

**Detached House - 2007 - Timber frame construction - 281m<sup>2</sup> (3022ft<sup>2</sup>)**

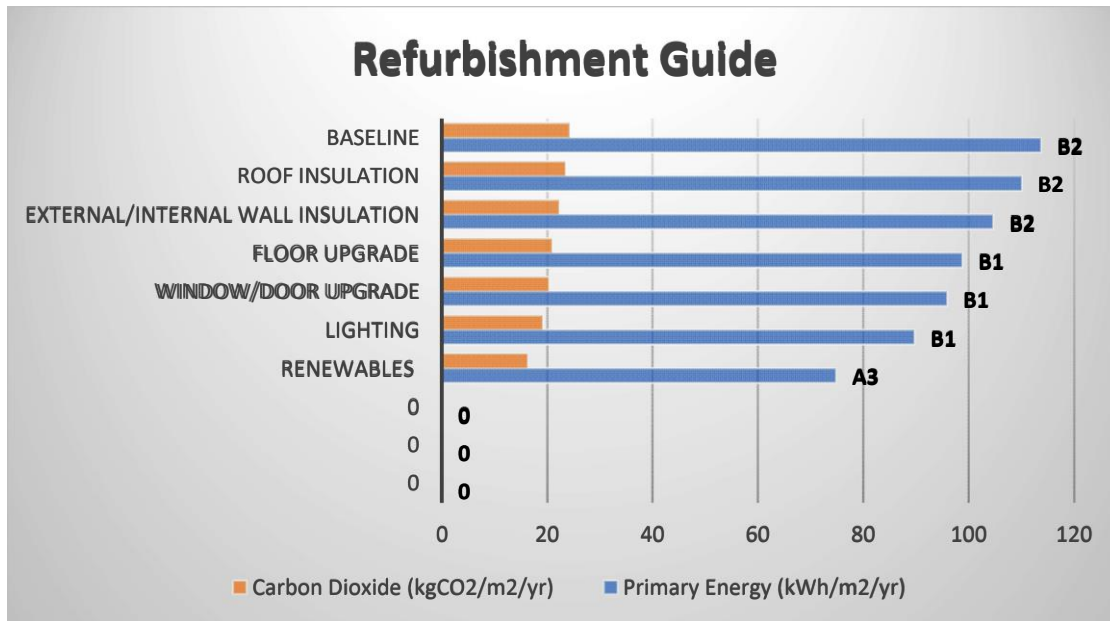


Ballinasloe, County Galway

| Existing Building Details |                                  |                           |                               |
|---------------------------|----------------------------------|---------------------------|-------------------------------|
| Building Elements         |                                  | Insulation Thickness (mm) | U-Value (W/m <sup>2</sup> .K) |
| Walls                     | Timber Frame                     | 50mm-100mm                | 0.42                          |
| Roof                      | Pitched Roof insulated at Rafter | 50mm-100mm                | 0.25                          |
| Floor                     | Solid Floor                      | Unknown                   | 0.34                          |
| Windows                   | Double Glazed Air filled         | N/A                       | 1.5-2.6                       |
| Doors                     | Glazed Door                      | N/A                       | 3                             |

| Existing Heating Characteristics |  |             |                |
|----------------------------------|--|-------------|----------------|
| Heating System                   |  | Energy      | Efficiency (%) |
| Primary Heating System           | Geothermal heat pump                                       | Electricity | 350%           |
| Secondary Heating System         | Stove  | Multi fuel  | 70%            |
| Domestic Hot Water               | Heated with primary heating system & electric immersion    |             |                |
| Cylinder                         | Fabric insulated cylinder                                  |             |                |
| Controls                         | 7 days programmer for space heating and domestic hot water |             |                |

| Domestic Retrofit Guidelines (Step by Step) |                                   |  |                                      | Energy Consumption (kWh/m <sup>2</sup> /yr) | Carbon Emissions (CO <sub>2</sub> ) (kgCO <sub>2</sub> /m <sup>2</sup> /yr) | Building Energy Rating (BER) |
|---|-----------------------------------|--|--------------------------------------|---|---|------------------------------|
| Energy Efficient Measures                   |                                   |  | Target U-Value (W/m <sup>2</sup> .K) | Current Usage (113.74)                      | Current Emissions (24.29)   | Current BER (B2)             |
| 1   | Roof insulation                   | Plasterboard insulation across all roof area.                        | 0.13 - 0.16                          | 110.06                                      | 23.48   | B2                           |
| 2   | External/Internal Wall Insulation | Install Wall Insulation (internal or External), thickness 50mm-100mm | 0.18 - 0.21                          | 104.63                                      | 22.27   | B2                           |
| 3   | Floor Upgrade                     | Insulate solid floor with rigid insulation                           | 0.15 - 0.18                          | 98.76                                       | 20.97   | B1                           |
| 4   | Window/Door Upgrade               | Replace existing glazing with Double/Triple glazed,(low E) units     | 1.1 - 1.4                            | 95.92                                       | 20.34   | B1                           |
| 5   | Lighting                          | Install energy efficient light bulbs (LEDs)                          | N/A                                  | 89.71                                       | 19.17   | B1                           |
| 6   | Renewables                        | Install 2.4 kWp Solar PV system                                      | N/A                                  | 74.83                                       | 16.34   | A3                           |
| 7   |                                   |  |                                      |   |   |                              |
| 8   |                                   |  |                                      |   |   |                              |
| 9   |                                   |  |                                      |   |   |                              |
| 10  |                                   |  |                                      |   |   |                              |



| Estimated Costs Summary                                    |                               |                                     |                           |
|--|-------------------------------|-------------------------------------|---------------------------|
| Measures   |                               | Estimated Costs (€/m <sup>2</sup> ) | Estimated Total Costs (€) |
| 1  | Roof Upgrade                  | 80 - 100                            | € 18,783                  |
| 2  | Wall Insulation               | 70-100                              | € 10,598                  |
| 3  | Floor Upgrade                 | 80 - 100                            | € 25,263                  |
| 4  | Window/Door upgrade           | 250 - 350                           | € 19,115                  |
| 5  | Lighting                      | 20/fitting                          | € 200                     |
| 6  | Solar PV                      | 2,200 (1.2 kWp System)              | € 4,400                   |
| 7  | Demand Controlled Ventilation | 3,000 (System)                      | € 3,000                   |
| 8  | 0                             | 0                                   | € 0                       |
| 9  | 0                             | 0                                   | € 0                       |
| 10   | 0                             | 0                                   | € 0                       |
| <b>Total</b>   |                               |                                     | <b>€ 81,359</b>           |
| <b>Total Cost to Homeowner including 35% Grant funding</b> |                               |                                     | <b>€ 52,883</b>           |

| Savings Summary |   |                         |                     |   |
|-----------------|---|-------------------------|---------------------|---|
| BER Rating      | Energy Savings (kWh/m <sup>2</sup> /yr) | Energy Savings (kWh/yr) | Cost Savings (€/yr) | Simple Payback, including 35% Grant Funding (years) |
| A3              | 38.91                                   | 10,922                  | € 546               | 97  |

Audit site visit completed on 12/11/2019, Audit report edited on 10/12/2019