

Housing and Residential Services

Mechanical & Energy Efficiency Business Unit

Energy Efficiency Programme Update

Housing Strategic Policy Committee Meeting

8th December 2021

Presented By Shane Hawkshaw - Senior Executive Engineer

Introduction

This presentation is intended to provide a progress update on Energy Efficiency Initiatives and Improvements which are delivered to our tenants under the following Programmes:

- Boiler Replacement Programme
- Better Energy Community (BEC) Schemes Programme
- Energy Efficiency Retrofitting Programme (Formerly Phase II)

Boiler Replacement Programme Update

Boiler Replacement Programme

- During 2019 & 2020, DCC upgraded a total of **1,773** domestic gas boilers and heating systems in tenant's dwellings
- In 2021 to date (end of Q3), DCC has upgraded a total of **598** domestic gas boilers and heating systems in tenant's dwellings
- Procurement via an open tender for domestic gas boiler replacements and gas heating system upgrades was tendered in 2021 and is currently being evaluated following which a framework will be awarded. The framework is envisaged to run for 4 years
- This procurement process also includes a number of new initiatives and efficiency upgrades on existing gas heating installations which will return estimated savings of **€150-€200*** per dwelling annually for DCC tenants

(*Source CODEMA)

Boiler Replacement Programme

DUBLIN CITY COUNCIL RECENTLY UPGRADED YOUR HOME'S BOILER
WITH A NUMBER OF IMPROVEMENTS THAT WE WANT TO TELL YOU ABOUT!

YOUR OLD BOILER

Less efficient

Less efficient, non-condensing boiler

Not weather adjusted

Doesn't take the weather into account

Radiator Temperature

Temperature of radiators is constant - it doesn't change no matter what the weather is like

Higher energy use, higher bills

Efficiency of your old boiler is only around 50-80%, depending on its age, meaning that you will use more energy and have higher bills



ENERGY EFFICIENCY



WEATHER



TEMPERATURE



BILLS

YOUR NEW BOILER

More efficient

Energy-efficient condensing boiler with weather compensation

Weather adjusted

Smarter system which takes the weather into account

Radiator Temperature

Temperature of radiators can change - they will be hotter when the weather is cold, and cooler when the weather is warm

Save on energy & on your bills

Will reduce the amount of energy you use, saving you around €150 - €200 per year, depending on your type of home

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 Codema
Public Energy Agency



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Smart Heating Controls

- Innovative pilot programme installing smart domestic heating controls in **100** DCC dwellings in 2020 / 2021
- Approximate cost of €500 (supply and install) per unit
- The success of the pilot programme has lead to a larger programme rollout being installed in November / December 2021 for up to **500** additional dwellings
- Both programmes are rolled out at no cost to DCC tenants for equipment supply and installation
- Remote app included for first 12 months free of charge to DCC tenants for remote control

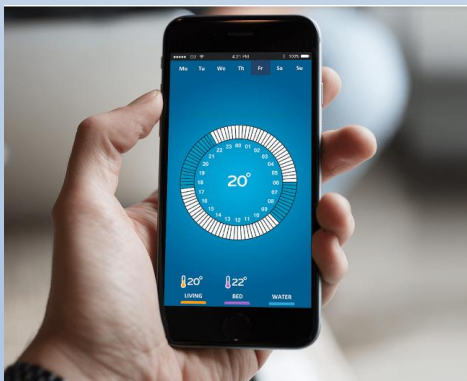
Smart Heating Controls



Smart Control Hub
(c/w easy boost button)



Wireless Remote Thermostat
Flexible installation & app control



Phone Control

First 12 months free to DCC tenants
(No automatic renewal or obligation)



Voice Control

Control heating via Alexia



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Better Energy Community (BEC) Schemes Programme Update

Better Energy Community (BEC) Schemes Programme 2021

- Irelands National Retrofit Initiative managed by Sustainable Energy Authority of Ireland (SEAI)
- BEC projects facilitate community wide energy improvements
- 39 Senior Citizen Complexes and 8 Homeless Sites upgraded under programme since 2018
- 2021 DCC Application included 10 Senior Citizen Complexes to receive various upgrade works
- Applications approved by SEAI in April 2021
- BEC Programme of Works commenced in June 2021
- Target completion date 30th September 2021
- 100% of works completed on schedule
- **Dublin City Council was nominated as a finalist for The 2020 SEAI Sustainable Energy Awards in The Public Sector – Energy Leadership Category and won the category award**

Better Energy Community (BEC) Schemes Programme 2021

Site	Location	Type of Site	Controls	Pumps
Bernard Curtis Court	Bluebell Road, Inchicore, Dublin 12.	Senior Citizens	Yes	
Beggars Bush Blocks A,B,C	Shelbourne Road, Dublin 4.	Senior Citizens	Yes	Yes
Domville Court	Santry, Dublin 9.	Senior Citizens	Yes	Yes
Brookville Court	North Road, Finglas, Dublin 11.	Senior Citizens	Yes	
Griffith Crescent	Griffith Close, Finglas, Dublin 11	Senior Citizens	Yes	
Clanmaurice Court	Clanree Road, Donnycarney, Dublin 5.	Senior Citizens	Yes	Yes
Aughrim Court	Stoneybatter, Dublin 7	Senior Citizens	Yes	
Memorial Court	Islandbridge, Kilmainham, Dublin 8.	Senior Citizens	Yes	
Fr Lemass Court	Ballyfermot, Dublin 10.	Senior Citizens		Yes
Garden View Court	Francis Street, Dublin 8	Senior Citizens		Yes

- Completed works included Pump and Control Upgrades.
- 10 Seniors Citizen Complexes
- Estimated Energy Savings of 457MWh per annum

Energy Efficiency Retrofitting Programme Update



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Energy Efficiency Retrofitting Programme



Energy Efficiency Retrofitting Programme

- The Energy Efficiency Retrofitting Programme is designed to reduce unnecessary energy consumption, greenhouse gas emissions and demands for non renewable resources in Dublin City Councils housing stock. It also provides tenants with healthier living conditions and offers significant money savings in heating costs.

The programme is rolled out on a phased basis:

- Phase I
- Phase II
- Revised Energy Efficiency Retrofit Programme 2021

Energy Efficiency Retrofitting Programme

Phase I

Phase I of the programme involved the following upgrades:

- Cavity Wall Fill Insulation
- 300mm Attic, Tanks and Pipes Insulation
- Roof and Wall Ventilation
- Draught Proofing
- Cylinder Lagging Jackets

Phase I is now complete which saw 8,057 units upgraded

Energy Efficiency Retrofitting Programme

Phase II

Phase II of the programme involved the following upgrades:

- External Wall Insulation
- 300mm Attic, Tanks and Pipes Insulation
- Roof and Wall Ventilation
- Draught Proofing
- Insulated Cylinders
- Windows and Doors
- Heat Pumps
- Boiler replacements (where required)

Energy Efficiency Retrofitting Programme

Revised Energy Efficiency Retrofitting Programme

In 2021, the Department of Housing, Local Government & Heritage made significant changes to the Energy Efficiency Retrofitting Programme in light of Programme for Government commitments. Some of these changes include:

- Retrofitting of Local Authority Housing Stock to a B2 / Cost Optimal equivalent (BER) standard
- Increase in grant support for measures such as External Insulation, Heat Pumps, Window & Door Replacement, etc.
- Works Programme to be approved by the Department prior to works commencing on site
- Pre works BER Certs required for all properties along with the existing requirement of Post Works BER Certs



Energy Efficiency Retrofitting Programme

Programme Challenges

- Weather
- Access
- Security
- Covid 19
- Health & Safety
- Labour Shortages
- Material Shortages
- Utilities (ESB and Bord Gáis)
- **Queries**

Energy Efficiency Retrofitting Programme

2021 Programme Case Study



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Energy Efficiency Retrofitting Programme

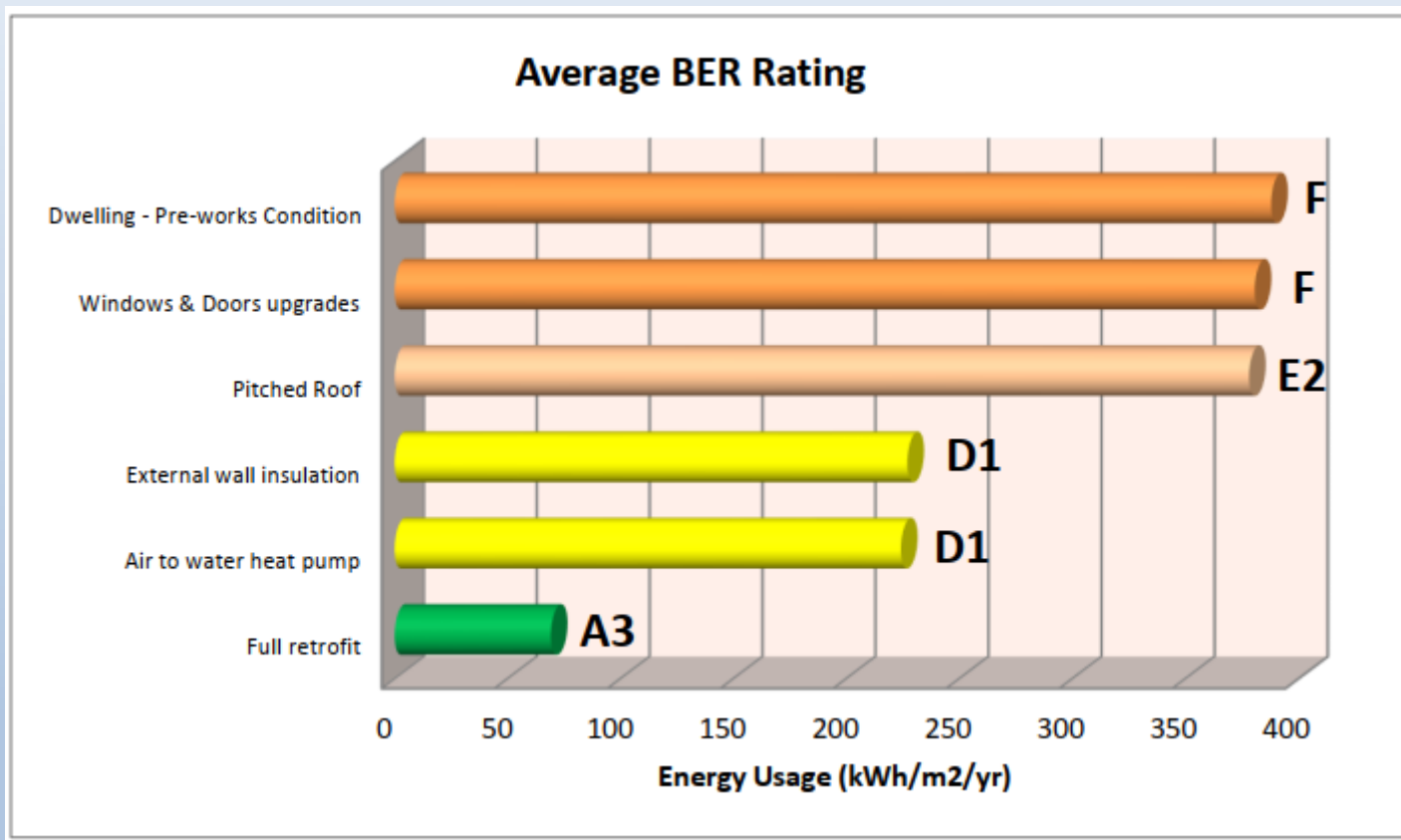
2021 Programme Case Study

31 Glenties Drive (End-Terrace)							
Element	Upgrade	BER Rating	Energy Value (kWh/m ² /yr)	CO2 Emissions (KgCO ₂ /m ² /yr)	Heat Loss Indicator (HLI)	Capital Cost (ex VAT) (€)	Capital Cost (incl VAT) (€)
Base Case:							
Dwelling - Pre-works Condition	-	F	387.98	72.03	4.33	-	-
Windows & Doors:							
Windows & Doors upgrades	High efficiency glazed uPVC windows (1.4 W/m ² K) & insulated doors (1.6 W/m ² K)	F	380.66	70.38	4.17	€6,628	€7,523
Roofs:							
Pitched Roof	Pitched Roof Insulated - 0.13 W/m ² K	E2	378.18	69.92	4.20	€650	€738
External Walls:							
Uninsulated Hollow Block	External wall insulation	D1	227.05	42.03	2.32	€17,535	€19,902
Additional Measures:							
Boiler	Air to water heat pump	D1	224.2	41.02	4.33	€11,610	€13,177
Full retrofit	Complete fabric upgrade plus ASHP & Controls	A3	69.18	13.6	2.00	€36,423	€41,340



Energy Efficiency Retrofitting Programme

2021 Programme Case Study



Energy Efficiency Retrofitting Programme

2021 Programme Case Study

- BER Rating uplift from F to an A3
- Energy Value reduction from 387.98 kWh/m²/yr to 69.18 kWh/m²/yr resulting in a saving of 318.80 kWh/m²/yr
- Carbon Dioxide (CO₂) reduction from 72.03 kgCO₂/m²/yr to 13.60 kgCO₂/m²/yr resulting in a saving of 58.43 kgCO₂/m²/yr
- Estimated cost savings to the tenant of €848 per year

31 Glenties Drive (End-Terrace)				
Status	Rating	Energy saved (kWh)	Energy saved (€)	CO2 saved (kg)
Base Case: Dwelling - Pre-works Condition	F	-	-	-
Post-Works Condition: A3 BER rating	A3	24,229	€848	4,441



Energy Efficiency Retrofitting Programme

2021 Programme Case Study

Building Energy Rating (BER)

BER for the building detailed below is: **A3**

Address	31 GLENTIES DRIVE FINGLAS DUBLIN 11
Eircode	D11CX5F
BER Number	113201685
Date of Issue	05/10/2021
Valid Until	05/10/2031
Assessor Number	105713
Assessor Company No	105712

The Building Energy Rating (BER) is an indication of the energy performance of this dwelling. It covers energy use for space heating, water heating, ventilation and lighting, calculated on the basis of standard occupancy. It is expressed as primary energy use per unit floor area per year (kWh/m²/yr).

'A' rated properties are the most energy efficient and will tend to have the lowest energy bills.

Building Energy Rating

kWh/m²/yr

MOST EFFICIENT

A scale of energy efficiency ratings from A1 to G. A1 is the most efficient (<=25 kWh/m²/yr) and G is the least efficient (>450 kWh/m²/yr). The current rating is A3, with a calculated annual CO₂ emissions of 13.6 kgCO₂/m²/yr.

Rating	Energy Use (kWh/m ² /yr)
A1	<=25
A2	>25
A3	>50
B1	>75
B2	>100
B3	>125
C1	>150
C2	>175
C3	>200
D1	>225
D2	>260
E1	>300
E2	>340
F	>380
G	>450

LEAST EFFICIENT

Carbon Dioxide (CO₂) Emissions Indicator

kgCO₂/m²/yr

A scale of carbon dioxide emissions from 0 (BEST) to >120 (WORST). The current rating is 13.6 kgCO₂/m²/yr.

Rating	CO ₂ Emissions (kgCO ₂ /m ² /yr)
BEST	0
Calculated annual CO₂ emissions	13.6
WORST	>120

The less CO₂ produced, the less the dwelling contributes to global warming.

IMPORTANT: This BER is calculated on the basis of data provided to and by the BER Assessor, and using the version of the assessment software quoted below. A future BER assigned to this dwelling may be different, as a result of changes to the dwelling or to the assessment software.

DEAP Version: 4.0.0



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Energy Efficiency Retrofitting Programme

2021 Programme Case Study



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Energy Efficiency Retrofitting Programme

Old Boiler vs New Boiler Savings

	Old Boiler	New Boiler	Savings*
Annual Energy Use	9,974kWh per year	6,081kWh per year	3,893 kWh per year
Carbon Emissions	2,474 kgs CO ₂ per year	1,457 kgs CO ₂ per year	1,017 kgs of CO ₂ per year
Running Costs	Average €1,277 per year	Average €778 per year	Average €499 per year

Old Boiler vs New Heat Pump Savings

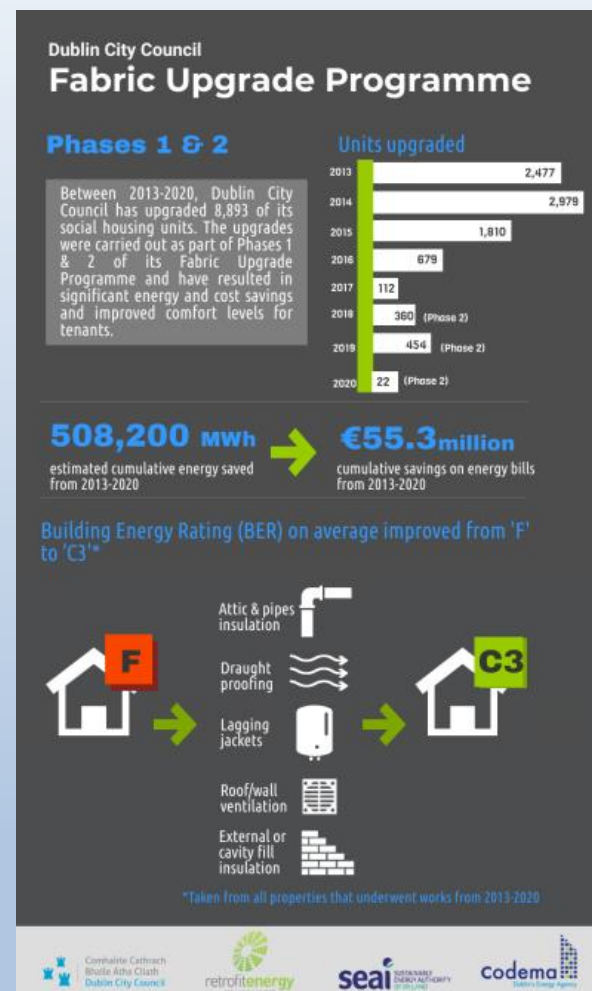
	Old Boiler	New Heat Pump	Savings*
Annual Energy Use	9,974kWh per year	2,702kWh per year	7,272 kWh per year
Carbon Emissions	2,474 kgs CO ₂ per year	1,506 kgs CO ₂ per year	968 kgs of CO ₂ per year
Running Costs	Average €1,277 per year	Average €622 per year	Average €655 per year

*Source: Codema

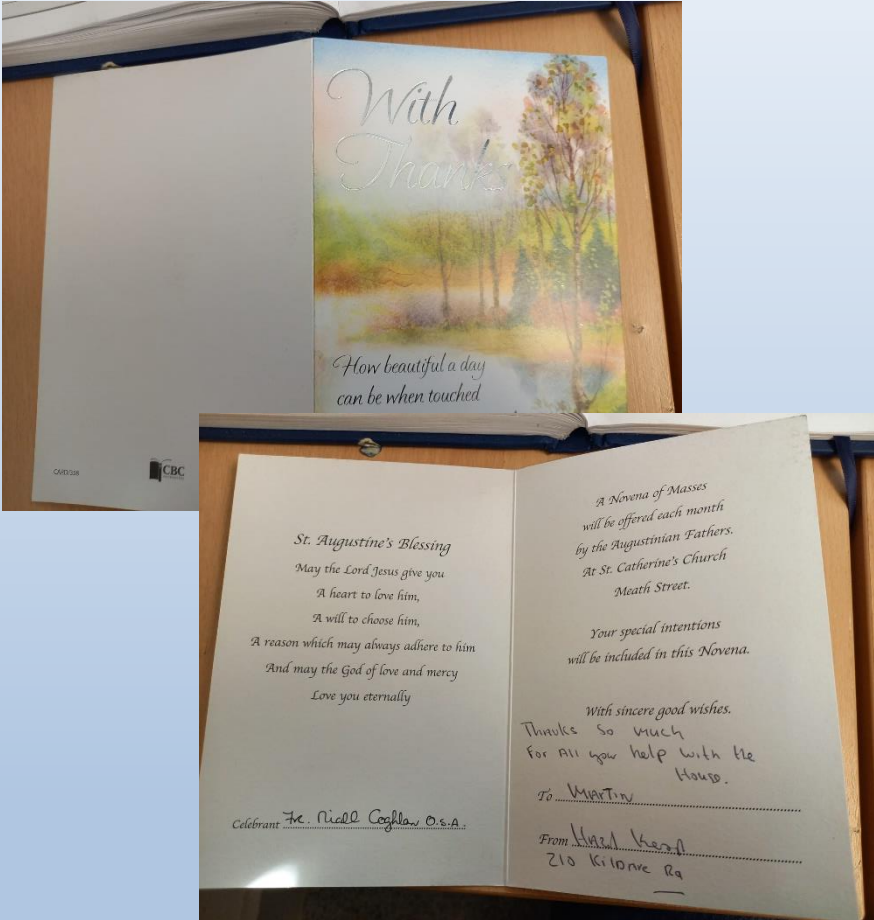
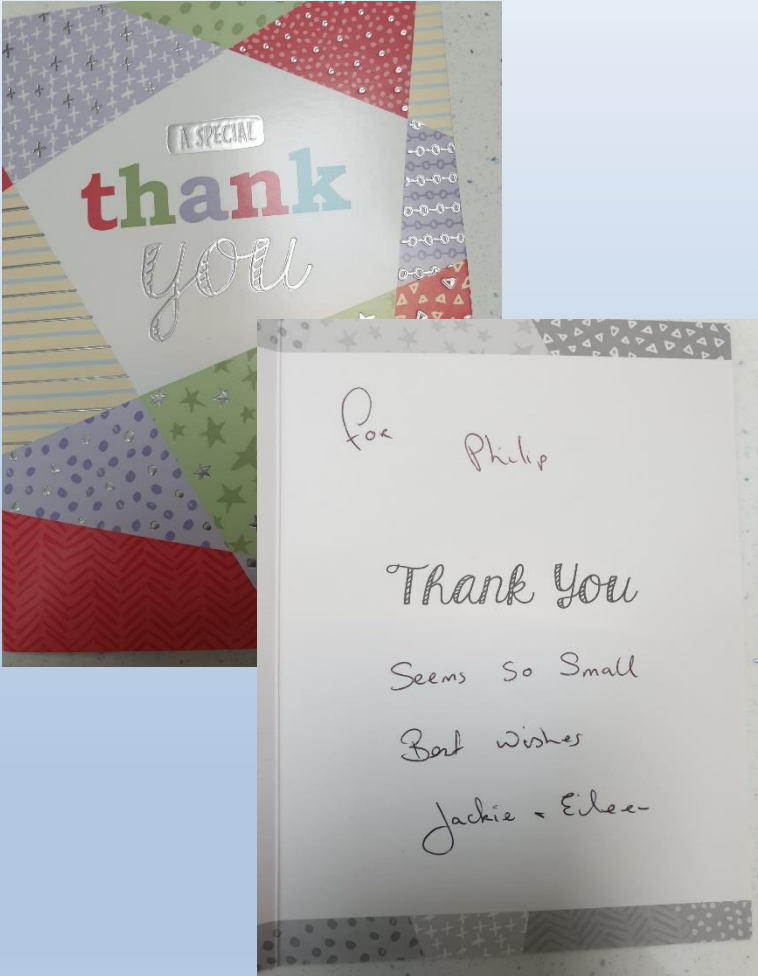
Energy Efficiency Retrofitting Programme

Results:

- Phase I Complete – 8,057 Units Upgraded
- Phase II – 836 Units Upgraded to 2020
- **Total of 8,893 Units Upgraded** to date under Phase I and Phase II of the programme
- Average BER improvement from an F to a D1 for Phase One and an F to a C1 rating achieved on Phase II
- Approximately 77% of our houses have now been upgraded under the programme
- **Estimated €55.3 Million saved in energy bills for our tenants up to the end of 2020**



Energy Efficiency Retrofitting Programme



Thank You

Shane Hawkshaw - Senior Executive Engineer