Client - Private
Architects - Leyden Hassett & Associates
David Leyden
Structural Engineers - Leyden Hassett & Associates
Patrick Leyden
Main Contractor - Ardcourt Ltd. / Meadowleck Ltd. Building & Civil Engineering Contractors

Project size - existing house 205m²
extension 75m²
Duration - 8 months
Location - Sutton, Dublin 13
BER Rating Before - F
BER Rating After - B1

Photography - Isabelle Coyle

PRESENTING A UNITED FRONT

Report by David Leyden

The challenge set out in the brief was to convert a cold, dark 1970s bungalow into an accessible, energy-efficient and light-filled home. The existing house required significant modification to make it comfortable for the clients, one of them a wheelchair user, and their young family. This presented an opportunity to reverse the existing layout and take advantage of the site's orientation – in the new layout the living spaces were relocated to the south and west, whilst bedrooms and bathrooms were moved to the north and east.

Floor space was added, providing additional accommodation required by the active young family, whilst also allowing generous space for comfortable wheelchair use throughout the house. Two extensions, positioned to the front at the east and west ends of the existing house, are built up hard against a building line established at the front. The space between forms a south-facing courtyard that addresses the street.

Positioning the extensions to the front and sides of the existing house stemmed from the clients' desire to have a large secure play area at the rear of the house where young children could be easily monitored. The existing house with its large front garden was adequately set back from the street to accommodate this move and a building line was established across the site, running from an adjacent garage on one side, and a high level boundary wall on the other.

For privacy, the courtyard was enclosed by a garden wall at the front, creating a layered hierarchy of spaces – from the public area on the street to the semi-public front garden and through to the semi-private courtyard, culminating with the private interior.

The internal layout had to be fully accessible in a meaningful way. We worked closely with the clients to establish exact spatial requirements for everyday activities and to create bathrooms and a kitchen that did not have a specially adapted feel. The suspended timber floors of the existing house were approximately half a metre above ground level. These floors were removed and a new floor level was established close to ground level to facilitate threshold free access from the outdoor spaces. Generous circulation requirements, coupled with the dropped floor level, resulted in a spatial quality you wouldn't normally associate with a house of this type. The ceilings along the southerly portion of the existing house were also raised, creating double-height spaces in the newly positioned living areas. These spaces are filled with light from south-facing roof lights, which also play a vital role in the natural ventilation strategy throughout the summer months.

The fabric of the house is super insulated: insulated floors run through the extensions into the existing house; exterior walls are wrapped with external wall insulation; whilst the roofs incorporate warm-deck insulation throughout. Cold bridging has been eliminated throughout the house by robust detailing: The EWI system is taken up and over the parapets to meet with the flat roof insulation, aluminium-clad external doors and windows are positioned within the thermal envelope of the wall insulation. Soffits and gable overhangs have been cut back to facilitate the continuity of wall and roof insulation in the existing house.

Technologies and construction methodologies - including solar water heating, a condensing boiler, smart heating controls, wood burning stoves with external combustion air feeds, air tight construction, and heat recovery ventilation - helped achieve a BER rating of B1, which represents a significant improvement from the original F rating.

For me, the most interesting aspect of this project is the spatial quality resulting from the generous circulation requirements associated with wheelchair use.

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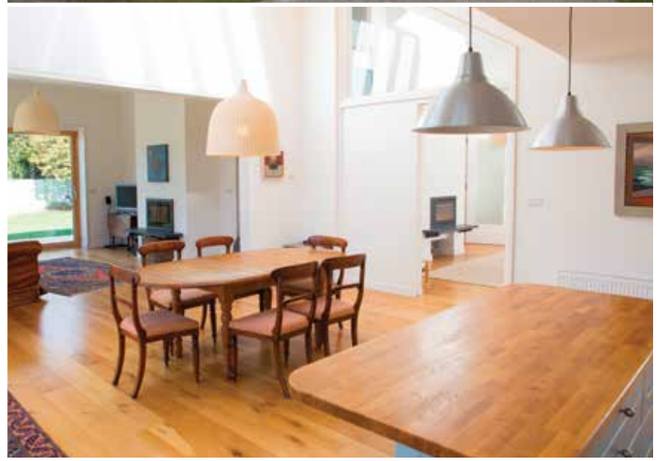
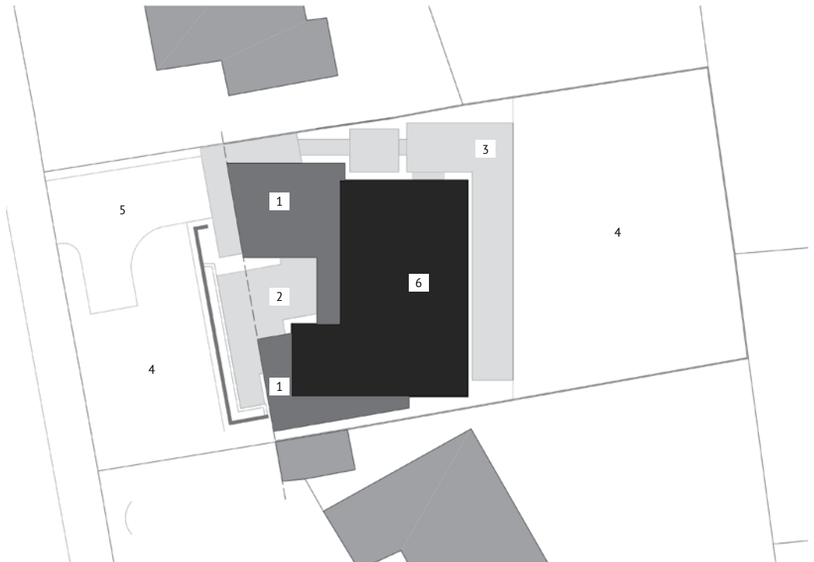
1. A 1970s bunglow has been remondelled into an accessible and energy-efficient home
2. Positioning the extensions to the front and side has resulted in a large secure play area



3. The catilevered entrance and south facing courtyard at the front of the house
4. Bungalow prior to remodelling
5. The internal layout had to be universally accessible

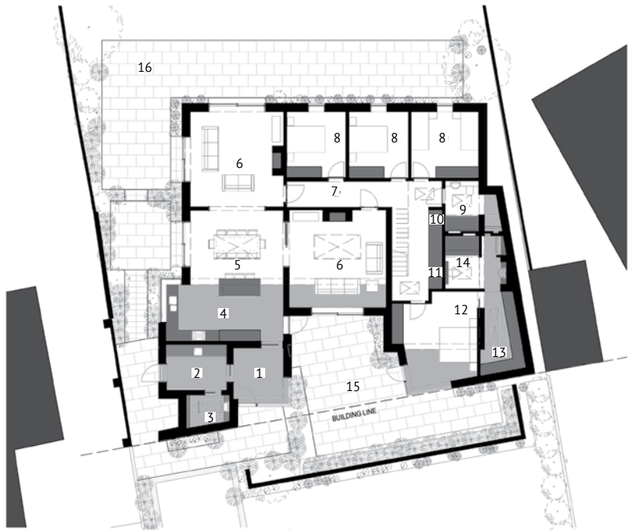


SITE PLAN

1 > Extension
2 > Courtyard
3 > Patio
4 > Lawn
5 > Drive
6 > Existing bungalow

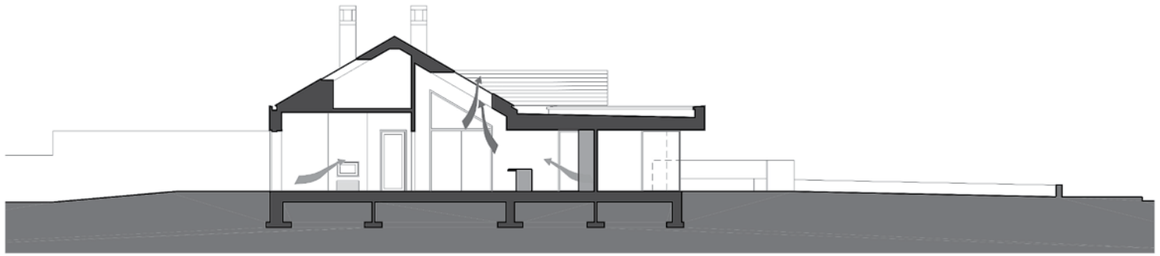
GROUND FLOOR PLAN - BEFORE

1 > Porch
2 > Hall
3 > WC
4 > Cloak
5 > Living
6 > Dining
7 > Kitchen
8 > Utility
9 > Hot Press
10 > Boiler
11 > Bathroom
12 > Corridor
13 > Bedroom
14 > Ensuite
15 > Garage
16 > Store



GROUND FLOOR PLAN - AFTER

1 > Hall
2 > Utility
3 > WC
4 > Kitchen
5 > Dining
6 > Living
7 > Corridor
8 > Bedroom
9 > Bathroom
10 > Boiler
11 > Store
12 > Master Bed
13 > Walk-In
14 > Ensuite
15 > Courtyard
16 > Patio



SECTION