

"Receiving a 'Highly Commended' in the RIAI Emerging Practice Award has given us the confidence to persevere in an industry that still needs to improve the environmental contribution it could be making".

ZERO WASTE

O'Neill Architects

Highly Commended

Founded by Patti O'Neill in Nenagh, Co.Tipperary, the design approach of O'Neill Architecture is based on a philosophy researched over a six year period and compiled in the book 'Placing Architecture, Landscape + Art = Architecture'. It applies an artistic methodology to architecture and works it through three examples based on actual landscapes. The results are buildings connecting us to our natural surroundings and stimulating the crucial message of environmental awareness.

In practice, this methodology is implemented during the design process through a holistic understanding of the site, its environment and solar orientation. The fundamental aim is to connect the interior of a building with its exterior. In construction the principles are continued by detailing breathable wall systems in timber-

frame and/or masonry construction and selecting natural, nontoxic materials ensuring a healthy building.

By constructing with natural recyclable materials, the practice also achieves a reduction of global waste, which they consider part of the architect's responsibilities. O'Neill Architecture believe that by concentrating on a building's immediate surrounding and orientation, the bond to the natural world is strengthened, which in turn counter-balances the increasing lack of connection in modern life.

Patti O'Neill, Dipl.-Ing. MRAl studied architecture between 1989 and 1995 at the Academy of Fine Arts, Stuttgart, Germany. After graduating she received state grants and funding to pursue her own philosophy of architecture.

The Zero Waste Concept

40% of our waste today is from our buildings.

In this project we applied a Zero Waste concept. The idea originates from efforts to reduce defects in the Japanese manufacturing industry. They force attention onto the whole life-cycle of products, which encompasses design, waste reduction, reuse and recycling. We sought to translate this approach by specifying natural, recycled and recyclable materials for this house extension. Our research revealed a range - from sheep's wool, wood-fibre insulation board, timber, wooden window and door frames, GGBS concrete to roof waterproofing membrane of a polymer base. We excluded other membranes, learning of the benefits of Breathable Wall Systems. Even for the substructure, we discovered foam glass gravel, made of recycled glass, which is both structural and insulating and reduces cold bridging.

And finally, for extra warmth, a grass roof was installed over the section of the bedroom extension.

Our design approach involves also maximising natural heating and lighting solutions. This means designing spaces and openings according to their orientation. The roof of the kitchen and living room slopes towards the boundary wall, maximising the south-west facing window surfaces for passive solar gain. The roof of the bedroom and bathroom slopes down towards the existing house, minimising overshadowing to the courtyard and two-storey south facing elevation. The interior floor levels of the main house and the extension are continuous, except in the bedroom, which is raised by two steps to create a steeper angle of the grass roof. 3D sunlight studies determined the optimal angles required for the roofs for summer and winter time conditions.



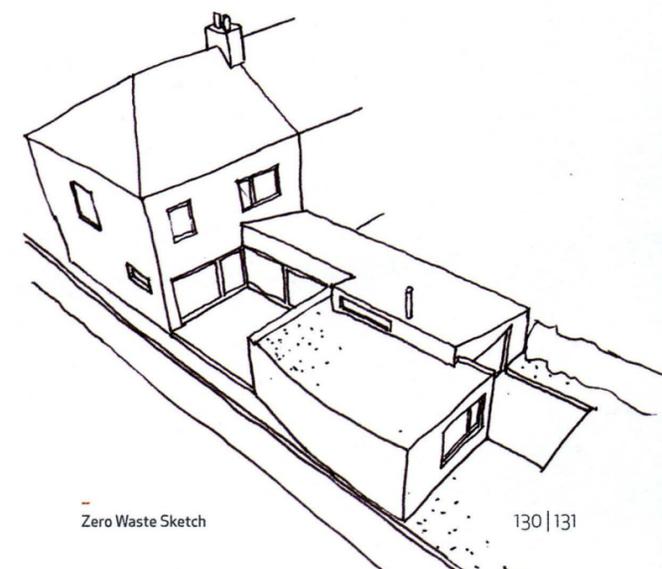
Location: Limerick City

Image

- 1 The Zero Waste concept was adopted for this new extension
- 2 A green roof provides extra insulation
- 3 Materials were chosen with an emphasis on reuse and recycling



Project Photography: Dave Ruffles



Zero Waste Sketch