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Education - Research - Practice

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Abstract

Through this paper we will look at links between architecture education, research and practice, using a current project as a vehicle to cover aspects of building, pilot and live project. The first aspect, the building project consists of the refurbishment and extension of a Parnell Cottage for a private client and is located near Cloyne, in East Cork, Ireland. The pilot project falls within the NEES Project, investigating the use of materials and services based on natural or recycled materials to improve the energy performance of new and existing buildings. The live project aims to hold a series of on site workshops and seminars for students of Architecture, Architects and interested parties, demonstrating the integration of the NEES best practice materials and techniques within the built project. The workshops, seminars and key project documents will be digitally recorded for dissemination through a web based publication. The small scale of the building project allowed for flexibility in the early conceptual design stages and the integration of the research and educational aspects.

1 Live Projects

The live project aims to hold a series of participatory workshops and seminars for students of architecture, architects, community groups and interested parties, demonstrating the integration of the NEES 'best practice' materials and techniques within the built project.

Previous building projects within the college allowed students the opportunity to develop an appreciation of material qualities, both phenomenological and structural in addition to themes such as design and build, communication and group work dynamics. However there was always the concern of what becomes of these structures on completion of the studio semester? Moving from a studio building project, based on a hypothetical brief, to a live project with a client; allows pedagogical approaches to extend beyond the confines of the design studio.

Anderson and Priest's working definition for the Live Projects Network suggests that;

> "A live project comprises the negotiation of a brief, timescale, budget and product between an educational organisation and an external collaborator for their mutual benefit. The project must be structured to ensure that students gain learning that is relevant to their educational development."

However, as the Cloyne project developed, constraints materialized, raising questions of whether the built project could act as a live project?

Some of our concerns were, (1) should the project be included within the curriculum, aligned with modules and academic credits, or act as a stand-alone activity? (2) Could the building timeframe be synced with the academic year? How are students and H&S legislation dealt with on site, over an extended period of time? And (3) can we put students in a position of responsibility to deliver a certain level of quality in workmanship, when dealing with a real client? Despite our reservations, discussions sparked an interest within the student body. The seed was planted.

2 Sustainability

For us, this project holds most interest in its general approach to sustainability, rather than any specific or technical methods or evaluations which will be adopted. While there is technical investigation into various natural products, their embodied energy, statistics relating to their performance over time, comparisons with everyday materials; it is the basic design strategy that provides the most sustainable impact in our opinion. The underlying simplicity of this approach is the most straightforward for architects to communicate to their clients, and the easiest to educate students of architecture.

By simplicity of approach we mean (1) recognizing the cultural significance of the existing house, (2) persuading a client who has a strong desire to demolish the house to preserve it, (3) analyzing and assessing the opportunities that lie with refurbishing and extending the house, (4) paying careful attention to the creation of sheltered, well orientated outdoor and indoor spaces, and (5) paying attention to achieving the most impact with the least financial investment through judicious use of materials, and efficient design interventions.

Only once these basics are attended to on this project do we feel incentivized to explore the design in a technical manner, by looking closely at potential materials or undergoing detailed evaluations and comparisons.

The above list is in order of priority. The most sustainable aspect of this project, in our opinion, is the preservation and reuse of the existing house. This is because for us, sustainability encompasses the everyday common sense decisions that architects make on a daily basis, as well as heritage, historical and cultural value of existing building stock. It is worth considering why this house is significant.

3 Historical Value

Our client purchased an old three bedroom single storey cottage in a rural location in County Cork on a one acre site. Upon visiting the site, we had a hunch that the house was of value, and resisted direction from the client to demolish the house. Some quick research verified that the house was in fact a Parnell Cottage.

In 1906, the ‘Labourers Act’ provided large scale state funding for extensive agricultural labourer owned cottages. The cottages were erected by the local County Councils.

This was a major socio-economic transformation in rural state housing it erased many one roomed hovels unfit for human habitation.

In a six year period between 1906 and 1911, over 40,000 Parnell Cotages were built in Ireland, with 7,560 cottages built in County Cork, where they were known as "Sheehans' Cottages" after a local politician.

Under the scheme, land owning farmers compulsory surrendered an acre of choice land to each labourer to provide a family home and vegetable patch.

This scheme had enormous long-term consequences for rural Irish society, including the decline of disease, political stability, and greater agricultural output. It was a form of social revolution, and arguably the first large scale public housing scheme in Ireland.

The scheme is relevant today as an example of how far simple but efficient local solutions can go to address wider problems of national or global significance. It provides reassurance that simple things done well, when replicated, can impact great change for the benefit of the user and society.

4 Interest as Practice Project

The project lies at the intersection of coincidental and unusual circumstances; (1) a client with a modest budget of close to €60,000 to refurbish a 40m^2 cottage and extend by 30m^2, (2) a client who has severe allergies to off-gassing from the majority of commonly used building products and a strong preference for building with natural materials, (3) the simultaneous involvement by CCAE with the N.E.E.S project, with interest in suppliers and providers of natural materials, (4) the availability of grant funding through the N.E.E.S project for natural materials, (5) the interest in CCAE of involvement of students in real projects and (6) the interest in CCAE of involvement with private practice.

5 Evolution of Design

At project inception, the client was keen to introduce constraints which were either unnecessary or unachievable given the modest budget available.

Therefore, at feasibility stage, care was taken to explore a range of design options to clearly communicate the impact of design decisions.

As the client was insistent on demolishing the house, we tentatively explored three site strategies of where and how to position a new dwelling on the site. We drafted a straightforward list of benefits and difficulties to re-enforce the impact of design decisions.

We also explored three site strategies of how to accommodate the client's brief by retaining and extending the existing house. As the site strategy evolved to one that was ethically and professionally acceptable, the list of demonstrable benefits grew while the list of difficulties shrank.

It was significant that the project was to be used as a vehicle for research and education. That allowed us to follow the course which we understood to be best practice, rather than negotiate design solutions with the client and settle for compromise on decisions of strategic importance, such as retaining the house, providing positive outdoor spacial sequences, and achieving a design efficiency.

The benefits of the adopted solution were; (1) consolidation and extension of the existing dwelling which complied with best sustainable practice, (2) best layout in terms of defining sunny and sheltered high quality outdoor spaces,

(3) access to morning, afternoon and evening light, for internal and external spaces, (4) obtaining planning permission for an extension was easier than a new dwelling

Environmental, Value Engineering and Teaching benefits associated with keeping house, (5) compliance with vehicular sight lines was not necessary when retaining the house, (6) less onerous compliance with Building Regulations by extending rather than new building, (7) design strategy was more realistic for the available construction budget, (8) bedroom was bigger than required, and could be adjusted to budget constraints, and (9) cluster development better suited to rural housing

The difficulties of the adopted solution were; (1) the distant view of sea was less pronounced.

The most significant communication tools for engaging the client were (1) as the client grew up in the U.S, explaining the historical and cultural importance of the existing house, and making comparisons with American historical struggles such as Civil Rights movement, (2) explaining impact of design layouts on budget, and intermediate phasing options if money were to run out, and (3) optimization of internal and external spaces.

It is interesting to note that the best design is frequently not the thing that engages the client, and that people are often more incentivized to move away from pain rather then move toward pleasure.

6 How the Project is Funded

The N.E.E.S project has committed to funding of in excess of €10,000 to the CCAE to purchase selected natural products and services from approved suppliers for use in the Live Project.

A rigorous screening procedure was carried out in three separate phases to invite interested parties to be recognized and included for dissemination and promotion through the Northern Periphery Region. On this project, six key construction technologies using natural materials are identified as being worthy of inclusion for grant funding under the N.E.E.S project. These areas are; (1) Timber Frame Construction, (2) Hemp Crete external insulation, (3) cellulose insulation. (4) triple Glazed Timber Framed Windows, (5) green sedum roof, and (6) constructed wetland waste water treatment area.

While natural materials have been selected and will be used in this project, the funding available to the CCAE is not sufficient to fund all of these areas.

However, separate funding made available to the South Kerry Development Partnership, the SKDP, through N.E.E.S, has been allocated to record, disseminate and evaluate the use of these materials under two separate publicly tendered projects, to run concurrently with the construction period.

The first project entails recording the use of the above construction technologies through drawing text and film, collating and editing that information for dissemination on the web. The second project entails the analysis and modelling of the proposed building fabric, and comparing the estimated performance of the adopted natural material based construction technologies with standard materials and technologies which would normally be used.

7 Conclusion

Although the involvement of students in the built project is minimal in the physical sense, the influence has filtrated through the school, in the taught modules of applied technology and history and theory.

A number of fourth year applied technology case studies are investigating the NEES 'best practices' in detail prior to on site workshops. Seminars in History & Theory discuss related topics such as; Empowering Community through Participation; A critical analysis of the perception of the profession and Sustainable Lifestyle.

By creating links between practice, research, education; live, pilot and built projects, a series of collaborative techniques are developed across the academic disciplines that are essential and relevant to future practitioners.