populo LIVING
Making Newham home

Newham London

Great Green Lofts

Enabling 3 million homeowners to increase their living space, while reducing UK carbon emissions by up to 1 million tonnes a year.

Introduction

Almost one fifth of UK greenhouse gas emissions are from buildings. If we are to meet our 2050 Net Zero carbon target, we need to radically reduce carbon from domestic heating.

In Newham, we know first hand how hard this can be. But we also know there's no alternative. In 2019 Newham Council declared a climate emergency, and continues to explore every opportunity to reduce our carbon emissions and make our borough a greener place to live.

Populo Living and the London Borough of Newham have come up with a solution that can reduce domestic emissions of older style properties by up to 65%... while at the same time giving homeowners the extra high-quality living space and housing value they want and need, all while creating green local jobs.

We call it Great Green Lofts – and by adopting it nationwide, we could reduce UK carbon emissions by 1 million tonnes a year by 2050.

Great Green Lofts – retrofit that pays for itself

The loft spaces in period homes represent a huge opportunity to create additional living space while improving energy performance. Permitted Development allows a simple route to utilising this space, but one which delivers a sub-par result.

Great Green Lofts creates a new approach to build bigger, higher loft extensions, going beyond existing allowances.

This key incease in volume delivers additional living space with full head height, adding 2 double bedrooms and a bathroom to a conventional period home, plus the additional height allows for much higher levels of insulation to provide a warm top to the entire house.

Populo Living is piloting this apporach, to demonstrate a more efficient solution without the costs, delays and uncertainty of seeking planning permission... ... on the condition the lofts are much better insulated.

The result: a transformation in the energy efficiency of period homes, reducing energy usage, carbon emissions and heating bills... ... while creating vital extra living space in the heart of our towns and cities.

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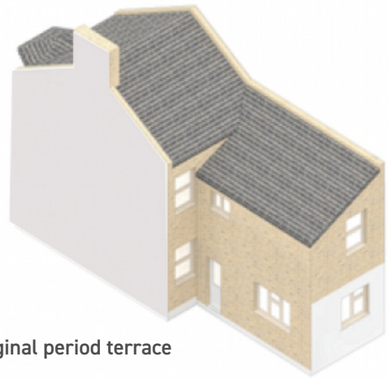
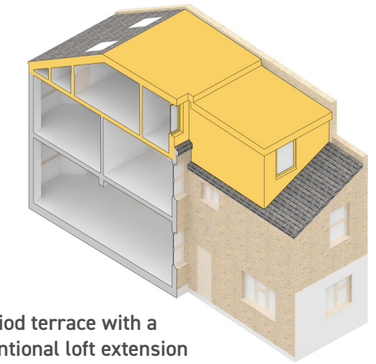
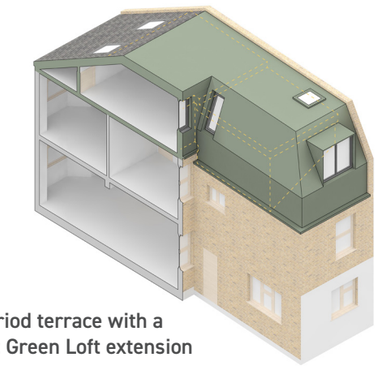


1. Original period terrace



2. Period terrace with a conventional loft extension under Permitted Development



3. Period terrace with a Great Green Loft extension

Great Green Lofts in numbers

400 sq ft

On average, total floorspace will increase from around 1,000 sq ft to 1,400 sq ft – so more room to live, work and study

7 ½ feet

Room heights that are comfortable for everyone – compared to around 6½ feet under Permitted Development rules

40 tonnes

The reduction of CO2 emissions from energy savings per property over the loft's lifetime (roughly 60 years)

3 million

The number of period terraced homes across the UK that could benefit from this approach – a million of which are in London

££,£££

"Proper" height and bigger rooms will add 10s of thousands to home value compared to a PD loft, for a relatively small additional construction cost

65%

We calculate that a Great Green Loft will reduce carbon emissons by 65% and increase the overall efficiency of these older homes

1m tonnes

Potential annual reduction in UK emissions by 2050, if just 1 in 5 period terrace properties added a Green Storey Living loft extension, eliminating the need to construct a brand new 2-bedroom flat

E→B

Retrofitting and extending could lead to a potential improvement in a home's EPC status from E to B

The problem: ‘loved but leaky’ homes

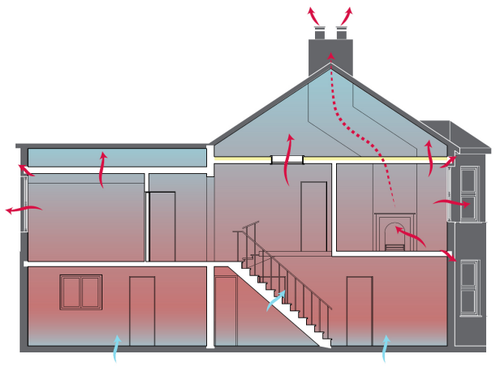
Victorian and Edwardian terraces are a familiar and such-loved feature of our towns and cities. Across the UK, there are almost 3 million. Newham has 44,000; London as a whole almost 1 million.

But from an environmental perspective, they're a problem, with most having an EPC of D/E. Built using older materials and techniques, they leak heat – through their redbrick walls, feature fifireplaces, single glazed windows and above all their roofs.

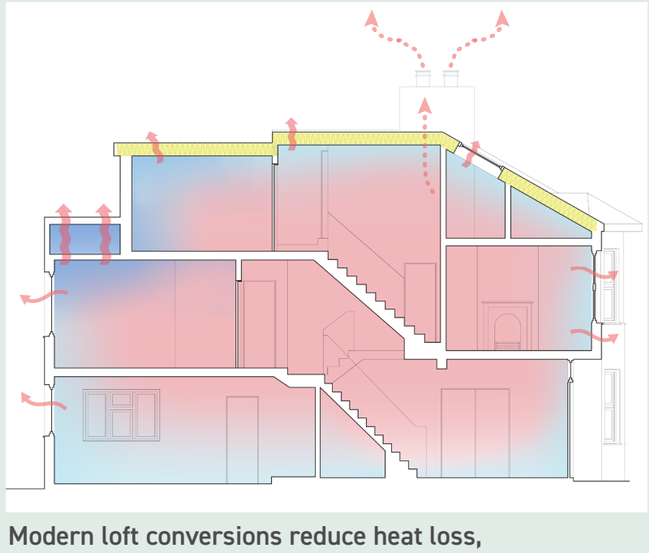
To keep warm, residents turn up the thermostat – using more energy and creating more carbon emissions.

As we strive to head to Net Zero, weurgently need a positive solution for these older homes.

Double glazing and insulation help, of course, but for many homeowners, these are high cost and high stress projects with little immediate return.



As well as being bad for the planet, these homes are bad for the pocket: fuel bills are typically higher in older homes.



Modern loft conversions reduce heat loss, but could do so much more.

To help achieve our carbon reduction goals, we need to make loft extension – and the resulting insulation – a more attractive option for homeowners.

The solution: smarter extensions that pay dividends

More and more families are looking for extra living space in the homes they love. A loft conversion is one option – and when modern building standards are applied, including insulation, that transforms the energy efficiency of the home.energy efficient change. By doing so, it benefits communities and helps with our wider ambition to reduce carbon emissions.

Great in theory, but in practice, there's an issue...

Under Permitted Development (PD)rules – i.e. what homeowners can do without planning permission, there are restrictions on how big a loft extension can be.

- The “ridge line” – the height of the roof – cannot be raised. That means ceilings are typically low, about 2m, – only just higher than most interior doors.
- There are also limits on the overall size and floorspace allowed.

As our comparison on page 8-9 above shows, that means the space you gain is strictly limited. For a typical terraced house, it means adding one restricted height bedroom and perhaps a shower room.

If you want a bigger extension, you can seek full planning permission... but this takes longer and costs more. So most homeowners don't bother.

And if homeowners don't go ahead with loft extensions, the potential environmental benefits aren't realised.

Building on the opportunity

Every home that benefits from a Green Storey Living loft extension will become much more energy efficient. It will feature high-specification modern insulation and more airtight glazing, helping reduce the heating requirement.

But that's just the start.

A Great Green Loft extension will be encouraged to consider other ways to further improve their energy efficiency.

- Air source heat pumps
- Ground source heat pumps
- Solar PV panels
- Solar thermal / solar
- water heating
- Green roofs
- Advanced heating control

These measures – some of which are already subsidised by the Government – can reduce energy bills further and add to the positive environmental impact of Green Storey Living. Because of the increase in insulation and air tightness created through the addition of a Green Storey Living loft extension, the home is far better prepared for the addition of a heat pump, which can then operate more effectively. It's fabric-first improvements in action.

Why insulation is key to success

Between 1990 and 2025, greenhouse gas emissions reduced by 54%

Renewable energy generation has quadrupled over the last decade and over 65% of our electricity now comes from low carbon sources.

But to achieve Net Zero Carbon by 2050, we need to do more.

According to official figures in 2019, homes accounted for 15% of UK greenhouse gas emissions.

The Climate Change Committee has calculated, under its 'balanced pathway' to Net Zero, that emissions from homes need to fall by around 40% by 2035, and to nearly zero by 2050.

Today's green construction standards mean that newly built homes are highly energy efficient.

But millions of people live in older homes, that fall way short of those standards.

We urgently need to find ways to improve the energy efficiency of thesehomes, that actively encourage and motivate homeowners to take action.

Great Green Lofts offers a brilliant solution to this challenge.

Emissions from homes need to fall by around 40% by 2035, and to nearly zero by 2050.

Great Green Lofts actively encourages owners of older terraced homes to invest in energy efficient change. By doing so, it benefits communities and helps with our wider ambition to reduce carbon emissions.

For homeowners

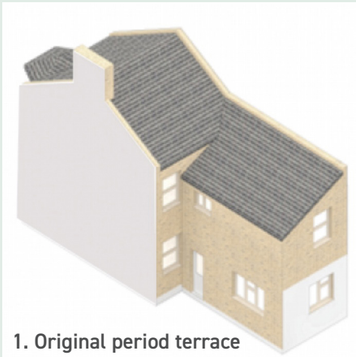
- **Creates a whole new storey of living space in a home and neighbourhood they love**
- **Supports intergenerational living and home working**
- **Reduces heating demand = lower**
- **energy bills**
- **Increases the value of the home**

For our towns and cities

- **Gives new life to well-loved period homes**
- **Avoids building on precious green space**
- **Reduced heating demand = less air pollution**
- **Keeps families and communities together**

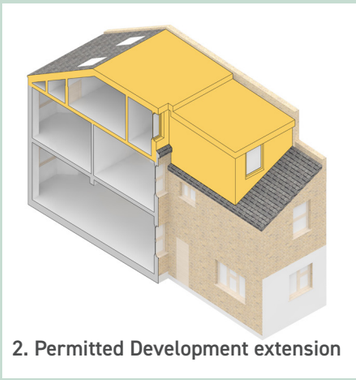
For the planet

- **Big cut in carbon emissions from domestic heating**
- **No need for demolition – less waste, less noise, less pollution**
- **Opportunity to embrace lowcarbon/renewable energy**



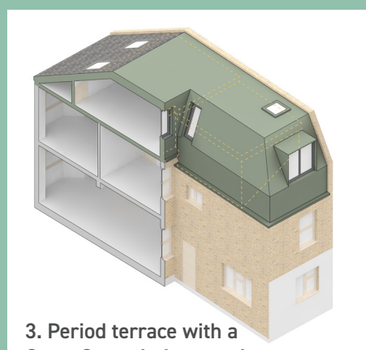
1. Original period terrace

Bedrooms	**3 bedrooms**
Bathrooms	**1 bathroom**
EPC	**D/E**
Fuel bills / insulation	**High fuel bills – poorly insulated**
Space	**Overcrowded**
Cost	**n/a**
Value uplift	**n/a**



2. Permitted Development extension

Bedrooms	**4 bedrooms**
Bathrooms	**1 bathroom, 1 shower room**
EPC	**Up to C/D**
Fuel bills / insulation	**Saves 15-30% on fuel bills**
Space	**Up to 40m3 extra space**
Cost	**Extension cost: £65,000**
Value uplift	**£80,000 (based on market prices)**



3. Period terrace with a Great Green Loft extension

Bedrooms	**5 bedrooms**
Bathrooms	**2 bathrooms**
EPC	**Up to B**
Fuel bills / insulation	**Saves 25-50% on fuel bills**
Space	**Up to 70m3 extra space**
Cost	**Extension cost: £65,000 - £70,000**
Value uplift	**£150,000 (estimated)**

Building on energy effiency

Great Green Lofts is a great solution but it's just a start. We're looking at additional energy saving measures to further make homes more operationally efficient. These could include:

- Air source heat pumps
- Ground source heat pumps
- Solar PV panels
- Solar thermal / solar
- Water heating
- Green roofs

These measures can reduce energy bills further and add to the positive environmental impact of Great Green Lofts. Because of the improved insulation and air tightness the home is far better prepared for the addition of a heat pump, which can then operate more effectively. It's fabric-first improvements in action.

Live greener, live better

Great Green Lofts are about more than improving the environment. Loft extensions of this size and quality will improve the living environment for families across our towns and cities.

More living space

Because it provides up to 70m3 of additional living space – compared to a typical 40m3 under Permitted Development – Green Storey Living lets you create two decent-sized extra rooms when extending the home... for only a marginal increase in the construction costs.

- Add two bedrooms and a bathroom to support intergenerational living.
- Provide quality study space, away from distractions, or add an office for home working.

Floor plans showing a PD loft conversion (top) in comparison to the additional space created by a Great Green Loft.

Improved wellbeing

Create rooms full of natural light and with good sized ceilings. Give different family members vital privacy. And with better insulation, the whole home – not just the loft extension – is warmer in winter and cooler in summer.

Make your money go further

The extra insulation means substantially lower heating bills, quarter after quarter – freeing up cash to support family living. Meanwhile, the extension adds a six figure sum to the market value of the home.

Together, these factors all make a Great Green Loft extension more attractive than extensions under Permitted Development.

Permitted Development loft conversion resulting in lower ceiling heights and a smaller space due to rear step in.

Great Green Lofts extension covering the whole house – creating two double bedrooms with full-height ceilings, with increased insulation to reduce heat loss.

What this means for Newham

Like many local authorities, Newham Council owns large numbers of these period terraced homes.

These homes need to be part of our future solution, with Great Green Lofts contributing to Newham's housing strategy and climate action plan by:

- helping increase the size of the Council's own housing stock – turning 3-bedroom houses into 4- or 5-bedroom homes, relieving pressure on the housing waiting list.
- keeping families together and reducing the need to move away for a bigger home. Talented young people stay in the borough and we help maintain our strong sense of community. c
- creating green jobs locally to extend homes, while supporting Newham's Community Wealth Building priorities. Data from the Association of Master ousebuilders suggests that, with multiplier effects, each loft could create the equivalent of 1.2 full time jobs.

Great Green Lofts – the pilot

We are turning theory into practice with a pilot project of Great Green Lofts in Newham, turning a sub-par three bed terraced home into a five bedroom dwelling fit for the future.

Populo identified several possible homes to trial the loft extension model. With a property identified work is underway to strip out the building as part of a wider retrofit, with a Great Green Loft addition.

The pilot will refine the approach and the completed home will be used to monitor performance. The process will also inform the model, and we expect it to generate new ideas and approaches to further improve energy performance.

We will also be reviewing how private owners could finance such a greener extension, to support the borrowing process and added value.

The project is of national signficance, as it offers a way to unlock more liveable space while generating retrofitting benefits.

These could be applied to local authority stock to create capacity to alleviate overcrowding, could support the creation of new dwellings and could be applied to private housing as well.

Great Green Lofts involves a planning application as it goes beyond Permitted Development, but we hope the pilots will encourage the development of new routes to streamlining the process. This could involve the creation of a Local Development Order (LDO) to create areas where the approach is allowable.

Wider support

Government can help implement this nationwide to support our wider ambition to reduce carbon emissions.

1. Support the pilots and add data analysis to demonstrate the full cost/benefits for London and nationwide so that this initiative can be integrated into the current grant programmes.

2. Use that analysis to put in place Local Development Orders, London Supplementary Planning Guidance or changes to national planning policy so these same changes can be widely available to houseowners nationally.

3. Trial an exemption from VAT on these pilots and across Newham. We can then analyse the VAT tax sacrificed against improved take up incentive and additional income tax generated by additional take up and removal of VAT avoidance behaviours.

4. Support further research into the rest of the retrofit challenge on period properties. Fund a trialling of new approaches to materials with Newham and the new UCL campus on the Queen Elizabeth Olympic Park.

5. Support local businesses to develop the skills and knowledge to build energy-efficient loft extensions across the whole UK.

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