TrinityHaus

ResearchMatters Spring 2012

Achieving energy efficiency in buildings is a primary research area at TrinityHaus. The challenges of sustainability in the built environment can often appear nebulous but by focusing on achieving energy efficient in exemplar commercial and residential buildings, TrinityHaus aims to make tangible progress towards more sustainable built environments. The interaction between user and building, with focus on energy consumption patterns, user behaviour, thermal comfort and sustainable building design, are unifying principles of the research conducted at TrinityHaus. Post occupancy evaluation (POE)enables the assessment of both the technological and anthropological elements of a building in use. TrinityHaus uses techniques of building energy modelling, monitoring and data analysis to fulfill the POE of buildings.

Dublin City has been awarded the title of Sustainable Energy Community by the SEAI, which makes it one of four such exemplar communities in Ireland. The Dublin City Council Civic Offices at Wood Quay are at the heart of this community. TrinityHaus has worked with Dublin City Council since 2009 to reduce the energy consumption within their offices. We have just completed a further phase of the project which has focused on the identification of energy inefficiencies within the complex of buildings, and the proposal of energy savings solutions. Based on the success of this work TrinityHaus has been awarded a new contract to continue this work and apply our evaluation methodology to a wider range of the Civic Offices.

We hope that you enjoy this Spring edition of the TrinityHaus newsletter. If you have questions please do not hesitate to contact us.

Dr. Oliver Kinnane
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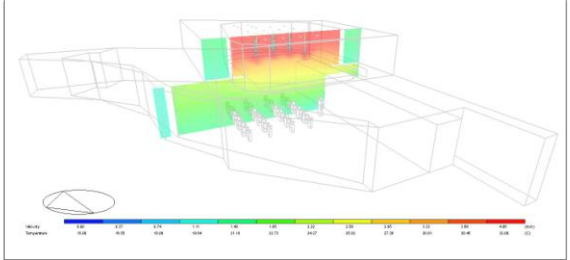
In this issue

Dublin City Council Offices Energy Analysis: Phase 1

Client: Dublin City Council

Researchers: Oliver Kinnane and Mark Dyer

Ambitious targets have been set to reduce energy consumption in Irish public buildings by 33% by 2020. Dublin City Council is making concerted efforts to achieve these targets. TrinityHaus has recently completed a 12 month project with Dublin City Council with emphasis on reducing energy consumption in the Civic Offices. By focusing on building operation, significant inefficiencies were identified, particularly in space heating and ventilation strategies. Operational and retrofit recommendations have been made to achieve energy and financial savings. Salient spaces including the recently constructed Wood Quay Venue event space, the building entrances, the large atrium and certain of the office spaces formed the basis for this Post Occupancy Evaluation study. The research carried out by TrinityHaus also went beyond energy auditing of the building to include assessment of indoor environmental quality and



occupant thermal comfort via qualitative techniques. The project delivered a final report of findings and recommendations, and results were presented to management and facilities of Dublin City Council. Significant aspects of this work have been submitted for conference and journal publication.
(contact Oliver.Kinnane@tcd.ie).

Dublin City Council Energy Analysis: Phase 2

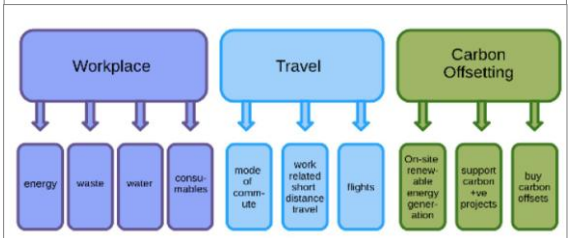
Client: Dublin City Council
Researchers: Oliver Kinnane and Mark Dyer

Based on the successful delivery of phase 1, TrinityHaus has been engaged by Dublin City Council to undertake a further year long project at the Civic Offices. This subsequent project phase will continue the work toward identification of energy savings in the complex of buildings at Wood Quay. Greater focus will be given to the office spaces within the naturally ventilated designed Buildings 3 & 4 along the Liffey River. An adaptive comfort model, based on widened heating set points and resurrection of the natural ventilation strategy via the atrium space will be proposed. This should allow for significant energy savings and enhanced indoor air and thermal quality within the offices. TrinityHaus wishes to thank Dublin City Council for their continued support of this work and is excited for future project success (contact Oliver.Kinnane@tcd.ie).

Organisational Sustainability Plan for the Mary Robinson Foundation - Climate Justice (MRFCJ)

Client: MRFCJ
Researchers: Tom Grey, Oliver Kinnane, Rory Walshe & Amelia Kelly

Mary Robinson Foundation
Climate Justice



"The Mary Robinson Foundation – Climate Justice (MRFCJ) is a centre for thought leadership, education and advocacy on the struggle to secure global justice for those many victims of climate change who are usually forgotten" (www.mrfcj.org). TrinityHaus is working closely with MRFCJ to create an 'Organisational Sustainability Plan' that addresses key aspects of the operation of the organisation such as resource consumption at their Dublin HQ, travel related CO_2 emissions, and carbon offsetting mechanisms to help reduce their CO_2 footprint. To date TrinityHaus has collaborated with MRFCJ to outline a sustainability vision for the organisation, select themes to achieve this vision and identify Key Performance Indicators to measure progress. Baseline data is currently being collated and initial targets have been set. Progress will be reported as the project evolves. (Contact tom.grey@tcd.ie or Oliver.Kinnane@tcd.ie)

Global Awareness Program, Delta College Michigan USA

Delta College
Serving Mid-Michigan Since 1961

Sustainability-Building for Everyone: TrinityHaus Perspective – Prof. Mark Dyer
Thursday, April 12: In Conjunction with Earth Day

Professor Mark Dyer delivered this year's keynote lecture at Delta College Global Awareness Program as part of Earth Day. This year's focus was on Europe and the keynote lecture "Sustainability Building for Everyone: A TrinityHaus Perspective" highlighted the pivotal role that people centered design plays in making cities, neighbourhoods

and buildings more accessible, usable and sustainable. See http://www.delta.edu/gap.aspx (Contact MDYER@tcd.ie)

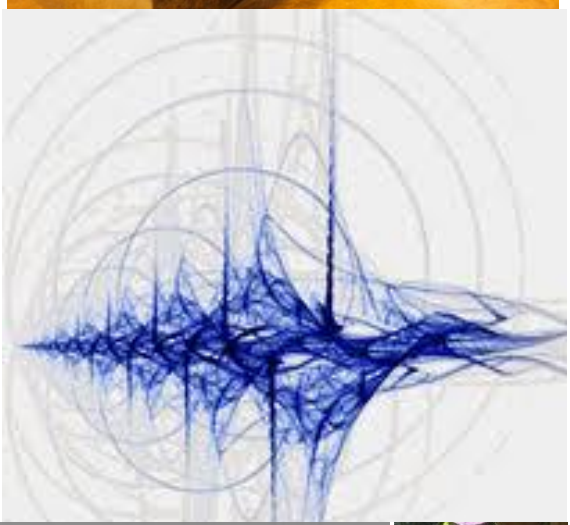
24 Hour Inclusive Design Challenge 2012- Oslo

Professor Mark Dyer led a team of industrial designers and graphic artists from New York, London, Dublin, Tallin and Olso at the third 24H Inclusive Design Challenge organized by the Norwegian Design Council in Oslo June 7th /8th 2012. The theme was "The business of inclusive design" where each team worked with a design partner to create an innovative product or service that respond to their particular needs but was also applicable to mainstream markets. In the case of Mark's team the design partner Bjarne suffered from Parkinson and relied on audio recordings to continue with his working and social life. The team designed several products and services around the theme of sound. Prototypes are planned in the coming months to demonstrate the viability and marketability of the designs produced as a result of the challenge. See http://www.norskdesign.no/24-hour-inclusive-design-challenge.(Contact MDYER@tcd.ie)

NAPS (Noise Abatement Panels) Project

Researchers: Roger West, Oliver Kinnane, Hugh Finlay, Sarah Pavia, Henry Rice, John Mahon & Francesco Pilla

TrinityHaus has identified an exciting opportunity to develop novel cladding products for new buildings and for retro-fitting existing buildings in order to abate the propagation of traffic noise in urban and business districts. A quiet environment is increasingly seen by residents, planners and developers as crucial for promoting sustainable urban living. Growing public concern has given rise to new and pending noise related legislation across Europe and in Ireland. Furthermore, the growing demand for energy-saving solutions presents an opportunity to incorporate noise abatement features into the current range of insulation for cladding and internal partition products or to develop more innovative designs (for example by using hemp and lime), thereby conferring a competitive advantage to an Irish cladding supplier. The innovation will involve the proposal of a new cladding system with enhanced acoustic properties by increasing the (a) noise transmission losses, (b) absorption and (c) damping coefficients, particularly at the frequency spectra associated with traffic noise. A Feasibility Study is currently being undertaken with support from Enterprise Ireland and this is seen as a stepping stone to a full Innovation Partnership which will be designed to develop innovative noise abatement panels and systems in collaboration with selected Irish companies. (contact Oliver.Kinnane@tcd.ie)



New TrinityHaus Members

Amelia Kelly did her undergraduate degree in AstroPhysics at NUIG. She subsequently did a Masters in Linguistics at Trinity College Dublin and has just completed her Ph.D. in the same area. With a keen interest in sustainable development and the work of the Mary Robinson Foundation for Climate Justice Amelia joined TrinityHaus to work on developing a sustainability plan for the organisation

TrinityHaus was formed in 2008 to provide innovative solutions for buildings, neighbourhoods and cities. Over the last four years the main research effort has focused on two principal themes. These are energy efficient buildings and eco-districts and secondly people centred design in homes and neighbourhoods for all ages, sizes, abilities and disabilities.

Please see website www.trinityhaus.tcd.ie for further information on these and other projects. The contact details of each researcher can be found on the 'People' section of the website.