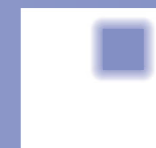


# Rendering- Useless

Construction & Demolition Waste Programme

Paul Jennings  
Emma Cottrell

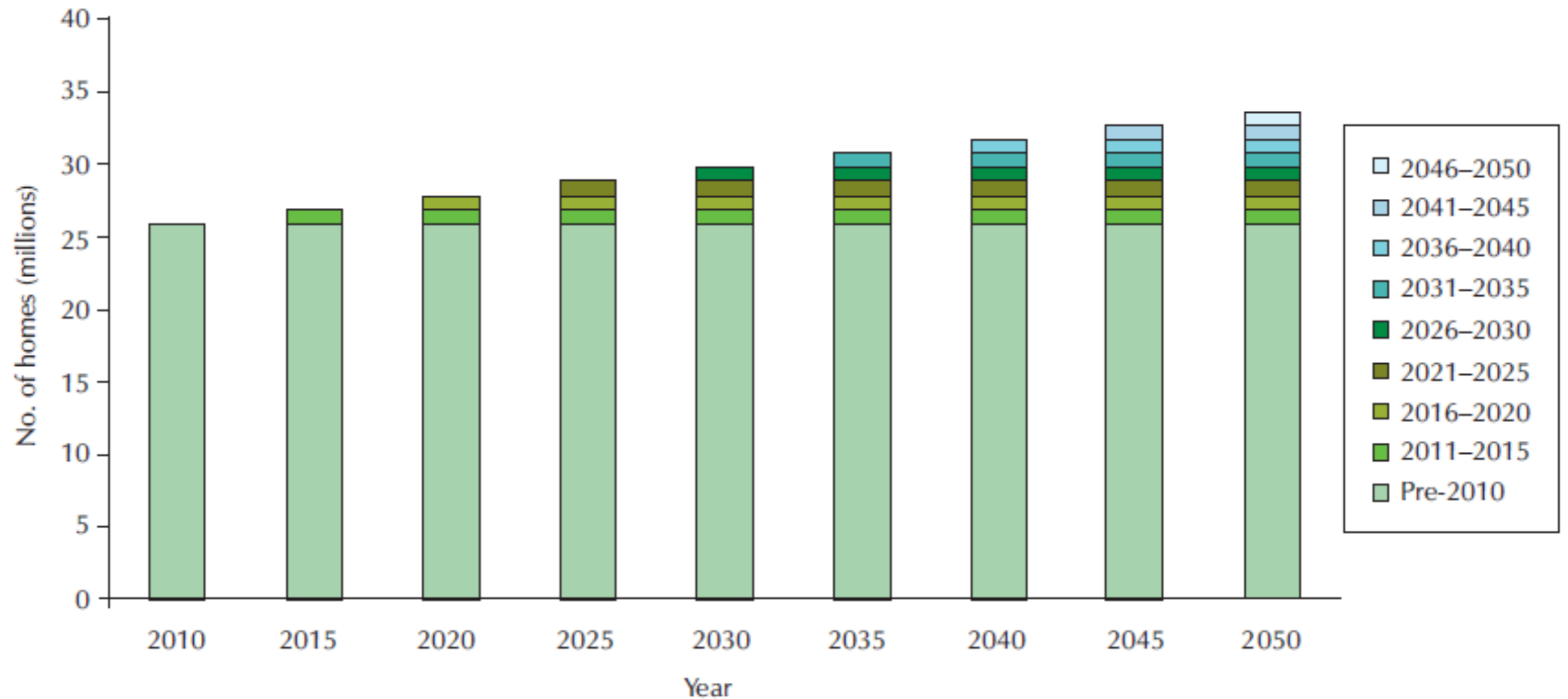
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CONSTRUCTING  
EXCELLENCE  
IN WALES

# Tackling climate change through retrofit

## Energy Efficiency Standards for Existing Dwellings



Source: "energy efficiency in new and existing buildings: comparative costs and CO<sub>2</sub> savings", BRE Trust

# Energy efficiency measures in buildings

- Wall insulation
- Roof insulation
- Floor insulation
- Cylinder/pipe insulation
- Heating
- Air tightness improvements
- Windows
- Appliances
- Low energy lighting

Source: CE309 Sustainable Refurbishment, EST

# Wall insulation: cavity wall insulation

## Injected polyurethane foam

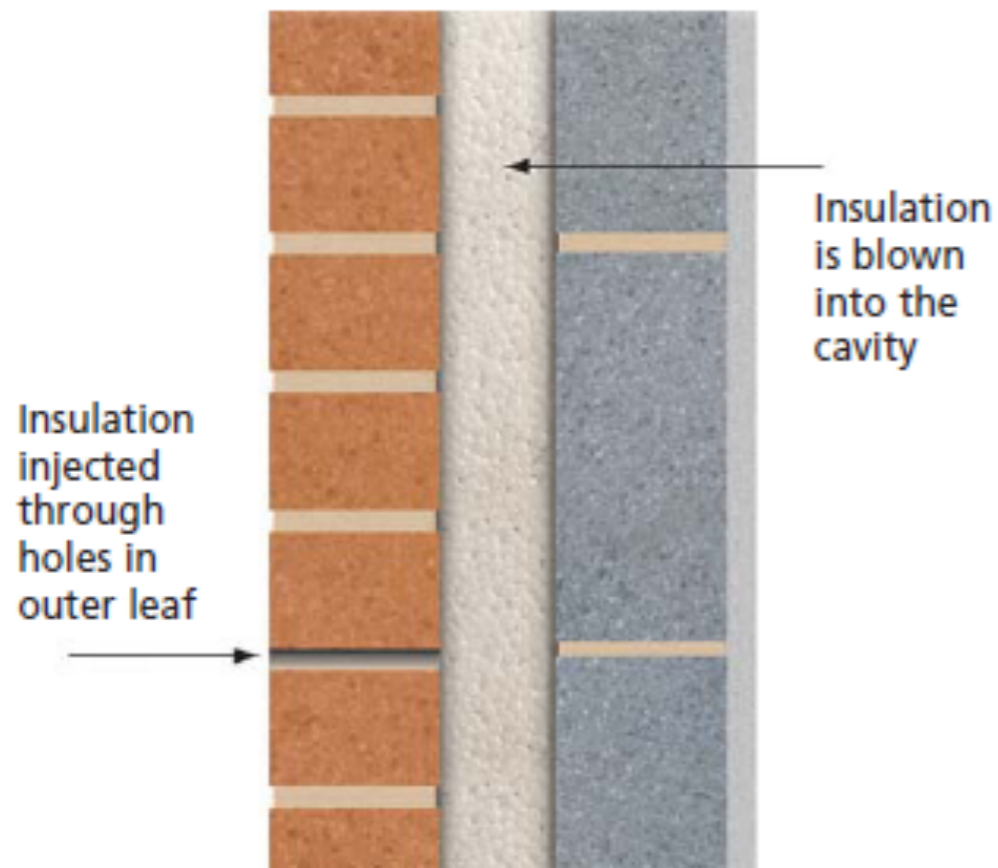


Figure 10: Insulation injected into the cavity



Figure 12: Insulation being injected into the wall

Source: CE309 Sustainable Refurbishment, EST

# Polyurethane foam

- Post blowing agent pentane - hazardous waste if above 2.5% w/w
- Typically blowing agent content of foam insulation 4 - 15% w/w

# End of Life Buildings



- 20 million tonnes demolition arisings/annum
- < 500,000 tonnes to landfill
- 200,000 tonnes hazardous waste/annum

Source: Think Pink (skips)

# Demolition black hole

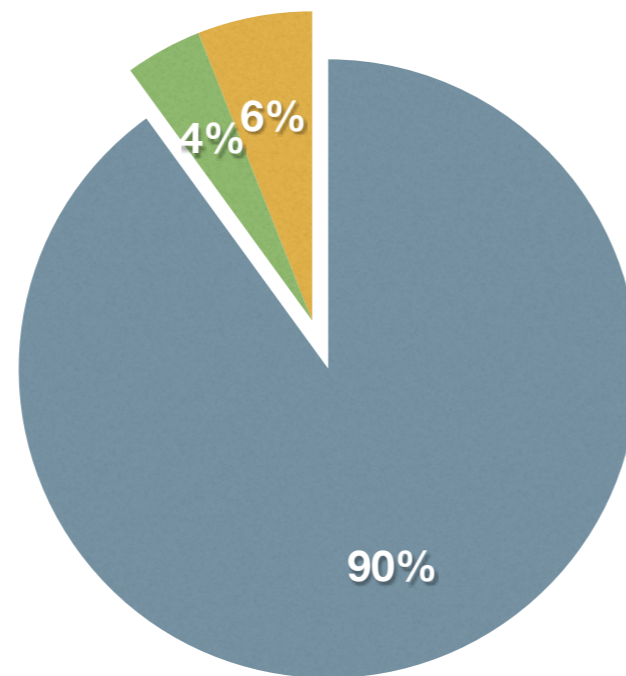
"Typically in older buildings, virtually everything can be recycled, reused or salvaged in some way. More modern buildings and refurbished buildings that, increasingly, contain materials that cannot be reclaimed or which are cross-contaminated to the point where they are rendered non-recyclable, hold no commercial value"

Source: Howard Button, Chief Executive, National Federation of Demolition Contractors

## End of Life Buildings Directive

# European ODS bank 2010

● Construction foam ● Air conditioning ● Refrigeration



Source: Official EU Journal - Review of Regulation 2037/2000 August 2008

"Around 100,000 tonnes of ozone depleting substances might be in some one million tonnes of building foam in existing buildings in the UK"

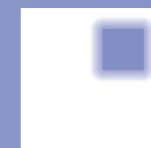
Hansard -Official Report 25 June: Vol.478, c, 304W



"By 2015 emissions from ozone depleting substance banks will erase all the reductions in global warming potential achieved under the Kyoto Protocol"

Source: UN Environmental Programme

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