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Transforming our World Through Design, Diversity and Education
G. Craddock et al. (Eds.)

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Universal Design in Architectural Education – Community Liaison on 'Live Projects'

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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

1. 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 [1]

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

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paramount importance. In Ireland local authorities are the largest single providers of social housing, with around 107,000 dwellings [2]. 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 [2]. 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 [2].

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.

2. Engaging with the local authority for access to live projects

"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." [3]

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 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.

3. 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. Photograph Frank Dowling

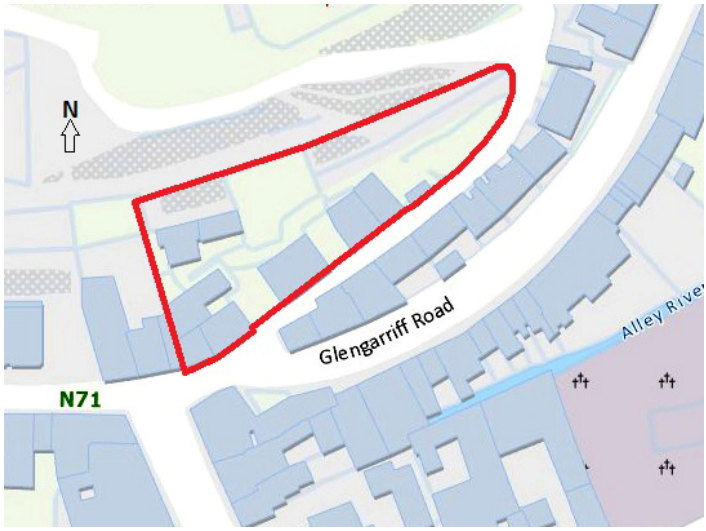


Figure 3. Site location plan. Osi.ie

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.

4. 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 [5]. Similarly, the guidance in the CEUD document 'Building for Everyone' [6] and Lifetime Housing guidelines [7] offer invaluable advice to the student.

Encouraging the adoption – or infusion [8] - 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.

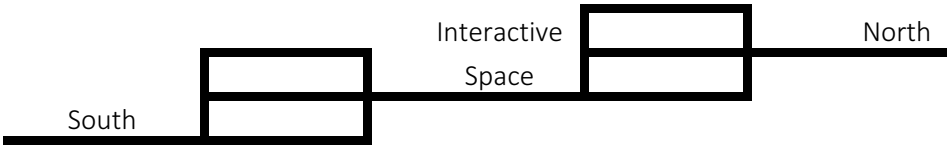


Figure 4. Diagrammatic cross-section through site

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 [9] 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." [10]

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.

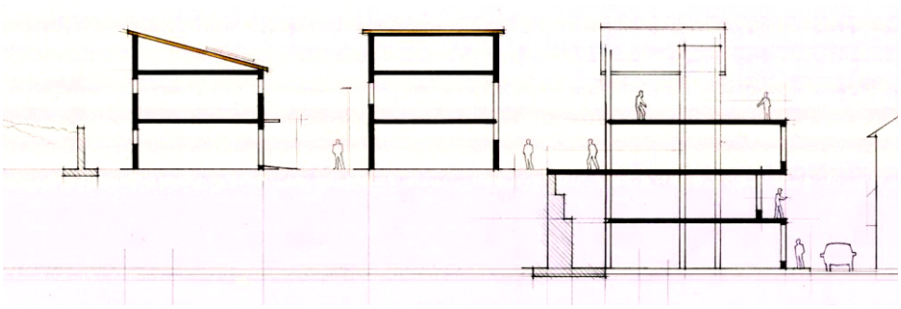


Figure 5. Student work. Frank Dowling

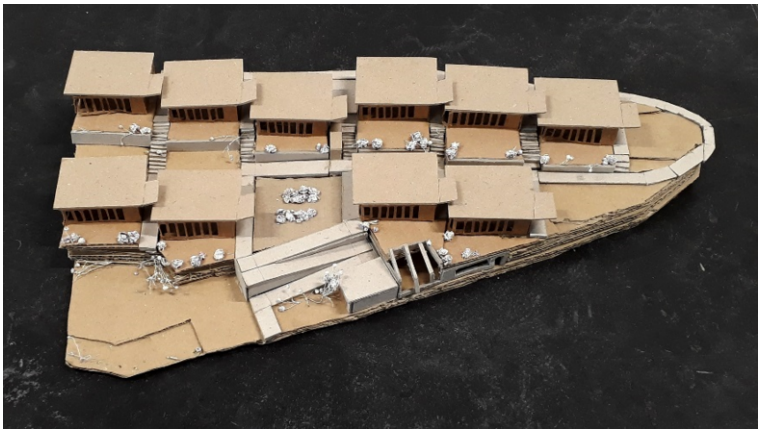


Figure 6. Student work. Anna Higgisson

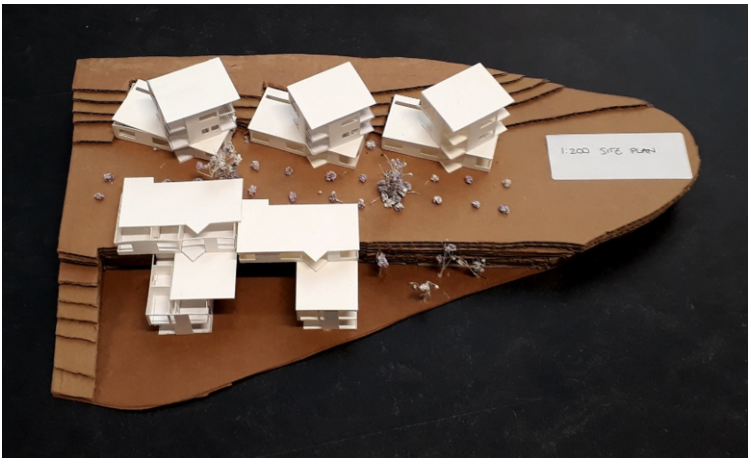


Figure 7. Student work. Anna Horan

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.

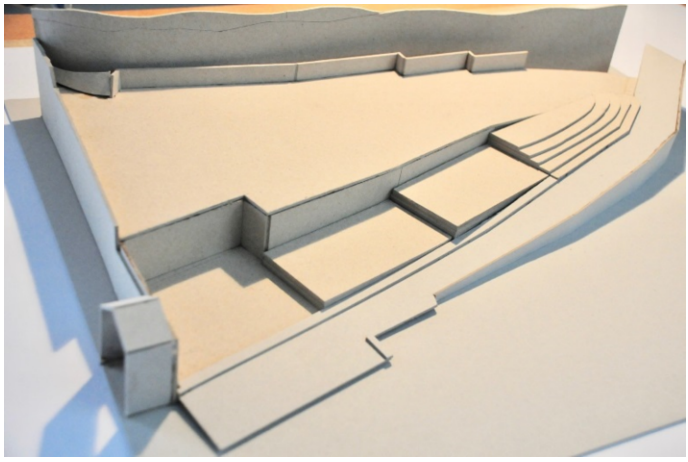


Figure 8. Site model. Frank Dowling



Figure 9. Site plan. Frank Dowling

Figure. 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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