a meal. Space on plan is also affected by the action of hinged doors on cupboards and ovens and similarly for pull-out and pull-down fittings.

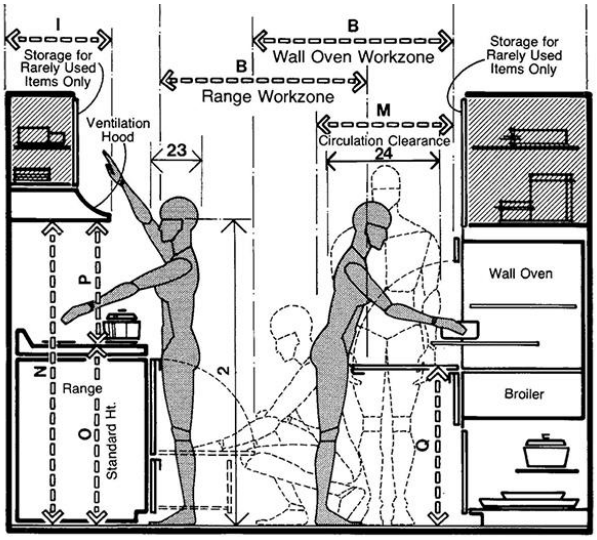
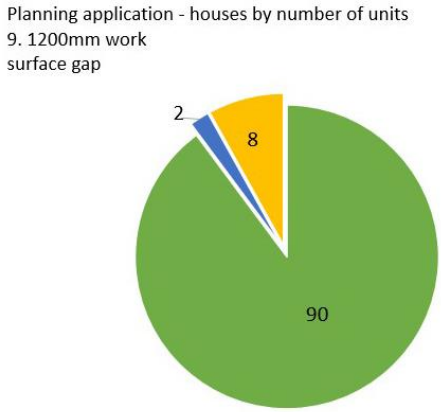


Fig. 5.2p Ref Panero

Clearly the height of work-surfaces and appliances is critical when dealing with accessibility but is considered as detailed design after the planning stage.



92% of houses as shown in Fig 5.2q have included adequate space for this criterion. The figures are slightly less for apartments and for SHD units but still range around 85%.

Those units in the 3/4/5 category are either, too small in floor plan, poorly designed or inaccessible such as duplexes.

An example of category 3 is shown in Fig. 5.2r below

Fig.5.2q example of results for criterion (i)

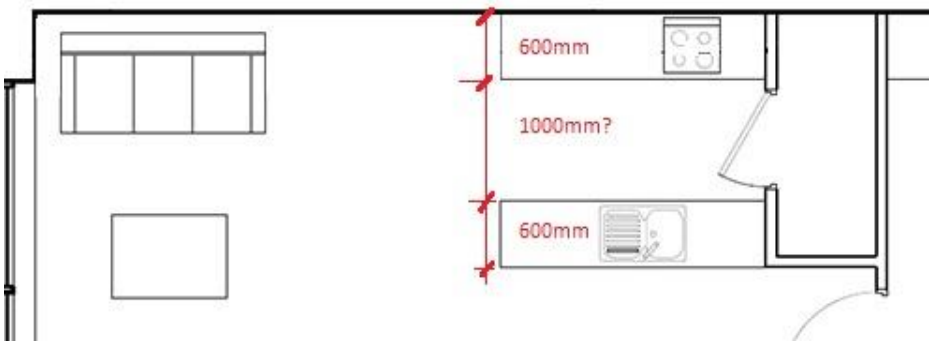


Fig. 5.2r from SHD application

5.2.6 Space around beds

Criterion (j) 800mm clear to each side and more to the end of the bed

In the vast majority of 2 or 3-storey houses there is no bedroom located on the access floor and it is, therefore, somewhat irrelevant to consider upper-floor bedrooms in houses. This criterion particularly relates to the small number of bungalows, all of which comply, and to apartment units.

There are few if any instances where bedrooms are less than 2800mm at their smallest dimension, allowing 800mm at the foot of the bed. There are however instances of bedroom widths being compromised by wardrobe positions. The units falling into the 3/4/5 category in fig. 5.2s and 5.2t below, either have level changes, are above a shop, or are duplexes and are therefore inaccessible.

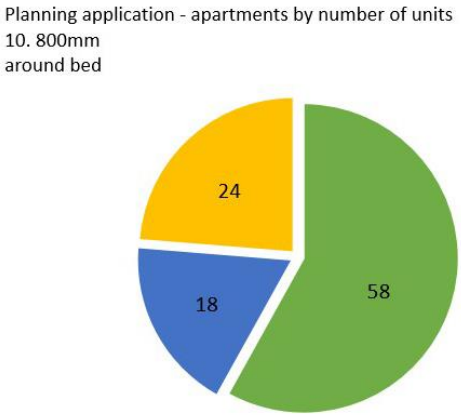


Fig.5.2s

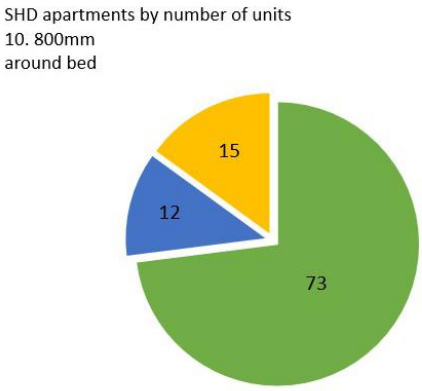


Fig. 5.2t

5.2.7 Kitchen shape

Criterion (m) 'U'- shape or 'L' shape kitchen preferable

This recommendation is generally adopted with, between 87 and 95% of all units falling into category 1 and 2. The remainder tend to be galley kitchens of 2 parallel units or a single run, both of which can be equally accessible providing there is sufficient space between the work surfaces as per criteria (i).

The positioning of the kitchen units is equally as important as the shape, when considering the open-plan arrangement of a kitchen/dining/living space. The position can affect circulation, demarcation of space and aesthetics. Kitchens are sometimes placed in the darkest corner of the open plan space rather than where they can benefit from optimum natural light, particularly pertinent in the context of energy conservation. The student 'heat' maps of room usage in section 2.4 of chapter two of this thesis suggest that a significant amount of time is spent in the kitchen, and yet the view from this space is rarely considered.

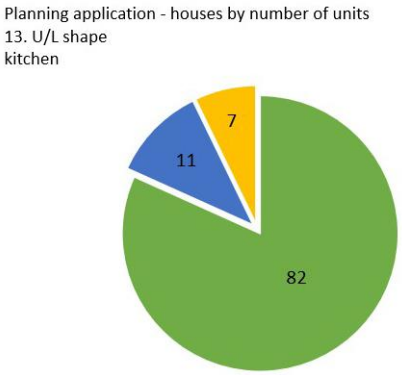


Fig.5.2u

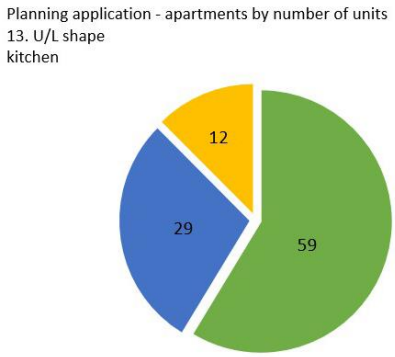


Fig. 5.2v

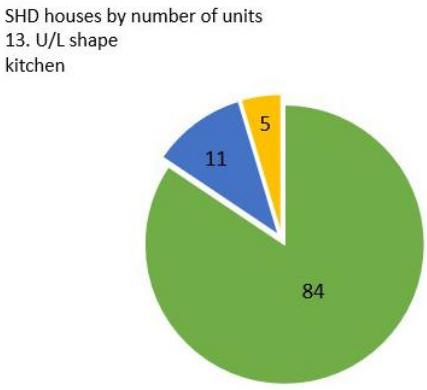


Fig.5.2w

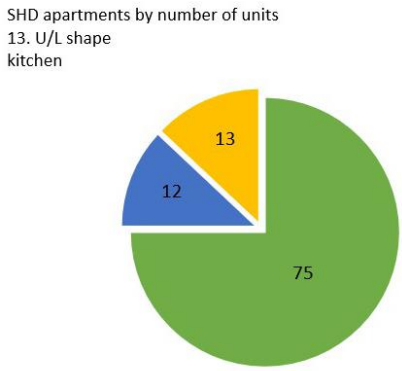


Fig. 5.2x

5.3 Flexible space

Given the 2 scenarios of immediate need identified in chapter 4: section 4.1.1, the notion of flexibility in this regard is limited to changing the function of a room or its furniture layout. Bathroom adaptations for instance are often impractical, time-constrained or expensive in such cases. In seeking rental accommodation it is unlikely that a landlord would be prepared to go to the expense of such adaptations, particularly in times of high demand.

Flexibility, however, in response to 'life-triggers', such as a growing family, children leaving home or the onset of a disability, is of vital importance when designing new homes. It relates to space standards, such as those described in Design Bulletin 6 (DB6) published by the UK Ministry of Housing in the 1960s, better known as *Space in the Home* [12]. Aside from prescribing appropriate minimum sizes for rooms, DB6 considered the activities within the house through a 24-hour period and included example plans of how a well-designed home could adapt to changing family size and circumstance over decades.

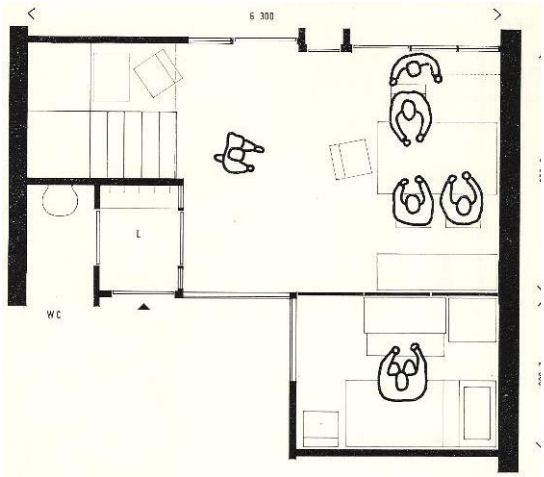
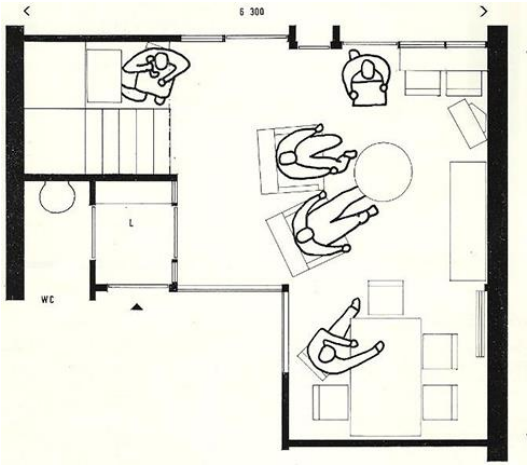


Fig 5.3a when the children are older



5.3b when the children have left home

Fig. 5.3a and 5.3b show examples of how the same space can change over time. In this instance a single bedroom has been provided for a child to sleep, play and study, which then reverts to a larger living space in later years of occupation. There are no further images in the document of possible adaptations in later life but a suggestion in the text that the bedroom in fig. 5.3a could be used by an older relative.

5.3.1 Future bedroom

criterion (d): identify future bed space at entry level

The bedroom is a place of sanctuary, personal control and individual 'ownership', away from the more public living spaces of the home. If one were to devise a privacy gradient from 1 to 5, with the entrance door as 1, then bedroom would rank 4 or 5 (an en-suite bathroom, if provided, would always score 5).

There are times when it may be necessary to dispense with the comfort of one's bed – a back spasm for example could confine the individual to a few nights on the floor. Such temporary inconveniences are a part of adult life yet, a longer term or permanent incapacity can have a disruptive effect on the family home.

This criterion relates specifically to the access (normally ground) floor for multi-storey houses where the bedrooms are located on the upper floors. Apartments and single-storey houses (bungalows) will always have a bedroom included at access level.

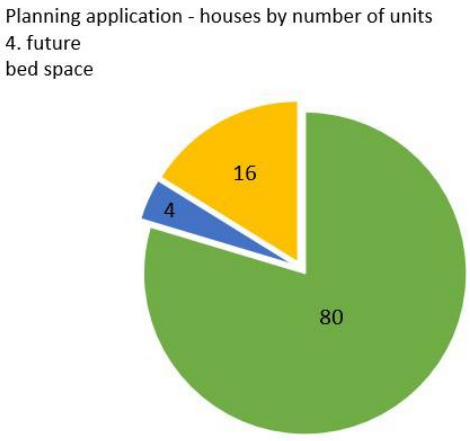


Fig.5.3c house future bed space

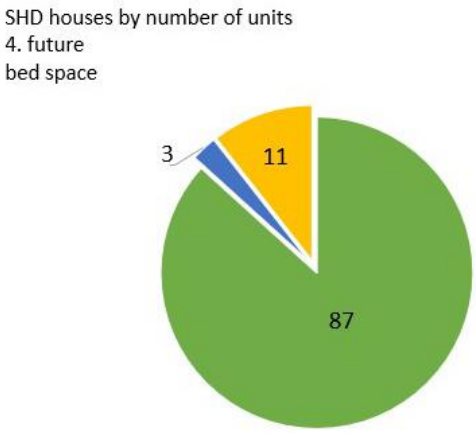


Fig. 5.3d SHD house future bed space

Fig. 5.3c and 5.3d suggest that there is significant opportunity provided for future bed space in the design for houses from the survey sample, though this is often at the expense of giving up a living room in a family home. Kitchen/dining spaces then take on the function of a space where the family can gather.

Fig. 5.3e to the right indicates a category 4 example from the survey sample where an open plan kitchen/dining/living space in a small dwelling presents significant challenges when future bed-space is needed, particularly related to entry and circulation issues.

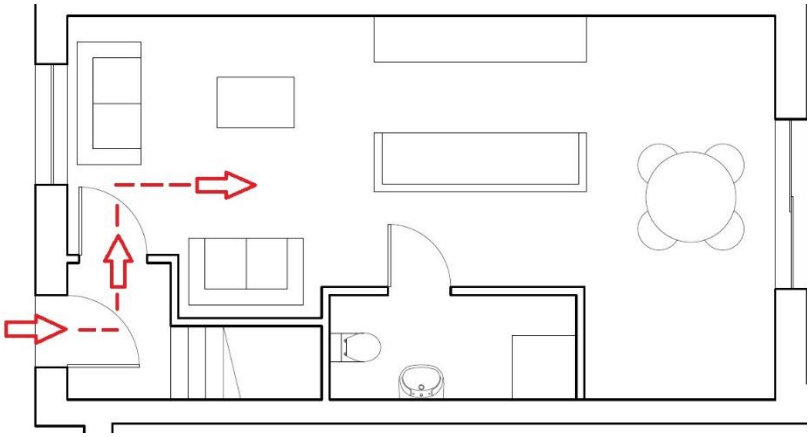


Fig. 5.3e open plan, small dwelling example

5.3.2 Space around dining table

Criterion (l): provide 1200mm clear space on at least two consecutive sides of a dining table

The majority of designs from the sample complied with this criterion as shown in Fig 5,3f.

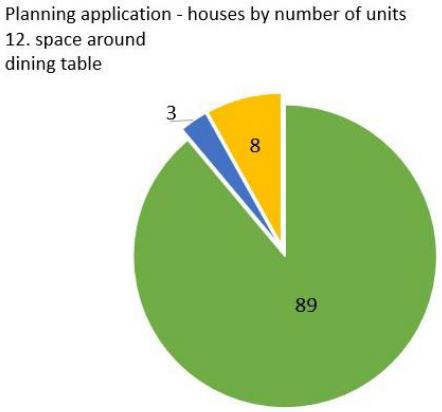


Fig.5.3f house - space for dining

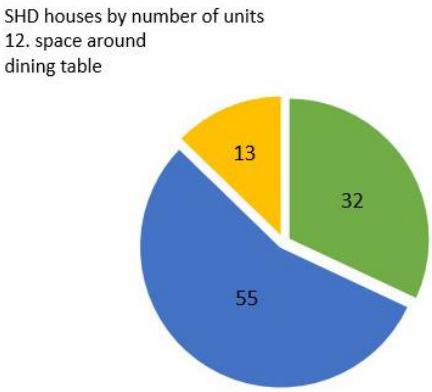


Fig. 5.3g SHD house - space for dining

Less satisfactory results were evident in the SHD applications for houses where the concentration of small dwellings with an access-floor footprint of 40 to 45 m² created limited space for furniture items, requiring more imaginative solutions to achieve category 1.

5.3.3 Flexible working space

Criterion (o): provide space in the home for a desk, chair, filing cabinet and filing storage of at least 1800mm in length and 1500mm in depth (including chair space)

Perhaps the most forward-thinking of all of the CEUD guidelines is the inclusion of this recommendation, written a number of years before the pandemic lockdown of 2020. One can also appreciate that many of the designs from the 2020 planning and SHD applications were considered prior to this global event, which catapulted the concept of working-from-home into the public consciousness. Consequently the designs scored very poorly across all types of application as shown in fig. 5.3h and 5.3i, but particularly for houses and 1-bed apartments. Though not strictly an accessibility issue, it is clear that this factor should be considered carefully in all new housing designs.

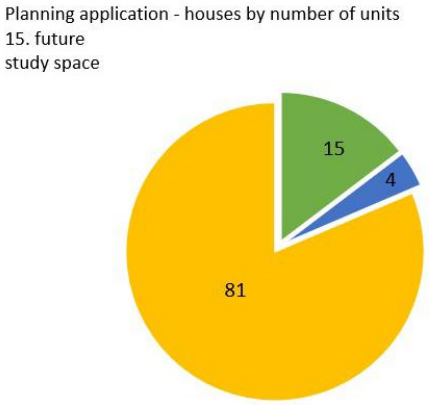


Fig.5.3h house - working from home

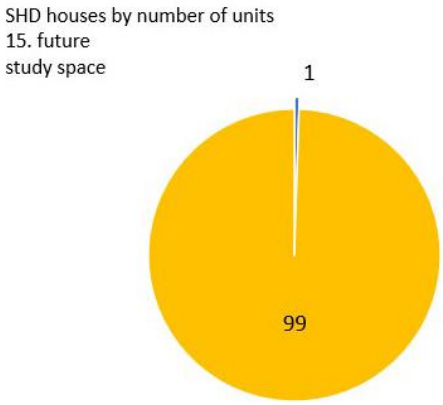


Fig. 5.3i SHD house – working from home

5.4 Regulated space

Section 5.32 of *Quality Housing for sustainable communities, published in 2007, relates to s*pace requirements and room sizes, stating that:

> "Adequate floor areas and room sizes are important considerations but do not necessarily create good quality living spaces". [13].

And yet the text quickly defers to a set of precise, prescriptive area guidelines for room sizes with no explanation as to their origin. There is a note that:

> "Floor areas for dwellings designed to accommodate older people, disabled people and others with special needs, may vary from these, depending on the particular requirements to be met"

but it would be more practicable to consider how much extra space, if any, that such situations would require.

This is also emphasized in the government publication, *Sustainable urban housing design standards for new apartments*, from 2018 [14]

Section 1.17 for instance proposes internal space standards for different types of apartments (studio, 1, 2 and 3-bed) and room dimensions for certain rooms. In an acknowledgment to safeguard higher standards, section 3.8 proposes that,

> "in the interest of sustainable and good quality urban development, in any proposed scheme of 10 or more units, the area guidelines can be exceeded by 10%."

Minimum bedroom floor areas/widths***

Type	Minimum width	Minimum floor area
Studio	4m**	30 sq m**
Single bedroom	2.1 m	7.1 sq m
Double bedroom	2.8 m	11.4 sq m
Twin bedroom	2.8 m	13 sq m

** Note: Minimum floor areas exclude built-in storage presses that are contributing to storage space requirements*

*** Note: Combined living/dining/bedspace*

**** Note: Variation of up to 5% can be applied to room areas and widths subject to overall compliance with required minimum overall apartment floor areas*

Fig.5.4a guidelines from Sustainable urban design standards, 2018

5.4.1 13m² bedroom

Criterion (f) ensure that double and twin bedrooms are at least 13m² in area

The general text in the CEUD guidelines on bedrooms simply refers to a requirement of enough space for the furniture and for ease of movement around the furniture. This of course can be achieved by also following the clearance guidelines of criteria (c) – clear turning circle and (j) – 800mm around the sides and to the end of the bed.

As the majority of designs have adopted 2.8m as the minimum dimension in bedrooms, this would give a figure of at least 4.65m along the longer wall of a rectangular space to ensure an area of 13m². Fig.5.4a and 5.4b indicate that these recommendations are widely adopted in houses and apartments. Those units falling into categories 3/4/5 are in general, due to level changes and stair-only access and are therefore inaccessible.

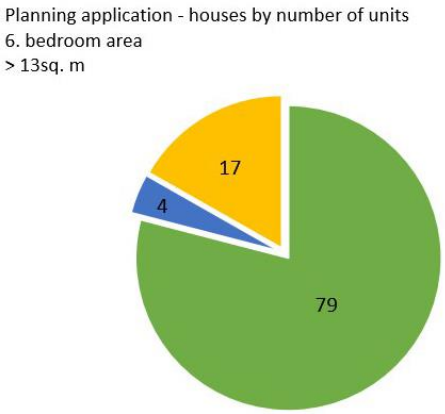


Fig.5.4b house bedroom area

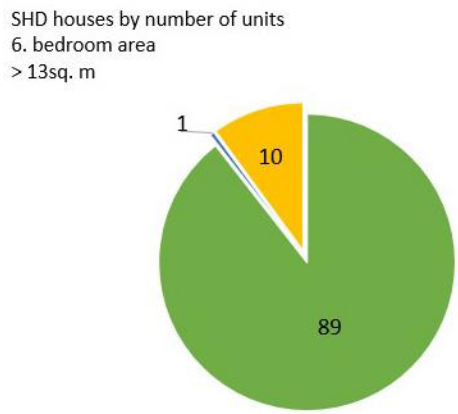


Fig. 5.4c SHD house bedroom area

Prescribed minimum areas are of limited use when designing rooms, particularly with regard to accessibility. Applying a knowledge of anthropometrics and ergonomics is a more effective method. Humans come in various shapes, sizes and abilities but the dimensions of beds and wardrobes tend to be standardized. Universal Design guidelines not only consider the space for movement around both fixed and movable furniture items but also inform about the efficient ingress/egress to and from the room.

Taking the UD guidelines from CEUD publications, an effective accessible bedroom layout would be 2.8m x 4.25m (assuming a 1350mm wide double-bed) which = 11.9m². Fig.5.4d indicates guidelines given to students in MTU for designing effective accessible apartments in their project work. [15] Given that most beds are 2m long, it would be difficult for a person in a wheelchair to navigate past the end of the bed if it is fully dressed with a duvet, for instance. In this case a UD+ guideline (proposed by CEUD) of 1m at the end of the bed would be preferable. This is comparable with the 5% variation available, giving a minimum bedroom width of 2.94m. This would give the bedroom an area of between 12.5 and 12.75m².

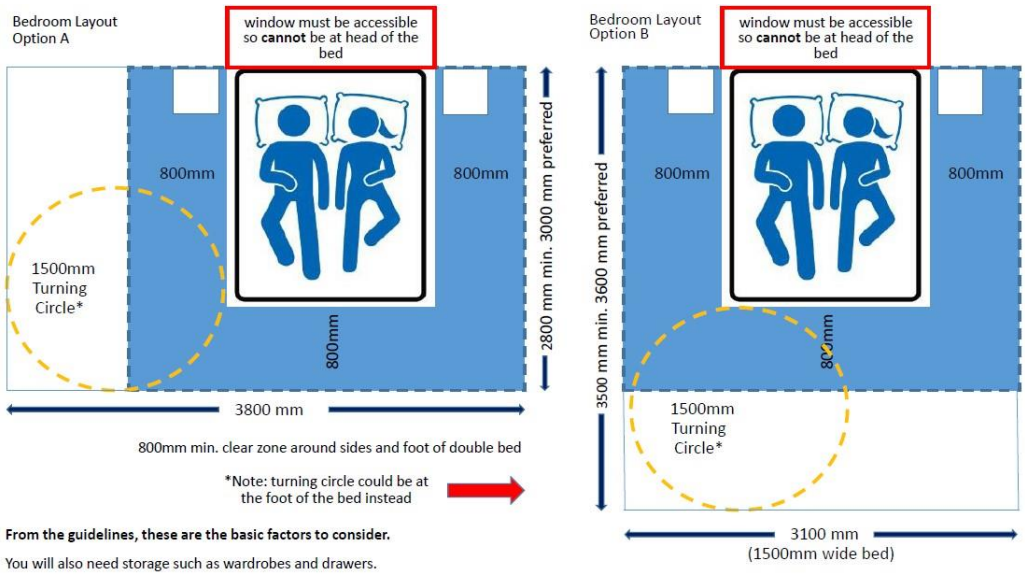


Fig. 5.4d instructions for interior architecture students by the author

5.4.2 Unobstructed living room widths

Criterion (k) the recommended minimum unobstructed living room widths are 3.3m for one-bedroom, 3.6m for two-bedroom and 3.8m for three-bedroom dwellings

The government guidelines, originating from 2007 [13], ask the designer to consider, among other things, furniture selection and location, a "reasonable degree of freedom of circulation, appropriate to likely activities" and space for family gatherings.

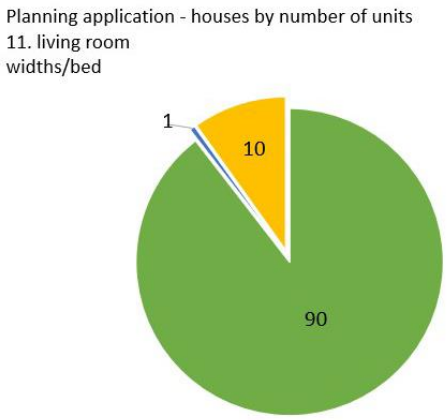


Fig.5.4e house bedroom area

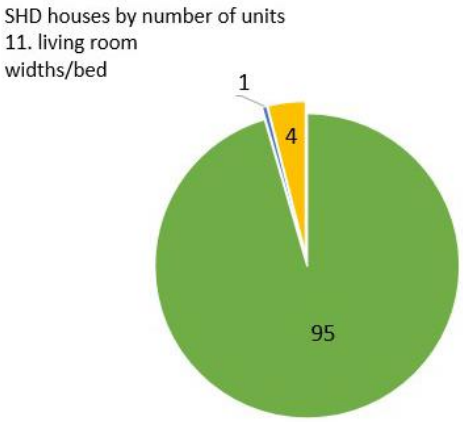


Fig. 5.4f SHD house bedroom area

Results for this criterion as shown in fig.5.4e and 5.4f are generally favourable with at least 90% achieving category 1 or 2 for houses and apartments in both application types. Whether this is due to a strict adherence to the recommendation or just an appreciation of a well-designed housing unit, is open to debate.

5.5 Storage

One aspect of space planning in new homes, and in particular apartment design, which appears to perplex the designer is the provision of storage. All too often it is seen simply as a number, an area requirement imposed by the regulations and relegated to an item within the schedule of accommodation. The consequence of this is storage allocation that is either too deep for its purpose, wasteful in floor circulation area or difficult to access. The 2018 design standards for apartments set out the required floor areas for storage (3m² per bedroom), specifically to

> "accommodate household utility functions such as clothes washing and the storage of bulky personal or household items"[14].

The document suggests that a store off a hallway or landing will facilitate access but does not explain why or how. Just as a knowledge of anthropometrics and ergonomics is useful for the efficient design of a kitchen or bathroom, accessible storage also requires careful thought. In most cases 600mm deep storage space should be sufficient but be carefully arranged in section to ensure that shelf heights are within comfortable reach of all users.

If part of the function of 'storage' allocation is for clothes washing it is also important to consider the appropriateness of a 'utility room' in apartment design. In rural and suburban housing design, the location of the utility room would generally be adjacent to the external door to the garden for clothes drying and to the kitchen -helpful for plumbing and drainage coordination - but also the traditional domain of the 'housewife'. Aside from the washing machine, the room might also contain other appliances such as a freezer and boiler. There is an argument that, in the modern home, a space for clothes washing is more related to the bedroom (clothes and linen) and the bathroom (towels) as clothes tend to be dried mechanically indoors. Similarly cultural, demographic and societal changes have, if not completely, moved forward and away from the role of the 'housewife'.

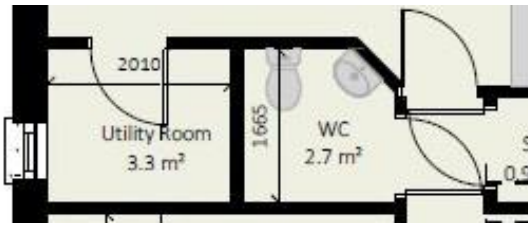


Fig. 5.5a example from survey sample

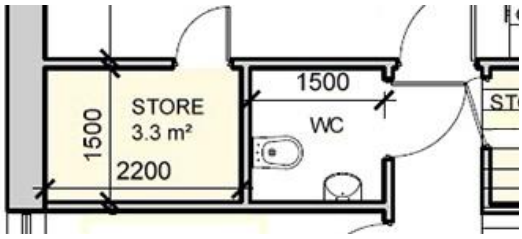


Fig. 5.5b example from survey sample

In many cases from the survey selection, the utility room is adjacent to, but is also larger than, the accessible WC, as shown in fig. 5.5a and 5.5b above. In both of these examples from the SHD applications, the WC does not comply with the CEUD recommendations and the door to the kitchen space does not have 300mm clearance at the leading edge.

There are opportunities, with guidance to the designer, to consider the exact function and optimise the utility space, allowing for an increase in the size of the WC to a shower room that would meet both criteria (a) and (b).

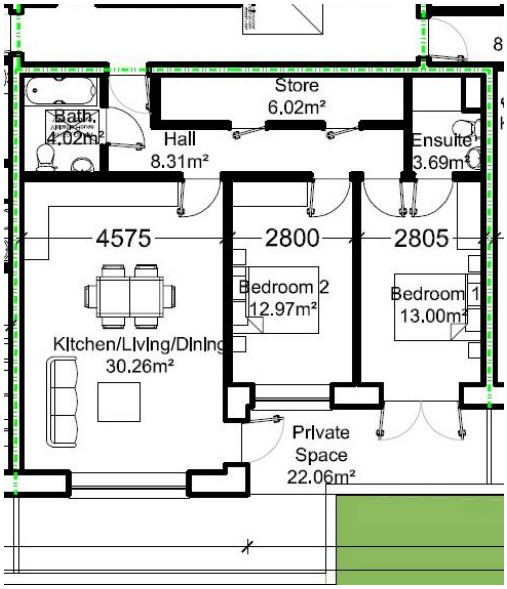


Fig. 5.5c example of storage space-planning from analysis of SHD applications for Cork City in 2020

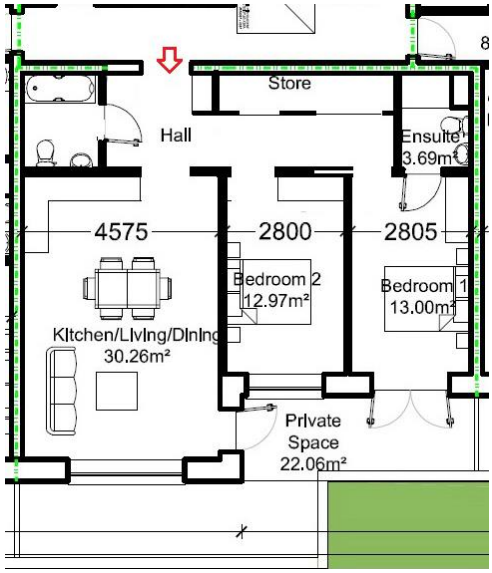


Fig. 5.5d solution to storage space-planning

One of the space standard/accessibility criteria identified in the CEUD guidelines and adopted for analysis is **(n) storage inside the front door**. This relates directly to another criterion of **(e) adequately sized entrance lobbies.** Figures 5.5c and 5.5d show how simple adjustments at planning stage can facilitate accessibility and, in this instance provide opportunity within an apartment for borrowed daylight to enter the lobby from the Living space. There is a recurring theme in some of the apartment designs of the adoption of what is effectively a traditional bungalow plan with dark internal circulation.

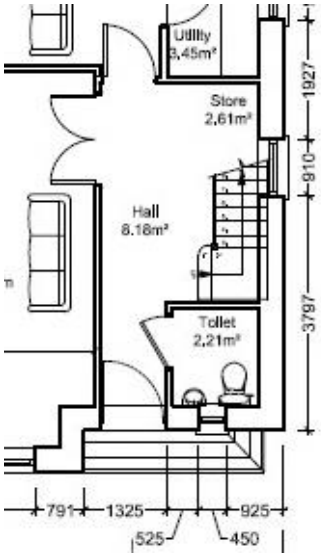


Fig. 5.5e example 1

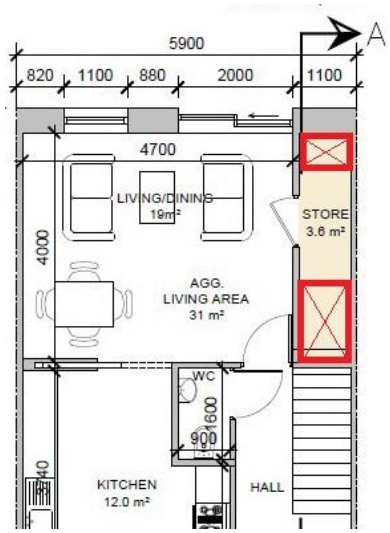


Fig. 5.5f example 2

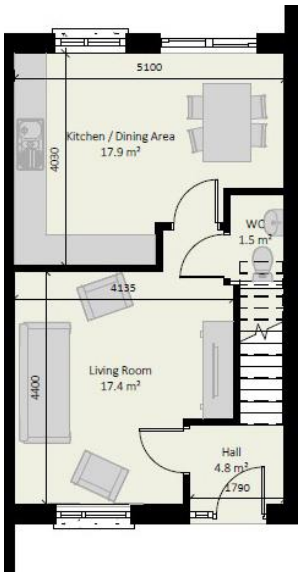


Fig. 5.5g example 3

Figures 5.5e to g, represent examples from the 2020 analysis, of poorly designed entrance lobbies, inaccessible storage and no storage on the access level. Due to the poor positioning and provision of only the one door, for example in figure 5.5f the areas outlined in red are either inaccessible (if the room contains shelving) or an inefficient use of space.

5.5.1 Exemplars

There are many examples from architectural design that use storage efficiently. Shigeru Ban's furniture house 1 in Yamanashi, Japan from 1995 is one example, where the layout of the functional spaces and building structure are achieved by the use of straight lines of, factory produced, modular storage units. [16] For greater flexibility, some of the adjacent storage units could be doubled-up, creating space for bulkier items. Rather than considering storage as having an ancillary function, this approach is a clear representation of Louis Kahn's concept of served and servant spaces.

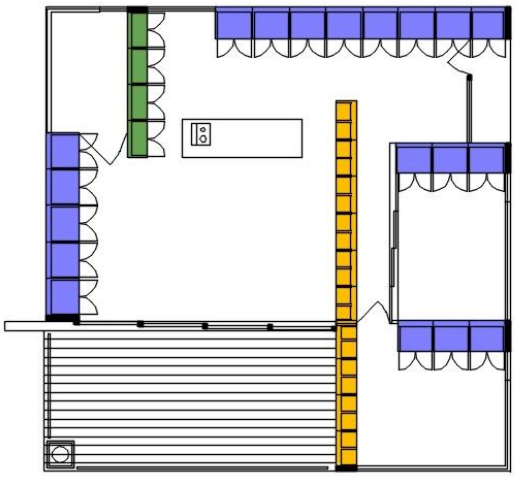


Fig. 5.5h Shigeru Ban Furniture house 1 plan



Fig. 5.5i Shigeru Ban Furniture house 1

Jean Prouvé's house in Nancy, France from 1954 is another, earlier example where a 28m long spine of storage units forms the entire back wall to a 3-bedroom house, constructed in the main from modular units. [16] By running the full length of the building, items can be stored in proximity to the spaces where they are most likely to be used.

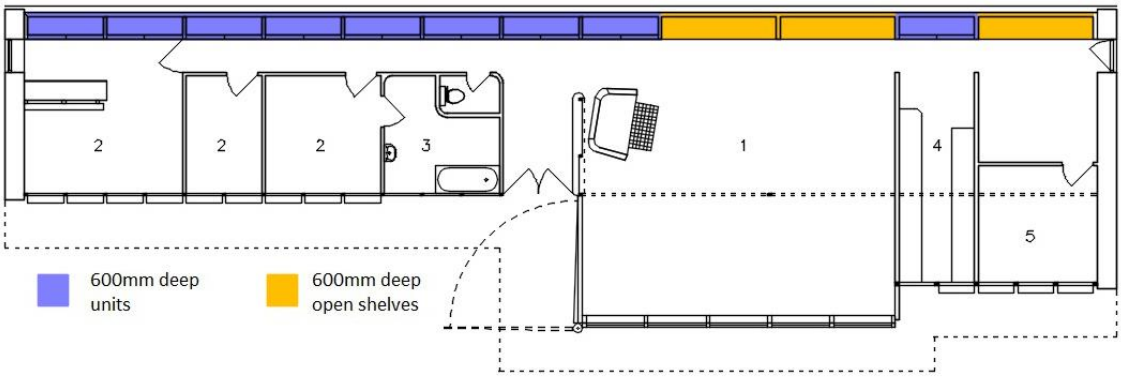


Fig. 5.5j Jean Prouvé house plan, 1954

A useful approach in new housing design would be to consider utilising 600 or 800mm deep modules of storage units, with sliding doors, as a means of dividing space. This allows the storage to be accessed directly from circulation space or from a functional room. This will avoid the need for a door into a storage room, another barrier to be negotiated and a waste of circulation space. Storage units used as dividing walls can also provide efficient buffers to sound transmission between rooms.

5.5.2 Results

criterion (n): provide space for storing outdoor wear, coats, shoes and bags; provide additional storage space for a buggy and/or shopping trolley.

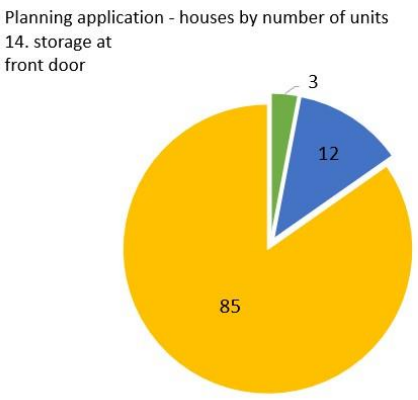


Fig.5.5k house -storage at entry

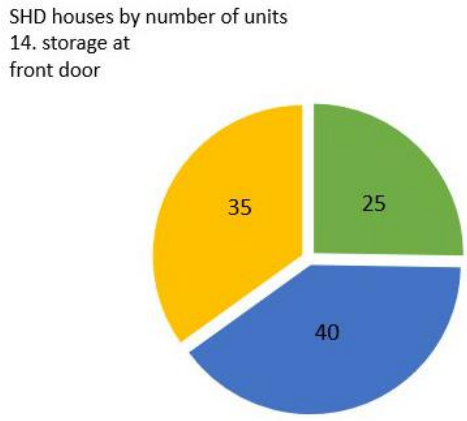


Fig. 5.5l SHD house – storage at entry

Fig. 5.5k and 5.5j indicate that provision for storage at the front door lobby is almost completely absent in planning applications for houses and scores poorly in SHD house applications, due, in many cases to the position of the bottom step of the stairs as in fig. 5.5g. There are some examples where storage is provided under the stairs, but often not close enough to the accessible entrance.

Fig. 5.5m and 5.5n indicate that apartments fare better in this regard as storage is often located close to the entrance lobby and circulation corridor as in the solution shown in fig. 5.5d.

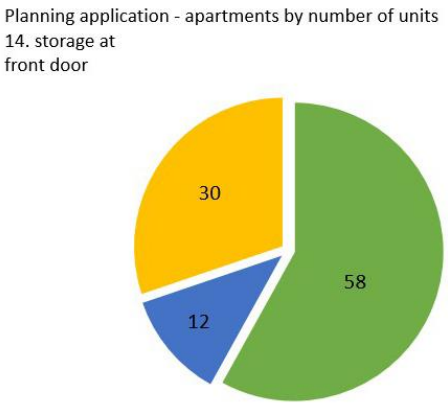


Fig.5.5m house -storage at entry

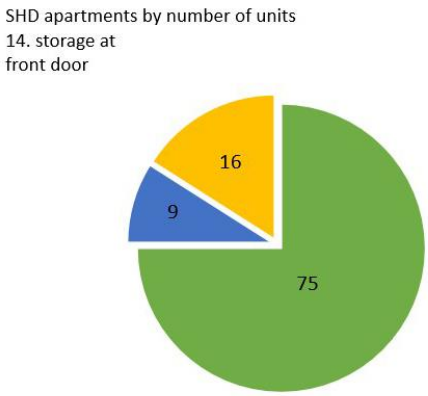


Fig. 5.5n SHD house – storage at entry

5.6 Summary of results

Overall results are, in all cases, based on the number of proposed units rather than the different unit types/designs. For example some unit types or specific design solutions only represent 1 housing unit, whereas the most repeated unit type represents 235 housing units. Results are broken down as follows:

1. Housing units that fulfil all of the 15 criteria and could be classified as designed to a lifetime home standard.
2. Housing units that qualify as category 1, determined to be functionally accessible as they can be occupied given the 2 scenarios of immediate need.
3. Housing units that fall into category 2 where minimal changes during the design phase could achieve category 1.
4. Housing units that require significant design changes or a complete re-design/re-appraisal of design approach, falling into categories 3, 4 or 5.

Units are further classified by application type, as follows:

- planning through the City Council or SHD through An Bord Pleanála, and by
- type of accommodation i.e., house, apartment or duplex.

5.6.1 Lifetime homes standard

Planning applications	To lifetime homes standard (LHS)
904 units of which: Houses **334** Apartments **489** Duplexes **81** **Overall**	 Houses **8** (2.4% of houses) Apartments **12** (2.5% of apartments) Duplexes **0** (0% of duplexes) 20/904 units = 2.2%

SHD applications	To lifetime homes standard (LHS)
1301 units of which: Houses **776** Apartments **459** Duplexes **66** **overall**	 Houses **0** (0% of houses) Apartments **0** (0% of apartments) Duplexes 0 (0% of duplexes) 0/1301 units = 0%

Table 5.6a numbers of lifetime home standards achieved

The 8 houses are wheelchair-accessible, single-storey bungalows. The majority of the 12 apartments are over 30% larger than required minimum areas for 2-bedroom units and are located in a refurbished historic building.

None of the, speculative developer-led SHD applications conformed to Lifetime home standards.

5.6.2 Functionally accessible - category 1.

Planning applications	To category 1 (including LHS above)
904 units of which: Houses **334** Apartments **489** Duplexes **81** **overall**	 Houses **25** (7.5% of houses) Apartments **189** (38.7% of apartments) Duplexes **0 (**0% of duplexes) 214/904 units = 23.7%

SHD applications	To category 1 (including LHS above)
1301 units of which: Houses **776** Apartments **459** Duplexes **66** **overall**	 Houses **0** (0% of houses) Apartments **354** (77.1% of apartments) Duplexes 30 (45.5% of duplexes) 384/1301 units = 29.5%

Table 5.6b numbers of category 1 standard achieved

The figure of 25 houses includes the 8 lifetime homes previously described. The remaining 17 are compromised only in terms of corridor width, lack of 300mm at leading edge of doors and lack of storage at entrance lobby. This is also generally the case for the 189/354 apartments. None of the SHD houses had an accessible bathroom.

5.6.3 Category 2 - requiring minor changes at design stage to achieve functional access.

Planning applications	To category 2
904 units of which: Houses **334** Apartments **489** Duplexes **81** **overall**	 Houses **216** (64.7% of houses) Apartments **190** (38.8% of apartments) Duplexes **12** (14.8% of duplexes) 418/904 units = 46.2%

SHD applications	To category 2
1301 units of which: Houses **776** Apartments **459** Duplexes **66** **overall**	 Houses **544** (70.1% of houses) Apartments **54** (11.8% of apartments) Duplexes **0** (0% of duplexes) 598/1301 units = 46%

Table 5.6c numbers of category 2 standard achieved

The figures show that significant numbers of house designs in both types of application could achieve category 1 standard, in many cases with no significant increase in overall floor area. This is particularly evident in the planning applications where designed floor areas are more generous. Apartment plans often require increasing minimum bathroom widths from 1700 to 1800mm.

5.6.4 Category 3/4/5 requiring major changes at design stage or complete re-design.

Planning applications	To category 3/4/5
904 units of which: Houses **334** Apartments **489** Duplexes **81** **overall**	 Houses **93** (28% of houses) Apartments **110** (22.5% of apartments) Duplexes **69** (85.2% of duplexes) 272/904 units = 30.1%

SHD applications	To category 3/4/5
1301 units of which: Houses **776** Apartments **459** Duplexes **66** **overall**	 Houses **232** (29.9% of houses) Apartments **51** (11.1% of apartments) Duplexes **36** (54.5% of duplexes) 319/1301 units = 24.5%

Table 5.6d numbers falling below category 2 standard

The figures indicate that, between around 25 and 30% of all new housing proposals from the survey sample are unlikely or incapable of achieving accessible standards. This figure is much higher for duplex apartments.

5.6.5 criteria results

By far the worst performing criterion preventing the unit from being considered functionally accessible is the lack of an accessible bathroom (with level-access shower being the preferred solution). In many cases, particularly in small dwellings, even an acceptable WC provision is unfeasible. The, more favourable, results for future bed-space at access level are compromised by the lack of an adjacent accessible space to wash with dignity or ease.

In the case of functionally accessible units, the worst performing criteria were: 300mm clearance at leading edge of doors, provision of flexible study space, and storage at the entrance lobby. It is likely that study space will become more commonplace in future designs with the advent of working from home, as necessitated by the Covid 19 pandemic.

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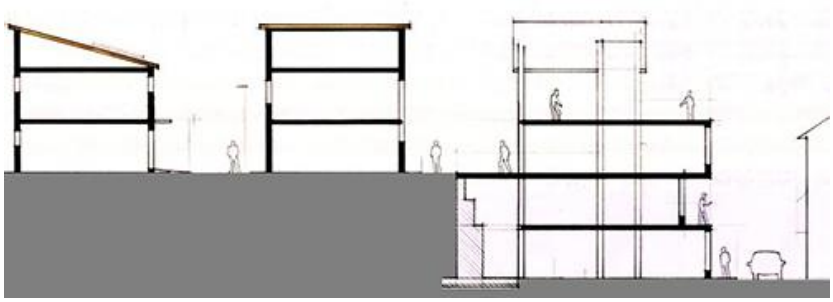
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Chapter Six



Chapter 6 – Conclusions

6.0 Introduction

> "Contemporary architects must do everything possible to make architecture less and less the representation of its designers and more and more the representation of its users". [1]

Cork city is Ireland's largest metropolitan area outside of the capital, Dublin and is currently experiencing dramatic growth and investment. As with all Irish cities, Cork is also experiencing a housing crisis, a condition reflected internationally as people move to a more urban environment.

The purpose of this research is to investigate the current standards of accessibility in new housing, as proposed by architects and designers, to identify specific areas and practices that can be improved, and to suggest possible mechanisms to achieve liveable homes for the greatest number of users, as follows:

6.1 Identifying current trends in the design of new housing, including analysis of some aspects of plan layouts.

6.2 Identifying the barriers to cooperation between the parties involved in the design and delivery of housing.

6.3 Identifying the limitations of, and proposing amendments to legislation and regulation

6.4 Identifying the true cost and potential savings of adopting Universal Design principles.

6.5 Giving designers of housing the tools to create accessible homes. Worked examples of different housing types.

6.6 Emphasizing the humanitarian impact of not adopting UD principles.

6.1 A new model of housing

A century has now passed since the aftermath of World War One, and the emergence of modern ideas about housing and society. The 'modern movement' sought to abandon traditional practice in architecture in favour of a more functionalist approach, rather than the prevailing adherence to historical styles. Some years prior to the war a recognition of the poor state of mass-housing and the living standards of its occupants in Great Britain, had led to such legislation as the London Building Act of 1894 in the UK. The Tudor Walters report, published in 1918 set out standards for housing that were expected to influence design over the next 60 years.

In continental Europe, from the 1920s, Le Corbusier and Walter Gropius, among others, showed particular interest, not only in the use of new technology and materials, but also in the understanding of social behaviour as a formulation for their 'new' architecture.

> "Underlying and legitimising the modern functionalist doctrine, a scientific interpretation of people and their world could be discerned" [2].

The building boom resulting from the reconstruction of towns and cities following World War Two led to the widespread construction of housing schemes following modernist principles throughout Europe. It is estimated, for instance, that Britain lost around 35% of its existing housing stock to war damage [2]. By the early 1970s attitudes began to change away from the standardization of mass housing, not least in response to the controversies around poor construction standards – see Section **3.5** The Architect.

Modernist styles of housing have prevailed throughout mainland Europe yet, in a significant majority of applications from the survey sample from Cork City in 2020 investigated in this thesis, and of contemporary semi-detached and terraced housing in general, the following duplication of design is adopted: the entrance door is invariably placed to one side of the front façade, allowing a room – originally called the parlour – to be located to the side of the hallway and the staircase. The hallway leads to the rear of the house where rooms face a private garden.

This plan layout has been the predominant style in urban Ireland and the UK for over 300 years, originating from the 18th Century developer's approach of creating long narrow footprints, maximising density and, consequently, profit. [3]

> "The most striking feature of the houses we are building today is that most of them don't look very modern……. What vision of life and happiness should our new houses be proposing?" [4]

The philosopher, Alain de Botton questioned the dichotomy between our fascination with modern cars and digital devices against the traditional plan layouts and aesthetics we choose for our homes.

Entering a building on the 'short' side of a rectangular plan (fig. 6.1a), as with most terraced or semi-detached housing, leads to inefficiencies in internal circulation, particularly when compared with the Irish 'teach fada' (long house – fig. 6.1b). In the latter, the house is generally entered from the centre of the 'long' side of the rectangular plan, allowing optimal circulation in 2 or 3 directions. [5]



Fig. 6.1a. terraced housing from thesis survey sample

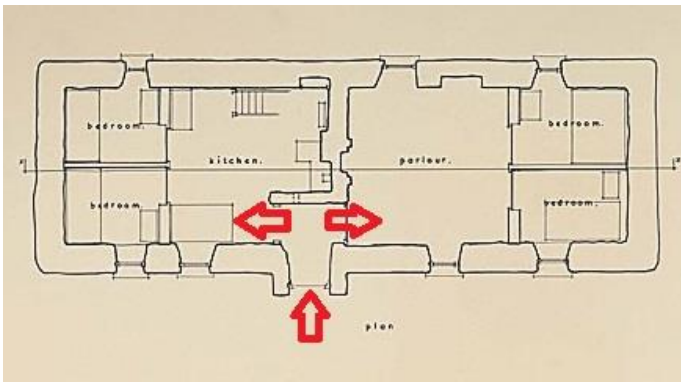


Fig.6.1b. Curracloe, County Wexford. National Museum of Ireland Collection – F:1947.36

In traditional housing of the 18th and 19th Centuries, the front parlour was generally used only for special occasions or on specific days [6]. Being at the front, open to scrutiny from the street, it was kept in perfect condition and decorated tastefully, signifying a level of status but also acting as a privacy realm, identified by Rapoport.

> "privacy depends on the domain. Once again we find a concern with transitions – the entries are not straight but block views and emphasize the separation of the public and private domains" [7].

During the 20th Century, the room tends to have been transformed into the sitting room or lounge. The exclusivity of the front parlour resulted in the day-to-day living taking place in the back of the house, generally the kitchen, where meals were prepared and also consumed.

In current times this hierarchy of spaces has led to the location of the sitting room (evening use) to the front of the house and the kitchen/diner (daytime use) to the rear. It is worthy of analysis as to whether this arrangement is a result of unintentional evolution or a necessary, more tangible connection between family living spaces and observation/access to the private back garden.

Graham Rowles has suggested that a significant factor in how elderly people enjoy their homes is the use of the surveillance zone [8]. This requires that spaces used most in the daytime be located to the front of the house to allow for observation of the world going by – see section **2.4** methodology – figs. 2.5a, b and c.

6.1.1 Analysis of plan layouts

The more functional or rather, more consciously designed houses have placed the bathroom/utility zone centrally in the plan, often with the living room to the front and kitchen-diner to the rear (see section **6.5.2** -fig. 6.5c and d). Reversing this front and rear allocation of rooms would help to achieve Rowles' surveillance zone (see section **2.5**) as kitchens and eating spaces tend to be used more during the day than living rooms.

There are many different dimensional approaches to room size in this thesis survey sample (see section **5.1.6** – fig. 5.1k). One design firm, for instance, has designed bathrooms to a variety of dimensions in different house types. In other words, the bathroom appears to be an afterthought to fit in with the other elements in the ground floor plan. Identifying the appropriate minimum size as laid down in the CEUD guidelines and using this as a fixed template for accessible shower rooms would put the hygiene element of universal design at the forefront/foremost in the minds of the designers. Particularly restricted solutions involve the WC being located under the stair. There is, in this arrangement, far less flexibility about providing an adequately sized shower room due to insufficient headroom as the stair rises overhead. Widths within the WC space are also often less than the width of the stair, i.e. less than 900mm, and this problem is exacerbated by the technical guidance document loophole where such a small WC space can be provided in a small dwelling if the gross floor area of the storey is under 45m² (see section **3.4.3**). This problem should not occur in small apartments where the access 'footprint' is larger.

One of the preoccupations with the design of modern houses is the pre-eminence of the utility room. The utility space has evolved from the traditional bungalow arrangement, where clothes were taken through the back door to be hung in the garden for drying. Too often, the utility spaces identified in the survey sample are simply a small room with a door, with no real appreciation of the ergonomics involved in household laundry. In the author's design experience there is an opportunity for introducing efficient design ideas around this 'place of work' within the home, for instance by concealing utility appliances within storage along circulation space.

6.1.2 The Duplex

The duplex apartment, for reasons relating to density and economy, has been and continues to be promoted in recent years particularly in Ireland, as model for new housing [9]. Unless accessed from the ground floor, the duplex apartment is in almost all circumstances inaccessible for many people with restricted mobility, rarely benefitting from a lift to the entrance lobby for vertical circulation.

6.2 Barriers to cooperation

> "Xenophon tells (as Plato does), how Socrates was continually occupied with the problem of getting competent (men) into positions of power". [10]

In one example he met a young man wishing to become a general and persuaded him that, to do so it would be helpful to know something about the art of war. The same problem could still be said to apply in current times with the selection of policy makers and politicians and their decisions that affect their constituents.

Ireland enjoys a relatively comfortable position in the developed world. It is insulated by distance from the current war in Eastern Europe and receives a level of respect and influence within the European Union, as evidenced by a recent article in the Economist.

> "On a per-head basis Ireland has a good claim to be the world's most diplomatically powerful country" [11]

Protected by its historical ties with America and, to a lesser extent, the United Kingdom, the country has regained a sense of stability since the economic crash of 2008.

Yet, despite this, the housing crisis worsens by the day, inflation rises exponentially and the health service is under continuous pressure, both in terms of staff and investment. Together with scandals relating to the planning system and construction defects due to 'light-touch' regulation, it is difficult to find a strong public voice for people marginalised by disability, frailty or simply as a carer for a loved one.

There is one particular Irish television channel that offers some hope for positive action. It is difficult to imagine that Oireachtas (*trans*. parliament) TV could achieve prime-time status on the airwaves, yet this platform provides the opportunity for impassioned and informed debate. It gives a voice to many of the people working at the 'coal-face' within their field or discipline, away from the 'theatre' of the Dail (house of parliament) and the 'vox pop' of current affairs news broadcasting. It is also an opportunity to identify politicians and potential policy makers, who seem to have a genuine interest in the lives and difficult circumstances of their constituents. The Housing Minister and ministerial team are in an unenviable position, with one eye on the next general election, within the next two years, and a seemingly unsolvable housing supply problem. The government of 2022 can not rely on (or wish for) the extreme circumstances that led Clement Attlee's government in the UK to initiate a National Health Service, or Franklin D Roosevelt's New Deal in the USA. At a more fundamental level, government departments seem unable to rely on cooperation or collaboration with their colleagues in other departments, and there is little sense of 'joined up' thinking.

There is, therefore, a great need for educators and specialists to take responsibility for identifying problems and finding solutions. The is reflected in the aspiration expressed in government policy documents such as *Housing for all* and compatible with the stated mission of the Housing Agency to promote the building of sustainable communities.

One aspect of debate around accessibility that the results of this research have highlighted is the need to address the adequacy of TGD Part M 2010 to achieve liveable, accessible homes. This needs to be approached through engaging with the user-experts as well as designers and consultants. Insightful and continuing commentary on aspects of housing from academic champions such as Orla Hegarty, assistant professor of architecture at UCD must also be part of this discussion.

Furthermore Building Control oversight needs to be strengthened – there is little point in adopting an excellent set of regulations if they can be ignored as a result of 'light-touch' regulation or through under-staffing of local authority departments.

6.3 Legislation and regulation

6.3.1 Building regulation

In its 180 pages, TGD M 2010, [12] dedicates just 7 pages (less than 5% of the document) to aspects of the interior of dwellings, one page of which deals with staircases. The remainder of the document relates in general to buildings other than dwellings. In the introduction the only clear reference to the Disability Act on page 22 relates specifically to access into public buildings.

The CEUD guidance contained in *Universal Design guidelines for homes in Ireland*, [13] by contrast, allocates over 65 pages to entering and moving about within the home. The CEUD document was published after 2010 but before 2022 yet is still not referred to in the current TGD M. Relevant standards and guidance are listed at the end of the TGD but are designated as sources of further information and do not form part of the guidance. The TGD also refers to the issuing of Disability Access Certificates but, again these do not relate to, or consider the interior of dwellings.

In August 2022 the UK government announced that it intended to update the baseline standard for new homes [14]. This would involve adopting the UK requirement M4 (2) of the regulations, introduced in 2015 as category 2: accessible and adaptable dwellings and considered generally equivalent to a lifetime homes standard of accessibility, as the minimum requirement. This effectively would make M4 (1), category 1: visitable dwellings, obsolete. Adopting such an approach in Ireland would help the designer, among other things, to consider a more generous and dignified allocation of sanitary provision, avoiding cramped WCs squeezed under staircases and accessed from narrow hallways, as noted in section **6.1.1** of this thesis.

In terms of the language used in the Technical Guidance Documents (TGD), one could define the term ‘guidance’ as help and advice to do something or solve a problem. In the case of the TGDs this does not preclude an alternative approach, provided that it may meet the requirements of the regulation. The term ‘requirement’, on the other hand, suggests something that is necessary or even mandatory.

A specific area of misunderstanding of the regulations relates to the use of normative elements in its language. The term 'shall' = requirement, appears in the Building Regulations, a comprehensive legal document. In the TGDs, all too often the term 'should' (as in 'it is recommended that'…) is used, 777 times in TGD M: 2010, along with the term 'may' (suggesting 'optional') yet this is the document that designers are most likely to refer to.

Should = 777
Where practicable = 90
May = 83
Adequate = 26
shall = 4
universal design = 2

table 6.1a. Frequency of normative words used in TGD M: 2010

Other phrases such as 'to the greatest practicable extent' are completely open to interpretation – who decides what is practicable? There is a nod to accessibility in the general section at the start of the document but only that one should have "regard to the design philosophy of Universal Design" as though it is merely an option that could be considered.

6.3.2 Minimum Space Standards

As with its adoption of the format for building regulations, Ireland invariably looks to its near neighbour across the Irish Sea for a reflection of policies relating to the built-environment. In the UK prescribed minimum space standards for housing were introduced following the publication of the Parker Morris report in 1961. These standards became mandatory in 1967 for all new housing built in new towns and extended to cover all new local authority housing. Over the last 50 years there has been a gradual erosion of these standards with the mandatory nature abolished by the Local Government Planning and Land Act 1980, introduced by the UK's Conservative government of the time.

> "Many residents in new private homes do not have sufficient space for basic daily activities and needs. Many households don't have the space for the furniture they need, to store personal possessions, to prepare food conveniently or to socialise with friends and family." [15]

The Greater London Authority (GLA) commissioned research into affordability and space standards, to inform its proposed housing design guide. The research concluded that the improved space standards did not impact on the number of homes being delivered, provided that designers worked closely with developers.

> "The quality may also be improved by selecting a contractor who is enthusiastic about design, not just building.[16].

In 2012 new housing space standards were adopted in London [17], followed in 2015 by a nationally described space standard [18], still optional but used as a guideline. Architectural practices such as Levitt Bernstein have been particularly influential in raising the significance of space standards through many years of research.

> "There is no doubt that we need to build many more homes but it is a mistake to believe that, focussing on numbers at the expense of space and quality, serves anyone well."[19]

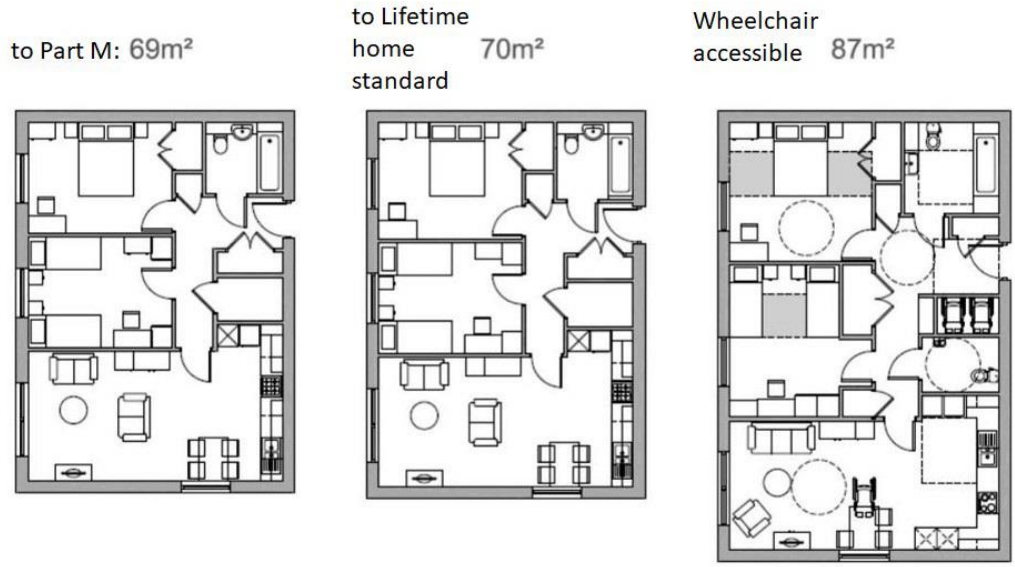


Fig. 6.3a comparison of floor areas for different accessibility standards. Housing Standards Review 2013, RIBA April 2014

Fig. 6.3a shows a comparison of 2-bed, 2-person apartment designs between part M compliant, lifetime homes standard and wheelchair accessible from a review published by the RIBA in the UK in 2014. [20]

6.3.3 The situation in Ireland

'Target gross floor areas' are the name given to government space standard guidelines in Ireland. These standards have the stated intention of achieving value for money [9]. The dogma of financial prudence on the one hand and the impact on liveability that minimum space standards incur are two sides of an, often contentious debate.

Results from the survey undertaken in this thesis, set out in Chapter 5 raise concerns over the space standards applied to smaller dwellings. For a 2-bed apartment design, for example, arranged across one floor, accessibility is achievable (between 63 and 73m² target), but far more problematic for a 2-storey, 2-bed (between 70 and 80m² target) house across two floors.

The author's recent collaboration with the CEUD (see section **3.4.1**) suggests that there is a case for proposing a more generous space standard which will not significantly affect the building cost of the housing unit. Firstly, many of the housing units that achieved a 'category 2' classification in the survey results of this thesis (for explanation of categories see section **4.3.3**), would not result in a significant increase in floor area and therefore cost, following design amendments to achieve 'category 1'. The remainder in 'category 2' would incur a cost of less than 5%, due to an increase in floor area.

The second significant finding from the thesis results, also conveyed to the CEUD, was that the housing units in the applications submitted to Cork City Council in 2020, and to a lesser extent, the Strategic Housing Development (SHD) applications, were designed with floor areas that significantly exceeded the targets, outlined in table 6.3a below.
This suggests that developers within the private housing market feel able to achieve their profit margins despite the more generous floor areas offered in their designs.

Target for 2-bed, 2-storey [9]	Planning application actual	SHD actual
>70m² and <80m²	Average 88m²	Average 87.3m²

No units submitted in the survey sample for 2020 planning applications achieved category 1 or 2 for 2-bed houses

Target for 3-bed, 2-storey [9]	Planning application actual	SHD actual
>83m² and <100m²	Average 113m²	Average 107.9m²
	14% of units achieved category 1	0% of units achieved category 1
	54% of units achieved category 2	63% of units achieved category 2

Table 6.3a. Average floor area comparisons

6.4 The true cost of incorporating lifetime home features into new housing

In 2020 the average construction cost of a new 3-bed, 2-storey, 5-person house in Ireland was estimated at €1569 per m² [21]. Assuming such a house with a floor area of 94m², rather than the current minimum target of 92m², this represents an increase in construction cost of €3,140. The additional cost, if any, is instigated at design stage, before a single building element has been constructed. As noted in item **6.3.3** above, a number of design amendments may not result in any increase in net floor area or cost.

Any additional costs could, arguably, be offset against savings in other areas of expenditure such as healthcare. For example, for someone over 65 years old, the average stay in hospital in 2020, as a result of a hip-fracture, was 17.1 days with longer stays pertaining to more elderly patients. At the end of that period the patient is expected to return home, yet the reality for many is that their home requires adaptation for this to happen. 2020 figures show that only 28% returned directly to their home. [22]

The essentials for home adaptations tend to include an accessible place to wash oneself, a space for sleeping located on the access/entry floor of the house and a requirement to move freely around the access floor.[23]. Current estimates (2022) for such work cost an average of €43,000 and take at least 6 months to be completed [22] (see also comments in appendix A.2). There is a maximum grant available of €30,000 but, despite this, the recent escalation in building costs and skill shortages can only exacerbate the situation. In 2021 over €56mn was drawn down for adaptations throughout Ireland, from an allocation of €60mn [24]. This figure would be far exceeded if the significant numbers of people waiting for an assessment could be dealt with.

Given the obstacle, the patient in the hospital, and their immediate family have limited options. This creates a phenomenon known as ‘delayed discharge’, where the stay in the hospital is prolonged until suitable temporary accommodation is found. Data on delayed discharges in the United Kingdom from 2015, where 90% of the patients were over 65 years-old, incurred an additional cost to the Health Service of £820mn (€950mn) [25]. Per capita, this suggests that the cost to the HSE in Ireland could have been around €75mn per annum in 2015. In the same year a report by the Building Research Establishment suggested savings of £624mn to the NHS by the reduction of hazards within the typical home if lifetime home adaptations were introduced [26].

Figures from the HSE from 2019 state that the incurred cost of a stay in hospital equated to approximately €880 per day [27]. It could be argued therefore, that it only takes 4 to 5 days of delayed discharge to amount to the figure required to increase the floor area to a lifetime home standard at design stage. Clearly this saving does not apply to all homes or households but the delayed discharge figures from the UK above [25] suggest that significant savings are achievable. In the best-case scenario, where the home-adaptation grant is applied for immediately on the

patient entering hospital, this still requires a wait of at least 6 months for assessment and for the work to be completed. Assuming that temporary accommodation is found in a nursing home, this would still incur a charge to the individual of €39,000 based on an average weekly fee of €1500 [28].

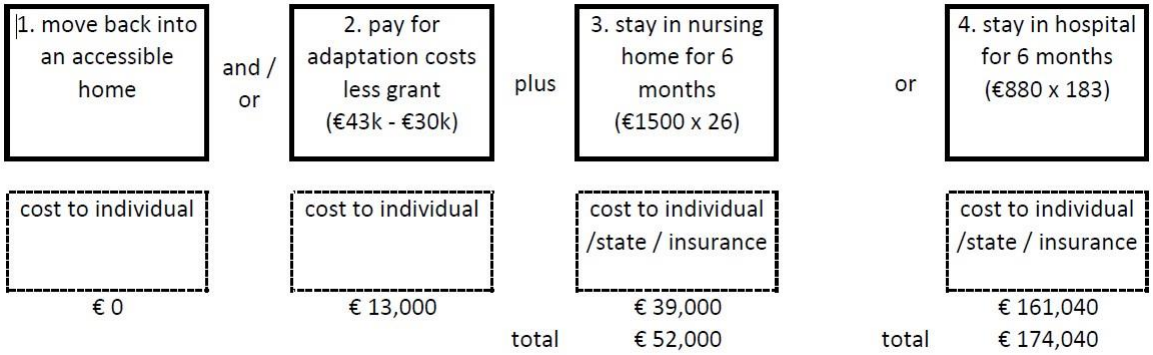


Fig. 6.4a cost example

6.5 Worked examples and advice for designers (see also examples in Chapter 5)

6.5.1 The2-storey, 2-bed semi-detached house

Figure 6.5a below represents an example of an 84m² pair of semi-detached 2-bed houses from the 2020 planning application list of Cork City Council. The application was granted for 4 of this house type. The scheme has projecting bays at first floor, resulting in an internal 'footprint' of 40m².

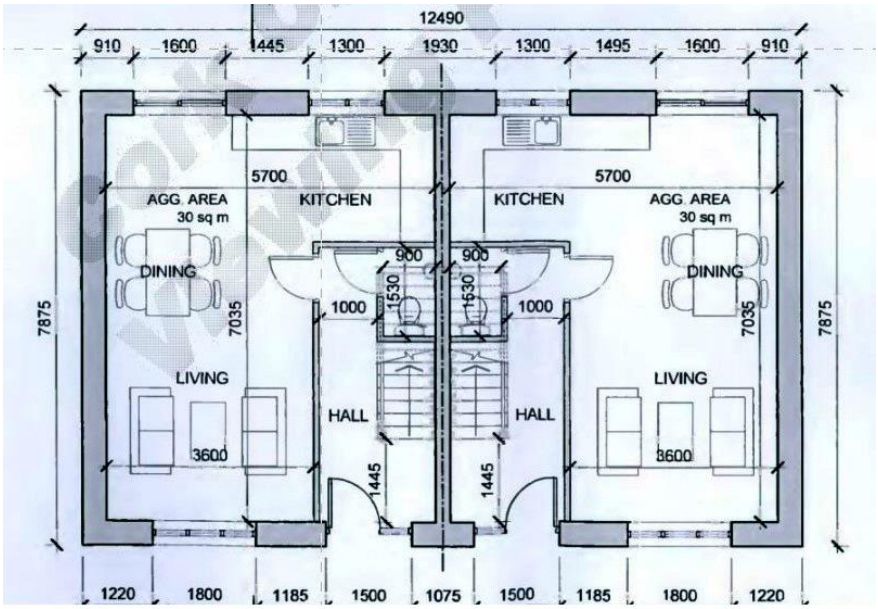


Fig. 6.5a sample floor plan from survey

Figure 6.5b below indicates possible amendments at early design stage, proposed by the author, and highlights the accessibility restrictions of a 40m² footprint.

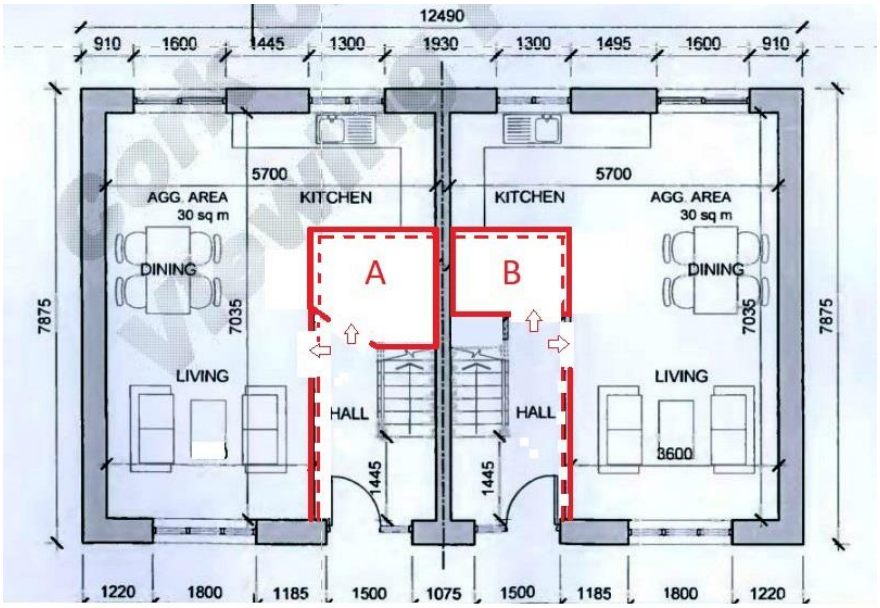


Fig. 6.5b amendments to plan

Option A is a bathroom measuring 2000mm x 1800mm, albeit with a chamfered corner to allow space for door swings. Option B is an accessible WC measuring 1900mm x 1500mm, not sufficient for full access to hygiene but at least providing the dignity of privacy.

In both options, the kitchen size is reduced but there is still 1200mm clearance to the work surfaces. The hall has been amended to 1050mm wide (CEUD min. guideline) which makes the living room width 3550mm. It is feasible that a future bed-space could be accommodated in the living area of each option. There is no indication of storage provision on the ground floor of the original scheme.

The original internal footprint measures 5700mm x 7035mm. If this was increased by around 5% in the longer dimension, to 7400mm, then a future bed-space at entry level would be more feasible.

This would increase the footprint area by 2m². The only other cost implication would be the provision of a level access shower in option A.

As with all examples from the survey, there is no intention to criticize the designers of this scheme. They are simply attempting to follow the minimum building regulation guidelines that they are required to achieve. This particular architectural firm has produced a number of well-considered schemes, clearly with accessibility in mind.

6.5.2 The 2-storey, 3-bed semi-detached/terraced house

Figure 6.5c on the next page represents an example of a 96m² end of terrace, 3-bed house from the 2020 planning application list of Cork City Council. The application was granted for 6 of this house type. The scheme has an internal 'footprint' of just under 48m². The target minimum area for this house type that can accommodate 5 people is 92m² equating to a 46m² footprint.

Figure 6.5d indicates possible amendments at early design stage and highlights the possibilities of a 48m² footprint with regard to accessibility. The amendments include an accessible shower room at the minimum CEUD dimensions of 1800 mm x 2000 mm, a re-configured utility room and a slightly smaller kitchen/dining space.

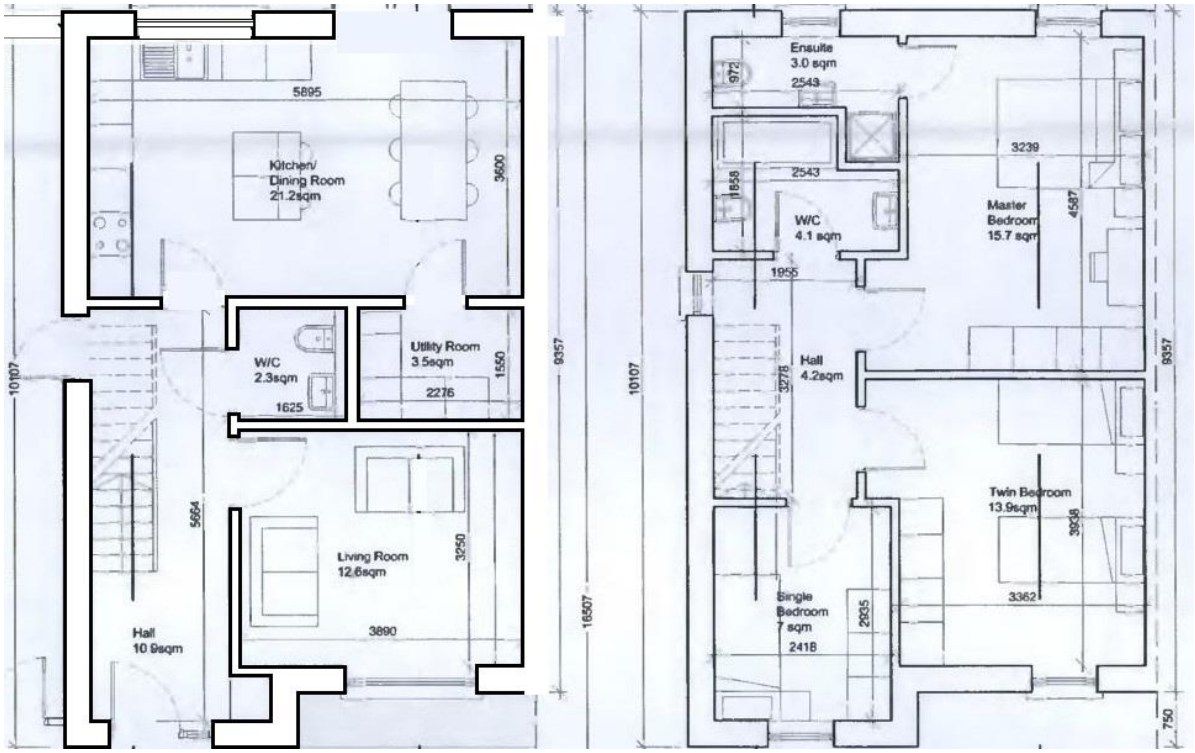


Fig. 6.5c sample floor plan from survey

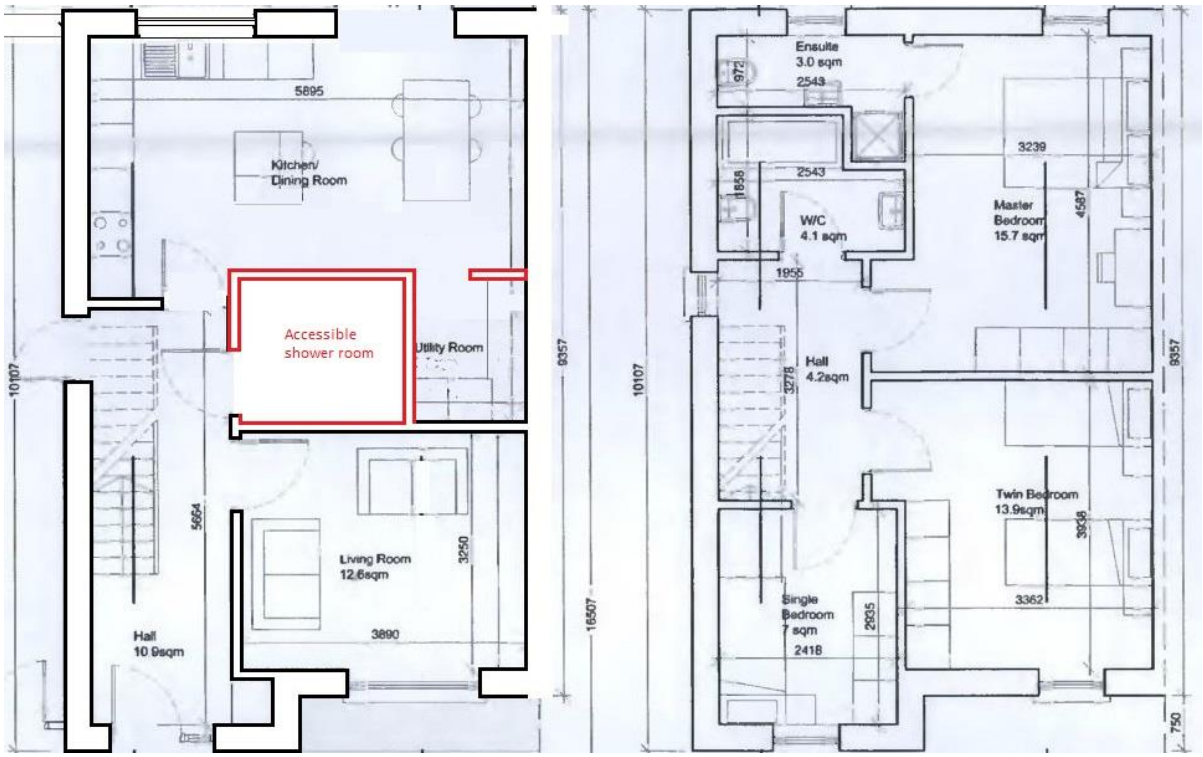


Fig. 6.5d amendments to plan

6.5.3 The duplex apartment

In season 1 of RTE's television programme Goodbye House [29], broadcast in 2019, a woman in her late 50s asks her son, daughter and friend to find a suitable house for her to right-size into. Her requirements include "as few stairs as possible" as she has a chronic back problem following an illness. She is presented with three, 3-bed properties; an apartment with a lift and two duplexes, both accessed by a flight of steps to the entry level.

The second duplex apartment has spacious rooms, an en-suite bathroom and balconies with pleasant views.

The son observes "you are going to struggle with those steps". The friend who proposed the second duplex asks "are we going to talk about the steps?" to which her friend replies "the elephant in the room you mean?"

She chose the second duplex. Should her condition deteriorate her new home will be completely inaccessible as there appears to be no option to install a lift to the first-floor entrance.

In the most recent government publication entitled *Design Manual for Quality Housing* published in 2022 the provision of duplex apartments continues to be promoted as a housing typology. [9]



Fig. 6.5e duplex image by author

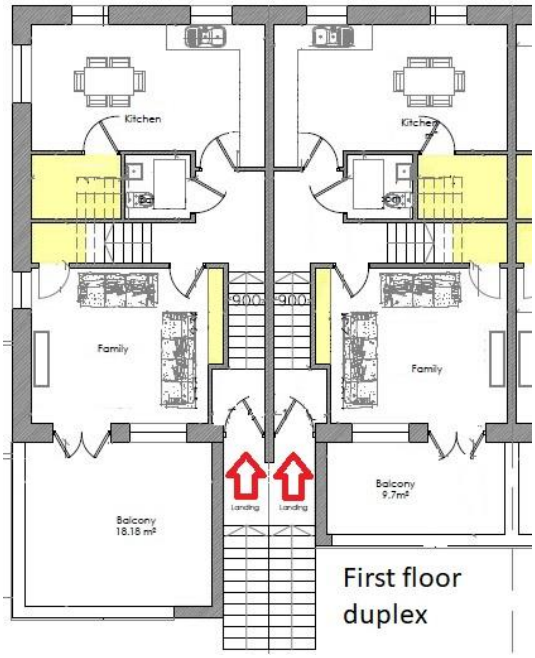


Fig. 6.5f duplex plan from survey

6.5.4 guidance for designers

Design Manual for Quality housing 2022 182 pages Housing for all 160 pages TGD part M: 2010 (1 of 12 TGDs) 129 pages Universal Design Guidelines for homes in Ireland, section 2 and 3 (of 5) 98 pages Designing housing to meet the needs of all 66 pages

Table 6.5a published policy and design guidelines

The above table represents over 600 pages of policy advice and design guidance. Looking back at the results from the analysis of the survey sample there are clear areas where detailed guidance to designers could be useful. Of the 15 criteria (for explanation of criteria see section **4.3.2**), clear specific guidance would be useful for:

- an accessible bathroom (with level-access shower being the preferred solution).
- An accessible WC that can be used with dignity
- Potential future bed-space at access level. Consider the plight of an older couple
- 300mm clearance at leading edge of doors relating to adequate corridor widths
- Accessible storage at the entrance lobby and within the unit

This could take the form of a wallchart with examples of templates that will fulfil the CEUD requirements and explain the relationship between bathroom, bed-space and circulation.

Educational establishments such as CCAE also have a potential to offer CPD courses for housing designers. New opportunities for CPD is one of the positive results of the Resilient Design Curricula [30], an HCI-3 funded project led by Technical University Dublin (TUD) in collaboration with all Irish Higher Education Institutions offering accredited architecture programmes. The curriculum aims to address the joint topics of the crisis in housing and in sustainable design and recognizes that UD is part of that discussion.

6.6 a sustainable humanitarian approach

> "Is there any knowledge in the world which is so certain that no reasonable man could doubt it?.. philosophy is merely the attempt to answer such ultimate questions – not carelessly and dogmatically as we do in ordinary life and even in the sciences, but critically after exploring all that makes such questions puzzling and after realising all the vagueness and confusion that underly our ordinary ideas.
> All this seems to be so evident as to be hardly worth stating, except in answer to a man who doubts whether I know anything." [31]

Solving the accessibility problem does not require the skills of an eminent philosopher or rocket scientist. An important part of the solution is the desire to educate.

- To educate politicians into taking moral steps while reassuring them of a clear cost-benefit. In 2004 the Irish Government introduced a ban on smoking in the workplace, effectively any public space, a ban which remains popular and continues to be successful. Current access regulations need to be addressed to make homes more liveable. Facilitating elderly people to remain in place at home will ease the burden on the Health Service, both in terms of human and monetary resources.

- To educate developers to appreciate that UD does not need to cost more and can be a selling point in their marketing. Furthermore developers should be encouraged to work with architects/designers from the outset with a clear understanding of UD principles.

- To educate designers to think beyond the limitations of the minimum standard. There should be an appreciation, for instance, that the minimal 'footprint' of a 2-storey small dwelling is never likely to achieve a functional access floor, whereas accessibility could be achieved in a 'small' apartment of the same overall floor area.

- To educate the public to understand that right-sizing as a consequence of advancing years or life-triggers, has to be carefully considered rather than simply counting the number of bedrooms and the presence of an en-suite bathroom.

- To educate other design educators that Universal Design does not stagnate the imagination but rather leads to a more humanistic, user-centred approach to building design.

> "Policy-wise then, housing is regarded as being about three things only: planning, selling price and construction cost. Broader, equally important, issues concerning housing, like its impact on societal well-being, mental health, childcare, education and even road safety are never discussed". [32]

Time is pressing if we are to follow UN Sustainable Development Target 11.1, adopted by the United Nations General Assembly in September 2015, which proposes to:

> "By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums" [33]

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Appendices

Appendix A
Spreadsheets of results

Appendix B
Published Conference Paper on UD in Architectural Education Dublin 2015

Appendix C
Published Conference Paper on UD in Architectural Education Dublin 2018

Appendix D
PG module 6025 – Draft report on work with Family Carers Ireland 2019

Appendix E
PG module 7018 report on Guerrilla tactics in research 2020

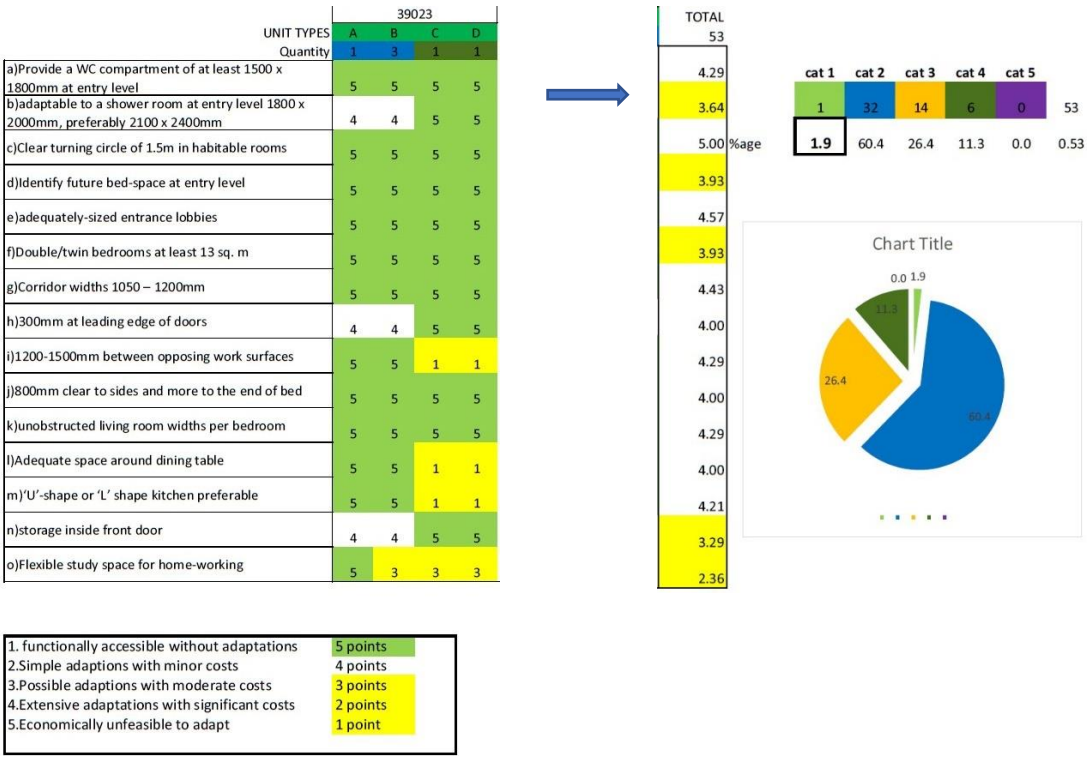
Appendix F
Project briefs and notes for students as evidence of infusion of UD into architectural education since 2010.

Appendix A

The following pages contain spreadsheets of the survey analysis as described below:

LIST OF
APPLICATION #
CRITERIA

AVERAGES
PERCENTAGES PER CRITERIA
PER CATEGORY



	39023			
UNIT TYPES	A	B	C	D
Quantity	1	3	1	1
a)Provide a WC compartment of at least 1500 x 1800mm at entry level	5	5	5	5
b)adaptable to a shower room at entry level 1800 x 2000mm, preferably 2100 x 2400mm	4	4	5	5
c)Clear turning circle of 1.5m in habitable rooms	5	5	5	5
d)Identify future bed-space at entry level	5	5	5	5
e)adequately-sized entrance lobbies	5	5	5	5
f)Double/twin bedrooms at least 13 sq. m	5	5	5	5
g)Corridor widths 1050 – 1200mm	5	5	5	5
h)300mm at leading edge of doors	4	4	5	5
i)1200-1500mm between opposing work surfaces	5	5	1	1
j)800mm clear to sides and more to the end of bed	5	5	5	5
k)unobstructed living room widths per bedroom	5	5	5	5
l)Adequate space around dining table	5	5	1	1
m)'U'-shape or 'L' shape kitchen preferable	5	5	1	1
n)storage inside front door	4	4	5	5
o)Flexible study space for home-working	5	3	3	3

	TOTAL 53
a)	4.29
b)	3.64
c)	5.00
d)	3.93
e)	4.57
f)	3.93
g)	4.43
h)	4.00
i)	4.29
j)	4.00
k)	4.29
l)	4.00
m)	4.21
n)	3.29
o)	2.36

	cat 1	cat 2	cat 3	cat 4	cat 5	
	1	32	14	6	0	53
%age	1.9	60.4	26.4	11.3	0.0	0.53

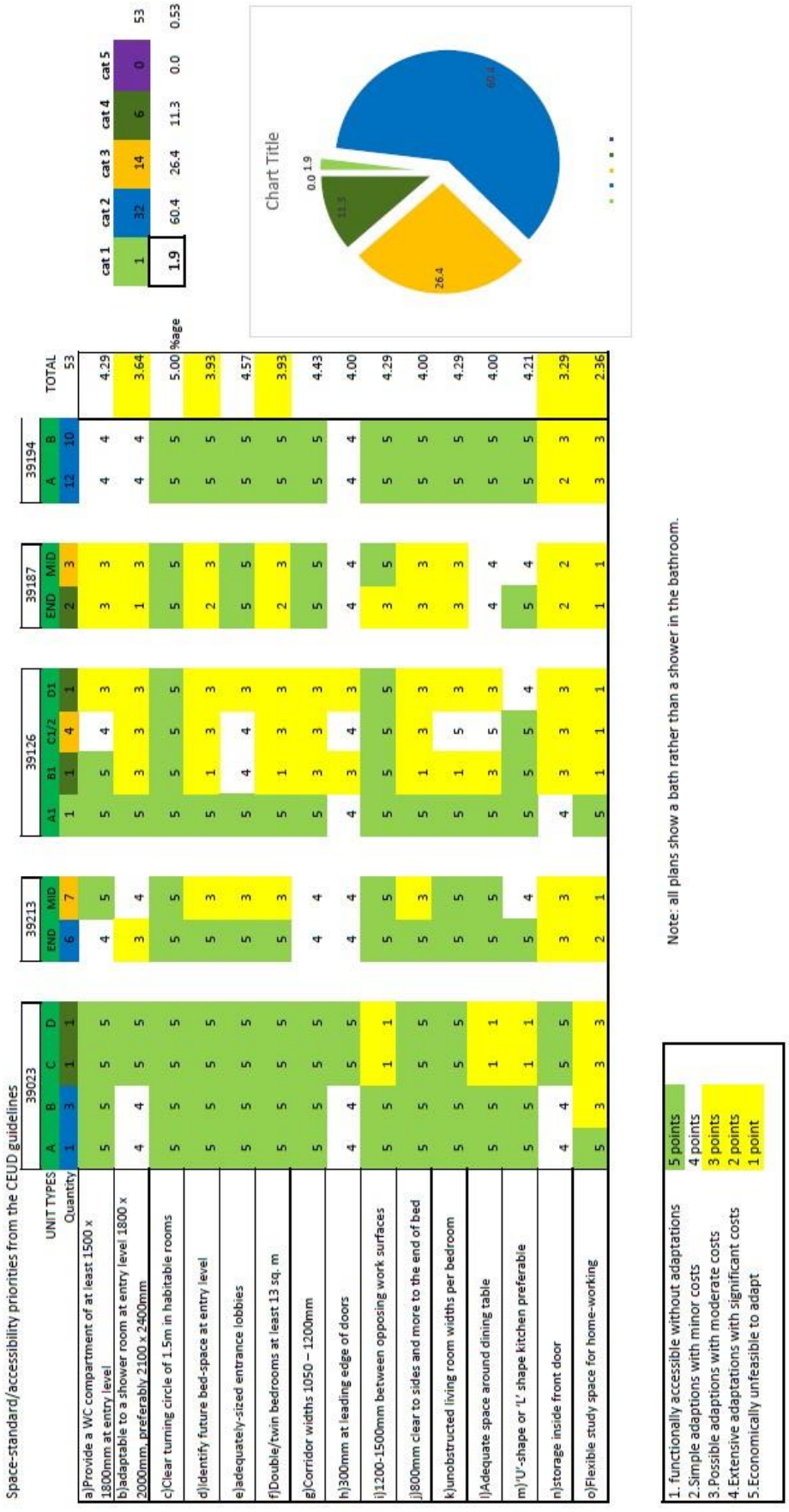
1. functionally accessible without adaptations	5 points
2.Simple adaptions with minor costs	4 points
3.Possible adaptions with moderate costs	3 points
4.Extensive adaptations with significant costs	2 points
5.Economically unfeasible to adapt	1 point

Fig. 7. Example of survey analysis results sheet

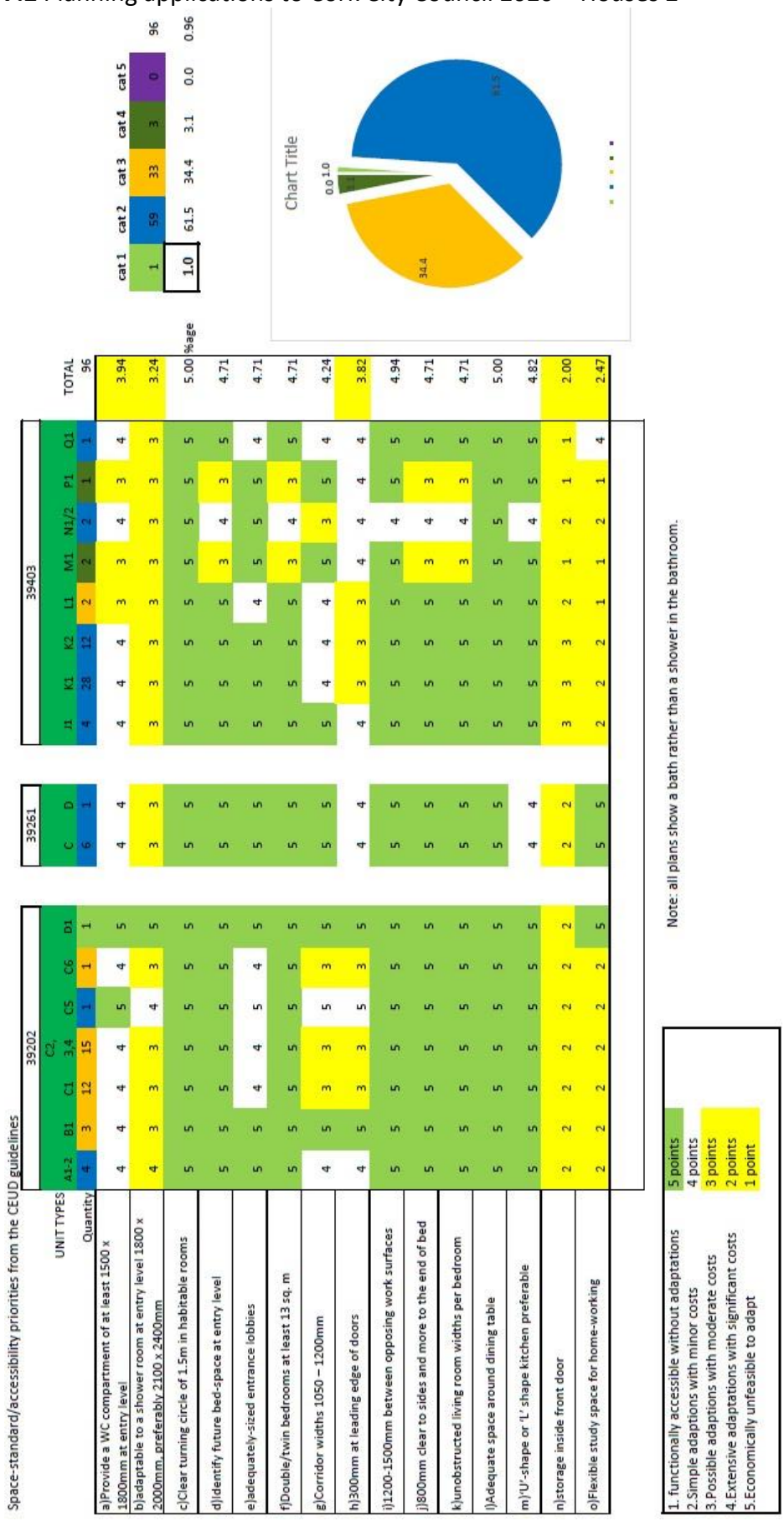
In this example, unit types A and B fall into category 2 as they require adaptation, albeit minor, to achieve an accessible bathroom/shower. All of the other criteria achieve a fully or functionally accessible housing unit that can be used with immediate effect.

Unit types C and D have accessible bathrooms but the units are split-level, preventing access to the kitchen and dining spaces. In this instance significant costs would be incurred to achieve an accessible layout.

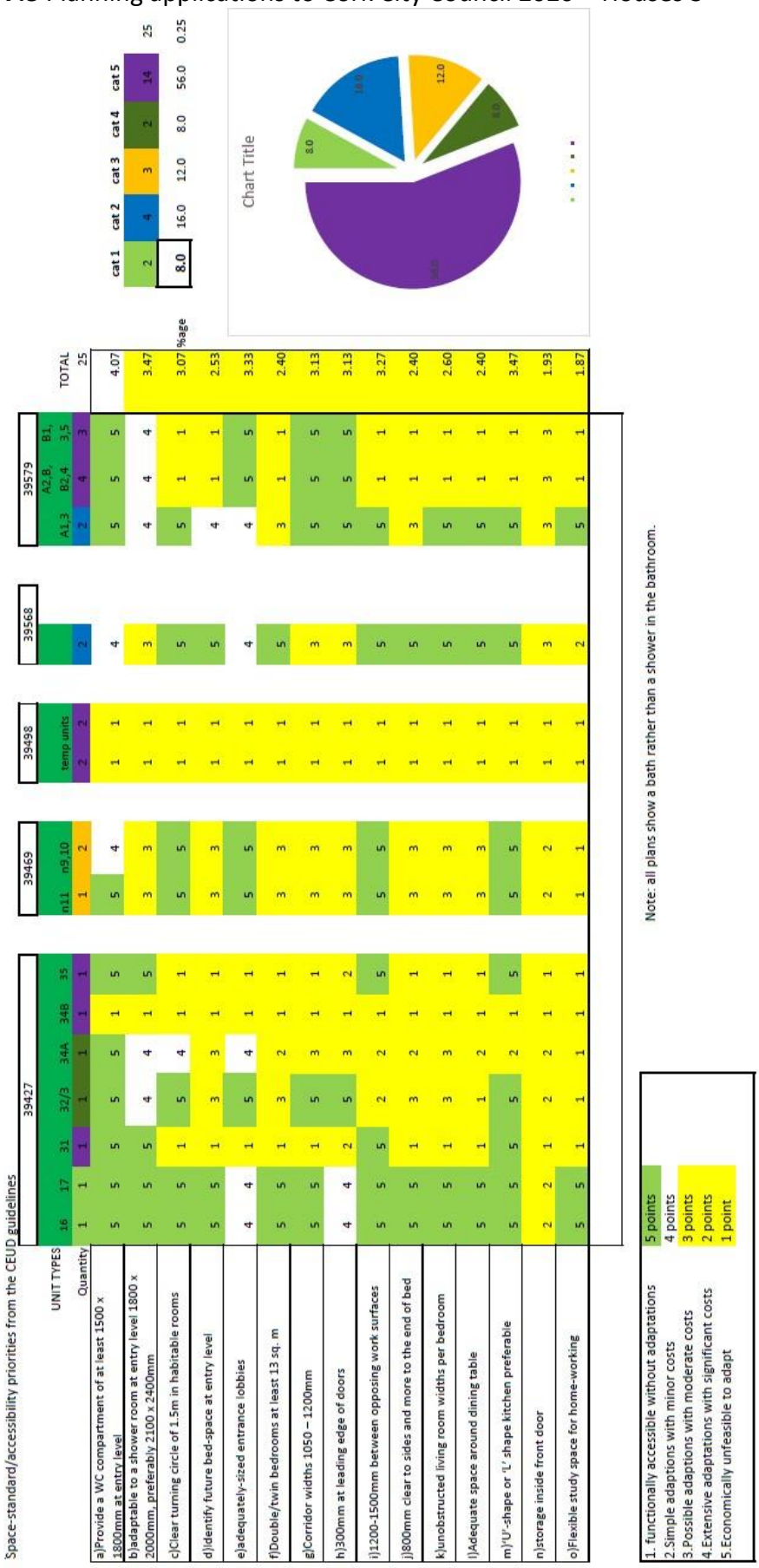
7.1 Planning applications to Cork City Council 2020 – Houses 1



7.2 Planning applications to Cork City Council 2020 – Houses 2



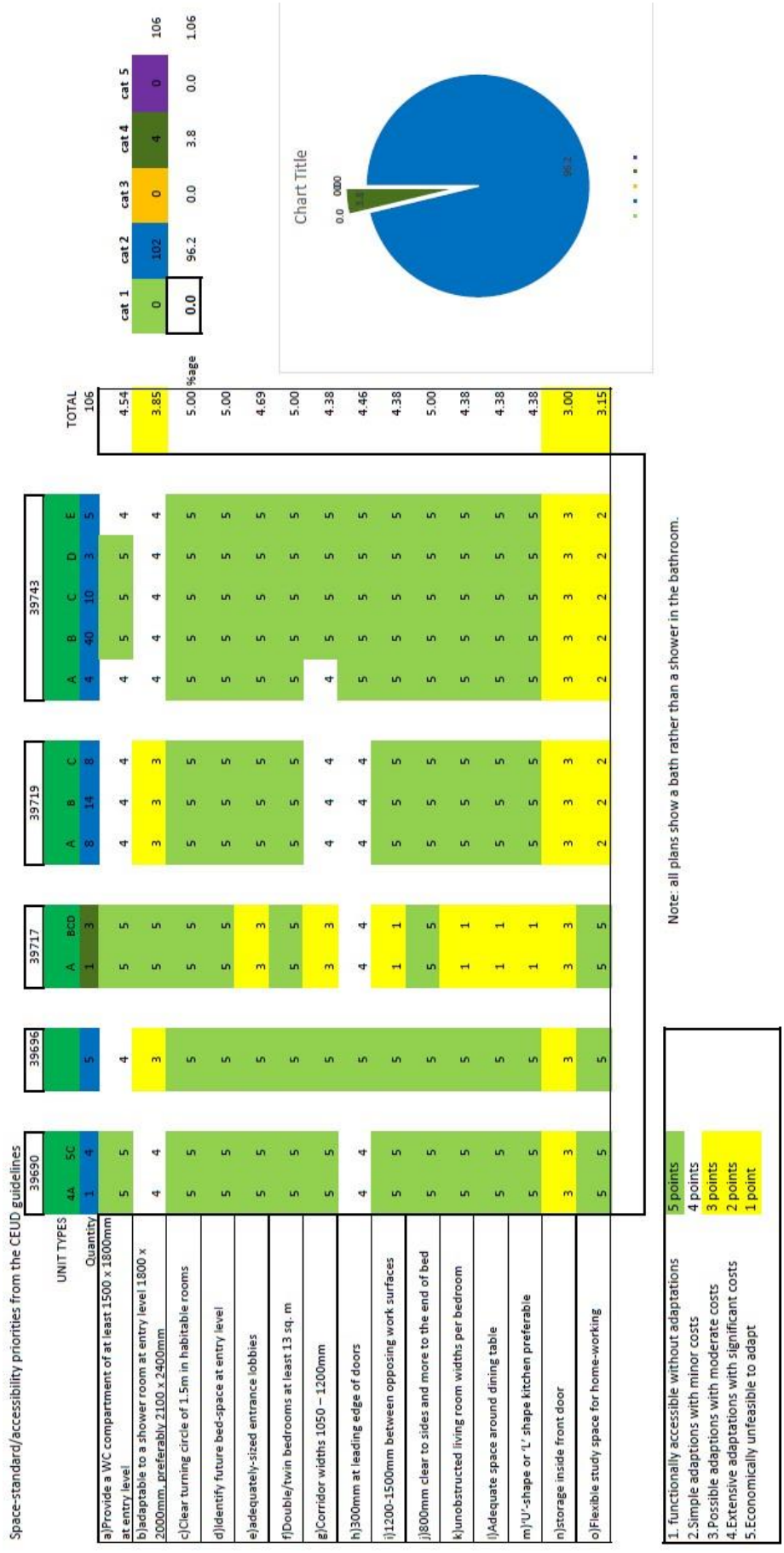
7.3 Planning applications to Cork City Council 2020 – Houses 3



7.4 Planning applications to Cork City Council 2020 – Houses 4



7.5 Planning applications to Cork City Council 2020 – Houses 5



7.6 Planning applications to Cork City Council 2020 – Summary of unit areas

Cork City Council **Planning applications** for multiple houses 2020

reference	number of units	storeys	beds	area
39126-A1	1	1	2	75
39126-C1	4	2	2	84
39126-D1	1	2	2	82
39187-MID	3	2	2	85
39202-D1	1	1	2	81
39213 -mid	7	2	2	86
39403-M1	2	2	2	87
39403-P1	1	2	2	85
39469-n11	1	2	2	106
39469-n12-13	2	2	2	106
39581-2	4	1	2	86
39581-2A	4	1	2	88
39659-B	5	2	2	85.5
39659-C	2	2	2	85.5
39689-E1-3	5	2	2	75.5
39743-E	5	2	2	89

category 1

category 2

48 units — avg. 87 m2

reference	number of units	storeys	beds	area
39126-B1	1		3	98
39187-END	2		3	99
39194	2		3	116
39202-B1	3		3	107
39202-C1	12		3	102
39202-C234	15		3	100
39202-C5	1		3	110
39202-C6	1		3	103
39213 -End	6		3	96
39403-K1	28		3	105
39403-K2	12		3	105
39403-L1	2		3	98
39403-N1-2	2		3	116
39568	2		3	94
39581-1	4		3	103
39581-1A	4		3	107
39659-A	2		3	95
39689-E4-8	5		3	141
39689-E9	3		3	135
39689-E10	4		3	158
39689-E11-12	4		3	146
39689-E13	1		3	155
39719-A	8		3	111
39719-B	14		3	111
39719-C	8		3	111
39743-B	40		3	117
39743-C	10		3	109
39743-D	3		3	104

199 units — avg. 113 m2

Note: if we discount the 17 large 3-bed houses for application 39689 then the average is **105**m2
if we also discount the lowest 5 figures from the same set then the average is **108**m2

Cork City Council **SHD applications** for multiple houses 2020

reference		number of units	storeys	beds	area
Ballyvolane					
	6	72		2	88
Banduff					
	A1	14		2	80.5
	A2	5		2	80.5
Maglin					
	F	4		2	84
	H	15		2	103
Monacnapa					
	2F	2		2	88

112 units — avg. 87.3 m2

reference		number of units	storeys	beds	area
Ballyvolane					
	3	235		3	110
	7	96		3	107
	8	36		3	129
	11	2		3	110
Banduff					
	B1	35		3	90
	B2	10		3	90
	E1	1		3	95
	E2	3		3	95
Maglin					
	C	15		3	120
	E	3		3	104
	G	1		3	112
Monacnapa					
	1A	3		3	113
	1B	6		3	104
	1C etc	36		3	108
	1E etc	26		3	125
	4AB	12		3	115

520 units — avg. 107.9 m2

sum F4 to F19 1387
sum F40 to F51 524

sum F4 to F31 3152
sum F40 to F62 1727

TOTAL (A+B)

160 units	86.8	m2	
719 units	110.9	m2	

averages are per unit type, not quantity

7.7 Planning applications to Cork City Council 2020 – Areas for 2, 3, 4 and 5 beds

Cork City Council Planning applications for multiple houses 2020

reference	number of units	beds	area
39126-A1	1	2	75
39126-C1	4	2	84
39126-D1	1	2	82
39187-MID	3	2	85
39202-D1	1	2	81
39213 -mid	7	2	86
39403-M1	2	2	87
39403-P1	1	2	85
39469-n11	1	2	106
39469-n12-13	2	2	106
39581-2	4	2	86
39581-2A	4	2	88
39659-B	5	2	85.5
39659-C	2	2	85.5
39689-E1-3	5	2	75.5
39743-E	5	2	89
	48	avg.	87 m2

reference	number of units	beds	area
39126-B1	1	3	98
39187-END	2	3	99
39194	2	3	116
39202-B1	3	3	107
39202-C1	12	3	102
39202-C234	15	3	100
39202-C5	1	3	110
39202-C6	1	3	103
39213 -End	6	3	96
39403-K1	28	3	105
39403-K2	12	3	105
39403-L1	2	3	98
39403-N1-2	2	3	116
39568	2	3	94
39581-1	4	3	103
39581-1A	4	3	107
39659-A	2	3	95
39689-E4-8	5	3	141
39689-E9	3	3	135
39689-E10	4	3	158
39689-E11-12	4	3	146
39689-E13	1	3	155
39719-A	8	3	111
39719-B	14	3	111
39719-C	8	3	111
39743-B	40	3	117
39743-C	10	3	109
39743-D	3	3	104
	199	avg.	113 m2

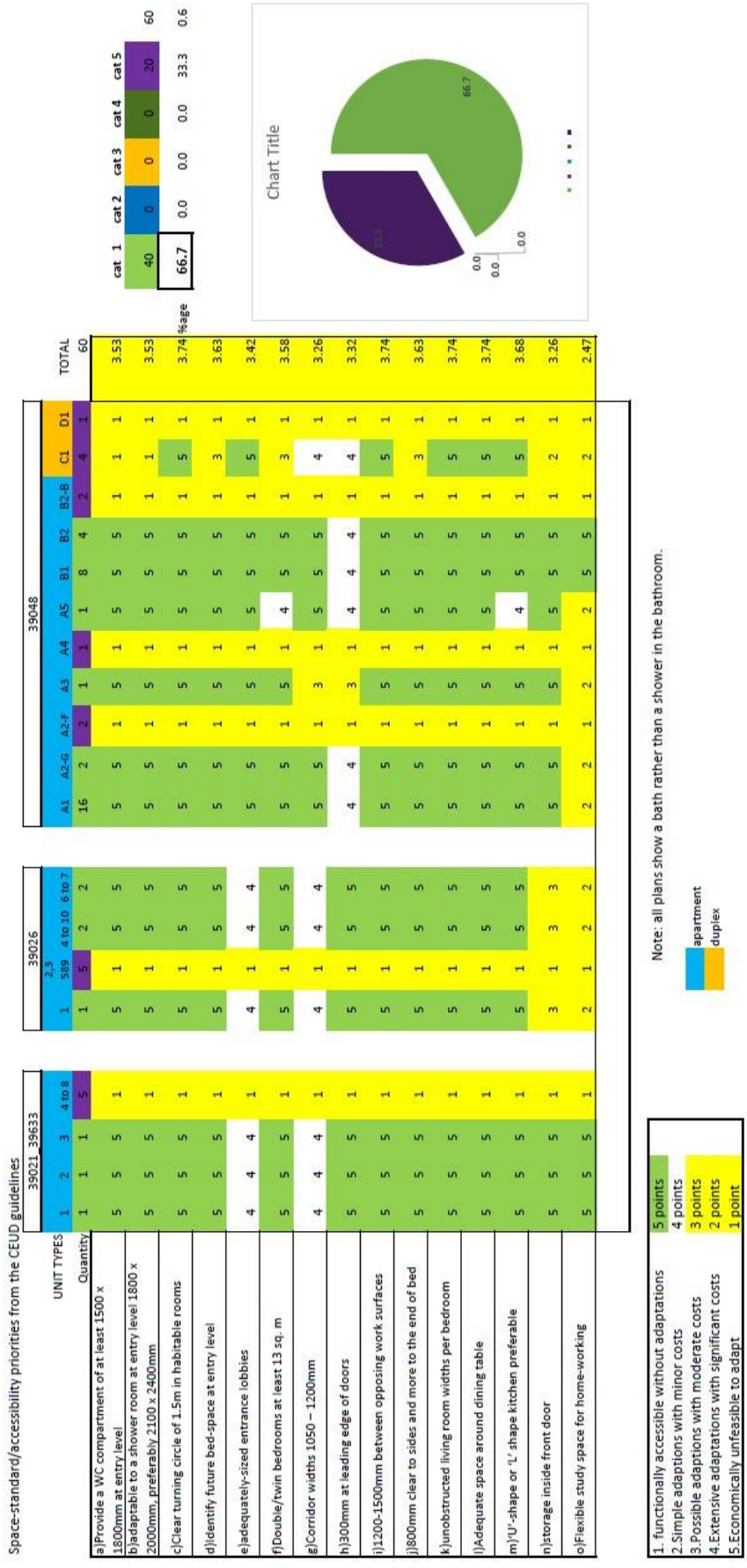
reference	number of units	beds	area
39023-D	1	4	222
39194	2	4	139
39202-A1-2	4	4	113
39261-C	6	4	170
39261-D	1	4	180
39403-J1	4	4	128
39403-Q1	1	4	154
39579 A1-3	2	4	180
39579 A2 etc	4	4	220
39612-A	5	4	175
39690-4A	1	4	210
39690-4C	4	4	180
39696	5	4	177
39717-A	1	4	216
39717-BCD	3	4	220
39743-A	4	4	137
	48	avg.	176 m2

reference	number of units	beds	area
39023-A	1	5	210
39023-B	3	5	232
39023-C	1	5	320
39579 B1 etc	3	5	227
39612-B	2	5	197
	10	avg.	237 m2

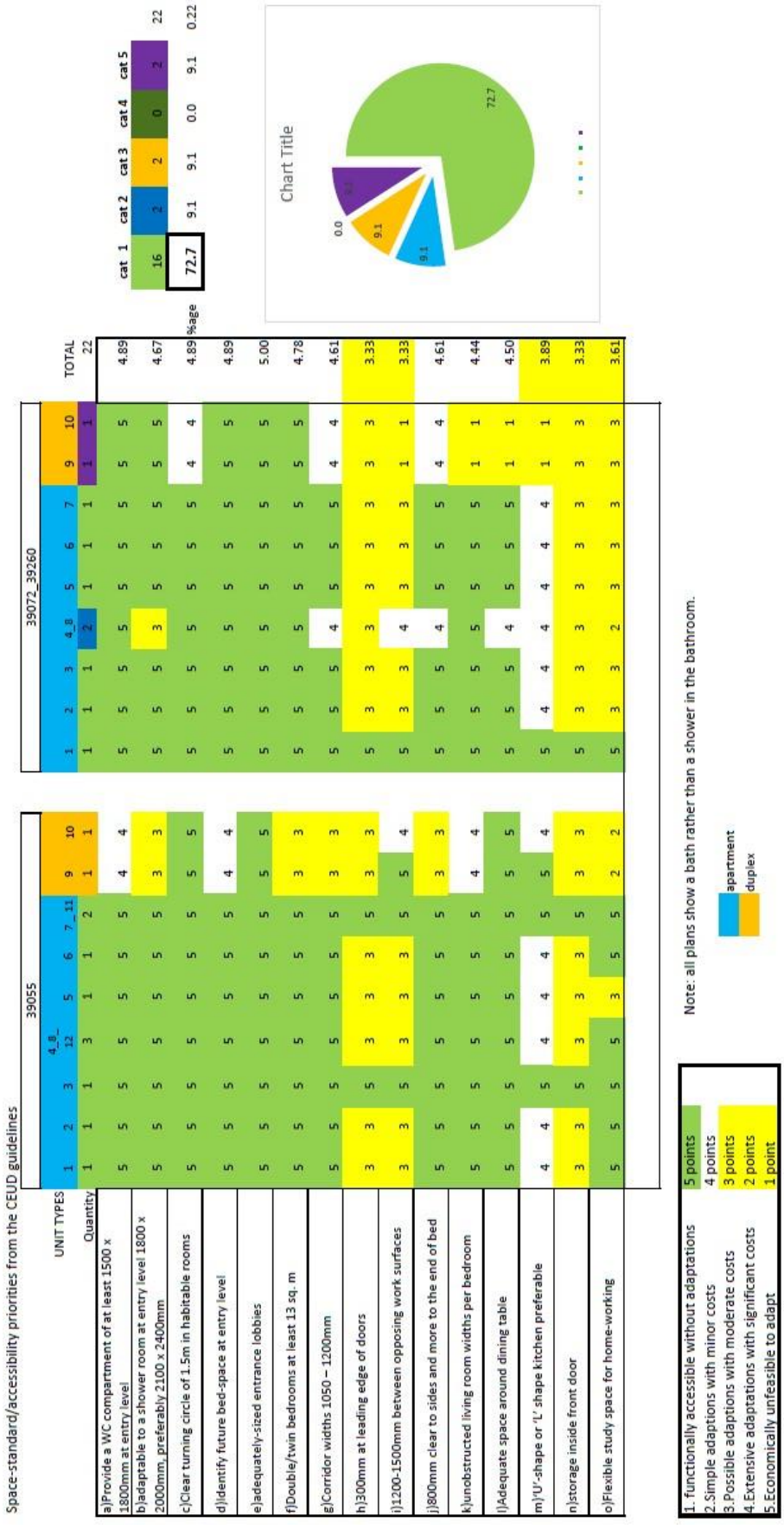
category 1

category 2

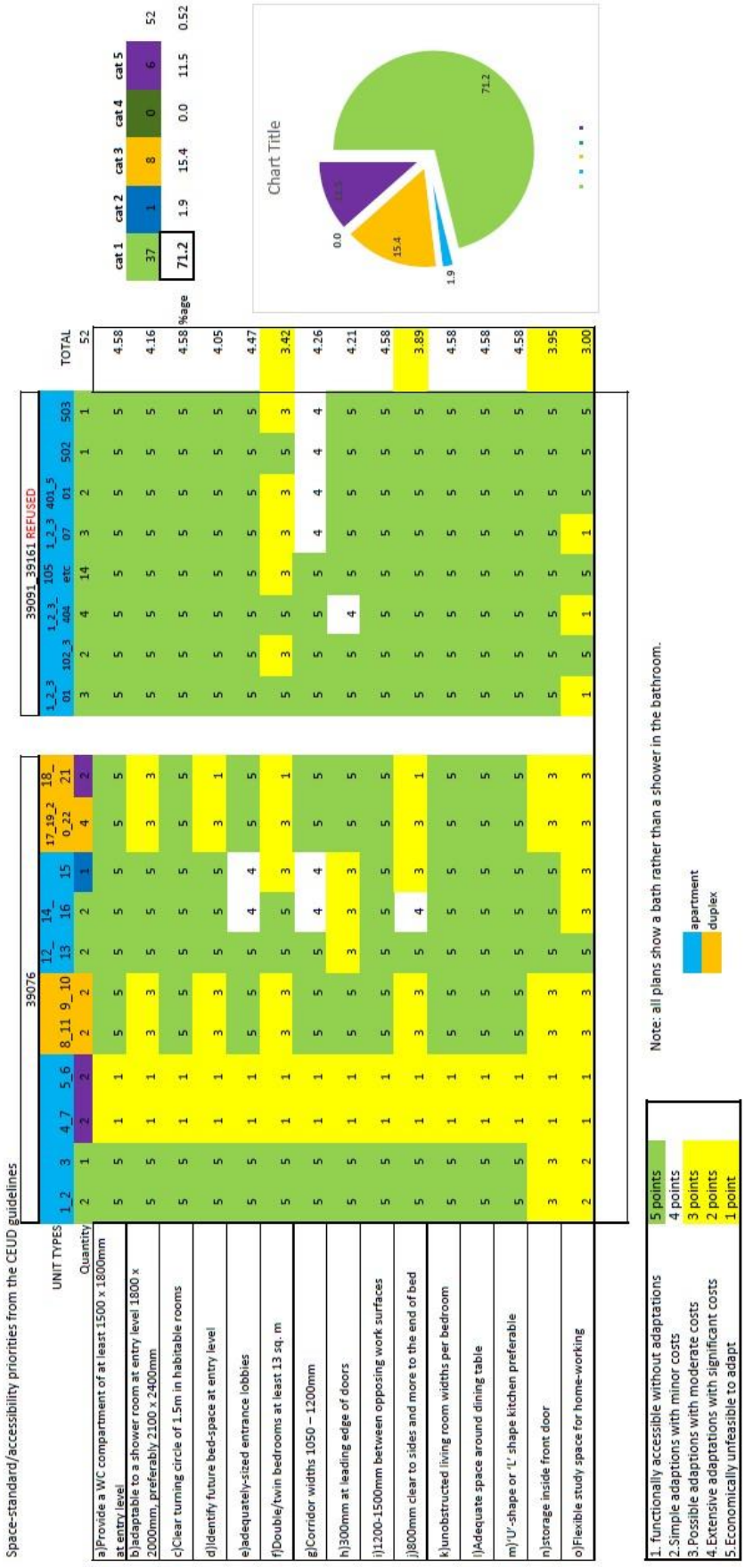
7.8 Planning applications to Cork City Council 2020 – Apartments 1



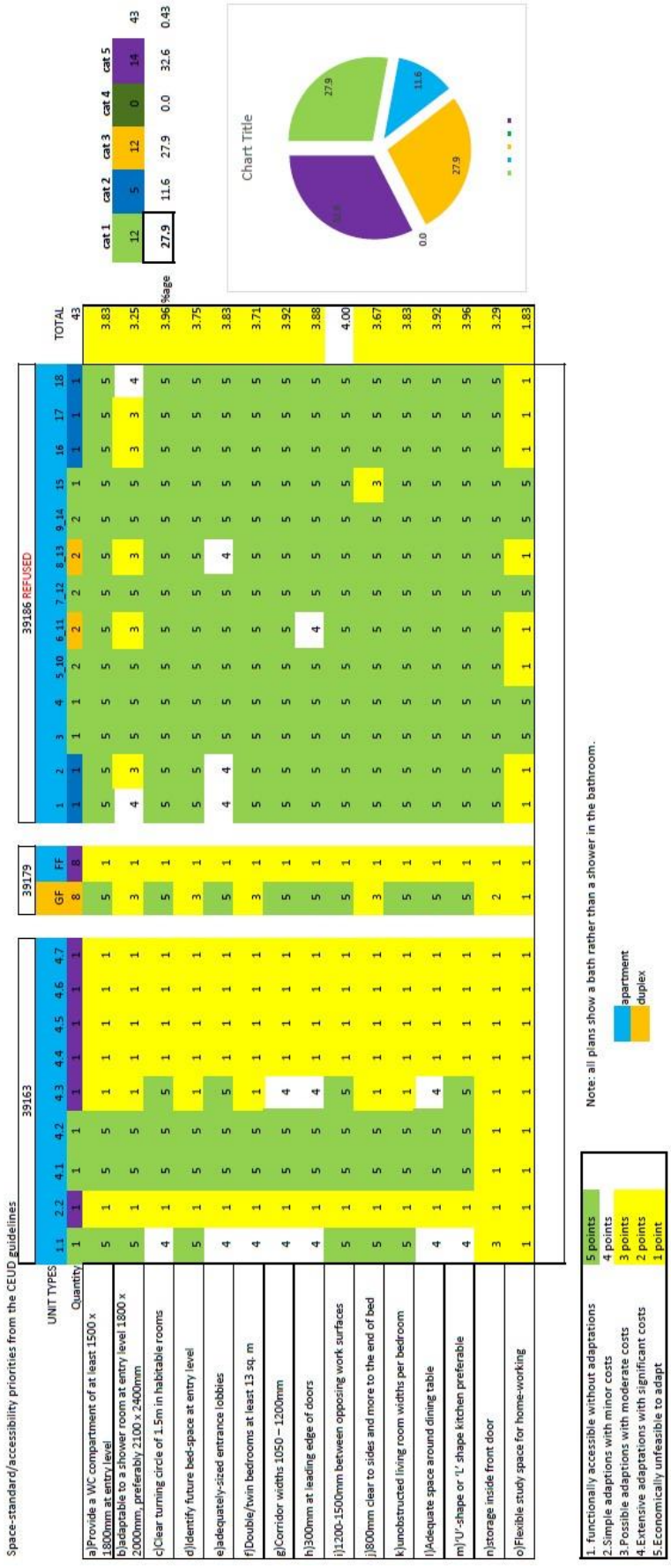
7.9 Planning applications to Cork City Council 2020 – Apartments 2



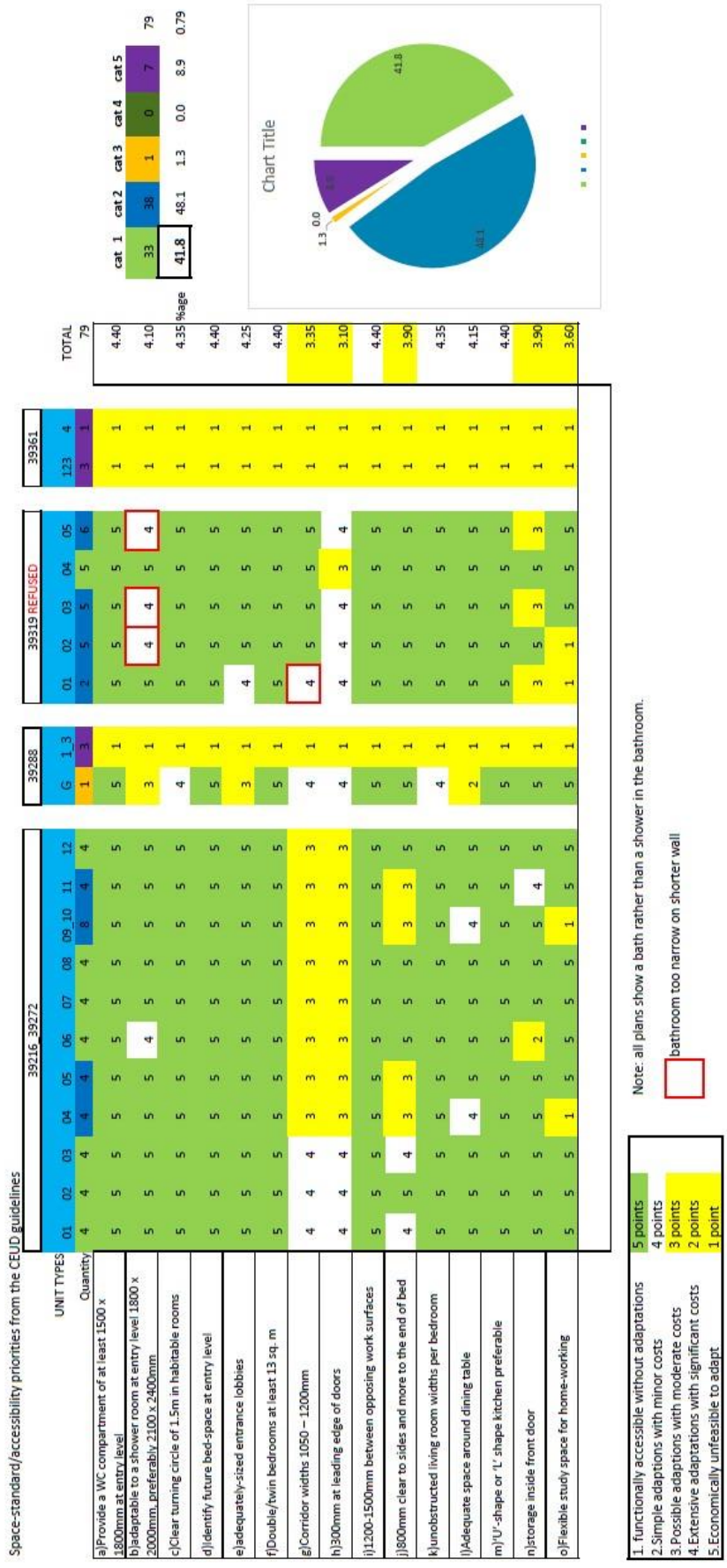
7.10 Planning applications to Cork City Council 2020 – Apartments 3



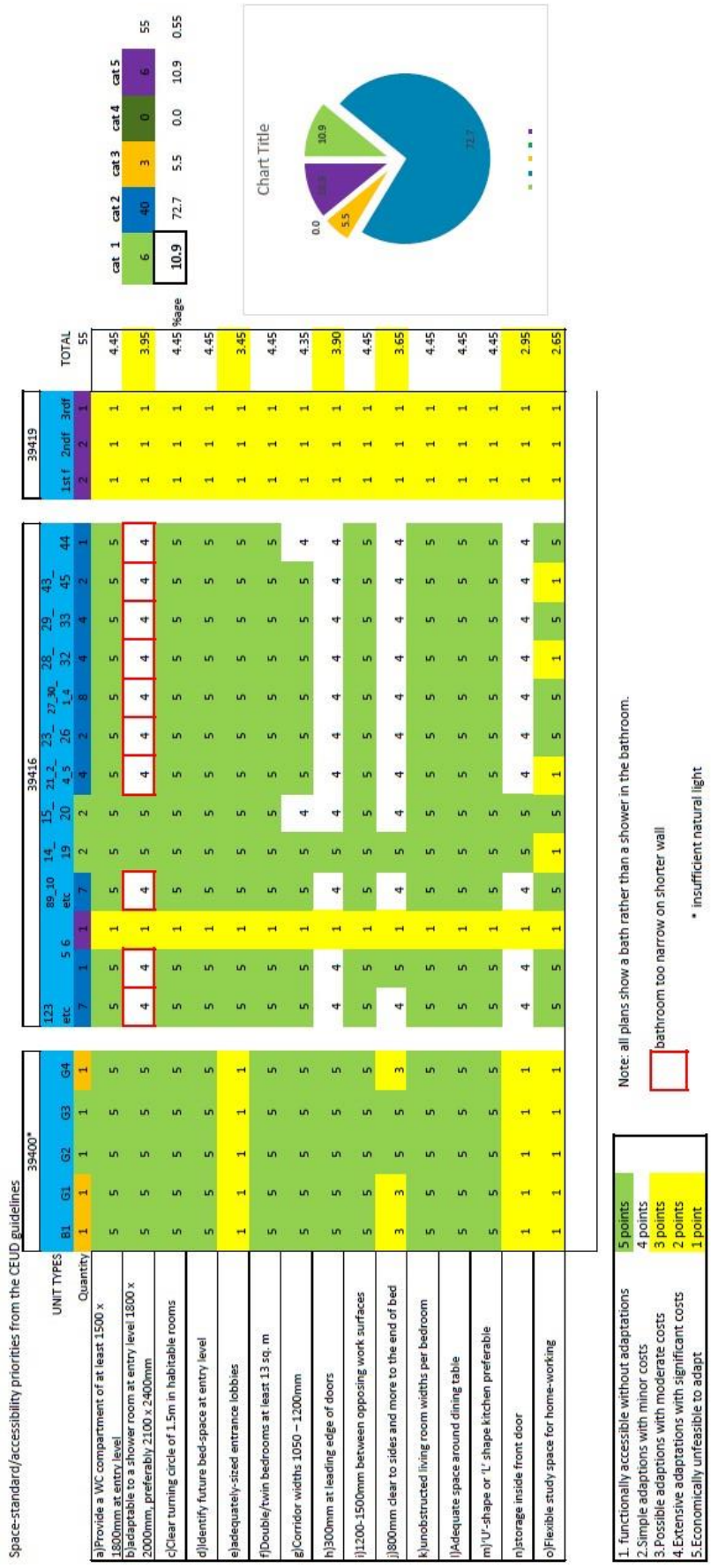
7.11 Planning applications to Cork City Council 2020 – Apartments 4



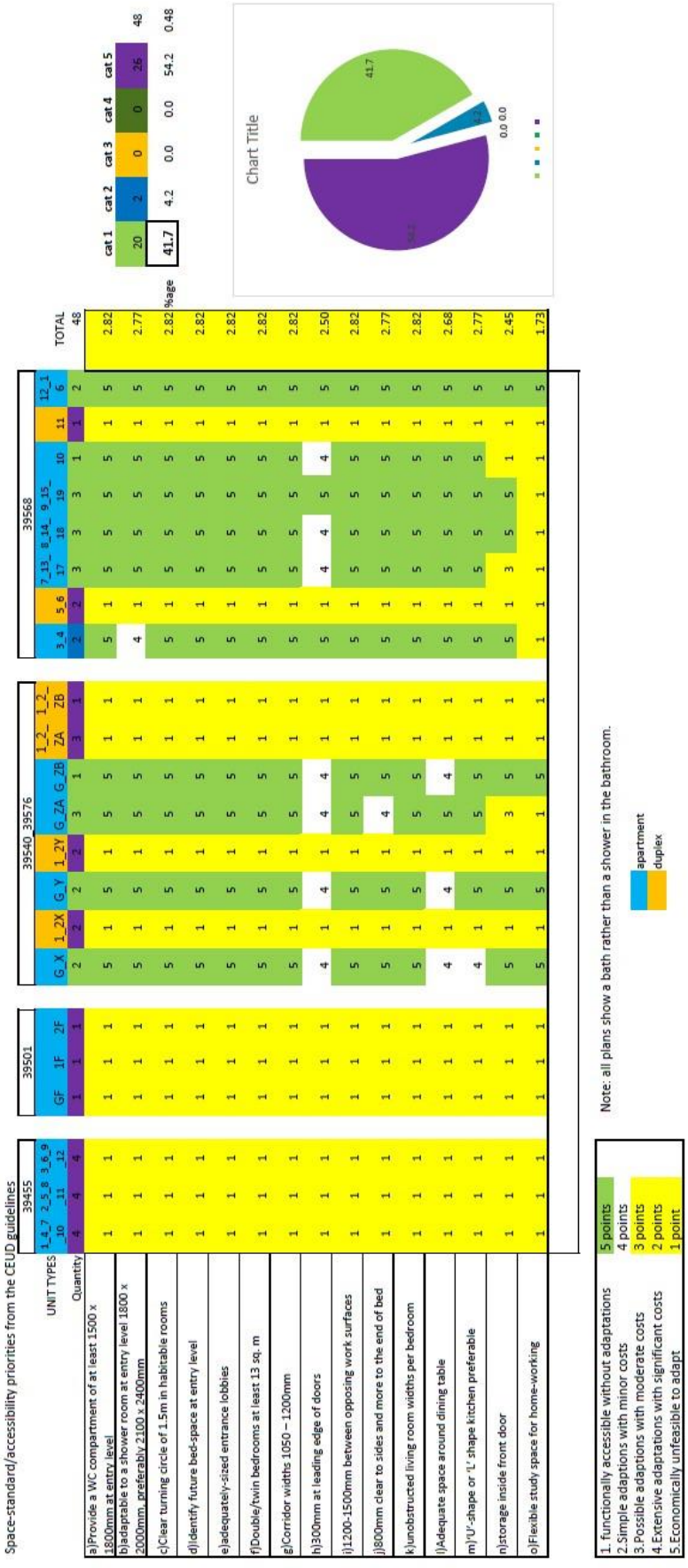
7.12 Planning applications to Cork City Council 2020 – Apartments 5



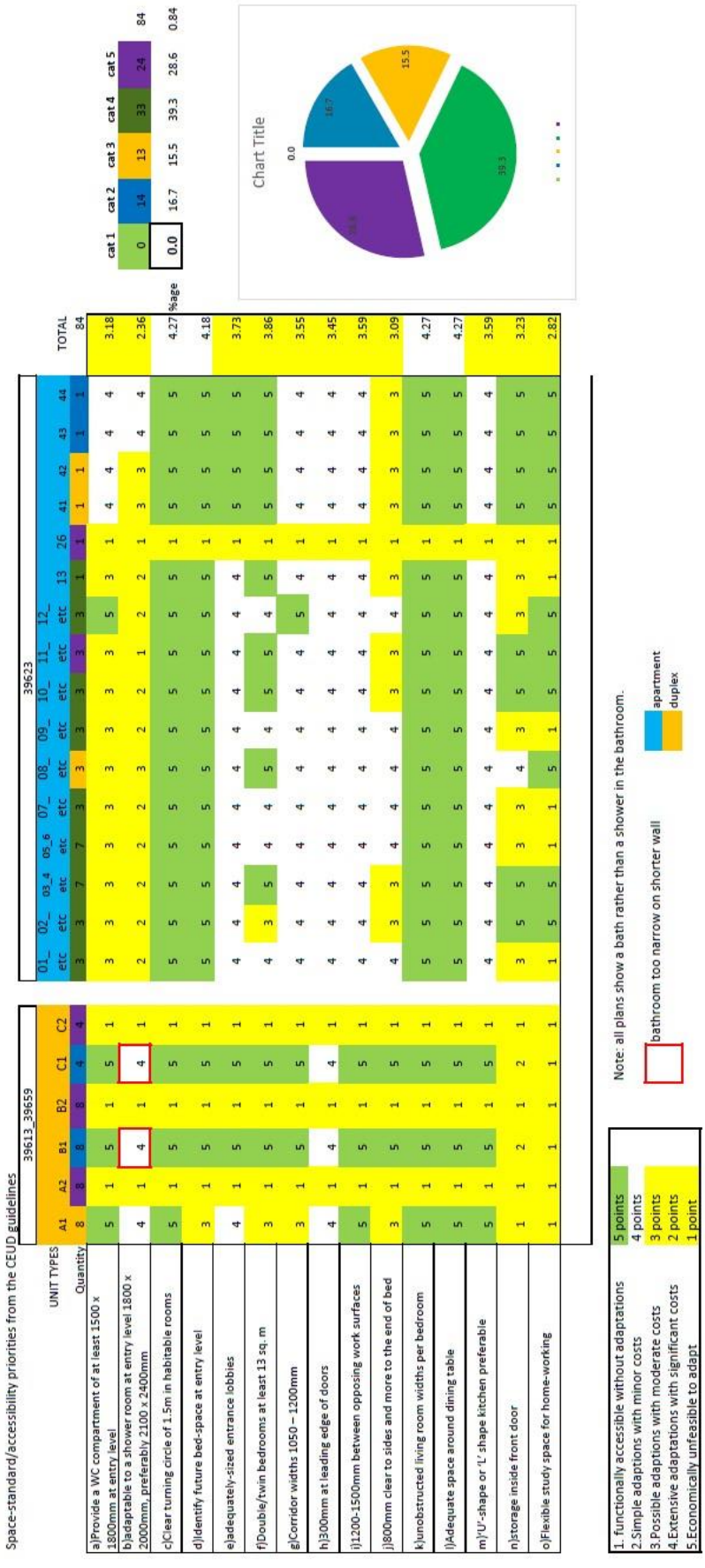
7.13 Planning applications to Cork City Council 2020 – Apartments 6



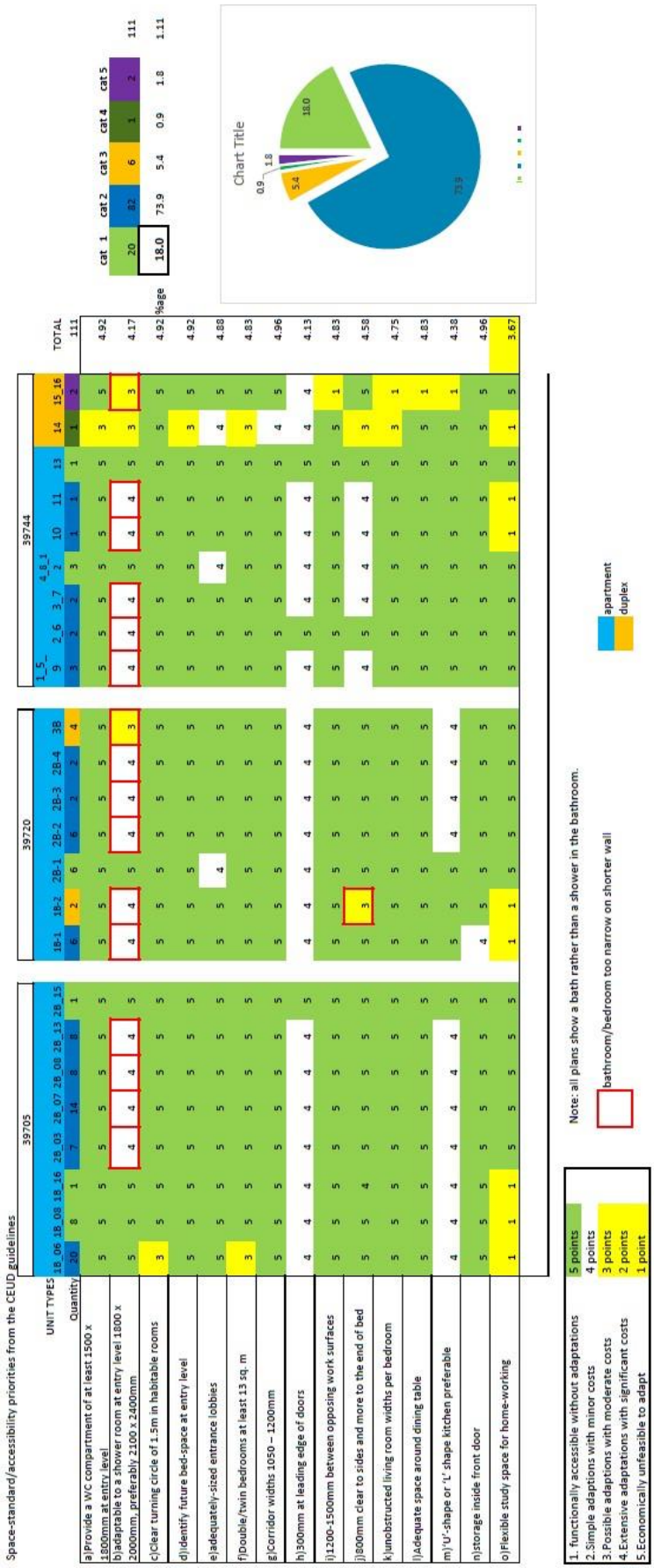
7.14 Planning applications to Cork City Council 2020 – Apartments 7



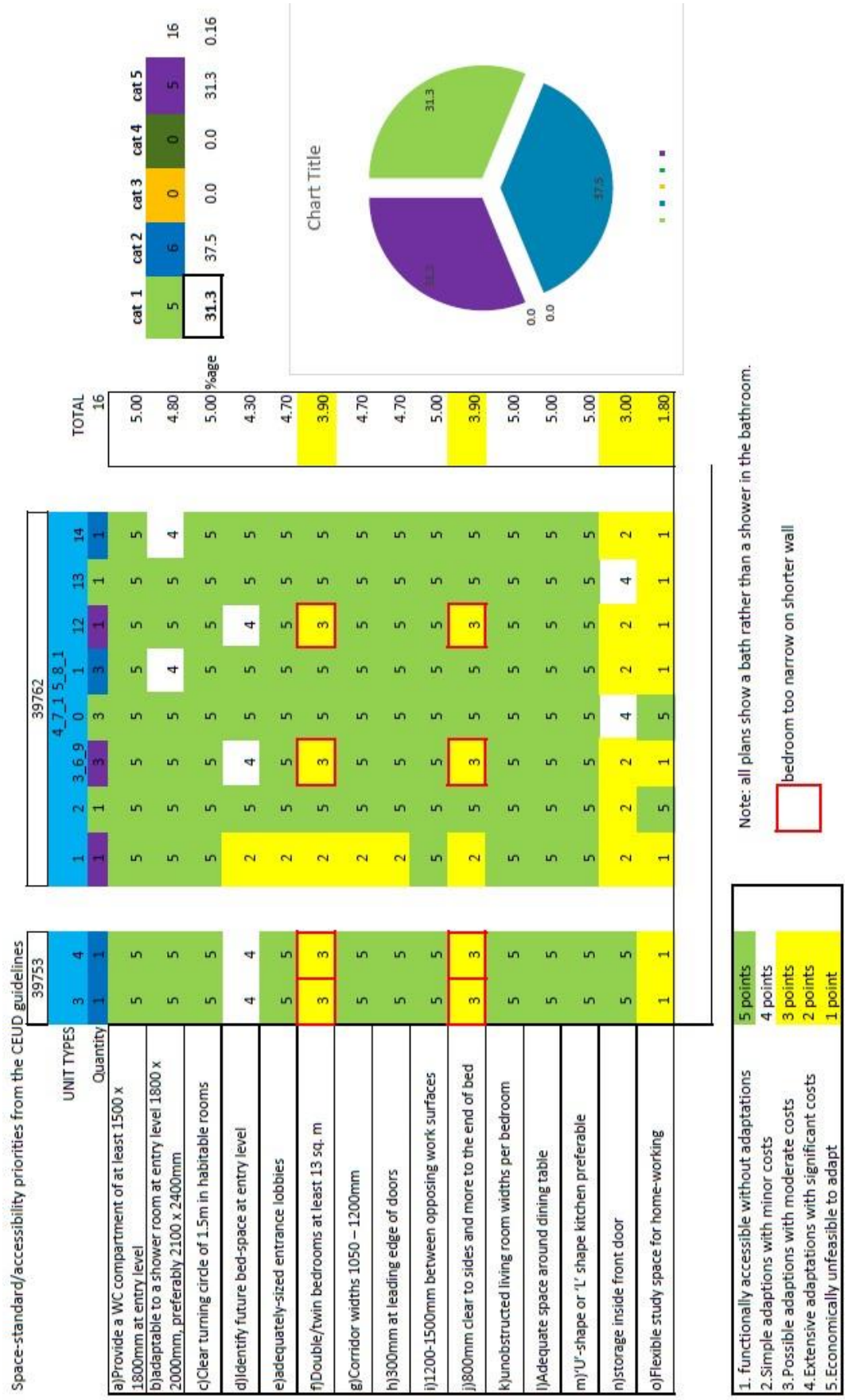
7.15 Planning applications to Cork City Council 2020 – Apartments 8



7.16 Planning applications to Cork City Council 2020 – Apartments 9



7.17 Planning applications to Cork City Council 2020 – Apartments 10



SUMMARY - Cork City council planning applications received 2020 - apartments

sheet number	total	cat 1	cat 2	cat3	cat4	cat5
apartments 1	60	40	0	0	0	20
apartments 2	22	16	2	2	0	2
apartments 3	52	37	1	8	0	6
apartments 4	43	12	5	12	0	14
apartments 5	79	33	38	1	0	7
apartments 6	55	6	40	3	0	6
apartments 7	48	20	2	0	0	26
apartments 8	84	0	14	13	33	24
apartments 9	111	20	82	6	1	2
apartments 10	16	5	6	0	0	5
	570	189	190	45	34	112
%age		33.16	33.33			19.65

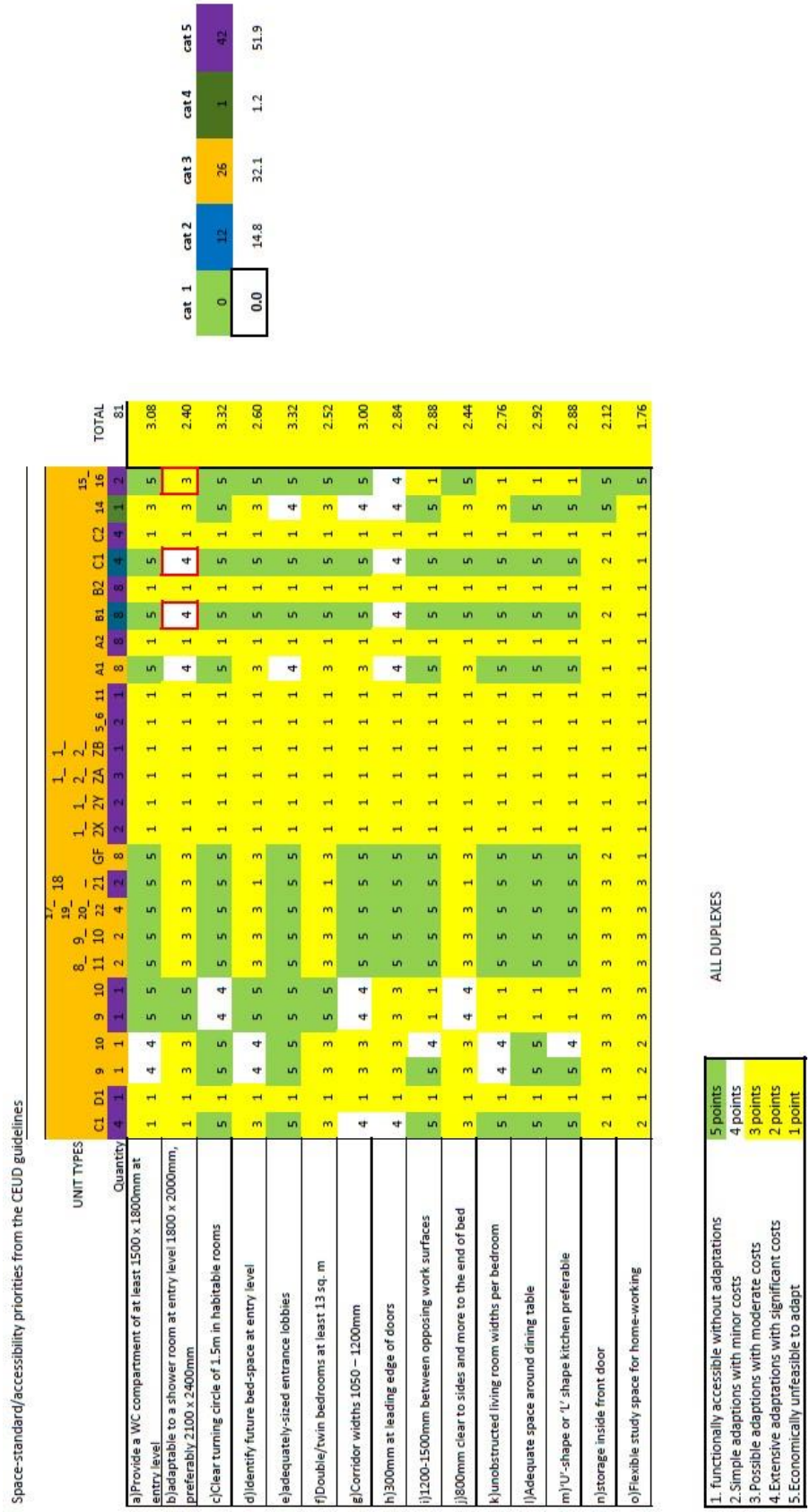
of which

Duplex	total	cat 1	cat 2
	5	0	0
	4	0	0
	10	0	0
	8	0	0
	0	0	0
	0	0	0
	11	0	0
	40	0	12
	3	0	0
	0	0	0
	81	0	12
%age		0.00	14.81

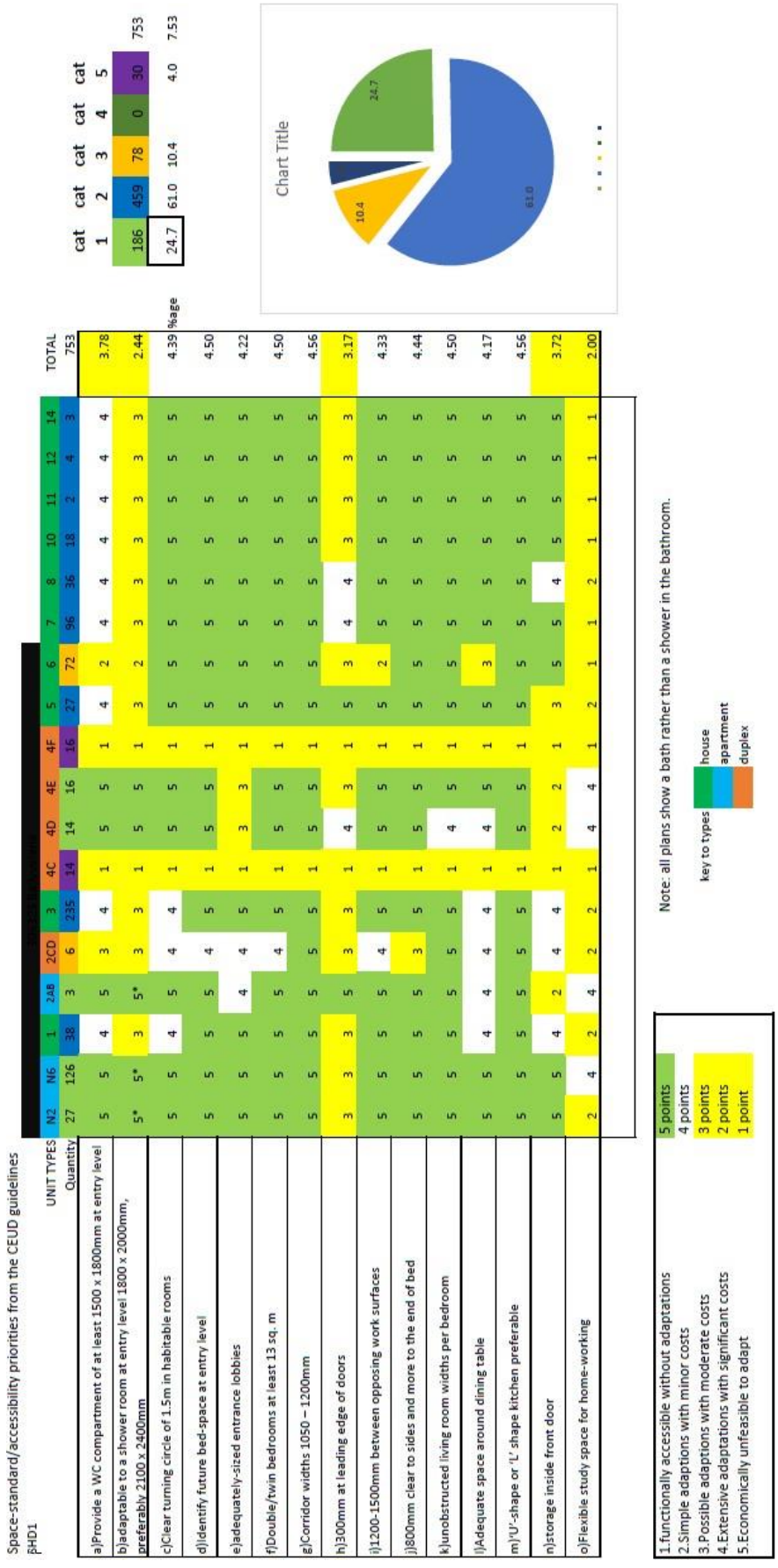
66.49 possible with minor space planning amendments at design stage

no plans were submitted on a further 195 apartments

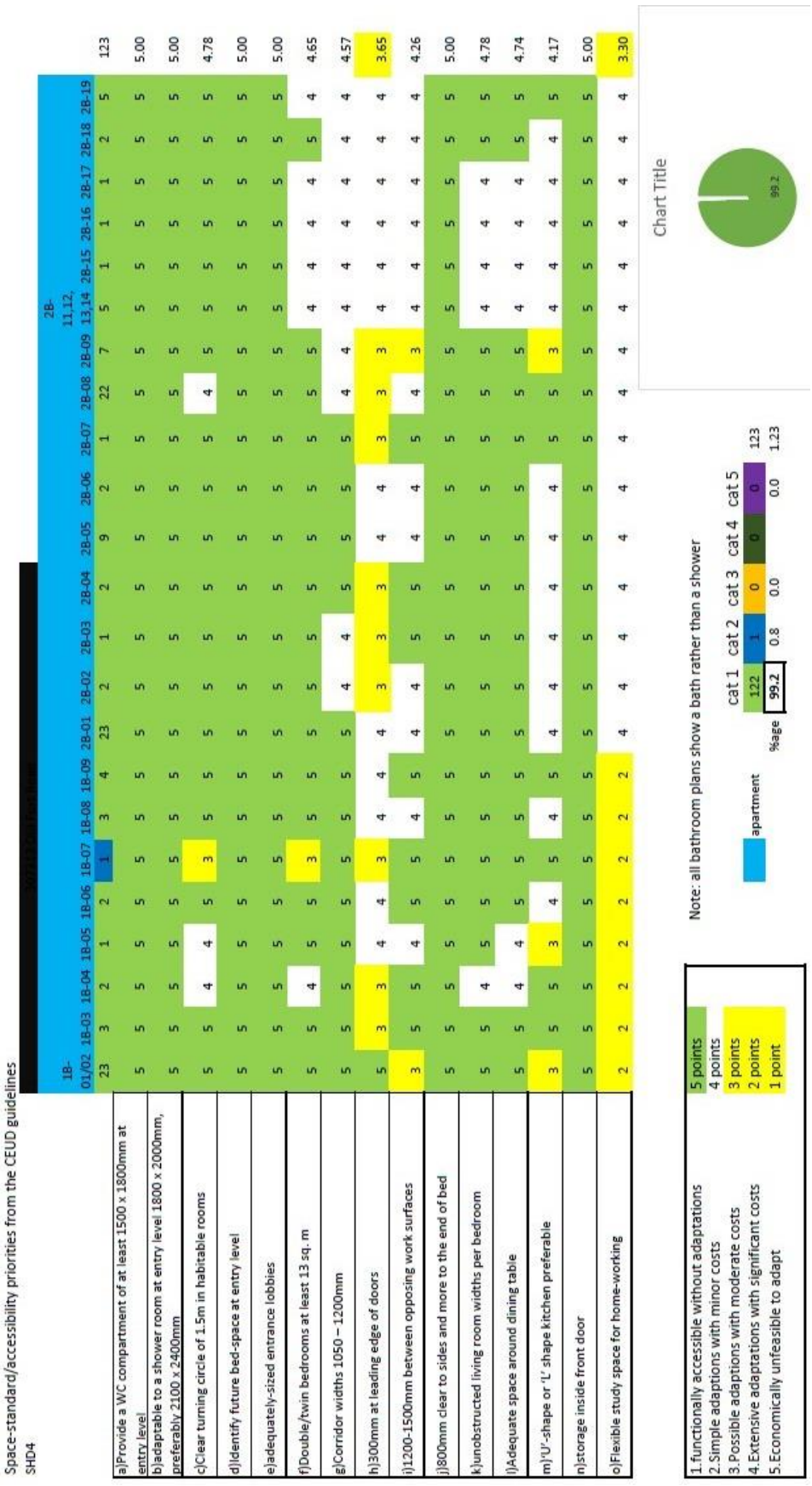
7.19 Planning applications to Cork City Council 2020 – Duplexes



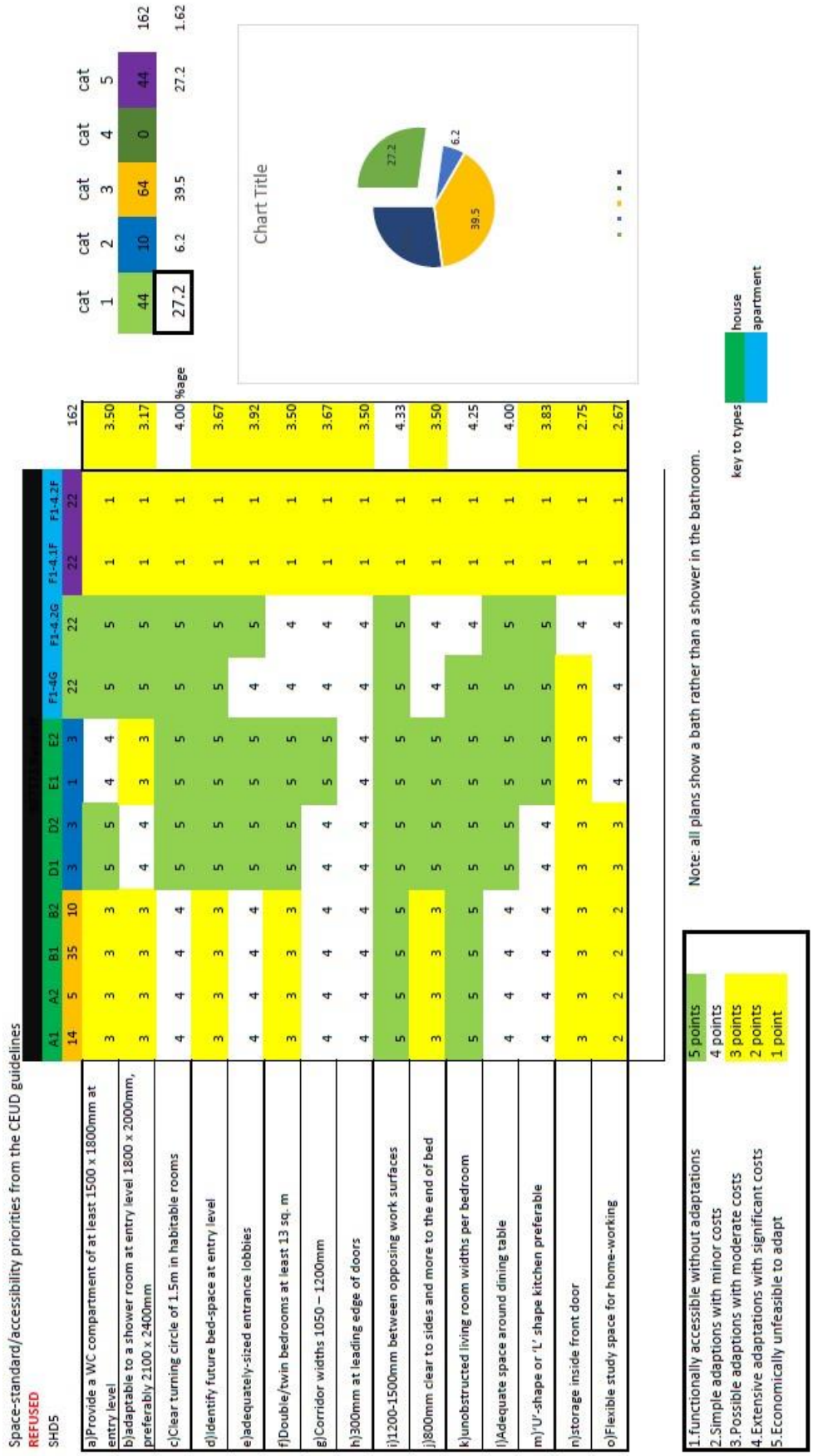
7.20 SHD applications in Cork to An Bord Pleanala 2020 – SHD 1



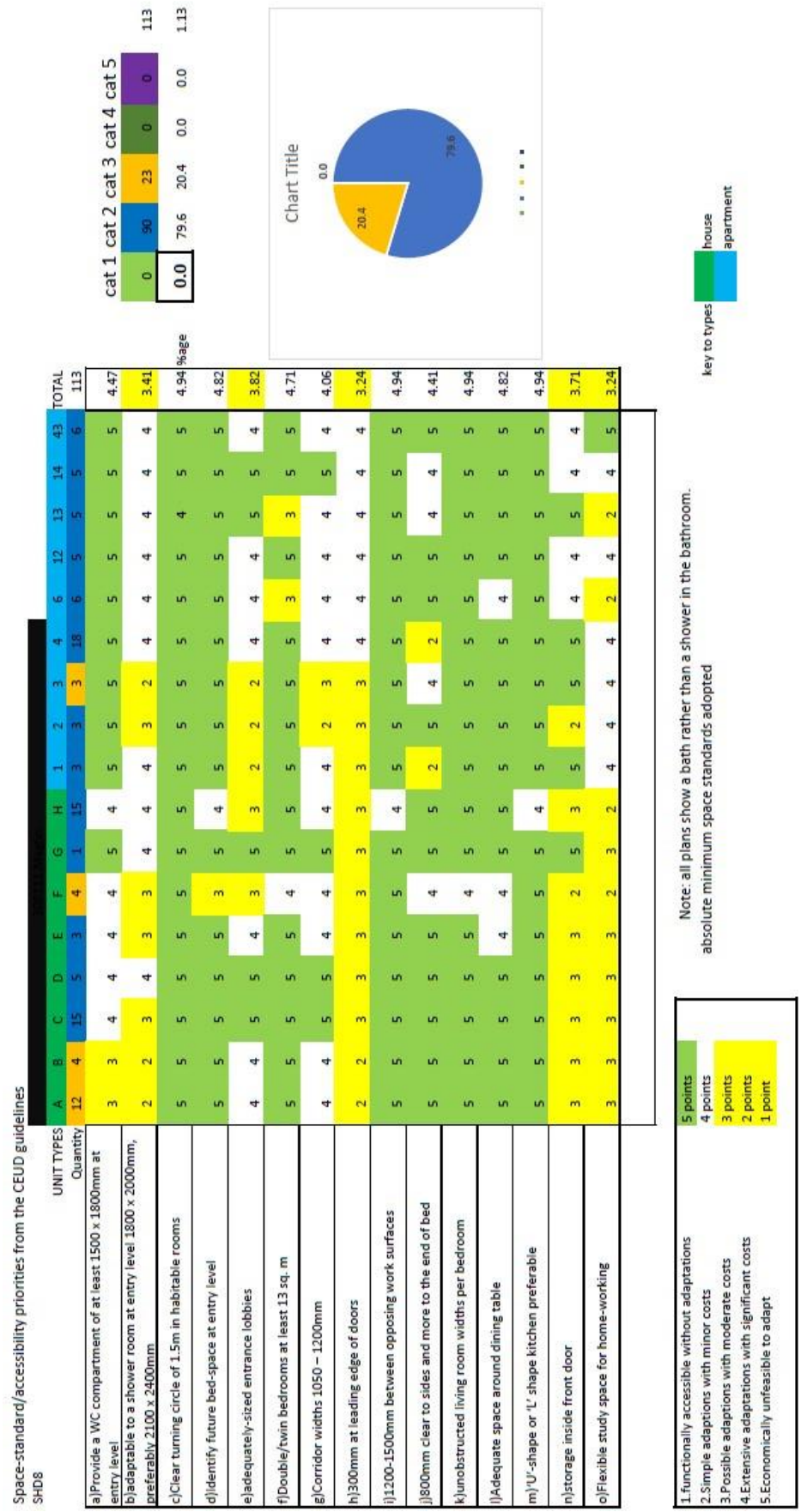
7.21 SHD applications in Cork to An Bord Pleanala 2020 – SHD 4
Note: SHD applications 2, 3, 6 and 7 were not available for scrutiny



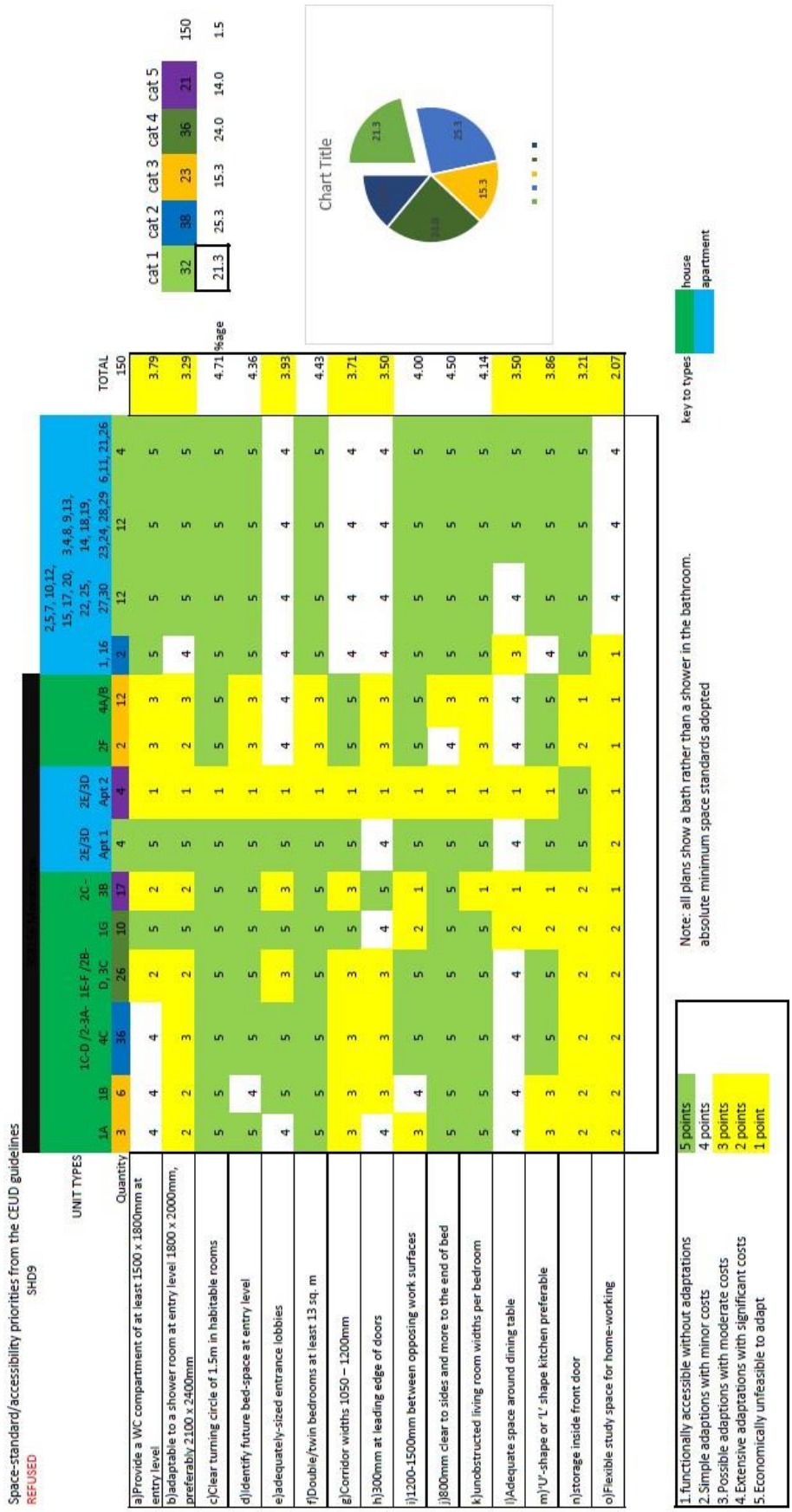
7.22 SHD applications in Cork to An Bord Pleanala 2020 – SHD 5



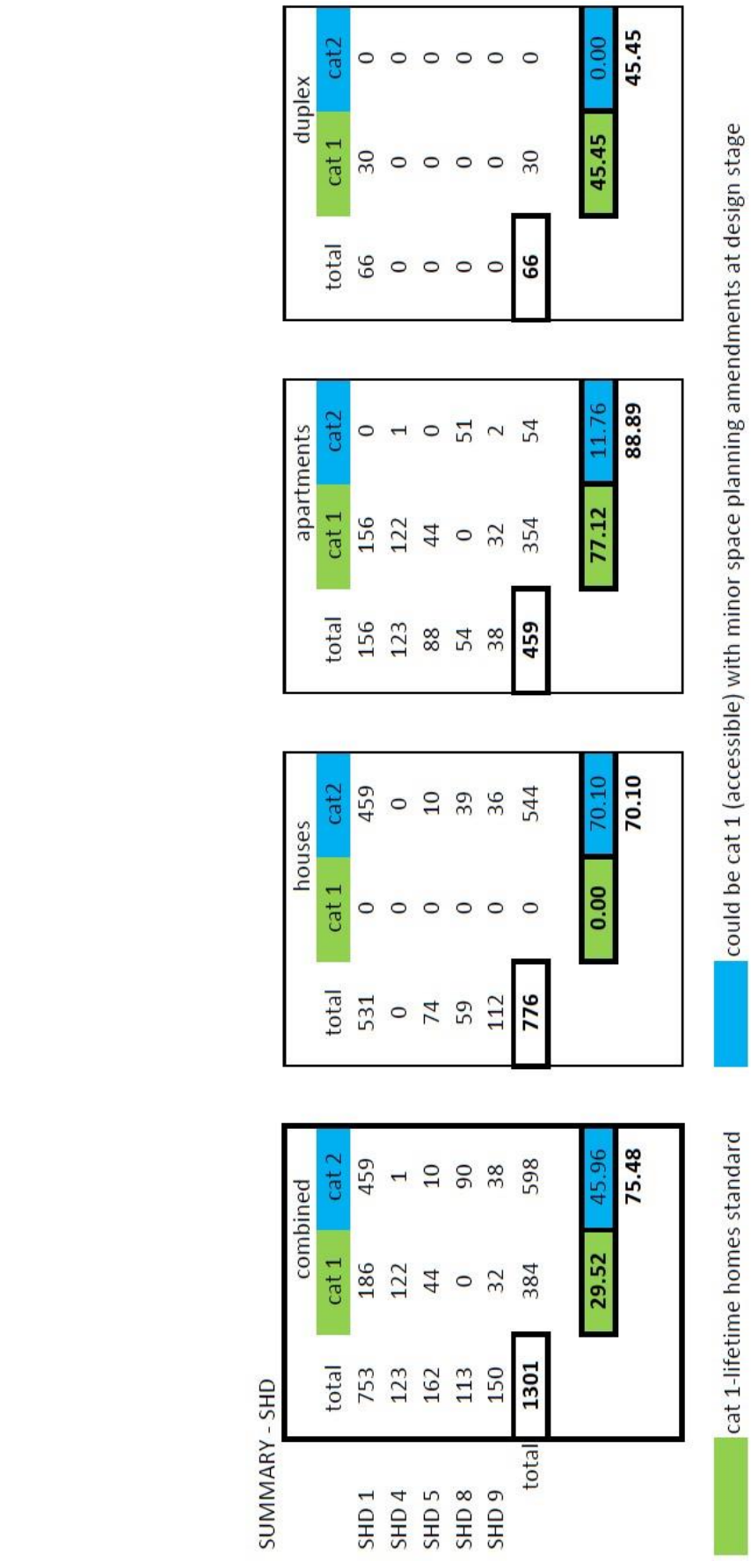
7.23 SHD applications in Cork to An Bord Pleanala 2020 – SHD 8



7.24 SHD applications in Cork to An Bord Pleanala 2020 – SHD 9



7.25 SHD applications in Cork to An Bord Pleanala 2020 – summary



SHD Houses - area summary per bedroom

type no.	number	beds	area
SHD 1			
6	72	2	88
SHD 5			
A1	14	2	80.5
A2	5	2	80.5
SHD 8			
F	4	2	84
H	15	2	103
SHD 9			
2F	2	2	88

CAT 2
all others CAT 3 or lower
No CAT 1 houses

type no.	number	beds	area
SHD 1			
3	235	3	110
7	96	3	107
8	36	3	129
11	2	3	110
SHD 5			
B1	35	3	90
B2	10	3	90
E1	1	3	95
E2	3	3	95
SHD 8			
C	15	3	120
D	5	3	120
E	3	3	104
G	1	3	112
SHD 9			
1A	3	3	113
1B	6	3	104
1C etc	36	3	108
1E etc	26	3	125
4AB	12	3	115

type no.	number	beds	area
SHD 1			
1	38	4	145
5	27	4	169
10	18	4	141
12	4	4	141
14	3	4	146
SHD 5			
D1	3	4	115
D2	3	4	115
SHD 8			
A	12	4	146
B	4	4	148
SHD 9			
1G	10	4	162
2C etc	17	4	116.5

AVERAGES

112 units **87.3** m2

525 units **108.6** m2

139 units **140.4** m2

Appendix B

The following paper was presented at the UDIE conference in Dublin Castle in October 2015, highlighting the multi-disciplinary pedagogical approach in CCAE through engagement with both parent institutions of MTU and UCC.

The paper was published in digital commons through arrow@tudublin.ie and outlines methodologies around the teaching of Universal Design to students of architecture. It is aimed at the key audience of design educators.

Universal Design in Education conference,

Dublin Castle, 12th November 2015

Promoting Universal Design in Architectural Education.

Jim Harrison and Kevin Busby (Lecturers, Cork Centre for Architectural Education, UCC/CIT), Linda Horgan, (Lecturer, School of Occupational Therapy, University College Cork)

Abstract

Although Universal Design is an internationally recognized way of thinking about the built environment, there is still a long way to go before user inclusion becomes a fundamental principle in all design. Education of future professionals is obviously one effective way to achieve this but might be frustratingly slow if this is to take a new generation to become fully established. Identifying and finding ways of removing the barriers, attitudinal as well as physical, is then a priority area.

The presentation introduces the authors' collective teaching experiences on ways of sensitising and raising students' awareness of the barriers and hazards that users face, through observation, simulation or experiential exercises. In order to recognize, in everyday environments, design solutions that are well-integrated and therefore less apparent, techniques to develop both a 'Critical Eye' and an 'Appreciate Eye' are discussed. Students are widely receptive to such challenges, but some reluctance remains amongst tutors, where UD may be perceived as an impediment to 'good design'; this may be attributed to aesthetic limitations of many accessibility and safety features, which are difficult to integrate effectively. Since universal design may be difficult for anyone without an experienced eye to recognize, a positive proposal would be to develop a better reference source of good exemplars, with technical explanation and comments.

Although based on the principles of accessibility and the reduction of barriers and hazards, Universal Design goes further to provide for the widest range of users 'to the greatest possible extent'. But such ubiquity makes it more difficult to legislate for. Regulations generally deal with one element at a time whereas, by definition, UD requires a 'joined-up' approach. Most architecture courses teach the importance of building codes in construction design, but the challenge is how to go beyond mere compliance with 'Part M' and involve students in really inclusive solutions. Various ways to achieve this through legislation, such as Access Statements, have met with limited success, so as well as the 'box-ticking', approach to elemental design, other more positive forms of encouragement are vital: 'carrots' rather than 'sticks'.

Initiatives such as the NDA's Universal Design Challenge are positive steps towards achieving this seamless integration in design.

Proposals to develop full Teaching Modules in Universal Design may seem to be a good idea in principle, but the writers believe that singling out this aspect of design may seem to imply that it can be regarded as an 'add-on' rather than an integrated aspect of design. Architecture courses are primarily based on design projects, so that the writing of briefs can discreetly require students to address the real needs of whole populations, from Level One to doctoral research. More optimal ways to inculcate UD would be to include projects with stronger social significance, or focusing on aspects of disability and how designing for users can be mainstream, rather than for special needs.

Pioneering work in Ireland and Asia to establish integration of universal design into the curriculum in schools of architecture will inform the discussion, including techniques learned from professional 'Training the Trainers' workshops and the development of accessibility codes, as well as identifying and working with partners in allied professions. At UCC the development of reciprocal teaching arrangements with Department of Occupational Therapy has proven a fruitful field, apprising OT students of ways of working with architects in designing for special needs whilst highlighting their creative abilities; reciprocally, architecture students learn from the experience of OT lecturers in functional ability. Ongoing research into the effectiveness of such enterprises is further detailed.

Based on these precepts, the presentation seeks to stimulate discussion in the workshop, share experiences and elicit positive proposals to integrate UD into architecture courses, on topics to include:

- *Teaching techniques, curriculum and appropriate project topics, including devising access audits and the holistic appraisal of complete life-zones;*
- *Practical exercises and experiences in working with user groups;*
- *Continuing professional development, including topics of use for educators (which include many part-time tutors) to pass on to their students;*
- *Aesthetic barriers and misapprehensions, through exemplars good and bad,*
- *Dissertation topics or electives at Masters level;*
- *Landscape and conservation issues architecture, pedestrian access and street furniture: working with engineers and planners;*
- *Developing Access Champions – individuals sensitized and motivated to promote UD;*
- *Thesis and Research topics; two-way exchange between teaching staff and students;*
- *Current and future trends in design, such as Lifetime Home concept and future developments in housing provision, the Shared Space concept, adaptive and sensor technologies;*
- *Schools of architecture as resource centres (e.g. providing advice on building adaptations).*

Promoting Universal Design in Architectural Education.

Jim Harrison and Kevin Busby (Lecturers, Cork Centre for Architectural Education, UCC/CIT), Linda Horgan, (Lecturer, School of Occupational Therapy, University College Cork)

Introduction

Attitudes to disability have changed significantly in recent years, both in the public and professional domains, and continue to improve. But there can be no cause for complacency, especially in the design and provision of built environments for an inclusive future. Whilst product design and ICT can respond rapidly to such change, where products can be chosen to suit the individual user's needs, the built environment is more permanent and slower to evolve as well as having to provide for a much wider and general range of users, with differing skills and abilities. Universal design, although an internationally recognized way of thinking about the built environment, is not yet regarded universally as a fundamental principle in all design. Educators in courses for future construction design professionals thus have the responsibility for ensuring the continuing increase in standards of user-friendliness and safety, not only for future generations but in effecting such improvements now. Where this is not already happening there is a need to identify the barriers, both physical and attitudinal, and remove these as a matter of priority.

Schools of architecture and other related design disciplines are one of the main organs by which standards can be improved. This can be at all levels, from basic design modules through to continuing professional development courses. Upstream of these initiatives, research, publication and consultation can have a positive impact on the built environment in many ways. Universal design should, by definition, be such an integral basis of any project, of any scale or purpose, that it would not need to be demanded. In order to achieve this happy state, design education will have to re-examine its teaching techniques and make improvements at appropriate levels. The possibilities that these present in various ways will be examined in more detail.

Universal Design beyond Accessibility

Historically, design has moved from complacency, through worthy attention for 'special needs', to accessibility and regard for barrier-free environments. The breakthrough that universal design has brought about in changing attitudes and realizing 'joined-up' thinking is remarkable, but it is really not 'rocket science' and hence should be understandable by everyone – as the basic principle states. Universal design goes beyond removing barriers and hazards to provide for a disparity of users 'to the greatest possible extent' and this may, at first, seem to be a greater challenge than just solving each access problem one at a time. Welch (2002) emphasises the importance of differentiating between universal design and

accessibility in “Strategies in Teaching Universal Design”. Although now 20 years old, this publication is still probably the most comprehensive work on techniques of teaching the subject.

Bringing about any improvement in standards usually requires ‘carrot and stick’ approach, where awareness-raising needs to be backed up by mandatory codes. The ‘stick’ element would consist of legislation and ‘deemed-to-satisfy’ standards, to which the designer must adhere. In applying accessibility codes the barriers are removed through requiring individual elements to be constructed to given minimum standards, usually in the form of dimensional criteria. While this approach goes quite a long way to reducing barriers and hazards, it cannot legislate for good ‘inclusive’ design. An example of this would be a typical building entrance; here Part M of the 2010 Irish Building Regulations would stipulate that, if there is a level difference at the threshold, that both a ramp and steps should be provided, with given gradients, dimensions and parts such as handrails specified. What the Regulation does not do is question whether or not a change of level was necessary in the first place, or that a simple matching of floor levels to ground level could achieve a better solution.

Factual topics such as Building Regulations are naturally taught in construction lectures, but if simply memorised by the student, without learning how and where these are applicable, the course is lacking in educational challenge. Universal design has ubiquitous application, but this in itself makes it difficult to legislate for, since it requires the kind of ‘joined-up’ approach that legislation on its own cannot give. Positive initiatives in the UK and Ireland, to require an ‘Access Statement’ as part of planning applications have proved limited in success; similarly the use of access audits, whilst able to measure accessibility, are difficult to design to really quantify inclusion of the complete built environment through a ‘box-ticking’ approach.

So, if legislative ‘sticks’ cannot beat good design into designers, what form of ‘carrot’ can be used instead? Clearly this is where the role of information and education becomes important. Initiatives aimed at the design professions, such as the NDA’s ‘Building for Everybody’ go a long way to coating the pill of good design through explaining the logic behind many of the standards with which designers are faced (NDA, 2013). Further positive examples of encouragement may be seen in design awards and competitions, such as the annual UD Challenge.

As we have seen, one of the key points that differentiates Universal Design from Accessibility is that whereas the former is seamlessly integrated into the fabric of building or townscape, accessibility only provides an individual solution to each problem, rather than asking fundamental questions such as to the necessity for a flight of steps in the first place. Perhaps one of the most convincing arguments for teaching UD is that, if this is not seen as fundamental principle of design, buildings will continue to be scarred with insensitive add-on elements such ramps and handrails, where these are not properly integrated at design concept stage or supported by informed detailing.

“Why Universal Design?”

Perhaps the most obvious question that we might then ask is “Why Universal Design?” If we can define the merits – and demerits – of the approach we might be able to understand better what these are, and in order to convince our otherwise skeptical colleagues, it may help to provide a convincing case. And there are still skeptics and those who deny the value of UD or even accessibility; not so long ago well-known art critic Brian Sewell is quoted as saying,

> *"Had the disabled of the past been as noisy as the disabled of the present, none of the temples of ancient Greece and Rome would have been built... I am convinced no worthy building of the past should be altered to ease the passage of the rare disabled visitor, nor any of the present be designed specifically to accommodate the wheelchair."* (Sewell, 1997)

And he was not alone. More recently architect Richard Weston, commenting on changes made to the Welsh Assembly Building in Cardiff to improve accessibility, described it as *‘”horrendous and politically correct… a major loss to the city. It’s hugely compromised. And the implications of this are far reaching*”. He believed that the 1995 Disability Discrimination Act would adversely affect buildings, as the disability lobby grew more powerful, and he speculated that the Spanish Steps in Rome would never have been built if the Act was live then. He then compared it with energy legislation.

> “*It’s like energy was two or three years ago – now you’ve got to put it up front or you won’t be able to make the building work. We’re so obsessed with regulation – it’s tragic.”* (Weston, 2000)

What reasons can lie behind such antagonism for inclusion? It may well stem from the fact that the examples that they have seen are high profile: ugly either because they are not well designed, or because they have been added after the event, which is always a more difficult design problem to solve either effectively or aesthetically. In the writers’ experience, there are some design tutors who perpetuate such attitudes and hence inevitably influence their students. It would, of course, be interesting to know if these critics would still take this stance, being now some 18 years older and probably less able than before. Admittedly, having to design to any standards may be seen as a hindrance to creativity; but this is the nature of architecture and without these constraints the built environment would be a dangerous and inhibiting place. Access legislation is but one more hurdle that the designer has to go through, as well as regulations on fire, energy conservation and other factors. But, whereas we hope that the there will never be a situation to test fire safety, the application of universal design will be of immediate benefit everyone.

More significantly, these negative comments highlight the “them and us” attitude that accessibility provokes when seen as being only advantageous for people with disability; once universal design, as ‘design for our future selves’, is understood such division is less likely to be expressed. Now that we are all joining the “them” group

by the fact that we are aging, we might take more cognisant of the fact that one of the major determinants of health is the built environment. This is not a new concept, Hippocrates described swamps as unhealthy places and sunny breezy hillsides as healthy places. The World Health Organisation have further developed this to include our rate of participation in the environment where we live as one of the two major factors of the quality of our health and lived lives (WHO, 2015). We may be in possession of some limiting conditions but at the stroke of a pen or the click of a mouse, an architect can determine level and quality of our participation in society. Architects are in a very powerful position and their awareness of their power over the quality and health of the population is little realized.

It is often cited that the Modern Movement idealized the perfect human being (Man rather than Woman) to the exclusion of anyone less able. Le Corbusier is now notorious in some circles as designing for the idealised Modulor man, and some of his designs for ramps are quite terrifying to use; but there are surprising insights about inclusion further back in the history of architecture.

Leon Battista Alberti, in the influential 'Ten Books of Architecture'(1955) criticizes architects for *"....choosing a platform not proper or convenient, without constant regard to the accommodation of the inhabitants, and not providing fit and suitable conveniences for every rank and degree of them, as well master as servants, citizens as rusticks, inmates as visitants: making your building .. too small and narrow; too open and naked, or too much shut in and confined; too much crowded or too rambling with too many apartments, or too few.*" Elsewhere Alberti goes as far as to specify appropriate standards for both staircases and ramps!

Some of the blame for the lack of consideration for the real needs of the users of buildings might be ascribed to the glossy journals that continue to influence designers. Rarely if ever do we see real people inhabiting the beautifully photographed spaces of the examples illustrated, let alone discussion of functional needs, rather than pure aesthetics. Even in other publications the editors seem to prefer the most uninhabited views of interiors. The trend for Minimalism must take some of the blame, so that even in publications on the work of Peter Zumthor, often cited for his writings related to sensory rather than visual architecture, his design for a residence specifically for the elderly illustrates a staircase without handrail or contrasting nosing – hardly an enticing experience for an older and less-able user.

Alexander and Pallasma, amongst others, cite related drawbacks in modernist design: the house as a machine for living rather than human-centred approach to design. There are, one would imagine, examples of modernist design that are accessible and could be studied in that context. A study of these would help to break down the misgivings that some of the academic staff may have about universal design. Aalto is a good example of a designer who could be said to advocate democratic design for all. The 'little man' was the term he used to describe the person who would inhabit and use his buildings and designs.

"*We want to build up a social world where the 'little man' can have the highest possible qualities we can give him*" (AA, 1950)

Although in many cases we may be preaching to the converted, we still need to widen the circle of those who think positively about inclusive environments. Reference can be made to the growing needs of an ageing population, as well as to people with disability showing an increasingly positive profile through media coverage and events such as the Paralympics. Obviously the notion of designing "for our future selves"(Coleman, 2001) should inspire a 'need to know' approach about how to do this more effectively in any active mind.

Getting Universal Design into the Curriculum

It may seem obvious that there is a need to present teaching modules devoted to universal design as part of any design course and, although well-intentioned in principle, there are, the writers believe, good reasons for not doing this. Perhaps the strongest argument for this is that, in singling it out as a specific topic, it will tend to reinforce the attitude that it is somehow separable from regular design. Although there are advantages in modular courses for many disciplines, it is counter to the way in which architectural design is best taught. Singling out such a fundamental and obvious principle in design is likely to have the negative effect of making it appear to be an add-on, which could just as easily by left out. Technical topics and aspects of the Humanities have both to be rolled into the design course in an integrated and seamless way if the "been there: done that" attitude is not to prevail, defeating the nature of holistic thinking

Rather than such a head-on approach as the UD module, a more effective way to inculcate inclusive thinking into the student mind is by a more subtle and concerted approach. Both Welch and Preiser refer to this as "infusion" (Welch, 2001, Preiser, 2001). Remembering that most courses in architecture and related disciplines are based largely on project work, the way that briefs are formulated is hugely important in teaching universal design. Briefs at all levels, from Year One to taught Postgraduate level should introduce aspects user-needs and inclusion as a design requirement, discreetly or overtly, depending on the design vehicle. Challenging students to formulate a visual and functional profile of the general population and the specific population of users will equip them with more information on designing for function. Challenging them to define disability and difficulty may widen their visual lens and they may discover that many of them fall into that bracket. For instance, how many of the class wear glasses, but can they work without them? More overt ways to inculcate UD would be to include projects with stronger social significance, focusing on how design can benefit the widest range of users, rather than just for special needs.

An over-enthusiastic crusading approach to promoting universal design could be counter-effective and turn other staff members off to the idea. By reappraising the teaching methods/techniques currently in use in the school, and working with

colleagues who are like-minded, tutors can identify points at which emphasis can be made to universal design/inclusive design, infusing the topic in appropriate degree. Where construction modules include Part M of Building Regulations, for instance, studio project work could be formulated in parallel to require evidence of its application in individual designs and then discussing the limitations of regulations against more holistic approaches of universal design.

Raising Awareness on Universal Design

Students in their late teens and early twenties are often unaware of the level of disability in society as the user groups are often an invisible population in society. A walk around the centre of Cork at lunchtime would suggest, mistakenly, that disability figures are greatly exaggerated. A contributory factor to this poor level of participation is the design of the physical environment. (WHO) This level of invisibility is a direct result of inaccessible public space. Engaging the students with user groups particularly within their own age bracket, through design projects or research, will increase their understanding of the challenge of designing for all.

In embarking on any awareness-raising exercises. It can be telling to ask students to state their preconceptions of UD, access and disability, before embarking on any activity or discussion. Then, at the end of the course, this is re-opened and the participants can see the extent of their learning in the intervening time. This opening and closing is essential to ensure ethical considerations are covered when discussing particular groups and how they are considered in design research.

From the authors' collective experiences, teaching at tertiary and professional level, working with 'Training the Trainers' workshops, and in design consultation and practice, the following suggestions are given on some possible ways of sensitizing and raising students' awareness of the barriers and hazards that users face, through observation, simulation or experiential exercises, as well as integration into project work at different stages in their education.

The 'Critical Eye' and the 'Appreciative Eye'

Even as experienced educators we should be constantly learning new and useful ways to teach, to pass on information and to inspire change of attitude. In a recent experience of working with a group of design professionals in China, one of facilitators passed on a useful method of enquiry, which this author found appropriate; although not a designer herself, the facilitator encouraged the participants to see the built environment with both a 'Critical Eye' and an 'Appreciative Eye' (LIOS, 2013). This might be for an individual element or for the wider connection. This technique, used in management training, refers to 'critical learning' in much the same way as designers work, often intuitively. As its title suggests the technique is simple but effective in that it allow us to see anything in a variety of ways. In awareness-raising in inclusive environments this is especially important; too often in examining a particular environment we only see the barriers or poor or missing design features, as these stand out. Although by using the 'Critical

Eye' we may learn what NOT to do, it is less helpful to us in shaping a better design strategy. But now we are required to counter the negatives, using our 'Appreciative Eye' to identify the positive aspects, which can be instructive and provide good examples to develop.

But herein lies a difficulty for the uninitiated; one of the great virtues of good inclusive design is that, when done well, it is inconspicuous and so needs a more trained eye to identify it. Often this is a statement of the obvious: we may not feel we need to comment on the walkway that is flat and barrier free, but that may actually the great virtue of the environment and, although we cannot necessarily know how it was achieved, it may have taken quite a lot of hard work on the part of the designers to make it look so natural. It may also take an experienced eye to 'see' what is NOT there: the missing handrail or visual contrast on a step, for instance.

In order to develop the critical/appreciative eye (which incidentally is a valuable tool in all other aspects of design evaluation) some degree of guidance is necessary. Someone with an experienced eye will need to start the ball rolling by pointing out these discreet things. This could be done through an informed tutor or activist who has the first hand experience of disability.

Experiential and Simulation Exercises

Simulation exercises involve the placing of subjects (in this case students of architecture) into situations where they have to face barriers and inconveniences at first-hand, by equipping and restricting their movements and/or senses by various means. By being obliged to wear, for example, a blindfold, noise defending headsets or a leg-splint, coupled with the use of the appropriate assistive device(s), the participants gain some insights into the particular difficulties encountered by a person who has such impairment. In order to be effective, the exercise should be sustained over as long a period as possible, with a planned route or set of objectives. Typically a group of 3 students would work together, one experiencing, one recording, photographing and taking notes, while the third member acts to guide and ensure safety.

A number of the studies have been undertaken about disability simulation exercises. The benefits of engagement in such exercises has had variable results. Some research criticizes their use as unethical (Kiger, 1992). What is consistent is that for simulation exercises to be successful they must be well designed with the risks and benefits weighed (Kiger, 1992). A critique of the scarce literature in this area highlights that disability simulation exercises made design professionals more confident when identifying usability problems with different environments and products (Pastalan, Mautz, Merrill, 1973; Lewis, 2009; Dong & Spiliotopoulou, 2010; Cardoso & Clarkson, 2012; Watchorn, Larkin, Ang, & Hitch, 2013). The use of simulation exercises gave the participants a personal experience of what it is like to have a physical or sensory impairment. It is this personal experience of impairment that gave the participants the confidence to identify usability problems and barriers to participation. The

involvement of end users gave architects and designers an understanding of the difficulties experienced by people outside their own physical, social and economic background. (McDonagh & Denton, 2006). Significantly, Cardoso & Clarkson (2012) found that simulation exercises identified usability problems that would normally be overlooked if the designers only engaged in observation exercises. The experience was made more efficient by the presence of occupational therapy students during the simulation exercises; usability problems were identified more quickly as these students have a greater understanding of users' needs (Dong & Spiliotopoulou, 2010). In the case of architectural students there was evidence that they thought more deeply about the design of specific products after participation. Universal access in future designs was not an afterthought but more a priority. (Watchorn et al, 2013).

Horgan & Mahon (2015) in an undergraduate study found that overall review of the literature highlights that it is not about doing or not doing simulations, but 'how' you do them which will determine how effective they can be (Lewis, 2009). Simulation exercises must be planned carefully and well-designed in order for them to be effective learning tools (Lewis, 2009). Proper briefing and debriefing sessions, both on the correct use of assistive devices and on the experiential and ethical aspects of the exercise are important (Harrison & Parker, 1997).

Even where a full simulation exercise is not undertaken, having a simple self-propelled wheelchair in the studio may help students to see this as an everyday piece of personal equipment, to use it and experience the need for adequate space in planning any building.

Teaching and Learning: Project Topics

Design Project work is the mainstay of architectural design education and if this is to rise above conceptual thinking there may be requirements in certain key design projects for students to provide evidence to explain design decisions related to technical issues such as construction, specification and detailing, or energy and sustainability matters; the requirement to demonstrate an access strategy, no matter how simple, should be a prerequisite.

In both CCAE and CIT architecture and interior design courses Universal Design is introduced to students in the early years of the programme through design projects in the Design Studio module. The projects are generally based around the domestic environment, from individual apartment spaces to multiple housing units. Technical aspects such as Building regulation compliance are covered in cognate modules in Applied Technology. As a primer the students research the anthropometrics around the variations of the physical body within their class group and the ergonomic factors that are influenced by the space and objects around them, leading to a human-centred design approach. The students are encouraged to look beyond the basic requirements of Part M and are introduced to lifetime housing standards.

Such projects tend to be seen as unrelated to the student's own experience, sometimes simply as exercises in geometry and space planning. To counter this year 2 students in Architecture are asked to consider their own family home from a number of viewpoints. In particular they are asked to investigate how the network of relationships and patterns of behaviour that make up the 'family,' affect and are influenced by the nature of the dwelling spaces that are described as 'home'. They are asked to comment graphically on a number of criteria such as: comfort and necessity; security and vulnerability; interaction and retreat. From analysing how finite space is adapted over time with the changing needs of the family, the students are then asked to propose adaptations and re-use of the home.

In Year 4 students undertake a dissertation which is preceded by seminar groups where related texts are read and discussed. Universal Design related themes are included within a wide ranging architectural discussion and tend to be at a more informed level.

Teaching and Learning: the 'Crit'

The 'Crit' remains one of the key teaching tools in any design course, but its application is often limited to short critical commentary on each individual's pinned-up drawings. At worst this can become merely a tutorial in public, and it will only be as useful as the experience and sensitivity of the crit panel members. By including panel members who are not necessarily designers, but rather people who have particular personal experience, such as spokespersons for disability user groups, a fresh and focused view will be introduced. In the authors' experience, applying different ways of critically appraising student work can be a useful learning experience, focusing on particular aspects of the project; for a housing project, for instance, this could include aspects of inclusion.

One memorable 'crit' experienced by this writer was when a visiting academic came down heavily on a student's poorly-considered plan: "Who do you want your building to exclude?" he asked, pointedly.

Role Play

As an alternative to the regular crit, the value of student role playing is worth experiencing; each student (or groups of students) is given an outline of a character. The character is described in general terms (e.g. "Mrs. Smith, 82 years old, with failing sight and typical range of physical limitations for her age; she lives alone and values her independence"). Often students are able to grasp such concepts more concretely by referring to extended family or community members, grandparents etc, in developing observational skills. Students are further required to investigate (often through brainstorming) the particular needs of their allotted individual and the way that the built environment may help, hinder or endanger them. They are then asked to play that role as members of the crit panel in order to highlight the pros and cons of their fellow-students' designs. In this way, an exchange of experiences,

observations and imagination is exploited, allowing students to see their work in a fresh light.

“Playing Doll’s Houses” is a simpler version of this exercise; again, students investigate individual needs of characters and make critical comments from this point of view on their design project proposals, both their own or by exchanging drawings with another student. In design studio projects, for example, students may present designs that have unnecessary changes in floor level, arguing for a prevailing notion that space can only definable by changes in floor levels, without reference to accessibility.

Both this and the previously-described role-playing ‘crit’ can be particularly effective at ‘interim’ stage, allowing for improvements to be made before the final hand in.

Working with Occupational Therapists

Useful allies in understanding the diverse needs of users, the profession of occupational therapist remains largely unrecognized by architects, which is regrettable. From the authors’ experiences there is much to be learned from a profession that considers the living zones of individuals just as much as do architects. Exchanges of skills and experience can prove beneficial; in the authors’ experience the architect delivers presentation to Occupational Therapy students on universal design of built environments, plus inputs on drawing and understanding plans. In return, OT lecturers reciprocate, coming to the school of architecture at Year 2 level with training in the use of assistive devices and insights into particular aspects of domestic adaptation, culminating in a simulation exercise.

Design Diary and Access Mapping

Where an experiential exercise has been carried out, the impact of this will be sustained if students are required to keep an ‘design access diary’ – a sketchbook into which they record the positive and negative planning and design features that they are now sensitized to recognise. Other forms of heightening this awareness could be used. Mapping parts of the city is a regular student exercise, to explore and communicate the diverse nature of the built environment, even where we think we are familiar with it. To be able to understand how people with different abilities will experience any environment is surely a requisite skill for designers; projects to identify and map good and bad design, barriers and affordances*, and the connections between these can be a fruitful exercise, potentially with lasting benefits. An example of such work was carried out by Year 4 students at the National University of Singapore. The basis for this was a publication, ‘Access Singapore’, commissioned by the tourist board to identify accessible buildings for tourists with access needs. However, as this only detailed individual buildings and facilities the students were inspired to identify barrier-free connecting routes and external facilities between these, designing a practical map which was then included in a revised publication (NCSS, 1995).

Exemplars

Well-integrated examples of universal design may be difficult for anyone who does not have an experienced eye to recognize or understand; a positive response to this would be to develop a better reference source of good examples, complete with technical explanation and comments on each one. Here the 'Critical Eye' and 'Appreciate Eye' technique might be a useful approach.

Design and Research Opportunities

Thesis and Research topics demand a higher level of two-way exchange between teaching staff and students. Students in higher years participating in electives (eg Design for an Ageing Society) are apprised of tutors current research work and gain experience by assisting in such tasks as literature or web searches, in exchange for updates on the research project.

Topics for thesis or dissertation could investigate current and future trends in design, such as the Lifetime Home concept and future developments in housing provision, adaptive and sensor technologies, 'Shared Space' in urban design and other topics can provide fruitful fields for investigation. These are topics that can be 'infused' into lecture and project work and suggested fields for Y4 dissertations, where experience shows that a significant proportion of students are interested in topics relating to the non-visual senses and design.

Consultation: Live Projects

Many schools of design include 'Outreach' projects for students, wherein local or social design opportunities are explored. Design studio tutors are often on the look out for meaningful projects with a social purpose. Tutors may use various means to let it be known that their school would welcome requests from agencies, to make imaginative proposals for some aspect of design, particularly where this would be out of the ambit of an architectural practice. Schools of architecture have a useful role to play in the community, acting as resource centres in various ways, such as providing advice on building adaptations. As an example of this, informal liaison with organizations such as the Irish Guide Dogs for the Blind has been established, wherein staff and students from the school of architecture propose design solutions for modifications in buildings and landscapes used by people with sensory impairment. Alliance with the professionals in the field of Occupational Therapy has yielded valuable learning experiences as well as serving the community.

Conclusion

Rather than a head-on attack, a softly-softly approach will probably be the most enduring and effective way to get universal design thinking into all branches of architectural education, no matter how simple. Apprising all fellow tutors, particularly those who are in charge of writing the design programmes, is a key factor and may be one of the more difficult tasks but by attrition or infusion this is achievable. Keeping the topic sustainable is also a challenge, particularly where there

is a turnover of staff or re-allocation of studio coordinators. From the authors' experience, the impetus for most inputs related to universal design relies greatly on the enthusiasm of particular individuals, which can be a potential weakness; once this person has moved on, the momentum may be lost, unless another committed and experienced individual steps in. Thus it is important to 'pass the baton' to like-minded fellow tutors in advance, to give them the confidence and resources to sustain the effort.

Equally, in the wider community schools can make positive moves in identifying and working with partners and personalities in the promotion of UD in education; these could be academic staff members, possibly of different disciplines, such as OTs, and in other schools, as well as articulate members of user groups or NGOs. Informal networks naturally occur, but reinforcing these ties is important to both widen the knowledge base and to the diversify the impact to the wider community with any involvement in the creation of the built environment in order to make it fully inclusive.

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Appendix C

The following paper was presented at the UDHEIT conference in Dublin Castle in October 2018, highlighting a collaborative pedagogical approach in CCAE through engagement with local authorities.

Publication details: *Transforming our world through design, diversity and education*. IOS Press. ISBN: 978-1-61499-922-5 (print).

The paper outlines teaching methodologies adopted for a particular Universal Design related project undertaken by students of architecture. It is aimed at the key audience of design educators.

Universal Design in Architectural Education – community liaison on 'live projects'.

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Author Note

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Abstract

The infusion of Universal Design principles into existing courses in architecture should become evident in any project work undertaken.

'Live project' is a term used to describe projects that engage the academic world with real-world groups/organizations. CCAE sees such projects as valuable exercises in a student's education, particularly, the practical experience of interaction with 'user-experts.'

In 2016 Cork County Council approached CCAE with a proposal to promote age-friendly housing as part of their age-friendly initiative. CCAE developed this into a 'live project' for Year 2 architecture students, continuing the integration of UD into the curriculum. This helps students to identify the negative disabling aspects of ageing and show UD principles can be seen as commonplace.
For their part, the County Council were able to expand their own thinking, availing of the less constrained ideas that students brought to their schemes.

An approach to achieving the adoption of UD is to consider the Vitruvian definition of architecture as having 'commodity, firmness and delight'. From this, the aesthetic integration of features to benefit users of limited ability can be achieved without stigmatising anyone as being old or disabled.

Now in its second year the project is being run in West Cork. The chosen site in Bantry town centre, has interesting challenges for the students to incorporate UD principles. This paper will present imaginative but viable projects as examples of student' responses to the challenges of designing housing solutions and will report on their ability to integrate age-friendly features at different scales.

Keywords: Universal Design, elderly, architecture, education

Housing the elderly – a pertinent topic

The combination of factors such as improved healthcare and relative affluence in the developed world have led to a proportional increase in the elderly population. The World Health Organisation (WHO) describes global ageing as both a triumph and a challenge:

> "Population ageing is first and foremost a success story for public health policies as well as social and economic development." … (Gro Harlem Brundtland, 1999)

How to house the elderly in a safe, comfortable and desirable environment has become a significant topic in the early years of the 21st Century. Of the many factors to consider when designing for the elderly, remaining in the familiar community is often of paramount importance. In Ireland local authorities are the largest single providers of social housing, with around 107,000 dwellings (NESC 2014). These are rented to people on the local authority social housing list, having met various criteria in terms of income, need and connection to the local area. Such communities are often stable over long periods of time and extended families tend to live in close proximity. A successful recent example of Local Authority elderly-specific housing in proximity to familiar neighbourhood can be found at Colivet Court in Limerick



Figure 1. Colivet Court for Limerick City council by ABK architects. Photograph Paul Tierney

Historically, funding for local authorities to build or purchase social housing was provided by central government at an appropriate level. This enabled councils to build more flexibly-sized and shaped housing to meet specific needs. Funding began to decline in the late 1980s, as a result of high Government debt. The proportion of social housing has declined, from approximately 15 per cent in 1971 to 10 per cent currently - although with some recovery in the 2000s (NESC 2014). Since the 2010 economic crash, funding to local authorities to build and purchase social housing has been reduced. This is evident in the fall in local authority output of new build and acquisitions, from 4,986 in 2007, to just 253 in the first nine months of 2013 (NESC, 2014).

The recent crisis in homelessness in Ireland, and its resultant higher media presence, has led to more funding becoming available. This in turn has given local Authorities the opportunity to invigorate their social housing programme. One of Cork County council's initiatives was to approach the local higher education institutions to promote age-friendly housing as part of the Age-friendly Cities and Counties Programme. From initial meetings, staff at CCAE saw this as an opportunity to develop a live project.

Engaging with the Local Authority – access to live project

> "Live Projects are important in educating architects of the future. Too often architectural education happens in the abstract and pursues a set of ideals that are often removed from the concerns of the everyday world. In contrast, the Live Projects develop collaborative techniques and skills in communication and participatory practice – all approaches that are essential and absolutely relevant to the future practitioner." (Butterworth. C.)

Clients from the public or voluntary sector tend to have limited resources and time to spend on projects. Working with students on Live Projects provides access to a variety of ambitious, imaginative and considered design proposals, normally unavailable outside academia. In this engagement with the county council there is a real possibility that the resultant built scheme will be heavily influenced by the students' collaborative efforts

> Emily Partridge, a student from Cambridge and former student of the CAT echoed the importance of live projects. "Projects that allow creativity and imagination, while being based in the reality of building and within a context, is a key strength of architectural education. It allows people to develop a moral, ethical and social approach to the built environment - an ideal that is unfortunately often not in practice." (UK architecture students' network)

In the summer of 2017, CCAE welcomed a group of students from Malaysia who spent a week on Bere Island in West Cork where they engaged with the local community on ideas about how elderly residents could maintain an active life on the island. This proved to be a useful exercise, with the possibility of a reciprocal visit to Malaysia in the future.

For the students in Year 2 in CCAE, the housing project runs for most of the second semester, between February and April, primed by smaller, related projects such as housing precedent studies and analysis of the family home. Each year the students undertake a simulation exercise under the tutelage of a lecturer in UCC's Occupational Therapy Department. This engagement is mutually beneficial as architecture staff reciprocate by offering tuition on the OT programme. Another benefit to the project is that a number of staff are research-active in the area of housing the elderly and convey their knowledge, not only in studio tutorials but also through presentations on a number of related topics.

The Site

This is the second year of CCAE's engagement with Cork County Council's age-friendly initiative. The inaugural project was set in the centre of Mitchelstown in North Cork, on a relatively flat site

This time the chosen site was in Bantry, in West Cork, in the town centre. The site is partly sloping and has interesting challenges for the students to incorporate Universal Design principles.



Figure 2. Site from east corner, looking west. Frank Dowling CCAE student

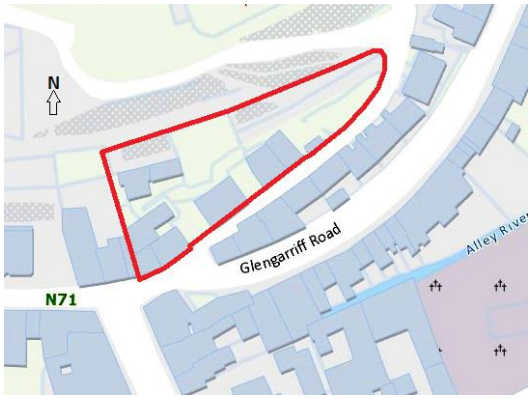


Figure 3. Site Location Plan. Osi.ie

The triangular-shaped site is located close to the town centre shops, cafés and amenities. To the southern edge is an existing street, rising approximately 6m at a steady gradient from the west, along its 100m curving length to its easternmost point. At this point the terrain is relatively flat back across the higher level of the site (see figure 2.), which enjoys south and west-facing views across the rooftops of the town. There is a 2m high embankment (formerly a railway line) to the northern edge, backed by an unsurfaced road. A number of derelict properties flank the southern edge, backing on to a retaining wall which diminishes in height from west to east.

Teaching methods – related specifically to UD themes.

Part of the mission to impart an ability to apply Inclusivity / UD into design at whatever level, is through de-mystifying what it is all about, that it is not 'rocket science' – indeed sometimes it is simply common sense. Christopher Alexander's work is used in this way, where he breaks down elements of different scale to explain in simple terms the connections or patterns that can be used to design effectively (Alexander et al. 1977). Similarly, the guidance in the CEUD document 'Building for Everyone' (CEUD 2002) and Lifetime Housing guidelines (Habinteg 2010) offer invaluable advice to the student.

Encouraging the adoption – or infusion (Welch and Preiser, 2001) - of UD principles into all design projects as a matter of course - just as structural soundness or fire safety should be - is a significant aim. An approach is to consider the Vitruvian definition of architecture as having 'commodity, firmness and delight'. From this, the aesthetic integration of features to benefit users of limited ability, both within and outside the home, can be achieved without stigmatising anyone as being either old or disabled.

For the housing project, a two-scaled approach – from Site strategy to house interior was adopted.

Just as an engineer or surveyor will look for the flattest route to lay a railway line, there were opportunities to use contours for pedestrian access, running east to west across the site. Ramps/sloping paths/low gradient steps could be incorporated into the landscape in an unobtrusive manner to allow for comfortable access between the contour levels.

Students were encouraged not to be restricted to a bungalow/single storey solution but to consider how 2 or possibly 3 –storey buildings could take advantage of views and relate to the context of the town. A north - south section through the centre of the site shows the potential of multi-storey units for views, and space in between for the residents to interact with each other. Interaction leads to increased communication and reduced feelings of isolation.

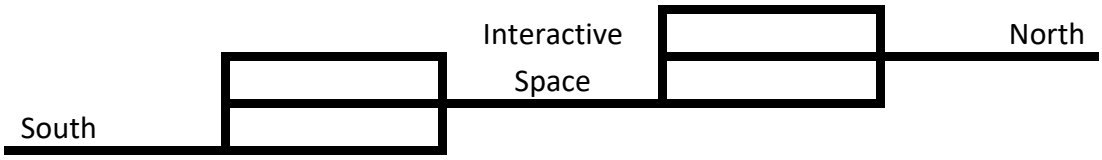


Figure 4. Diagrammatic cross section though site.

Conversely, to exploit the possibilities for pedestrian interaction, students were discouraged from bringing vehicles into the site, while still being challenged to provide a minimum of 12 housing units, each with one parking space. This was perhaps one of the most contentious debates between students, staff and user-experts. From these discussions it was agreed to allocate 2 units as fully wheelchair accessible with parking close to the entry door. Other parking areas could be located discreetly at the site periphery, yet close to their allocated unit.

Within the house interior, each unit was required to have an accessible, visitable bathroom at entrance level and, on the same level, to have a layout flexible enough to convert living space into a potential bedroom. Optimal and sufficient size of rooms was deemed paramount to the comfort and usability of the home, going beyond Technical Guidance Document Part M to a more generous, lifetime home standard.

A carefully designed stair with generous tread and gentle rise gives independence and maintains the dignity of those occupants who can still manage them. Half-landings can incorporate window seats or spaces to rest if required. It was felt preferable to incorporate space for the future intervention of an inconspicuous lift to complement a manageable stair, rather than to impose the future addition of a stair-lift on to a conventional stair. Such items, while useful, can reinforce negative feelings about waning independence. The more effective the design, the less easy it may be to observe; "the best shoes are the ones that you don't know you're wearing". This is also helped by the requirement of an accessible bathroom and bedroom at entry level.

> "When people are in need of (adaptations), what they have lost is a major aspect of their home. ……. 'Can we adapt in a way that gives the home back?', or at least asking the person to say what aspect is most important." (Heywood 2001)

Student work and lessons learned – by all involved

Working with the Local Authority gives students more awareness of different types of housing provision – not just the private sector. Students often default to a perception that homes are for families, similar to their own experience. The concept of number, ability and age of occupants was not foremost in their minds at the outset. Suburban typologies of detached houses, private gardens and driveways persisted in the early stages with little appreciation of density or factors pertinent to housing such as: private space, public space, overlooking, access to amenities, privacy and security versus community and openness.

Scale is important – many students initially found it difficult not to oversize their dwelling units, despite guidelines on appropriate unit size, and also to understand efficiency and usefulness of internal space. Long corridors, dead ends, wasted space and excessive circulation were common mistakes at early stages of the design. One of the pitfalls of attempting to adapt existing homes is that rooms are often too small for purpose. A double bedroom for example needs to be large enough for anticipated future wheelchair use and for the flexibility of a variety of furniture locations.

Architecture students tend to have a difficulty dealing with the threshold between internal and external space, or rather they ignore the immediate external space. As community and interaction between the units was a priority, this aspect was continuously reinforced by the lecturers and visiting critics at review stages with a particular emphasis on where one unit's external space coincided with another, and how it was over-looked from the interior. The more successful schemes created communicable space across and between individual housing units. Such spaces included opportunities to sit, to garden or simply to enjoy the view.

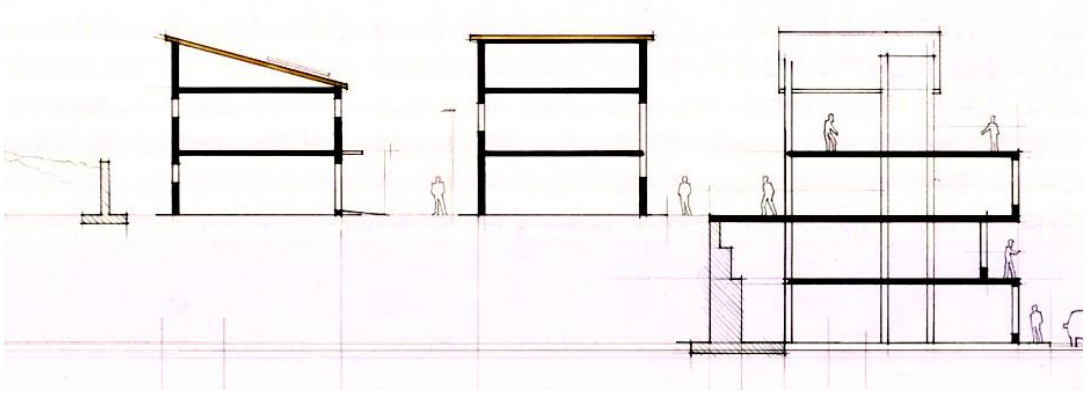


Figure 5. Student work – Frank Dowling

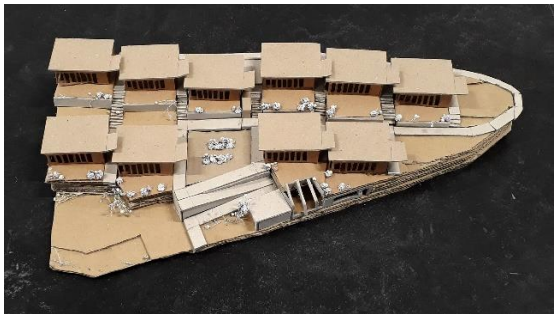


Figure 6. Student work – Anna Higgisson

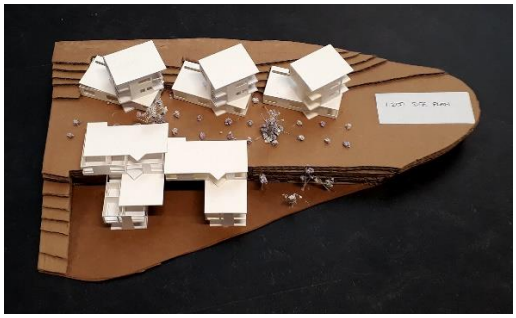


Figure 7. Student work – Anna Horan

In addition to the incentive of paid internships in the County Council for the most successful schemes, students were also encouraged to enter the NDA UD Challenge, this year with great success. The positive effect of competitions is that they show that Universal Design, as a concept, does not inhibit creativity and, where incorporated as a requirement in the project brief, UD is not just a 'worthy' aspiration of a socially-minded tutor, but is a fundamental principle of any decent architectural design.

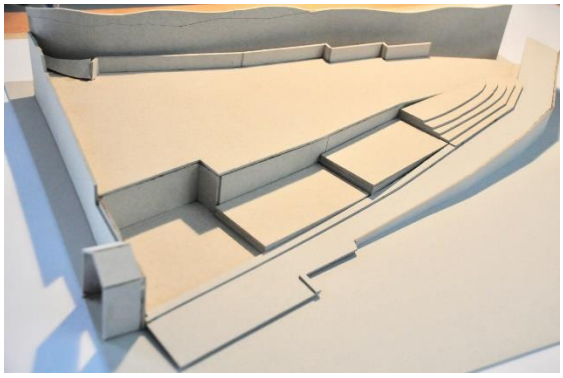


Figure 8. Site model – Frank Dowling



Figure 9. Site Plan – Frank Dowling

Fig. 8 and 9. Show Frank Dowling's winning scheme in the Universal Design Grand Challenge 2018.

Housing design is a complex issue and can be challenging, particularly when studied at an early stage of the undergraduate programme. Like Frank's, most of the schemes were able to resolve a fairly comprehensive site strategy with thoughtful solutions on parking, pedestrian access, external circulation and landscaping, on this sloping site. A similar number of students created effective interior accessible space based on guidelines presented. Students found it harder, however, to combine both the effective overall site strategy with an equally well-considered scheme for the interior of the houses.

On reflection, there is a possibility that the site was too full of character and complexity to allow enough time and effort to be spent on the interior space and that a flatter, more mundane location would have allowed this to happen. This would, however, have led to a less satisfactory outcome. Rather than being hypothetical, the students found the 'live' nature of this complex site and the potential for a built solution to be occupied by 'real' people to be most engaging.

The process continues with a further collaboration planned for the coming academic year, somewhere else in County Cork.

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Appendix D

The following draft report forms part of PG6025 module in UCC, *Community Based Participatory Research (CBPR).* It is presented here as evidence of the author's engagement with CBPR.

The two requirements of the module were:

A group project, engaging with a civil society organization, in this case, the Cork City branch of Family Carers Ireland (FCI) with the intention of presenting a research proposal.

A reflective journal of the process.

The UCC research group met the FCI group every other Wednesday morning between February and April 2019. The alternate mornings were spent in UCC on a number of exercises, readings on ethics and participation, and feedback on the previous FCI session.

Family Carers Ireland

and

University College Cork



Research Report (DRAFT)

May 2019

Community and UCC Researchers:

Kitty O'Donoghue, Eileen Barry, Rena McCarthy, Renee x, Mary McCarthy, Kara Madden, Noreen Culahane, Dereck Crowe, Maureen Keane, Derry Desmond, Peter Cox, Evan Boyle, Jessica Giannoumis, Aoife Long, Alessia Elia, Kevin Busby, Claire Quinn, Denis Robinson, Michael Holly, Ruth Hally, Catherine O'Mahony, Owen Jump

How to cite this report: to complete

Introduction- The Partners

Family Carers Ireland (Cork)

Family Carers Ireland is a registered charity emerging from the coming together of two long standing charities of over 25 years in 2016 – The Carers Association and Caring for Carers. Family Carers Ireland have a branch in Cork city, located on Tuckey Street. The Cork branch supports Carers in the immediate Cork and wider surrounding areas by providing advice and information to support Carers and their families. Twice a month, on Wednesday mornings, a group of carers (comprised of current, past and new carers) meet in the Tuckey Street premises to offer support and friendship to one another, as well as to identify and discuss arising opportunities and challenges for Carers locally and across Ireland.

Community-based Participatory Research (PG6025), University College Cork

In 2016, UCC launched its first community-based participatory research module for PhD students. Each year, through a CBPR methodology UCC PhD students and staff collaborate with a different community partner and investigate potential areas of research, or a specific opportunity or challenge encountered by the community partner. Highlighted in the University's Civic and Community Engagement Plan, the module has become an important vehicle for supporting early career researchers to build their participatory research skills and, importantly, to cultivate their sense of agency with regard to their social responsibility. For community partners, the module offers an opportunity for their members to influence and shape research priorities regionally and within the higher education sector. It also aims to build community partners' capacity to assume a leadership position in identifying and beginning to act upon the most pertinent opportunities and challenges facing their organisation and sector.

The Collaboration

In 2019, Family Carers Ireland (Cork) partnered with UCC for the CBPR module. The Family Carers Ireland branch in Cork have an existing structure whereby a group of carers meet every second Wednesday morning. This Wednesday morning group of carers took part in the CBPR module, as community researchers, with UCC. Three staff members from Family Carers Ireland (Cork) also joined the interactions with UCC students and staff.



The CBPR Process

What did we do?

Eight UCC students (from a variety of different disciplines) and 3 UCC staff came to the Cork branch of Family Carers Ireland every second Wednesday for four 2 hour sessions between

February and April 2019. In university-community collaborations it is important to factor in time to build trust and to create an environment where individuals feel that they can express themselves. It is equally important to establish a structure for facilitating the generation and exploration of topics of importance to community participants.

Table 1 indicates how participatory sessions were structured.

Table 1. Typical Structure of Participatory Sessions with Family Carers Ireland

1. Trust building Exercises (examples)

Icebreaker Exercise

What? Ice-breaker in groups of two (1 UCC and 1 Family Carers Ireland). We exchanged our names, something interesting about our names, where we were from and what we hope to get from this collaboration. Following this, each person relayed what they learned about their partner to the wider group.

When? 1st Participatory Session with Family Carers Ireland

Why? To begin to get to know each other, set the group at ease, and familiarise ourselves with peoples' names. The exercise also gave insight as to what individuals and partner organisations wanted/expected from the collaboration.

What? The group listened to Noreen (a staff member at Family Carers Ireland) and Jessie (a UCC PhD student) read aloud a poem entitled 'Then I learned Some More' by Pat Ingoldsby.

When? 4th Participatory Session with Family Carers Ireland

Why? Introducing this poem at this juncture provided an opportunity for participants to reflect on the collaboration, to think about the newly acquired learnings and how best to leverage those



Image A. PhD Student, Jess, reading Pat Ingoldsby's poem in Participatory Session 4.

Poetry Exercise



Image B. *Participants listening to poem being read aloud*

2. Idea Generation and Development Exercises

Guided Group Discussion and Recording of Emerging Ideas and Needs

What? Guided group discussion with key questions (Image C). The questions were created so that participants could find out about each party and why a collaboration between UCC and Family Carers Ireland was forming. In groups, participants answered these questions. Each group reported the key elements to arise from their guided discussion and these were recorded on sheets of paper (Image D).

When? 1st Participatory Session with Family Carers Ireland

Why? Aim was to remove any fears or misconceptions as to why UCC were partnering with the Carers and vice versa. The exercise was the first and very important step in understanding what Carers' needs were and what they wanted to achieve from the partnership.

	Students	Family Carers Ireland
1	What is ***my*** research about?	What is ***my*** connection to Family Carers Ireland?
2	Why do ***I*** have to do courses as part of my PhD?	What do ***I*** get from coming to this carers group every two weeks?
3	Why did ***I*** choose this course?	Why am ***I*** here today?
4	What fears and hopes do *I* have for this collaboration?	
5	What do *I* think we could achieve together	

Image C. *Questions used to guide discussion in Participatory Session*

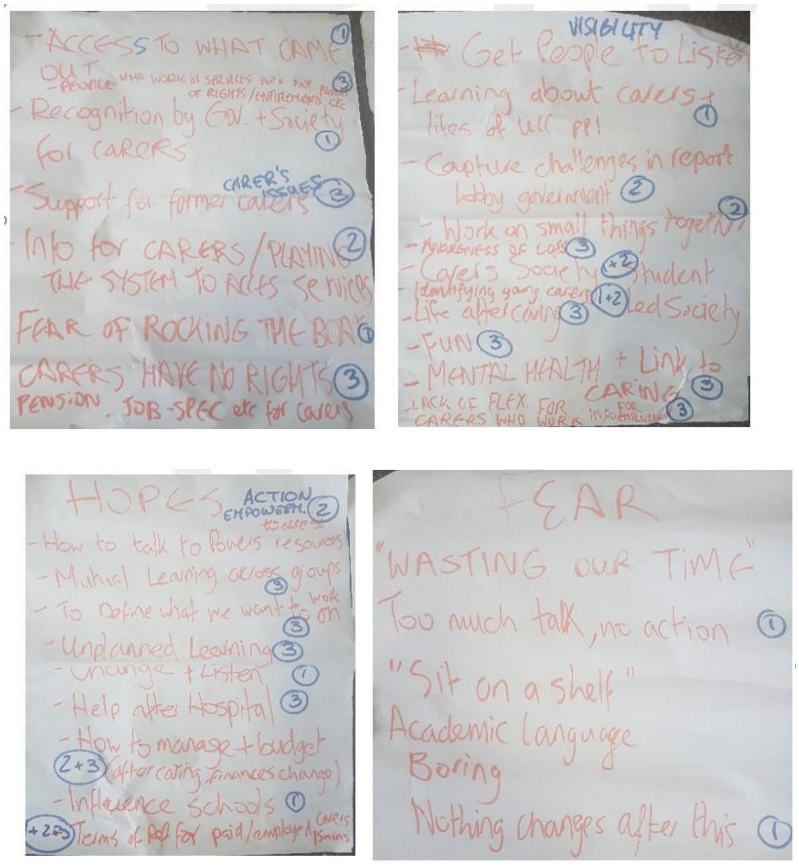


Image D*. Collection of Ideas to Arise from Initial Guided Group Discussions*

Idea Development and Ketso Kit

What? Once the university and community researchers arrived at a point where it was evident that no new topics would emerge and that there were clear topics of importance to the community participants, a decision was made to focus on those topics and establish what direction to bring them in. A Ketso Kit was introduced (Images E and F).

When? 3rd and 4th Participatory Sessions with Family Carers Ireland

Why? The Ketso Kit provided the opportunity to position and prioritise ideas and actions in a visually compelling way. It encouraged participants to think through the key stages and sequencing of their ideas (Images E and F).



Image E. Aoife (PhD students) and Eileen (Family Carers Ireland) add their ideas to the Ketso Kit.



Image F. Ketso Kit where participants developed their concepts in Participatory Sessions 3 and 4.

What did we find out?

Throughout the participatory sessions with Family Carers Ireland, community participants voiced challenges such as *navigating a very bureaucratic, highly disorganised public system to access information and entitlements*. They passionately identified the need for *more support to be made available to all types of carers* and specifically spoke about the role their Wednesday Morning Group could play in organising and offering that support, specifically the creation of map or *journey guide for carers*.

They also frequently talk about *the role of the public health nurse* (PHN) as it relates to their awareness of supports available to carers and how to direct those in caring roles to the appropriate public and other services etc. The group believed that there was a gap in the knowledge and understanding that public health nurses, in particular, have and in addressing that gap PHNs could provide an enhanced level of care.

As the collaboration progressed, the group began to appreciate *the uniqueness and strength of their Wednesday Morning Group*, especially the informal function its members perform in *listening to each other* and *being there to assist* where possible. The group mentioned several gaps in service provision which mean that carers cannot always access support or lean on a fellow carer. For example, there is no 1800 number for carers to call and outside of Family Carers Ireland's operating hours, carers who need to talk, are directed to the services of the Samaritans, which is not fit for purpose. The group articulated the need to make support available and visible to all carers. They called this *Friendtorship* – a blend of friendship and mentorship.



Lastly, the group expressed a keen desire to bring the caring role out of the shadows and into the spotlight. Integrally linked to this was *the role UCC could play in highlighting all that carers do and in signposting where to turn to if one day a person finds themselves 'looking after someone'*. All four of these themes, including how they evolved and developed, are further explored below.

Four themes Identified and Explored:



Arising Themes

Theme 1: Journey Guide for Carers



The Journey Guide for Carers was initially identified as the pathway for carers. This is the expectation that most or all carers will follow a similar path from first steps towards the full realisation that they are a carer, and that they can access support as a result. This was identified by one person in particular, who is no longer in a caring role, but sees their role as 'teaching' other carers, including how to cope after caring. Taking this theme into the second group session we began to hear more stories of how confusing and frustrating the initial stages can be. The 'pathways' suggestion was changed to *Journey*. It was felt that 'journey' represented their experience more accurately. It was difficult to define a specific journey as carers can have very different needs and requirements for services for the person within their care. This led to the idea of a branched pathway that ended up as a circular journey, starting with 'Me' looking after someone and following through on the journey, what help, services, structures and payments are available along the journey. Some carers may be happy with the support they get at the start of the journey, whereas others have greater needs and therefore greater need for support.

Some key ideas proposed were that the *Journey Guide for Carers* could take the form of a poster to be displayed in a wide variety of locations such as: Doctors Surgeries and Clinics; Family Resource Centres, Primary Health Care Centres, Retirement groups, Adult Education Centres, Churches; Post Offices and Banks; Shopping Centres and Supermarkets. This poster could also take the form of a visually appealing graphic to sit on the Family Carers Ireland website and other relevant websites.

Theme 2: Public Health Nurse Awareness and Knowledge of the Role of Carers

The main concept of providing information and education to Public Health Nurses came about from discussions relating to the lack of awareness of the philosophy, ethos and purpose of Family Carers Ireland by the general public and health care professionals. Existing and previous carers expressed disappointment with what they believe was a gap in the knowledge and understanding held by healthcare professionals with regard to the referral process for new carers, and the important role performed by services such as Family Carers Ireland.



It was decided that a priority action would be to investigate how to inform and influence the information and education provided to Public Health Nurses and develop a plan for this so that PHNs are better positioned to support new and existing carers. It was proposed that a document could be circulated to a range of different stakeholders connected to PHNs. These stakeholders included academic staff and students within the University, health professionals in the HSE and local politicians.

Theme 3: Friendtorship Model

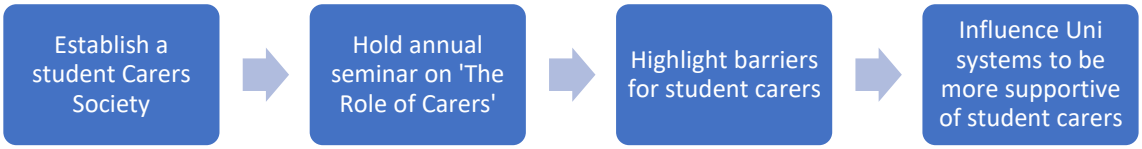
One of the biggest challenges facing a new Carer is access to knowledge, information and support. A new carer faces many information junctures and can become easily overwhelmed by the realities of their new role. Family Carers Ireland CBPR participants reported that they find it challenging to obtain information about state entitlements and other supports. In many cases, new carers work in a caring capacity for years without having knowledge of these entitlements and supports.

At the Wednesday meetings, Carers have the opportunity to share and exchange much of the tacit knowledge that is often difficult to come by. However, new carers may not be aware of the meetings or for a number of reasons find it difficult to attend and engage with the group. An idea emerged for a type of mentorship system, where experienced carers could befriend new carers with the intention of easing them into the Family Carers Ireland group.

A term that emerged was 'Friendtorship', a combination of friendship and mentorship. A Friendtor is not an expert or a qualified counsellor, rather a peer who has experience as a Carer. If a Friendtorship model was developed, new carers could be matched to a volunteer living close to the new carer, for example. It was important to the community participants that the proposed Friendtorship Model be mindful of the limited availability carers have. The proposed Friendtorship Model would show newcomers the ropes, ensure that they have a friendly point of contact and feel comfortable joining group discussions. The usual points of contact that a new Carer has are through GP visits and home visits by a Public Health Nurse. Information about Family Carers Ireland and the value of the Friendtorship model could be provided at these and other important contact points. Leaders of the Friendtorship model could also link up with and learn from buddy-systems developed in similar organisations.

Theme 4: Awareness and Visibility of Carers in UCC

The fourth theme to emerge from the collaboration relates to creating greater awareness and visibility of carers in UCC. Community researchers called for UCC, and higher education institutions (in part because their readymade sub-communities) in general, to play a greater role in raising awareness of what it is like to be a Carer in Ireland today. There was a concern for students who may not identify as carers, seeing themselves as performing a dutiful role or simply looking after their mother or sibling, for example. The manager of Family Carers Ireland (Cork) said he repeatedly hears from young people who struggle owing to the dual demands of being both carer and student and in many cases are forced to delay their education (in part because of the rigidity of higher education system) indefinitely. Carers participating in this research process had some ideas with regard to how to bring this theme forward, such as:



Conclusion

The research collaboration with Family Carers Ireland helped to identify what opportunities and challenges were most important to a key group of individuals who perform caring roles and regularly access the supports and structures provided by the Family Carers Ireland charity. What became evident throughout the course of the partnership was that many of the themes and ideas of importance require the support and leadership of others in addition to those engaging from Family Carers Ireland. The innate need for leadership and input from a range of areas speaks to the gaps in service provision and support currently available to carers, specifically the group that participated in this research. A further reason the community participants identified to need for support to pursue the identified research topics relates to the demanding role carers perform and the challenges they continuously encounter in attempting to access information and rights.

Before completing the research collaboration between PG6025 students and Family Carers Ireland, contact was made with many of the identified areas of work listed above. UCC CARL was considered an important unit within UCC to support any potentially promising research areas. Specifically, UCC CARL would be vital for supporting emerging projects from key individuals in, for example, Digital Humanities and Public Health Nursing who have expressed interest in pursuing some of the themes to arise from this CBPR collaboration.

Some of the themes and sub-themes have a natural fit to be further pursued as research projects. Not all of the topics raised by the Family Carers Ireland participants are appropriate for further exploration by researchers. For topics such as *raising awareness and visibility of carers in UCC*, community researchers hoped to bring more attention to the role of carers and specifically to enhance the educational experience of student carers. To make progress on this theme, contact was made with key internal areas in UCC (listed above) many of which saw the merit in developing a coordinated plan for the University to support student carers (and generally raise awareness of carers). This theme requires further thought with Family Carers Ireland and a 'town hall' meeting with all the relevant stakeholders may be a strong first step to identify the best route forward.

Appendix E

The following report forms part of PG7018 Special topics module in UCC, subtitled *Guerilla Tactics for Research Dissemination,* based on strategies from the advertising industry.

After completing a number of primer exercises, participants were asked to consider a final project on a selected topic related to their research area.

Participants were asked to think about what is the single most compelling thing about their topic that needs to be communicated visually (and verbally). What data/ knowledge/ information can be shared that might be new or surprising and why is this topic so important to the participant personally?

Typical (or most desired potential) target audiences were to be identified.

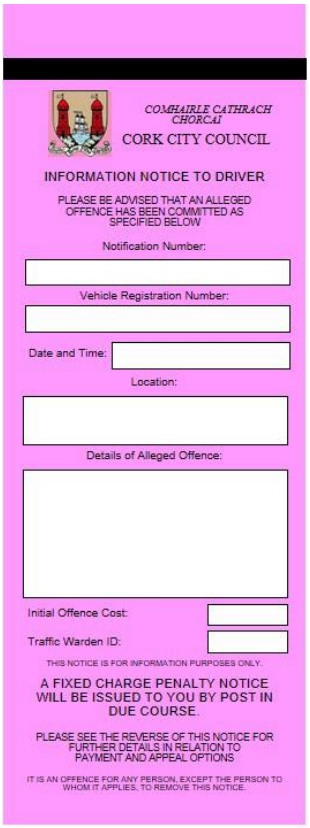
When the audience thinks about the topic, what do they think? Is this topic completely unknown? How will the research topic info be received?

The report is included here to highlight a particular educational approach for design students and is aimed at the key audience of design educators.

PG7018 Guerrilla Tactics in Research, UCC, April 2020

Kevin Busby, Student Number 115221069

1. The prototype of the fake parking ticket compared with the original


COMHAIRLE CATHRACH CHORCAÍ
CORK CITY COUNCIL

INFORMATION NOTICE TO DRIVER

PLEASE BE ADVISED THAT AN ALLEGED OFFENCE HAS BEEN COMMITTED AS SPECIFIED BELOW

Notification Number:

Vehicle Registration Number:

Date and Time:

Location:

Details of Alleged Offence:

Initial Offence Cost:

Traffic Warden ID:

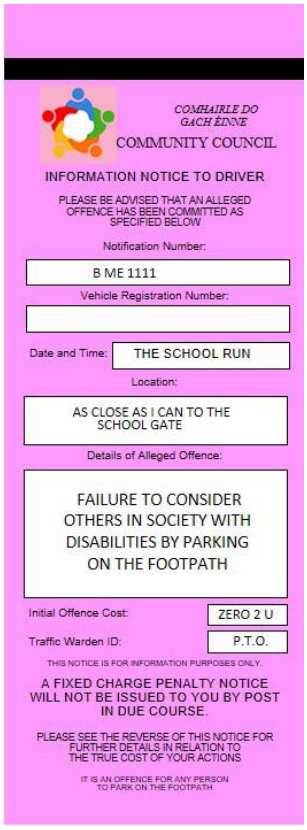
THIS NOTICE IS FOR INFORMATION PURPOSES ONLY.

A FIXED CHARGE PENALTY NOTICE WILL BE ISSUED TO YOU BY POST IN DUE COURSE.

PLEASE SEE THE REVERSE OF THIS NOTICE FOR FURTHER DETAILS IN RELATION TO PAYMENT AND APPEAL OPTIONS

IT IS AN OFFENCE FOR ANY PERSON, EXCEPT THE PERSON TO WHOM IT APPLIES, TO REMOVE THIS NOTICE.

Original ticket (facsimile)


COMHAIRLE DO GACH ÉINNE
COMMUNITY COUNCIL

INFORMATION NOTICE TO DRIVER

PLEASE BE ADVISED THAT AN ALLEGED OFFENCE HAS BEEN COMMITTED AS SPECIFIED BELOW

Notification Number: B ME 1111

Vehicle Registration Number:

Date and Time: THE SCHOOL RUN

Location: AS CLOSE AS I CAN TO THE SCHOOL GATE

Details of Alleged Offence: FAILURE TO CONSIDER OTHERS IN SOCIETY WITH DISABILITIES BY PARKING ON THE FOOTPATH

Initial Offence Cost: ZERO 2 U

Traffic Warden ID: P.T.O.

THIS NOTICE IS FOR INFORMATION PURPOSES ONLY.

A FIXED CHARGE PENALTY NOTICE WILL NOT BE ISSUED TO YOU BY POST IN DUE COURSE.

PLEASE SEE THE REVERSE OF THIS NOTICE FOR FURTHER DETAILS IN RELATION TO THE TRUE COST OF YOUR ACTIONS

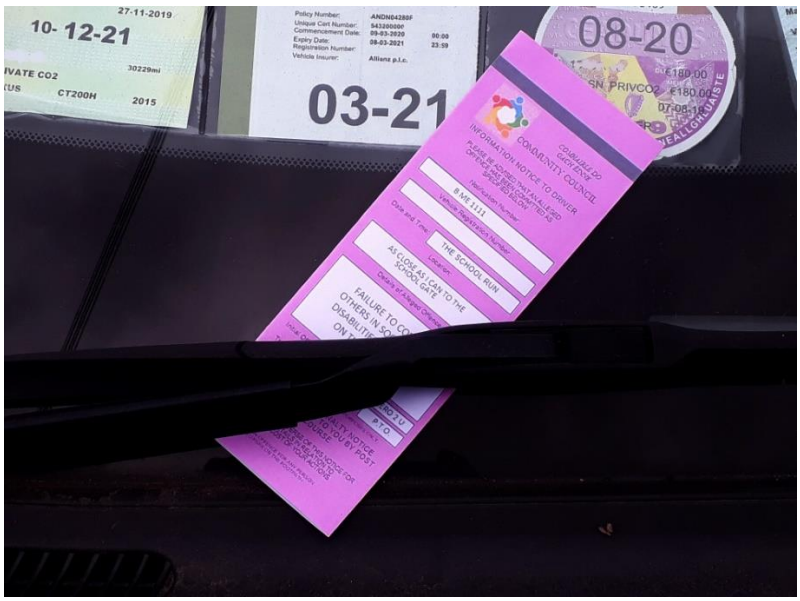
IT IS AN OFFENCE FOR ANY PERSON TO PARK ON THE FOOTPATH

Front of fake ticket *(be me for once)*



Reverse of fake ticket

2. Close up view



3. Wider shot



4. Interactive shots





5. Rationale for the work.

The lives of thousands of disabled people are compromised every day in Ireland by the actions of inconsiderate drivers and cyclists, blocking the footpaths and forcing them onto busy roads. Such ignorant behaviour also affects many others in society such as parents with young children and the elderly, for whom any obstacle in the external environment can put them in danger of a fall. Some are so affected that they fear to travel on foot through the city centre and remain the 'invisible', at home. It is unlawful in Ireland to park on the footpath but there is an absence of enforcement. My campaign is to help to make it socially unacceptable to park one's vehicle or leave any form of obstacle on the footpath, as unacceptable as it now is to smoke in public, for example.

6. Target Audience

   The target audience for this promotion is the general public, all of whom are road-users. I would particularly target those parking on the footpath outside schools, who are repeat offenders and possibly unaware of the inconvenience they are causing. By using the fake City Council parking ticket I would also like to bring the problem to the attention of the people who should be carrying out the enforcement.

7. Location

   My guerrilla style promotion is not site-specific but will respond to instances of inconsiderate parking, of which there are many. This is particularly prevalent outside suburban and city-centre schools at certain times of the day. It can also occur when there is a large event in one of the city parks or stadia. People will park where they want, often blocking long stretches of footpath in residential areas, trapping the disabled occupants within their homes.

8. Concept

   My guerrilla concept is to create a fake parking ticket. The ticket would look similar to the ones issued by the city traffic wardens but, on closer inspection would contain an appropriate message. Messaging would be centered around shaming the perpetrator and the reverse side of the label, rather than listing the rules and regulations, would show silhouettes of the type of people affected by their actions. Additional simple messaging will be included that encourages us all to be more considerate.

9. Feasibility

   The prototype is very easy to make, requiring only white printer paper and a printer. The design is created in MS PowerPoint for both the back and front of the ticket and multiple copies can be printed both sides. Multiple copies of the finished ticket can then be issued to the many disability groups across Ireland. I feel that they would be only to happy to highlight this problem whenever they come across it as it affects their daily lives. The logo I have used on the front of the fake ticket is that of the Disability Federation of Ireland who actively campaign on disability issues (though I have not yet asked their permission as this is still a prototype). Parts of the front of the ticket could be left blank, such as location, and then filled in by the campaigner before being placed in-situ. Alternatively a number of templates of standard situations could be made such as: the school run; the delivery driver; the event in the city park etc.

10. Self-reflection

Firstly I want to reflect on why I chose this module. I was initially taken by the image of the parking space marked out around a tree and labelled ‘space reserved for drunk drivers’. This appealed to my ironic sense of humour and to its use of word-play and manipulation of image. The clear message of this blunt put-down is unequivocal. The texts we were asked to read were insightful and the exercises enjoyable, almost playful – particularly the Mystery Bag Challenge.

As an architect and lecturer I am actively involved in designing, and helping students to design, multi-generational homes and neighbourhoods. Through my research I have learned that, with reduced mobility and heightened fear of surroundings, elderly people’s experience of living in urban environments tends to depreciate. This also applies to the disabled and yet cities are for all, both in terms of age and ability, and all users should be considerate of others. For the elderly the fear of falling is paramount as the consequences can be life-limiting. For the disabled it is simply frustrating and infuriating to have their mobility impeded by an external influence.
Ireland is a champion for the cause of Universal and Barrier-free design but the indiscriminate and inconsiderate blocking of footpaths with cars, bins, bikes, etc. is fairly common.
Driving a car is empowering and convenient and I suspect there is a certain arrogance amongst some drivers about their ‘right to park’ where they want. It is more disappointing when cyclists break red lights or cycle on the footpath as they are seen, and see themselves, as considerate by not driving (i.e. not polluting).
There will be some ‘offenders’ who could not care less about their actions but, I suspect that the majority do not realize the effect they are causing to others and a subtle shaming campaign could work to help change their attitudes. My experience of parking tickets – a handful over decades of driving (and never for being on the footpath) - is a mixture of annoyance and shame, though I’m sure many other road–users are not so contrite.
I like the fact that the prototype is very easy and economical to produce in large numbers and that it can be easily transported. I feel it is appropriate that the people from the disability groups who I propose to distribute the ‘fines’ are the people most affected and I am sure they would be willing participants.
I work with the *Irish Guide Dogs for the Blind* charity, helping them with Universal Design issues in schools. I will bring my prototype to their attention at our next meeting and, who knows what may transpire.

Appendix F

The following examples of briefs and advice for students have been delivered since 2010, initially in MTU and, more recently in CCAE.

The inclusion of this information attempts to highlight best-practice methods for infusing Universal Design into the curriculum. It is aimed at the key audience of design educators.

MUNSTER TECHNOLOGICAL UNIVERSITY

INTERIOR ARCHITECTURE PROJECT BRIEFS

Year 1 – Design Studio Process

Project: 1

Title:	**Anthropometrics and Ergonomics**
Learning Outcomes:	On successful completion the learner will be able to… 1. Demonstrate an understanding of human dimensions and human interaction.
Timetable:	2 weeks

Introduction: This project is an introduction to the theme in design studio for the second semester – human form in space.

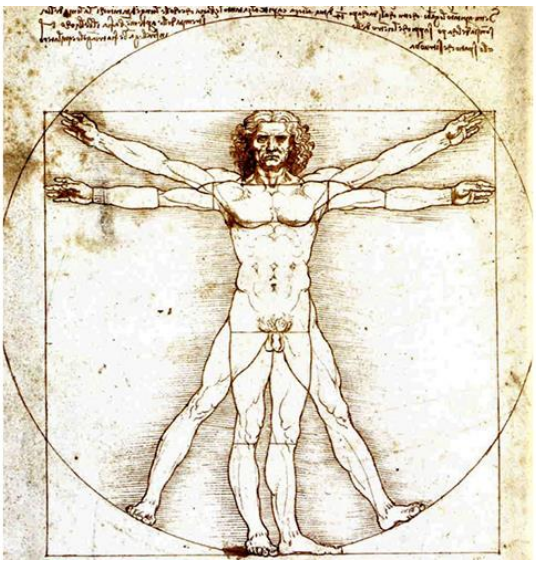


Image from????

Anthropometry is the scientific measurement and collection of data about human physical characteristics and the application of this data in the design and evaluation of ..human-made environments, and facilities.

Ergonomics derives from two Greek words: ergon, meaning work, and nomoi, meaning natural laws. Combined they create a word that means the science of work and a person's relationship to that work.

In application ergonomics is a discipline focused on making environments, products and tasks comfortable and efficient for the user.

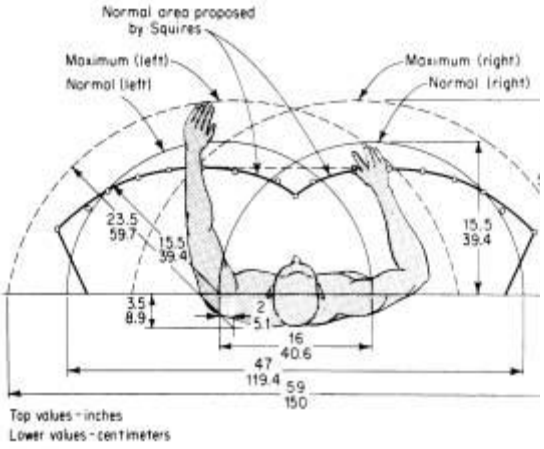


Image from ????

Project task:

Stage 1: if possible, measure the people you are currently living with and ask them to help to measure you based on the **19 measurements listed below**.

Stage 2: share information with your assigned group members (listed below) to carry out research on the human form and the dimensions of the everyday space we inhabit. Using measuring tapes and sketchbooks you are to produce drawings indicating a comprehensive anthropometric study and analysis of **each group member's** form.

Stage 3: You are also to research the dimensions of everyday domestic details that the human form is subject to. For example: width/height of doorways, location of door and window handles, dimensions of steps on stairs, dimensions of beds, chairs, kitchen and sanitary facilities.

Your PDF folder should include research on historical sources for human dimensions such as "Vitruvian Man" and Le Corbusier's "The Modular". Other systems to consider are the Japanese 'jo' unit based on the Tatami mat and also ancient systems based on the human body such as the cubit.

Presentation:

You are each to present in the following format.

- PDF commencing with 3-pages of dimensions of group members using innovative graphics, charts, tables etc. The rest of the folder should include your research work on historical sources and domestic detail dimensions.

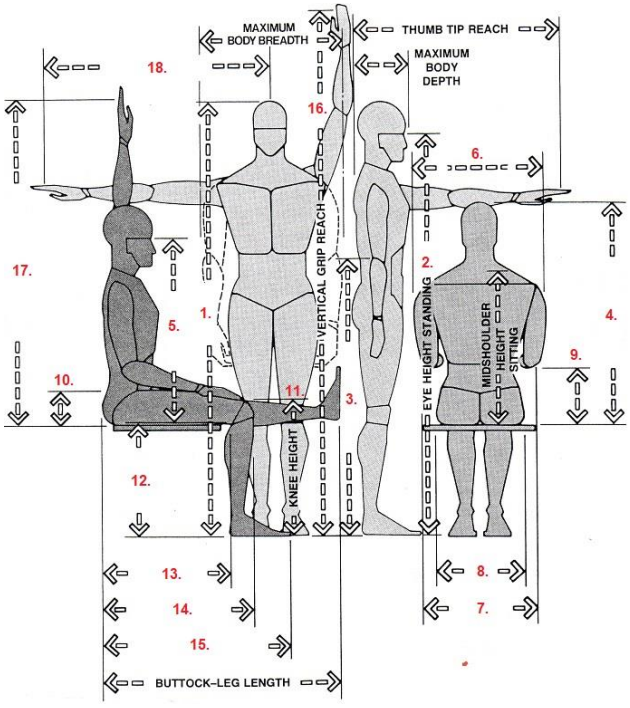


Image courtesy of Human Dimensions in Interior Space by Julius Panero et al.

		WHERE TO MEASURE	WHY
1	**STATURE**	Human height (stature) is the distance from the bottom of the feet to the top of the head, standing fully erect.	for establishing minimum heights of openings & doors, and minimum heights of overhead obstructions.
2	**EYE HEIGHT (STANDING)**	Vertical distance from the floor to the centre of the eye	for establishing sight lines in theatres, auditoriums. Also for determining unobstructed views through windows.
3	**ELBOW HEIGHT**	Vertical distance from the floor to the underside of the elbow	for determining dining and work-surface heights
4	**SITTING HEIGHT**	Vertical distance from the sitting surface to the crown (top) of the head.	for establishing clearance between seat and overhead obstacles e.g. bunk beds.
5	**EYE HEIGHT (SITTING)**	Vertical distance from the floor to the centre of the eye, when seated.	for establishing sight lines in theatres, auditoriums. Also for determining unobstructed views through windows.
6	**SHOULDER BREADTH**	Maximum horizontal breadth across the shoulders, measured to the outside of the deltoid muscles.	Allowances for seating around tables, row seating in theatres etc. Basically the distance between vertical planes.
7	**ELBOW-TO-ELBOW BREADTH**	Distance across the outside surfaces of the elbows measured with elbows resting lightly against the body and forearms extended horizontally.	Allowances for seating around tables, row seating in theatres etc. Basically the distance between vertical planes.
8	**HIP BREADTH**	Maximum horizontal breadth across the hips, measured in the sitting position.	clearance at seat level.
9	**SITTING ELBOW-HEIGHT**	Vertical distance from the seat surface to the underside of the elbow	Height of armrests; important reference datum for the heights of desk tops, etc., with respect to the seat.
10	**THIGH CLEARANCE**	Vertical distance from the seat surface to the top of the thigh at its thickest point, generally where it meets the abdomen.	Clearance required between the seat and the underside of tables, etc.
11	**KNEE HEIGHT**	Vertical distance from the floor to the top of the knee	Clearance required between the seat and the underside of tables, etc.
12	**POPLITEAL HEIGHT**	Vertical distance from the floor to the popliteal angle at the underside of the knee where it joins the lower leg.	Reach dimension defining the maximum acceptable height of a seat
13	**BUTTOCK POPLITEAL LENGTH**	Horizontal distance from the back of the buttocks to the popliteal angle, at the back of the knee.	Reach dimension, which also defines maximum acceptable seat depth
14	**BUTTOCK KNEE LENGTH**	Horizontal distance from the back of the buttock to the front of the kneecap.	Clearance between seat back and obstacles in front of the knee
15	**BUTTOCK TOE LENGTH**	Horizontal distance from the back of the buttock to the tip of the toe.	Clearance between seat back and obstacles in front of the toe.
16	**VERTICAL REACH HEIGHT**	Height above the floor surface of the tip of the middle finger when the arm is extended vertically while standing.	Location of overhead controls, buttons, storage shelves etc.
17	**VERTICAL REACH HEIGHT (SITTING)**	Height above the sitting surface of the tip of the middle finger when the arm is extended vertically	Location of overhead controls, buttons, storage shelves etc.
18	**SIDE ARM REACH**	Distance from the centre line of the body to the tip of the middle finger when the arm is extended horizontally while standing.	Location of controls, buttons, storage shelves etc. to the side.
19	**FRONT ARM REACH**	Distance from the back of the upper body to the tip of the middle finger when the arm is extended horizontally while standing.	Location of controls, buttons, storage shelves etc. to the front.

Year 1 – Design Studio process Project: 2

Title:	**Student housing Project**
Learning Outcomes:	On successful completion the learner will be able to… 2. Describe design intentions and undertake formal and spatial organization as a response to the needs of users. 3. Demonstrate the development of a design process through stages of research and analysis through outline design to detailed design.
Timetable:	five weeks

Introduction: This project is an introduction to the theme of the second semester – human form in space. With sustainability and economy in mind there has been a growing trend in recent years for efficient modular housing units. One particular area of the market is for the design of efficient student housing

Project task: Having completed your initial research on anthropometrics and ergonomics, you are to undertake the following task: CIT has acquired some land adjacent to the Bishopstown Campus where it intends to develop a student village of modular living units. Working individually you are to design the interior of one living unit based on the following internal dimensions:

- A **3.3m cube**.
  You should include the following in your design proposal: design of furniture, fixtures and fittings (including lighting) and choice of finishes to all surfaces. Consider what is essential for a self-contained living/eating/sleeping/toilet space. You can assume that communal facilities for laundry/refuse disposal are located in a nearby unit. Concentrate on ways of maximizing space by **designing** fold-out, pull-down furniture and fittings, and **utilizing the full height available**. One wall of the unit will contain a door and possible window. Consider where else to put windows but **no roof lights are allowed** as the units may be stacked on top of each other.

  You should start by making draft scale models and drawings of the chosen shape. You should also research micro houses and furniture pieces that are considered space-saving. Throughout the project keep in mind the research you have done on the human body and how it informs your design proposals.

Year 1 – IA Design Studio Process Project: 3

Title: **Accessible Apartment Project**

Learning Outcomes: on successful completion the learner will be able to…

- Describe design intentions and undertake formal and spatial organization as a response to the needs of users
- Demonstrate the development of a design process through stages of research and analysis (including context and precedents) to outline design and from outline to detailed design.
- Demonstrate the integration of constructional and environmental strategies within an outline design and in the detailed design of selected elements.

Timetable: 6 weeks

Introduction:

This project continues the theme of the second semester – human form in space. Aside from aesthetic considerations there are a number of factors that influence design decisions. As with sustainability, the topic of universal design is also becoming increasingly pertinent when considering design. It is not limited to the wheelchair-bound but affects a much larger section of society including the infirm, the elderly and those who care for the disabled, pregnant women and parents with small children. Flexibility in the use of space to suit the needs of different users can be addressed by following good **universal design** practice. Another aspect that requires investigation is the design of kitchen spaces. The kitchen can be seen as the workplace of the house and requires great attention to detail to ensure that it functions efficiently.

Project task:

You are to design an apartment layout for a professional couple aged around 30 who work in the city centre and are expecting their first child. The clients have parents in their sixties living in West Cork, one of whom uses a wheelchair. The space needs to be divided into at least two double sleeping compartments, one accessible bathroom (min.), living space, kitchen and dining, entrance lobby and utility space (allowing for a washer/dryer and hot press). Adequate provision should be made for storage throughout. The apartment should accommodate up to 4 people even though the average occupation is 2. Bicycles and large bins are stored in the car park.

Stage 1: **Housing precedent**. For the first week of the project you are to study a house from a number of housing precedents. You are to produce written research on the house and its designer, including other similar works by that designer. This research will form part of your Design Development folder.

Stage 2: **Kitchen Design**. The second week of the project will be spent in researching kitchen design under the following headings:

- Plan types
- Dimensions and ergonomics – the work triangle/accessibility
- Finishes – countertop/units/doors/wall/floor.
- Appliances – Rating/appearance/built-in/countertop

This research will also form part of your Design Development Folder.

Stage 3: **Apartment Design**. You will be provided with a sketch plan of the space, which forms part of the floor of an apartment building in Cork City. You should consider ergonomic accessibility, aesthetic considerations and sustainable solutions.

Your design should respond to the urban lifestyles of the user. Your design should take into account:

Legislation - What are the current Irish and European regulations relating to accessible design?

Space Requirements and ergonomics **/**Anthropometrics

Bathroom design: type and height of appliances, materials, access and transfer via wheelchair & level entry.

Entrance and circulation space: Building regulations for wheelchair access. (Part M). Lifetime homes standards. CEUD guidelines.

Bedroom design, turning circles for wheelchair.

Note the design for accessibility should not stigmatize the user. The user preference is to have a design that is accessible without the need for specialist interventions.

Particular attention should be paid to **orientation**. Note where the sun rises, where it is at noon and where it sets. How does this affect the placement of the different types of spaces within the apartment? Which spaces benefit from sunlight and at which times of the day?

The following sources may be helpful:

- National Disability Authority (2002), *Buildings for Everyone*, NDA, Dublin
- Lifetime Homes Standards (2010), Habinteg.
- David Adler (1999), *Metric Handbook*, Architectural Press, Oxford.
- Julius Panero, Martin Zelniik (1979), *Human Dimension and Interior Space*, Architectural Press, London

Useful websites include:

www.nda.ie

www.designcouncil.org.uk

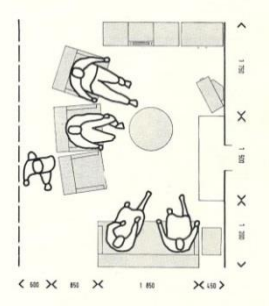
www.environ.ie

Cork Centre for Architectural Education

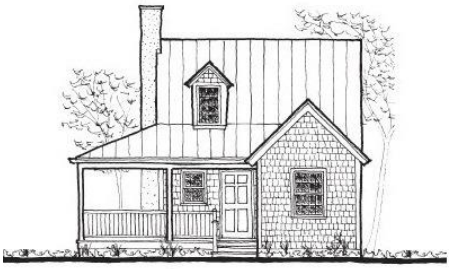
Year 2 Architecture 2015-16

Semester 2. Project 2

Mon.25/01/16 - Fri. 29/02/16



Space in the Home



Tiny house plans catalogue



Aalto *Villa Mairea*

Family and Home

For the next two weeks you will undertake a spatial and dimensional analysis of home. For the first week you are asked to investigate how the network of relationships and patterns of behavior that make up the 'family' affect and are influenced by the nature of the dwelling spaces that are described as 'home'.

Your task for week one is to consider these many relationships and patterns, both apparent but often invisible and unconscious to us in the familiar setting of your family home.

Initially you are to describe the layout of the home both in plan and section, which will be drawn up in AutoCAD at the end of the second week. Using initial drawings as a base, together with sketches and photographs where appropriate, you are asked to consider and comment graphically on the following:

Aspect and Prospect	Comfort and Necessity
Approach and Threshold	Security and Vulnerability
Hard and Soft external space	Light and Shade
Envelope and Openings	Interaction and Retreat
Horizontal and Vertical Circulation	Workspace and Play-space
Public and Private space	Neighbourhood and Environment

When considering the above, do not limit your analysis to a fixed use of space but also to how finite space is adapted over time with the changing needs of the family. How do you indicate emotional responses to space, both positive and negative?

As a conclusion to your analysis you should propose possible changes/adaptations that could be made to the family home when occupied by one elderly member of the family.

Cork Centre for Architectural Education



Year 2 Architecture 2015-16

ARCH2005 Project 5

Wed.17/02/16 - Thu. 14/04/16

Housing

INTRODUCTION & OBJECTIVES

Urban housing must address how people can live across a variety of scales – from the private domestic interior, to the public realm of the neighbourhood, to the city at large – and how, importantly, these realms connect and establish relationships with each other. In the context of Cork City Centre, you are asked for an intervention which will reconcile the needs of the community with those of the individual: how your scheme, through form, space and function, can improve the existing living environment. Accordingly, throughout the project you will be asked to respond and analyse housing projects (including your own) at micro and macro scales.

You should also carefully consider the following: How can the design of your individual units allow privacy yet connect to the external world and each other: issues of threshold and overlap between public, semi-public and private spaces? How do units admit light (what kind of light?), relate to views/aspect/topography (all units must be dual aspect) and create private external open spaces. Consider also how the materials and structure you use can not only shape how your design develops but also have an effect on a wider environment. Of crucial importance is the design of units which are flexible/ adaptable to accommodate different types of occupants with different working, living and leisure demands for the period of their lifetime. This relates to issues of accessibility for the elderly or disabled which must be addressed accordingly to the official guidelines listed below.

Successful urban housing also reconciles the needs of quality with those of quantity. Increased density in urban sites tends to mean the creation of more sustainable forms of settlement partly because it allows addition of non-residential community functions such as residents' meeting rooms, crèches, multi-functional spaces, work rooms or even small shops. Careful consideration should be paid to the density and what if any of the community facilities are appropriate for your particular site. Note that the key element within this project is the housing and a study of local amenities will inform whether these community facilities are relevant for your site. The intended focus of the project is the housing units. The provision of external space both private and public is an essential consideration. Also include the provision of parking for each unit. Refer to the Cork City Development Plan Chapter 17 for parking ratios, plot ratios and guidance on the provision of open space.

The sites for the project are located on the hill to the south of the Sullivan's Quay and George's Quay area studied in semester 1.

Project Timetable

17/02/16 Introduction to sites and site selection

Week 7 22/02/16

Site Strategy: Individually you are asked to respond strategically to the site within the city using 1:200 block models and concept sketches**.** In addition to issues recorded last week, consider the **density, typology and layout of units on the site**. Produce a series of sketches and block models that explore a **range of options**. Test your various options by placing them on 1:200 context models.

26/02/16 Why densification? lecture followed by review of models, drawings on Fri.10.30am

Week 8 29/02/16

Circulation, communal spaces and threshold: Develop your design through the use of plans and section, overlay and hard-line drawings at 1:100

Consider the role of the street, definition between public, semi public and private spaces, how do you create a shared circulation space that is pleasant and safe? Consider pedestrian access and appropriate levels of access and permeability. How do you integrate parking, walking distances from car, vehicular access and circulation? Consider different approaches vertical circulation; sizes and arrangements of lifts and stairs, differing approaches to access, deck or core? **(Deck access**: number of positions of lifts/stair cores, size of deck, deck as meeting point, social space, thresholds spaces, relationship between the unit room and the deck and appropriate fenestration. **Core access**: number and mix of units per core or per floor, day-lighting, views and shared circulation space.)

Consider boundary treatments between your proposal and adjacent buildings and also the boundary treatments between adjacent units on the site. Consider ideas and functions for spaces that facilitate meeting and exchange. Consider families with children and how you might provide safe spaces to play. Always consider the quality of the spaces provided and note that all these considerations will impact on the number and layout of units on the site.

Week 9 07/03/16

The Unit: Models and drawings, plans & sections 1:50, 1:20

Qualitive: Quality of living environment, the character of the space, materials internal organisation to create units of a particular character, could be informed by site characteristics, for example the levels or views. Is the unit single or dual aspect?

Quantitive: Take into consideration space standards such as the **London Housing Design Guide.** Consider basic internal planning: dimension of hallways, width and pitch of stairs, usable room widths, use zones within rooms, door positions, sizes and appropriate positions for furniture etc. Private external spaces: Threshold buffer zones, balconies, winter-garden, roof terraces, rear gardens, relationship to internal rooms, orientation, privacy.

Week 10 14/03/16

Building form façade and materiality: Creation of an overall identity for the scheme, the reading of the scheme as a whole while still allowing a sense of identity/ identification of the individual unit. Materials external elevations, Sectional models & drawings 1:100, 1:50, 1:20

Week 11 04/04/16

Design development 1:50, 1:20. Commence hard-line drawings 1:100, 1:50, 1:20, models options at 1:200, 1:100, 1:50, 1:20.

Week 12 11/04/16

Development of design and presentation drawings, how do you tell the story of your project, the site the building as a whole and the unit, how can these be communicated through the use of diagram as well as drawing?

Final Review 14/04/16, Visiting critics

You should reflect on how you addressed issues arising here in the domestic space you explored in Year 1. Last semester's history course (AT2004) also offers direction for studying and analysing precedents of housing and also your recent city survey projects, field trip experience and precedent studies. Use the library to supplement these references.

Dwellings may be of one / two- and three-bedroom units. 50% of the units provided should be three-bedroom family homes. Listed below are a number of references that will act as a guide in determining the area of units. You will notice there are variations between these, depending on their context. We would recommend that you work to the DoE guidelines for individual unit areas and dimensions. **Always remember that these are a guide and should not restrict your investigation into alternative ways of how we might live.**

The number of units required on the sites could be determined by the planning standards for the area, (current medium to high density in certain inner suburban areas of between 80-120 units per hectare (1 hectare = 10,000sq.m.) **However it would be more beneficial to develop an understanding of the density levels in the immediate surroundings and investigate the combination of different unit sizes and typologies to determine what you believe to be an appropriate density level for your site.**

Reference publications on sizes and density include:

- **DoE standards**
- **London Housing Design Guide**
  www.designforlondon.gov.uk/uploads/media/Interim_London_Housing_Design_Guide.pdf
- **Neufert or AJ Metric Handbook** (for general dimensions).
- **Cork City Council Development Plan** 2004 (esp. Development Control Standards) www.corkcity.ie
- **Social Housing Design Guidelines and Guidelines for Local Authorities on Residential Densites**

Qualitative and innovative approach to housing:

Title: **Housing Design: A Manual**
Author: Bernard Leupen, Harald Mooij
Publisher: NAI Publishers

Title: **Flexible Housing**
Author:Tatjana Schneider and Jeremy Till,
Publisher: Architectural Press

Title: **Modern Housing Prototypes**
Author: Roger Sherwood
Publisher: Harvard University Press
(There is also a very useful website http://www.housingprototypes.org. Both take you through different typological approaches.)

Title: **Floor Plan Manual**
Author: Friederike Schneider,.
Publisher: Birkhauser (Provides plans, sections, elevations and commentary under different typological headings.

Title: **In DETAIL: Semi detached and Terraced Housing**
Author: Christian Schittich
Publisher: Birkhauser

Title: **In DETAIL: High Density Housing**
Author: Christian Schittich
Publisher: Birkhauser

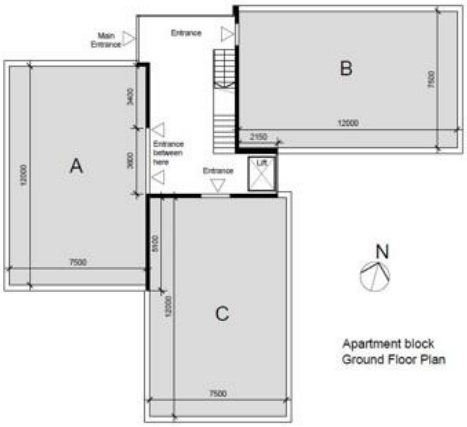
Title: **New Alternatives, New Systems**
Author: Housing.
Publisher: Manuek Gausa,
New innovative housing schemes from exemplary practitioners

Title: **New Urban Housing**
Author: Hilary French,.
Publisher: Laurence King Publishing

Title: **Modernity and Housing**
Author: Peter G.Rowe
Publisher: MIT Press

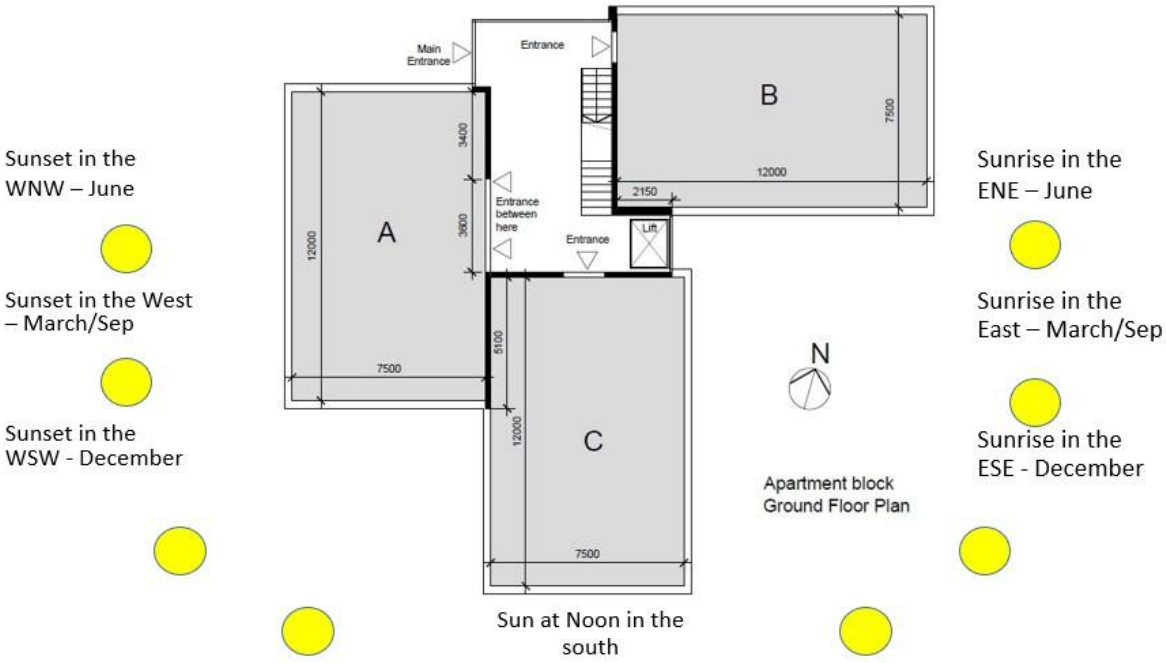
Accessille apartment guidance notes for students

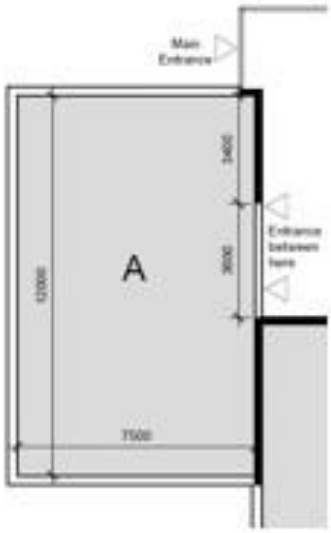




IA 1 Accessible Apartment Project – Part 1. Introduction

Online Instruction, March – April 2022





Apartment **A** is adjacent to the main pedestrian entrance to the north.
It has **one** long internal wall, **one** long external wall facing west and **two** short external walls facing south and north respectively.

There is an option for placing the 1m wide entrance door somewhere within a 3.6m zone on the wall to the communal entrance lobby.

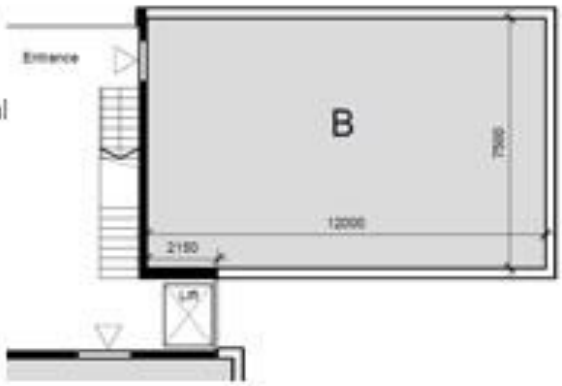
Apartment **A** enjoys afternoon and evening sunshine.

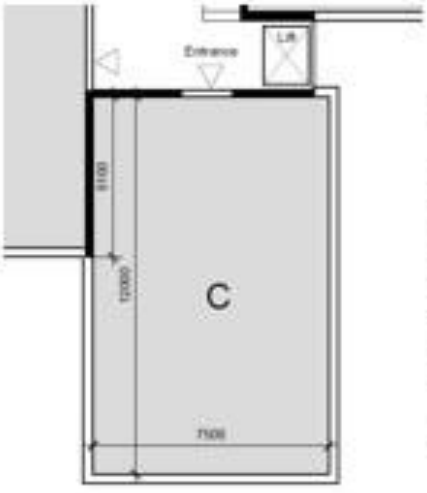
Apartment **B** is opposite to the main pedestrian entrance doors to the communal lobby.

It has **one** short internal wall, **one** short external wall facing east and **two** long external walls facing south and north respectively.

The 1m wide entrance door is located in the top-left corner of the plan.

Apartment **B** enjoys morning and some early afternoon sunshine.





Apartment **C** is furthest from the main pedestrian entrance doors to the communal lobby.

It has **one** short internal wall, **one** short external wall facing south, **one** long external wall facing east and **one** remaining wall is partly internal and partly external facing west.

The 1m wide entrance door is located in the **centre** of the short internal wall, adjacent to the lift which serves the upper floors.

Apartment **C** enjoys sunshine for most of the day.

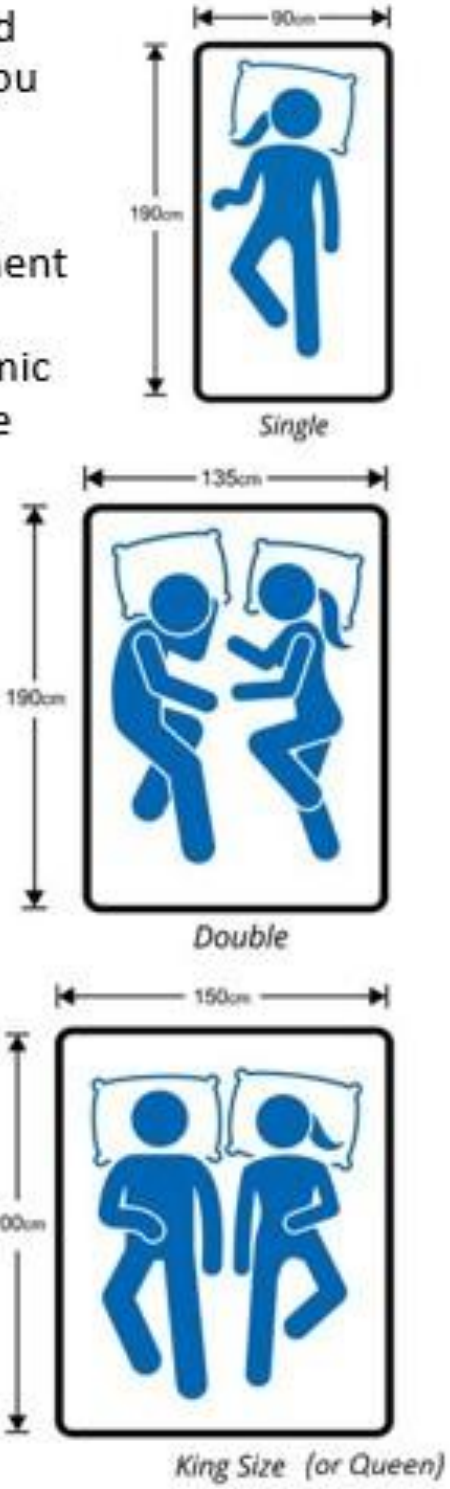
You should now have decided which of the 3 apartments you intend to design.

A useful way to continue the development of your apartment design is to look back on the anthropometric and ergonomic studies you carried out at the beginning of the semester.

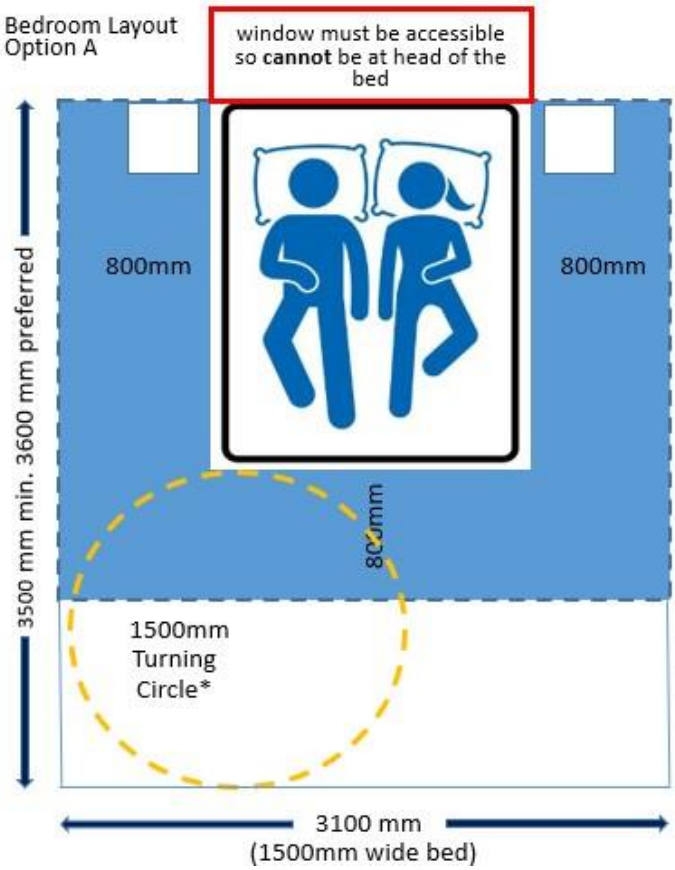
Let's start with what constitutes an accessible bedroom. The Building Regulations Technical guidance Document part M is useful

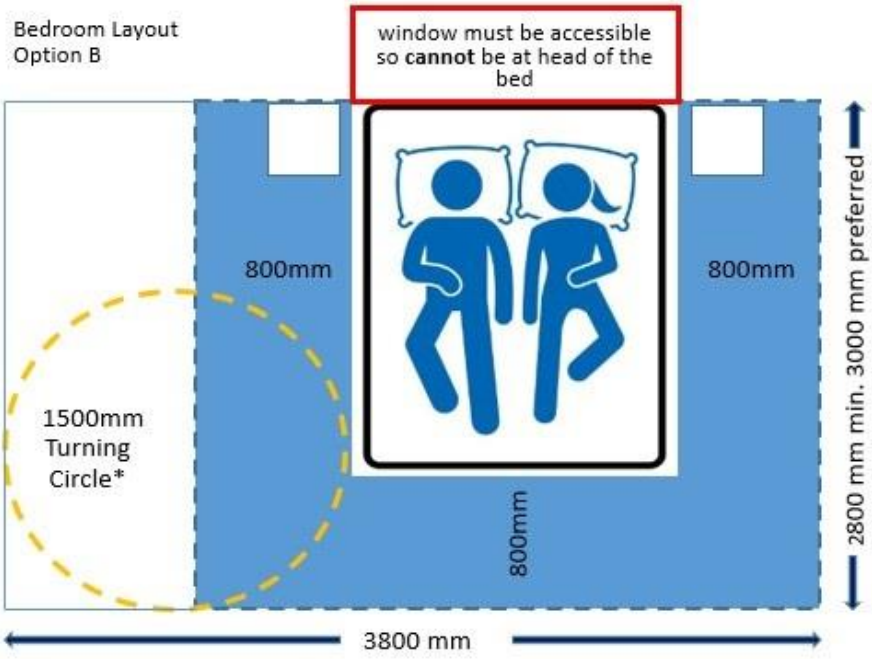
but it is preferable to use the more generous Lifetime Homes guidelines and

In particular the NDA/CEUD document *Universal Design Guidelines for Homes in Ireland* - available in Canvas



Standard Bed sizes (Bed Federation UK)





800mm min. clear zone around sides and foot of double bed

*Note: turning circle could be at the foot of the bed instead

From the guidelines, these are the basic factors to consider.

You will also need storage such as wardrobes and drawers.

CCAE Architecture, Year 4 Dissertation seminar group

Lifetime housing and neighbourhood – emotion and memory

The philosopher Alain de Botton describes the house as "*a knowledgeable witness…providing not only physical but also psychological sanctuary…a guardian of identity*". The Architecture of Happiness

What is 'Home' – geometric space itself, the body within that space, formed by ideologies and culture? What is it that sustains us? In this seminar series we will discuss the physical experience of living 'at home'. Unconscious connections are created within us that achieve domestic intimacy (happiness) through a series of repeated physical actions between the people that live together and our haptic engagement with objects and space within the home. Similarly the thresholds that separate us from our immediate neighbourhood have a significant bearing on our sense of 'home'.

> *"as we open a door the body weight meets the weight of the door, the legs measure the steps as we ascend a stairway, the hand strokes the handrail and the entire body moves diagonally and dramatically through space"* Juhanni Pallasma. *The eyes of the skin; Architecture and the senses*

These engagements become enmeshed with emotion and memory. Why, for instance, do elderly people want to remain in their homes when the home that has sustained them for many years is no longer viable? As demographic evidence suggests an ever-increasing elderly population, living alone, how do we arrive at an appropriate model of housing that addresses all the users' needs? We will further discuss this under the topic of Lifetime Housing and Neighbourhoods.

Some initial suggested reading:

Alain de Botton, *the Architecture of Happiness*, London, Penguin 2006

Juhanni Pallasma. *The eyes of the skin; Architecture and the senses*, Chichester, John Wiley 2005

Kent Bloomer and Charles W. Moore *Body memory and architecture,* Yale University Press 1977

Gaston Bachelard, *The Poetics of Space*, 1994 edition

Christopher Alexander et al., *A Pattern Language*, Oxford university Press. 1977

September 2016